Realizing the Future of Public Safety Communications

The evolution of wireless data communications driven by commercial providers has led to on-demand access to information, data, and applications for consumers worldwide; however, the expansion of available data services has largely bypassed emergency responders. Although first responders across the United States currently use Land Mobile Radio (LMR) networks and commercial/agency-specific wireless technology, the passage of the Middle Class Tax Relief and Job Creation Act of 2012 (the Act) should position the community to fully leverage advancements in Long Term Evolution (LTE) technology in developing and deploying an interoperable, Nationwide Public Safety Broadband Network (NPSBN). While incompatible and outdated communications equipment, as well as overloaded commercial networks, has hindered public safety, the NPSBN will eventually provide the emergency response community with mission critical voice, data, and video capabilities and access to real-time information. As a result, first responders will be able to communicate across agency and jurisdictional boundaries, enhance the effectiveness of emergency communications nationwide, and assist responders in conducting safer and more effective operations.

TODAY’S PUBLIC SAFETY COMMUNICATIONS ENVIRONMENT

Presently, the public safety community receives mission critical voice services through its dedicated LMR networks. While currently available commercial wireless and broadband data solutions are adequate for non-mission critical or auxiliary use, the majority of these solutions have limited ability to fully support emergency responders because they are not interoperable, have limited or constrained bandwidth availability, are subject to loss during periods of heavy use, and are not built to public safety standards. However, the Act creates a pathway to overcome these challenges by reallocating the 700 MHz D Block spectrum to the public safety community and sets aside up to $7 billion for the development and deployment of the NPSBN. Until FirstNet – an independent authority, within the Department of Commerce National Telecommunications and Information Administration, authorized by the law to take all actions necessary to ensure the design, construction, and operation of the NPSBN – is established and operational, much of the timeline for network deployment and planning activities each State and locality is yet to be defined. Additionally, the Act provides $135 million for State and local implementation planning grants, however the government has not yet made these dollars available or established a structure to apply for and/or receive the necessary funding.
PUBLIC SAFETY COMMUNICATIONS OF THE FUTURE

This NPSBN, combined with existing LMR, holds the promise to drastically advance public safety’s ability to communicate information during emergencies. In order to achieve this vision, the public safety community, policymakers, and other stakeholders must continuously address key requirements (see Figure 1) including funding, governance, R&D, and other technical aspects. Portions of the law will help to address some of these requirements, such as sections pertaining to access, roaming, and implementation funds. The pace of convergence will vary from agency to agency and will be influenced by various factors such as operational requirements, existing systems, deployment schedules, and funding levels. While currently there is no defined point in time when broadband will support mission critical voice, once the convergence of voice and data has occurred emergency responders will have access to advanced technologies and applications that should improve their operational capabilities, response efforts, and delivery of services.

REALIZING THE FUTURE

Developing an interoperable NPSBN and realizing effective convergence with existing capabilities will require a high level of commitment from stakeholders at all levels to identify adequate and sustainable funding sources, develop and maintain partnerships, and design effective policy and governance structures. Because there is no definitive timeframe when the NPSBN will be deployed and functional for first responders, it will be necessary to continue to invest in existing infrastructure, LMR voice systems, and maintain current commercial and unlicensed wireless and broadband data solutions, while simultaneously allocating new funding to the development and deployment of the NPSBN. Additionally, stakeholders must engage in planning and coordination at the nationwide, regional, State, and local levels; foster partnerships between disciplines and jurisdictions; and develop policies and plans for new emergency communications technologies. These commitments to stable funding, appropriate partnerships, and effective policy and governance structures will enable the public safety community to take advantage of new advances in technology and realize the promise of an interoperable, nationwide public safety communications network capabilities, response efforts, and delivery of services.

FOR ADDITIONAL INFORMATION

Please contact OEC@dhs.gov or visit www.dhs.gov (keyword OEC).

Keys to Effective Network Convergence:

- Maintain adequate funding for LMR and the NPSBN
- Develop appropriate partnerships at all levels
- Design effective policy and governance structures