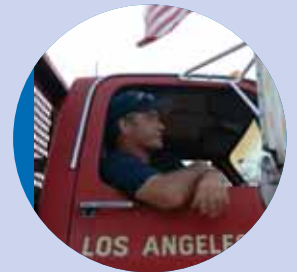
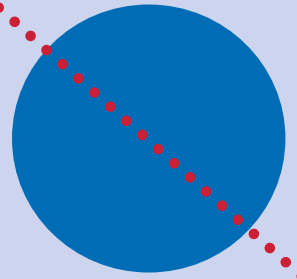


# Broken Connections

*Hurricane Katrina shed light once again on a fracture in America's public safety shield—the lack of adequate communications among public safety responders*

By John J. Mountjoy



**W**hen Hurricane Katrina ravaged the Gulf Coast in late August, it became the latest event added to a growing list of emergencies and disasters in which public safety responders were unable to effectively communicate. While many aspects of the delayed response were legitimately blamed on damaged or destroyed communications infrastructure, a major impact was the lack of communications interoperability built into the local, regional and state level public safety communications systems.

While television shows and movies portray public safety personnel as seamlessly coordinated in their communication and response efforts and while disaster reaction plans call for faultless and constant communication, this is not a realistic portrayal. Police departments usually communicate with their firefighting and EMS partners through communication centers, or via radio operators shuffling messages back and forth between agencies. Worse still, some agencies use commercial cellular phones to plan and respond to critical incidents and tactical situations.

With more than 2.5 million public safety first responders in the United States, communications interoperability among the 50,000 local, state and federal agencies is critical to ensuring effective and prompt emergency response.

## What Is Interoperability?

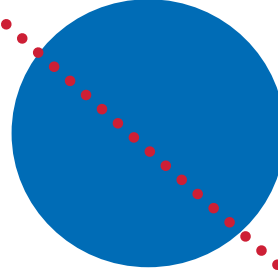
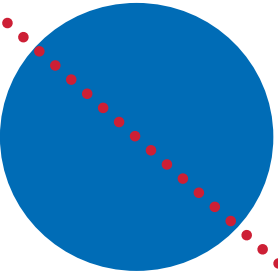
Public safety communications interoperability is the ability of public safety, fire and rescue, and emergency management personnel to talk seamlessly over one radio and data system without hindrance, and across a wide area, such as a city, county or region. Public safety communications interoperability, far from being a new invention, has been a desire of law enforcement, fire and rescue personnel for the past 40 years. The technology

exists to make true interoperability a reality, but obstacles exist—including funding, standards, governance, radio spectrum and cooperation.

During the terrorist attacks of September 11, 2001, the issue of public safety communications interoperability came to a head. As police and fire and rescue personnel swarmed the Twin Towers, communications were either nonexistent, or fragile interoperable systems quickly broke down. While police received the command to evacuate as signs of collapse became apparent, fire and rescue personnel did not.

Sixty police officers died in the subsequent collapses, but more than 340 fire and rescue personnel lost their lives. According to a University of New Hampshire Advanced Technology in Law and Society Project study (ATLAS), non-interoperable communications were at least partially to blame.

During the Oklahoma City bombing, responding agencies used different radio systems on different frequencies. The solution: runners carried messages between the different command centers. In Littleton, Colorado, the Columbine school shooting showed how a lack of communications interoperability among the 46 responding agencies cost precious response time while violent activity was still underway in the school.



## State Responses

In the wake of September 11, states and localities have made significant efforts to address the interoperability problem. While the problem was not created by the terrorist attacks, the issue has certainly been elevated in importance. During the 2002 Winter Olympic Games in Salt Lake City, Utah, state officials used a new statewide public safety communication system known as UCAN (Utah Communications Agency Network). Developed in anticipation of the games, Gov. Mike Leavitt called for its creation in 1993 and the system became operative in 1999. During the course of the 17-day games, UCAN handled 8.5 million transmissions and at its busiest, routed 580,000 transmissions in one 24-hour period. Designed to allow public safety officials across the state to communicate immediately, the system greatly benefited the games and shines as an example for other state/local efforts. UCAN is also an example of a state creating its own solution, with only 20 percent of the \$40 million price tag covered through federal grants.

The issues public safety agencies currently face regarding interoperability are numerous and include the following topics.

### Expensive Technology

- Radio equipment is costly, and the new third-generation wireless technology—which provides mobile and satellite-based broadband capabilities—is out of reach for most local agencies, especially considering that one modern “walkie-talkie” can cost up to \$2,000. Different jurisdictions use different equipment and frequencies, and agencies in the same community often have difficulty talking. While civilian technology drops in cost, reliable, rugged

and effective communications tools for public safety and emergency responders remain prohibitively expensive.

### Spectrum

- Radios must operate on specific and clear frequencies, and the number of useable frequencies is limited. Most frequencies are used or reserved for other functions, such as television broadcasts or cellular phones. Spectrum is finite and is an invaluable resource for public safety and emergency responders.

The move to high-definition television (HDTV) may be key in improving interoperability because HDTV broadcasts on a different frequency than traditional television. For years, public safety communicators have eyed these television frequencies as ideal and useful, because they blanket a wide area and can accommodate many users. Based on 1997 congressional action, the HDTV transition will not only improve the quality of television entertainment, but will contribute to better public safety communications interoperability.

### Standards and Governance

- No uniform standard for public safety communications exists. Rather, a patchwork of systems, frequencies and protocols exists across the country, between agencies and in different jurisdictions within each state. Before true public safety communications interoperability can succeed, a shared set of standards at the local, state, regional and federal levels must be developed. The problem has been one of autonomy and independence. Communities and states have developed systems that met their standards and needs, but failed to take into account the needs of other communities and agencies in their area. As a result, few systems can communicate. To alleviate this gap, leadership and cooperation at various levels of government and between all relevant agencies must take place.

### Resources and Funding

- Money is a primary interoperability issue. The systems in place around the country today, although inadequate for modern public safety needs, would cost \$18 billion to replace, not to mention the enormous cost of purchasing and installing new, modern, third-generation systems. While money is a stumbling block, especially in this time of fiscal austerity, creative solutions can help. Local, state and federal agencies can explore cost-sharing arrangements, new agreements with vendors, interstate and regional cooperation agreements and innovative ways to fund this critical need.

### What Can States Do to Plan for Interoperability?

State officials and public safety officials can take actionable steps to improve public safety wireless interoperability in their state. According to a report issued by the Public Safety Wireless Network (PSWN), a disbanded U.S. Department of Justice initiative, states should consider the following issues when establishing an interoperable network.

## Coordination and Partnerships

- Form a state executive committee or council that reports to the governor and legislature on current developments and issues related to statewide and regional interoperability.
- Participate in statewide, regional and national outreach and education initiatives aimed at improving public safety wireless interoperability, such as the PSWN program's regional symposiums.
- Establish memoranda of understanding among public safety agencies that define interoperability procedures.
- Include interoperability success as an element of the governor's State of the State address.

## Funding

- Establish public safety interoperability as a fiscal priority.
- Identify current and sustained funding for developing a shared system within your state.
- Research successful funding strategies used by other states.

## Spectrum

- Retain a professional spectrum manager to provide coordinated, high level policy guidance and direction to all public safety spectrum users.
- Implement strategies for the efficient use of radio frequency spectrum.
- Ensure that the state fully participates in Federal Communications Commission rulemaking activities that impact frequency allocation for public safety use.

## Standards and Technology

- Ensure all new communications systems acquisitions are consistent with an accepted wireless standard.
- Fully explore and test viable new technologies, such as Voice over Internet Protocol (VoIP) as potential options for system architecture.
- Remain keenly involved with standards development activities to ensure that state requirements are accurately reflected in emerging standards.

## Security

- Understand the potential security threats and risks associated with public safety communications systems.
- Establish a statewide security policy that provides maximum coverage to all agencies that could participate in a statewide or regional shared system.
- Ensure adequate funding is available to secure existing systems and strive to fund only those systems with security policies and plans in place.
- Identify federal security requirements that would allow secure joint participation on major communications systems.

## Model Interoperability Plan

The Department of Homeland Security's SAFECOM Program has developed a model statewide interoperability plan.

The Statewide Communications Interoperability Planning (SCIP) Methodology was collaboratively developed and tested by the Commonwealth of Virginia and SAFECOM to create a statewide network in 2004.

"This approach is designed to ensure that local public safety officials play an active role in developing the plan so that it will meet their practical needs," said David Boyd, SAFECOM director.

The SCIP Methodology offers 10 essential planning phases that all states can use to create their own statewide communications plan. They include:

- establish key relationships and funding;
- gather information;
- create project plan and road map;
- identify roles and responsibilities for project team;
- recruit focus group participants and meeting preparation;
- conduct focus group interviews;
- analyze data and prepare for strategic planning session;
- prepare and conduct a strategic planning session;
- develop statewide communications interoperability strategic plan; and
- guidelines for the first 90 days of implementation.

State public safety officials who are interested in developing a strategic plan for improved statewide interoperability can find the model at [www.safecomprogram.gov](http://www.safecomprogram.gov).

## Web Resources

National Institute of Justice: Communications Technologies (CommTech): [www.ojp.usdoj.gov/nij/topics/commtech/](http://www.ojp.usdoj.gov/nij/topics/commtech/)

National Task Force on Interoperability Report: Why Can't We Talk?—A Guide for Public Officials: [www.justnet.org/pdf/files/ntfi\\_guide.pdf](http://www.justnet.org/pdf/files/ntfi_guide.pdf)

National Institute of Standards and Technology: Public Safety Communications Standards: [www.eeel.nist.gov/oles/public\\_safety.html](http://www.eeel.nist.gov/oles/public_safety.html)

Justice Technology Information Network: [www.justnet.org](http://www.justnet.org)

Association of Public Safety Communications Officials, International: [www.apcointl.org](http://www.apcointl.org)

U.S. Department of Justice: Global Justice XML Data Model: [http://it.ojp.gov/topic.jsp?topic\\_id=43](http://it.ojp.gov/topic.jsp?topic_id=43)

National Telecommunications and Information Administration: [www.ntia.doc.gov](http://www.ntia.doc.gov)

—*John J. Mountjoy is director of CSG's National Center for Interstate Compacts and served on the National Task Force on Interoperability in 2003.*