Broadband USA Applications Database

Applicant Name: BOSTON, CITY OF

Project Title: Boston Public Safety Broadband Network

Project Type: Comprehensive Community Infrastructure

Executive Summary

A. Like most cities, Boston has ended up with a non-interoperable collection of first responder wireless voice and data systems. Some staff have in-vehicle systems with carrier-provided wireless broadband. Other systems are obsolete and cannot provide modern data services. Most vehicles end up with multiple voice and data systems, each accessing a different data stream. There is no one data system that all first responders can use and there is no way that responders from different departments can communicate directly with each other. The Boston Police Department does not provide commercial wireless broadband service to its patrol fleet and foot patrol. Current wireless connectivity is provided by a legacy 19.2 Kb/s 800 MHz data system which delivers text-based data only from the Computer Aided Dispatch system (CAD). Police officer efficiency and patrol time on the streets is also greatly impaired by the need to return to the station house to file incident reports, view mug shots, download investigative data, all of which would be readily available to officers in the field if broadband data access was available. The Boston Fire Department (BFD) currently stores all pre-plan and mapping information locally on the vehicle computer. When the 700MHz broadband network is deployed, BFD will use the broadband network to deliver the data from a centralized server. This change in practice will ensure that the responders have the most current information available to them. The BFD currently uses commercial broadband service for all front line companies, but would like to expand the program to special service vehicles. Additional use of the commercial service has been put on hold pending the availability of the city-operated 700MHz public safety wireless network. Boston Emergency Medical Services (EMS) employs commercial wireless broadband service for their Electronic Patient Care Reporting system but uses the Boston Police 19.2 Kb/s network for CAD data. Migration to the 700 MHz public safety broadband network will enable access to other public safety departmental pre-plan information, national databases, and mapping information. It will also enable instantaneous bi-directional communication of patient status to hospitals and public health officials and access to patient records to retrieve patient history whenever the patient is unable to verbally communicate. Boston will have a new Computer Aided Dispatch and Record Management (CAD) system for Public Safety by 2012. The CAD system will allow for both improved dispatch as well as field reporting. When the City has a citywide 700 MHz public safety network, the network would allow full of use the CAD system, interoperable communication and data exchange among the fire, police, EMS, and the Mayor’s Office of Emergency Management (OEM), something that is impossible now. B. The 700 MHz network would cover the entire 47 square miles of the City of Boston plus Boston Harbor. C. The 700 MHz network would furnish the connection among all the ninety-three public safety physical sites-- such as police, fire stations and EMS facilities and the city's fiber backbone, and via this network, to the 700 vehicles used by all the agencies...
and all 3,970 mobile staff. Within three years, all mobile staff will have access to the network via belt radios, USB dongles, 4G cell phones, air cards, etc. If the FCC approves the use of the 700 MHz public safety frequency by additional emergency services providers, the city will offer connections to hospital ambulance staff, emergency room staff, and others. D.4943 community anchor institutions passed and/or involved with project (e.g., health care, education, libraries, etc.). Apart from the public safety anchor institutions, the remainder of the anchors will indirectly, but strongly, benefit from this network because of the improvements in public safety response and coordination. In addition, many of these institutions focus on Boston's low-income neighborhoods. These neighborhoods will get even more benefit from the network due to their higher than average use of EMS services for their healthcare and due to the higher than average number of calls to and interactions with the police. E. Services and applications: using wireless broadband will allow the city's Computer Aided Dispatch system to greatly enhance its utility. Dispatchers will be able to include audio clips of the 911 call and the system will allow transmission of outstanding warrants, weapons information, and criminal history reports. All of this will occur without the slow speed and inaccuracies of voice transmission. The current text-based Computerized Justice Information System (CGIS) is limited to driver's license text, license plate owner, and some data about outstanding warrants. With wireless broadband, officers would have access to CGIS Web and could get driver's license photos and a full criminal history. The management of critical incidents will be greatly enhanced with transmission of photos, video, and audio clips between commanders on site and headquarters. Automated license plate recognition would reduce the ever-present danger to officers involved in traffic stops. Investigation of criminal acts will be enhanced by the speedy transmission of crime scene data to forensic labs and specialized police units. Missing persons and Amber Alerts photos will be transmitted to officers much more quickly. Fire commanders will have full situational awareness with access to incident video and photos. Firefighters at the scene of or on route to a fire will be able to download building schematics and check hazardous materials databases. Wireless public safety broadband would greatly enhance the level of coordination between the Police, Fire and EMS responders. At present, their coordination is limited to passing information over the radio to the dispatchers to then be passed on to other responder groups. The network would allow information to be directly communicated, without delay, from any group of responders to any other group. F. The city's proposed network will be governed by an interconnection and nondiscrimination policy consistent with the NOFA's requirements and NTIA's guidance to public safety jurisdictions that have received waivers from the FCC to utilize the 700 MHz spectrum. Consistent with the exemption for managed services included in the NOFA, as well as the FCC's prohibition on the use of 700 MHz public safety spectrum for anything other than by public safety eligibles, the city's interconnection and nondiscrimination policy will reserve 100% of network capacity for a public safety managed service. The city will ensure that the BPSBBN will be capable of being integrated into any national or regional network that may be developed under FCC and the Emergency Response Interoperability Center's rules. The city will further ensure that the BPSBBN will be brought into complete conformance with any subsequently issued FCC rules governing interoperability. The city acknowledges and accepts the FCC current rules governing compensation in the event there is a final decision to establish a public-private partnership to manage the build out and deployment of a nationwide network. The city is also working with the Public Safety Spectrum Trust to ensure that our network meets their interoperability standards. Boston is a part of Metro-Boston Homeland Security Region and collaborates with state agencies. The city will
ensure that the BPSBBN will be fully interoperable with 700 MHz LTE networks that the other cities and towns in the region may build in the future. G. The BPSBBN will use Long Term Evolution (LTE) at 758-763 MHz and 788-793 MHz. It will use twenty radio sites and two cores, each connected to Boston’s fiber ring. The network will connect to all public safety vehicles and to hundreds of handheld devices used by police officers working outdoors. H. Boston is highly qualified to implement and operate a LTE/700 MHz network. The city has already built, and now manages, a citywide fiber ring connecting 176 (125 by fiber; 51 by high-speed wireless) city buildings. We frequently work with all the major LTE equipment and services vendors and have met with them to discuss the BPSBBN. We will select one or more of them to build and operate the cellular portion of the BPSBBN since it would not be efficient for the city to build and operate a cellular network. Boston has also built multiple wireless networks. The city built a 1 sq. mile Wi-Fi pilot network and oversaw the building of another, both in underserved areas. I. Subscribers—700 public safety vehicles and 3270 emergency services staff. Other public safety eligibles may be added over time. J. Cost: $24,720,216 K. Jobs: 269 direct; 172 indirect; 97 induced