Based on the District’s analysis of the broadband penetration data submitted by carriers to the Federal Communications Commission (FCC) on Form 477, the District has a citywide broadband adoption rate of 57.87 percent. This statistic masks the near-100 percent adoption rates in the more affluent parts of the District, as well as adoption rates below 40 percent in large lower income areas. Digital literacy and broadband adoption can improve educational attainment and provide a helping hand out of poverty. In the District, entrenched poverty and low educational attainment are substantial problems. For example, the District of Columbia suffers from one of the lowest adult literacy rates in the country. According to The State of Adult Literacy report published by the D.C. State Education Agency in March 2007, 37 percent of the District’s total adult population reads at the lowest levels of functional literacy. Although adults at this level are represented in all city wards, functionally illiterate adults are most likely to live in Wards 5, 7, and 8, with percentages close to 50 percent east of the Anacostia River. In 2002, the State Education Agency estimated that more than 130,000 adult residents (22 percent of the population) lacked a high school diploma or a General Equivalency Diploma (Washington Literacy Council Annual Report, 2007). The most cost-efficient and technically sound method of deploying fiber serving both the Proposed Funded Service Area (PFSA) described in the District’s Infrastructure application, as well as the vulnerable populations that are the focus of the District’s Public Computing Centers (PCC) and Sustainable Broadband Adoption (SBA) projects, is to implement a citywide fiber ring design. In its three BTOP applications, the District has adopted this approach. The District’s PCC and SBA applications both propose to provide connectivity via fiber and wifi with fiber backhaul. As a result of the ring design, the connectivity aspects of the District’s PCC and SBA applications are reliant on the fiber deployment proposed in its Infrastructure application. The proposed project addresses these needs by creating the middle mile infrastructure to deliver fiber-based broadband services to community anchor institutions and critical community facilities. The system also proposes last mile services offered by a wireless mesh network and meet-me locations for service providers to leverage DC-Net infrastructure so as to be able to extend their infrastructure. * Middle Mile Project: The District will provide affordable broadband service to 228 additional critical community facilities, community anchor institutions, and agencies serving vulnerable populations in the District. 212 are located on fiber spans providing services to the city’s underserved areas and 169 are physically located in underserved areas. Sites include: community health and mental health facilities, public housing sites, aging centers, charter schools, halfway houses, youth facilities, e-commerce training centers, and non-profit organizations serving the community. Services include full voice, video, and data services up to 1 Gbps. * Last Mile Project: Leverage partnerships with commercial service providers and other sponsors to extend the District free Internet
Wi-Fi access zones across underserved residential and designated economic development areas, including reaching 6,046 units at public housing sites, through open mesh network technology. Leveraging the fiber optic network and network core electronics, the mesh will serve an area comprising 130,905 households and 8495 businesses. Because the provided service is free, adoption is expected to be well over 50 percent. Proposed services include access to secure and unsecured online government services at rates of 2 Mbps. The proposed funded service area is the entire underserved region in Washington, DC. The underserved region is primarily made of Wards 7 and 8 and includes portions of Wards 5 and 6. It comprises of 228 community anchor locations and critical community facilities. There are over 4,000 low-income housing units in the underserved area with little to no broadband presence. The proposed broadband infrastructure initially planned to serve the community anchor institutions and critical community facilities can be extended to serve any household or business in the underserved region. DC-Net proposes to build 60 outdoor "meet-me" locations in the underserved region of the District. These locations are model peering points for service providers to meet DC-Net to extend their services to households and businesses in the underserved region. The overall infrastructure construction includes new fiber core and distribution rings. The new fiber core will allow the District to extend governmental services to citizens and to community-based non-profit organizations operating in the public good. In contrast to the existing fiber backbone, this ring is designed to peer at sites with commercial providers, thus meeting the network openness requirements as specified by the BTOP stimulus guidelines. The current fiber backbone is also limited by commercial franchise agreements. In addition, it will also increase the fiber count from the existing 24 to 144, allowing other service providers to peer with DC-Net to offer voice, video, and data services in underserved areas. Cost for infrastructure construction is $5.34 million, electronics and installation is $17.65 million. The broadband system is designed as a Multiprotocol Label Switching (MPLS) over Ethernet network. The interfaces on the access switches is designed to support Gigabit Ethernet (GigE) and the core switches support 10 Gigabit Ethernet standard. The existing network is designed as a MPLS over Synchronous Optical Networking Technology (SONET) network. The fiber is designed in loops to provide redundancy at the physical layer and the SONET protocol automatically reroutes traffic in the opposite direction. The wireless access points are designed to support standard WiFi (802.11a/b/g). The District, through its DC-Net program within the Office of the Chief Technology Officer, has the network infrastructure, staff experience/expertise, and operational systems in place to successfully implement, manage, and operate the proposed expansion to its already extensive city-wide fiber optic network. The District owns and operates outdoor fiber optic cable plant, network electronics and management systems, voice switches and management systems, and telephones. DC-Net supports itself from monthly revenues from customer agencies and institutions and follows zero-based budgeting. DC-Net currently supports voice, video and data transport for over 80 customer agencies and institutions in the District. DC-Net is a highly available network (99.999% 24 by 7 availability in 2008) and supports critical government and public safety data. Based on these factors of reliability and sustainability, DC-Net is well-qualified to extend and operate the broadband infrastructure in the underserved region. It has an experienced staff of over 70 full time employees and contractors to manage and provide services on the network. It has all operational systems in place to support the provision of services - ranging from project management to order handling and trouble resolution. It generates revenue for the District and uses a transparent electronic billing system. The anticipated number of jobs directly created by this project include
approximately 50 within the DC-Net program alone. Moreover, this proposal generates opportunities for job growth through the creation and enhancement of e-commerce job training centers within underserved areas of the District and improves access to job training for vulnerable populations. It also creates virtual incubation centers that support the development of applications for government use (an expansion of the successful "Apps for Democracy" program in the District).