



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

Submitted Date: Easygrants ID: 4816	
Funding Opportunity: Broadband Technology Opportunities Program	Applicant Organization: VIRGIN ISLANDS PUBLIC FINANCE AUTHORITY
Task: Submit Application - BTOP	Applicant Name: Mr. Julito A Francis

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A. General Application Information

Applicant Information	
Name and Federal ID for Applicant	
DUNS Number	789438293
CCR # (CAGE)	5MQ14
Legal Business Name	VIRGIN ISLANDS PUBLIC FINANCE AUTHORITY
Point of Contact (POC)	JULITO A. FRANNICIS 3407141635 Ext. jafrancis@usvipfa.com
Alternate POC	PERSIA LEONARD 3407141635 Ext. pleonard@usvipfa.com
Electronic Business POC	JULITO A. FRANCIS 3407141635 Ext. jafrancis@usvipfa.com
Alternate Electronic Business POC	PERSIA LEONARD 3407141635 Ext. pleonard@usvipfa.com

Name and Contact Information of Person to be Contacted on Matters Involving this Application:	
Prefix	Mr.
First Name	Julito
Middle Name	A
Last Name	Francis
Suffix	
Telephone Number	340-774-2696



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Fax Number	340-714-1635
Email	jafrancis@usvipfa.com
Title	Director, Office of Economic Opportunity

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

Project Role	Name	Phone	Email
Secondary Point of Contact	Ms. Persia , Leonard	3407141635	pleonard@usvipfa.com

Environmental Point of Contact

Prefix: Mr.
Name: Foresto, John
Suffix:
Telephone Number: 508-533-6830
Title: Program Manager

Organization Classification

Type of Organization	US Territory
Is the organization a small business?	No
Does the organization meet the definition of a socially and economically disadvantaged small business concern?	No

Authorized Organizational Representative

AOR Name	FRANCIS, JULITO
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Result	Applicant Authorized
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Project Title and Project Description

Project Title: viNGN Comprehensive Community Infrastructure Program

Project Description: The viNGN network will be the middle mile for the U.S. Virgin Islands. It will ultimately provide contemporary 10 gigabit Carrier Ethernet transport for service providers and anchor tenants throughout the region, bringing broadband to a previously 100% underserved area. It is a community effort being created to launch major economic development through technology in the Territory.

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.

Comprehensive Community Infrastructure Components

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



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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
6478	viNGN Public Computer Centers Program
6479	viNGN Sustainable Broadband Adoption Program

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

The U.S. Virgin Islands is submitting three cooperating BTOP grant proposals to create the truly “comprehensive community” that the BTOP program seeks in this round. The projects related to this viNGN Comprehensive Community Infrastructure (viNGN CCI) proposal are the viNGN Public Computer Centers Program, and the viNGN Sustainable Broadband Adoption Program. All three projects can stand alone, but are tremendously enhanced if multiple projects go forward.

The viNGN CCI middle mile system provides capacity to make the video and high-speed reach aspects of the other two projects more optimal. It extends backhaul capacity so that last mile



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providers can expand the effectiveness of their fixed and mobile connectivity throughout the Territory. It provides high-speed broadband capacity that is reliable, consistent, and much more widely available.

The viNGN Public Computer Center Program supports the supply side of the system by placing more computers in local facilities within easy reach of vulnerable populations. It provides access to the Internet for children and youth seeking information and constructive collaboration opportunities. It also supports adults seeking employment by providing Internet access for training, job search, and online job applications. The new equipment extensively supports teleworking and older citizens who require computer access to connect with their families. Many videoconferencing features are needed to support these computers and instruction in this multiple island environment, more so than in land based states.

The viNGN Sustainability Broadband Adoption Program supports the demand side of the system. It provides outreach, training, facilities, and technical support for all age groups. It specifically aims at children at local libraries and community centers and supports social interaction centers where small groups of young people can work together on projects which improve their technology skills and provide other expansion opportunities. An extensive offering of online courses which includes many technical certifications will enable the unemployed and underemployed to train for new jobs. The project also provides teleworking support centers for video interviewing, training, technical support, and staff meetings with distant corporate offices for new jobs in the USVI.

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

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



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B. Executive Summary, Project Purpose and Benefits

Essay Question

Executive Summary of the proposed project:

Please refer to “The Importance of Strategic Thinking” in Supplemental Information.

The viNGN comprehensive community infrastructure will provide USVI anchor tenants with gigabit broadband access that is 1,000 times faster than what is now popularly defined as "Premium Service." It will be on a par with speeds available in Singapore and Japan.

The new infrastructure is being coordinated with electric power smart grid plans so both projects can leverage construction efficiencies by deploying the fiber bundle just once. The new infrastructure core will be underground and undersea to better withstand destruction caused by hurricanes and tropical storms.

THE OPPORTUNITY

Per capita income for the Territory was \$20,381 in 2008, barely one-half the U.S. average of \$39,751 (51% of the U.S. average) and substantially less (31% less) than the poorest state (\$29,569 for Mississippi), according to the U.S. Bureau of Economic Analysis and USVI Bureau of Economic Research (BER). The preponderance of unemployment and low-paying service jobs results in 23.7% of the population living below the poverty line, according to the latest numbers from the USVI BER. Although the general economic condition in the Territory is well below all states, broadband costs are 156% higher than average mainland prices, generally due to lack of competition and high costs of connecting to the mainland. Broadband expansion is needed for economic, educational, and social development, plus provision of services in the Territory. We address all these problems with our solution.

THE SOLUTION



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Our middle mile system will be an entirely fiber optic infrastructure. viNGN will provide wholesale middle mile services for retail service providers. Service is provided at a layer 2 Carrier Ethernet transport level plus dark fiber so retail service providers can provide any higher level service such as direct Internet access, VoIP, IPTV, teleconferencing, smart grid, mobile backhaul, security applications, and other services they may now offer or want to offer in the future.

We will offer up to 1 gigabit service to each anchor tenant location, and up to 10 gigabit service to retail service providers at our 36 community hubs spread conveniently around the islands. The aggregate capacity of each initial core network will be 160 gigabits.

325 community anchor institution locations will directly attach to the middle mile network. Anchor tenants have formed the USVI Broadband Coalition to better organize their diverse needs and requirements. We are responsive to needs of all sectors, as indicated by the included letters of endorsement.

We will offer two services: InternetCONNECT which is commodity Internet transport, and PrivateCONNECT with quality of service-oriented private line service. The vast majority of services sold will be Internet transport; however, latency tolerances for the smart grid and mobile synchronous clocking require the added capability that will be provided. Our service includes transport for retail service providers from our gateway locations to our aggregation point at the NAP of the Americas in Miami.

Our policies and technologies for open access provide the prescribed equal access and neutrality for all retail service providers who use our InternetCONNECT services to reach the Internet.

BENEFITS

This project fully addresses all BTOP statutory purposes:

1. We will provide broadband service to anchor tenants and service providers in the unserved portion of the Territory (east central St. John).
2. 100% of the USVI is underserved by the NOFA definition. We support all areas.



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3. In conjunction with the related viNGN SBA and viNGN PCC proposals, we will help provide broadband to anchor tenants including schools, libraries, medical and healthcare providers, University of Virgin Island (UVI) campuses, and community centers, and research centers. These community extensions provide outreach, broadband access, equipment, online courses, job training, and support services to facilitate greater use of broadband services by vulnerable populations.

4. We will improve access to, and use of, broadband service for public safety agencies including the U.S. Military Southern Command, USVI National Guard, Virgin Islands Territory Emergency Management Agency (VITEMA), police and fire departments, and the E-911 Public Safety Answering Points.

5. We will stimulate demand for broadband, economic growth, and job creation through lower prices, extended reach, and the related SBA and PCC programs. The CCI middle mile will result in lower-cost, more desirable services for a wider population. Reducing the cost of broadband access nearer to mainland prices will cause a rapid expansion of penetration. Our telework approach will create enough job expansion to make this the single greatest private sector job source in the Territory.

In addition, our project will enhance health care delivery by supporting the new electronic health records exchange program, the telemedicine program, and high-speed medical center connectivity at all locations. It will also enable Virgin Island government economies and increases in efficiency by making centralized electronic record keeping possible. In addition to providing fiber connections with gigabit speeds to all schools, the new library programs we support specifically target introduction of broadband access for children.

Due primarily to the viNGN SBA telework program, we expect to generate approximately 1,016 new job years as a result of the new middle mile network.

PROPOSED FUNDED SERVICE AREA

The proposed funded service area encompasses the main islands of the Territory. The population clusters in Charlotte Amalie on St. Thomas, Christiansted and Frederiksted on St. Croix, and Cruz Bay on St. John. In 2008 there were 115,431 people in 42,943 households (USVI BER).



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There are 2,583 commercial businesses based on U.S. Census estimates dated 9/1/2009. viNGN will also help solve problems involved in serving over two million tourists per year. Although not included in the population count, waves of tourists currently clog USVI wired, wireless, and cellular networks when cruise ships are in town.

Through increasing availability and reliability and reducing cost, viNGN expects total broadband subscribers (residential, business, and anchor tenants) to grow significantly, from 20,292 in 2012 to 30,711 in 2018 (7.3% annually over the period). Subscribers for services using viNGN’s wholesale middle mile network are expected to grow from 2,459 in 2012 to 29,497 in 2018 (157% annually), eventually encompassing almost all broadband subscribers.

APPLICANT QUALIFICATIONS

The applicant and partners are well experienced in broadband matters such as those planned.

For example:

- One viNGN board member heads the electric power utility and has experience with broadband/power programs in Atlanta.
- The operations director operates both the communications network and SCADA system for the power utility. Formerly, he held an important role for the incumbent telephone company.
- The deployment project manager, formerly the Vice President of Network Engineering for Verizon, has been engaged in viNGN planning since July 2009. He brings key team members with him to supervise deployment.
- Our ISP interconnect partner, AMPATH, is already the provider of Internet and Internet2 connection for the UVI.
- Our local support teams for anchor tenant deployment, integration, technical support, and consulting are the largest, most effective such groups in the Territory.

OVERALL INFRASTRUCTURE COST



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The overall infrastructure cost is \$90,586,984 of which \$59,839,033 is federal funding.

SUMMARY

The USVI economy, relative isolation, periodically disastrous climate, and difficult geology have resulted in the poorest and highest-cost communications infrastructure in the continental U.S. High poverty levels, severe capital limitations, and limited educational choices all sap the economy and cause many youth to seek opportunities elsewhere.

viNGN will help solve these problems. Reliable, accessible, and affordable broadband will enable institutions and businesses to cost-effectively serve their constituents and markets. Students and business people will be able to take advantage of opportunities for distance learning, online job training, telework, and global consumer or financial markets, resulting in new well-paid jobs, new businesses, and the economic growth we desperately need.

viNGN takes a realistic, modular approach to implementing a middle mile network. It is widely and enthusiastically supported by the USVI government, service providers, businesses, and the community. It results in break-even operation within the study period and long term sustainability. The BTOP investment can make this program a reality.

Project purpose:

This project provides middle mile high speed Carrier Ethernet transmission services from our Internet aggregation point at the NAP of the Americas in Miami to connection points at our carrier hotels in the Virgin Islands. Then it continues on to convenient community hubs in neighborhoods for last mile service providers to connect and extend services to their subscribers. We also provide anchor tenant premises hubs for last mile service providers to deliver broadband-based services to anchor tenants.

In 2008 the Territory per capita income was \$20,381 compared to the U.S. average of \$39,751 (51% of the U.S. average) according to the U.S. Bureau of Economic Analysis and USVI Bureau of Economic Research (BER). The USVI BER currently shows 23.7% of the population living below the poverty line. This puts the general economic condition in the Virgin Islands below all states. Yet broadband tends to be 156% higher than mainland prices, generally caused by lack of competition due to lack of any competitive local exchange carriers in the Territory and high costs of connecting to the mainland. There is an economic need for broadband expansion in the



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Territory and we fully address this need with our solution that provides a 10 GB middle mile that reaches the national aggregation point in Miami where there is a peering choice of over 160 carriers.

We support the statutory objectives as follows:

- Our proposed solution demonstrates broad significance including interconnection to the National Anchor Tenant Network via the National Lambda Rail. The hierarchical approach to enabling gigabit capacity to each of our anchor tenants and enormous capacity for all our retail service providers can be replicated repeatedly across the country. We are a building block by design.
- Section III of the NOFA defines “underserved area” as a “last mile or middle mile service area where at least one of the following factors is met:...(ii) no fixed or mobile terrestrial broadband service provider advertises to residential end users broadband transmission speeds of at least three megabits per second downstream in the Last Mile or Middle Mile service area; or (iii) the rate of terrestrial broadband subscribership for the Last Mile or Middle Mile service area is 40 percent of households or less.” Since no service provider in the U.S. Virgin Islands meets the three megabits speed criteria (source: USVI State Broadband Data and Development finding) related to item (ii), then by NOFA definition, the U.S. Virgin Islands is totally “underserved.” We believe we also qualify under item (iii), but our SBDD confidentiality agreement precludes disclosure of this information.

This project fully addresses all BTOP statutory purposes:

1. Provide access to broadband service to consumers in unserved areas.

We provide broadband service to anchor tenants and service providers in the unserved portion of the Territory (St. John census block group).

2. Provide improved access to broadband service to consumers in under-served areas.

100% of the USVI is underserved by the NOFA definition because of condition (ii) described above. We will support all areas.



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3. Provide broadband education, awareness, training, access, equipment, and support to schools, libraries, medical and health care providers, community colleges and other institutions of higher learning and other community support organizations, including organizations that provide outreach, access, equipment, and support services to facilitate greater use of broadband services by vulnerable populations.

Along with the related viNGN SBA and PCC proposals, we will help provide broadband to anchor tenants including schools, libraries, medical and healthcare providers, UVI campuses, and community centers. The community centers include boys and girls clubs in or near public housing complexes. The community extensions provide outreach, access, equipment, online courses, job training, and support services to facilitate greater use of broadband services by vulnerable populations. The viNGN SBA Project includes a telework approach that will become one of the largest new job providers in the Territory.

4. Improve access to, and use of, broadband service for public safety agencies.

We improve access to, and use of, broadband service for public safety agencies including the U.S. Military Southern Command, National Guard, VI Territory Emergency Management Agency (VITEMA), police and fire departments, and the E-911 Public Safety Answering Points. The consolidated VITEMA operations center is one of five main centers that control middle mile transmission and is where the viNGN network operation center will be located. All public safety anchor tenants will be directly on the viNGN network and each will have its own new private metropolitan area network for its own needs.

5. Stimulate demand for broadband, economic growth, and job creation.

The related viNGN SBA program is important to stimulating demand for broadband. The viNGN CCI middle mile will result in lower-cost, more desirable services for a wider population. Dropping the cost of broadband access nearer to mainland prices will cause a rapid expansion of penetration towards mainland percentages. Our teleworking approach will introduce enough job expansion to make this the single greatest private sector job source in the Territory.

In addition to fully addressing all BTOP statutory purposes, our project will enhance service for health care delivery through supporting the new approach to the health records exchange program and high-speed medical center connectivity at all locations. It will also enable VI



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government economies and increases in efficiency by making centralized electronic record keeping possible. In addition to providing fiber connections to all schools with gigabit speeds, the new programs supported at the libraries specifically target introduction of broadband access to children.

Recovery Act and Other Governmental Collaboration:

The viNGN Comprehensive Community Infrastructure Program is a companion program to the viNGN Public Computer Center Program and the viNGN Sustainable Broadband Adoption Program. The three programs are distinct but will work in tandem if approved. The viNGN CCI program will provide the means for high-speed broadband. PCC will stimulate the supply side. SBA is designed to stimulate the demand side. By specific request of Innovative, the incumbent service provider, any excess income of the CCI program will be used to sustain the PCC and SBA programs when it is appropriate to do so. For example monies can be used to refresh computers and continue the training programs beyond the initial stimulus period.

The infrastructure built to the various housing developments is intended to help intellectually stimulate children using the community centers there. If left with nothing to do and no real hope of a future there, children tend to wander into the dark side of gang membership and other undesirable activities. The viNGN SBA program, administered by the energetic team within the Housing Authority, directly addresses this problem. This combined effort leverages the Department of Housing and Urban Development program in the Virgin Islands, as well as our Public Housing Capital Fund Program, which has a dollar value of \$9,415,808. The CCI effort also leverages funding from the Virgin Islands Housing Finance Authority, which has received low income housing grants in lieu of housing tax credits amounting to \$20,246,499.

Further, the CCI effort will leverage funding from the Department of Health and Human Services, which has awarded the Virgin Island grants for use of electronic health information totaling \$1,000,000.

We are also working closely with the Virgin Islands Water and Power Authority so that as we lay the new core communications fiber infrastructure, we also lay the conduit for the continuation of the electric power distribution circuits. The active electronics of the CCI middle mile depend on a continuous supply of quality power, and the smart grid controls within the power distribution depend on a safe and secure fiber communications network. The quality



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communications system and the quality power system go hand in hand and will together provide a substantial public benefit.

The PCC, SBA, and CCI programs are also synchronizing with the Virgin Islands Department of Public Works so trenching of the core fiber run takes place when main roads are repaved, helping to defray fiber deployment costs. This approach is precisely in line with the New America recommendations to provide 288 strand bundles of fiber whenever roadwork is done.

The WAPA water engineering group is also adjusting its plans for running new water distribution in the most populous section of St. Thomas so extra conduit can be used by last mile providers and will already be in place for any fiber to the premises deployment that may occur.

Fit with BTOP CCI Priorities:

1. This project will deploy Middle Mile broadband infrastructure to community anchor institutions.

Exceeds: This project provides gigabit access to all anchor tenant locations in the Territory located during the SBDD project using the middle mile as the backbone.

2. This project will deploy Middle Mile broadband infrastructure and has created a public-private partnership among government, non-profit and for-profit entities, and other key community stakeholders.

Meets: This project creates viNGN as a Territorial instrumentality which encompasses a balance of public and private interests. Areas represented include:

- All areas of Territory government represented by the USVI Bureau of Information Technology
- All retail service providers purchasing middle mile services
- Local industry board members
- The semi-autonomous Water and Power Authority
- The Office of Economic Opportunity



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3. This project will deploy Middle Mile broadband infrastructure in economically distressed areas.

Meets: The NOFA defines “economically distressed area” as an area that has: “(i) a per capita income of 80 percent or less of the national average; and (ii) an unemployment rate that is, for the most recent 24-month period for which data are available, at least one percent greater than the national average unemployment rate.”

According to the U.S. Bureau of Economic Analysis, the 2008 per capita average income for the Virgin Islands was \$20,381, only 51% of the U.S. per capita average of \$39,751. The latest figures from the USVI Bureau of Economic Research indicate 23.7% of the population and 23.8% of the families are currently living below the poverty level. Thus, the Virgin Islands are an economically distressed area.

4. This project will deploy Middle Mile broadband infrastructure to community colleges.

Meets. The one community college of the Virgin Islands has now become the University of the Virgin Islands. Other than the Territory government, this institution of higher learning will be the largest consumer of middle mile broadband in the Territory.

5. This project will deploy Middle Mile broadband infrastructure to public safety entities.

Exceeds. This middle mile network will provide Internet access and metropolitan LAN services to all military and safety entities including the VI Police Department, VI Fire Department, VITEMA, E-911 Public Safety Answering Points, the U.S. Military Southern Command and National Guard locations in the Territory. The network management center for viNGN will be at the central emergency command center because this network along with the unfolding electrical power control system are considered critical infrastructure.

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 percent of the total eligible costs of the project.



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Meets. The viNGN has no last mile component other than supporting all anchor tenant locations in the Territory. However, it has commitments from two last mile service providers. As no last mile components are included in the project, the cost does not exceed 20 percent 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.

Exceeds. This project proposes more than 30 percent in non-federal cost match.

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

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: Contractor Name: Cox, Chip Phone: 6154240615
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Email: chip@fiu.edu
Address 1: 11200 SW 8th Street, PC 312
Address 2:
Address 3:
City: Miami
State: Florida
Zip Code: 33199
Organization: AMPATH
Organization Type: Non-profit Institution
Small business: No
Socially and economically disadvantaged small business concern: No

Project Role: Contractor
Name: Fiorito, Joseph
Phone: 7328680962
Email: joseph.fiorito@cenx.com
Address 1: 2 Riverview Drive
Address 2:
Address 3:
City: Somerset
State: New Jersey
Zip Code: 08873
Organization: CENX, Inc.
Organization Type: For-profit Entity
Small business: Yes
Socially and economically disadvantaged small business concern: No

Project Role: Contractor
Name: Casillas, Jose
Phone: 7877059950
Email: jd-casillas@prepanetworks.net
Address 1: 48 City View Plaza, Suite 803
Address 2:
Address 3:
City: Guaynabo
State: Puerto Rico
Zip Code: 00968
Organization: PREPA Networks Corp.
Organization Type: Non-profit Corporation
Small business: No
Socially and economically disadvantaged small business concern: No



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<p>Project Role: Contractor Name: Mings, Stanford Phone: 3403448207 Email: stanford@tech.vi Address 1: 9160 Estate Thomas, Suite 195 Address 2: Address 3: City: St. Thomas State: Virgin Islands of the U.S. Zip Code: 00802 Organization: VI Technical Services, LLC Organization Type: For-profit Entity Small business: Yes Socially and economically disadvantaged small business concern: Yes</p>
<p>Project Role: Contractor Name: Carty, Michael Phone: 3409982840 Email: mcarty@alliancedata.vi Address 1: P.O. Box 9257 Address 2: Address 3: City: St. Thomas State: Virgin Islands of the U.S. Zip Code: 00801 Organization: Alliance Data Services Organization Type: For-profit Entity Small business: Yes Socially and economically disadvantaged small business concern: Yes</p>
<p>Project Role: Contractor Name: Figueroa, Max Phone: 3058607815 Email: mfigueroa@terremark.com Address 1: 2601 South Bayshore Drive, Suite 900 Address 2: Address 3: City: Miami State: Florida Zip Code: 33133 Organization: Terremark Worldwide, Inc. Organization Type: For-profit Entity</p>



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Small business: No
Socially and economically disadvantaged small business concern: No

Project Role: Third party in-kind contributor
Name: Hodge, Hugo
Phone: 3407743552
Email: hugo.hodge@viwapa.vi
Address 1: P.O. Box 1450
Address 2:
Address 3:
City: Charlotte Amalie
State: Virgin Islands of the U.S.
Zip Code: 00823
Organization: Virgin Islands Water and Power Authority
Organization Type: US Territory
Small business: No
Socially and economically disadvantaged small business concern: No

Project Role: Contractor
Name: Foresto, John
Phone: 5085336830
Email: john.forest@stratumbroadband.com
Address 1: 116 Main Street, Suite 207
Address 2:
Address 3:
City: Medway
State: Massachusetts
Zip Code: 02053
Organization: Stratum Broadband, LLC
Organization Type: For-profit Entity
Small business: Yes
Socially and economically disadvantaged small business concern: No

Project Role: Contractor
Name: Reynolds, John
Phone: 5085336765
Email: john.reynolds@iaj.com
Address 1: 116 Main Street, Suite 208
Address 2:
Address 3:
City: Medway
State: Massachusetts



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Zip Code: 02053
Organization: Integrated Architectures, LLC
Organization Type: For-profit Entity
Small business: Yes
Socially and economically disadvantaged small business concern: No

Project Role: Contractor
Name: Leaman, Philip
Phone: 5082310866
Email: [REDACTED]
Address 1: 30 Main Street
Address 2:
Address 3:
City: Ashland
State: Massachusetts
Zip Code: 01721
Organization: Linx Associates, Inc.
Organization Type: For-profit Entity
Small business: Yes
Socially and economically disadvantaged small business concern: No

Project Role: Contractor
Name: Privite, Jeffrey
Phone: 6173084484
Email: jprevite@ebiconsulting.com
Address 1: 4 A Street
Address 2:
Address 3:
City: Burlington
State: Massachusetts
Zip Code: 01803
Organization: EBI Consulting
Organization Type: For-profit Entity
Small business: No
Socially and economically disadvantaged small business concern: No

Project Role: Contractor
Name: Speicher, Charles
Phone: 7818721215
Email: charles_speicherjr@mcafee.com
Address 1: 12010 Sunset Hills Road, Suite 300
Address 2:



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Address 3:
City: Reston
State: Virginia
Zip Code: 20190
Organization: McAfee, Inc.
Organization Type: For-profit Entity
Small business: No
Socially and economically disadvantaged small business concern: No

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

The applicant of this proposal is the Virgin Islands Public Finance Authority and viNGN is a Territorial instrumentality that will manage the operation of this program. Key partners are:

- Virgin Islands Water and Power Authority: (Territorial authority, subrecipient, in-kind contributor) Will provide significant underground conduit, pole rights, and easements for the project. Also will be responsible for the maintenance, repair, and limited alteration for the fiber infrastructure. The memorandum of understanding between viNGN and WAPA is summarized as follows:

- WAPA will provide in kind matching services in terms of the use of:
 - * Existing underground conduit
 - * Pole rights
 - * Easements for community hub and anchor tenant locations

- viNGN will provide 24 strands of dark fiber to WAPA for use in controlling the smart grid SCADA controls.

- viNGN will build new underground conduit that can also be subscribed to by WAPA.

- WAPA will pay viNGN for use of all new dark fiber and conduit.

- PREPAnet: (For-profit contractor) viNGN counterpart in Puerto Rico. Will manage middle mile extension to the Isla Verde, Puerto Rico landing point where its submarine cables are supported between Puerto Rico and the Virgin Islands.



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- Terremark: (For-profit contractor) Owns NAP of the Americas, our primary aggregation point in Miami. Will be responsible for providing carrier hotel space and cross connections from the submarine landings to other carriers, exchanges, and content providers who are resident in the NAP of the Americas.
- AMPATH: (Non-profit contractor) Current provider of Internet and Internet2 service for UVI. Will provide interconnection for viNGN to the National Lambda Rail, its videoconferencing exchange, and the National Anchor Tenant Network. As the project advances, AMPATH will also provide submarine transit from the Virgin Islands over diverse cables such as from St. Thomas, St. Croix, and from Puerto Rico. AMPATH represents our connection to public sector networks.
- CENX: (For-profit small business contractor) Will provide private sector Carrier Ethernet global interconnect service for commercial users such as financial sector companies that require low-latency private line service to New York and other money centers.
- Stratum Broadband: (For-profit small business contractor) Will provide project and design management for the network from its inception.
- Integrated Architectures: (For-profit small business contractor) Stratum business partner providing mapping and systems integration for OSS and billing systems.
- Linx Associates: (For-profit small business contractor) Stratum business partner for fiber engineering design and OSP deployment management.
- EBI Consulting: (For-profit contractor) Will provides environmental studies.
- Technical Services VI: (For-profit SDB contractor) Will provide system and application implementation assistance and technical support for anchor tenants.
- Alliance Data Services: (For-profit SDB contractor) Will provide anchor tenant network deployment, integration, and support.
- McAfee: (For-profit contractor) Will provide security systems and guidance.



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The viNGN CCI Project is a grass roots project that has grown from the local community and represents its interests, requirements, and enthusiasm. In addition to the partners, the major stakeholders in the USVI formed the USVI Broadband Coalition in July 2009 to organize their requirements in anticipation of the opportunity to apply for stimulus funds. At that time Stratum Broadband was selected by competitive bid by the applicant to perform consulting and engineering planning specifically for this proposal. Stratum interviewed over 100 people representing all the major stakeholders, either in vertical groups or as individuals. Stratum also has worked with each retail service provider individually in providing the deliverables for the SBDD Mapping and Planning Program. As a part of this process, the USVI Technology Team was formed and continues to provide input on a wide variety of technical matters.

Such relationships have fostered the team orientation that has allowed a single shared physical middle mile network to be designed for the USVI, and yet allowed the anchor tenants to form their own private virtual metropolitan networks where needed for services such as public safety, medical privacy, and smart grid security. This approach allows each group to have its own local area network that interconnects all its locations in a simple, easy to use fashion.

D. Congressional Districts

Applicant Headquarters

- Virgin Islands of the U.S.

Project Service States

Virgin Islands of the U.S.

Project Service Areas

Virgin Islands of the U.S. - At-Large

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



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➤ 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: Central St. John
Rural Classification of the Last Mile Service Area: Rural
Service Status of the Last Mile Service Area: Unserved

If Service Status is "Underserved" please select at least one applicable option from this list.

Total Square Miles in Service Area: 9
Total Population in Proposed Service Area: 471
Total Number of Households in Service Area: 182
Total Number of Businesses in Service Area:
Total Number of Community Anchor Institutions and Public Safety Entities in Proposed Funded Service Area: 1
Unemployment Rate in the Service Area: 8
Median Income in the Service Area: 38,611
Estimated Percentage of Households with Access to Broadband:
Estimated Percentage of Households Subscribing to Broadband:



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Service Area Type: Middle Mile
Service Area Name: US Virgin Islands Territory
Rural Classification of the Last Mile Service Area: 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.
 No fixed or mobile broadband service provider advertises broadband transmission speeds of at least 3 mbps downstream in the proposed funded service area;

Total Square Miles in Service Area: 738
Total Population in Proposed Service Area: 115,431
Total Number of Households in Service Area: 42,943
Total Number of Businesses in Service Area: 2,583
Total Number of Community Anchor Institutions and Public Safety Entities in Proposed Funded Service Area: 325
Unemployment Rate in the Service Area: 8
Median Income in the Service Area: 24,704
Estimated Percentage of Households with Access to Broadband: 41
Estimated Percentage of Households Subscribing to Broadband: 1

F. Community Anchor Summary

Community Anchor Summary	
Schools (k-12)	92
Libraries	7
Medical and Healthcare Providers	19
Public Safety Entities	42
Community Colleges	3
Public Housing	28
Other Institutions of	1



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Higher Education	
Other Community Support Organization	10
Other Government Facilities	123
TOTAL COMMUNITY ANCHOR INSTITUTIONS	325
Historically Black colleges and Universities	4
Tribal Colleges and Universities	0
Alaska Native Serving Institutions	0
Hispanic Serving Institutions	0
Native Hawaiian Serving Institutions	0
TOTAL MINORITY SERVING INSTITUTIONS	4

G. Project Benefits

Demographics

Jobs	
How many direct jobs-years will be created from this project?	214
How many indirect jobs will be created from this project?	436
How many jobs will be induced from this project?	366

Methodology used to estimate jobs:



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The viNGN project will create a total of 1,016 job years. The CEA Guidelines were used to estimate the number of job years that viNGN will create, but were then adjusted to reflect significant per capita income differences between the USVI (51%) and the US figure used in the CEA’s calculation. Using the CEA’s \$92,000 figure for the viNGN’s \$90.6 (\$75.3 in cash) million project, generates 819 job years (524 direct/indirect, 295 induced). However, we estimate that 25% (21% labor, 4% materials) of this will be directly spent within the USVI. Adjusting for the USVI’s lower income level, the viNGN project produces:

	Total	Direct	Indirect	Induced
In the USVI	402	214	43	145
US, Outside USVI	614		393	221
Total Job Years	1,016	214	436	366

The viNGN team has reviewed this approach with the USVI Bureau of Economic Research, and they are in agreement with it.

In addition, viNGN has formed a proactive partnership with BetterWorld Telecom to hire and train remote call center teleworkers in the USVI for their virtual call center, predicted to eventually create another 420 jobs long term. To be conservative, we have not included these jobs in viNGN’s formal job creation estimate. However, we strongly believe that the viNGN BetterWorld program will result in significant job creation, particularly within vulnerable populations.

Project Impact:

The vast majority of USVI residents, businesses, government, and community institutions simply cannot afford broadband (as defined by the NOFA) at current USVI price levels, even if such services were consistently available. viNGN plans to implement a state-of-the-art middle mile fiber optic network to distribute as close as possible enough fiber capacity to support every USVI anchor tenant, point of interest, business, and residential neighborhood. This will enable access providers to extend low-cost “last mile” access services to subscribers and still make a sustainable return.

The value of the viNGN-enabled broadband services will be vastly greater than existing services, not just because of its lower prices, but also by providing more capable broadband that provides high bandwidth with consistent reliability, availability, and resiliency. For the first time, US Virgin Islanders will be able to depend on broadband for their livelihoods and to sustain their organizations and businesses. With the companion PCC and SBA grants, viNGN plans PC



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availability and education to enable more citizens to effectively use the technology and be aware of its potential. viNGN also has market development programs to ensure awareness of these new capabilities and to develop the competitive market dynamics that compel service providers to pass savings on to subscribers.

Substantial completion of the viNGN network is scheduled in two years starting from late 2010, with partial network operations beginning in St. Thomas and St. John in 2012. viNGN expects broadband prices to come within 10% to 15% of mainland price levels by 2016. Studies (NY State PSC "Framework for Regulatory Relief," April 1, 2007) show that lower-cost, higher-value service drives broad adoption. Lower wholesale bandwidth costs are expected to result in retail broadband price reductions of 15% per year in first three years (2012-2015), increasing broadband market penetration 9% per year, until 2016-2018, when subscriber growth rates will approach mainland growth at 6% per year.

Subscriber adoption levels will be increased by retail provider adoption of the viNGN middle mile network. Innovative, the incumbent provider, will naturally attempt to maximize utilization of its legacy telephone network as long as possible, reducing adoption rates for telephone subscribers during the forecast study period. Early telephony take rates will be opportunistic, based upon cost and the lack of cost-effective transport alternatives. Eventually, telephone subscribers will adopt viNGN-enabled services to substitute far more cost-effective VoIP services. viNGN broadband most immediately translates into high broadband adoption in both residential and business markets. New broadband transport will be needed immediately in portions of the USVI. Over time, market demand and cost will dictate additional fiber substitution for existing wireless and legacy transport.

Cable TV adoption of viNGN-enabled services will start gradually where legacy capacity is lacking. Innovative plans to upgrade its coax access network, and because video is bandwidth intensive, this will require significant additional fiber. Subscribers will increasingly want advanced HD or IP-TV services, accelerating cable TV adoption of the viNGN-enabled services through the forecast study period.

All 325 community anchor institutions have expressed interest in viNGN and will be directly on the viNGN network with a minimum capability of 1 Gigabit service. Led by government implementation, PCC, and SBA programs, these anchor tenants will adopt viNGN-enabled broadband services earliest. ViNGN-enabled services will help government agencies better



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connect and coordinate locations, operations, personnel, and equipment spread across the USVI. This will save time and funding by substituting state-of-the-art conferencing, collaboration, electronic record keeping, and data sharing capabilities for unnecessary travel and delay. The government plans to expand broadband use by field workers, improving supervision and better engaging the public it serves. Remote video monitoring will maintain security and safety for governmental assets, personnel, and public participants in government programs. Some governmental functions require continuous service, and with viNGN, the government plans to implement redundant data centers to ensure timely and secure data backup, collective system restoration, and improved continuity for all government operations – capabilities which could also be made available to USVI businesses. The strategically located Southern Command and National Guard will particularly appreciate these improvements and the important new capabilities and levels of national safety and security they represent.

viNGN will enable additional anchor institution programs such as:

- Community center-based computer training at 29 locations near low-income housing to be close to the vulnerable populations they serve (includes 28 public housing sites) to encourage productive behavior where it is most needed
- Distance learning at 7 libraries, 92 schools, and 4 higher education locations to provide student and adult learners access to online courses for degree work and continuing education
- Electronic health information and medical records developed by the USVI Department of Health, Roy Lester Schneider Hospital, Juan F. Luis Hospital, and the health clinics
- Smart grid applications with WAPA to improve the reliability, efficiency, and cost of the power system and its resilience to hurricanes and tropical storms
- An integrated public safety and homeland security operations center serving all public safety agencies
- Support for the Virgin Islands National Guard to regionally coordinate with other Eastern Caribbean countries and to maximize the capabilities of its Regional Training Facility being constructed on St. Croix



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- Enable use of video-transmission to transmit findings for the Environmental Research Center, located within the National Park

As a result viNGN subscriber adoption is expected to grow dramatically during the forecasted study period. For example,

- In the residential market

- Telephone subscriber adoption will go from 481 in 2012, to 8,056 in 2018, an average annual growth rate of 65.6%

- Broadband data subscriber adoption will go from 2,088 in 2012, to 25,982 in 2018, an average annual growth rate of 58.6%

- Cable TV subscriber adoption will go from 1,211 in 2012, to 32,311 in 2018, an average annual growth rate of 76.5%

- Cellular subscriber adoption will go from 1,737 in 2012, to 48,000 in 2018, an average annual growth rate of 87.7%

- In the business market

- Broadband data subscriber adoption will go from 284 in 2012, to 3,155 in 2018, an average annual growth rate of 55.6%

- Telephone subscriber adoption will go from 592 in 2012, to 3,038 in 2018, an average annual growth rate of 35%

- In the community anchor institution market

- Broadband data subscriber adoption will go from 74 in 2012, to 325 in 2018, an average annual growth rate of 36.9%

- Telephone subscriber adoption will go from 37 in 2012, to 289 in 2018, an average annual growth rate of 47.8%



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For more details, including quarter net additions in each market segment, see the Broadband Subscriber Estimates spreadsheet in the uploads.

Subscriber adoption will drive access provider participation. Existing providers have indicated interest in using the viNGN middle mile fiber network. With the exception of Innovative, they have provided support letters, pending final agreements and funding. Innovative’s legal proceedings prevent a formal expression of its stated interest.

In summary, the biggest impact of viNGN is the capacity of its core. The initial aggregate 160GB lit capability of the middle mile will provide each anchor tenant world class broadband services for years to come.

Vulnerable Populations:

According to the NOFA definition and information available in the 2000 US Census and the USVI Bureau of Economic Research, the following vulnerable populations exist in the USVI:

CATEGORY	USVI POPULATION	USVI %	US
Age - youth			
Under 5 Years	8,853	7.9%	6.9%
Under 18 Years	37,093	34.2%	24.4%
Below Poverty Level	27,357	23.7%	13.2%
Low Education			
Less than 9th Grade	12,133	18.5%	7.1%
Less than 12th Grade, no diploma	25,876	39.4%	20.3%
Foreign Born	36,087	33.2%	12.5%

viNGN plans to connect 92 schools, 38 community centers, 7 libraries, and 4 higher education locations, and is coordinating closely with these organizations to implement active viNGN Public Computer Center, viNGN Sustainable Broadband Adoption, distance learning curricula, and telework programs. Many of these facilities are located in poor neighborhoods where



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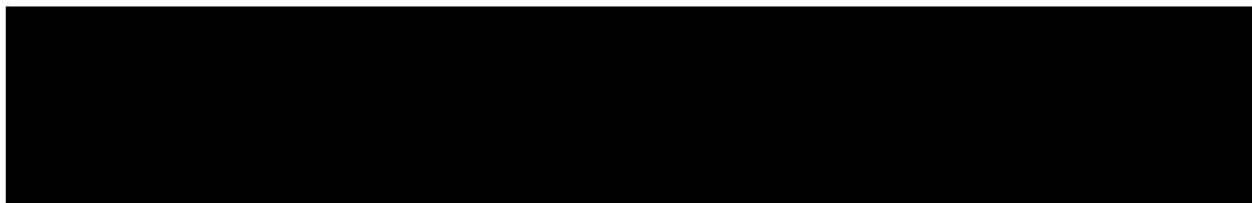
educational opportunities and the ability to work from home, close to young children, will help raise educational and income levels to reduce poverty.

Level of Need:

The USVI’s poor economy, periodically disastrous climate, and difficult geology have resulted in the poorest and highest–cost communications infrastructure in the continental U.S.

The USVI is also isolated from the rest of the U.S. and many economic development opportunities that are readily available on the mainland. Without access to these 21st century opportunities, the USVI is left overly dependent on tourism-related commerce and relatively low-paying jobs. This produced 2008 per capita income levels of \$20,381 (51% of the U.S. average) and substantially less (31% less) than the poorest state (\$29,569 for Mississippi), according to the U.S. Bureau of Economic Analysis and USVI Bureau of Economic Research. The preponderance of unemployment and low-paying service jobs results in 23.7% of the population living below the poverty line (USVI Bureau of Economic Research). Severe capital limitations make it difficult for USVI entrepreneurs to start and finance growing businesses. Educational choices are similarly limited. These factors lead many of the most promising youth to pursue opportunities on the mainland, many never returning, sapping the USVI’s economic potential.

The USVI’s communications infrastructure is outdated, unreliable, and incapable of delivering published broadband performance. For a variety of reasons the incumbent provider, Innovative, has not invested sufficiently to provide competitive services and has lost significant market share. Innovative has been under severe financial and legal distress for some time, resulting in its current bankruptcy proceedings, which further hampers its ability to invest in the USVI infrastructure.



As a result of Innovative’s difficulties, high prices, and limited services, three wireless service providers (Choice Communications, BroadbandVi, and Sm@rtnet) have begun offering data services. However, Innovative does not offer data services through its cable TV system. These



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wireless providers offer better quality and performance, but coverage is inconsistent and far from universal. These services are expensive, with the average market price for data services 156% of mainland US prices (Pew Research). However this understates the value differential because the average quality and performance available to the USVI is not close to mainland services. Over 90% of USVI data users subscribe to the most basic, lowest speed service because they cannot afford more. This lower speed service does not meet the basic NOFA definition of broadband.

Two additional attributes of the USVI's Caribbean location also contribute to high cost and poor availability of broadband. First, most USVI geology is basically hard volcanic rock, meters and sometimes several kilometers thick (U.S. Geological Survey Professional Paper 1631). As a result, communications infrastructure has historically been implemented above ground, making it susceptible to periodic severe tropical weather and hurricanes. Infrastructure creation and restoration has been expensive, has usually taken months, and is sometimes incomplete. To solve this problem in the future, viNGN plans to implement its core middle mile fiber network underground on St. Thomas and St. Croix. viNGN is actively coordinating construction activities with the USVI Water and Power Authority (WAPA) and the Department of Public Works to minimize cost and interruptions and maximize the overall services implemented.

Second, very limited off-island data transport contributes significantly to the high cost of data services in the USVI. While there are two dense landing locations for undersea data cables, almost all capacity transits immediately out of the USVI, with very little, at very high prices, made available for the Territory's internal use.

viNGN will help the USVI solve these problems. It is an organization with support from every sector of the community including existing access providers, government, education, healthcare, community institutions, business, and residents. With this support, the viNGN state-of-the-art middle mile fiber optic network will be able to aggregate traffic at far lower costs. The viNGN plan is to distribute this middle mile fiber capacity as close as possible to anchor tenants, points of interest, businesses, and residential neighborhoods. The viNGN low-cost middle mile proximity to all potential users will enable access providers to deploy their own scarce capital to supply much lower cost and higher capacity access services to their end subscribers. viNGN expects prices to eventually come within 10% to 15% of mainland price levels. Studies (NY State PSC "Framework for Regulatory Relief," April 1, 2007) show that lower cost and higher value service drive broad adoption significantly higher. Broader adoption will enable our institutions and businesses to use broadband to cost-effectively serve their constituents and



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markets. Students and business people will finally be able to afford to take advantage of opportunities for distance learning, online training, telework, and global consumer or financial markets. It will result in new well-paid jobs, new business starts, more employment, and the economic growth we desperately need.

viNGN aggregated traffic will also enable it to break the off-island data transport bottleneck and negotiate much lower transit and Internet access costs, further contributing to lower prices for access providers and end users.

Further, the USVI's wired, wireless, and cellular networks become completely clogged with traffic when waves of tourists come into the commercial centers from the cruise ship landings. Local merchants have difficulty completing credit card transactions, or must take on unnecessary credit risk to provide good service and capture revenue before potential customers move on. In addition, retail and hospitality industries have few proactive tools to direct customer traffic or drive revenue flows for the more than two million tourists that visit each year. The viNGN network will provide the capacity for specialty service providers to provide services such as information kiosks, low-cost cellular, and navigation applications.

Network congestion will be made worse with the network upgrades planned by cellular providers AT&T, Sprint, and Innovative. Each provider plans to double its cellular network capacity in the next two years, and since there is currently a tower building moratorium, this will more than double traffic to and from existing towers. Unfortunately, with little-to-no fiber coming from towers, USVI cellular backhaul is currently done with outdated T1 circuits or point-to-point wireless.

Besides the OEO, the USVI has two other governmental instrumentalities charged with economic development, the Economic Development Commission and the UVI Research and Technology Park. Each has a plan to attract network-intensive business to the USVI: financial investment and trading houses by the former, and knowledge-based or network-centric companies by the latter. Both plans have been stymied by the lack of effective connectivity within the USVI, as well as the long latency involved in communicating with global financial and e-commerce centers. viNGN plans to work actively with both instrumentalities, and both have submitted letters to support the viNGN effort.



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viNGN plans to link every anchor tenant directly to the middle mile network. The high-cost, poor reliability, limited capacity, and sporadic availability of the USVI's existing communication's infrastructure has produced a costly web of fragmented, unstable, and disjointed governmental communications networks. Very few departments can reliably access more than a 768KBPS connection. This lack of ability to transmit large documents electronically has resulted in manual paper-based record keeping in approximately 60 VI government locations on three islands. This situation makes data sharing, collaboration, and coordination of governmental activities unnecessarily difficult and time-consuming. Implementing consistent standards and security, and achieving scale economies are impossible under current circumstances. The viNGN middle mile network will enable a common governmental network layer to provide backbone connectivity with the quality, reliability, and bandwidth required to deliver good governmental services.

Healthcare and correctional facilities require continuous, round-the-clock service throughout the year. Inadequate connectivity means many anchor tenants struggle to regularly back up their systems and data, hurting their ability to restore systems and respond to problems tropical island environments periodically encounter. With viNGN, the government can economically implement redundant data centers on St. Thomas and St. Croix to ensure timely and secure data backup, collective system restoration, and improved continuity for all Territorial government operations. In fact, viNGN network aggregation has stimulated interest in making such facilities available on a Territory-wide basis to provide all businesses and organizations with adequate data storage and disaster recovery capabilities.

Special services are planned for critical partners. viNGN is working with WAPA to implement smart grid networks and applications, and it is working with the Virgin Islands Territory Emergency Management Agency (VITEMA) operations centers on each island. The new VITEMA Command Center on St. Thomas will coordinate all public safety groups throughout the islands, including police, fire, and the E-911 Public Safety Answering Points. The viNGN network operations center will also be located at the Command Center. The strategically located U.S. Military Southern Command and National Guard also have critical needs and will benefit from all the improvements. Public safety today is overly dependent on wireless technologies subject to failure during weather disturbances. Ubiquitous service with advanced applications will only be available with the completion of viNGN.



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Letters of support from various anchor tenants attesting to benefits the viNGN middle mile network will bring are included as supplemental information.

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

Other:

Technology Questions

Methodology for Area Status:

Underserved:

In determining whether the middle mile service areas were to be classified as underserved, we referred to the results of the SBDD program to date. The criteria in the NOFA in the definition section specified that if any of the three criteria existed, the area would be underserved. One of those criteria is: “(ii) no fixed or mobile terrestrial broadband service provider advertises to residential end users broadband transmission speeds of at least three megabits per second ...downstream in the ... Middle Mile service area.” The USVI SBDD team verified by direct inspection as well as interviews with every service provider that none of the service providers in the USVI provides fixed or mobile service of that caliber to any residents. Therefore, by definition, the totality of the U.S. Virgin Islands is underserved.

We believe we are also underserved based on the definition of having less than 40% of residents using broadband. However, confidentiality agreements associated with the SBDD program prevent us from disclosing the statistics.

Unserved:

The island of St. John contains the U.S. Virgin Islands National Park, and in fact is almost half covered by the park. As such, vast reaches of the National Park are unserved by broadband as the



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attempt is to keep the area as pristine as possible. Some areas have no residents whatsoever. One of the three Census block groups in the eastern half of St. John, around Coral Bay, has recently obtained service, but the largest area (BG2) suffers from only receiving satellite service at 512 KB. The residents have specifically requested help on this coverage issue. The viNGN network will serve all anchor tenants on the east side of St. John including the video needs at the University of the Virgin Islands Environmental Research Center. For example, the Center has marine cameras that capture data but has not been able to transmit its findings due to lack of video service. As this remote anchor tenant has heretofore depended solely on satellite transmission for telephone and Internet service, we believe we have addressed both the letter and the spirit of the unserved area definition.

Description of Network Openness:

NONDISCRIMINATION NETWORK INTERCONNECTION

The USVI Office of Economic Opportunity (OEO) and viNGN, the Territorial instrumentality that will operate the middle mile network, hereby commit to the following nondiscrimination and interconnection obligations:

- a. We will adhere to the principles contained in the FCC’s Internet Policy Statement (FCC 05-151, adopted August 5, 2005) or any subsequent ruling or statement.
- b. We do not favor any lawful Internet applications and content over other Internet related services. We provide Carrier Ethernet services to each retail service provider that purchases bandwidth from us. Each retail service provider will be provided the bandwidth capacity that has been purchased.
- c. We will display any network management policies in a prominent location on our web page and provide notice to customers of changes to these policies.
- d. We will connect to the public Internet through our partner AMPATH who currently provides this service (at lesser speeds) for the University of the Virgin Islands.
- e. Our goal is to offer interconnection where technically feasible without exceeding current or reasonably anticipated capacity limitations, at reasonable rates and terms to be negotiated with



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requesting parties. This includes both the ability to connect to the public Internet and physical interconnection for the global exchange of traffic.

Our policies for our proposed interconnection, nondiscrimination, and network management practices are contained in the upload Supplemental Information.

The PFA, the applicant, is forming viNGN, a Territorial instrumentality, to perform the day-to-day operation duties of the middle mile network. viNGN will be a wholesale commercial service provider. Thus, viNGN, will be responsible for upholding all nondiscrimination and interconnection obligations.

System Design:

All viNGN components use Layer 2 Carrier Ethernet transport services.

All electronic components are new for this network.

NETWORK COMPONENTS DISCUSSION – From Anchor Tenant Location

See diagrams in Supplemental Information and uploads.

An anchor tenant has premises equipment such as a PC or router that it owns. As appropriate to the type of building, the premises equipment is attached to a viNGN-provided anchor tenant node via a category 5 or better grade cable using an RJ-45 connector at the assigned port reserved for the desired retail service provider.

ANCHOR TENANT NODE

Depending on the building environment, the anchor tenant node can have three forms:

1. Small office or residential node: Offers a weatherized outdoor wall mounted switch with battery backup, optional telephone RJ-11 adapter, and optional video coaxial adapter, plus 8 RJ-45 connectors for multiple service provider delivery to the premises. This device delivers either 1 GB service or less as appropriate for the site.



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2. Multi-dwelling unit node: Indoor device meant for an apartment wiring closet supporting multiple independent subscribers, each perhaps using multiple retail service providers. Delivers either 1 GB service or less as appropriate for each unit.

3. Large office node: Indoor device meant for a demanding building such as a hospital that provides 10 GB service or less as appropriate for the office. Typically multiple subsidiary ports are available at 1 GB connection for multiple interior tenants, if necessary.

Anchor tenant nodes use Carrier Ethernet and allow multiple service providers to provide service to the same customer premises using separate virtual E-Line tunnels, but using separate ports for delivery to the customer. Regardless of the node used, it is connected using fiber optic access lines (usually aurally on utility poles) from the subscriber’s premises back to the viNGN community hub.

COMMUNITY HUB (also called facilities access point (FAP) in spreadsheet uploads)

The fiber optic access line from the anchor tenant’s premises comes from the utility pole and physically enters the nearest viNGN community hub location. The hub is normally on the viNGN distribution ring that routes around each main island. (Hubs also are the connection point for retail service providers to attach to the middle mile in addition to the anchor tenant access lines.) Hubs are all Carrier Ethernet switches managing multiple service providers.

The island distribution ring is 288 strands of single mode fiber arranged as a counter rotating ring. Each hub has its own sheath of 12 fiber strands that home run around the ring to the left and right to a mated pair of gateway switches at two diverse locations on the island for resiliency. Two strands each way carry 10 GB traffic from the specific hub to each gateway without any intervening sharing. This means each hub has its own 10 GB capacity to each of the two gateways.

GATEWAY SWITCH

The gateway switch captures all hub traffic on an island and offers it to retail service providers’ devices at colocation centers. The gateway switches in conjunction with the hubs and anchor tenant nodes maintain the privacy of each retail service provider’s virtual tunnel to the premises.



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SUBMARINE DWDM MULTIPLEXERS

The gateway switch can also be used to switch retail service providers’ transit traffic to a submarine landing point for transit to the mainland. All submarine cable paths terminate at the NAP of the Americas in Miami, initially using either AT&T or Global Crossing large DWDM transmitters.

AGGREGATION SWITCH

We have a redundant aggregation switch at the NAP of the Americas where we cross-connect at the Meet Port Room. We then switch packets one of two ways. All public network Carrier Ethernet tunnels are delivered to the AMPATH layer 3 router for submission to the commodity Internet, Internet2, or the National Lambda Rail. All private global interconnect tunnels are delivered to the CENX exchange for forwarding under private arrangements to global destinations.

THIS IS A FIBER OPTIC NETWORK.

Advantages:

- We offer gigabit access speed to each anchor tenant.
- Each hub in the central distribution ring has its own dedicated 10 GB capacity.
- The underground counter-rotating distribution ring is resilient.
- Using layer 2 Carrier Ethernet is very cost effective compared to layer 3 solutions.

Paths to Upgrade the System

1. The two active fibers to each hub are called the “as is” path. A reserved pair is the “to be” path – meant for use in a technology upgrade. An upgrade, for example to 100 GB Ethernet, takes place while the network is running. When all hubs are upgraded, the old “as is” fibers become the new “to be” fibers, and so it will go for over twenty years.



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2. All gateway switches are 100 GB Ethernet ready.

CENTRALIZED FACILITIES AND POINTS OF INTERCONNECTION

- Centralized Facilities

- NAP of the Americas
 - * Largest U.S. Internet access point
 - * 750,000 sq. ft. colocation space
 - * 160 other carriers colocated
 - * 600 other tenants
- AT&T Colocation Center – St. Thomas
 - * Central office for AT&T in the USVI
 - * Colocation space used by all current service providers
 - * DC power
- Global Crossing Center – St. Croix
 - * Largest Caribbean submarine landing point
 - * Colocation space used by all current service providers
 - * DC power
- VITEMA – St. Thomas
 - * Consolidated emergency management command center

- Points of Interconnection

- Community Hubs
 - * 36 locations throughout the 3 main islands
 - * Service providers can attach here
 - * Enclosures on cement pads
 - * DC power
- Anchor Tenant Nodes
 - * 325 sites



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- * Combination of indoor and outdoor models
- * Service providers deliver service here

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
Last Mile	0	0
Middle Mile	59,839,033	30,747,951
Total	59,839,033	30,747,951

Project Budget Total: \$90,586,984

Match Percent: 33.9%

Projects Outside Recommended Funding Range:



Outside Leverage	
Applicant is providing matching funds of at least 20% towards the total eligible project costs?	Yes
Matching cost detail	Below is a detailed account of all matching costs for this project. CASH MATCHES: a) The name of the party providing the match: Virgin Islands Public Finance Authority



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	<p>b) The funding amount (and percentage of the total budget it represents):</p> <p style="padding-left: 40px;">\$14,999,985 – Bond \$500,000 – Cash</p> <p style="padding-left: 40px;">The total cash match of \$15,499,985 is [REDACTED] of the total budget.</p> <p>c) The type of funding:</p> <p style="padding-left: 40px;">Debt – From bond proceeds Cash – For pre-award engineering</p> <p>d) The use of the funding: Infrastructure</p> <p>e) Any key financing terms and conditions:</p> <p style="padding-left: 40px;">Bond financing terms are 7% interest, maximum 25 year term, may be retired early.</p> <p>IN-KIND MATCHES:</p> <p>a) The name of the party providing the match:</p> <p style="padding-left: 40px;">Virgin Islands Water and Power Authority</p> <p>b) The match value (and percentage of the total budget it represents):</p> <p style="padding-left: 40px;">\$15,247,966 which represents [REDACTED] of the total budget</p> <p>c) The nature of the in-kind contribution:</p> <p style="padding-left: 40px;">The contribution is in services in allowing use of communications infrastructure such as empty conduit, pole rights, rights of way, dark</p>
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	<p>submarine fiber to St. John, and surplus existing underground fiber on St. Thomas. Specifically, it includes the following:</p> <ul style="list-style-type: none"> • Marine cable <ul style="list-style-type: none"> – St. Thomas – St. John (existing) – 24 strands – St. Thomas – St. John (proposed) – 96 strands (backup route) – St. Thomas – Water Island (proposed) – 24 strands • St. Thomas fiber <ul style="list-style-type: none"> – Power station to Long Bay – 48 strands – Power station to Long Bay – 16 strands – Long Bay substation to Tutu substation – 16 strands – Tutu substation to East End substation – 16 strands • St. Croix fiber <ul style="list-style-type: none"> – Richmond power station to Sunny Isle business office – 24 strands • St. Thomas conduit • St. Croix conduit <p>d) An explanation of how the contribution qualifies as an eligible cost under BTOP eligible cost rules:</p> <p>The control and right of use of these assets (but not ownership) will be used to avoid costs that viNGN would incur to provide the planned communications services.</p> <p>e) If the contributor is not the applicant, a description of any benefits the contributor will derive from the project (for example, free or discounted access to the network):</p> <ul style="list-style-type: none"> • The memorandum of understanding between the PFA and WAPA is as follows:
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	<p>– WAPA will provide in-kind matching services in terms of the use of:</p> <ul style="list-style-type: none"> * Existing underground conduit * Pole rights * Easements and rights of way for community hub and anchor tenant locations * Use of dark fiber in existence undersea as well as on islands <p>– viNGN will provide:</p> <ul style="list-style-type: none"> * 24 strands of dark fiber to WAPA for use in controlling the smart grid SCADA controls * viNGN will build new underground conduit that can also be subscribed to by WAPA. * WAPA will pay viNGN for use of all new dark fiber and conduit.
Unjust enrichment	This project is not receiving, nor have we applied for, any federal support for non-recurring costs in the area for which we are seeking an award.
Disclosure of federal and/or state funding sources	<p>The only other related funding source is the matching funds arrangement authorized by the Virgin Islands Public Finance Authority (VIPFA) and described more fully in the Matching Funds section. The VIPFA is authorized to bond for up to \$20M for this project at an interest rate not to exceed 10 percent. The PFA will provide some of the proceeds of this source for matching funds.</p> <p>(A separate allocation will be made from this source for any initial working capital needs for viNGN operations, but that other allocation of funds for working capital are not part of this grant application.)</p>



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Budget reasonableness	<p>There are no other federal and/or state funding sources planned.</p> <p>The overall cost of this project is based on historical construction costs for WAPA, discussions with vendors who are currently working in USVI, and quotes from equipment vendors. Stratum Broadband has reviewed these costs and based on its experience concurs with them.</p> <p>The investments in the viNGN are composed of both active and passive infrastructure. Traditionally the passive network is where 50 to 75 percent of the network investment goes. The viNGN network investment is [REDACTED] of the investment is in passive infrastructure. The high percentage of investment in passive infrastructure is due to (1) the inclusion of infrastructure requirements to house electrical cables in the new underground structure and (2) the extraordinary cost of constructing underground facilities in hard, bluestone layered rock.</p> <p>The core infrastructure, on St. Thomas and St. Croix, is composed of three 6” ducts, one for electrical service, one for fiber optics and one reserved for future use. The placement of the structure will be timed to coincide with road resurfacing. The incremental cost of the structure to include electrical requirements (increased size of road cut, use of ADSS fiber, heat dissipating backfill, and increased number of manholes) is [REDACTED]. This cost will be recaptured through a lease arrangement with WAPA. If the fiber was direct buried it would preclude the right of way from being used for electrical structure in the future.</p> <p>The incremental cost of underground placement is [REDACTED] on St. Thomas vs. St. Croix. This adds an additional [REDACTED] to the budget to account for construction in rock on St. Thomas for the underground. The total impact on the outside plant budget to deal with these issues that are unique to USVI is [REDACTED]. If these impacts are taken out of the budget, the cost per mile for outside plant is \$65,242.</p> <p>Today nearly 100% of all structure for both electrical and telecom</p>
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	<p>service on all three islands is aerial. Historically this requires rebuilding after a major hurricane with service outages lasting up to a year at a major cost. In times of emergencies telecom and power depend on each other and to fix one without the other does not solve the problem. In addition, 24 fibers on the core will be reserved for WAPA to support its Smart Grid application. These fibers will be leased back to the Authority.</p> <p>The project totals \$90,586,984, made up of the following: \$59,839,033 from stimulus funds, [REDACTED] in cash from USVI and [REDACTED] in in-kind contributions. The latter two categories represent a 33.94% match of the overall project funding.</p>
<p>Demonstration of need</p>	<p>This project would not have been implemented without federal funds because no service provider in the USVI has the capital resources to do this by itself. There is only one wireline incumbent in the Territory, and it is in receivership. The FCC has evaluated the incumbent’s current outside plant and has found the total value to be a negative number. With so little assets, the incumbent is having difficulty coming out of receivership, much less making strategic investments.</p> <p>The net present value of the investment using federal funds is \$11,099,838 with an internal rate of return of 10.9 %. This is a viable business with federal funding.</p> <p>Without federal funding, the USVI would have to borrow funds on the bond market, just as it is prepared to do for the matching funds. The 7% interest rate on tax-free bonds is perhaps the best discount rate to use for the net present value calculation as it is what the USVI is authorized to borrow for the matching portion. The study period is 8 years.</p> <p>Without BTOP funding, if the USVI borrows the amount of the grant at the available rate to implement the new network, the net present value would be a negative number (-13,979,616) and the internal rate of return would also be (2.1%) which is below the cost of capital. The</p>



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	<p>negative net present value shows that the project would not be viable without this grant program.</p> <p>The level of funding is needed primarily due to the capital requirements of construction and installation costs associated with the rock terrain and ocean distances to the mainland.</p>
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Funds to States/Territories

States	Amount of Federal Grant Request
Virgin Islands of the U.S.	59,839,033

Funds to States/Territories Total: \$59,839,033

J. Historical Financials

Matching Funds			
	2007	2008	2009
Revenue	81,280,083	78,218,023	82,376,194
Expenditures	82,462,292	83,560,188	87,594,363
Net Assets	65,165,242	59,823,077	59,514,908
Change in Net Assets from Prior Year	-1,182,209	-5,342,165	-5,218,169
Bond Rating (if applicable)	BBB+	BBB+	BBB

K. Project Readiness

BTOP Organizational Readiness

Key factors that show how viNGN is prepared to implement, manage, and operate a broadband services network are:



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- Using existing WAPA teams that manage current fiber infrastructure for power systems
- Using seasoned contractors for implementing new network and systems
- Outsourcing outside plant operational elements back to existing WAPA OSP team

The PFA is an existing entity that forms and manages subsidiaries like viNGN. The executive directors of both the PFA and WAPA have extensive backgrounds in the communications industry.

The viNGN management team heavily leverages the current communications management team at WAPA.

- The network operations director currently runs WAPA communications.
 - Ongoing engineering will be supported by the current fiber engineering team at WAPA, assisted by the Stratum Broadband team, veterans of Verizon Engineering.
 - Network management will be performed by the existing network management team at WAPA using an adaptation of systems currently used by the partners.
 - Provisioning: An existing system provided by the vendor of the Carrier Ethernet system – burned in during the pre-award period.
 - Billing: Access pricing deployed during the pre-award period; invoicing and accounts receivable system already in use for years by one of the partners.
 - Customer care: Deployed during the pre-award period; trouble management and dispatch already in use for years by one of the partners.
 - Repair and maintenance of outside plant is outsourced back to the current outside plant team at WAPA.



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- Marketing “pull through” will be developed during the pre-award period by the viNGN SBA program for the scheduled launch. Sales to service providers have already begun.

- Administration is supported by a key financial controller from WAPA.

- Custom provisioning and billing will be provided by Integrated Architectures – a Tier 1 telecommunications provisioning and billing specialist.

Multiple organizations and key partnerships are involved in the project. These partners would enhance the organizational readiness for the project in the following ways:

- WAPA: Existing team maturity, enormous resources, management desire to succeed
- Stratum Broadband: Existing provider of engineering planning for the viNGN network, depth of experience running engineering for Verizon, fiber deployment management, skills in service provisioning and billing for both emergent and Tier-1 carriers in the U.S.
- AMPATH: Existing provider of Internet and Internet2 service for UVI
- CENX: Primary provider of Carrier Ethernet exchange services in the world today
- Alliance Data Services: Largest provider of network integration in the Virgin Islands today
- Technical Services: Premier provider of office systems technical support in the Virgin Islands today

Construction and Vendor Contracts

viNGN will comply with applicable procurement and due diligence procedures. The Territory selected Stratum Broadband via competitive bid to prepare this grant application on their behalf. Stratum has had discussions with the following companies/vendors. Letters either supporting or committing to enter into agreements with viNGN in a timely manner are included in the Government and Key Partner upload.

- Terremark: Owns NAP of the Americas, primary aggregation point in Miami, major interconnect for service providers



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- AMPATH: Submarine transit from the Virgin Islands and connects to public sector networks at the NAP
- CENX: Private sector Carrier Ethernet global interconnect service
- Integrated Architectures: Mapping and systems integration for OSS and billing systems
- Linx Associates: Fiber engineering design and OSP deployment management
- EBI Consulting: Environmental studies
- Technical Services VI: Anchor tenant technical support for service and application implementation
- Alliance Data Services: Anchor tenant network deployment, integration, and support
- Global Crossing/AT&T: Lease capacity

Stratum has talked with Ciena to determine material and construction cost estimates for the overall project.

Customer Base

viNGN is a new entity created to deploy and operate the new CCI middle mile. As a new organization, it does not have a customer base per se. Our partner, the VI Water and Power Authority (WAPA), has an existing electric infrastructure which reaches virtually every household and organization in the Territory, owning virtually all utility poles and critical underground conduit in densely populated areas. WAPA also owns and operates all submarine fiber that runs between St. Thomas and St. John. The incumbent telephone company, Innovative Communications, uses indefeasible rights of use on WAPA fiber to reach areas that are difficult to reach with its own fiber. As such, providers seek WAPA’s infrastructure to deliver both middle and last mile elements throughout the Territory. The WAPA and viNGN partnership is expanding this wholesale role to implement additional capacity.



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The USVI Bureau of Information Technology, represented on the viNGN Board of Directors, currently supports the vast majority of the anchor tenants, which are instrumentalities or divisions of the Territorial government. The viNGN capacity to be offered to anchor tenants is being planned and coordinated by BIT, the group responsible for implementing the applications and services that will use the anchor tenant bandwidth.

While viNGN is a new entity without an established customer base, its public and private access provider partners provide a direct approach to virtually every potential subscriber.

Licenses, Regulatory Approvals and Agreements

viNGN will operate as a wholesale service provider, providing interstate services. As such, under the Telecommunications Act of 1996 it will file the following with the FCC when applicable:

- FCC Form 395 Common Carrier Annual Employment Report and Discrimination Complaint Requirement
- FCC Form 499-A Telecommunications Reporting Worksheet
- Section 1.47(h) Designation of Agent for Service of Process
- Section 1.8001 Commission Registration System (CORES)

viNGN as an instrumentality of the government is not obligated to file for a business license in the Territory. We do not believe any VIPSC approval is required. If required, such approval will be applied for.

viNGN will finalize lease agreements for co-location space and transmission facilities with AT&T, Global Crossing, AMPATH and the NAP of the Americas during the transition phase of the project. viNGN has entered into discussions with all these parties and has received pricing information from them. During the transition period and when funds are made available, the competitive bid process will begin, final discounts will be negotiated, and the winning lease agreements will be signed.

When funds are made available, the required engineering evaluations will be completed and construction permits required for trenching will be applied for.



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viNGN will utilize rights of way already authorized to WAPA.

SPIN Number

L. Environmental Questionnaire

Project Description

Project related construction activities include:

Community hubs are where last mile service providers access the viNGN network. The hubs consist of multiple environmental cabinets. They house active electronics and are 64” high, 30” wide and 30” deep. Inside are a distribution switch, fiber termination panel and a 48 volt DC power plant with 4 12-volt sealed acid batteries. The cabinets sit on 12’ by 10’ concrete pads sized to support multiple service provider cabinets and fenced with six-foot chain link fence. Hubs will be placed within public rights of way and on WAPA and Territory properties.

Buried plant consists of 6” duct or 1 1/4” innerduct placed a minimum of 18” underground covered with a fiber marker and flowable fill. The duct will be placed in an 18” trench. The innerduct will be placed in a 5” trench. ADSS fiber cable will be placed in buried plant, which will be placed within public rights of way, within four feet of existing roads and on WAPA and Territory properties.

Aerial plant consists of ADSS fiber placed in the neutral zone or telecom space on existing pole lines owned by WAPA.

Gateways consist of a switch and fiber terminations to be located in AT&T collocation space and VITEMA on St. Thomas. On St. Croix gateways will be located at a WAPA location in Christiansted and a government location in Frederiksted. An aggregation point will be located at the NAP of the Americas in Miami. Minimal renovations will be required at all locations.



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Property Changes

The property impacts of this project include excavation for the placement of underground conduit, excavation for the concrete pads for the community hubs (also called FAPs in the spreadsheet uploads), and fencing around the hubs.

Total linear footage of new underground conduit is 252,200 feet. The conduit will be placed in existing rights of way managed by WAPA within four feet of existing road bed. In addition, 119,836 feet of fiber will be placed in existing WAPA conduit. A remaining 1,066,464 feet of fiber will be placed on existing pole lines either in the neutral zone or telco space owned by WAPA. This includes fiber laterals and drops for the anchor tenants.

There are 36 planned hubs. Twenty nine (29) of them are planned exterior locations and 7 are planned in existing structures with minimum renovations. The exterior locations will be placed on 12' by 10' concrete pads on WAPA rights of way or government owned land with minimal ground disturbance.

The project will cross the Virgin Island National Park on St. John, which is federal property on existing aerial pole lines owned by WAPA. A hub will be located within the park at the Myra Keating Medical Center in existing space, which supports its telemedicine contract with the Cleveland Clinic.

Buildings

The project modifies six building structures. Specifically, two building structures on each island will be modified to support project associated equipment. They will have the proper lighting, telephone, heating, air conditioning, fire suppression and fire and intrusion alarm systems required for this type of undertaking. All structure modifications are 100-250 sq ft.

St. Thomas: The major exit point will be AT&T collocation space in Charlotte Amalie where the project will lease approximately 250 sq ft of space. Equipment will consist of traditional telco electronics. A second site will be at the VITEMA operations center, also in Charlotte Amalie.

St. Croix: The major exit points will be at a WAPA location in Christiansted and a government location in Frederiksted. Both buildings exist and require only minor modifications.



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St. John: The major exit point will be in downtown Cruz Bay at the police station. A hub is planned for the hospital in Cruz Bay. Both buildings exist and require only minor modifications.

36 hubs are planned in this project. The hubs use 64” high, 30” wide and 30” deep cabinets which house active electronics. The cabinets will be placed on 12’ by 10’ concrete pads, sized to support multiple service provider cabinets from which they will provide last mile access. Each area will be fenced with a six- foot chain link fence.

New conduit will be in existing, previously disturbed public rights of way and fiber on existing pole lines.

Wetlands

The project area includes the islands of St. Thomas, St. Croix and St. John. The islands of St. Thomas and St. John do not have any significant wetlands that would impact the project. St. Croix has identified wetlands, but the project will use existing aerial pole lines and conduit on St. Croix, and all new buried construction will be within four feet of existing roadway.

No clearing of vegetation or other wetland impacts are necessary to complete fiber cable installation on existing poles or existing conduit. If any underground installation involves wetland impact, the fiber cable will be relocated outside the impact area. Because of these factors, impacts to wetlands are considered to be minimal. If wetlands become an issue, aerial construction on existing pole lines is an alternative.

Critical Habitats

The US Fish and Wildlife Service (USFWS) has identified 9 listings as endangered and 3 as threatened in the Territory. There are 8 listings for animals and 4 for plants. All the endangered or threatened species other than the roseate tern, Virgin Island tree boa and the St. Croix ground lizard live in a marine habitat and are not impacted by this project. The Culebra Island giant anole (anole roosevelti) has zero population in the Virgin Islands and is only known on the island of Culebra, Puerto Rico.

The roseate tern (*Sterna dougallii*) (1200-1600 documented pairs) nest on sparsely vegetated, rocky offshore islands. The St. Croix ground lizards (*Ameiva polopos*) are found in a colony (estimated population 360 – 2500) on Green Cay and on Protestant Cay (population about 50).



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The tree boa (*Epicrates monensis granti*) is found on St. Thomas (no population count available). The impact on the roseate tern, St. Croix ground lizard or the tree boa should not be an issue since most of the work will utilize existing infrastructure or previously impacted areas and no work is being done on the cays or offshore islands. Should there be an issue the USFWS will be consulted to establish the appropriate mitigation measure to be performed.

Four plant species are listed as endangered. *Catesbaea melanocarpa* (population 100 in 2005) is located in one location on privately owned land in St. Croix which is included in a conservation program. St. Thomas prickly ash (*Zanthoxylum thomasianum*) has a population of 250 on Flag Hill in St. Thomas and 50 on Gift Hill in St. John, within the National Park. A population of 100 *Calyptanthes thomasiana* is located on Bordeaux Mountain within the National Park on St. John. Vahl's Boxwood (*Buxus vahlii*) is believed to be extirpated from St. Croix. Again, if there is an issue the USFWS will be consulted to establish the appropriate mitigation measure. Based on the scope of work explained it is doubtful there would be an encounter with endangered plant life. In all cases there is sufficient flexibility in the design to keep any impact to the minimum.

Floodplain

A review of floodplain data indicates that in a few areas the project will traverse floodplain areas. This is true on all three islands. The traverses in most cases will be on existing pole lines. In a few cases the underground will traverse floodplains.

In cases where existing facilities are used, installation on existing poles or conduit will entail no clearing of vegetation or other floodplain impacts. If conduit is placed underground, there will be no permanent alterations within the flood zones. The hubs will be located outside floodplain areas for network survivability reasons. In all cases there is sufficient flexibility in the design to keep any impact to the minimum.

Preliminary mapping depicting environmental impacts is included in the supplemental information. A final review will be done if requested.

On the maps, any flood zone classification starting with the letter 'A' is in a 100-year flood zone. Anything starting with the letter 'B' is in a 500-year zone. Anything that is Zone X is outside both of those areas.



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On our maps, the 500-year zones are shown in a green-brown color and identified on the legend as "0.2 pct annual chance flood hazard." The 100-year flood zones are identified as either A, AE, or AO and are shown as diagonally striped lines. Zone X areas are shown as a solid grey color on the maps but are not germane to this project.

Protected Land

The National Register of Historic Places lists 26 properties within the USVI. The properties include nine historic districts. The major historic districts of Charlotte Amalie and Frederiksted are within the one mile radius, but construction activity will be limited there since the project will utilize existing conduit and pole lines. Underground entrance facilities may have to be reinforced for anchor tenants. In Christiansted, underground conduit will be added downtown and entrance facilities provided for anchor tenants. The project will traverse roads close to the other sites but will not enter the sites. The exception to this will be on St. John, where the project will traverse the Virgin Islands National Park. However, it will utilize existing pole lines and rights of way managed by WAPA.

No major alteration is planned for any building structure within the scope of this project. In addition, the project does not cross any tribal lands. If protected lands become an issue, rerouting of the route would be considered.

Preliminary mapping depicting historic places is included in the supplemental information. A complete review of the proposed installation under Section 106 of the Historic Preservation Act, including consultation with SHPO at the USVI, will be done in the next phase.

Coastal Area

The entire project is within the boundaries of a coastal zone management area (CZMA). The CZMA is under the jurisdiction of the Division of Environmental Protection of the Department of Planning and Natural Resources (DPNR). When appropriate, the permits will be applied for and obtained. Based on the nature of the proposed installation, it is not expected to significantly impact the CZMA. When appropriate, DPNR will be contacted and provided an opportunity to comment on the proposed project.

Brownfield



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The Division of Environmental Protection of the Department of Planning and Natural Resources (DPNR) of the Virgin Islands is in Phase 1 of its investigation of potential brownfield sites. To date it has identified seven sites, three on St. Thomas and four on St. Croix. No ground disturbance is planned at these sites.

Though no work will take place on identified brownfield sites, where underground construction is planned, adjacent properties will be evaluated to determine the potential for oil or hazardous materials to have migrated into the right of way. If appropriate, testing will be done and an alternative path selected.

No buildings in this project are within a potential brownfield site.



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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	Service Offerings and Competitor Data.xls	Francis, Julito	03/22/2010
Network Diagram	Network Diagram.pdf	Francis, Julito	03/21/2010
Build Out Timeline	USVI Project Plan and Build.pdf	Francis, Julito	03/25/2010
List of Community Anchors and Points of Interest	CCI Anchor Detail and POI.xls	Francis, Julito	03/17/2010
Management Team Resumes and Organization Chart	Management Team and Org Chart.pdf	Francis, Julito	03/26/2010
Government and Key Partnerships	Government and Key Partnerships.pdf	Francis, Julito	03/22/2010
Historical Financial Statements	Historical Financial Statements.pdf	Francis, Julito	03/22/2010
Budget Narrative	Budget Narrative.pdf	Francis, Julito	03/26/2010



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Detailed Budget	Detailed Budget.xls	Francis, Julito	03/26/2010
Pro-forma Forecast	CCI Pro Forma Financial Projections.xls	Francis, Julito	03/26/2010
Subscriber Estimates	Subscriber Estimates.xls	Francis, Julito	03/22/2010
Dashboard Metrics	Key Metrics Dashboard.pdf	Francis, Julito	03/26/2010
Service Area Data	BTOP CCI Service Area.xls	Francis, Julito	03/22/2010
Network Maps	USVI Network Maps.pdf	Francis, Julito	03/22/2010
BTOP Certifications	BTOP Authentication and Certifications.pdf	Francis, Julito	03/09/2010
SF-424 C and D	SF Form 424 C and D.pdf	Francis, Julito	03/26/2010
Supplemental Information	Supplemental Information.pdf	Francis, Julito	03/26/2010