The Midlands Collaborative Broadband Infrastructure Project (MCBIP) seeks funding to deploy a middle-mile broadband infrastructure delivery system and facilitate a last-mile broadband service delivery pilot. It will enhance public safety entities, extend broadband services to community anchor institutions, and provide broadband connectivity into underserved areas of Columbia and Richland County, SC. The City of Columbia is the lead jurisdiction in this three-party collaborative effort. The two subordinate parties are Richland County and Benedict College. Columbia and Richland County will provide the middle-mile infrastructure delivery system needed for public safety data needs and a community security camera system required by the police and sheriff departments. A tertiary benefit will be to enhance and upgrade the mobile data terminals for these public safety agencies. The new infrastructure will resolve the existing problems of slow access to investigative databases/photographic data, add new access to video camera systems, and enhance basic connectivity in remote offices where access is restricted by bandwidth constraints. With rapid, real-time access to multiple resources, the safety of all of our residents will be augmented and enhanced. Benedict College will provide the last-mile infrastructure component that will serve the 'greatest need' communities in the Midlands, which is an underserved, low-income area that spans 24 census tracts. This area received the highest priority because of its demographic data (average household incomes of $25,000 or less), as well as our working knowledge of the educational, economic, and health awareness challenges facing residents and businesses in this area. The last-mile services will also enable broadband access to community anchor institutions and agencies serving vulnerable populations, especially schools, students (K-16), and residents in public housing units and those seeking services from support organizations and government facilities. The proposed service area for the middle-mile portion of the MCBIP covers the urban corridor of Columbia (which runs through the center of the city) and stretches northward into Richland County approx. 4 miles and southward into the county approx. 5 miles, for a total of approx. 21 linear miles of fiber cabling backbone service. This 8-mile coverage area stretches through 25 census tracts to service the City as well as nine small towns/communities. The primary service area for the last-mile portion of this project consists of 24 census tracts that lie within this same urban corridor and along the northern stretch of the middle-mile portion. There are 10,935 households within the middle-mile service area with an approximate population of 28,291. The primary last-mile service area—a subset of the middle mile service area—has a population of 16,657 with 5,925 households and 6,659 housing units. It also hosts 8 public or low-income housing developments, which make up 16.4 % of the housing units and 12 % of the households. This area is home to 55 public safety entities, 23 schools, 22 public parks, 5 public and 3 private libraries, and approximately 3,500 businesses. This area also covers portions of four major
universities: the University of South Carolina, Columbia College, Benedict College, and Allen University (two Historically Black Colleges and Universities). There are also three major hospitals and their supporting facilities with several medical complexes throughout the target community. The proposed service/application for the middle-mile infrastructure is the interconnection of key public safety sites, establishment of a Public Safety WiFi mesh in targeted crime areas, and the installation of security cameras in 9 high-activity community areas to act as a law enforcement multiplier and criminal activity deterrent, with provisions to leverage additional sites if necessary. Last-mile services include a high-speed 3 mbps downstream/1 mbps upstream 'starter' broadband access package for K-16 students, residents, community anchor institutions, and small businesses. The proposed last-mile portion of the MCBIP addresses the needs of these critical community entities and their constituents with affordable, high-speed broadband access, while the middle-mile portion addresses their needs with increased public safety communication and monitoring. The MCBIP has designed segmented capacity to ensure that citizens and customers of the last-mile (CCoLM) services provisions are entitled to access the lawful Internet content of their choice; to run applications and services of their choice; to connect with their choice of legal devices that do not harm the network and are in compliance with network connectivity and service rules; and to have use of whatever network providers, application or service providers, and content providers that can be accessed through the service portal. MCBIP has also committed to not favor any lawful Internet applications or content. It will display network management policies on the web (and disclose changes) as necessary and for the convenience of the CCoLM. All last-mile services will be administered by the last-mile services administrator, Benedict College, which will provide ISP connectivity to the public Internet and offer technically feasible interconnection for reasonable rates and terms. MCBIP has also provided for segmented service delivery for public services and public safety operations that will not be opened or shared with the CCoLM. These middle-mile service provisions will be administered by the lead jurisdiction, Columbia, and reserved for public services and public safety operations only. The broadband system deployed for the middle-mile portion of the MCBIP is a hybrid topology, using an integrated ring and star design comprised of three primary delivery technologies: fiber, copper, and wireless. The base delivery technology will be built around 8.3/125' single-mode fiber, which will operate off of a layer-3 routing core in a redundant fiber ring. Primary trunk spurs will extend from points on the core ring into a segmented distribution star topology. Such design provides for level distribution as we extend into the City and reach into the rural areas of the County. These spurs, or spokes, have been laid out to anticipate and make provisions for future extensions of services and subsequent project phases. The outlying distribution points will also use a wireless backhaul to provide for complete disaster recovery requirements. At each demarcation point, services will either be delivered via a copper-based or wireless star topology from these switching centers. From these demarcation points, a wireless 802.11n dual radio mesh delivering 2.4 GHz and 4.9 GHz frequency bands for both broadband and public safety needs, respectively, will be used. These last-mile services will be through a state-of-the-art field design using wireless network hubs (WHUBs) in a mesh topology. Columbia and Richland County have collaborative IT teams supporting all governmental network services, as well as established help desks and support infrastructures currently in place. The middle-mile proposed services will be an extension of the existing base services, fully integrated into the existing infrastructure for seamless service and support. The MCBIP project plan will adhere to industry-recommended best practices for material and labor standards, and our certified network support
engineers will define and enforce the governance and security aspects of all installations. As such, the middle-mile services developed for the access and function of the public safety operations (i.e., E911, police, sheriff, DHS, EMS, and fire) will be managed by existing public safety staff and follow existing regulations for network security and utility. The last-mile services providing broadband access to underserved and unserved areas will be delivered by Benedict College and its subcontract vendors. Benedict College will provide the expertise necessary to manage, perform billing operations, and provide customer support/service care duties associated with citizen service delivery. The total project cost of the project is $11,789,147. Partners within the project will contribute $2,357,898 in cash and in-kind contributions, which represents 20% of the total project cost. The overall, expected subscriber projections by Year 5 are: 6,659 household subscribers in the targeted area and 16,056 in the secondary area; 311 business customers in the targeted area and 2,272 in the secondary area; and 91 strategic institutions in the targeted area and 106 in the secondary area. According to the Council of Economic Advisors job creation model, at $92,136 per 1-job year, our overall infrastructure cost of $11,789,147 has the potential to create approx. 128 jobs industry and partner wide.