

The Role of the

federal

government in Public Safety Wireless Interoperability



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The United States Federal Government, similar to state and local governments, is charged with protecting the public's safety.

With missions ranging from national defense to protecting our national resources, the Federal Government is dedicated to the protection of life and property across the Nation. As society has changed, so has the Federal Government's public safety mission. Today, federal agencies with public safety missions are tasked with protecting the public from a variety of new threats—school shootings, bombings at government and civilian venues, high-visibility standoffs with dangerous factions, protests and riots in reaction to social and economic developments, and heightened threats of terrorism on American soil. The public expects the Federal Government to prepare for, and respond to, major incidents of national importance, while also responding to public safety concerns that sometimes cross international boundaries. Additionally, the public expects the Federal Government to speak out on behalf of state and local public safety agencies and ensure that they have the tools necessary to achieve their mission of protecting the public's safety at their appropriate level. This diverse set of responsibilities and expectations makes the role of the Federal Government in public safety communications distinct from the role of state and local public safety agencies.

Although not typically the first responders to an emergency, federal public safety personnel must stand ready to provide a rapid, coordinated response to natural disasters, terrorist threats, and criminal activity. Like their state and local counterparts, federal public safety responders depend on sophisticated wireless communications systems to relay mission-critical information, in real time, to effectively respond to these incidents. In many jurisdictions, however, the existence of largely independent radio systems that lack the capacity to communicate with state and local agencies, or sometimes even among their own agencies, results in a potentially dangerous lack of interoperability. For example, in 1998, two U.S. Border Patrol agents were killed during a manhunt near Brownsville, Texas. Local officials have indicated that this tragedy might have been prevented had the radio systems used by responding officers been interoperable.

To avoid situations that threaten the welfare of public safety officers or the people they protect, the Federal Government must take a proactive role in resolving the issue of interoperability. Fortunately, actions at the Federal Government level can help improve public safety wireless interoperability at all levels.

What is public safety wireless interoperability?

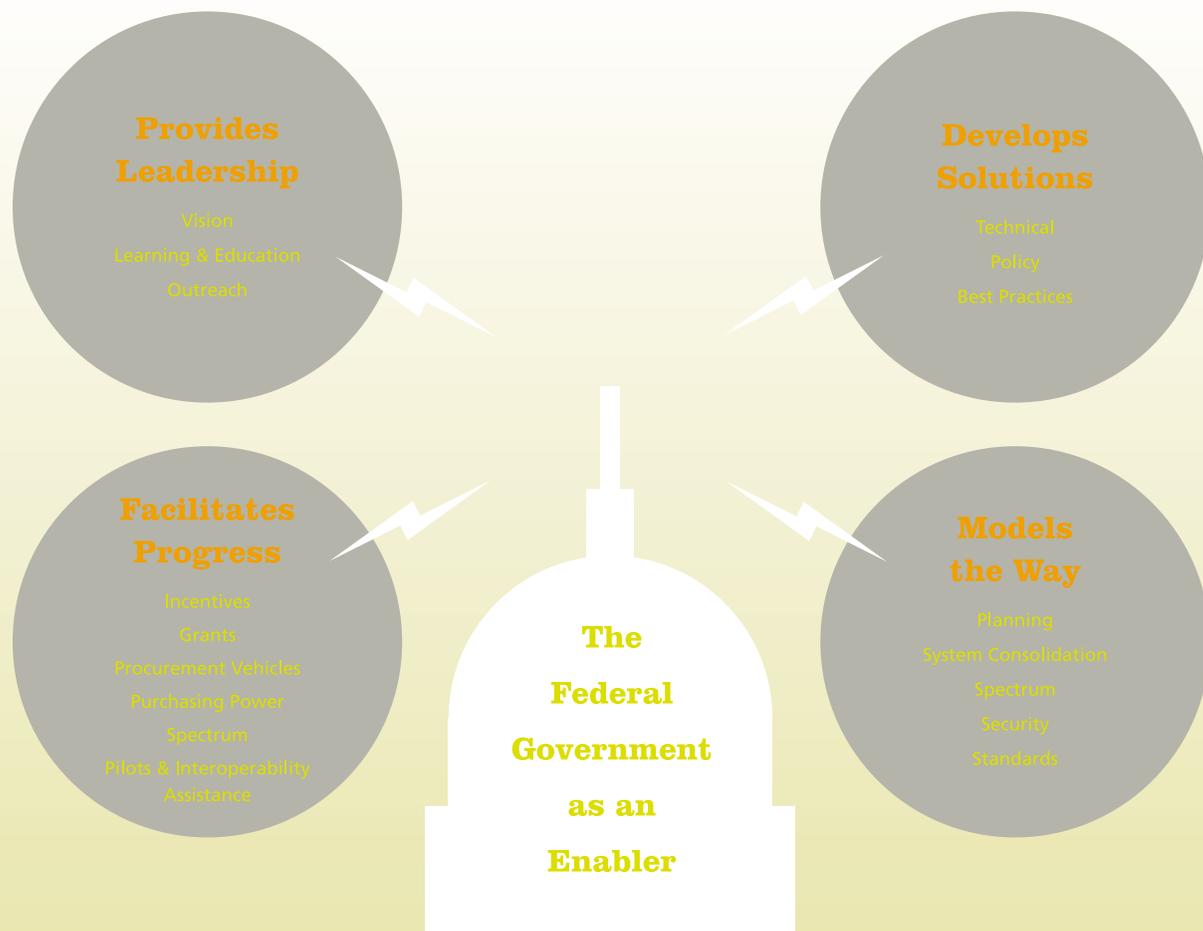
Simply put, wireless interoperability is the ability of public safety officials to communicate across different wireless systems when necessary. Radio communications are often public safety personnel's only lifeline when operating in a crisis environment. Without communications interoperability, both life and property are put at risk.

Public safety agencies must have three types of interoperability:

Day-to-day interoperability involves coordination during routine public safety operations. For example, day-to-day interoperability is required when firefighters from various departments join forces to battle a structural fire or when neighboring law enforcement agencies must work together during a vehicular pursuit. Typically, the Federal Government does not engage heavily in day-to-day interoperability.

Mutual-aid interoperability involves a joint and immediate response to a catastrophic accident or natural disaster and requires tactical communications among numerous groups of public safety personnel. Airplane crashes, bombings, forest fires, earthquakes, and hurricanes are all examples of mutual-aid events.

Task force interoperability involves local, state, and federal agencies coming together for an extended period of time to address a public safety concern. Task forces lead the extended recovery operations for major disasters, provide security for major events, and conduct operations in prolonged criminal investigations.



What is the role of the Federal Government in interoperability?

The overarching role of the Federal Government in interoperability may best be described as that of an enabler. The Federal Government is in a unique position to assist local, state, and federal agencies, and tribal governments because of its broader view, extensive wireless system coverage requirements, and its ability to influence and determine national priorities and policies. By using its resources and authority, the Federal Government can supply public safety agencies with the knowledge and opportunities needed to achieve interoperability. Providing funds, equipment, or staffing directly to public safety agencies on a large scale is a prohibitively expensive approach and may not be able to address the variety of state and local system needs and preferences. To help with the issue, the Federal Government has pushed forward in a broader, more strategic way.

Through a number of efforts, the Federal Government is working to:

Provide leadership through a focused vision, learning and education activities, and outreach initiatives

Facilitate progress by developing incentives for state and local agencies, ensuring adequate resources are available, and providing direct assistance to agencies in need

Develop solutions to technical and policy obstacles and develop interoperability best practices

Model the way by demonstrating a commitment to interoperability through its own actions.

Public Safety Wireless Network (PSWN) Program

The PSWN Program is a joint effort sponsored by the Department of Justice and the Department of the Treasury. The program is providing leadership on the critical issues facing wireless communications networks used to support public safety missions. The program is working to plan and foster interoperability at all levels of government (local, state, federal, and tribal) and among all public safety disciplines (law enforcement, fire, and emergency medical services). The PSWN Program's goal is to foster interoperability among local, state, federal, and tribal public safety agencies by:

- Developing a national strategy for public safety interoperability that presents best practices and implementation guidelines for shared systems
- Serving as a clearinghouse for information (i.e., gathering and disseminating interoperability information)
- Fostering partnerships, providing networking opportunities, raising awareness, and sharing solutions through regional symposiums
- Reaching out and educating individual members of the U.S. Congress and other decision makers to make public safety wireless communications systems and interoperability a priority investment for America's future safety
- Assisting in the development of standards to ensure the interoperability of public safety communications technology
- Assisting public safety agencies with implementation strategies and their plans to address and resolve the issue of interoperability
- Providing input to the Federal Communications Commission (FCC) and the NTIA, which hold the key to needed improvements in public safety spectrum management. ★



The Federal Government Provides Leadership in Addressing Interoperability

What does it mean to provide leadership on the issue of interoperability? It is clear that the Federal Government does not have

the ability, the resources, or the authority to fix the problem on its own. While it cannot intervene directly in state and local systems development efforts, the Federal Government can lead others by creating a vision and helping chart a course for improvement. To accomplish this, the Federal Government must engage in proactive, strategic activities that foster the adoption of common approaches to interoperability. As officials dedicated to focusing on the interests of the Nation as a whole, federal executives and legislators are uniquely situated to provide leadership and promote public safety wireless communications interoperability as an integral part of the larger national agenda.

As part of its leadership role, it is important that the Federal Government clearly communicates a vision for interoperability. This vision must provide a concise and comprehensive message that interoperability is a national priority for public safety.

leadership

National Institute of Justice (NIJ) AGILE Program

The NIJ created the Advanced Generation of Interoperability for Law Enforcement (AGILE) program in 1998 to facilitate increased interoperability among law enforcement and other public safety agencies. This program researches, develops, tests, and evaluates the latest interoperable communications and information sharing technologies. The AGILE program also identifies, develops, and promotes the adoption of open architecture standards for interoperability. Additionally, the program conducts outreach to share findings from their research.

AGILE also works interoperability issues in the field. These efforts include a Gateway Subsystem, Information Sharing between Law Enforcement Agencies (InfoTech), and the Standards Project. The Gateway Subsystem is a key component of the interoperability challenge facing Alexandria, Virginia, and its surrounding jurisdictions. This system allows the Alexandria Police Department and departments with overlapping jurisdictions to be directly connected to one another. The program has also started InfoTech, which is an information technology system that allows law enforcement agencies to share information. This system enables each agency to decide what information they want to share, and with whom. The Standards Project is designed to identify interoperability standards that local, state, and federal agencies can adopt without requiring significant change to their current systems. Each of these projects provides a means for the NIJ to support interoperability efforts and facilitate information-sharing nationwide. ★

Capitalizing on the fact that states are the linchpins to interoperable communications, the Federal Government can provide the vision to state leaders that the lives and property of citizens should not be at risk because public safety officials cannot communicate with one another. As the owner of this "bully pulpit," the Federal Government serves as a strong advocate for the implementation of shared, interoperable networks and is the national voice of authority on enhanced wireless communications. Using this influence, the Federal Government can chart the course toward overcoming key interoperability obstacles (i.e., coordination and partnerships, funding, spectrum, standards and technology, and security) and set measurable goals for agencies to achieve. Federal leadership requires that executives let agencies know how they are performing and what remains to be done.

The National Telecommunications and Information Administration (NTIA) Public Safety Programs

The NTIA formed the Public Safety Program (PSP) Office and the Information and Telecommunications Sciences (ITS) branch to facilitate public safety telecommunications and spectrum activities in the Federal Government. The PSP has developed interoperability processes and procedures, and has participated in various Project 25 activities. It plays an integral role in the planning and development of public safety communications through participation in the PSWN Program and setting of standards for equipment.

ITS is the primary engineering and research facility for the NTIA. Its objective is to promote the advancement of telecommunications and information infrastructure. Additionally, the program supports the effective and efficient use of spectrum. Several projects have been started as a result of this spectrum support. The Radio Spectrum Measurement System (RSMS) tracks spectrum usage and resolves interference problems in government radio systems. The Ultra-Wideband (UWB) Signal Characterization Project helps to develop accurate, repeatable, and practical methods for characterizing the narrow pulses (and pulse trains) of UWB systems. The purpose of this project is to provide the information necessary to estimate or measure the potential for UWB systems to interfere with existing radio communications or sensing systems. ★



Federal Law Enforcement Wireless Users Group (FLEWUG)

The FLEWUG provides leadership on wireless issues for the federal law enforcement community. The FLEWUG was formed in 1994 by a memorandum of understanding between the Department of Justice and the Department of the Treasury. The FLEWUG mission is to share information concerning wireless communications issues among the federal law enforcement community and to plan, coordinate, and implement future shared-use wireless communications systems and resources. The FLEWUG's activities include representing the Federal Government at meetings of organizations, such as the National Coordination Committee (NCC) and the Association of Public-Safety Communications Officials (APCO), where a variety of interoperability issues (e.g., security, spectrum, and standards) are discussed. Representatives report back to the FLEWUG membership concerning ongoing activities and initiatives around the Nation that promote public safety communications interoperability. ★

The leadership role also requires the Federal Government to continuously learn more about the problems and solutions to interoperability and to share these findings with others. This can be accomplished by learning about common interoperability difficulties through engagement in case studies, pilot system analysis, and technology research. Efforts must be made to thoroughly examine how the lack of interoperability can affect the public safety mission of all public safety agencies. By developing a robust set of knowledge and experience and making that information available to public safety organizations and other government leaders, the Federal Government can demonstrate its commitment to improving interoperability.

To successfully fulfill the leadership role, it is essential that the Federal Government initiate vigorous outreach initiatives. This effort requires federal leaders to interact frequently with state and local leaders, as well as other federal decision makers, to monitor regional and statewide developments and share lessons learned. Specifically, this requires federal leaders to share the lessons of interoperability with those agencies and organizations most in need of help. As an example of an outreach activity, federal executives can sponsor and support partnerships that bring agencies together to share and exchange best practices. Such activities allow for an effective flow of information and enhanced communications between agencies.

Firefighter Investment and Response Enhancement (FIRE) Act Grant Program

Funded by the Federal Emergency Management Agency, the FIRE Act grant program provides individual federal grants directly to local fire departments for training, equipment, and personnel. Among the many uses for the grants is the procurement of new communications equipment. Additionally, the FIRE Act authorizes a spectrum sharing study. This study will identify any portion of the 138–144 megahertz (MHz) band that the Department of Defense (DoD) can share with public safety and pinpoint any measures required to prevent harmful interference between DoD systems and the public safety systems proposed for operation on those frequencies. ★

The Federal Government Facilitates Progress Toward Interoperability

The Federal Government has increasingly taken the role as a facilitator of interoperability tools and solutions. In this role,

federal executives work as agents of change by empowering state and local governments to develop shared systems. This facilitation is being accomplished through collaborative relationship building where federal agencies assist local and state agencies in identifying and implementing interoperability solutions. In moving the issue forward, the Federal Government has worked to develop incentives for governments to pursue interoperable systems and acted to supply public safety agencies with the tools necessary for implementing these systems. Examples of the Federal Government's efforts in facilitation include taking steps to create grants for interoperable systems, working to demonstrate technical methods for interconnecting dissimilar systems, and working to influence spectrum sharing rules for the 700 MHz band.

To continue to facilitate progress, the Federal Government must provide further incentives to state and local public safety agencies to improve interoperability. For example, financial incentives can be used as a means to ease funding difficulties and lower the price of wireless systems. Incentives such as grants or seed funding that specify the money be used to improve interoperability can push state and local agencies to use alternative methods of funding and procure interoperable system components. Along these lines, the Federal Government can also allow state and local governments to use federal procurement vehicles to purchase interoperable, wireless equipment. Because they are large, volume priced contracts, federal procurement vehicles typically help reduce costs for new equipment. In this manner, the Federal Government can make systems components more affordable for agencies with limited resources while also providing the incentive to pursue interoperable systems.

Interagency Working Group on Funding (IWGF)

The federally sponsored IWGF was convened in 1998 to address the challenge of funding modern advanced radio communications systems and to recommend a cost-effective strategic role for the Federal Government to assist in meeting this challenge. Its membership consisted of representatives from the Department of Justice, Department of the Treasury, Department of Commerce, and the FLEWUG. The Attorney General also invited the Departments of Agriculture and the Interior, the FCC, the Federal Emergency Management Agency, the Office of Management and Budget, and the PSWN Program Management Office (PMO) to participate.

The IWGF report recommended a multiyear funding initiative totaling \$87 million to address the fiscal and planning needs associated with public safety radio communications. This initiative included \$52 million for public safety radio communication planning grants, \$10 million for technical assistance, and \$100 million for demonstration projects. All of the funds were subsequently deleted from the Federal Budget during congressional deliberations. ★

facilitates

PSWN Program Pilot Projects and Interoperability Assistance Initiatives

The PSWN Program is providing direct interoperability support to many regions of the country. Through its pilot projects, the program tests, refines, and implements sustainable interoperability solutions. The program has established technology pilots in California; the Southwest Border; South Florida; Washington, DC; Louisiana; and Utah. The program has also provided assistance to states facing discrete interoperability challenges. This assistance has ranged from providing strategic help through business case and operations analysis to tactical help in developing a shared communications site. Locations where the program has provided assistance include Montana; Vermont/ New Hampshire; Washington, DC; Hawaii; and the State of Washington. ★

Public Safety 700 MHz Band Rulemaking Process

As a result of the Balanced Budget Act of 1997, the public safety community was allocated 24 MHz of additional spectrum in the 700 MHz band. This spectrum, which is currently used by television broadcasters, is scheduled to be available to public safety agencies when the broadcasters complete their transition to new channels for digital television (DTV) in 2006. Several provisions aimed at improving interoperability and shared systems development have been included in the 700 MHz regulations. The FCC designated 2.6 MHz of the 24 MHz of available spectrum solely for interoperability purposes. In addition, the FCC decided that each state has the option to administer 2.4 MHz of the 24 MHz of available spectrum for use in statewide system projects, thereby giving states a unique opportunity to develop a wide-area multi-agency trunked public safety radio system. In addition, the FCC is exploring band clearance initiatives that may remove incumbent television stations from the band sooner than under the currently scheduled DTV transition, thus accelerating the availability of the band for interoperable public safety communications.

During the 700 MHz rulemaking process, the FCC granted co-equal access for federal users on the 700 MHz band and the public safety bands located below 512 MHz. Under this co-equal access arrangement, federal users can employ local and state public safety spectrum as part of a permission-based arrangement. Co-equal access helps to fill the current interoperability gap between local/state and federal public safety providers and simplifies radio expansion. ★

The Federal Government can facilitate a change in the marketplace itself by leveraging its purchasing power when initiating federal procurement vehicles with vendors. To date, equipment that adheres to open, interoperable standards has not been widely available to public safety agencies. However, if federal agencies directly pressure equipment manufacturers to produce affordable, standards-based solutions, the marketplace will likely respond to meet this demand. This can be accomplished if the Federal Government pursues purchasing agreements for equipment that is interoperable across multiple systems and is standards compliant. In the long run, all public safety agencies gain from this purchasing power because of improved affordability and availability of standards-compliant equipment. Coupled with making federal procurement vehicles available to state and local agencies, the Federal Government's purchasing behavior could not only induce a significant market shift in public safety

wireless equipment, but it could also influence public safety agencies to invest in interoperable systems.

The Federal Government can facilitate spectrum developments on behalf of the public safety community. This role involves the Federal Government taking appropriate measures to ensure that public safety agencies have adequate spectrum to fulfill their public safety mission. Federal entities can pressure for further resolution of unanswered public safety spectrum needs at the FCC, within the NCC, and in open publications. Federal agencies such as the FCC and the NTIA can use their authority to positively influence effective use of spectrum by developing rules that migrate public safety to fewer frequency bands and by working to develop and implement rules that promote the use of spectrum for interoperability. These agencies can also take the lead in ensuring that policies designed to streamline cooperative use of federal and non-federal spectrum are adopted.

National Coordination Committee

The NCC was established in 1998 under the Federal Advisory Committee Act to develop recommendations to the FCC regarding rules and standards for the 2.6 MHz of spectrum on the 700 MHz public safety band designated for interoperability. The committee includes a broad range of members from local, state, and federal public safety agencies and the commercial sector. In its first set of recommendations, released on February 25, 2000, the NCC recommended that the FCC develop rules mandating the use of Project 25 voice standards in the interoperability spectrum, adopt a channelization plan designed to reduce potential interference, and encourage the formation of state interoperability executive committees (SIEC). The recommendations also included several other measures designed to facilitate the cost-effective development of equipment and the efficient use of the spectrum, and, above all, to ensure standardization and coordination between and within public safety communications entities at all levels of government to ensure nationwide interoperability.

Before the expiration of its charter in February 2003, the NCC plans to develop recommendations concerning wideband data standards, use of the pre-coordination database for interoperability spectrum, DTV transition, encryption standards, a 6.25 kHz channel migration strategy, and other areas as necessary to further facilitate interoperable, intergovernmental public safety wireless communications. ★

Providing resources may not be enough. A continuing consultative process is essential to permit the public safety community, the FCC, and the NTIA to adjust to new requirements and new opportunities. The rapid changes in technology require timely adjustments in the policies and rules of the government agencies managing spectrum. An arrangement that facilitates continuing consultation between and among institutions responsible for, and interested in, public safety will help assure that opportunities for improvement are not missed. These consultations should focus on collaboration across government levels and on the benefits of working together. Such relationships give the Federal Government a chance to work with state and local governments and build their requirements into federal regulations.

At a more tactical level, the Federal Government can facilitate change by providing direct assistance to public safety agencies in need of interoperability guidance. Broadly speaking, this assistance can range from testing the suitability of new technologies for use by the public safety community through pilot projects, to actively helping state and local agencies resolve discrete interoperability obstacles. Pilot projects can focus on common issues associated with interoperability—spectrum resources, system costs, technology performance, mission operations, and organizational matters such as management and control. Pilot projects and assistance initiatives can also focus on providing strategic guidance to public safety agencies and helping those agencies with complex coordination and partnership issues. By testing and validating interoperability processes and solutions, the Federal Government can build a knowledge base of information and analysis to share with other levels of government that are trying to address interoperability challenges among public safety wireless networks.

NTIA Ad Hoc 214

Because of the growing need for spectrum and regulatory support following the work of the Public Safety Wireless Advisory Committee (PSWAC), the NTIA established a committee called Ad Hoc 214. The goal of Ad Hoc 214 was to examine and promote interoperability through shared systems among local, state, and federal public safety agencies. Ad Hoc 214 was envisioned to reduce regulatory barriers so that interoperability between federal agencies and their state and local counterparts would be easier to realize in the course of developing shared systems using federal spectrum.

Ad Hoc 214 prepared and submitted plans, policies, rules, and regulations to the NTIA's Interdepartment Radio Advisory Committee (IRAC) for review. Through the NTIA, Ad Hoc 214 acted as a mediator between the State of Wisconsin and the DoD in creating a Memorandum of Agreement (MOA) regarding the development of Wisconsin's shared system. This landmark agreement authorized the State of Wisconsin to use federal frequencies to test a shared land mobile trunking communications system that would facilitate interoperability communications during emergencies, as well as during day-to-day communications. The MOA outlined the roles and responsibilities for the DoD, as owners of the shared system spectrum, and the State of Wisconsin, as one of the stakeholders of the system. ★

The Federal Government Develops Solutions to Interoperability

By actively assisting in the development of interoperability solutions, the Federal Government has played a critical role in

shaping public safety interoperability. With its sizeable knowledge base and numerous opportunities to test new technologies, the Federal Government can serve as an excellent repository and source of information for state and local public safety agencies, which typically do not have the resources available to experiment with new approaches. Given the multifaceted and sometimes vague nature of many interoperability problems, few public safety agencies have the time or money to develop comprehensive interoperability solutions. State and local agencies must use their resources to address interoperability obstacles in a piecemeal fashion rather than focus on broad interoperability strategies. With the broader range of resources available, the Federal Government is better equipped to provide strategic thinking applicable to developing inclusive interoperability solutions.

The role of solution development requires federal leaders to closely examine their wireless knowledge and synthesize their experiences into coherent solutions and guidelines for implementing interoperable systems that can be communicated to local, state, and other federal agencies. These solutions can include both technical and non-technical approaches to systems development.

On the technical side, federal radio managers can begin by examining common interoperability obstacles they have encountered and documenting methods in which those obstacles were overcome. These methods must be integrated into guidelines and systems planning templates that can be passed on to managers at other levels. Examples of this development can include recording lessons learned when trying to interoperate

Public Safety WINS: Wireless Interoperability National Strategy

The PSWN Program has developed Public Safety WINS to serve as a roadmap for improving interoperability among public safety networks around the Nation. Public Safety WINS consists of an introductory video and an interactive CD-ROM, each of which contains interoperability information for the public safety community, as well as senior executives in all levels of government. Together, the introductory video and CD-ROM provide an overview of the challenges and solutions to

the key issue areas affecting interoperability. The national strategy has four major components:

An **interoperability index** that reveals the state of interoperability nationwide. This is the first-ever attempt to measure the progress that states are making towards implementing shared, interoperable systems.

A **policy solutions analysis** that educates executive leaders on actions they can take related to the five key policy issue areas to achieve interoperability: Coordination and Partnerships, Funding, Spectrum, Standards and Technology, and Security.

A **technical solutions** tutorial that assists radio managers in identifying technical solutions they may be able to employ to improve interoperability.

A **piloted solutions** element that describes several solutions that the PSWN Program has implemented across the Nation.

Through Public Safety WINS, the PSWN Program plans to raise the awareness of the issue of interoperability and provide solutions to improve and implement interoperable wireless communications networks. ★

with proprietary systems with different protocols or frequencies or documenting best practices in linking together large scale, multiband communications systems. Detailing the technical tools or procedures that are required to successfully accomplish system implementation in an easy-to-understand format helps to promote repeatable, cost-effective solutions.

From a policy standpoint, federal leaders must focus on innovative solutions to common policy obstacles to interoperability. Several policy areas that have been identified as impediments to interoperability include coordination and partnerships, funding, spectrum, standards and technology, and security. Thought leadership and traction in addressing these issues is key to the Federal Government's success. To assist in addressing these key issue areas, federal leaders can develop how-to guides that describe best practices in shared system planning and procurement. These guides can describe to state and local leaders what to anticipate when estimating systems life-cycle costs, as well as arm state and local officials with the tools necessary to develop sound, strategic business plans that can be presented to legislators for approval.

By supplying public safety agencies with the tools necessary to successfully overcome interoperability obstacles, federal leaders enable state and local public safety leaders to better serve the public's interest. However, it is imperative that the Federal Government continues to pursue aggressive education initiatives that bring these solutions into the hands of radio managers and policy makers across the Nation. The availability and implementation of these proven, high-level implementation guidelines, best practices, innovative designs, and operating procedures rely heavily on the leadership of the Federal Government to push the information to other government levels.

The Federal Government must continue to identify new problems and interoperability solutions. The Government must challenge itself to be a leader in solution development and furnish state and local agencies with the knowledge they need to implement better communications systems.



solutions



The Federal Government Models the Way Toward Interoperability

Talk and thought leadership can only go so far. It is only by demonstrating a commitment to the actions they are

championing that leaders can convince others to follow. The best way for the Federal Government to encourage state and local leaders to espouse wireless interoperability and shared systems planning is for federal leaders to engage in the practices themselves. If federal executives expect state and local leaders to look to them for leadership, it is critical that the Federal Government model the way. This effort requires that federal leaders also implement the best practices they develop, purchase equipment that adheres to open standards, and consolidate their radio networks within their agencies to reduce redundant costs and infrastructure.

The range of approaches federal leaders can take toward modeling the way is quite broad. Some federal agencies, such as the Department of Justice and the Department of the Treasury, are demonstrating a comprehensive approach to system development implementation that includes the build-out of large, consolidated networks. Other agencies, such as the Department of Agriculture and Department of the Interior, are modeling a supporting role by initiating pilot projects to model and share interoperability solutions that can be implemented by others. Still other groups, such as the PSWN Program, are suggesting rules, policies, and guidance for public safety agencies to follow when examining wireless systems procurements. The approach of an agency typically depends on the scope of that agency's public safety mission and the resources it has available. The Federal Government's diverse set of styles allows for a variety of approaches that local, state, or federal agencies can incorporate when they approach the issue of interoperability.



Federal Continuum for Enabling Interoperability Within Its Respective Organizations

To date, the Federal Government has taken great strides in providing a model for public safety agencies. Through directives such as the Office of Management and Budget (OMB) Circular A-11, which requires federal agencies to develop business plans for large information technology projects, the Federal Government is demonstrating its dedication to smart system planning. OMB Circular A-11 requires that federal agencies link their internal planning, budgeting, acquisition, and management of information technology resources in a strategic business plan. As an output of each agency's capital programming process, each budget justification for information technology must provide results-oriented operations and improvements in the context of the agency's missions and operations. By forcing federal agencies to thoughtfully plan their systems acquisitions, the Federal Government seeks to encourage shared systems developments. Such planning can avoid redundant costs and infrastructure.

As a result of the push for shared systems, several federal agencies are in the process of implementing their own consolidated networks. Because these networks form the backbone for widespread wireless communications, they require federal agencies to closely coordinate their wireless activities within and outside their immediate agency needs. These departments are developing single networks for their organizational components and setting up cooperative control structures where possible. This consolidation of communications systems within departments allows for centralized management functions, which can help control long-term costs, as well as enhance departmentwide interoperability. In many cases, federal agencies are looking to share system components with state and local agencies where appropriate. Such sharing allows for more cost-efficient operations for all levels of government by reducing infrastructure needs and allowing for the use of group procurements. In the end, these activities foster partnership development and consensus building before any actions or decisions are made.

Justice Wireless Network

The Department of Justice (DOJ), the federal agency with the largest public safety mission, is implementing significant changes in its communication systems. It has established a Wireless Management Office (WMO) to centralize oversight, management, and procurement of a common Justice Wireless Network (JWN). The WMO is working to consolidate a number of disparate radio systems from its various agencies: Federal Bureau of Investigation, Immigration and Naturalization Service, Drug Enforcement Administration, U.S. Marshals Service, and the Bureau of Prisons. As part of this effort, the WMO is seeking to augment the DOJ network with commercial services, consolidate equipment procurements, and improve interoperability within the department and with outside agencies. To demonstrate this interoperability, DOJ is implementing pilot projects in San Diego, California, and Salt Lake City, Utah. ★

model the way

Integrated Treasury Network

The Department of the Treasury is planning to implement a nationwide wireless system to support all of its components on a shared infrastructure. The components include the U.S. Secret Service; Bureau of Alcohol, Tobacco, and Firearms; U.S. Customs Service; and the Federal Law Enforcement Training Center. Treasury is planning to implement a Project 25 compliant narrowband radio system known as the Integrated Treasury Network (ITN). It has established the Treasury Wireless Programs Office (WPO) to centrally manage the development of the ITN. The WPO is also responsible for the design and implementation of the ITN and is working to develop partnerships to use non-Treasury-owned systems, including those at the local, state, and federal levels. ★

Critical Infrastructure Protection Directive (PDD-63)

PDD-63 calls for a national effort to assure the security of U.S. infrastructures. This effort focuses on telecommunications, banking and finance, energy, transportation, and other essential government services. In particular, the directive stresses the critical importance of cooperation between the Federal Government and the private sector by linking designated agencies with private sector representatives. Lead agencies include the Department of Defense representing national defense, the Department of Justice/Federal Bureau of Investigation representing emergency law enforcement, and the Department of Commerce representing information and communications. This activity emphasizes the need for the Federal Government to work closely with local governments and first responders. ★

The Federal Government is also making advances in modeling efficient spectrum management. Efforts by the U.S. Congress, the FCC, and the NTIA to increase spectrum usage efficiency has resulted in policy changes that will require the replacement of nearly all existing federal land mobile radio (LMR) equipment by 2005. The policy to “narrowband” LMR systems in the bands below 500 MHz presents a number of opportunities for the federal public safety wireless community to reexamine its wireless services and for federal executives to emphasize interoperability as an essential component of systems development. By modeling the way in narrowband development, federal leaders hope to push both the public safety user and vendor market toward spectrum efficiency.

Public safety communications security is another example of an area where the Federal Government can model the way. In 1996, the President of the United States declared as critical the need to protect the public safety infrastructure, including public safety communications systems. Public safety wireless systems are vulnerable to routine and emerging security threats, such as transmission

interception, frequency jamming, and physical attacks. When the focus turns to interoperable systems, security becomes more of an issue than ever before. As systems become increasingly interoperable, the number of vulnerable access points increases; however, interoperable systems also provide redundant communications paths that help to mitigate these new vulnerabilities.

In response to these threats, the Federal Government has adopted tough encryption standards for their communications systems. Federal executives work to ensure that regulations addressing security are adopted for any rulemaking or policy development effort and also support the adoption of security standards that enable interoperability among secure systems. When planning and designing new systems, federal executives are including significant security requirements into their procurement specifications and are working to identify the necessary funding to secure existing systems. In addition, they are reevaluating their critical infrastructure protection policies to stress the need to protect these infrastructures from attack.

The acceptance and use of standards provides an additional avenue for Federal Government leaders to model the way toward interoperability. Although the Federal Government is not in a position to be a standards-making body, it can certainly encourage other public safety personnel to actively participate in the standards development process and to use standards-compliant equipment. For example, industry and individual members of local, state, and federal public safety agencies have engaged in a long-term standards development process known as Project 25. In fact, in 1998, the FLEWUG adopted Telecommunications Industry Association (TIA)/Electronic Industries Alliance (EIA)-102 (Project 25) as the digital interoperability standard for public safety wireless radio communications.

While TIA/EIA-102 (Project 25) is beginning to encourage the development of interoperable equipment, there is still work that the Federal Government can do to address standards issues. The Federal Government can closely monitor the progress of ongoing standards efforts by standards-setting bodies (e.g., International Telecommunications Union [ITU], European Telecommunications Standards Institute [ETSI], TIA, EIA, and American National Standards Institute [ANSI]). Federal Government participation in international standards-setting activities (e.g., Project MESA) can provide a voice for domestic public safety users in the international community.

Bureau of Land Management (BLM)/Forest Service Interoperability Project

The Departments of Interior and Agriculture are pursuing a strategic approach to assisting field units in moving towards narrowband systems. The two departments are working together to develop a pilot solution enabling interoperability between the BLM and the Forest Service, which is a critical need given their similar missions. The goal of this pilot project, which is located in southwest Colorado, is to develop a mixed Project 25 digital and analog system that successfully demonstrates that Project 25 could be implemented on a partial basis with mixed analog and digital equipment. The hope is to make the transition of the field units to narrowband systems reasonable and consistent so that all the existing equipment does not have to be replaced at one time. ★



Summary

While the Federal Government has made great progress in enabling public safety agencies to achieve interoperability, much work still remains to be done. Specifically, federal leaders must “stay the course” when it comes to providing incentives to state and local agencies for developing interoperable networks. These incentives include adequate spectrum and seed funding to initiate system implementation. The Federal Government, through important efforts such as the PSWN Program, must also continue to engage in solution development, pilot projects, and interoperability assistance activities that enhance the information baseline available to public safety agencies. For not only do these activities help state and local agencies better identify their available solution alternatives, they also save valuable time and resources. Finally, it is critical that federal leaders continue to raise awareness of the interoperability issue and make it a priority in their agency’s wireless activities. By speaking on behalf of the national public interest, federal executives and legislators can draw support and attention to this important public safety challenge.

In the end, public safety operations present great challenges to governments at all levels. The responsibility for the protection of lives and property cuts across all jurisdictions and presents unparalleled opportunities for cooperation and coordination among governments. A robust and interoperable public safety communications infrastructure is a critical component in fulfilling local, state, federal, and tribal public safety missions. Challenges to interoperability can be met through greater emphasis on collaborative partnerships, consolidating systems, and resource sharing. While individual states have the ability to serve as the linchpins for leading systemic improvements in the Nation’s public safety communications infrastructure, the Federal Government, through executive direction and legislative actions, is an enabling element that can help make public safety wireless communications interoperability a reality.

About the Public Safety Wireless Network Program

The PSWN Program, a jointly sponsored endeavor of the Department of Justice and the Department of the Treasury, was created in 1996. The program is responsible for planning and fostering interoperability among public safety wireless networks so that local, state, federal, and tribal officials can better communicate with each other while serving the Nation’s public safety needs. Through a variety of activities, the program strives to achieve the vision it shares with the public safety community—seamless, coordinated, and integrated public safety communications for the safe, effective, and efficient protection of life and property.

During its first several years, the PSWN Program has actively supported local, state, federal, and tribal entities in improving public safety wireless interoperability. Examples include:

- Convening the PSWN Executive Committee, which comprises prominent local and state public safety officials, to provide strategic guidance and promote the need for improved communications interoperability
- Producing tools for systems planning to foster the development of shared systems and the inclusion of interoperability requirements in systems designs
- Hosting regional symposiums in 12 different states that bring together local, state, and federal public safety agencies to share information on wide-ranging issues such as regional planning, site acquisition, funding, and systems planning
- Developing a national strategy for public safety interoperability that provides proven, high-level implementation guidelines, best practices, innovative designs, and operating procedures to help the public safety community improve and implement interoperable communications networks
- Engaging in a high-profile communications campaign to educate government decision makers and public safety personnel on the importance of wireless interoperability
- Providing leadership through the development and implementation of pilot projects and interoperability assistance initiatives targeted at local, state, federal, and tribal agencies
- Working with the NTIA and the ITS in Boulder, Colorado, on technical issues affecting interoperability
- Pressuring for further resolution of unanswered public safety spectrum needs at the FCC, within the NCC, and in open publications.