

# ***Why Can't We Talk?***

## **interoperability**

**Working Together To Bridge the  
Communications Gap To Save Lives**

*A Guide for Public Officials*



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NATIONAL TASK FORCE ON INTEROPERABILITY

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## Working Together to Bridge the Communications Gap to Save Lives

### *A Guide For Public Officials*

In an era where technology can bring news, current events, and entertainment to the farthest reaches of the world, many law enforcement officers, firefighters, and emergency medical service personnel working in the same jurisdiction cannot communicate with one another. The inability of our public safety officials to readily communicate with one another threatens the public's safety and often results in unnecessary loss of lives and property. Recognizing that solutions to this national issue can only be achieved through cooperation between all levels of government, 18 national associations representing State and local elected and appointed officials and public safety officials formed a task force to address this issue. This guide is the result of the significant commitment by members of this task force who shared their knowledge, experience, and wisdom. Member associations include the following organizations.

*On September 11, 1996, 5 years to the day before the 9/11 terrorist attack, the Public Safety Wireless Advisory Committee (PSWAC) released its final report, which stated that "unless immediate measures are taken to alleviate spectrum shortfall and promote interoperability, public safety will not be able to adequately discharge their obligation to protect life and property in a safe, efficient, and cost-effective manner." Several years later, public safety is still grappling with inadequate spectrum and radio communication systems that do not communicate with one another.*

- Association of Public Safety Communications Officials - International, Inc.
- International Association of Chiefs of Police
- International Association of Fire Chiefs
- International City/County Management Association
- Major Cities Chiefs
- Major County Sheriffs' Association
- National Association of Counties
- National Association of State Chief Information Officers
- National Association of State Telecommunications Directors
- National Conference of State Legislatures
- National Criminal Justice Association
- National Emergency Management Association
- National Governors Association
- National League of Cities
- National Public Safety Telecommunications Council
- National Sheriffs' Association
- The Council of State Governments
- The United States Conference of Mayors

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For more information on interoperability, updated material, and supplemental resources to this guide, visit [www.agileprogram.org/ntfi](http://www.agileprogram.org/ntfi).

## *Executive Summary*

# **Why Can't We Talk?**

**NEW YORK CITY**—Hundreds of firefighters and police officers rushed to a devastating, chaotic scene to rescue victims from the attack on the World Trade Center. As police and firefighters swarmed the building searching for survivors, incident commanders outside were hearing warnings from helicopters circling the scene from above that the towers were beginning to glow and were dangerously close to collapse. Radio communications were a lifeline for the hundreds of police officers who received the word to evacuate the building—all but 60 police officers escaped with their lives. Tragically, hundreds of New York firefighters didn't receive that warning because they were using a different radio communications system. Totally unaware of the impending collapse, at least 121 firefighters, most within striking distance of safety, according to *The New York Times*, died. A report from the University of New Hampshire-based, ATLAS Project stated, "From numerous interviews gathered as part of a fire department inquiry into the events of September 11th, it would appear that non-interoperability was at least partially responsible for the loss of 343 firefighters at the World Trade Center."

**LITTLETON, COLORADO**—A few years earlier in Littleton, Colorado, 46 public safety agencies responded to the shooting spree inside Columbine High School. Precious minutes were lost because command personnel were forced to send runners to communicate crucial information. Incompatible radio communication systems were a significant factor, according to the Columbine Review Commission.

**OKLAHOMA CITY, OKLAHOMA**—Similarly, in the immediate aftermath of the Oklahoma City bombing, the ATLAS Project reports that first responders had to use runners to carry messages from one command center to another because the responding agencies used different emergency radio channels, different frequencies, and different radio systems.

**OHIO RIVER, INDIANA**—As floodwaters from the Ohio River rose to record levels, the Department of Natural Resources, the Indiana National Guard, the State Emergency Management Agency, and local law enforcement agencies fought to protect the lives and the property of people in dozens of southern Indiana communities, towns, and cities. According to the Indiana Department of Natural Resources, communication between the responding agencies was crucial to the rescue effort. However, the only interagency communications were public safety officials literally yelling to each other across the flooded rivers because their radio systems were incompatible.

## Did you know?

You grew up watching cop shows on television. When the police were in trouble, they could pick up the radio anywhere, anytime, and help would instantly arrive. In reality, this is often not the case. Did you know that law enforcement, emergency medical services (EMS), and firefighters sometimes have to juggle as many as five different radios because each agency communicates on different systems? Do you know how often agencies cannot talk to one another or to agencies in their neighboring cities, counties, or States? Is yours one of them?

While events of the magnitude of 9/11 or Oklahoma City do not occur every day, there are many other daily events that require different agencies and different jurisdictions to be able to communicate with one another. Incidents such as traffic accidents, missing children, fires, high-speed chases, rescues, and chemical spills occur with frightening regularity and they know no boundaries. When they occur in your community, region, or State, will your public safety agencies be able to talk to one another?

## What is interoperability?

It is the ability of public safety agencies to talk to one another via radio communication systems—to exchange voice and/or data with one another on demand, in real time, when needed. Most people assume that public safety is already interoperable. In many cases, public safety officers cannot even talk to their own agencies.<sup>1</sup>

Public perceptions are shaped by the news shows and articles, movies, and television that tell a different story from the true state of public safety communications. The public that reads news stories about computers in patrol cars, amazing life-saving technologies in rescue vehicles, and the latest state-of-the-art dispatch center may find it difficult to believe that their public safety agencies cannot talk to one another.

## Public safety agencies can't talk to each other—why not?

Five key reasons—incompatible and aging communications equipment, limited and fragmented funding, limited and fragmented planning, a



*“It is more than obvious that something is wrong when the only way for police officers from neighboring departments to communicate with one another is to pull their cruisers side by side and roll down their windows.”*

*TechBeat, Fall 2000,  
National Institute of  
Justice*

1. Interoperability refers to the ability to exchange both voice and data communications. When the word “talk” is used throughout this guide, it refers to data as well as voice communications.



*Los Angeles, July 2002—According to Associated Press reports, officers responding to the shooting at the El Al ticket counter at Los Angeles International Airport missed crucial information because they weren't using the same radio frequency.*

lack of coordination and cooperation, and limited and fragmented radio spectrum. This guide examines these traditional critical barriers to interoperability and provides information on what needs to be done to overcome them and how you as a public official can help.

*WHY CAN'T WE TALK? Working Together To Bridge the Communications Gap To Save Lives*, was developed as a result of the ongoing dialogue among State and local elected and appointed officials and public safety officials. In this guide, these types of officials are referred to collectively as “public officials.” Public officials include elected and appointed officials at every level of government, working to serve the public in a variety of roles, such as governors, mayors, State legislators, city and county council members, city and county managers, police chiefs, fire chiefs, sheriffs, chief information officers, and chief communications officers. This guide is designed to provide public officials with easy-to-comprehend information on interoperability.

- *Why Can't Public Safety Agencies Talk?*, discusses the definition of interoperability, the importance of interoperability to public officials, and the role public officials play in interoperability.
- *Five Key Reasons Why Public Safety Agencies Can't Talk*, discusses the barriers to interoperability—incompatible and aging communications equipment, limited and fragmented planning and funding, a lack of coordination and cooperation, and limited and fragmented radio communications spectrum.
- *Are You Prepared?*, discusses evaluation and assessment of public safety radio communication systems and financial resources and provides interim technology strategies to achieve interoperability.
- *How Can You Achieve Interoperability?*, discusses planning for interoperability, and the role of Elected and Appointed Officials in the planning process.
- *Governance Structures for Improving Interoperability*, discusses what a Governance Structure is and why it is necessary, examples of mechanisms for creating governance structures and the key element of leadership.
- *Funding Strategies for Achieving Interoperability*, discusses developing a funding strategy, cost-cutting measures, presenting a case, presenting the case for funding interoperability and financing methods.



- *Why Radio Spectrum Matters to You*, provides a historical perspective of spectrum, a discussion of the additional spectrum that has been allocated but not yet made available to public safety, and technologies that can increase the efficient use of spectrum.

## Where are you now? What is the status of your public safety radio communications?

The basic questions to consider are: What types of emergencies typically occur in your community, region, or State and which public safety agencies would respond to each of them? Some incidents like traffic accidents occur daily. How about major crimes like bank robberies or large-scale fires or natural disasters like hurricanes? Who needs to talk to one another every day? Who should be able to communicate and share data in the first 8 hours of an emergency? Who will need to be added to that initial group if the emergency continues for longer than 8 hours? Once you know the answers to these questions, assess your resources. For example, what existing communications infrastructure such as radio towers do you already have? What financial resources are budgeted for public safety communications? This guide provides suggested tools for beginning to answer these and other questions.

## How much will this cost?

There are several issues to consider, including what is *already* being spent on public safety communications in your area and how much it will cost if you *do not* develop interoperability. Planning for interoperability can be incorporated into the process of replacing and upgrading radio communication systems. Individual costs will depend on the state of communications in your area and which short-and long-term direction you choose to follow. The nationwide investment in radio systems and supporting infrastructures is substantial. As agencies replace aging equipment and adopt new technologies, the amount of money invested in communications equipment will continue to grow. This guide provides ideas on how to reduce costs and identify and develop financial resources to improve interoperability.



## **How can you achieve interoperability?**

Planning is critically important. This guide provides information on planning, establishing governance structures, and interim technology strategies.

### **A vision for the future—working together to bridge the communications gap to save lives**

Imagine a different public safety radio communications future. A future where no person loses a life or is injured because available information could not be shared. A future where emergency responses are coordinated, where information is shared in real time, where precious minutes are not wasted, and where emergencies are handled more effectively and safely. That future can become a reality. Your role as a public official gives you the opportunity to take the initiative. Your constituents and colleagues need to be educated about the importance of reliable, interoperable, robust public safety radio communication systems that will make it possible for local, State, and Federal public safety agencies to talk to one another by radio, to share data, to coordinate life-saving operations, and to provide a basic level of public safety. This is a job that requires public officials across jurisdictions to work together for the common good—to plan, fund, build, and govern interoperable public safety communications systems. Public officials at all levels need to put aside individual political concerns to collaborate on acceptable communications interoperability for emergency response and incident prevention. It begins with a dialogue among the stakeholders.

### **This guide is for you**

This guide was written to provide guidance for you—public officials at all levels—local, regional, State, and national. This includes, among others, governors, mayors, council members, legislators, city and county executives, city and county managers, police chiefs, fire chiefs, emergency management personnel, and chief information and technology officers. Because the guide was written for many audiences, it is intentionally broad in its message and not specifically tailored for one group or level of government. The message needs to be broad because achieving interoperability will require partnerships from you—public officials from all levels of government—working together to get the job done.



## CHAPTER 1:

# ***Why Can't Public Safety Agencies Talk?***

### **What is interoperability?**

Interoperability is the ability of public safety service and support providers—law enforcement, firefighters, EMS, emergency management, the public utilities, transportation, and others—to communicate with staff from other responding agencies, to exchange voice and/or data communications on demand and in real time. It is the term that describes how radio communication systems should operate between and among agencies and jurisdictions that respond to common emergencies. It is a common misconception that public safety responders can communicate efficiently and effectively in times of crisis. In many cases, public safety officers do not possess reliable radio communication systems that allow them to talk to their own agencies.

Popular television shows and movies portray public safety personnel as seamlessly coordinated in their communication and response efforts. The reality is quite different. When public safety agencies communicate with one another, it usually occurs through communication centers—radio operators shuffling messages back and forth between agencies—or through commercial cellular services. Neither of these methods of transmitting critical, timely information is effective. Responding to emergency incidents and tactical situations requires reliable, dedicated equipment. Every second counts. The time it takes to relay messages through more than one radio communications system or dial a cell phone can affect outcomes. Busy signals or dead zones should not occur, although inevitably they will. Public safety must have priority access to wireless communications that is available at all times.

### **Why should public officials care?**

The public looks to you—their elected and appointed officials—to provide basic public safety, guidance and management during a crisis. You are responsible for making critical funding decisions using scarce taxpayer dollars. You understand the political dynamics in your area and

Equally as critical as interoperability is the need for basic communications within public safety agencies. When the issue of interoperability is raised, public safety officials respond that they are unable to even talk to their own personnel. The first priority must be to provide public safety with mission-critical radio communication systems that provide reliable agency-specific—law enforcement, fire, EMS—communications. (Mission-critical radio communications are those required when life or property is at stake.) As jurisdictions build or upgrade current systems, that priority should be expanded to include the provision of reliable and interoperable local and regional communications, and, ultimately reliable local, State, and Federal communications.

*The [terrorist attack of the] Pentagon demonstrates in a very public way how critically important communications capabilities are for public safety agencies. Imagine the challenge of 50 different local, State, and Federal public safety agencies responding at the Pentagon—900 different radio users, operating on multiple radio systems, and attempting to communicate with one another.*

*The Pentagon report found that the majority of local public safety responders at the scene experienced little difficulty establishing interoperable communications during the initial response. Due to existing mutual aid agreements, most of the first responders had [common] radio frequencies pre-programmed into their portable radio equipment and had frequently used the capability for other mutual aid responses.*

*Robert E. Lee, Jr., PSWN [Public Safety Wireless Network] Program Manager.*

in the surrounding jurisdictions.

Ultimately, public safety is a core function for governments. Adequate public safety radio communications are essential to executing the public safety function promptly, effectively, and cost efficiently.

Understanding the current status of public safety communications systems in your area—its capabilities and limitations and plans for upgrading or replacing those systems—is critical. If your public safety agencies cannot communicate directly with one another to coordinate life-saving activities, inevitably some lives may be lost.

## What is the role of public officials?

Creating interoperability requires leadership, planning, and the development of partnerships among disparate groups at the local, State, and Federal level. Not only do governments at each of these levels have responsibility for the protection of lives and property, each expends substantial resources in an effort to meet these obligations. Without a collaborative approach to interoperability, new investments in equipment and infrastructure can actually make the problem worse by creating a "we just bought new equipment, that's their problem" situation. Interoperability is everyone's problem.

The Nation is experiencing a changing public safety landscape. Budget problems have driven governments to leverage scarce resources. Homeland security needs have broadened public safety's mandate to include responses to bioterrorism and cyberterrorism. The health community has become more prominent in the public's eye as fear of West Nile virus, anthrax attacks, and the specter of smallpox grows. Citizens expect the public sector to function like a business—consistent and effective customer service, everywhere and at any time. Ultimately, the public expects their lives and property to be protected by all governments—local, State, or Federal—without distinction as to who responds to their needs. The public also expects governments to work smoothly and efficiently with the private sector when necessary.

Although the roles and responsibilities of public safety agencies are overlapping and at times unclear, it is clear that many public safety responses require effective coordination and communication among different agencies and levels of government. A high profile incident—a bombing, plane crash, natural disaster, or lost or kidnapped child—tests the ability of all government and public safety organizations to

## Why Can't They Just Use Cell Phones?

Unfortunately it's not that simple. Although public safety personnel regularly use cellular phones, personal digital assistants (PDAs), and other commercial wireless devices and services, these devices are currently not sufficiently suited for public safety mission-critical communications during critical incidents.

Public safety officials cannot depend on commercial systems that can be overloaded and unavailable. Experience has shown such systems are often the most unreliable during critical incidents when public demand overwhelms the systems.



Public safety officials have unique and demanding communications requirements. Optimal public safety radio communication systems require:

- Dedicated channels and priority access that is available at all times to handle unexpected emergencies.
- Reliable one-to-many broadcast capability, a feature not generally available in cellular systems.
- Highly reliable and redundant networks that are engineered and maintained to withstand natural disasters and other emergencies.
- The best possible coverage within a given geographic area, with a minimum of dead zones.
- And, unique equipment designed for quick response in emergency situations—dialing, waiting for call connection, and busy signals are unacceptable during critical events when seconds can mean the difference between life and death.

**Is this issue**

- a.) national,
- b.) State,
- c.) regional,
- d.) local, or
- e.) all of the above?

*The answer:*

**e.) All of the above.**

Interoperability is an issue that affects every level of government and requires public officials to work together at all levels. Achieving interoperability is difficult work. Interoperability, almost by definition, must include local, State, regional, and national partnerships and input. Getting this tough job done requires partnership and leadership at all levels by people who are committed to the task and who can get and keep the right stakeholders at the table.

mount a well-coordinated response. The emergency response to the 9/11 terrorist attacks in New York City and on the Pentagon in Arlington, Virginia, vividly demonstrated that effective communication is an essential tool for those who protect life and property, regardless of who responds.

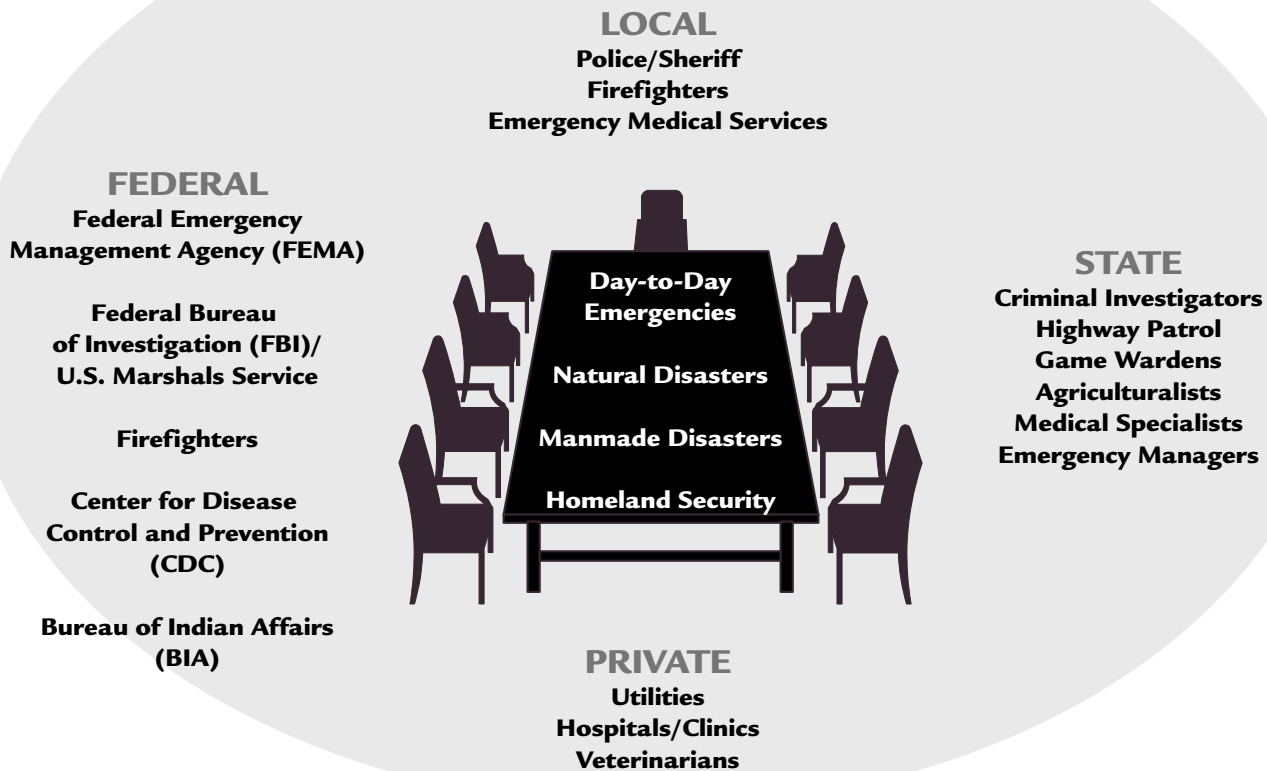
Local communities supply the majority of first responders and maintain local infrastructure. Additionally, local communities take advantage of resources such as firefighters and emergency medical services from nearby communities. But the community's first responders cannot respond in a vacuum. From manmade and natural disasters to unique situations such as anthrax or fires on Federal land, there are times when local communities require State and Federal resources to respond effectively.

## Who Is Public Safety?



According to definitions from the Public Safety Wireless Advisory Committee (PSWAC), *public safety service providers* perform emergency first response missions to protect and preserve life, property, and natural resources and to serve the public welfare through local, State, or Federal governments as prescribed by law. *Public safety support providers* include those whose primary mission might not fall within the classic public safety definition, but who may provide vital support to the general public and/or the public safety official. Law enforcement, fire, and EMS fit the first category, while transportation or public utility workers fit the second. Public safety service providers also include non-governmental organizations that perform public safety functions on behalf of the government. For example, a number of local governments contract with private groups for emergency medical services.

## Public Safety: Everybody's Business



*This list is not inclusive of the many agencies that support public safety; it is a representative sample of the different levels of government and types of agencies, public and private, that support public safety.*

Federal agencies support a number of agents within a State, many distributed in local communities, and numerous Federal agencies send staff—from firefighters to FEMA agents—into communities when trouble strikes. Their ability to communicate with local first responders and State agencies is critical to a successful response. State agencies also have a number of agents who operate within local communities, and numerous State agencies send staff such as criminal investigators or social workers into communities when trouble strikes. Their ability to communicate with local first responders and Federal agencies is critical to a successful response.

Public safety relies on many segments of private industry. First respon-

ders rely on both public and private utilities to restore critical infrastructure such as electricity and telephone service, and on the gas companies to suppress leaks or control explosions. Local, State, and Federal agencies look to both public and private hospitals, clinics, and veterinarians to carry out public safety policy, including public outreach and first response. Homeland security activities have also created new requirements for diverse private industries such as transportation centers and suppliers of explosives and fertilizer. To effectively respond to emergencies, all levels of government and industry must plan for interoperability—the ability to be in voice contact and exchange data among all emergency responders—from the outset.

State and local governments must take the lead and collaboratively formulate an interoperability architecture that provides a roadmap for all to follow. Since the transition time for all emergency responders to become interoperable may be considerable, a statewide interoperability plan and/or set of standards that can accommodate short- and long-term solutions may be beneficial. Many States, including Indiana, North Carolina, and South Dakota have successfully implemented such architectures.

There are multiple benefits to collaborative planning, but it is difficult work. Stakeholders need to anticipate and respect each other's roles and responsibilities, while recognizing that they all have a common mission—the protection of lives and property.

In short, there is a need for public officials at all levels of government to:

- Understand the importance of interoperability;
- Be able to effectively communicate the benefits of interoperability to the public;
- Understand the political and institutional barriers within the public safety community that can impede interoperability;
- Facilitate collaborative planning among local, State, and Federal government agencies;
- Encourage the development of flexible and open architectures and standards; and
- Support funding for public safety agencies that work to achieve interoperability within an agreed-upon plan.

In today's challenging world, from community safety to homeland security, effective public safety responses require that all governments work hand-in-hand for the protection of our citizens and their property.