Broadband USA Applications Database

Applicant Name: City of Davenport

Project Title: Davenport Public Safety & Community Wireless Broadband Network

Project Type: Last Mile

_____Executive Summary_____

a.) Opportunity the proposed system seeks to address. To improve access to, and use of, broadband services by public safety and key community agencies such as area hospitals, schools, colleges, major industry and utility companies. The system is easily scalable with sufficient capacity to add over 50 cameras in the future and add hundreds of mobile users in the near future. The combination of microwave and FO backhaul provide not only redundancy, but an excess capacity of over 500 Mbps to accommodate the addition of future nodes and broadband applications, including video from in-car cameras as well as delivery of video to mobile users. The system will reduce crime, improve the efficiency of public safety and fire department operations, increase access to public schools and libraries during emergencies (e.g., during a flu pandemic) by students and teachers; and improve the response of EMT during emergencies. b.) General description of the proposed funded service areas The City of Davenport comprises a geographic area of 65 square miles and a population just at 100,000. It is part of the Quad Cities region representing a unique infrastructure cross roads in the central United States. The intersection of the Mississippi river and several interstates represent significant logistics and vulnerability threats. Add to the region, the logistical importance of nuclear power generation plants, DOD facilities and critical health and trauma care centers and categorization of the region as 'critical infrastructure' it becomes self-evident of the very important nature of this Midwestern region. There are three bridges, six interstates and 17 highways connecting the eastern and western portion of the United States at this geographically significant crossroads over the Mississippi River. The region is also terrorized by tornados annually. In 11 of the last 40 years, tornadoes have disrupted infrastructure and left fatalities as well. Typical examples include snowstorm closing of schools, businesses and roads. Escalating the infrastructure, environmental and public safety risks are two 900 megawatt nuclear power plants, a federal arsenal and international airport which transits over 900,000 passengers a year. The City of Davenport is the anchor community in a five city domain (known as the Quad Cities) responsible for over 400,000 citizens, an international airport, 99 schools, 38 hospitals, two nuclear plants and a defense arsenal facility known as the Rock Island Arsenal. The Quad Cities area represents a multi-modal transportation crossroad geographically centered in the continental United States. Hosting the intersection of the Mississippi River with its dam and lock system, two major east-west interstates and several north-south arteries, the Davenport area is a critical enabling environment to hundreds of miles of roadway, nuclear power generation and millions of tons of water borne freight. Davenport is accessible from the east by interstates 80 and 88, from the west by interstate 80 and from the south by interstate 74. It is also served by highway 61, a highway that runs alongside the Mississippi River. Interstates 80 and 280 form a beltway which is bisected by interstate 74, making the entire area easily

accessible by freeway. The area is also served by several bus stations, the Quad City International Airport and maintains access to an Amtrak Station in nearby Galesburg, IL. Unlike transportation hubs such as Chicago or Dallas, The City of Davenport as part of the Quad Cities must rally and manage resources shared between five small cities representing two counties within two states supervised by five mayors and city councils. Accordingly, emergency response assets are small and more fragmented than a larger city and interdependencies are more critical as each community's profile vary. As responsibilities and constituent demands vary, these communities have invested in various types of emergency resources. c.) Number of households and businesses passed. Official name: City of Davenport Contiguous Census Blocks: 1,958 Total Population: 98,359 (yr 2000) Total Households: 39,124 (yr 2000) Total Businesses: 7,060 (yr 2002) d.) Number of community anchor institutions, public safety entities, and critical community organizations passed and/or involved with project. 32 City Facilities, 7 Fire Stations, 1 Police Department, 2 Hospitals, 29 Community School Facilities, 3 Colleges, 80 Community Neighborhood Associations, 1 Emergency Medical Service, 3 Libraries (1 main branch, 1 remote branch west side & 1 remote branch east side under construction), 1 Water Treatment Facility, 1 Gas/Electrical Utility e.) Proposed services and applications for the proposed funded service areas and users. The network is easily scalable and the network operations center will support hundreds of mobile users in the near future and video from in-car cameras as well as delivery of video to mobile users. Possible applications from other users include: health care provider electronic information sharing (per federal mandates); for addition of monitoring and control of lift pumps for flood control and sewage systems; electronic meter reading and real-time energy consumption for improving energy efficiency (via Mid-American Energy); License Plate Recognition; high-speed transfer of mug shots, warrants and other data; transfer of building drawings to on-scene fire fighters; transmission of video from on-scene fire control operations; video monitoring of critical infrastructure; broadband data to/from Mobile Command Posts; interface with satellite links for independent long-distance communications with other state and federal agencies; integration with CAD/RMS system including the new regional dispatch center in Davenport and many other applications. The system connects schools, libraries and hospitals, providing video monitoring capabilities and patient tracking information during emergencies as well as interconnections of school and libraries. This broadband system improves data communications rates to mobile users by almost 1000 times (from 4.8 kbps to 2 Mbps). This system expands the video monitoring capability to remote points by over 500%. f.) Approach to addressing the non-discrimination and interconnection obligations: The proposed network will serve all users permitted under the FCC license for Public Safety, critical infrastructure monitoring, schools, hospitals and medical personnel. Qualified users such as public safety, hospitals, emergency responders, schools, etc will be allowed access rights. In addition real time information of value (such as emergency alerts, incident details) to the public will be ported to public access websites. The network is implemented using open standards, including the use of IP for network traffic. The system supports higher level protocols such as TCP, UDP, VoIP/SIP and all router protocols (including RIP and OSPF). Security is implemented at the link layer, the network layer (Triple DES and AES), access control, transmission (Secure Socket Layer or SSL) and other end-to-end protocols. The system supports access control via Username and Password. The system also provides VPN capability for secure access to the network from the internet by remote users, and the system supports VLAN services to group users into there own virtual LAN for serving a common purpose or response. The user equipment interfaces to applications via a standard Ethernet connection or via USB

connections. (A PCMCIA card can be used when the application is via a PC such as a Mobile Data Terminal and the terminal supports PCMCIA cards.) g) Type of broadband system that will be deployed Microwave and fiber optic “middle mile” components provide independent and redundant back haul for the wireless access points. The wireless access “last mile” sub-systems provide wideband wireless access to mobile and fixed sites using TCP/UDP/IP protocols for voice, data and imagery. This provides a highly scalable and expandable system for many applications, both present and future. h.) Qualifications of the applicant that demonstrate the ability to implement and operate a broadband infrastructure, and/or be a sustainable broadband services provider. The City of Davenport has actively been installing and managing wireless communication systems for public safety for almost 10-years. In addition, the city has been managing a community-wide wireless WiMAX communications network for the past 4-years as part of a pilot partnership program with Raytheon, Inc. This includes applications such as voice, video and data for public safety and general city operations such as field personnel. This has included such things as installing new towers, working with the FCC, FAA, the DOJ and other community anchor institutions such as area hospitals, schools and colleges. The city also contracts with outside companies to fill in the areas were technical expertise and training are required. i.) Overall infrastructure cost of the broadband system. $12,215,954. j.) Overall subscriber projections for the project: We have estimated the number of subscribers for the initial deployment to be 100-200 mobile subscribers and 50-100 fixed site subscribers consisting of police stations, mobile users, schools, libraries and hospitals. We have the capacity to expand the number of users over ten fold in the future by simply adding low-cost (less than $900 each) user terminals. k.) Number of jobs estimated to be created or saved as result of this project. Initial jobs saved are estimated at 15, which is based on the number of jobs created in our pilot program. (This includes installation, support, network operation and maintenance, etc.) Based on this, it is estimated that a combination of 30 jobs will be saved or created when the system is fully deployed.