Fayette County, Pennsylvania, population approximately 145,000, has declined in population and increased in poverty levels from the 1990 census through the 2000 census. By 2007, the poverty level had increased to 13.8% of all families who live there. This was almost 7% higher than the average in Pennsylvania for that year. The unemployment rate in January 2010 was approximately 11.9%, which was much higher than for Pennsylvania (9.5%) and the US (9.7%). This project will particularly benefit the County's most rural areas - its 43 municipalities. Access to high-speed Internet is absent in many parts of the County. To date, common ISPs have not invested in the all-important middle-mile infrastructure because many areas of Fayette County do not have the population density to deliver Internet service at a competitive price. Many of the community anchor institutions and rural municipalities do not have the tax base to support the large financial investment required for middle-mile infrastructure. In addition, for-profit ISPs cannot realize a return on their investment without charging unreasonable user rates. The lack of high-speed Internet has isolated Fayette County's most rural communities, whose economies are already suffering from contraction in their economic base, and their emergency services. Without the federal funding available through the BTOP, Fayette County does not have the financial resources to construct the middle-mile infrastructure so essential to healing its digital divide. By erasing the middle-mile cost barrier, this project will attract new private-sector competition among ISPs, which will both lower costs and increase broadband availability among business and residential customers. In addition to making broadband more cost-effective, the project will significantly improve the quality of emergency services by supporting wireless and secure high-speed Internet use among the County's Emergency Management Agency (EMA), police, and fire departments. The project will also level the playing field for students living in unserved areas. Increasingly, K-12 schools and higher education institutions are utilizing the Internet as a communication tool to keep students and parents up-to-date on everything from grades to classroom assignments. Today, students living in Fayette County's unserved areas are at a competitive disadvantage. The educational gap widens even further when one considers the opportunities for distance learning that are simply not available to rural residents. This project will deliver the infrastructure to support high-speed Internet access in even the most remote areas of Fayette County, thereby achieving real improvements in residents' quality of life. The FayNet project will create an enhanced multiservice communication network that serves all of Fayette County, including the City of Uniontown (pop. 11,682), the County's 43 municipalities, and its 215 community anchor institutions (51 public safety entities, 2 healthcare providers, 1 community college, 7 other higher education institutions, 7 other community support organizations, 17 public housing communities, 48 schools (K-12), 3 libraries, and 79
governmental entities). FayNet will provide middle-mile service to all of Fayette County and last-mile service to over 97.8% of the total County. Specifically, a total of approximately 59,969 households and over 3,961 businesses will be serviced using the middle-mile broadband infrastructure. FayNet will have the ability to provide a breadth of applications within the covered service area, including the delivery of wireless fixed and mobile broadband solutions for public safety applications, such as high-speed data in police and fire apparatus, video surveillance applications, and connections to police and volunteer fire departments. The network is the only municipal network to receive a 'Smart Practice' designation from the Federal Emergency Management Agency (FEMA) because of its ability to solve interoperability and mobility problems associated with public safety communications. The network will provide Health Insurance Portability and Accountability Act (HIPAA) and National Crime Information Center (NCIC) security and dedicated bandwidth options for sensitive applications. Other proposed services and applications are as follows: 'Broadband/Internet ' Public safety land mobile radio backhaul ' Private data connections (MetroLAN) ' Secure mobile data for public safety ' Video surveillance for public safety and schools ' Smart grid/Automated meter reading (AMR) ' Wi-Fi hotspots for economic development and social inclusion ' SCADA for utilities/water/sewer systems The FayNet network has been designed from the ground up for multiple operators. This network will allow residential customers, commercial customers, government, public safety, educational facilities, and medical facilities to acquire broadband services from a wide variety of service providers. The open network creates a level playing field for all competitors within a free-market environment. The network is specifically designed to seamlessly interface with all major communication carriers both in North America and worldwide. Existing deployments of the proposed network carry critical medical records, backhaul cellular carriers, and provide wholesale long distance connections as well as direct connections to the peering points and to the robust broadband pipes of Tier 1 Internet carriers. The award-winning architecture has been operating as AllCoNet ( Allegany County, Maryland) since 2003 and as Cambria Connected (Cambria County, Pennsylvania) since 2008. This will be a fiber/wireless hybrid system using MPLS, Gigabit Ethernet, Fast Ethernet, ANSI, OFDM, and T1 at each middle-mile connection point. The network security capabilities meet the stringent security standards required for HIPAA and NCIC standards with Layer 2 data separation for diverse customers and service providers. It includes carrier-grade telecommunications infrastructure for high availability, high reliability, and redundancy. It also provides availability of complete communication services, including IP, TDM, and data packet services. It offers support for Legacy applications such as public safety trunked radio and voice T-1s. The network's high performance is achieved, in part, by a design that places the middle-mile backbone near to the end user. Most users are very close from the network core. The planned network support personnel and carrier-class network management framework will ensure efficient network operation and support for this open-access platform that will enable Fayette County to solve digital and economic divide issues with capabilities to invite competition. The proposed network is based on over 14 years of community network builds that date to 1994. The architecture has been activated in over 80 communities and provides critical network connections to tens of thousands of users. The network is built on proven standards-based technology and network management. It has received numerous awards, including the Pennsylvania Governor's Award in 2009 and the 2009 Association of Public Safety Communication Officials (APCO) '911 Center of the Year' award. It has been recognized as a 'Smart Practice' by FEMA and selected as the 'Best Practice' by major consulting groups. The sustainability of the proposed network is
proven by successful operational installations in Cambria County, Pennsylvania (www.cambriaconnected.net) and Allegany County, Maryland (www.allconet.org). Fayette County intends to operate the network in a fashion similar to these networks. The total cost of the FayNet network will be $14,763,526. The last-mile allocation for the network will be $294,725, and the middle-mile allocation for the network will be $14,468,801. It is expected that by the end of the second year, approximately 532 residents/individuals, 156 businesses, and 100 community anchor institutions will be subscribed, and by the end of the eighth year, approximately 5,920 residents/individuals, 1,680 businesses, and 198 community anchor institutions will be subscribed. It is conservatively estimated that over 45 direct jobs will be created or saved by this network build. In addition to making high-speed broadband affordable for local residents, the network will also be a powerful tool for business retention and attraction.