Public Safety Due to its geographic location, Arlington County, Virginia is in a uniquely demanding position regarding public safety in the National Capital Region. The Arlington County Office of Emergency Management (OEM) also plays a significant role in local Homeland Security as an auxiliary force in helping to protect Reagan National Airport, the Pentagon, and other critical Federal Agencies. The proposed Arlington County Public Network (ACPN) will enhance and strengthen public safety for the County. On September 11, 1991, Arlington County Police and Fire were the first responders at the Pentagon when hijackers crashed American Airlines Flight 77 into the west side of the building. One of the most significant lessons learned that day was the importance of effective, interoperable, and reliable communications. Arlington County has kept those concerns foremost in the development of comprehensive solutions, like the proposed ACPN. For such disasters, public safety radio requires 99.999% availability from redundant pathways in multiple media, end user devices, and RF design, in order to guarantee capacity and priority. The current microwave radio system, providing middle mile access to public safety 800 MHz radios across the County, is not integrated with other County networks resulting in spotty and non-pervasive coverage. This project will provide a resilient fiber backhaul to supplement the wireless capability when obstructions may limit that coverage. The proposed bi-directional fiber ring for the ACPN will ensure alternative pathways in the event of a fiber break with an automatic 'self-healing' mechanism to change signal direction through intact pathways. The ACPN will leverage other Federal investments in process. A separate, Federally funded fiber network, called the Intelligent Traffic System, or ITS, will refresh an aging copper based system that inter-connects traffic signals across the County to a management control room. BTOP funds will help complete unfunded portions of ITS by co-locating dark fiber to support other community, public safety, environmental, and educational initiatives. Without the BTOP funding, the County will not be able to accomplish the objectives of an integrated fail-safe public safety, educational, and human service network, that also extends the ITS by an additional 20 miles of planned pathway beyond the current project underway.

Education A significant educational opportunity exists in Arlington County, as a result of a joint collaborative effort between Virginia Tech and IBM creating a research facility at Glebe Road and Wilson Boulevard. This facility will serve as a center for researching the application of technologies and processes to create community resiliency. By virtue of the Public Broadcasting Service (PBS) studio location for the PBS NewsHour with Jim Lehrer, Arlington can take advantage of a significant educational opportunity. A 2008 PBS study of 40,000 teachers showed that current events was one of their top reasons for searching the web, and they look to PBS NewsHour for quality, timely resources. NewsHour Extra is consistently the top-trafficked section of the NewsHour site, with an average of 200,000 visitors
per month. The ACPN proposal includes plans to construct a pathway for PBS digital video that can be used in the PBS Student Reporting Labs project, a network of local PBS stations, local school districts and media entities to teach students how to report, synthesize information and investigate important topics. Virginia Tech is currently building, as part of its research center in Arlington, a high performance network aggregation facility that will connect National LambdaRail, Internet2, MAX, internet providers, and content providers for research and education institutions throughout the mid-Atlantic region. It will also interconnect these resources to the Arlington Public Schools (APS). The Virginia Community College System has 23 colleges with 40 campuses. Arlington anchor institutions can connect with community colleges throughout the Commonwealth of Virginia through the Virginia Tech node. By partnering with, and interconnecting the Arlington County Schools, the PBS NewsHour Program digital video archives, and the LambdaRail network through the Virginia Tech research facility in Arlington, ACPN will bring educational content and other resources to anchor institutions such as the Arlington County Schools, Libraries and Community Centers. Community Outreach Support for low-income, unemployed, aged, and other vulnerable populations will be supported by connecting the Arlington Community Outreach Program staff at the Arlington Mill facility along the path of the proposed ACPN. The network will enable advanced applications to further their programs serving the economically disadvantaged. Proposed funded service areas: As a middle mile project that interconnects partners with anchor institutions, and County provided last mile facilities, the funded service area is not localized to any particular neighborhood or community, but serves the entire Arlington County as a service area. Households and Businesses passed: As mentioned in the previous section, the funded service area is not localized to any particular neighborhood or community, but serves the entire Arlington County as a service area. The BTOP funded project will be a middle mile project that does not directly connect households or businesses. However, it will stimulate the demand for broadband creating economic growth and job creation by establishing wireless hotspots and attracting business and academic employers. Number of community anchor institutions, public safety entities, and critical community organizations: In addition to the two major partners of Virginia Tech and the PBS NewsHour program, there are 16 primary public safety entities, 39 public schools, as well as the Arlington Mill Center (housing the Community Outreach Program), with an additional 14 community centers with programs directly benefiting seniors, minorities, disadvantaged, and youth via the existing last mile INET that will interconnect to the proposed ACPN. Proposed services and applications: The ACPN will provide a 99.999% reliable backbone network for the mobile radio system. The PBS NewsHour Extra Department, has experimented with student-generated content, lesson plans, "learning objects", wikis, original features written for students, online video packages, and DVDs. Classrooms in different schools will be able to work on projects jointly with access to high bandwidth educational applications through the Virginia Tech LambdaRail portal. High speed online access to the Virginia Community College System through Virginia Tech will enable joint programs among the County community centers and public schools. Approach to addressing the non-discrimination and interconnection obligations: To the maximum number of fiber strands available out of a total county of 144 strands, after the capacity for the public safety, educational and economic development has been secured, the County will lease dark fiber to private, and non-profit organizations to connect to other communications services available in the County on a first come first serve basis. The leasing rates will be determined based on locally available services of a similar nature, in similar unit cost amounts. Type of broadband system that will be deployed: 'TCP/IP Network' Optical Fiber High
Reliability ring architecture. Qualifications of the Applicant: Four ten years, the County has continually updated, and expanded the inter-building fiber network resources to meet demand. The engineering and maintenance of the network electronics as well as last mile infrastructure has been directly and successfully managed by County staff. The County is leveraging a VDOT administered Department of Transportation grant to refresh the copper cable system of the traffic signal system of the county. The project will provide fiber cabling to every major traffic signal intersection in the County over the next three to five years. The team that is managing that cabling project will also manage the proposed ACPN implementation. Overall infrastructure cost: $7,386,047 Expected subscriber projections: As described before, the ACPN will be a middle mile project, supporting other private institutions who may provide last mile access. It is not possible at this time to predict how many business clients will be leasing the available fiber.