Broadband USA Applications Database

Applicant Name: City of Columbia

Project Title: Capital Community Broadband Services Infrastructure Project

Project Type: Middle Mile

_____Executive Summary_____

The Capital Community Broadband Services Infrastructure Project (CCBSIP) seeks funding to provide a viable middle-mile broadband delivery system that enhances public safety and facilitates last-mile broadband service delivery into underserved areas of Columbia and Richland County. The City of Columbia is the lead jurisdiction in a three-party collaborative effort. The two subordinate parties are Richland County and Benedict-Allen Community Development Corporation (BACDC). The overall, long-range vision for broadband access in Columbia and Richland County is a three-phased approach, which can be appended by future projects without redundancy in cost or duplication of efforts. This overall plan includes the build out of a fiber infrastructure that eventually links underserved and unserved areas throughout the County's 364,000+ residents with an expandable, cost-effective service media for the next four decades. The CCBSIP is the first phase of this vision. In the CCBSIP, the City of Columbia and Richland County will provide the middle-mile broadband delivery services necessary for public safety data needs, a security camera monitoring system required by the police and sheriff departments, and the backhaul fiber delivery infrastructure for the last-mile delivery systems. Currently, the mobile data terminals of the public safety agencies have slow access to investigative databases/photographic data and no access to video cameras, especially in remote offices where access is restricted by bandwidth constraints. With rapid, real-time access to multiple resources, the safety of all of the County's residents will be augmented and enhanced. Once this integral infrastructure is in place, BACDC will provide last-mile services (i.e., affordable broadband access) to the "greatest need" underserved, low-income communities that span 19 census blocks as the primary last-mile service area. 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 (K-12), economic, and health awareness challenges facing residents and businesses in this area. While its purpose is primarily focused on assisting public safety agencies and providing access in underserved areas, the CCBSIP will also enable broadband access to community anchor institutions, as well as institutions and agencies serving vulnerable populations. The project will also stimulate economic growth and create jobs, too. The proposed service area for the middle-mile portion of the CCBSIP predominately covers the urban corridor of Columbia (which runs through the center of the city) and stretches northward into Richland County approximately four miles and southward into the county approximately nine miles, for a total of 32 linear miles of fiber cabling backbone service. It covers approximately 9 square miles and consists of a total of 55 census blocks. The primary service area for the last-mile portion of this project consists of 19 census blocks that lie within this same urban corridor and along the northern stretch of the middle-mile portion. The secondary coverage area of the last-mile portion of the project is 12.4 square miles. There are approximately

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 total population of 16,657 consisting of 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. The secondary last-mile service area has a total population of 44,000 and 15,000 housing units. In addition, the secondary area has 81.7 % minority population, 39.1 % population with annual income below $15,000, and an unemployment rate of 13.2 %. A number of concurrent redevelopment initiatives are planned for this area, which when coupled with affordable broadband access has the potential for significant economic stimulus for this high-need area. The Capital Community is home to 18 police stations, 28 fire stations, 23 schools, 22 public parks, 42 churches, and approximately 3,500 businesses. Five public and three private libraries also exist within this service area. This area also covers portions of three major universities: the main campus of the University of South Carolina and two Historically Black Colleges and Universities (HBCUs)—Benedict College, and Allen University. While not the focus of this particular application, there are also two major hospitals and their supporting facilities arranged in several medical complexes throughout the target Capital Community. The service application for the middle-mile broadband delivery system is the installation of security cameras in 18 high-activity community areas to act as a law enforcement multiplier and criminal activity deterrent. Last-mile services include a high-speed 3 mbps downstream/1 mbps upstream “starter” broadband access package for K-12 students, residents, community anchor institutions, and small businesses. The proposed last-mile portion of the CCBSIP 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 CCBSIP will ensure that consumers are entitled to access the lawful Internet content of their choice, run applications and services of their choice (subject to the needs of law enforcement), connect their choice of legal devices (that do not harm the network), and have competition among network providers, application and service providers, and content providers. It is also committed to not favor any lawful Internet applications or content, display network management policies on the web (and disclose changes), connect to the public Internet, and offer technically feasible interconnection for reasonable rates and terms. The only exceptions the non-discrimination and interconnection obligations would be for the needs of law enforcement and for reasonable network management. The broadband system deployed for the middle-mile portion of the CCBSIP is a hybrid topology, with a ring and star design using three primary delivery technologies: fiber, copper, and wireless. The base delivery technology will be 8.3/125µ single-mode fiber, which will build off of a three-layer routing core in a redundant fiber ring. Spurs will extend from points on the core ring into a segmented distribution star topology. Such design provides for level distribution as we reach into the outside limits and rural areas of the County. These spurs, or spokes, have been laid out to anticipate future phases. The outlying star distribution points will also use a wireless backhaul to complete the disaster recovery requirements. At each demarcation point, services will be delivered via a copper-based star topology and switching center. 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. These last-mile services will be through a state-of-the-art field design and deployment of wireless network hubs (WHUBs). The City of Columbia and Richland County have integrated IT teams supporting all governmental network services, as well as

established help desks and support infrastructures currently in place. The middle-mile services will be an extension of the existing base infrastructure and will be provided in the same manner as the existing infrastructure. The established policy, procedural, material, and labor standards will be followed, and the certified network support engineers will define and enforce the governance and security aspects of all installations. 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 BA CDC and its subcontract vendors. BA CDC 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 Capital Community Broadband Services Infrastructure Project (CCBSIP) is $ $15,329,338. Partners within the project will contribute $1,487,069 in cash and in-kind contributions, which represents 9.70 % of the total project cost. A Matching Funds Waiver Request will be submitted for the remaining, unattainable portion of the required match. As reflected in Attachment H, the overall, expected subscriber projections by Year 5 are as follows: 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 US Bureau of Economic Analysis Regional Input-Output Modeling System (BEA RIMS-II), the expected multiplier for telecommunications projects is approximately 15 jobs created per million, or $67,000 per job. With our overall infrastructure cost of $15,329,338, the CCBSIP has the potential to create approximately 228 jobs. These jobs would be created “industry wide”—the CCBSIP would increase employment at the businesses that manufacture the infrastructure, the businesses that deploy the infrastructure, and the businesses that operate the network, as well.