The City of Pittsburgh is proud to propose the 'City of Pittsburgh Wireless Video Security and Innovative Analytic Search System'. This project proposes to build a core wireless mesh network throughout the entire 55 square miles of the City and to install a series of wireless IP camera units in all vulnerable and high-traffic locations throughout Pittsburgh. The video cameras will transmit their video feeds through the wireless mesh network to the City's IP network which will allow any authorized computer within the network to view the feed. This system will be 100% IP-based and each of the six police zones in the City will have the requisite software installed on their PC's so that they can retrieve and view video, both in real-time and post-record, from any of the 220 installed cameras. The proposed wireless mesh network will run a state-of-the-art interactive search engine application named MetroFind, developed at Pittsburgh's world-renowned Carnegie Mellon University which will allow for high-level, interactive, content-based search of captured data thereby enhancing the City's public safety officials' use of the captured video. Every resident, business, community anchor institution, and visitor to our beautiful City will be served and benefited by this wireless video security system which will dramatically enhance public safety capabilities and homeland security initiatives. Since this project involves building a wireless backhaul throughout the entire City, although its immediate use will be for video security purposes, there will be sufficient bandwidth for the City to utilize in myriad ways in the future. Whether the City chooses to interconnect with the Pittsburgh Parking Authority or to provide free wireless access to underserved residents, the network that will have been built for this proposed project will provide sufficient bandwidth for both fluid video and data communications, and thus provide unlimited broadband potential. The geographic breadth of this video security system is sizable in that it will cover the entire City of Pittsburgh and therefore the video it will capture by virtue of the 220 proposed cameras will be voluminous. The software platform, MetroFind, which will be utilized as a search analytics engine, will allow public safety officials to winnow down vast volumes of video into a reasonable amount suitable for human consumption. MetroFind's application utilizes a new approach to search called discard-based search. Discard-based search is an on-demand strategy that performs content-based computation in response to a specific query. The platform for discard-based search is OpenDiamond software, which is a registered trademark of CMU. This software platform incorporates plugin interfaces for the insertion of application-specific pattern matching, image search, and recognition of motion sequencing. This improves scalability by eliminating the vast majority of the data from review. The City is well positioned to implement this video security project since it has already test-piloted a similar project on a much smaller scale with successful results. As a result of hosting the 2006 All-Star game and the 2009 G-20 Summit, Pittsburgh required heightened security for its central
business district, ports, and along its North Shore (where PNC Park resides). On this discrete scale, Pittsburgh built out a wireless security system to cover only these areas. This video security opportunity has augmented public safety officials efforts to prevent, reduce and solve crime, as well as to increase awareness of what is occurring on the City's streets at all times. It has been an incredibly successful public safety initiative. For the first time in a long time, crime trends in Pittsburgh are beginning to reverse. While there were 1607 violent crimes reported in the city in the first half of 2008, there were only 1,598 for the same time period in 2009 and there were 28 homicides during the first half of 2008 compared to 21 during the same time frame in 2009. The downward trends are similar for robberies and property crime. The City believes that public safety measures it has put in place have contributed to this success. The City is partnering with two prominent community anchor institutions in proposing this project: Carnegie Mellon University ('CMU') and the Community College of Allegheny County ('CCAC'). Both partner's commitment to this project has been vital and unwavering and underscores the value and demand for this proposed project. With respect to CCAC, it has a sizable campus located within the City and desires to build the same wireless video security system throughout its campus, on external perimeters of campus buildings, to improve its public safety efforts with respect to its students and neighborhood. CCAC's video cameras will tie back to its own campus data center for primary viewing by CCAC police; however, will also be transmitted to Pittsburgh's centralized facility so that City public safety entities can view video and provide assistance as well. CCAC would use the same contractor being proposed by the City, Avrio Group Surveillance Solutions, Inc. CMU is also partnering with the City in support of this project. Proprietary commercial software developed by CMU will be used to amplify the value of the captured video. Over the past decade CMU's School of Computer Science has worked to develop foundational technologies for interactive search of complex non-indexed data. This search capability is embodied in domain-independent open-source software called the OpenDiamond Platform. The partnership between the City of Pittsburgh and CMU provides groundbreaking strategies. It will advance the application of CMU's software technology for municipal surveillance for the first time. It affords an opportunity for the technical insights developed by CMU talent to be applied to solve problems of everyday relevance to municipalities, and paves the road for the application of CMU's technologies in a municipal context that can be replicated in other municipalities nationwide. Pioneering and innovation is integral to Pittsburgh's rich and vibrant history. From George Westinghouse, a pioneer in the electrical industry, to Jonas Salk, who invented the polio vaccine, to Andy Warhol who created an entire new art genre, Pittsburghers continue to embrace innovation and a relentless spirit. Pittsburghers have embraced change and opportunity and have endured because of it. To utilize CMU's MetroFind software search application in its proposed wireless mesh video security network, fits within the sweet spot of Pittsburgh's personality. It adds a level of innovation to this project that helps take broadband technology one step farther. The problems that will be addressed by this proposed wireless video security system using wireless IP cameras are numerous. The video cameras will be used as a visible deterrent against crime, to aid in the investigative process, to produce video evidence, both for strengthening prosecutions and for reducing frivolous lawsuits, and to provide surveillance of public areas. Missing children, stolen cars, graffiti, vandalism, petty crime, lost dogs, hit and run drivers, are real problems that the City's public safety entities are faced with on a daily basis. Beyond the context of crime, this wireless video security system will capture data illustrating traffic hazards, pedestrian hazards, potholes, street lighting maintenance issues, and road conditions. This project is critical to our
City being able to address and solve the problems identified. The total cost for this proposed project is roughly $16 million. Should this project be selected for funding, it will have the immediate effect of spurring job creation and stimulating long-term economic growth and opportunity. The City’s selected vendor, Avrio Group Surveillance Solutions, Inc. will build-out the proposed network, CMU will implement its software into the network, CCAC will employ IT staff, and the City will be charged with the overall responsibility of implementing and maintaining this network. The ability for this project to spin-off new jobs and economic growth will continue into the future beyond the three year build-out for this specific project. The City of Pittsburgh historically was a steel and manufacturing town. Due to the collapse of numerous industries, Pittsburgh was forced to reinvent itself. It has emerged a stronger more vibrant City dedicated to making the quality of life for its residents and visitors the best possible. To that end, Pittsburgh tries to always be forward-thinking and to be vigilant in seizing upon opportunities that may benefit its boundaries. Applying for Recovery funds presents a wonderful opportunity for Pittsburgh to be able to dramatically enhance its public safety capabilities.