

Office of Public Safety Radio Services Testimony
Pennsylvania Senate Communications & Technology
Committee and Veterans Affairs & Emergency Preparedness
Committee



**Public Hearing Concerning the Status of Implementation and
Deployment of the Pennsylvania Statewide Radio Network**

Introduction

Chairwoman Baker, Chairman Wonderling, and distinguished members of the joint committees:

It is a privilege to offer you an overview of progress in the implementation and deployment of the Pennsylvania Statewide Radio Network, PA-STARNet. Many other states are in the early stages of discussion and design of integrated, interoperable wireless communications for statewide public safety operations and emergency response. Pennsylvania, however, is now realizing the results of a vision that began over ten years ago with a system covering over 91% of the state to support both voice and data communications for agencies of commonwealth government. In addition, PA-STARNet has made unprecedented strides in drawing together regional, county, and municipal public safety agencies toward a true interoperable communications system for joint incident response.

History and Background

In the mid-1990s, the Commonwealth of Pennsylvania faced the prospect of replacing various aging analog radio systems used by Pennsylvania State Police, the Department of Conservation and Natural Resources, the Department of Transportation, the Office of Attorney General, the Capitol Police Department, and others. All of the systems had been separately purchased, deployed, operated, and maintained, using different technologies and portions of the frequency spectrum, with limited ability to intercommunicate.

At that point, the commonwealth made a number of key decisions:

- Rather than replacing the systems one-by-one and allowing them to remain under agency control, it decided to deploy a single system of transmitters and receivers across the state, connected and managed centrally through a microwave network.
- It stipulated that the new system would support both voice and data communications, freely intermingled.
- It placed responsibility for design, development, operation, and support of the new system in an office dedicated to that purpose, charged with delivering wireless voice and data services to the benefit of all agencies of commonwealth government requiring them.

System design and development began in 1996 with Pennsylvania Legislative Act 148. The original objective was to replace incompatible, aging radio systems with a single centrally managed statewide system supporting both voice and data communications. Through an intensive, detailed, and rigorous competitive procurement process, the commonwealth selected an innovative leading-edge digital technology using the 800 megahertz (MHz) band designated for public safety.

While the technology was enormously promising in range and flexibility of services, features, and functions, it was also largely undeveloped and unproven. In its emerging partnership with M/A-COM, Inc., the awarded technology supplier, the commonwealth has served as a test bed for the development of a new generation of

public safety communications technology. The development and implementation of this technology is the most complex and costly information technology project ever attempted by the commonwealth. But through this project, Pennsylvania has invented the future of public safety communications.

As planning, design, and deployment evolved, especially following the 9/11 attacks, the scope of the system expanded significantly to include interoperable communications with county and local emergency responders. The objectives set forth for the statewide system more than ten years ago remain compelling, and the system design and technology have been sufficiently robust to accommodate the project's expanded scope and objectives. Today's standards-based network is capable, flexible, and scalable. As a result, it will serve the commonwealth's mobile voice and data needs for many years to come.

Description of the System

Pennsylvania is a large state with highly varying terrain and density of population, ranging from the metropolitan areas of Philadelphia and Pittsburgh to the mountainous and sparsely populated northern counties. Agencies with statewide service responsibility require both an extended network of facilities and a high degree of mobility to carry out their business missions. Controlling and coordinating these resources in turn requires reliable and effective statewide communications. PA-STARNet provides a platform to satisfy these requirements, for data applications as well as for voice. The network even extends over rural and lightly populated areas in which commercial communications services are often spotty and unreliable.

System technology

PA-STARNet uses wireless digital technology from M/A-COM, Inc., a unit of Tyco Electronics Corporation. M/A-COM's OpenSky® system makes use of both high-profile tower sites and compact microcell sites connected through a statewide microwave network. The system incorporates standard components such as Internet Protocol (IP), Cellular Digital Packet Data (CDPD), and off-the-shelf workstations, routers, and database software. The standards-based network is capable of a wide range of data applications in addition to voice communication.

PA-STARNet incorporates a high degree of redundancy to ensure reliable operation and resistance to disruption from attack or natural disasters. High-profile sites have backup electrical power sources and are largely independent of commercial communications services. There are two points of entry to the network, both protected by a firewall, located remotely from each other. Both the geographic dispersion of system infrastructure and the ability of components to operate independently promote availability and survivability.

Organization and operation

As part of the commonwealth's decision to consolidate radio systems, it placed responsibility for the common system in a new office under the Governor's Executive Offices in the Office of Administration. Originally known as the Radio Project Office, the Office of Public Safety Radio Services is charged with providing reliable, efficient, and highly available mobile voice and data communications services to all commonwealth agencies under a governance structure that gives all stakeholders a voice in decision-making and policy development. Centralized management and administration have brought dedicated resources to the development, operation, and support of the system.

Status of Development and Use

With system software certified as "public safety ready" in September 2003, PA-STARNet formally entered the operational phase as deployment of infrastructure continued. Today there are nearly 15,000 subscriber devices authorized to use the system initiating more than 111,000 transmissions daily. PA-STARNet is one of the largest public safety communications systems in North America, with one of the largest privately constructed microwave networks in the world. Radio coverage currently extends over 91% of the commonwealth's 45,000 square miles.

Seventeen commonwealth agencies use PA-STARNet or are in some stage of planning for its use. In addition, business partners and various public safety organizations in counties and municipalities, including nine *Regional Counter-Terrorism Task Forces*, participate under commonwealth agency sponsorship. Here are some examples of its use:

- Pennsylvania State Police troopers have used the network extensively since 2002 for their Mobile Office application. Operating on mobile data terminals, it is a vital part of daily and emergency communication, including messaging and the ability to look up vehicle and criminal information. In Spring 2006, State Police began piloting voice communication use in selected locations. By the end of September 2007, troopers in ten stations will be using PA-STARNet for primary dispatch communication.
- The Department of Health has deployed more than 280 fixed-location radios in hospitals and other medical facilities across Pennsylvania to provide wireless backup and redundancy for its Health Alert Network.
- The Department of Transportation uses about 4,800 mobile, hand-held, and fixed-station for routine operational communication, including coordination of highway maintenance and snow removal operations. In nearly half of the state, PA-STARNet is their only radio system.

PA-STARNet has proved its effectiveness in a number of applications and events, including the following:

- Three Mile Island deployment following the World Trade Center attacks of September 11, 2001;
- Emergency communication during the response to severe flooding in northeastern Pennsylvania in June 2006;
- Tactical communications support for Pennsylvania State Police units at the Nickel Mines Amish school shootings in October 2006;
- Security and emergency support for the annual Little League World Series in Williamsport;
- Security and emergency support for the Live 8 concert in Philadelphia in July 2005;
- Coordination of resources across multiple agencies during the snow emergency of February 2007;
- Support for events at Beaver Stadium in State College, including the Arts Fest and Penn State football games;
- Support for the U.S. Open Golf Tournament in Pittsburgh in June 2007;
- Support for the Major League Baseball All-Star Game at PNC Park in Pittsburgh in July 2007; and
- Law enforcement and security for casinos at various locations across the state.

The target for completion of PA-STARNet infrastructure is the end of 2008. Although agency transition is subject to agency plans and complicated by issues like the federally-mandated rebanding of public safety systems operating in the 800 MHz band, the current transition schedule for Pennsylvania State Police and the other primary using agencies is also the end of 2008. The schedule for system completion and transition to agency use is based on assessment of progress to date and detailed planning. These target dates are realistic and achievable.

Benefits and Return on Investment

To date, funding appropriated for development of the system is \$311 million. This amount does not include the operating budget, nor does it include agency subscriber equipment and other expenditures related to use of PA-STARNet which appear in the budgets of using agencies. A study by SE Technologies for Pennsylvania State Police in 1995 projected that an 800 MHz system to replace the aging State Police system alone would cost \$381 million. For roughly the same amount, then, the commonwealth now has a statewide radio system serving both the mobile voice and mobile data requirements of all agencies.

A shared resource for voice and data communication

Communications systems like PA-STARNet exist to enable control and coordination of organizational functions over a wide area through the exchange of information. Accordingly, the principal measure of the system's improvement of the operation of government is its contribution to better communication and, in turn, better control and coordination of significant commonwealth business processes. These range across law enforcement, state park and forest operations, correctional institution security and prisoner transport, radiation protection and nuclear incident response, health organization coordination, National Guard operations, roadway maintenance and snow removal, and motor carrier enforcement.

PA-STARNet offers a common communications platform to serve the goals of communication, coordination, and control. For instance, highway incidents such as a tractor trailer spill can easily engage multiple agencies including State Police, Transportation, Environmental Protection, and Agriculture. In circumstances like this, a common communications tool effectively and efficiently coordinates use of commonwealth resources, focuses response activities where they are most needed, and reduces confusion and uncertainty. In addition, routine use for interagency communication and cooperation promotes a strategic, enterprise-level view of commonwealth government operations and use of assets.

The benefits of interoperable communications extend beyond commonwealth government to embrace federal, county, and municipal resources. For agencies charged with homeland security and public safety responsibilities, the ability of emergency responders to talk to each other using PA-STARNet affords significant, and perhaps critical, benefits in the post-9/11 world.

Centralized management and administration

Maintaining and operating separate radio systems for individual agencies entails duplication of resources, assets, and business functions, creating a significant drain on limited resources and a distraction from agencies' core business missions. By consolidating wireless communications responsibility in a central, dedicated organizational unit, PA-STARNet frees agency resources and allows them to return focus to their primary service delivery missions.

Financial leverage and cost savings

Consolidation also makes possible greater leverage in negotiating prices for services, equipment, and software. For instance, the negotiated purchase of over \$26 million of subscriber equipment based on aggregated agency demand saved more than \$5 million when compared with prevailing contract pricing. Agencies receiving this equipment benefit from the relief of demand on their equipment budgets, and taxpayers benefit from the reduction in cost.