



**Broadband Infrastructure Application
Submission to NTIA – Broadband Technology Opportunities Program**

Submitted Date: 3/26/2010 11:32:51 AM		Easygrants ID: 5116	
Funding Opportunity: Broadband Technology Opportunities Program		Applicant Organization: DISTRICT OF COLUMBIA GOVERNMENT	
Task: Submit Application - BTOP		Applicant Name: Mr. Joseph L Carella	

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A. General Application Information

Applicant Information	
Name and Federal ID for Applicant	
DUNS Number	022555952
CCR # (CAGE)	5JAK7
Legal Business Name	DISTRICT OF COLUMBIA GOVERNMENT
Point of Contact (POC)	KENNETH BOLEY 2024785879 Ext. kenneth.bole@dc.gov
Alternate POC	AYANNA NAHMIAS 2024785900 Ext. ayanna.nahmias@dc.gov
Electronic Business POC	KENNETH BOLEY 2024785879 Ext. kenneth.bole@dc.gov
Alternate Electronic Business POC	AYANNA NAHMIAS 2024785900 Ext. ayanna.nahmias@dc.gov

Name and Contact Information of Person to be Contacted on Matters Involving this Application:	
Prefix	Mr.
First Name	Joseph
Middle Name	L
Last Name	Carella
Suffix	
Telephone Number	410-340-0254



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Fax Number	
Email	EasyGrants@vistatp.com
Title	Director, DC-NET

Additional Contact Information of Person to be Contacted on Matters Involving this Application:

Project Role	Name	Phone	Email
Secondary Point of Contact	Kenneth , Boley	2024785879	Kenneth.Boley@dc.gov

Environmental Point of Contact

Prefix: Mr.
Name: Lewis, C Andrew
Suffix:
Telephone Number: 2024428841
Title: Senior Historic Preservation Specialist

Prefix:
Name: Bullo, Ibrahim
Suffix:
Telephone Number: 2025352506
Title: Environmental Review Coordinator

Organization Classification

Type of Organization	District of Columbia
Is the organization a small business?	No
Does the organization meet the definition of a socially and economically disadvantaged	No



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small business concern?	
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Authorized Organizational Representative	
AOR Name	BOLEY, KENNETH
Result	Applicant Authorized

Project Title and Project Description

Project Title: “DC-CAN” - DC Community Access Network

Project Description: Deploy District-wide fiber to health, educational, public safety, and other community anchor institutions. Enable job creation, skills development objectives by supporting District PCC and SBA applications. Provide backhaul and services for commercial, institutional entities. Enable qualified organizations to provide last-mile capabilities to economically distressed areas of the District.

CCI Priority Checklist

The following items were selected from the CCI Priority Checklist:

1. This project will deploy Middle Mile broadband infrastructure to community anchor institutions.
2. The project will deploy Middle Mile broadband infrastructure and has incorporated a public-private partnership among government, non-profit and for-profits entities, and other key community stakeholders.
3. This project will deploy Middle Mile broadband infrastructure in economically distressed areas.
4. This project will deploy Middle Mile broadband infrastructure to community colleges.
5. This project will deploy Middle Mile broadband infrastructure to public safety entities.
6. This project will deploy Middle Mile broadband infrastructure and either includes a Last Mile infrastructure component in unserved or underserved areas or has received commitments from one or more Last Mile broadband service providers to utilize the Middle Mile components. Any Last Mile components in rural areas do not exceed 20% of the total eligible costs of the project.
7. This project will deploy Middle Mile broadband infrastructure and the applicant has proposed to contribute 30 percent or more in non-federal cost match.



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Comprehensive Community Infrastructure Components

The following items were selected from the Comprehensive Community Infrastructure Components:

Middle Mile

BIP Applicants

Have you also applied to BIP for funding in the sample proposed funded service area?

➤ No

If Yes, please provide the project title and Easygrants ID number:

Title of Joint BIP Application:

Easygrants ID:

Other Applications

Is this application being submitted in coordination with any other application being submitted during this round of funding?

➤ Yes

Easygrants ID	Project Title
5117	"DC BETA" - DC Broadband Education, Training and Adoption
5118	"DC-CCR" - DC Community Computing Resources

If YES, please explain any synergies and/or dependencies between this project and any other applications.

The District of Columbia is filing three BTOP applications, one in each of the Public Computing Centers (PCC), Sustainable Broadband Adoption (SBA) and Comprehensive Community Infrastructure (CCI) categories. Though they do create synergies, they are not dependent upon each other.



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The District's PCC project, "DC Community Computing Resources", or "DC-CCR", will be led by District of Columbia Public Library. DC-CCR will improve public computer center capacity so that those without computers or Internet access at home may benefit—not only from expanded access to computers and broadband, but also from training regularly offered at these centers. DC-CCR will support public computers in the District's 26 public libraries, as well as at two recreation centers, three public schools, and one community college location. DC-CCR can be viewed not only as a complement to, but also a predecessor of the District's Sustainable Broadband Adoption (SBA) project.

The District's SBA project, "DC Broadband Education, Training and Adoption", or "DC-BETA", is targeted more directly at specifically underserved populations, such as those with low incomes, seniors, the disabled, at-risk youth and Hispanic populations. DC-BETA is designed to provide the full range of broadband adoption elements, from training and appropriate content to broadband-connected computers in the home. People who use the District's public computer centers, improved by the DC-CCR project, may enroll in a training class under the DC-BETA project and thus “graduate” to a computer and Internet access in the home.

Finally, the District's CCI project, "DC-Community Access Network", or "DC-CAN", while not a dependency for either DC-CCR or DC-BETA, also forwards a common overall cause: an increase in broadband adoption among the District's vulnerable populations and residents of its underserved communities. By providing low-cost middle mile connectivity, DC-CAN will help drive down the cost of broadband service, thus enabling low-income residents to sustain broadband connectivity beyond the period of free broadband service provided by DC-BETA.

Thus, the three applications filed by the District government, while not dependent on each other to succeed, do build upon each other and create synergies that will magnify and reinforce the impact of each.

Individual Background Screening

Is the Applicant exempt from the Department of Commerce requirements regarding individual background screening in connection with any award resulting from this Application?

- Yes, Applicant is exempt because it is a unit of a state or local government



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If the answer to the above question is "No," please identify each key individual associated with the Applicant who would be required to complete Form CD-346, "Applicant for Funding Assistance," in connection with any award resulting from this Application:

Name	Title	Employer

B. Executive Summary, Project Purpose and Benefits

Essay Question

Executive Summary of the proposed project:

The District of Columbia's Community Access Network ("DC-CAN") infrastructure proposal aims to deliver affordable, value-added middle mile services to community anchor institutions in the city's economically distressed areas, and create points of interconnection for last mile service providers to deliver affordable broadband access to residents and businesses in these areas.

The District's first goal is to provide community anchor institutions with access to up to 10 Gbps broadband services and applications targeted to their needs. Such services are not affordable through commercial service providers. Through DC-CAN, community anchors will be able to tap into a pre-existing government network that serves a wide array of health providers, educational institutions, and public safety entities in the District.

The District's second goal is to establish a robust, high capacity network core with points of interconnection providing access to middle mile services in the city's economically distressed areas, where services are not currently available at affordable rates. This network will enable last mile partners to peer at a reasonable cost, providing end user access via any type of technology at speeds up to 40 Gbps.

Through competitive pricing for all partners, the District aims to spur the delivery of affordable Internet services to homes, businesses, and community-based organizations in the city's



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economically distressed areas and to foster economic development in the regions of the city where it is most needed.

Service Area Profile

Of the District's eight wards, Wards 5, 7 and 8 can be classified as "economically distressed" according to criteria defined in the BTOP NOFA (Round 2). Unemployment in wards 5, 7 and 8 is well above the national rate for the past 24 months and the area's per capita income is less than 80% of the national per capita income. These wards, with Wards 6, 4 and 1, form the contiguous underserved service area for this proposal.

In December, 2009, compared to a national unemployment rate of 10.0%, unemployment in Ward 5 was 15.8%, in Ward 7 it was 19.9%, and in Ward 8 it was 28.7%. Most recent per capita income data (2003) paints a similarly grim picture: \$21,551 or 68.1% of the national average of \$31,632 in Ward 5; \$19,035 or 60.2% of the national average in Ward 7; and \$14,137 or 44.72% of the national average in Ward 8.

Given these income levels, last mile broadband service is simply not affordable. Based on analysis of wired broadband adoption rate, the District has an overall broadband adoption rate of 57.87%; however, broadband adoption rate in these wards is under 40%. See "Network Maps Attachment".

Finally, entrenched poverty, poor health, and low educational attainment are substantial problems in Wards 5, 7, and 8. 37% of the District's total adult population reads at the lower levels of functional literacy. Estimates of functional illiteracy are well above 50%.

Community Impact

DC-CAN will provide fiber broadband infrastructure and affordable middle mile services to 85 schools, 64 health clinics, 23 libraries, 15 senior wellness and nutrition centers, 35 public housing buildings, 4 community college and university locations, and 7 halfway houses. Anchors serve a wide range of vulnerable populations as defined in the NOFA. In addition, DC-CAN will extend service to 35 fire and rescue and 23 police sites. Of the 291 anchor sites, 182 are in the underserved area. This proposal impacts an estimated 415,000 people and creates 270 jobs.



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Proposed services to community anchors—many of which have little or no current broadband service—include full voice, video, data, and wireless services up to 10 Gbps at affordable rates.

In addition to providing much-needed service to community anchors in underserved areas, the District’s proposal leverages critical citywide service networks in the areas of health, education, and public safety. These networks will provide value added services and applications that specifically align with the mission of community anchors and critical community facilities, enabling:

- Community health centers and their patients to share confidential health-related information over a HIPAA-compliant, dedicated service network, improving access to telemedicine, health education, in-home self monitoring, and other applications.
- Public schools to have access to the Internet and shared educational applications (such as Internet2, National LambdaRail, MAX) with other DC public schools, the University of the District of Columbia (UDC), and the Community College of the District of Columbia (CCDC).
- Public schools and public libraries to serve as centers for the delivery of content rich applications such as video teleconferencing and smart boards, fostering interactive learning with students around the country and world. In addition, all libraries will be upgraded to 1 Gbps capacity in support of the District’s Public Computing Center and Sustainable Broadband Adoption initiatives to deliver computer based skills learning and job training.
- CCDC to offer job training programs and educational services to low income student population using 1 Gbps links with UDC.
- Public safety entities, including all Fire and Emergency Management Services (FEMS) and Metropolitan Police Department (MPD) sites to respond more efficiently and in better coordination to emergencies both within the District and across the National Capital Region. Public safety users will gain improved access to secure federal databases and regional public safety networks.

Last Mile Partnership



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Numerous potential economic benefits arise from this project. By building points of interconnection at significant carrier sites and establishing partnerships with carriers and other last mile service providers, the District seeks to spur the delivery of affordable Internet services to homes, businesses, and community-based organizations in the city's economically distressed areas and to foster economic development in these regions.

The District will provide incentives to any qualified partner delivering affordable last mile services in the underserved area. It will offer low-cost middle mile layer 1 and layer 2 backhaul services (currently not available from commercial providers) in the underserved area.

Project Technology

To support its mission, the District will construct a robust, carrier-grade core ring that will provide service to 291 community anchor institutions and provide low-cost, high-bandwidth backhaul services with points of interconnection throughout the city for last mile service providers. Key features of this infrastructure include:

- 50-mile underground core fiber loop throughout the city—with extensive coverage in underserved Wards 5, 7 and 8—enables interconnection between underserved and well-served areas.
- Core DWDM technology, 40 to 80 channels, with each channel capable of supporting 10 Gbps to 40 Gbps and scalable to 100 Gbps.
- 10 Community Anchor Points strategically located across all wards, ensuring equal access and bandwidth capabilities to underserved areas.
- High bandwidth interconnects at lower cost while maintaining clear segregation of commercial and government traffic at physical and logical levels.
- Layer 1 dark fiber and wavelength, layer 2 Ethernet, and layer 3 IP-VPN Multi-Protocol Label Switching (MPLS) services. Interested partners can peer using any type of technology.
- Wi-Fi access points (WAPs) installed at each community anchor institution, providing free local access to the Internet and establishing an infrastructure for broader public wireless access.

Capability

Through the DC-Net program in the Office of the Chief Technology Officer (OCTO), the District has the network infrastructure, staff experience/expertise, and operational systems in place to successfully implement, manage, and operate the proposed overlay to its citywide fiber



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optic network. DC-Net is a public-safety-grade network that provides site redundancy, security, and high availability for government traffic. DC-Net owns and operates outdoor fiber optic cable plant, network electronics and management systems, wireless access points, voice switches and management systems, and telephones. It provides telecom services to over 330 public safety locations, public schools, employment centers, and other government sites in the District.

DC-Net supports itself from monthly revenues from customer agencies and institutions and follows zero-based budgeting; as a result, it is sustainable.

Project Budget, Match and Grant Request

DC-CAN project is budgeted at \$25,033,000, and is scheduled for 30 months. The District will contribute \$7,575,058 (30.2%) in non-federal match, of which \$7,513,090 (30.0%) is cash; the remainder is in-kind services. DC-CAN is requesting \$17,457,942 (69.74%) in federal grant funds.

Project purpose:

DC-CAN meets the BTOP's statutory goals of extending broadband service to underserved regions in the District; it provides broadband access, equipment, and support to a broad range of community anchor institutions (schools, libraries, medical and health care providers, the District's community college, and other community support organizations) serving vulnerable populations; it improves access to, and use of, broadband service by public safety agencies; and it stimulates the demand for broadband, economic growth, and job creation.

The project addresses two main problems: 1) middle mile access to broadband among community anchor institutions in underserved area of the city, and 2) adoption of last mile broadband services in the underserved area. To address low adoption rates in the underserved area, it creates points of interconnection for partners to deliver affordable last mile services to residents and businesses in these areas. It has the following goals:

- * Bring high-speed broadband services to 291 health, education, public safety, and other community anchors serving vulnerable populations in underserved areas of the District.
- * Create a high capacity, public-serving fiber ring with 10 points of interconnection throughout the city to provide middle mile backhaul for last mile providers.



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Middle Mile Service to Community Anchors

DC-CAN will enable the District government to extend highly reliable broadband services to community anchor institutions in the underserved area of the city. This region has a very limited presence of middle mile service providers. The District's survey of providers found no readily available fiber infrastructure or services in the underserved areas, including incumbent provider Verizon.

Community anchors often have to pay the provider for the entire cost of construction from their existing points of presence (POPs) located in the well-served area of the city to their location in the underserved region. The cost of this construction can be estimated at well over \$100,000 per mile and these institutions are over 2 to 3 miles from the closest carrier POP.

In contrast, the District's network is well-positioned to extend broadband services to these institutions. With 65 miles of lateral fiber in the underserved area and only 115 miles of fiber needed to provide service to all community anchors, the District's coverage greatly reduces the relative cost of new fiber expansion.

The network will provide community anchors with unparalleled services.

- Community health centers and their patients will share confidential health-related information over a HIPAA-compliant, dedicated service network, enjoy improved access to telemedicine, health education, in-home self monitoring, and other applications. This supports the DC Primary Care Association's Sustainable Broadband Adoption (SBA) initiative to enable patients to home monitor over an Internet connection.

- Public schools will have access to the Internet and shared educational applications (such as Internet2, National LambdaRail, MAX) with other DC public schools, the University of the District of Columbia (UDC), and the Community College of the District of Columbia (CCDC). This access would be cost prohibitive to individual institutions.

- Public schools and public libraries will serve as centers for the delivery of content rich applications such as video conferencing and smart boards, fostering interactive learning with students around the country and world. In addition, all libraries will be enhanced to 1 Gbps



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capacity in support of the District's Public Computing Center and SBA initiatives to deliver computer based skills learning and job training.

- CCDC will offer job training programs and educational services to low income student population using 1 Gbps links with UDC. This supports the District's SBA initiative to extend job training to low income students and families.

- Public safety entities, including all Fire and Emergency Management Services (FEMS) and Metropolitan Police Department (MPD) sites will be able to provide more efficient and coordinated citywide responses and to share more comprehensive information in response to emergencies both within the District and across the National Capital Region. Public safety users will also have access to secure federal databases and regional public safety networks.

Last Mile Service Provision in Underserved Areas

Due to the lack of middle mile infrastructure in the underserved area, DC-CAN will improve last mile build-out and reduce prices as well. By creating 10 PoPs on the core fiber ring that will serve as points of interconnection for providers, DC-CAN lays the foundation and provides a business case for private and non-profit providers to extend services over the network infrastructure to underserved communities. All sites will support collocation, and commercial service provider presence exists at the two primary sites (at both 1275 K St, NW and 1500 Eckington Place, NE). Five sites are located in underserved areas.

An added benefit of the network topology is secure and public wireless access to District government services over the Internet from hotspot locations—installed at each community anchor institution—on the network. Users within a 600 foot radius of the hotspot can access the Internet at no cost. The District intends to establish a wireless infrastructure, which it can extend in the future to more ubiquitous wireless coverage in underserved areas.

Stimulating Broadband Demand, Economic Growth, and Job Creation

Through affordable last mile services offered by service provider partners and the gradual expansion of DC-FreeWifi wireless Internet access, the District expects to see significantly greater broadband adoption in the underserved area. Economic growth is spurred through greater access to affordable middle mile services.



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DC-CAN project will create 270 jobs.

Recovery Act and Other Governmental Collaboration:

The DC-CAN project will leverage other BTOP funds provided for in the District's other applications, for Public Computing Centers (PCC, #5118) and Sustainable Broadband Adoption (SBA, #5117), as well as an SBA proposal from the DC Primary Care Association (DCPCA). Broadband access for all sites will be served by fiber and wireless equipment provided under DC-CAN and using computer equipment provided at PCC locations and for training programs supported by SBA proposals.

The District's PCC project, "DC Community Computing Resources", or "DC-CCR", has a total project cost of \$2,220,310 and requests \$1,553,310 in federal funds to improve public computer center capacity at 26 DC Public Library (DCPL) locations, two recreation centers, three public schools, and one Community College of the District of Columbia (CCDC) location. DC-CCR leverages the federal E-Rate program, which pays for telecommunications and Internet connectivity for schools and libraries. DCPS and DCPL receive a total of \$10 million per year from E-Rate, and this grant will make use of DC-CAN connectivity.

The District's SBA project, "DC Broadband Education, Training and Adoption", or "DC-BETA", has a total project cost of \$6,726,000 and requests \$4,650,000 in federal funds to provide computer training at DCPL and CCDC locations. DC-BETA leverages other federal development programs, including ARRA programs for library facilities. It also leverages the federal E-Rate program. DCPL receives approximately \$400,000 per year from E-Rate, and the eight DCPL locations included in DC-BETA will make use of DC-CAN connectivity.

The DCPCA SBA project, "Sustainable Broadband for the Medically Underserved in the District of Columbia" has a total project cost of \$10,012,500 and requests \$8,010,000 in federal funds to facilitate improved communication between patients (particularly those who require significant at-home care) and providers by offering equipment, connectivity, and training to low-income community health center patients in the District of Columbia.

Funding for DC-CAN will provide 1- to 10-Gbps infrastructure site capacity required to fully support the above PCC and SBA training initiatives over the grant period and beyond. It will enable the use of video and web-based conferencing and other bandwidth-intensive applications.



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In addition, for DCPCA DC-CAN will support telemedicine, training, Internet access, electronic health records management and other applications over the network.

DC-CAN also leverages ARRA objectives through the creation of jobs in all three categories: direct, indirect and induced. With greater network capacity and the availability of computing and training resources over the network, residents will be better able to utilize on-line training and employment preparation opportunities, increasing job skills, improving job readiness, and providing a boost to the local economy.

Fit with BTOP CCI Priorities:

The District of Columbia Office of the Chief Technology Officer (OCTO) is submitting this BTOP CCI grant application to support the deployment of Middle Mile Broadband Infrastructure (MMBI) within the District of Columbia. The project is named "DC Community Access Network", or "DC-CAN". OCTO believes DC-CAN supports all seven of the BTOP CCI Priorities, as outlined in the NOFA. Following are supporting statements and metrics in support of each of the seven Priorities.

1. Deploy MMBI to community anchor institutions: DC-CAN will provide fiber broadband infrastructure at 1 Gbps capacity to: 26 DC Public Libraries (10 Gbps with Main branch at MLK); 64 community health clinics; 15 senior centers; and 85 schools. (See "Anchor Details and POI Attachment".)
2. Deploy MMBI, with public-private partnerships among for-profit entities, not-for-profit entities, and other key community stakeholders: DC-CAN will work with four external public or private entities to provide inter-connect services and last-mile services, to create content and to deliver last-mile services. In addition, 11 community stakeholders will work to leverage the fiber broadband infrastructure, to provide capabilities to health patients, senior citizens, students and job seekers. (See "Government and Key Partners Attachment".)
3. Deploy MMBI in economically distressed areas. Of the District's eight wards, Wards 5, 7 and 8 can be classified as "economically distressed" as defined in the BTOP NOFA (Round 2). Wards 5, 7 and 8, along with parts of Wards 6, 4, and 1, form a contiguous underserved service area within the District. Within the underserved area, DC-CAN will provide fiber broadband infrastructure to 65 charter schools, 33 health centers, 28 public housing sites, 14 libraries, 8 senior centers, and 5 halfway houses.



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a. Wards 5, 7 and 8 are classified as "economically distressed" as they exceed the two NOFA definitional criteria. First, an area's unemployment rate is greater than one percent higher than the national rate for the past 24 months; second, area's per capita income is no greater than 80% of national per capita income. The following data summarizes the degree of economic distress in these wards (sources: US Bureau of Labor Statistics; US Census Bureau; DC Office of Deputy Mayor for Economic Planning and Development).

b. For Ward 5, Dec 2009 unemployment rate was 15.8%, compared to a national rate of 10.0% (differential of 5.8%). For the prior 24 months, unemployment differentials averaged 4.4% higher (max 6.2%; min 3.0%; average 4.4%). Per capita income for 2003 (most recent year for which available) was \$21,551, or 68.1% of national average (\$31,632).

c. For Ward 7, Dec 2009 unemployment rate was 19.9% (differential of 9.9%). For the prior 24 months, unemployment differentials averaged 7.7% higher (max 10.3%; min 5.3%; average 7.7%). Per capita income was \$19,035, or 60.2% of national average.

d. For Ward 8, Dec 2009 unemployment rate was 28.7% (differential of 18.7%). For the prior 24 months, unemployment differentials averaged 15.1% higher (max 19.2%; min 10.7%; average 15.1%). Per capita income was \$14,137, or 44.72% of national average.

e. There are over 4000 household units in Wards 5, 7 and 8 with little or no access to broadband. However, given the income levels, broadband service is simply not affordable. In a prior analysis provided to the FCC, the District has an overall broadband adoption rate of 57.87%; however, broadband adoption rate in Wards 5, 7 and 8 is under 40% (see Network Maps Attachment).

f. Finally, entrenched poverty and low educational attainment are substantial problems in Wards 5, 7 and 8. According to the State of Adult Literacy Report (published by the DC State Education Agency, March 2007), 37% of the District's total adult population reads at the lower levels of functional literacy. Estimates of functional illiteracy within Wards 5, 7 and 8 are well above 50%.

4. Deploy MMBI to community colleges: DC-CAN will provide 1 Gbps capacity to campus sites for the University of the District of Columbia (UDC), as well as the Community College of DC



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(CCDC). UDC is accredited by Middle States Association of Colleges & Schools (MSCHE), and qualifies as an Historically Black University (HBUC).

5. Deploy MMBI to public safety entities. DC-CAN will provide 1 Gbps capacity to an additional 3 DC Fire and Emergency Management Services (FEMS) sites. DC-CAN will provide 1 Gbps capacity to an additional 23 Metropolitan Police Department (MPD) sites. These upgrades bring DC-Net coverage to 100% of FEMS and MPD public safety fixed sites.

6. Deploy MMBI with commitments for one or more Last Mile broadband service providers to utilize Middle Mile components. Last-mile services are not part of the OCTO DC-Net project directly. However, DC-CAN will support last-mile broadband access efforts with four private partners. These partners will operate in Ward 8, an economically distressed area.

a. In addition, DC-CAN will provide the foundation for free Internet access to District residents.

7. OCTO proposes to contribute 30% or more in non-federal cost match. The "DC-CAN" project budget is \$25,033,000, and the District is offering \$7,575,058 (30.2%) in matching funds. Of the match, \$7,513,090 (30%) is cash, and the balance is in-kind. OCTO's letter of commitment is attached.

Is the applicant seeking a waiver of the Buy American provision pursuant to section x.Q of the NOFA?

➤ No

Is the applicant delinquent on any federal debt?

➤ No

If Yes, justification for delinquency:

Are you seeking a waiver of any requirement set forth in the NOFA that is not mandated by statute or applicable law?

➤ No

Is the applicant a current recipient of a grant or loan from RUS?

➤ No



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C. Partners

Are you partnering with any other key institutions, organizations, or other entities for this project?

➤ Yes

If YES, key partners are listed below:

Project Role: Sub-recipient
Name: Gueverra, Jonathan
Phone: 2022745800
Email: jgueverra@udc.edu
Address 1: 4200 Connecticut Ave, NW
Address 2:
Address 3:
City: Washington
State: District of Columbia
Zip Code: 20009
Organization: Community College of the District of Columbia
Organization Type: District of Columbia
Small business: No
Socially and economically disadvantaged small business concern: No

Project Role: Sub-recipient
Name: McKay, Linda
Phone: 2024594710
Email: [REDACTED]
Address 1: 1404 Jackson Street, NE
Address 2:
Address 3:
City: Washington
State: District of Columbia
Zip Code: 20017
Organization: Mary McLeod Bethune Day Acaademy Public Charter School
Organization Type: Non-profit Institution
Small business: No
Socially and economically disadvantaged small business concern: No

Project Role: Sub-recipient
Name: Brown, Clarence
Phone: 2027245622
Email: Clarence.Brown@dc.gov
Address 1: 441 Fourth Street, NW



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Address 2: Suite 900S
Address 3:
City: Washington
State: District of Columbia
Zip Code: 20001
Organization: Government of the District of Columbia Office on Aging
Organization Type: District of Columbia
Small business: No
Socially and economically disadvantaged small business concern: No

Project Role: Sub-recipient
Name: Schlossman, David
Phone: 2022764722
Email: dschlossman@tmapchs.org
Address 1: 2427 Martin Luther King, Jr. Avenue, SE
Address 2:
Address 3:
City: Washington
State: District of Columbia
Zip Code: 20020
Organization: Thurgood Marshall Academy Public Charter School
Organization Type: Non-profit Institution
Small business: No
Socially and economically disadvantaged small business concern: No

Project Role: Sub-recipient
Name: Cutts, Martha
Phone: 2025411591
Email: mcutts@latinpcs.org
Address 1: 4715 16th Street, NW
Address 2:
Address 3:
City: Washington
State: District of Columbia
Zip Code: 20011
Organization: Washington Latin Public Charter School
Organization Type: Non-profit Institution
Small business: No
Socially and economically disadvantaged small business concern: No

Project Role: Contractor
Name: Morris, Jerry



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Phone: 2027153814
Email: Jerry.A.Morris@saic.com
Address 1: 1710 SAIC Drive
Address 2:
Address 3:
City: McLean
State: Virginia
Zip Code: 22102
Organization: SAIC - Science Applications International Corporation
Organization Type: For-profit Entity
Small business: No
Socially and economically disadvantaged small business concern: No

Project Role: Sub-recipient
Name: Baskerville, Sharon
Phone: 2026380252
Email: sbaskerville@dcpc.org
Address 1: 1411 K Street, NW
Address 2:
Address 3:
City: Washington
State: District of Columbia
Zip Code: 2005
Organization: Distric of Columbia Primary Care Association
Organization Type: Non-profit Association
Small business: No
Socially and economically disadvantaged small business concern: No

Project Role: Sub-recipient
Name: Lanier, Cathy
Phone: 2027274218
Email: Cathy.Lanier@dc.gov
Address 1: 300 Indiana Avenue, NW
Address 2:
Address 3:
City: Washington
State: District of Columbia
Zip Code: 20001
Organization: Government of the District of Columbia Metropolitan Police Department
Organization Type: District of Columbia
Small business: No
Socially and economically disadvantaged small business concern: No



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Project Role: Other
Name: Bruno, S.
Phone: 2024571999
Email: [REDACTED]
Address 1: 910 17th Street, NW
Address 2:
Address 3:
City: Washington
State: District of Columbia
Zip Code: 20006
Organization: Building Hope
Organization Type: Non-profit Foundation
Small business: No
Socially and economically disadvantaged small business concern: No

Project Role: Third party in-kind contributor
Name: Phipps, Jason
Phone: 4106945700
Email: Phipps@ciena.com
Address 1: 1201 Winterson Road
Address 2:
Address 3:
City: Linthicum
State: Maryland
Zip Code: 21090
Organization: Ciena Communications
Organization Type: For-profit Entity
Small business: No
Socially and economically disadvantaged small business concern: No

Project Role: Third party in-kind contributor
Name: Healy, Gerard
Phone: 6312396687
Email: gerar.healy@qwest.com
Address 1: 6800 Jericho Tpke
Address 2:
Address 3:
City: Syosset
State: New York
Zip Code: 11791
Organization: Quest Communications Company, LLC



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Organization Type: For-profit Entity
Small business: No
Socially and economically disadvantaged small business concern: No

Project Role: Sub-recipient
Name: Rubin, Dennis
Phone: 2026733331
Email: Dennis.Rubin@dc.gov
Address 1: 1923 Vermont Avenue, NW
Address 2:
Address 3:
City: Washington
State: District of Columbia
Zip Code: 20001
Organization: Government of the District of Columbia Fire and Emergency Medical Services Department
Organization Type: District of Columbia
Small business: No
Socially and economically disadvantaged small business concern: No

Project Role: Other
Name: Baker, Josephine
Phone: 202322660
Email: baker@dcpubliccharter.com
Address 1: 3333 14th Street, NW
Address 2:
Address 3:
City: Washington
State: District of Columbia
Zip Code: 20010
Organization: District of Columbia Public Charter School Board
Organization Type: District of Columbia
Small business: No
Socially and economically disadvantaged small business concern: No

Project Role: Third party in-kind contributor
Name: Gaines, Ken
Phone: 4103095523
Email: johschne@cisco.com
Address 1: 170 West Tasman Drive
Address 2:
Address 3:
City: San Jose



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State: California
Zip Code: 95134
Organization: Cisco Systems, Inc.
Organization Type: For-profit Entity
Small business: No
Socially and economically disadvantaged small business concern: No

Project Role: Sub-recipient
Name: Tonjes, Chris
Phone: 2027275725
Email: Chris.Tonjes@dc.gov
Address 1: 901 G Street, NW
Address 2:
Address 3:
City: Washington
State: District of Columbia
Zip Code: 20001
Organization: Government of the District of Columbia Public Library
Organization Type: District of Columbia
Small business: No
Socially and economically disadvantaged small business concern: No

Project Role: Other
Name: Peabody, Christopher
Phone: 2023490454
Email: chrispeabody@alliedtelecom.net
Address 1: 1120 20th Street, NW
Address 2: Suite 500s
Address 3:
City: Washington
State: District of Columbia
Zip Code: 20036
Organization: Allied Telecom
Organization Type: For-profit Entity
Small business: Yes
Socially and economically disadvantaged small business concern: Yes

Project Role: Other
Name: Pepe, David
Phone: 7322458576
Email: David.Pepe@T-Mobile.com
Address 1: 90 Matawan Rd.



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Address 2:
Address 3:
City: Matawan
State: New Jersey
Zip Code: 07747
Organization: T-Mobile
Organization Type: For-profit Entity
Small business: No
Socially and economically disadvantaged small business concern: No

Project Role: Other
Name: Savill, Paul
Phone: 5717306528
Email: Sidney.Downs@Level3.com
Address 1: 1025 Eldorado Blvd
Address 2:
Address 3:
City: Broomfield
State: Colorado
Zip Code: 80021
Organization: Level 3 Communications, LLC
Organization Type: For-profit Entity
Small business: No
Socially and economically disadvantaged small business concern: No

Project Role: Sub-recipient
Name: Vigilance, Pierre
Phone: 2024425955
Email: arturo.weldon@dc.gov
Address 1: 825 North Capitol Street, NE
Address 2:
Address 3:
City: Washington
State: District of Columbia
Zip Code: 20002
Organization: Government of the District of Columbia Department of Health
Organization Type: District of Columbia
Small business: No
Socially and economically disadvantaged small business concern: No

Project Role: Other
Name: Steinour, David



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Phone: 2029944277
Email: daouda@gwu.edu
Address 1: 801 22nd Street, NW
Address 2:
Address 3:
City: Washington
State: District of Columbia
Zip Code: 20052
Organization: George Washington University Information Systems and Services
Organization Type: Non-profit Institution
Small business: No
Socially and economically disadvantaged small business concern: No

Project Role: Other
Name: Fahm, Hakeem
Phone: 2022745941
Email: hakeem@udc.edu
Address 1: 4200 Connecticut Avenue NW
Address 2:
Address 3:
City: Washington
State: District of Columbia
Zip Code: 20008
Organization: University of the District of Columbia
Organization Type: District of Columbia
Small business: No
Socially and economically disadvantaged small business concern: No

Project Role: Other
Name: Carter, Clarence
Phone: 2026714200
Email: Clarence.Carter@dc.gov
Address 1: 64 New York Avenue, NE
Address 2:
Address 3:
City: Washington
State: District of Columbia
Zip Code: 20002
Organization: Department of Human Services
Organization Type: District of Columbia
Small business: No
Socially and economically disadvantaged small business concern: No



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Description of the involvement of the partners listed above in the project.

The District Office of the Chief Technology Officer (OCTO) has existing relationships with public and non-profit sub-recipients, private equipment providers, and private service providers.

OCTO engaged potential sub-recipient District agencies in the health, education, and public safety sectors in planning sessions to identify broadband access needs for their constituents. Agencies that coordinated efforts with non-profit organizations (such as the Department of Health and the DC Primary Care Association) extended input to those organizations.

In the health sector, the emphasis was on expanding the network of care to enhance vulnerable populations' access to health services through broadband and to establish infrastructure that enables "one patient – one record" electronic management of medical records. Sub-recipient partners include:

- DC Department of Health: District agency that regulates 64 health clinics covered in the proposal and other medical facilities in the District.
- DC Primary Care Association: Non-profit association that represents the majority of non-profit health centers in the District.
- DC Office on Aging: District agency that manages 15 senior nutrition and wellness centers in the District.

In the educational and job training sector, the emphasis was multifold: 1) Provide the District's independently run public charter schools with broadband access enjoyed by the DC Public Schools; 2) Provide broadband access to new campus locations for the Community College of the District of Columbia (CCDC) and to enhance connectivity at existing CCDC and University of the District of Columbia (UDC) locations; 3) Enhance connectivity at District of Columbia Public Library (DCPL) branches in support of the District's SBA and PCC initiatives.

- Public charter schools: Independent E-Rate eligible non-profit entities monitored by the District Office of the State Superintendent of Education and guided by the District of Columbia Public Charter School Board.



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- Building Hope: Private foundation that serves as a facilities manager for many charter schools in the District.

- DCPL: District entity that runs all public libraries in the city. Through DCPL initiatives, the Department of Employment Services (DOES)—which has seven one-stop job training centers around the city, and already receives full broadband services through DC-Net—is considered an indirect partner.

- CCDC: Public community college that operates at several campuses within the underserved area and is affiliated with UDC.

- UDC: Public university; with CCDC, it provides a continuum of public higher education options for low income students in the District and serves as interconnect point for Internet2 and other educational and research applications.

- George Washington University: Private university that serves as interconnect point to Internet2, MAX, NLR and other educational and research applications.

In the public safety sector, the emphasis was on completing a ubiquitous public safety network within the District. Sub-recipients partners include:

- Fire and Emergency Management Services (FEMS)
- Metropolitan Police Department (MPD)

The grant proposal leveraged public interest generated from OCTO's February 2009 Broadband Summit. At the Summit, the District received support from local community groups, business public/private partnerships, private citizens, private health providers, and other organizations.

OCTO, through DC-Net, engaged equipment manufacturers Ciena and Cisco Systems while designing its core network infrastructure, to maximize use of technology. These providers benefit from the inclusion of their equipment in a state-of-the-art network.

SAIC is a contractor partner that provides fiber construction and network consulting services through sub-contractors, including small and minority owned businesses.



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OCTO, through DC-Net, engaged commercial service provider partners, including:

- Qwest Communications: Service provider with a significant presence in Washington, DC; owns carrier hotel facility at Eckington Place, NE, that serves as interconnect point to the Internet, MAX, and NLR and cross connect point to multiple carriers.
- Level(3) Communications: Service provider with a significant presence in Washington, DC.
- Allied Telecom: Minority-owned LSDBE that provides broadband and Internet services in the Washington, DC area, and has partnered with the District in delivery of services for multiple agencies, including public schools and libraries. Allied is a potential last mile service partner.
- T-Mobile: Wireless 4G broadband service provider with a presence in Washington, DC. T-Mobile is a potential last mile service partner.

The benefits to service providers include greater access to middle mile services at lower prices, opportunity to connect at sites throughout the city (including major carrier interconnect points), and collocation opportunities at these facilities.

D. Congressional Districts

Applicant Headquarters

- District of Columbia

Project Service States

District of Columbia

Project Service Areas

District of Columbia - At-Large



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Will any portion of your proposed project serve federally recognized tribal entities?

➤ No

Indicate each federally recognized tribal entity your proposed project will serve.

Have you consulted with each of the federally recognized tribal entities identified above?

➤ No

E. Service Area Details

Is the applicant seeking a waiver for providing less than 100% coverage of a service area?

➤ No

Project Details

Service Area Type: Middle Mile
Service Area Name: Disadvantaged Wards
Rural Classification of the Last Mile Service Area: Non-Rural
Service Status of the Last Mile Service Area: Underserved

If Service Status is "Underserved" please select at least one applicable option from this list.
The rate of broadband subscribership for the proposed funded service area is 40% of households or less.

Total Square Miles in Service Area: 33
Total Population in Proposed Service Area: 209,734
Total Number of Households in Service Area: 130,905
Total Number of Businesses in Service Area: 8,750
Total Number of Community Anchor Institutions and Public Safety Entities in Proposed Funded Service Area: 182
Unemployment Rate in the Service Area: 18
Median Income in the Service Area: 21,551
Estimated Percentage of Households with Access to Broadband: 95
Estimated Percentage of Households Subscribing to Broadband: 39



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F. Community Anchor Summary

Community Anchor Summary	
Schools (k-12)	85
Libraries	23
Medical and Healthcare Providers	64
Public Safety Entities	58
Community Colleges	3
Public Housing	35
Other Institutions of Higher Education	1
Other Community Support Organization	22
Other Government Facilities	0
TOTAL COMMUNITY ANCHOR INSTITUTIONS	291
Historically Black colleges and Universities	1
Tribal Colleges and Universities	0
Alaska Native Serving Institutions	0
Hispanic Serving Institutions	0



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Native Hawaiian Serving Institutions	0
TOTAL MINORITY SERVING INSTITUTIONS	1

G. Project Benefits

Demographics

Jobs	
How many direct jobs-years will be created from this project?	68
How many indirect jobs will be created from this project?	105
How many jobs will be induced from this project?	97

Methodology used to estimate jobs:

OCTO's estimates of the jobs created by the DC-CAN initiative is based upon guidance provided in "Estimates of Job Creation from the American Recovery and Reinvestment Act of 2009", dated May 2009, and published by the President's Council of Economic Advisers.

Table 5, "Simple Rule for Estimating Job-Years Created by Government Spending", outlines some metrics to be used for calculating job-years based upon government spending. Jobs are classified into three categories:

- Direct jobs - job-years created by the actual spend on the project.
- Indirect jobs - job-years created at suppliers who make the materials used by the project.
- Induced jobs - job-years created elsewhere in the economy, due to consequent spending by the jobs created in the first two categories.

\$92,000 of project spend results in a job-year, regardless of category, per the guidance. Table 5 suggests that 64% of the jobs created are direct or indirect; the remaining 36% are induced jobs. Based on DC-CAN project budget of \$25,033,000, OCTO calculates approximately 270 jobs will be created, rounding down slightly. Allocating based on the guidance provided by Table 5 suggests that approximately 173 direct/indirect jobs will be created, and approximately 97 induced jobs will be created. OCTO calculated direct jobs based upon expected labor as identified in the DC-CAN project plan.



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Final job creation numbers are 68, 105 and 97, for direct, indirect and induced jobs, respectively.
Project Impact:

The DC-CAN project will have a transformative impact on the underserved communities—primarily Wards 5, 7, and 8—in the District by 1) directly serving community anchor institutions in underserved areas and 2) creating points of interconnection that will enable last mile partners to serve residents and businesses.

Community anchor recipients of broadband services and last mile provider partners purchasing middle mile backhaul services from the District both stand to save costs over currently offered services from commercial providers.

Services for Community Anchor Institutions

DC-CAN will immediately address the needs of underserved communities by expanding its middle mile infrastructure to deliver fiber-based broadband services to 291 health, education, public safety, and other community anchor institutions in the District (see Community Anchors and PoI attachment).

DC-CAN will provide fiber broadband infrastructure and affordable middle mile services to 85 public charter schools, 64 health clinics, 23 libraries, 15 senior wellness and nutrition centers, 35 public housing buildings, 4 community college and university sites, and 7 halfway houses. Anchor institutions serve a wide range of vulnerable populations as defined in the NOFA. In addition DC-CAN will extend service to 35 fire and rescue and 23 police sites. Of the total 291 anchor sites, 182 are in the underserved area. The proposal impacts an estimated 415,000 people.

Anchors include:

- Community health clinics: 64 health clinics serving 130,449 patients annually (DOH data), 33 of which are in the underserved area, directly connected. Most centers have limited to no broadband access.
- Senior wellness and nutrition centers: 15 centers will be directly connected, of which 8 are located in the underserved area. For the one year period from 2008 to 2009, these centers served over 17,500 seniors throughout the city (DCOA data). Most centers currently have limited to no broadband access.



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- Charter schools: 85 charter schools directly connected, serving about 27,800 students. Schools must pay independently for all services; many as a result have limited to no broadband access.
- Libraries: One new site directly connected and infrastructure support to 1-10 Gbps capacity for 22 existing sites. This will support the District of Columbia Public Library (DCPL) Public Computing Center (PCC) grant application to offer expanded access and services to the unemployed, underemployed, students, and other community residents. DCPL serves over 220,000 residents.
- Community College of the District of Columbia (CCDC) and the University of the District of Columbia (UDC): One new CCDC location and infrastructure upgrades to 10 Gbps capacity at three existing locations. This will support the District's Sustainable Broadband Adoption (SBA) grant application. CCDC provides a lifeline for students and families through educational opportunities and economic support programs in the most distressed areas of the city. UDC/CCDC serves 4,900 students, 2,200 of whom are at CCDC.
- Fire and Emergency Management Services (FEMS): Three new FEMS locations will be directly connected and upgrades to 1 Gbps capacity for 32 existing sites, putting all FEMS locations on the District network. Based on increased call volume (an average of 8% per year from 2000 to 2006) and the need for enhanced infrastructure to support higher bandwidth critical applications at aging fire stations, this upgrade is critical for response, training, and coordination and is not feasible otherwise given FEMS limited budget for capital expenditures.
- Metropolitan Police Department (MPD) stations: 11 new police stations will be directly connected with upgrades to 1 Gbps capacity for 12 existing sites. This puts all MPD sites on the District network, enabling a more ubiquitous range of communication sharing among public safety agencies in the District.
- Public housing: Enables connectivity to 35 public housing sites with the capability to extend wireless access to online District governmental services and applications from site hotspots to an estimated 15,000 residents in over 6,000 units. Currently, public housing units do not have access to broadband communications, and residents are therefore all underserved or unserved. The DC Housing Authority, which manages these sites, is a potential customer.
- Halfway houses: Enables connectivity to 7 sites serving an estimated 120 inmates transitioning to the community. The DC Department of Corrections, which manages these sites, is a potential customer.

The benefits of expanding the District's network to the targeted community anchors are substantial: anchor institutions will save money as they gain access to government, health, and education related dedicated services not available through commercial service providers.



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Broadband services to community anchors include full voice, video, data, and wireless services up to 10 Gbps at low prices.

Services will include: 2 Mbps to 10 Gbps layer 3 VPN data circuits; unified communications platform that delivers VoIP telephony, unified messaging, web and audio conferencing, video conferencing and other managed services; Internet access; internal and external wireless hotspot deployment with public access to online District government resources; established, low-cost pricing with SLAs, Class of Service (CoS), Quality of Service (QoS) and established payment method. (See "Service Offerings and Competition Data Attachment".)

In a comparison of GSA pricing among providers in the Washington, DC area, the District's 10 Mbps circuit pricing is \$600 and its 1 Gbps circuit pricing is \$4995. This pricing includes the additional benefits for middle mile users on the District's network: physical and logical layer redundancy at all sites, 99.999% availability, network security, and value added applications available at little or no additional charge.

In addition to providing much needed service to community anchors in underserved areas—many of which have little or no current broadband access—the District's proposal leverages critical citywide service networks in the areas of health, education, and public safety. These networks will provide value added services and applications that specifically align with the mission of anchor institutions and critical community facilities.

Middle Mile Services for Provider Partners

Through competitive pricing for middle mile services for all partners, the District intends to spur the delivery of affordable Internet services to homes, businesses, and community-based organizations in the city's underserved areas and to foster economic development in the regions of the city where it is most needed.

The District will offer low-price middle-mile access and backhaul services, fostering partnerships among content and service providers to collaborate in the delivery of telephone, TV, and Internet services. For businesses and entities willing to invest in last mile delivery to underserved neighborhoods, it will offer collocation and other incentives. The District wants to encourage smaller, locally owned businesses and non-profits to deliver affordable last mile



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broadband services in underserved areas, thus leveling a field currently tilted toward large players offering last mile services at premium prices.

Partners will connect at 10 Community Anchor Points (CAPs) throughout the city, five of which are located in the underserved area. Partners interested in using the network to provide last mile services include: Qwest, Level(3) Communications, T-Mobile, and Allied Telecommunications. (See "Government and Key Partners Attachment".)

The District will offer layer 1, 2, and 3 services:

- Layer 1: Dark fiber services and wavelength services at speeds of 2.5 Gbps, 10 Gbps and 40 Gbps. Peering can be done using Ethernet, FC/FICON, SONET or direct wave (OTN) interfaces.
- Layer 2: Ethernet over MPLS (EoMPLS) services at speeds of 100 Mbps, 1 Gbps and 10 Gbps. This will be offered over the MPLS platform built over the robust DWDM ring.
- Layer 3: MPLS VPNs at speeds of 10 Mbps, 100 Mbps, 1 Gbps, and 10 Gbps. Features such as CoS and QoS can be customized for individual VPN customers based on specific requirements.

Vulnerable Populations:

DC-CAN directly provides services to vulnerable populations through community-based health clinics, senior wellness and nutrition centers, public charter schools, the community college, and libraries.

The District's community health clinics have a mission to provide access to care for all, regardless of ability to pay. The 64 identified community clinics serve over 130,500 patients annually (DOH data). Many of those served are Medicaid/Medicare recipients. According to the DC Primary Care Association, while the District has the highest ratio of physicians to population in the country, 300,000 of its 572,000 residents live in neighborhoods the federal government calls "Medically Underserved" or "Health Professional Shortage Areas."

According to 2000 Census data 42% of children in Wards 7 and 8 live in poverty. According to most recently available medical data, Wards 5, 7, and 8 have the highest rates of births to single mothers, births to teen mothers, the percentage of births without adequate care, the percentage of low birthweight babies, and the percentage of children who received Medicaid/SCHIP. ("16th Annual Fact Book 2009 Every Kid Counts in the District of Columbia".)



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Adult residents of Wards 7 and 8 had higher rates of chronic disease, poor health status, and premature mortality. These wards were among the most critical shortage areas for primary care in the city. (2006 Rand Study “Assessing Health and Health Care in the District of Columbia”.)

Addressing the needs of the vulnerable senior population, 15 senior centers provide wellness and nutrition programs for adults over age 60 in the District. According to the DC Office on Aging, for the one year period from 2008 to 2009, these centers served over 17,500 of the approximately 65,000 seniors throughout the city (DCOA data).

Public charter schools in the District serve 27,800 students. 65% of students come from a low income background (eligible to receive free and reduced price school meals). 88% of students are African American and 8% Latino.

Addressing the needs of low income students and families in the most distressed areas of the city, the Community College of the District of Columbia (CCDC) provides a lifeline through educational opportunities and economic support programs. The University of the District of Columbia and CCDC serve 4,900 students, 2,200 of whom are at CCDC. 38% of these students received Pell grants—a low-income, needs-based college grant. In addition, CCDC serves approximately 1,500 students annually in its non-credit Workforce Development division. All are unemployed and below poverty level. CCDC is also about to initiate a 150 student Temporary Assistance to Needy Families (TANF) broadband training program in Ward 8.

District of Columbia Public Libraries address the needs of a cross section of vulnerable populations including low income residents, unemployed, students, senior citizens, and people with disabilities.

Level of Need:

In its survey of last and middle mile wired broadband services in the District of Columbia, the District has found the following facts and issues that highlight the disparity of services in the city.

There is great disparity in the adoption rates between areas in the city. While last mile services are available throughout the city (extensively in wealthy quadrants, and in a very limited way in low-income areas) many of the city’s poorer neighborhoods show adoption rates below 40%. This area encompasses approximately half of the city and is largely located in the city’s NE and SE quadrants. For Internet access, these lower-income residents rely heavily on the strained



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resources of publicly funded libraries, recreation centers, or other community-based facilities. (See "Broadband Adoption Rates Package".)

Last mile broadband service is available through Verizon DSL, Comcast and RCN cable modem service, and broadband wireless services (at this date Verizon FiOS fiber-to-the-premises is not yet available in underserved areas). (See "Service Offerings and Competition Data Attachment".) However, the real problem is two-fold: both service affordability, and service availability.

Affordability of available last mile services must be considered as a major factor when looking at adoption rates in underserved areas. Factors such as unemployment and poverty rates are much higher in underserved areas as compared to rates in well served areas.

Service provider middle mile fiber optic infrastructure is less densely constructed in the underserved areas of the city than it is in well served areas. The District's survey of providers found no readily available fiber infrastructure or services in the underserved areas, including incumbent provider Verizon. Middle mile services are readily available in the city's NW and downtown areas, but less available in the SE and NE areas. Middle mile providers typically only have backbone infrastructure passing through the major highways (Interstate 295) and do not serve establishments in the underserved region. As a result, service providers typically need to construct significant new outside plant to connect facilities in these areas. Due to this lack of middle mile infrastructure, last mile build-out and pricing in the underserved region is significantly affected as well.

During its survey of middle mile providers, the District contacted several established providers in the well-served NW areas to find out availability of similar services in the underserved SE areas. Providers contacted were AireSpring, AT&T, FiberLight, Global Crossing, Level(3), TW Telecom, Verizon, XO Communications and Zayo Bandwidth. These providers have significant footprint and expansive service offerings in the well-served region of the District. However, in the underserved region of the District, all contacted providers except Verizon responded with no readily-available services or infrastructure. Two providers also added that they have no plans to expand their network to the underserved areas. Some providers indicated they would have to use existing ILEC infrastructure to extend services to the community anchor institutions in the region. This shows there is a significant lack of fiber optic infrastructure required to serve community anchor institutions and to extend last mile services to households. (See "Service Offerings and Competition Data Attachment".)



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Community anchor institutions and businesses in underserved areas often end up paying more in upfront construction and installation costs than counterparts in better connected areas of the city. Typical middle mile pricing includes a monthly recurring charge plus a non-recurring charge (NRC) to cover construction and installation. The NRC is based on the actual construction cost, sometimes including a markup, sometimes discounted. As a result, anchors in underserved areas are either 1) limited to services offered via the restricted telephone or cable company incumbent infrastructure at the facility location or 2) required to put forth a substantial up-front investment to obtain a fiber optic service.

A service provider interested in providing last-mile services in the underserved areas faces similar challenges. The options for middle mile connectivity are 1) to obtain DSL or T1 circuits, 2) to construct outside plant to peering points in Maryland or in well-served areas of the District, or 3) to pay for new fiber optics construction by a commercial middle-mile provider.

Commercial services, where available, are often by default not designed for physical and logical layer redundancy. Typically, sites are linked through lateral connections. Redundant links into a site are available at increased prices. For most middle-mile providers, this would require purchasing physically redundant paths from that provider, usually in a customized manner, at twice or more the cost of a single connection. While redundancy is critical for public safety entities, which must remain connected under all conditions; it is also a necessity for health clinics, for which the timely transfer of data can be a matter of life and death, and schools, which operate under a time-critical daily schedule.

Community anchor institutions, as part of their mission, have specific needs for telecommunications services that commercial providers' services are not designed to address. For example, community based health clinics need to transport patient record information over a HIPAA-compliant network, educational facilities need to access research and learning applications, and public safety entities need to share secured data over redundant paths on a highly survivable infrastructure in the event of emergencies and catastrophes.

DC-CAN addresses these issues in the following ways:

- The proposed DC Community Access Network shifts the balance of open access middle mile fiber to underserved quadrants in the city. By building 65 miles of lateral fiber in Wards 5, 7 and



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8, with two parallel lengths of core fiber spanning across Wards 7 and 8, the District is committed to enabling the equitable delivery of middle and last mile services in underserved areas of the city.

- Of the 10 proposed points of interconnection on this ring, five are located in underserved areas of the city, including the new Department of Employment Services headquarters in Ward 7 and the Unified Communications Center in Ward 8. The strategic placement of fiber and points of interconnection in historically overlooked areas of the city will open physical and logical access for community anchors and last mile service providers to middle mile services in these areas.

- The District plans to offer a comprehensive suite of middle mile services at competitive rates to any qualified entity who wants to interconnect. It will also offer incentives to community based enterprises (CBEs) and non-profits committed to providing last mile services in underserved areas, thus spurring economic activity in these areas. This will incentivize companies to provide lower cost and creative solutions for last mile provision of broadband. Potential partnerships would include non-profit created wireless mesh networks, fiber or coax to the home providers, WiMAX or other wireless solution providers over licensed frequencies. (See "Government and Key Partnerships Attachment".)

- The DC-CAN network will be carrier-grade capacity with redundant physical fiber optic paths built for 99.999% availability. In addition, it will provide logical layer path redundancy. To accurately compare services with commercial service providers, the cost of a competitor's service must also include that level of redundancy. Therefore the accurate comparison between the District and a competitor is with a service twice or more the cost of the basic competing middle mile service.

- Services offered to community anchors are tailored to anchor needs and the people that the anchor serves. For example, the District network will offer HIPAA-compliant services and other health-specific applications to health providers; it will offer Internet2 and other research/education applications to educational institutions; and it will provide a highly secure infrastructure for public safety entities to share information within the District government and between the District and federal and regional government agencies.

District Middle Mile Services



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The District will offer layer 1, layer 2, and layer 3 middle mile services.

- Proposed layer 1 services to be offered over the network are single mode dark fiber and wavelength services at speeds of 1 Gbps, 2.5 Gbps, 10 Gbps and 40 Gbps. Peering can be done using Ethernet, FC/FICON, SONET or direct wave (OTN) interfaces.
- Proposed layer 2 services to be offered over the network are Ethernet over MPLS (EoMPLS) services at speeds of 100 Mbps, 1 Gbps and 10 Gbps. This will be offered over the MPLS platform built over the robust DWDM ring.
- Proposed layer 3 services to be offered are MPLS VPNs at speeds of 10 Mbps, 100 Mbps, 1 Gbps and 10 Gbps. Features such as Class of Service, Quality of Service can be customized for individual VPN customers based on specific requirements.

Conclusion

In keeping with the FCC's long term National Broadband Plan goal of enabling high bandwidth to community anchor institutions, the District is offering 1 Gbps and other layer 3 VPN services at a low cost.

Based on financial analysis as reflected in the proforma statements, without BTOP funding the District could not sustain this comprehensive infrastructure build out. The BTOP funding, on the other hand, enables a self sustaining model with a high rate of return. This analysis is based on realistic take rates based on customer interest. Among community anchors who do have services, many currently pay approximately \$400 per month for 1.5 Mbps T1 services. The value offered by the District services—even at 2 Mbps at \$400 per month—is demonstrably higher and better serves the needs of community anchors.

H. Technology

Technology Type

Indicate the technology that will be used to deliver last mile services. The following items were selected:

Wireline - Fiber-optic Cable

Wireless - Terrestrial Fixed



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Other:

Technology Questions

Methodology for Area Status:

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. (See "Broadband Adoption Rates Package".)

The District of Columbia Public Service Commission (PSC) worked collected broadband information for Washington, DC. The Federal Communication Commission (FCC) lists 40 broadband data service providers for the District of Columbia in 2008. Each provider was asked to voluntarily submit FCC Form 477, supplying a breakdown of subscriptions in terms of residential vs. commercial, speed of connectivity, and by Census Tract. For these purposes, a fixed line broadband connection is defined as having a download speed of 768kbps or greater and an upload speed of 200kbps or greater. Data from Form 477 comes from December 2008 and excludes wireless providers due to the difficulty of distinguishing between business and personal use.

The District received voluntary submissions from 30 of the FCC listed 40 broadband service providers. However, four of these businesses do not actually provide broadband data services inside the District. The PSC received an encouraging 75% response rate. All major fixed line facilities voluntarily contributed. Collectively, the data accounts for over 99% of residential subscribers. The District's preliminary analysis below, meets NTIA's definition of "substantially complete," with Census tract as the smallest geography.

After reviewing fixed line facility data, it was discovered that 99% of the residential broadband connections in the District come from the three largest providers. As such, minor providers were not included as they would not affect the 40% threshold for "underserved". Form 477 data from large providers was aggregated by census tract to determine the total number of broadband connections by tract.

Comparing the subscriber data with census data reveals that households which do not have broadband are concentrated on the eastern side of city. The graphs in the "District of Columbia



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Broadband Coverage Area Comparison of Household and Broadband Connections by Census Tract” map compare household count with fixed line facility broadband subscribers by Census tract (see "Broadband Adoption Rates Package"). The shaded red area on the map meets the NTIA definition of “underserved” with a cumulative adoption rate of 39.9%.

Description of Network Openness:

The District is committed to non-discrimination and network interconnection in compliance with and, where possible, beyond the NOFA’s obligations.

The proposed infrastructure provides 10 network interconnection points strategically located in each ward of the city, enabling last mile providers and community anchors in these areas to access affordable middle mile services and the Internet. The network also provides free public access to District government services on the Internet via wireless hot spots at community anchor institutions.

The fiber optic network infrastructure will connect community anchor institutions directly via lit Metro Ethernet services. The District will provision a connection to the Internet and provision virtual private network (VPN) connections as requested by the institutions. The Internet connection will not filter content but may include non-application specific measures to protect against spam, viruses, or denial of service attacks. Internet and VPN connections will be at fixed rate connections per the described service offerings. VPN connections will not filter content or block ports. If desired, connected entities may obtain a VPN connection to a peering point and instead buy Internet or other services from an interconnected network.

Additionally, the DC-CAN backbone ring shall have 10 secure points of interconnections (two of which are located at carrier hotels) available to service providers and entities at reasonable rates and terms. As it does with community anchor institutions, the District will connect service providers’ entities directly to lit Metro Ethernet services and provision Internet and/or VPN connections within the network or to peering points.

Parties wanting interconnection with the fiber optic network can access it through its Internet gateway or peer directly with the Internet connections at 1275 K Street NW and 1501 Eckington Place NE carrier hotels or other peering points that may be offered. Peering will be subject to reasonable rates and terms to be negotiated with the District.



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If an entity wants to connect to the Internet from a non-District connection point, it can establish a VPN from its location or locations to a peering point and obtain service there. In this case, the District is purely providing Metro Ethernet transport to the connected entity.

An added benefit for residents near community anchor institutions, external Wi-Fi hotspots allow free public access to District government services on the Internet over DC-FreeWiFi. The infrastructure will use unlicensed standards-compliant WiFi technology with a publicly broadcast SSID. Users with a WiFi-compliant device can connect and reach the District web portal. From there, users can connect to any Internet content of their choice. Existing DC-FreeWiFi policies will be used; content will not be filtered. Usage for secure government and public safety communications will be through a separate non-public SSID.

System Design:

The DC-CAN network infrastructure is composed of physical plant and network design and equipment.

Physical Plant: Proposed DC-CAN outside plant consists of a backbone ring interconnecting 10 Community Anchor Points (CAPs) in each ward of the city and 10 neighborhood access loops connecting middle mile community anchor institutions. The CAPs consist of key government locations including Department of Employment Services HQ (014), Reeves Government Building (003), key public safety sites (Unified Communications Center (Site 006) and MPD 4th District HQ (Site 248)), carrier hotels in the well-served region including CoreSite at 1275 K Street NW (415) and Qwest at 1500 Eckington Pl NE (253), and a proposed future data center location (228). (See "Network Maps" attachment.)

The DC-CAN backbone ring stretches 57 miles, is completely underground and is diversely routed throughout the city. Handholes will be built for access into this ring at strategic locations in underserved areas of Wards 5, 7 and 8. Power and space for hosting and collocation as well cross-connect services to other carriers will be available at these locations.

The 10 neighborhood access loops connecting the 223 new community anchors span approximately 115 miles of aerial and underground fiber. The fiber is built in loops to provide physical diversity to each community anchor site and is logically provisioned to connect to two core hub-sites providing added electronic redundancy.



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Network Design and Equipment: The DC-CAN backbone ring is designed with a 40-channel ROADM DWDM technology at its core. An MPLS platform built over this core will enable Layer 2 and 3 service offerings. The two carrier hotel sites will serve as the super core sites for central routing. The remaining eight core sites have redundant logical connections to both super core sites over protected physical wavelengths providing sub-50ms failover in case of any electronic failure or fiber break.

DC-CAN proposes to use Ciena's established carrier-grade RS-4200 or comparable optical platform in the backbone ring. The equipment configuration enables multiplexing of 40 channels or wavelengths at 2.5 Gbps, 10 Gbps and 40 Gbps (see "Network Maps" attachment). The same equipment can be upgraded to support future OTU-4 100 Gbps standard. Aligning with FCC's long-term goals of the National Broadband Plan, this robust, future-proof middle mile infrastructure can support potential future last mile providers who wish to offer 100 Mbps to 1 Gbps download and 50 Mbps upload speeds to each household.

The proposed MPLS platform will use Cisco's Aggregation Services Router (ASR) series. Super core sites will have ASR-9010 with multiple 10 GbE for aggregation and 1 GbE and 10 GbE for client connections. Core sites will have ASR-9006 or comparable with dual 10 GbE backbone connections to the super core sites and 1 GbE and 10 GbE for client connections. 1 GbE and 10 GbE client connections can also be provisioned over the DWDM system depending on customer need and preference.

MPLS enables the segregation of IP traffic and application of specific QoS and CoS policies for individual customer traffic. It can prioritize real-time voice and video over data traffic or public safety over regular customer Internet traffic. MPLS also allows targeted cloud services to specific customer bases. For example, HIPAA-compliant services, authenticated connection to patient records, and telemedicine can be offered specifically to VPN customers on a dedicated health network (HIPAA-Net). Similarly, service networks will be created with specific policies for public safety customers (PublicSafety-Net), and educational customers (Edu-Net). Other service networks with specific requirements can be created as needed.

Carriers wishing to provide last mile services using DC-CAN's infrastructure can leverage this robust ring by interconnecting at any of the 10 sites using any type of technology and speeds from 1 Mbps to 40 Gbps. Services can be redundantly provisioned. Carriers can also peer at District's 3rd data center (CoreSite in 12100 Sunrise Valley Drive in Reston VA). CoreSite at



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1275 K St is a primary peering point for over 50 carriers in the District, providing carriers easy access for services that can be offered to last-mile customers simply by cross-connecting to any desired collocated carrier. Carriers can extend the inherent network architecture advantages of QoS, IPv6, OSPFv3 and such to last mile customers.

Unlike other service provider architectures, which require a customer to purchase a secondary path for redundancy, the DC-CAN network has an inherent ringed architecture interconnecting typically eight to twelve community anchors in a fiber loop in diverse physical paths connecting logically to two major hub sites in the loop. This provides redundancy at the physical and logical layers. Bandwidth to community anchors is designed to be 10 Gbps connecting back to the hub-sites. The proposed customer premises equipment consists of a 3560 24-port PoE switch with 1 Gbps port speeds and 10 Gbps uplink speeds. These speeds align with the FCC's long term National Broadband Plan goal of enabling high bandwidth to community anchor institutions.

Anchor sites will also have a wireless access point providing secure WiFi connectivity as well as DCFreeWiFi, a free, public, lower bandwidth access to the Internet.

Hub and site equipment are modular and can be scaled to higher speeds of 40 Gbps and 100 Gbps by replacing blades and necessary modules as 40 and 100 Gigabit Ethernet are standardized. Anchor institutions can communicate with each other over Intranet without needing Internet capacity or connectivity. They can do so at wire speeds, since the infrastructure is non-blocking, does not bottleneck in an Internet connection, and is not subject to the uncertainties of the Internet.

See "Network Diagrams" for overall network design.

Is the applicant seeking a waiver pursuant to section IX.C of the NOFA so as to sell or lease portions of the award-funded broadband facilities during their life?

No

I. Project Budget

Project Budget		
	Federal Grant Request	Match



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Last Mile	0	0
Middle Mile	17,457,942	7,575,058
Total	17,457,942	7,575,058

Project Budget Total: \$25,033,000

Match Percent: 30.3%

Projects Outside Recommended Funding Range:

- DC-CAN is within the recommended funding range for CCI projects, with a total project budget of \$25,033,000.

Outside Leverage	
Applicant is providing matching funds of at least 20% towards the total eligible project costs?	Yes
Matching cost detail	<p>The District of Columbia's Office of the Chief Technology Officer (OCTO) is submitting this BTOP CCI application, for DC Community Access Network ("DC-CAN"). DC-CAN is scheduled as a 30-month project, commencing October 2010 (FY 2011-Q1) and ending March 2013 (FY 2013-Q2). Project costs are budgeted at \$25,033,000, and the grant application is seeking an NTIA BTOP grant in the amount of \$17,457,942. The remaining \$7,575,058 (30.26%) will be contributed by OCTO as matching funds to the project.</p> <p>The overall project spend plan is as follows. In fiscal year 2011, \$18,411,910 (73.6%) of the budget will be spent; in FY 2012, \$5,371,090 (21.5%); the remaining \$1,250,000 (5.0%) in FY 2013. Front-loading of the project spend is due to the need to procure equipment and fiber early; in addition, bulk purchases give OCTO more pricing leverage. Installation and implementation will occur in phases throughout the 30-month project.</p> <p>Of the match, OCTO is contributing \$7,513,090 cash. The bulk of this, \$7,498,090 is in equipment purchases, for:</p>



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	<ul style="list-style-type: none"> - 291 Cisco 3560s, for the proposed 223 new sites, and 68 upgraded sites - 2 Cisco ASR 9010s, for MPLS VPN routing at OCTO's two super-core sites - 8 Cisco ASR 9006s, for MPLS VPN routing at OCTO's eight other core sites - 10 Ciena 4200 RS DWDM units, for transport and capacity management at the ten core sites. <p>The remaining \$15,000 in cash match is being contributed by OCTO to handle initial implementation considerations for policy and procedure regarding transparency, reporting and compliance as the recipient of an ARRA BTOP grant.</p> <p>The planned BTOP grant spend is 70.5%, 22.9% and 6.6%, respectively, in fy 2011-2013.</p> <p>The planned OCTO cash match spend is 80.4%, 18.2% and 1.3%, respectively in FY 2011-2013, ahead of the rate of grant spend, as required by the terms of the NOFA.</p> <p>Finally, OCTO is contributing \$61,968 in in-kind matching contribution. These costs were incurred in the preparation of the application, from the issuance of NOFA for BTOP-2 until application submission. This total includes \$328 to round the project cost up to nearest thousand dollars.</p> <p>Complete details for matching funds may be found in both the Budget Detail sheet, and the supporting Budget Narrative.</p>
Unjust enrichment	The District of Columbia, the Office of the Chief Technology Officer, and all other District agencies and offices receive no unjust enrichment from this grant.
Disclosure of federal and/or state funding sources	As a part of the Government of the District of Columbia, the Office of the Chief Technology Officer (OCTO) receives funding from tax dollars. Sources for cash and in-kind matching contributions are out of OCTO's operating and capital budgets. The match funds are reserved, in the event an NTIA BTOP grant is received from this



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	<p>application.</p> <p>The SF-424D certification is signed by the Chief Technology Officer, and commits the \$7,757,058 in matching toward the project.</p>
Budget reasonableness	<p>The District's CCI application for DC-CAN is being submitted by the Office of the Chief Technology Officer (OCTO). The project to implement the proposed District-wide fiber ring was planned to:</p> <ul style="list-style-type: none"> - enable connectivity to 223 new Community Anchor Institutions (CAIs) - upgrade connectivity to 68 existing CAIs - upgrade to 100% coverage of fixed-site public safety entities (Metropolitan Police Department, or MPD; Fire and Emergency Services, or FEMS) - implement ten core processing centers, to prepare for communications management and enable points of inter-connections (POIs) with commercial carriers - implement wireless access points at CAIs and POIs <p>Configurations at each core processing site, each class of new and upgraded CAI and POI was defined to support the above objectives. Equipment selection based on those configurations was made, with vendors with whom OCTO currently has purchasing / supplier relationships, and with whom current price lists, and standard discounts, exist. Where new equipment is being selected, formal quotations were received for each type of equipment.</p> <p>Labor estimates for equipment configuration and installation for underground and aerial installation of fiber through existing Verizon conduits, for project and program management, for fiber materials and termination equipment, and for labor estimates for site implementations are all based on OCTO's experience running their private Government network.</p>
Demonstration of need	<p>DC-CAN is designed to bridge the digital divide and economic disparity between the well-served and significantly underserved areas of the District of Columbia. As reflected in the Level of Need section,</p>



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there is no significant fiber infrastructure and there is little to no business case for private enterprises to build out in these areas due to poverty and lack of economic interest. Most businesses and charter schools get by with highly priced 1.5 Mbps T1 connections over an unreliable copper infrastructure. The new infrastructure will enable schools and educational institutions to share and collaborate new educational and research developments providing similar opportunities as schools in well-served areas. Institutions such as UDC and GWU, partners to this project, are excited to open up these opportunities to these institutions over the proposed infrastructure.

The District estimates the total project budget at \$25 million and is requesting approximately \$17.5 million (<70%) in federal funding and is matching \$7.5 million of its own funds (>30%) for the proposed project. The network design, including the extent of the fiber build-out in the underserved area and the highly scalable electronics infrastructure provides significant opportunity for last mile providers to easily extend this service to provide broadband speeds outlined in the FCC National Broadband Plan long term goals for residents and community anchor institutions.

Given the District's financial constraints, worsening fiscal situation and reductions of government agency budgets, DC-CAN project cannot be implemented without federal assistance. The discount rate used in the NPV analysis is 6 percent, which is representative of the District's weighted average cost of capital. Without BTOP funding the eight year NPV is \$-4.16 million (an IRR of over -20 percent). With BTOP funding, the eight year NPV is \$2.9 million, with a ending cash balance of \$3.6 million at the end of year 8. This cash balance is required for equipment replacements that started in year six to maintain the long term stability of the network. Reducing the project BTOP funding below 70 percent would jeopardize the long-term sustainability and require the DC-Net to eliminate project costs that the last mile service providers can leverage to address the needs of vulnerable populations.



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	<p>The project assumes minimally discounted industry pricing for proposed circuits and modest take rates based on customer interest to estimate revenues. Operational expenses are estimated based on observed existing network costs. Along with its goal to bridge the digital divide, the project delivers several additional intangible values: to enable affordable broadband services to residents of Wards 5, 7 and 8 and to create economic growth and opportunities in the underserved areas of Washington DC.</p>
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Funds to States/Territories

States	Amount of Federal Grant Request
District of Columbia	17,457,942

Funds to States/Territories Total: \$17,457,942

J. Historical Financials

Matching Funds			
	2007	2008	2009
Revenue	8,489,718,000	8,619,977,000	8,988,432,000
Expenditures	8,914,401,000	10,053,453,000	10,134,792,000
Net Assets	2,977,733,000	2,961,335,000	2,848,112,000
Change in Net Assets from Prior Year	469,264,000	-16,398,000	-113,223,000
Bond Rating (if applicable)	A+ (S&P); A1 (Moody); A+ (Fitch)	A+ (S&P); A1 (Moody); A+ (Fitch)	A+ (S&P); A1 (Moody); A+ (Fitch)

K. Project Readiness



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BTOP Organizational Readiness

DC-Net, the communications and infrastructure arm of the District's Office of Chief Technology Officer (OCTO), has the network infrastructure, staff experience and expertise, and operational systems in place to successfully implement, manage, and operate the proposed expansion to its extensive city-wide fiber optic network.

Today, the District owns and operates outdoor fiber optic cable plant, network electronics and management systems, voice switches and management systems, and telephones. In addition, it has fully operated a fiber optic metro area network since 2003 through its DC-Net program.

Designed to meet public safety and government needs, DC-Net provides broadband service to public schools, libraries, police stations, fire and emergency services sites, job training centers, DC government agencies, community centers, colleges (UDC and CCDC) and other key anchor locations throughout the city.

Infrastructure: DC-Net serves 76 government agencies at 310 sites and has constructed and manages over 330 miles of fiber throughout the District. Its cable plant is 100 percent fiber optic. Every location is within one mile of existing DC-Net fiber rings, often within a few blocks. DC-Net operates a highly resilient, ringed city-wide fiber architecture with three fully redundant data centers on a 10 Gbps core ring. Fiber backbone and access rings have two or more fibers on the ring dedicated to each site. Almost all sites have redundant routes, eliminating single points of failure.

The District designs, manages, and maintains carrier-class network electronic equipment on the network. Only DC-Net authorized electronics operate over the fiber optic cable. Electronics provide a range of highly survivable services, and DC-Net can scale to higher speeds and capabilities, as needed. This provides:

- Guaranteed Quality of Service, backed by SLAs for response and service restoration.
- Secure, any-to-any connectivity through VPNs.
- 24x7 network availability (to 99.999%). 24x7 NOC.
- OC-48 SONET MPLS metro ring backbone network with standardized architecture and modular design that permits for easy ring, site, and services expansion.
- Backup generators for all critical equipment.
- Secured network administration and management functions. Security will be FIPS-compliant and support HIPAA privacy and security guidelines.



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Staff experience: DC-Net has 105 full-time staff covering all phases of network design, operations, and business management. It operates its own crew of field technicians and also has fiber subcontractor agreements in place for prompt response, maintenance, and construction of the network.

Staff highlights include:

- Many years of experience with Verizon and other commercial carriers.
- Trained and certified network architects, engineers, and technicians. Several network engineers are among the first to be certified by Cisco CCIE.
- Responsive service and 24x7 technical support.

Construction and Vendor Contracts

DC-Net is highly experienced in deploying backbone, middle-mile and last mile fiber, having installed over 330 miles of fiber both aerially and underground. The use of highly qualified subcontractors through a prime contractor agreement has facilitated and expedited this process. DC-Net relies on contractors to complete about 70 percent of the work – including fiber survey, fiber path construction for new routes, and repairs of fiber damage in the public right of way. DC-Net completes about 30 percent of the required work – which includes fiber routing path design, splicing of cables, and the provision of all equipment.

DC-Net maintains a prime contract with SAIC for fiber installations and maintenance. SAIC in turn manages installation work through OSP subcontractors (FiberCo, BWS, and others). All fiber installation is monitored and maintained 24/7 by a fully accredited fiber optic company (Genesis), also contracted through the same primary contracting agreement with SAIC.

All deployments meet industry standards and all legal requirements, and are fully supported by an ongoing preventive maintenance schedule.

Customer Base

DC-Net provides broadband service to public schools, libraries, police stations, FEMS, job training centers, District and federal government agencies, community and recreation centers, University of the District of Columbia, and other key anchor locations throughout the city.

District Government customers include:



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Office of Contracting and Procurement
Department of Real Estate Services
Department of Employment Services
Office of the Attorney General
DC Public Schools
DC Public Libraries
Department of Consumer and Regulatory Affairs
Child and Family Services
Department of Transportation
Department of Public Works
Department of Disability Services
Office of Personnel
Department of Motor Vehicles
Office of the Chief Financial Officer
Department of Mental Health
Federal Emergency Management Agency
The Executive Office of the Mayor
City Council
Office of the City Administrator
Office of Unified Communications
Metropolitan Police Department
Fire and Emergency Medical Services
Department of Corrections
Office of the Chief Technology Officer
Homeland Security and Emergency Management
Department of Health
Department of Human Services
University of the District of Columbia
Community College of the District of Columbia

Federal government agency customers include:
Federal Emergency Management Association (FEMA)

Licenses, Regulatory Approvals and Agreements



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The District constructed 80% of its fiber by lashing it to Comcast and RCN aerial strand or pulling it through Verizon underground conduit, pursuant to agreements. DC-Net acquired balance of dark fiber access through Comcast and RCN franchise agreements. It obtained dark fiber access from Level(3) Communications via a 25-year Indefeasible Right-to-Use (IRU) agreement.

DC-Net maintains and repairs all fiber except for Level(3) fiber (maintained by Level(3) under an IRU agreement) and the portion of Comcast fiber in its backbone ring fiber (maintained by Comcast under franchise agreement terms).

The District has the right to use commercial conduit. DC-Net has fiber cable installed in Verizon's underground conduit, but cannot have service loops in Verizon vaults or manholes; therefore DC-Net places looped fiber in its own vaults/manholes in adjacent infrastructure.

The District has the following agreements in place:

- a. Comcast: Cable Television Franchise Agreement between the DC and Comcast Cablevision
- b. Level(3): 100% underground infrastructure owned and maintained by Level(3). DC-Net maintains the cable from Level(3) manhole to customer premise. Splice points with this infrastructure are in the Level(3) manhole.
- c. RCN: Shared infrastructure is made of aerial, underground, and spliced backhaul on RCN fiber cable. DC-Net maintains its cable lashed to RCN aerial infrastructure/fiber cable and RCN maintains shared cables in RCN conduit.

SPIN Number

L. Environmental Questionnaire

Project Description

Deploy District-wide fiber to health, educational, public safety, and other community anchor institutions. Enable job creation, skills development objectives by supporting District PCC and SBA applications. Provide backhaul and services for commercial, institutional entities. Enable



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qualified organizations to provide last-mile capabilities to economically distressed areas of District.

Property Changes

DC's Columbia State Historic Preservation Office (SHPO) has reviewed the BTOP application for the proposed broadband stimulus grant in accordance with Section 106 of the National Historic Preservation Act and is writing to provide assessment of potential effects on historic properties.

Since we understand that providing broadband service will generally require relatively minor above-ground alterations to connect new cable to buildings and that much of the new fiber will be run through existing conduit in existing rights of way, and that with appropriate setback for rooftop-mounted wireless access points, the preliminary opinion is that the work is likely to constitute "no adverse effect" on historic properties.

See attached letter, "SHPO No Adverse Effects Letter", which reflects this preliminary opinion.

Should the application be reviewed in due diligence, OCTO is prepared to discuss what NTIA feels would be satisfactory, in addressing any remaining property concerns.

Buildings

DC's Columbia State Historic Preservation Office (SHPO) has reviewed the BTOP application for the proposed broadband stimulus grant in accordance with Section 106 of the National Historic Preservation Act and is writing to provide assessment of potential effects on historic properties.

Since we understand that providing broadband service will generally require relatively minor above-ground alterations to connect new cable to buildings and that much of the new fiber will be run through existing conduit in existing rights of way, and that with appropriate setback for rooftop-mounted wireless access points, the preliminary opinion is that the work is likely to constitute "no adverse effect" on historic properties.

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Should the application be reviewed in due diligence, OCTO is prepared to discuss what NTIA feels would be satisfactory, in addressing any remaining building concerns.

Wetlands

Given that the project scope covers much of the District, various wetlands may be present near the project, as shown at:

<http://ddoe.dc.gov/ddoe/frames.asp?doc=/ddoe/lib/ddoe/information2/water.reg.leg/wetland.map.pdf>.

However, because the proposed project does not involve construction, the wetlands will not be affected by the type of work proposed.

Critical Habitats

The U.S. Fish and Wildlife Service lists five federally endangered animals (Hay's Spring Amphipod, American Burying Beetle, Eastern Puma, Dwarf Wedgemussel, and the Gray Wolf) and one federally threatened plant species (Pogonia, small whorled) for the District of Columbia (<http://ecos.fws.gov/tess>). Of the five listed animals only one, Hay's Spring Amphipod, actually occurs within the District. The federally threatened plant, (Pogonia, small whorled) does not occur in the District.

Further, the District of Columbia's Wildlife Action Plan identifies more than 750 species of greatest conservation need (SGCN) and their priority habitat areas. These species and habitats are mainly restricted to national parks or other federally owned lands. The proposed Broadband Project is near and/or crosses some of these suitable habitat areas (i.e., rivers and creeks). There are four known SGCN that have suitable habitat in some portions of proposed project. None of the species are known to be in site specific project areas, but the landscape/habitat supports the existence of them. These species include the bald eagle, bog turtle, Atlantic sturgeon and shortnose sturgeon. As previously mentioned the dwarf wedgemussel does not occur within the District, and the Hay's Spring Amphipod, a federally endangered invertebrate, is not in the area of the proposed project.

Floodplain



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The effective Flood Insurance Rate Map (FIRM) dated November 15, 1985 and the preliminary effective FIRM dated 2007 are available for viewing through our website:
<http://ddoe.dc.gov/floodplainmap>.

The preliminary 2007 FIRM is the best available data and shall be used to determine whether a particular site is within the Special Floodplain Hazard Area (SFHA). According to the final site list (see Anchor Detail and Points of Interest Attachment), there are eight (8) properties located entirely or partially within the SFHA as delineated in the preliminary 2007 FIRM.

However, as the proposed project does not involve any development or substantial improvement wholly or partially within any SFHA, Flood Hazard Rules will not apply to the project.

Protected Land

No protected lands are disturbed or affected by this project.

New fiber will be placed only thru existing conduit. Crossing the Anacostia River will be through existing conduit along bridges.

Coastal Area

The District of Columbia, the areas affected by this project, are not within the boundaries of a Coastal Zone Management Area (CZMA).

Brownfield

All the sites affected by this project are not brownfield sites. As the proposed project will involve only the installation of fiber in existing conduit along bridges crossing the Anacostia River, the project will occur near known areas of contamination (river sediment; shoreline properties such as Washington Navy Yard, an NPL Site), but will not disturb or come in contact with any of these areas.



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Uploads

The following pages contain the following uploads provided by the applicant:

Upload Name	File Name	Uploaded By	Uploaded Date
Service Offerings and Competitor Data	100325 5116-CCI Service Offerings Competitor Data Final.xlsx	Carella, Joseph	03/25/2010
Network Diagram	100324 5116-CCI Network Diagrams Package Final.pdf	Carella, Joseph	03/24/2010
Build Out Timeline	100325 5116-CCI Build-Out Timeline Final.pdf	Carella, Joseph	03/26/2010
List of Community Anchors and Points of Interest	100325 5116-CCI Anchor Detail POI Final.xls	Carella, Joseph	03/26/2010
Management Team Resumes and Organization Chart	100325 5116-CCI OCTO OrgChart Resume Package Final.pdf	Carella, Joseph	03/26/2010
Government and Key Partnerships	100325 5116-CCI Government Partner Package Final.pdf	Carella, Joseph	03/26/2010
Historical Financial Statements	100314 5116-CCI Historical Financials Package.pdf	Carella, Joseph	03/14/2010



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Budget Narrative	100324 5116-CCI Budget Narrative Final.pdf	Carella, Joseph	03/25/2010
Detailed Budget	100323 5116-CCI Detailed Budget Final Submitted.xls	Carella, Joseph	03/24/2010
Pro-forma Forecast	100325 5116-CCI ProForma Financials Final.xls	Carella, Joseph	03/25/2010
Subscriber Estimates	100325 5116-CCI Subscriber Estimates Final.xls	Carella, Joseph	03/25/2010
Dashboard Metrics	100325 5116-CCI Key Metrics Dashboard Final.pdf	Carella, Joseph	03/25/2010
Service Area Data	100324 5116-CCI Service Areas Final.xls	Carella, Joseph	03/24/2010
Network Maps	100324 5116-CCI Network Maps Package Final.pdf	Carella, Joseph	03/24/2010
BTOP Certifications	100325 5116-CCI BTOP Certification Signed.pdf	Carella, Joseph	03/25/2010
SF-424 C and D	100325 5116-CCI SF424-	Carella, Joseph	03/25/2010



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	CD Signed.pdf		
Supplemental Information	100325 5116-CCI OCTO-Sivak Match Commitment Signed.pdf	Carella, Joseph	03/25/2010
Supplemental Information	100324 5116-CCI Broadband Adoption Rates Package Final.pdf	Carella, Joseph	03/24/2010
Supplemental Information	100324 5116-CCI Consolidated Project Plan Final.pdf	Carella, Joseph	03/24/2010
Supplemental Information	100325 5116-CCI SHPO No Adverse Effect Letter.pdf	Carella, Joseph	03/25/2010
Supplemental Information	100325 5116-CCI Support Letter Package Final.pdf	Carella, Joseph	03/26/2010
Supplemental Information	100325 5116-CCI Request for A-6 Categorical Exclusion.pdf	Carella, Joseph	03/26/2010