



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/17/2009 8:17:11 PM	Easygrants ID: 1410
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program	Applicant Organization: Page County Broadband Authority
Task: Submit Application - Infrastructure Programs	Applicant Name: Dr. Tom M Cardman

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A. General Application Information

1. Applicant Information	
1-A. Name, Address, and Federal ID for Applicant	
i. Legal Name:	Page County Broadband Authority
ii. Employer/Taxpayer Identification Number (EIN/TIN):	270627697
Street 1:	117 South Court Street
Street 2:	
City:	Luray
County:	United States
State:	VA
Country	United States
Zip/Postal Code:	22835

1-B. Name and Contact Information of Person to be Contacted on Matters Involving this Application:	
Prefix:	Dr.
First Name:	Tom
Middle Name:	M
Last Name:	Cardman
Suffix:	
Telephone Number:	540434142
Fax Number:	
Email:	tcardman@pagecounty.virginia.gov
Title:	Director of Economic Development



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1-C. Other Required Identification Numbers	
i. Organizational DUNS:	831445494
ii. CCR # (CAGE):	5M7R4
iii. Funding Opportunity Number:	1
iv. Catalog of Federal Domestic Assistance Number:	BTOP CFDA Number: 11.557 BIP CFDA Number: 10.787 BTOP CFDA Title: Broadband Technology Opportunities Program BIP CFDA Title: Broadband Initiatives Program

1-D Eligible Entities

Please classify your organization. (Note: If there are multiple organizations involved in the project, designate the lead applicant that would enter into a Loan or Grant agreement with the Agency and assume operational and financial responsibility should an award be made). **Local, State, or Other Government Entity**

1-E. RUS Borrower Status

No

1-F. Applicant Federal Debt Delinquency Explanation

Is the Applicant Delinquent On Any Federal Debt? **No**
Federal debt delinquency Explanation:

2. Project Description & Project Title

2-A. Project Title: Page BBA Broadband Project

2-B. Project Description: The Page BBA mid-mile fiber project establishes a core technology base to serve a distressed population which has less than 40 % broadband penetration. The project provides accessible, non-discriminatory interconnection capabilities for internet service providers to offer last mile solutions. The network will connect town governments, first responders, schools, libraries and the primary hospital.



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3. Application ID for Multiple Submissions for Identified Service Areas:

4. Rural Area Determination

At least 75 percent of the proposed service area to be funded falls within rural areas that are unserved or underserved.

Yes

5. Applications for Rural Areas: Please choose the funding program(s) to which you are submitting this application.

a) BIP broadband infrastructure category to which you are applying:

BIP - Middle Mile Project

b) Would you like this Application for Rural Areas to also be considered for BTOP funding?

Yes

c) BTOP Infrastructure category for which you are applying.

Middle Mile

6. Applications for All Other Areas: Per the NOFA, all applications to fund broadband infrastructure projects in areas that are less than 75% rural must be submitted to NTIA for consideration under BTOP.

BTOP broadband infrastructure category to which you are applying:

B. Eligibility Factors

7. Application Submission

BIP and BTOP Factors Selected By Applicant:

Applicant has submitted a completed application and provided all supporting documentation required for the application.

The Project will be substantially complete within 2nd year from the award date, and the project will be fully



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<p>complete by the end of the 3rd year from the award date.</p>
<p>For projects seeking more than \$1 million funding, the Applicant agrees to submit a certification, from a Professional Engineer, that attests that a) the system will deliver the stated performance; and b) the projected project will be substantially completed within two years, and fully completed within three years.</p>
<p>The Applicant provides two-way data transmission with advertised speeds of at least 768 kbps downstream and 200 kbps upstream.</p>
<p>Applicant understands and agrees to comply with the nondiscrimination and interconnection obligations outlined in the NOFA.</p>
<p>If applying for a last mile Broadband Infrastructure project, applicant understands and agrees to comply with the last mile coverage obligations as outlined in the NOFA.</p>

<p>Additional Factors for BIP Selected By Applicant</p>
<p>At least 75 percent of the proposed funded service area qualifies as unserved and underserved rural areas in accordance with the NOFA.</p>
<p>Applicant understands and agrees that the project will be fully funded in accordance with the requirements of the NOFA.</p>
<p>Applicant understands and agrees that only projects that RUS determines to be financially feasible and/or economically sustainable will be eligible under this NOFA.</p>



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Additional BTOP Factors Selected By Applicant

- **Conformity with Statutory Purposes**
- **Cost Sharing/Matching**
- **Reasonableness of Project Budget**

The project advances at least one of the statutory purposes for BTOP

Applicant has provided documentation that the project would not have been implemented during the grant period without federal grant assistance.

Applicant has provided a budget that is appropriate to the proposed technical solution and only includes eligible costs.

- **Demonstration the Project Could not be Implemented But For Federal Grant Assistance**
Applicant is providing matching funds of at least 20 percent towards the total eligible project costs?
Yes

7-k. Cost Sharing/Matching Fund Explanation

C. Executive Summary

Executive Summary of Project for BIP and BTOP:

8. Infrastructure Projects Executive Summary

This grant application outlines a middle mile broadband project to build a \$2.06 million fiber optic network through the heart of Page County, Virginia, to support health care, education, jobs, economic development and quality of life applications for a rural population of 24,000 people. Included in the project is a program to stimulate digital inclusion and broadband adoption. There is no existing middle mile solution available to the county, and the county itself qualifies as a rural area with both underserved and unserved populations. The fiber network will pass through four communities, beginning in Rileyville at the northern end of Page County. It will pass through the Town of Luray (central) and the Town of Stanley (south



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central) and end in the Town of Shenandoah in the southern end of the county. There will be a total of 6,280 households, 745 businesses and 53 strategic institutions passed.

This project is the top economic development priority for the Shenandoah Valley Regional Commission, is endorsed by the Virginia Department of Housing and Community Development, and the US Senate Appropriations Committee through the US Department of Agriculture Distance Learning, Telemedicine and Broadband Program.

This middle mile project has wide community, government and business support. The County of Warren, Virginia has submitted a letter indicating their interest in a multi-jurisdictional partnership to address the unserved and underserved regions of southern Warren County. This application also contains a number of letters of support and intent to participate by major organizations that include the Shenandoah Telecommunications Company (ShenTel), which plans to use the network to enhance last mile projects county-wide using wired and wireless broadband; Lord Fairfax Community College; Page County Public Schools; Massanutten Regional Library System; Page County Fire and Emergency Medical Services; Northern Shenandoah Valley Regional Commission; the Shenandoah Valley Partnership; Page Memorial Hospital and its satellite health facilities and the Page County Sheriff's Office. Additional letters of endorsement have been received (see Supplemental Information 1) from the Governor of the Commonwealth of Virginia, The Honorable Timothy Kaine, Congressman Eric Cantor, the Commonwealth of Virginia Department of Housing and Community Development, and U.S. Senators Jim Webb (sent directly to BIP and BTOP granting agencies) and Mark Warner.

More directly in terms of jobs and economic development, the project has the support of Premier Technical Services (see letter attached, question 41), which will become the anchor tenant in a new technical park for the county with federal and commercial contracts for a data center, network operations, data warehousing and other advanced services. PTS will bring an estimated 100 new jobs to Page County and will establish the first step in the county's program of revitalization, economic growth and digital inclusion. The development of the PTS data Center has the support of the Federal government and the office of the Governor of Virginia.

The initiation of the middle mile project stems from the county's Strategic Economic Development Plan (2004 and 2008), which had wide citizen participation and led to the establishment of the Page County Broadband Authority (BBA). This six-person Authority was



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set up by the Page County Board of Supervisors specifically to establish broadband policy. In addition, the BBA has created a well qualified management team. The management team is an experienced blend of technology professionals, business professionals, and economic development professionals. These individuals will be responsible for implementing the middle mile project and managing day-to-day operations. Both the Broadband Authority and the management team are in place, ready to implement the plan upon approval of the grant.

Historically, one of the county's major sources of employment was the manufacturing industry. However, several local plants closed, relocating facilities overseas. This shift reduced employment in the manufacturing sector by 50 percent over five years. The change not only affected employees that were laid off and their families, but the economic vitality of the entire region. This impact is reflected in the fact that 12.2% of the population currently lives below the poverty level and the unemployment rate is 11.7%, well above the Virginia average of 7%.

Sixty percent of residents commute to work outside the county daily each day because of a lack of jobs locally. Economic development efforts to recruit businesses and improve salaries are hampered by a lack of high speed infrastructure to support technology-dependent industries such as those currently located in high-traffic urban areas. These realities pose a significant challenge to the Page County government and Broadband Authority in terms of generating sufficient revenue to draw on for funding local initiatives. The low average income, high unemployment, population characteristics and small business base have made it ever more challenging to meet the 21st century demands for health, education and welfare services without the ability to leverage advanced broadband and communications services.

Initial planning for the project began in 2008, supported by a \$120,000 grant from the Virginia Department of Housing and Community Development. A three-phase analysis by engineering firm Icon Technologies surveyed broadband price elasticity throughout the entire geographic area that the project will cover. 2500 residential and 500 business surveys were distributed with a return rate of 32% (797) residential and 17% (86) business, exceeding the statistically valid sample size of 10% return rate. The survey data was then used to craft a pricing strategy for residential, business and anchor institutions that is affordable in comparison to existing services.

The Icon studies also enabled the county to establish parameters for the project, conduct a



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needs assessment, and develop a preliminary engineering and implementation plan for the project. However, the relatively low level of resources available to the County makes it virtually impossible to implement the project without federal grant assistance.

The project will bring a 144-strand fiber-optic network through the County from Rileyville in the north to Shenandoah in the south, passing within 500 feet of every county and town facility, every school, every library and every health care facility. It will provide capacity for backhaul to expand the network of cell towers county-wide in order to support the implementation of 4G broadband via cellular. And it will provide fiber loops every thousand feet of the network to afford adequate access for third party Internet Service Providers, who will be offered attractive terms and support from the County to build out last-mile services to every household and business.

A contract will be let under the procurement guidelines of the State of Virginia for a third party to provide network operations and support, including a redundant-power, secure Network Operations Center for the fiber network.

Access for service providers will be offered on an open and non-discriminatory basis, and will be guided by contractual requirements in support of the principles of connectivity established by the Federal Communications Commission, the tenets of consumer privacy and information protection, and reasonable network management practices. Access to the network will be open to both incumbent providers seeking to expand their services and to new entrants to the county. Last mile solution providers will be required to adhere not only to the FCC interconnection principles, but to the following:

- The NTIA/RUS “fifth principle,” which requires that neither the Page County Broadband Authority nor the leasing parties on the network favor any lawful Internet application or content over others;
- Notice of network management policies, which requires that the Page County Broadband Authority and its leasing parties on the network display network management policies prominently on their Web site, and notify customers of changes;
- Leasing parties on the network may still engage in reasonable network management practices as defined by the Federal Communications Commission;
- Customer privacy and personal property rights to be determined in accordance with federal and Virginia laws and transparently presented to consumers in a Terms of Service



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Agreement;

The Page County Broadband Authority, while prohibited by state law from entering into agreements until the project is funded, is engaged in discussions with a diverse set of potential last mile partners on cellular, cable, DSL and wireless platforms.

Independent service tiers have been preliminarily developed, offering services for a 100Mbit private network for institutional tenants; three levels of business services; and a base level of residential service that may be amended and expanded by Internet Service Providers once these are in place.

This application is made as a joint submission to both the BIP and BTOP programs. However, financial analysis based on a five-year projection indicates that attempting to finance the project via loans would place the county and the project under severe financial distress and would ultimately lead the project to be less than nominally sustainable. Application is therefore made for a grant of \$1,648,940.80 against a total budget of \$2,061,176.00 for construction of the 38-mile network and its affiliated operations.

This project meets both the intent and spirit of the American Recovery and Revitalization Act to apply federal assistance to rural, economically depressed regions whose citizens will benefit from new and innovative approaches to job creation, health care, education and stimulation of broadband.

Description of BTOP Project Purpose (BTOP Applicants Only Next Three Questions)

9. BTOP Statutory Purpose:



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Provide access to broadband service to consumers residing in “unserved” areas of the United States.
Provide improved access to broadband service to consumers residing in “underserved” areas of the United States.
Provide broadband education, awareness, training, access, equipment, and support to schools, libraries, medical and healthcare providers, community colleges and other institutions of higher education, and other community support organizations by or through these organizations.
Provide broadband education, awareness, training, access, equipment, and support to organizations and agencies that provide outreach, access, equipment and support services to facilitate greater use of broadband service by low-income, unemployed, aged, and otherwise vulnerable populations.
Provide broadband education, awareness, training, access, equipment, and support to job-creating strategic facilities located within a defined economic zone, or community as designated by a State authority, Department of Commerce , HUD or USDA.
Improve access to, and use of, broadband service by public safety agencies.
Stimulate the demand for broadband, economic growth, and job creation.

10. Description of BTOP Project Purpose:

The Page County fiber project is designed to provide improved access to broadband services for a rural, mountain valley county of north central Virginia that currently has census blocks qualifying both as underserved and unserved. The county currently has no accessible middle mile solution, and even the existing private networks have limited capacity.

The middle mile solution will also establish a fiber backbone capable of supporting multiple Internet service providers in providing last-mile connectivity to consumers county-wide.

The project has four immediate goals:

- Support for new strategic businesses, including a planned data center operated by Premier Technical Center. The county development program will use the availability of



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interconnections with the middle mile to attract a new generation of non-agricultural, job-producing businesses based on a service and information-based economy. The middle mile fiber system would support the acquisition of new business customers for the county's technical park, creating an estimated 100 new jobs per year during the initial planning horizon of five years, in addition to the direct jobs created for network management.

- Support for ehealth and elearning initiatives in cooperation with Page County Memorial Hospital and the Page County School District. The ability to make use of high-speed connections between health facilities will better link this rural health system with the University of Virginia medial hospitals. The network will connect school facilities, and establish a base for distance-learning services for both adults and children. Ultimately, the project will make possible advanced applications and technologies that include remote patient monitoring, high-resolution scanning and x-ray services, and the utilization of full streaming video for education purposes.
- Support for public safety, anchor and first responder organizations. The network will link the 53 major institutions county-wide, including police, fire, EMS, sheriff, town governments, county government, two libraries, six utilities, nine primary and secondary schools, and one community college. These capabilities will enhance communication, provide an emergency communication capability, and enhance both the reliability and security of these communications.
- Reaching vulnerable populations. Page county currently has a rural, economically disadvantaged and largely senior population, fewer than 40 percent of whom have broadband service. Outside of its three small towns, options for broadband are slow, expensive, and unreliable. The fiber project will establish backhaul and interconnection services for independent Internet Service Providers to reach these populations. Included is a program for outreach and sustained adoption of broadband through two levels of training programs – first for public, medical and educational leaders to establish a knowledge foundation for advanced services, and second for consumers to provide computer training, Internet training, and access to low-cost computers via community centers and libraries. Page County is currently working with Net Literacy and other community-based education organizations to develop the curriculum for this outreach program.



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The project will partner with a number of organizations, large and small. The Virginia Library Association, working in conjunction with the Gates Foundation, will seek to make the most effective use of the middle mile solution to provide education and access to consumers. Small businesses and minority or veteran-owned organizations will be contracted for major parts of the implementation and management of the system. Other partners will include James Madison University and other communications vendors, large and small, who have forwarded with this application their letters of endorsement.

11. BTOP Enhanced Services for Health Care Delivery, Education, and Children:

The Page County middle mile fiber network has specific and tangible capabilities in delivery of enhances services for health care, education and support of children.

In health care, the project will link the Page County Memorial hospital with two satellite health facilities, extending the continuum of patient care beyond a single hospital and making possible remote access to clinical service for patients. This will, in turn, help to improve cost-effective access to health care for an increasingly isolated, elderly and under-insured population.

Broadband access will help level the playing field between urban and rural medical capabilities, offering real-time access to training, medical databases, expert consultation and life-saving technologies utilizing such bandwidth-rich applications as telesurgery, detailed medical imagery and diagnostics.

In education a single 100 Mbit fiber connection would provide 60 times the bandwidth delivered to the average primary or secondary school via existing DSL and cable broadband solutions, where those are available. The Page County middle mile solution would provide the ability to access more information and deliver it with greater reliability, including the use of ebooks in place of standard (and less viable) paper texts; full-streaming video; video conferencing with students the world over; student management; and distance learning.

It is particularly critical in that it would reduce the reliance of the schools on the need for continuous hardware upgrades and a dependence on federal programs such as eRate to subsidize those upgrades. Further, it provides more secure communications, immune to interference from atmospheric and other conditions.

Beyond the secondary level, the project will enable distance learning programs for adults,



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particularly those who are not mobile, and expanded research and education programs at the post-secondary (college and above) levels. It would expand the education choices of students throughout the county, enabling them to continue their studies without abandoning family businesses and elderly family members.

But the single greatest benefits of the project accrue to children. Parents of children with special health care and educational needs often must lose valuable work time and wages to reach the facilities their children need. By allowing families the opportunity to be served at local clinics through telemedicine applications that enable remote screening, diagnosis, treatment, and monitoring, families can receive quality care in the communities in which they work and live. Though e-health applications have different bandwidth requirements, applications such as video conferencing, digital x-ray transmission, and remote monitoring require fast broadband connections.

In addition children who are temporarily or permanently displaced from the classroom through illness or injury will be able to rejoin their mainstream classrooms via videoconferencing, maintaining the recommended curricula to advance with their peers.

A critical part of the project will be the implementation of programs for broadband adoption among medical, education and child welfare workers within the county. As the project is implemented, this will give the professionals a head start in seeking out advanced broadband applications and partnerships.

D. Proposed Funded Service Area

12. Proposed Funded Service Area Maps:

12-A. Service Area Map (Reference Number): **3571-F102-4E9A-89E8**

12-B. Is the applicant seeking a waiver for providing less than 100% coverage of a census block. **No**

13. Proposed Funded Service Area (BIP - Last Mile Projects):

Please refer to section M at the end of document.

14. Proposed Funded Service Area (BTOP - Middle Mile Project):

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15. Non-Funded Service Area(BIP Only):

Not applicable.

16. Coverage Waiver:

Applicant is seeking a waiver for providing less than 100% coverage of a census block.

No

For Response of "Yes" please refer to upload section for additional supporting documentation.

17. Methodology for Area Status:

In 2008, Icon Broadband Technologies, a division of Icon Engineering, Inc. and Consulting Gateway Corporation conducted a county-wide internet-access survey and determined that Page County is underserved in broadband access. A two-page questionnaire was compiled and mailed in order to generate a statistically accurate sampling of residential and business addresses. Public school officials and higher education personnel were surveyed via telephone.

A response rate of 10% would have returned a statistically valid sample size at a 95% confidence level. We received a 32% response from the residential surveys and a 17% response from the business surveys. By receiving a higher return on the surveys, we now have a higher confidence level in our sample size. With the assistance from the school district officials, we ensured that families with children were well represented in the survey process.

The consultants completed the analysis of the responses and have confirmed that there is less than a 40% penetration rate of broadband in the project area. In the designated project area the Town of Luray has the most access to DSL and cable modem. The other two towns of Stanley and Shenandoah have small pockets of availability. Throughout the rest of the county there is no access to broadband.

18. Middle Mile Benefits

The last mile service areas to be directly supported by the Page County fiber network would include prospective fiber customers within 500 feet of the network itself. In addition, the last mile service areas would include 3G cellular providers Sprint, AT&T, CenturyLink and Shentel, within a three-mile radius of their respective cellular towers.

It is not possible to name the specific service provider, as Virginia state law prohibits the entry



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into contracts with providers before funds are available for the project. However, based on the demographics of these populations, and on a projected uptake rate consistent with the national average of 66 percent, the population immediately to be served by a last mile provider would be 267 unserved households with 506 persons; and 3,927 underserved households with 9004 persons.

Critical Community facilities and community anchor institutions, which have committed to support the project, include:

- The administrative offices and 10 primary and secondary schools of the Page County Public School system, which will serve 3,767 students in 2009-2010 as well as the parents, staff members and educators employed by the system (PCPS data).
- Page County Memorial Hospital and its satellite clinics in Stanley and Shenandoah, as well as the PMH Care and Home Medical Service, PMH clinic, PMH Therapy and Fitness Center, the Page County Senior Center, the Montvue Nursing Home and the Hawksbill Assisted Living facility. These will serve the full population of more than 24,000 in Page County with advanced eHealth and telemedicine services available only over a fiber network.
- The Luray, Shenandoah and Stanley Public Libraries, serving the full population of Page County with broadband access and information services.
- The Page County Chamber of Commerce, serving more than 500 businesses with information and services.
- The Page County Job Center, serving the full population of the county with job assistance.
- The Page County government offices, including main offices and Court House; the Health Department facility; the County Technical Park; a Senior/Community Center; Animal Shelter; Social Services Office in Stanley; the Battlecreek Landfill; and the Luray, Stanley and Shenandoah Compactor recycling centers. These serve the full population of Page County with jobs, social services, legal, eGovernment and activities information.
- The offices of the Town of Luray, including the business office; police department; fire department; public works department; rescue squad; sewage treatment plant; water treatment plant; and two recreation park offices. These serve a municipal population of 4,871 persons in 2,191 households with emergency service, first-responder, public safety, water, sewage, recreation and eGovernment services.
- The offices of the Town of Stanley, including the business office; police department;



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two fire departments; public works department; rescue squad; sewage treatment plan; water treatment plant; and a recreation department. These serve a municipal population of 1,326 persons in 598 households.

- The offices of the Town of Shenandoah, including the business office; police department; fire department; public works department; rescue squad; Community Computing Center; and the water treatment plant. These serve a municipal population of 1,878 persons in 764 households.

These offices are currently able to offer limited services to the population of Page County, due to the limited availability of broadband, the limited adoption of broadband, and the bandwidth required to support advanced applications. It is not simply a matter of bringing a base level of 768 Kbit download and 200 Kbit upload speeds. The capacity demands required for eLearning, eHealth and eGovernment applications will need more than the combined capacities of all of the current broadband vendors, and will need the support of a multi-strand, high-capacity fiber backbone.

E. Proposed Service Offering

19. Broadband Service Offerings for Last Mile Project:

Please refer to upload section at the end of the document.

20. Service Offerings for Middle Mile Project:

Please refer to upload section at the end of the document.

Competing Service Providers

21. Existing Broadband Service Providers and Services Offered:

Please refer to upload section at the end of the document.

Non-Discrimination, Interconnection

22. Description of Network Openness:

The Page County Fiber Network Project was designed to be a non-discriminatory, open



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network with interconnection policies consistent with the tenets of network neutrality and transparent network management practices.

The core tenets guiding this philosophy are the policy principles adopted by the Federal Communications Commission on August 5, 2005, four principles to encourage broadband deployment and preserve and promote the open and interconnected nature of public Internet: (1) consumers are entitled to access the lawful Internet content of their choice; (2) consumers are entitled to run applications and services of their choice, subject to the needs of law enforcement; (3) consumers are entitled to connect their choice of legal devices that do not harm the network; and (4) consumers are entitled to competition among network providers, application and service providers, and content providers.

The Page County Broadband Authority will accept partnership bids from any public or private entity consistent with this philosophy on a non-discriminatory basis. Those bids will be segregated into (1) private networks; (2) last mile solution providers.

Private networks leasing space on the middle mile solution will be required to meet standards which demonstrate how the network operates in the public interest, as in the case of emergency first-responders and municipal/county governments. Such networks will be considered to fall under the NTIA/RUS definition of "managed networks."

Last mile solution providers will be required to adhere not only to the FCC principles, but to the following:

- The NTIA/RUS "fifth principle," which requires that neither the Page County Broadband Authority nor the leasing parties on the network favor any lawful Internet application or content over others. This will permit additional services – specifically Voice-over-IP and video services – to co-exist in a vibrant competitive environment with broadband applications and services.
- Notice of network management policies, which requires that the Page County Broadband Authority and its leasing parties on the network display network management policies prominently on their Web site, and notify customers of changes.



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- Physical interconnection for exchange of traffic. The Page County Broadband Authority will offer interconnection where technically feasible and without exceeding current or reasonably anticipated capacity limitations on reasonable rates and terms to be negotiated with requesting parties. This obligation includes both the ability to connect to the public Internet and physical interconnection for the exchange of traffic.

- Leasing parties on the network may still engage in reasonable network management practices as defined by the Federal Communications Commission, accommodate law enforcement agencies, employ caching and “application-neutral bandwidth allocation,” and take measures to address spam, denial of service attacks, illegal content, and other activities detrimental to the operation of the network and the public good. They may also provide selected managed services, including telemedicine, public safety and distance learning.

- Customer privacy and personal property rights, to be determined in accordance with federal and Virginia laws and transparently presented to consumers in a Terms of Service Agreement.

- Intellectual Property laws, as determined by federal and Virginia laws.

These requirements will be made conditional to and a part of any agreements for interconnection or utilization of capacity on the network.

Non-Discrimination and Interconnection (BTOP applicants only for next three questions)

23. Non-Discrimination Obligations (applicable to Last Mile and Middle Mile Applicants):

Adhere to the minimum non-discrimination requirements as set forth in the NOFA.

Display the nondiscrimination practices in a prominent location on the service provider’s web page, and provide notice to customers of changes to these policies.



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24. Interconnection Obligations (applicable to Last Mile Applicants):

--

25. Interconnection Obligations Middle Mile Applicants:

Adhere to the minimum interconnection requirements as set forth in the NOFA.
Display the interconnection policies in a prominent location on the service provider's web page, and provide notice to customers of changes to these policies.
Commit to offering wholesale access to network components and services such as wavelength or fibers at reasonable rates and terms.
Commit to binding private arbitration of disputes concerning interconnection obligations.

Cost Effectiveness and Affordability

26. Cost per Household (BTOP only):

Middle mile project, therefore this question is not applicable.

27. Affordability

A recent, lengthy study was completed in 2008 by Icon Broadband Technologies, a division of Icon Engineering, Inc. on behalf of the Page County Broadband Authority, which surveyed service pricing tolerance in the entire geographic area that the project is going to cover. 2500 residential and 500 business surveys were distributed with a return rate of 32% (797) residential and 17% (86) business, exceeding the statistically valid sample size of 10% return rate. The pricing strategy in the 5 year financial pro formas uses an approach recommended in the Icon study for servicing residential, business and anchor institutions. The



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pricing has been set at a level that is affordable in comparison to existing services.

F. Technology Strategy

28. Technology Type:

Wireline - Fiber-optic Cable
Wireless - Terrestrial Fixed
Wireless - Terrestrial Mobile

Other:

29. System Design

The Page County Middle Mile Project consists of a 37-mile fiber optic network serving a path from north of Luray, Virginia along a track adjacent to US Highway 340 (Business) through the town of Stanley, terminating in the town of Shenandoah at the south end of Page County.

The fiber network will be built to augment or overlay existing telecommunications networks (copper, coaxial cable, wireless, etc.), and would serve the dual purpose of being a backhaul distribution network and a new access network for customers residing within approximately 500 linear feet of the fiber.

- A 48-strand network will connect the three major towns of the county, and has been designed to pass within 500 feet of each of the major community health care, educational or municipal facilities.
- Additionally, a 144-strand fiber network within each of the three communities would provide for consumer access to the network. Fiber storage loops every 1000 feet will allow fiber to reach new areas.



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The majority of the network (estimated to be 97 percent) would be carried over utility poles belonging to Allegheny Power. The remainder would be buried underground in appropriate rights-of-way and through new or existing conduits.

Topography of the network is as follows:

- Three (3) miles of backbone fiber deployed from Springfied Elementary School in Rileyville, in the northern part of the county, to Luray.
- Nine (9) miles of backbone fiber deployed from the County Complex on Court Street in Luray and extending into the Town of Stanley. From Court Street the network follows Highway 638 south to Highway 629 east, turning south on Highway 340, turning back northwest on Highway 631 to west on Highway 632 (Goodrich Road) passing the Page County Technical School, future County Tech Park and PTS data center, continuing into the Town of Stanley where it becomes Highway T-638, turning south on Aylor Grubbs then east on Main Street ending at the Stanley Fire Department.
- Five (5) miles of distribution fiber deployed throughout the Town of Luray and interconnecting with the backbone fiber at the Emergency Communications Center on Court Street.
- Twelve miles (12) of backbone fiber continuing from Stanley to the Page County High School north of Shenandoah.
- Eight (8) miles of continuing backbone fiber to Shenandoah, connecting to the town offices, the fire department, the police department and other core community tenants.

The Page County Broadband Authority will provide for a front-end Network Operations Center with equipment racks, routers, environment controls, multiple redundant power sources, connection to a main network for bandwidth and backhaul traffic out of the county, and an outside plant fiber distribution transport network. The outside plant would consist of approximately 17.5 miles of distribution fiber and approximately 7.5 miles of access network.



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The network will be a mixed dark fiber and community network. The community portion of the network will be implemented to interconnect government offices, schools, medical facilities, emergency first-responder agencies and libraries through a system of private networks capable of providing for advanced eHealth, eLearning and eGovernment applications. This section of the network will be lit up by the Page County Broadband Authority and managed under a contract to a single entity that will provide network operation and interconnection services to the contracted community and core tenant customers.

The dark fiber portion of the network will consist of two sections. The first section is to be leased to third parties as dictated by the laws of the State of Virginia with respect to Internet Service Providers, and will serve as the foundation for provision of high-speed broadband Internet services to the currently underserved and unserved populations of Page County. The second section will be leased to private parties as backhaul for networks of DSL, cable, wireless and 4G cellular services.

30. Network Diagram:

Please refer to upload section at the end of document.

31. Certification by Professional Engineer:

Please refer to upload section at the end of document.

32. Buy American Waiver Request:

Is the applicant seeking an individual waiver of the Buy American provision? No

Buy American Waiver Request – Legal Justification



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33. Choice of Service Provider:

Does the project's Infrastructure and the Company's business plan allow more than one provider to serve end users in the proposed funded service area?

Yes

G. Project Milestones and Completion Factors

Timeline & Milestones

34. Infrastructure Build-out Timeline:

Please refer to upload section at the end of the document.

35. Licenses, Regulatory Approvals and Agreements:

We will need right of way permits from Virginia Department of Transportation for those sections of the fiber that will be in the ground (only 2 miles). Right of way permits will also be secured from Shenandoah Electric Cooperative for fiber to be strung on the poles. Contact has already been made and permits will be obtained as soon as funding is secured.

36. Construction and Vendor Contracts

The Page County Broadband Authority will not hire staff for construction or any other types of activities needed to deploy our middle mile project. The Page County BBA will rely 100% on vendors and contractors to build the infrastructure of the project. As mandated by the Code of Virginia, the Page County BBA may not enter into any signed contracts until funding has been secured. Since funding has not yet been received for the construction phase of the project, there are no signed contracts at this time.

We have substantive letters of commitment from the likes of Shental Shenandoah Telecommunications to move forward once we are legally able to do so.



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Qualification of Management Team and Organizational Readiness

37. Management Team Resumes:

Please refer to upload section at the end of the document.

38. Organizational Readiness:

The Page County Broadband Authority's sole purpose under the Code of Virginia is to implement policy in order to operate broadband activity throughout its jurisdictional area. The organization is governed by the Code of Virginia, articles of incorporation and by specific operational procedures adopted by the Authority. In addition the Authority has created a management sub-team that will be responsible for the actual construction and operational implementation of the middle mile fiber network. This management team is populated with experts in telecommunication, marketing and business management.

When the network is at the point of being operational, it is the intention of the Page County Broadband Authority and the management team to contract with capable ISP's who already have the capabilities in place to provide sales, network management, billing and customer care.

Other

39. Organizational Chart:

Please refer to upload section at the end of document.

40. Legal Opinion:

Please refer to upload section at the end of document

41. Government and other Key Partnerships:

Our strategy for partnering is to reach out to organizations and facilitate cooperation which is evidenced by the attached letters:

The Northern Shenandoah Valley Regional Commission is the lead planning agency for this region. The BBA fiber project is the number one development priority from this agency.



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The County of Warren, Virginia is interested in a multi-jurisdictional partnership.

The Shenandoah Valley Partnership is a regional economic agency. A fiber network will enhance SVP's ability to help Page County attract higher-wage firms to the area.

Shentel, a regional telecommunications company, has towers within reach of the middle mile project and will provide last mile build out as well as generate significant revenues for the project.

The fiber network will enable Page Memorial Hospital to deliver services at satellite offices in Stanley and Shenandoah where LMI populations live. It will provide access to telemedicine from health care facilities located in Winchester, VA (50 miles away).

Fiber connection to Lord Fairfax's campuses (50 miles away) will deliver new educational opportunities to local students. Page County high school graduation rates are competitive with the rest of Virginia, but post-secondary rates are significantly lower. Better access to post-secondary education is critical to improve career opportunities.

Page County Public Schools and Massanutten Regional Library are establishing programs using high speed for children and disadvantaged populations. MRL is in discussions with the Library of Virginia and the Gates Foundation to bring high speed to all libraries in this region.

Page County's Fire and Emergency Medical Services and Sheriff's Office are committed to using high speed communications to enhance their services.

Premier Technical Services is building a Data Center and COOP facility in Page County, creating high-paying jobs.

42. Recovery Act and Other Governmental Collaboration.

Page County has already secured the support and involvement of the Commonwealth of Virginia Department of Housing and Community Development in its broadband initiative. The investment of \$120,000 (Community Development Block Grant) was used to secure the services of Icon Broadband Technologies, a division of Icon Engineering Inc. and Consulting Gateway Corporation. These firms were tasked with completing an in-depth



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telecommunications planning study designed to answer questions relating to the need for broadband infrastructure, options for providing connectivity, ways to organize potential networks and also address funding requirements. The study management team was comprised of key county stakeholders representing economic development, healthcare, public schools and high education, and leaders from the business community.

The work was initiated and completed in 2008 and included several reports: an Executive Summary; Community Broadband Planning Study and Community Broadband Network Implementation Plan.

The investment by DHCD has established a strong foundation of knowledge regarding the current needs, existing technologies, market forces and opportunities facing Page County as it relates to broadband. The in-depth analysis of community needs and market forces has laid out a clear direction for start-up and implementation phase of a fiber network. This financial commitment by DHCD has enabled Page County to move forward with its broadband planning and the investment will be leveraged by BIP and/or BTOP funding to build the fiber network.

DHCD is currently considering a further investment of \$200,000 (Community Development Block Grants Local Innovation Program) which will be used to finance construction of the fiber network.

Community Involvement (BTOP Applicants Only)

43. Partnering with Disadvantaged Businesses

In March 2008, a Request for Interest was sent out by Icon Technologies for Broadband Network Access and Services. Premier Technical Services, a Service Disabled Veteran Owned Small Business and HUBZone Certified Small Business Concern responded to this request.

Premier provides services and products that address IT challenges facing customers in their day-to-day operations. Premier's goal is to provide end-to-end IT solutions that enable its customers to focus on their business without being hampered by shortcomings in their information systems. Premier transforms technology into a strategic tool which is used to build



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and maintain their customers' businesses.

In the Letter of Intent submitted, David Tong (President and CEO), agreed in principle to explore opportunities that would significantly enhance their ability to service clients both within Page County and the overall region.

H. Project Budget

44. General Overall Budget



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Budget	Loan Request	Grant Request	Equity	Debt	Bond	Other
Network & Access Equipment (switching, routing, transport, access)		66,000	16,500			
Outside Plant (cables, conduits, ducts, poles, towers, repeaters, etc.)		1,194,985	298,746			
Buildings and Land – (new construction, improvements, renovations, lease)						
Customer Premise Equipment (modems, set-top boxes, inside wiring, etc.)		89,856	22,464			
Billing and Operational Support Systems (IT systems, software, etc.)		20,000	5,000			
Operating Equipment						



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(vehicles, office equipment, other)						
Engineering/ Professional Services (engineering design, project management, consulting, etc.)		260,100	65,025			
Testing (network elements, IT system elements, user devices, test generators, lab furnishings, servers/computers, etc.)		18,000	4,500			
Site Preparation						
Other						
TOTAL BROADBAND SYSTEM		1,648,941	412,235			



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Total Budget: \$ 2,061,176

45. Detailed Budget:

Please refer to upload section at the end of the document.

Sustainability

46. Reasonableness

Page County has been formally studying the deployment of Broadband for well over two years. Because they have been focusing on this issue costs have been honed to the degree possible without an actual deployment design. The number of units and the price of the units are reasonable, necessary, and appropriate for the project. Cost budgets and breakdowns are provided in the tables by category with support notations. The costs of this project are well targeted to a middle mile backbone infrastructure for providing high speed bandwidth to underserved areas of Virginia. Only with funding can the planning of this project be continued to deployment. All potential costs include pricing that reflects the best management practices including inspections and prevailing wage where appropriate.

Page has contracted with Icon Broadband Technologies (IBT) over the course of the past year to study, survey and develop cost models based on unit pricing for typical backbone capital equipment costs; ongoing operational costs; labor costs; right of way and permitting costs along with all the associated miscellaneous costs (such as maintenance). This section also specifically asks for units per household or institution served and those include a population of 15605 and 6280 residences passed by the network (53 community facilities, 745 businesses). In a middle mile deployment such as Page these units represent the backbone design and construction labor and materials and the tower design and construction both labor and materials. All costs are normal, usual and customary for this geographical area and deployment assumptions. A last mile fiber deployment by the Page is not envisioned at this time (private providers, however, have expressed their interest in providing wireless services by way of an RFI process conducted by the County).

To achieve a preliminary cost analysis IBT relied on their experience with other similar projects, and actual deployment costs for similar projects. A field make ready assessment was made of the study area. The example in the next paragraph demonstrates the degree of detail used to



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provide cost and revenue projections for this application. Because IBT understands all aspects of this project they considered costs and revenue over the life of the project as demonstrated by the following example: A special cost and revenue concern requires the understanding of issues between capital expense (CAPEX) and ongoing operating expense (OPEX) in a middle mile deployment. When aerial construction on foreign pole lines is considered, you ignore the ongoing OPEX at your financial peril. Because Page County does not own a pole line to connect the fiber plant, they must pay some utility an annual fee per pole per year. Many utilities in these hard times are using their infrastructure as revenue generating sources and typically increase their pole attachment agreements annually. Other pole owners attempt to delay deployments they feel will provide competition in their area of service. In the general area of this project those agreements run from a low of \$15.00 per pole to a high of \$35.00 per pole per year. For financial modeling purposes the assumptions used an average cost of \$26.00 per pole per and an average number of poles per mile of 26. Examination of the costs in Page led the consultants to decide that a mixture of aerial and underground deployment was the most economical method over the lifetime of the fiber. Increases in pole attachments are likely to increase continually over time. Page does not have a reliable funding source for those OPEX costs over time and therefore the use of UG fiber in some areas was justified. That is an increased CAPEX cost but one time only. This provides for a more secure, more robust and more attractive network, leaving revenue sources to be used in other ways.

47. Historical Financial Statements:

Please refer to upload section at the end of the document.

48. Broadband Subscriber Estimates:

Please refer to upload section at the end of the document.

49. Other Services:

Please refer to upload section at the end of the document.

50. Pro Forma 5-Year Financial Forecast and Assumptions:

Please refer to upload section at the end of the document.

51. Commitment of Capital Funding Support

Funds already committed in the initial planning phase were invested by the Commonwealth of Virginia Department of Housing and Community Development in the amount of a \$120,000 grant in 2008. These were used to hire a consulting engineer. These



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costs are not included in the overall budget.

BTOP Requirements

52. Matching Funds:

- a. Cash: \$ 200,000.00
- b. In-Kind: \$ 212,235.00
- c. Percent of Total Project Cost: 20

53. Demonstration of Financial Need:

Page County is a distressed locality with 12.2% of the population earning below the poverty level and an unemployment rate of 11.7%. Sixty percent of residents commute to work outside the county daily. Economic development efforts to recruit businesses which pay higher salaries are hampered by a lack of high speed infrastructure to support technology-dependent industries such as those currently located in high-traffic urban areas. These realities pose a significant challenge to the Page County government and Broadband Authority in terms of generating sufficient revenue to draw on for funding local initiatives.

Because of a constrained budget and limited revenue-generating capacity, federal government grant funding for the fiber optic network is critical. Without this financial investment, the broadband infrastructure will not be built. The good news is that once it is in place many institutions and citizens are ready to take advantage of the services and opportunities that will open up to them. These efforts will generate additional revenue for the county, drawing both new jobs and businesses to this region.

Telecommunications companies will not build this network. However, it is also obvious that once it is completed, ISP's will step forward to offer competitively priced services to the citizens, companies and institutions of Page County. Shentel Shenandoah Telecommunications has written a letter of support for the fiber network infrastructure project (included with answer to question 41). Fiber backhaul from several local tower sites will allow them to deploy high speed wireless services to reach a large number of currently unserved areas. This show of support demonstrates the commitment and opportunity that is assured once the network is



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completed.

54. Unjust Enrichment

No, we have not received nor have we applied for any other Federal support for this project.

55. Disclosure of Federal and/or State Funding Sources

The Page County BBA has requested a \$200,000 grant from the Commonwealth of Virginia Department of Housing and Community Department.

We have received \$120,000 from the Commonwealth of Virginia Department of Housing and Community Development for an initial study and preparation.

I. Self Scoring – BIP Only Self Scoring

56. Self Scoring Sheet



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Criteria	Method	Points	Self Scores
<u>PROJECT PURPOSE</u>			
Proportion of Rural Residents Served in Unserved Areas	1 point for every 10,000 unserved households	Up to 5	0
Rural Area Targeting	1 point for every 5% increase in the rural service area up the minimum 75% rural area requirement	Up to 5	5
Remote Area targeting	1 point for every 50 miles a service area is located from a non-rural area	Up to 5	1
Title II Borrower	If you are or were a Title II borrower	5	0
Recovery Act and other governmental collaboration	1 point will be awarded for each governmental or Recovery program the applicant is partnering with	Up to 5	1
<u>PROJECT BENEFITS</u>			
Performance of the offered services	If a last mile wireline project delivers 20M to household – if a last mile wireless projects delivers 2M to end-user – if a middle mile projects delivers 100M to end points	10	10
Affordable of services offered	Points awarded based on the proposed rate structure and the logistics of the proposed service area	Up to 5	5



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Choice of service provider	If the proposed infrastructure is available to be used by multiple service providers	5	5
Critical Community Facilities	If discounted rate packages at least 25% lower than advertise rates are available to critical facilities	5	5
<u>PROJECT VIABILITY</u>			
Applicant's organizational capability	Points will be awarded on the strengths and accomplishments of key management	Up to 12	12
Community Support	If a letter of support has been received from a designated representative of the community for every community in the proposed service territory	2	2
Ability to promptly start project	If the applicant can demonstrate that all licenses and regulatory approvals have been received, contractors and vendors are ready to enter into contracts, and equity has been deposited into applicant accounts	10	10
Socially and economically disadvantaged small businesses (SDB), as defined by section 8(a) of the Small Business Act, 15 U.S.C. §637.	If the applicant is a Section 8(a) entity	1	0
<u>PROJECT BUDGET AND SUSTAINABILITY</u>			
Reasonableness of the budget	Points will be awarded based the	Up to 5	5



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	adequacy of the proposed budget		
Leverage of outside resources (outside funding/financing requested)	(i) 10 points if this ratio is greater than 100% (ii) 7 points if this ratio is between 100% and 75% (iii) 5 points if this ratio is between 75% and 50% (iv) 3 points if this ratio is between 50% and 25% (v) 1 points if this ratio is lower than 25%	10	1
Extent of grant funding (Grant funds/loan funds)	(i) 0 points if this ratio equals 100% (ii) 1 points if this ratio is between 100% and 75% (iii) 3 points if this ratio is between 75% and 50% (iv) 5 points if this ratio is lower than 50% (v) 10 points if no grant funds are requested	10	0
Total Points		100	62



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J. BTOP Certification Requirements

Certification (Requested for BTOP)

Please refer to upload section at the end of the document regarding following uploads.

1. U.S. Department of Commerce, Broadband Technology Opportunities Program
2. SF-424D Assurances—Construction Programs (Schedule N)
3. CD-511, Certification Regarding Lobbying (Attachment O)
4. SF-LLL, Disclosure of Lobbying Activities (Attachment P)
5. CD-512, Certification Regarding Lobbying—Lower-Tier Covered Transactions (Attachment Q) This certification will not be required until the time of the grant award, because it applies to subcontractors, etc.

K. BIP Certification Requirements

Certification (Requested for BIP)

Please refer to upload section at the end of the document regarding following uploads.

1. Equal Opportunity and Nondiscrimination Certification
2. Certification Regarding Architectural Barriers
3. Uniform Relocation Assistance and Real Property Acquisition - Policies Act of 1970 Certification
4. Certification Regarding Debarment, Suspension, and Other Responsibility Matters – Primary Covered Transactions
5. Certification Regarding Lobbying for Contracts, Grants, Loans, and Cooperative Agreements



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/17/2009 8:17:11 PM		Easygrants ID: 1410	
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program		Applicant Organization: Page County Broadband Authority	
Task: Submit Application - Infrastructure Programs		Applicant Name: Dr. Tom M Cardman	

- 6. Network Design and Implementation Plan Certification (to be complete for projects requesting more than \$1 million in federal assistance)

L. Schedules

Schedule: A-1 Congressional Districts

1. State the Congressional District of the Applicant's headquarters
Virginia - 7

2. State the Congressional District for each area covered by the Project.
Virginia - 7

M. Proposed Funded Service Area Details (BIP & BTOP)

13. Proposed Funded Service Area (BIP - Last Mile Projects):

Proposed Funded Service Area Name:
Census Blocks in Proposed Funded Service Area:
Community Name:
Rural Classification of the Community:
BIP - Service Status:

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

BTOP - Service Status:

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

Total Square Miles of Community:



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Task: Submit Application - Infrastructure Programs		Applicant Name: Dr. Tom M Cardman	

Total Population :
Total Number of Households:
Total Number of Businesses:
Total Number of Critical Community Facilities, Anchor Institutions and Public Safety Entities:

14. Proposed Service Area (BTOP - Middle Mile Project):

Middle Mile Span Name: Rileyville to Luray
Census Blocks in Middle Mile Span: TRACT BLOCK
30100 1007
30100 2005
30100 2006
30100 2033
30100 3047
30100 3048
30100 3049
30200 2001
30200 2022
30200 2023
30200 2024
30200 2025
30200 2039
Last Mile Service Area Name: Rileyville
Community Name: Other Area
Rural Classification of the Community: Rural
BIP – Service Status: Unserved

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

BTOP - Service Status: Unserved

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

Total Square Miles of Service Area: 27



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Task: Submit Application - Infrastructure Programs	Applicant Name: Dr. Tom M Cardman

Total Population : 1,766
Total Number of Households: 690
Total Number of Businesses: 21
Total Number of Critical Community Facilities, Anchor Institutions and Public Safety Entities: 4

Middle Mile Span Name: Town of Luray
Census Blocks in Middle Mile Span: TRACT BLOCK

30100 1007
30100 1009
30100 1011
30100 1012
30100 1017
30100 1018
30100 1019
30100 1020
30100 1021
30100 1032
30100 1033
30200 2020
30200 2021
30200 2029
30200 2030
30200 2031
30200 2032
30200 2035
30200 2036
30200 2037
30200 2038
30200 2039
30200 2040
30200 2041
30200 2042
30200 2043



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Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program		Applicant Organization: Page County Broadband Authority	
Task: Submit Application - Infrastructure Programs		Applicant Name: Dr. Tom M Cardman	

30200 2044
30200 2045
30200 2046
30200 2047
30200 2048
30200 2049
30200 2050
30200 2053
30200 2054
30200 2062
30200 3000
30200 3001
30200 3002
30200 3003
30200 3004
30200 3005
30200 3006
30200 3007
30200 3008
30200 3009
30200 3010
30200 3011
30200 3012
30200 3013
30200 3014
30200 3015
30200 3022
30200 3023
30200 3024
30300 3003
30300 3005
30300 3006
30300 3026
30300 3027



**Broadband Infrastructure Application
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Task: Submit Application - Infrastructure Programs	Applicant Name: Dr. Tom M Cardman

30300 3030
30300 3031
30300 4001
30300 4002
30300 4003
30300 4004
30300 4005
30300 4006
30300 4007
30300 4008
30300 4009
30300 4010
30300 4011
30300 4012
30300 4013
30300 4014
30300 4015
30300 4016
30300 4017
30300 4018
30300 4019
30300 4020
30300 4021
30300 4026
30300 4027
30300 4035
30300 4036
30300 4037
30300 4038
30300 4039
30300 4040
30300 4041
30300 4044
30300 4045



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Task: Submit Application - Infrastructure Programs		Applicant Name: Dr. Tom M Cardman	

30300 4046

30300 4047

Last Mile Service Area Name: Luray
Community Name: Luray
Rural Classification of the Community: Rural
BIP – Service Status: Underserved

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

The rate of broadband subscribership for the census-designated community [or other area] is 40% of households or less.

BTOP - Service Status: Underserved

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

The rate of broadband subscribership for the proposed funded service area is 40% of households or less.

Total Square Miles of Service Area: 5

Total Population : 4,871

Total Number of Households: 2,037

Total Number of Businesses: 381

Total Number of Critical Community Facilities, Anchor Institutions and Public Safety Entities: 20

Middle Mile Span Name: Luray

Census Blocks in Middle Mile Span: TRACT BLOCK

30100 1007

30100 1009

30100 1011

30100 1012

30100 1017

30100 1018

30100 1019

30100 1020

30100 1021



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

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Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program		Applicant Organization: Page County Broadband Authority	
Task: Submit Application - Infrastructure Programs		Applicant Name: Dr. Tom M Cardman	

30100 1032
30100 1033
30200 2020
30200 2021
30200 2029
30200 2030
30200 2031
30200 2032
30200 2035
30200 2036
30200 2037
30200 2038
30200 2039
30200 2040
30200 2041
30200 2042
30200 2043
30200 2044
30200 2045
30200 2046
30200 2047
30200 2048
30200 2049
30200 2050
30200 2053
30200 2054
30200 2062
30200 3000
30200 3001
30200 3002
30200 3003
30200 3004
30200 3005
30200 3006



**Broadband Infrastructure Application
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Task: Submit Application - Infrastructure Programs		Applicant Name: Dr. Tom M Cardman	

30200 3007
30200 3008
30200 3009
30200 3010
30200 3011
30200 3012
30200 3013
30200 3014
30200 3015
30200 3022
30200 3023
30200 3024
30300 3003
30300 3005
30300 3006
30300 3026
30300 3027
30300 3030
30300 3031
30300 4001
30300 4002
30300 4003
30300 4004
30300 4005
30300 4006
30300 4007
30300 4008
30300 4009
30300 4010
30300 4011
30300 4012
30300 4013
30300 4014
30300 4015



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Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program		Applicant Organization: Page County Broadband Authority	
Task: Submit Application - Infrastructure Programs		Applicant Name: Dr. Tom M Cardman	

- 30300 4016
- 30300 4017
- 30300 4018
- 30300 4019
- 30300 4020
- 30300 4021
- 30300 4026
- 30300 4027
- 30300 4035
- 30300 4036
- 30300 4037
- 30300 4038
- 30300 4039
- 30300 4040
- 30300 4041
- 30300 4044
- 30300 4045
- 30300 4046
- 30300 4047

Last Mile Service Area Name: Luray
Community Name: Other Area
Rural Classification of the Community: Rural
BIP – Service Status: Underserved

BIP - If Service Status is "Underserved" please select at least one applicable option from this list. The rate of broadband subscribership for the census-designated community [or other area] is 40% of households or less.
--

BTOP - Service Status: Underserved

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

Total Square Miles of Service Area: 22



**Broadband Infrastructure Application
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Task: Submit Application - Infrastructure Programs	Applicant Name: Dr. Tom M Cardman

Total Population : 485

Total Number of Households: 123

Total Number of Businesses: 54

Total Number of Critical Community Facilities, Anchor Institutions and Public Safety Entities: 1

Middle Mile Span Name:

Luray to Stanley

Census Blocks in Middle Mile Span: TRACT BLOCK

30200 3002
30200 3007
30200 3008
30200 3013
30200 3014
30200 3015
30200 3017
30200 3018
30200 3019
30200 3020
30200 3021
30200 3022
30300 2004
30300 2005
30300 2006
30300 2007
30300 2008
30300 2010
30300 2013
30300 2014
30300 2015
30300 2020
30400 2000
30400 2001
30400 2002
30400 2004



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

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Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program		Applicant Organization: Page County Broadband Authority	
Task: Submit Application - Infrastructure Programs		Applicant Name: Dr. Tom M Cardman	

- 30400 2006
- 30400 2007
- 30400 2008
- 30400 2014
- 30400 2015
- 30400 2016
- 30400 2027
- 30400 3002
- 30400 3003
- 30400 3004
- 30400 3005
- 30400 3006

Last Mile Service Area Name: Stanley
Community Name: Stanley
Rural Classification of the Community: Rural
BIP – Service Status: Underserved

BIP - If Service Status is "Underserved" please select at least one applicable option from this list. The rate of broadband subscribership for the census-designated community [or other area] is 40% of households or less.
--

BTOP - Service Status: Underserved

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

Total Square Miles of Service Area: 1
Total Population : 1,326
Total Number of Households: 562
Total Number of Businesses: 92
Total Number of Critical Community Facilities, Anchor Institutions and Public Safety Entities: 6

Middle Mile Span Name: Luray to Stanley



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Task: Submit Application - Infrastructure Programs		Applicant Name: Dr. Tom M Cardman	

Census Blocks in Middle Mile Span: TRACT BLOCK

30200 3002
30200 3007
30200 3008
30200 3013
30200 3014
30200 3015
30200 3017
30200 3018
30200 3019
30200 3020
30200 3021
30200 3022
30300 2004
30300 2005
30300 2006
30300 2007
30300 2008
30300 2010
30300 2013
30300 2014
30300 2015
30300 2020
30400 2000
30400 2001
30400 2002
30400 2004
30400 2006
30400 2007
30400 2008
30400 2014
30400 2015
30400 2016
30400 2027



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30400 3002
30400 3003
30400 3004
30400 3005
30400 3006

Last Mile Service Area Name: Stanley
Community Name: Stanley - Other Area
Rural Classification of the Community: Rural
BIP – Service Status: Underserved

BIP - If Service Status is "Underserved" please select at least one applicable option from this list.
The rate of broadband subscribership for the census-designated community [or other area] is 40% of households or less.

BTOP - Service Status: Underserved

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

Total Square Miles of Service Area: 26
Total Population : 2,931
Total Number of Households: 1,141
Total Number of Businesses: 62
Total Number of Critical Community Facilities, Anchor Institutions and Public Safety Entities: 9

Middle Mile Span Name: Stanley to Shenandoah
Census Blocks in Middle Mile Span: TRACT BLOCK

30400 1000
30400 1004
30400 1006
30400 1007
30400 1008
30400 1009



**Broadband Infrastructure Application
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Task: Submit Application - Infrastructure Programs		Applicant Name: Dr. Tom M Cardman	

30400 1010
30400 1011
30400 1012
30400 1013
30400 1014
30400 1015
30400 1016
30400 1022
30400 1024
30400 1025
30400 1026
30400 1999
30400 2015
30400 2018
30400 2019
30400 2020
30400 2021
30400 2023
30400 2024
30400 2026
30400 2027
30400 3005
30400 3006
30400 3007
30400 5018
30400 5019
30400 5999
30500 1008
30500 1011
30500 1027
30500 1029
30500 1030
30500 1031
30500 1032



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Task: Submit Application - Infrastructure Programs		Applicant Name: Dr. Tom M Cardman	

- 30500 1033
- 30500 1034
- 30500 1035
- 30500 1036
- 30500 1037
- 30500 1038
- 30500 1039
- 30500 1051
- 30500 1996
- 30500 1997
- 30500 1998
- 30500 1999
- 30500 2000
- 30500 2001
- 30500 2002
- 30500 2003
- 30500 2004
- 30500 2005
- 30500 2006
- 30500 2007
- 30500 2008
- 30500 2009
- 30500 2011
- 30500 2012
- 30500 2013
- 30500 2014
- 30500 2015
- 30500 2016
- 30500 2017
- 30500 2018
- 30500 2021
- 30500 2022
- 30500 2023
- 30500 2025



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Task: Submit Application - Infrastructure Programs	Applicant Name: Dr. Tom M Cardman

30500 2998
30500 2999
30500 4012
30500 4013
30500 4014
30500 4015
30500 5006
30500 5009
30500 5010
30500 5012
30500 5013
30500 5014
30500 5015
30500 5024
30500 5025
30500 5026
30500 5027
30500 5028
30500 6000
30500 6001
30500 6004
30500 6005
30500 6006
30500 6007
30500 6008
30500 6011
30500 6012
30500 6013
30500 6015
30500 6016
30500 6017
30500 6018
30500 6019
30500 6020



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- 30500 6021
- 30500 6022
- 30500 6023
- 30500 6024
- 30500 6025
- 30500 6026
- 30500 6027
- 30500 6029
- 30500 6030
- 30500 6031
- 30500 6032
- 30500 6033
- 30500 6034
- 30500 6035
- 30500 6036
- 30500 6037

Last Mile Service Area Name: Shenandoah
Community Name: Shenandoah
Rural Classification of the Community: Rural
BIP – Service Status: Underserved

BIP - If Service Status is "Underserved" please select at least one applicable option from this list.
The rate of broadband subscribership for the census-designated community [or other area] is 40% of households or less.

BTOP - Service Status: Underserved

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

Total Square Miles of Service Area: 1
Total Population : 1,878
Total Number of Households: 812
Total Number of Businesses: 102
Total Number of Critical Community Facilities, Anchor Institutions and Public Safety Entities: 4



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Middle Mile Span Name: Stanley to Shenandoah
Census Blocks in Middle Mile Span: TRACT BLOCK

- 30400 1000
- 30400 1004
- 30400 1006
- 30400 1007
- 30400 1008
- 30400 1009
- 30400 1010
- 30400 1011
- 30400 1012
- 30400 1013
- 30400 1014
- 30400 1015
- 30400 1016
- 30400 1022
- 30400 1024
- 30400 1025
- 30400 1026
- 30400 1999
- 30400 2015
- 30400 2018
- 30400 2019
- 30400 2020
- 30400 2021
- 30400 2023
- 30400 2024
- 30400 2026
- 30400 2027
- 30400 3005
- 30400 3006
- 30400 3007



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30400 5018
30400 5019
30400 5999
30500 1008
30500 1011
30500 1027
30500 1029
30500 1030
30500 1031
30500 1032
30500 1033
30500 1034
30500 1035
30500 1036
30500 1037
30500 1038
30500 1039
30500 1051
30500 1996
30500 1997
30500 1998
30500 1999
30500 2000
30500 2001
30500 2002
30500 2003
30500 2004
30500 2005
30500 2006
30500 2007
30500 2008
30500 2009
30500 2011
30500 2012



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30500 2013
30500 2014
30500 2015
30500 2016
30500 2017
30500 2018
30500 2021
30500 2022
30500 2023
30500 2025
30500 2998
30500 2999
30500 4012
30500 4013
30500 4014
30500 4015
30500 5006
30500 5009
30500 5010
30500 5012
30500 5013
30500 5014
30500 5015
30500 5024
30500 5025
30500 5026
30500 5027
30500 5028
30500 6000
30500 6001
30500 6004
30500 6005
30500 6006
30500 6007



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- 30500 6008
- 30500 6011
- 30500 6012
- 30500 6013
- 30500 6015
- 30500 6016
- 30500 6017
- 30500 6018
- 30500 6019
- 30500 6020
- 30500 6021
- 30500 6022
- 30500 6023
- 30500 6024
- 30500 6025
- 30500 6026
- 30500 6027
- 30500 6029
- 30500 6030
- 30500 6031
- 30500 6032
- 30500 6033
- 30500 6034
- 30500 6035
- 30500 6036
- 30500 6037

Last Mile Service Area Name: Shenandoah
Community Name: Other Area
Rural Classification of the Community: Rural
BIP – Service Status: Underserved

BIP - If Service Status is "Underserved" please select at least one applicable option from this list. The rate of broadband subscribership for the census-designated community [or other area] is 40% of households or less.
--



**Broadband Infrastructure Application
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Task: Submit Application - Infrastructure Programs	Applicant Name: Dr. Tom M Cardman

BTOP - Service Status: Underserved

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

Total Square Miles of Service Area: 26
Total Population : 2,347
Total Number of Households: 915
Total Number of Businesses: 33
Total Number of Critical Community Facilities, Anchor Institutions and Public Safety Entities: 10



**Broadband Infrastructure Application
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Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program	Applicant Organization: Page County Broadband Authority
Task: Submit Application - Infrastructure Programs	Applicant Name: Dr. Tom M Cardman

Uploads

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

Upload Name
16) Q-45. Attachment G - Detailed Project Cost
09) Q-31. Attachment D - Engineer Certification*
13) Q-40. Attachment F - Legal Opinion*
26) Pg-22. BTOP ONLY Certification Requirements*
27) Pg-23. BTOP ONLY Att. N - Assur-Construction*
28) Pg-24. BTOP ONLY Attachment O - Lobbying*
31) Pg-27. BIP ONLY Equal Opportunity*
32) Pg-28. BIP ONLY Architectural Barriers*
33) Pg-29. BIP ONLY Relocation and Real Property*
34) Pg-30. BIP ONLY Debarment and Suspension*
35) Pg-31. BIP ONLY Lobbying Certification*



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Task: Submit Application - Infrastructure Programs	Applicant Name: Dr. Tom M Cardman

25) BTOP ONLY Authentication*
04) Q-20. Attachment B - Middle Mile Offerings
05) Q-21. Attachment C - Competitor Tables
08) Q-30. Network Diagram
12) Q-39. Organization Chart
17) Q-47. Historical Financial Statements
18) Q-48. Attachment H - Subscriber Estimates
19) Q-49. Attachment I - Projects, Rates - Voice
20) Q-49. Attachment J - Projects, Rates - Video**
15) Q-44. JOINT APPS ONLY: Additional Budget
29) Pg-25. BTOP ONLY Attachment P - Disclosure*
30) Pg-26. BTOP ONLY Attachment Q - Lobbying*



**Broadband Infrastructure Application
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Submitted Date: 8/17/2009 8:17:11 PM	Easygrants ID: 1410
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program	Applicant Organization: Page County Broadband Authority
Task: Submit Application - Infrastructure Programs	Applicant Name: Dr. Tom M Cardman

24) Q-50. Financial Assumptions
14) Q-41. Government and Other Key Partnerships
10) Q-34. Attachment E - Build-Out Timeline
43) Supplemental Information 1
22) Q-50. Attachment L - Balance Sheet
21) Q-50. Attachment K - Income Statement
42) Pg-35 - Step 2 Form -BIP ONLY- Service Metric
23) Q-50. Attachment M - Statement of Cash Flows
11) Q-37. Management Team Resumes

To preserve the integrity of the uploaded document, headers, footers and page numbers have not been added by the system

DETAIL OF PROJECT COSTS

PLEASE COMPLETE THE TABLE BELOW FOR THE DIFFERENT CATEGORIES OF EQUIPMENT THAT WILL BE REQUIRED FOR COMPLETING THE PROJECT. EACH CATEGORY SHOULD BE BROKEN DOWN TO THE APPROPRIATE LEVEL FOR IDENTIFYING UNIT COST

SERVICE AREA or COMMON NETWORK FACILITIES:		Eligibility (Yes/No)	Unit Cost	No. of Units	Total Cost	Support of Reasonableness
NETWORK & ACCESS EQUIPMENT						
Switching						
Routing						
Transport						
Access						
Other						
OUTSIDE PLANT						
Cables						
Conduits						
Ducts						
Poles						
Towers						
Repeaters						

DETAIL OF PROJECT COSTS

SERVICE AREA or COMMON NETWORK FACILITIES:		Eligibility (Yes/No)	Unit Cost	No. of Units	Total Cost	Support of Reasonableness
NETWORK & ACCESS EQUIPMENT						
Other						
BUILDINGS						
New Construction						
Pre-Fab Huts						
Improvements & Renovation						
Other						
CUSTOMER PREMISE EQUIPMENT						
Modems						
Set Top Boxes						
Inside Wiring						
Other						
BILLING SUPPORT AND OPERATIONS SUPPORT SYSTEMS						
Billing Support Systems						
Customer Care Systems						
Other Support						

DETAIL OF PROJECT COSTS

SERVICE AREA or COMMON NETWORK FACILITIES:		Eligibility (Yes/No)	Unit Cost	No. of Units	Total Cost	Support of Reasonableness
OPERATING EQUIPMENT						
Vehicles						
Office Equipment/ Furniture						
Other						
PROFESSIONAL SERVICES						
Engineering Design						
Project Management						
Consulting						
Other						
TESTING						
Network Elements						
IT System Elements						
User Devices						
Test Generators						
Lab Furnishings						
Servers/ Computers						

DETAIL OF PROJECT COSTS

SERVICE AREA or COMMON NETWORK FACILITIES:		Eligibility (Yes/No)	Unit Cost	No. of Units	Total Cost	Support of Reasonableness
OTHER UPFRONT COSTS						
Site Preparation						
Other						

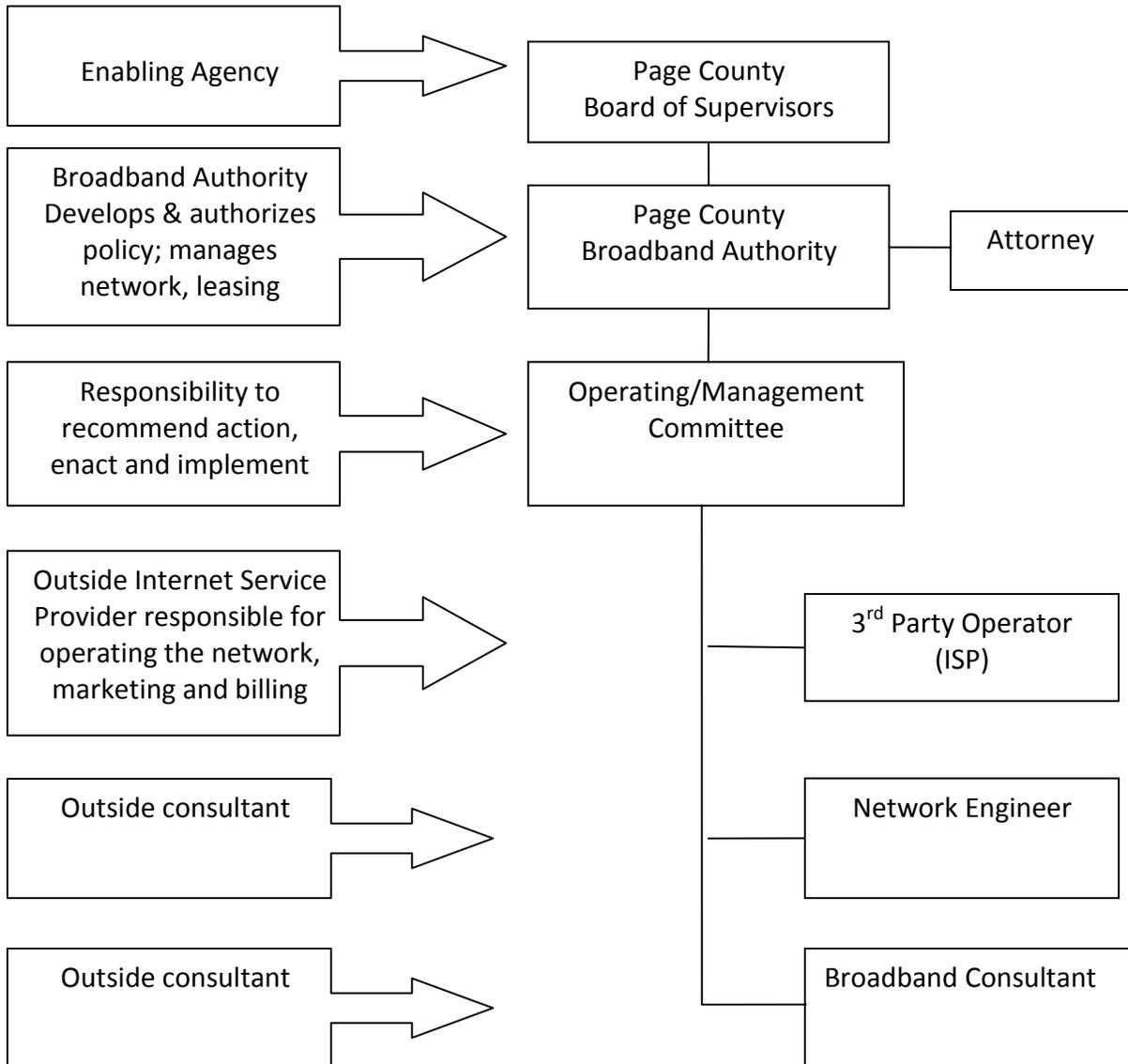
Attachment B: Service Offerings

Service Offering	Distance Band or Point to Point	Minimum Peak Load Network Bandwidth Capacity (Mbps)	Monthly/Yearly Pricing (\$)	Other
Community Anchor Tenants	Point-to-Point	100 Mb	\$1000/Mo	
Major Business Customers	Point-to-point	50 Mb	\$350/Mo	
Small Businesses	Point-to-Point	25 Mb	\$175/Mo	
		10 Mb	\$75/Mo	
ISP Service to Residential	Residential	10 Gb	\$45/Mo	

21. Attachment C: Existing Broadband Service Providers and Services Offered:

Page County Broadband Middle Mile Solution								
Service Area	Middle Mile Services Provider	Technology Platform	Service Tier	Point-to-Point	Minimum Peak Load Network Bandwidth Capacity	Pricing	Other Comments	
Service Area 1/ Census community 1	None		Entry Level Plan					
			Highest Speed Plan					
			Other Plans (e.g., Mid-Tier Plan)					
	None		Entry Level Plan					
			Highest Speed Plan					
			Other Plans (e.g., Mid-Tier Plan)					
			Highest Speed Plan					
			Other Plans (e.g., Mid-Tier Plan)					
	None		Entry Level Plan					
			Highest Speed Plan					
			Other Plans (e.g., Mid-Tier Plan)					

ORGANIZATION CHART
PAGE COUNTY BROADBAND AUTHORITY



Question 47

The Page County Broadband Authority is a political subdivision of county government and was set up specifically to set direction, policy and oversee the implementation of a fiber network in this region. There have been no financial transactions to date and hence no financial statements have been prepared.

ATTACHMENT H – Broadband Subscriber Estimates

Household Subscribers <i>10 Mbs Fiber Service</i>	YEAR 0	YEAR 1				YEAR 2				YEAR 3				YEAR 4				YEAR 5			
		Qtr. 1	Qtr. 2	Qtr. 3	Qtr. 4	Qtr. 1	Qtr. 2	Qtr. 3	Qtr. 4	Qtr. 1	Qtr. 2	Qtr. 3	Qtr. 4	Qtr. 1	Qtr. 2	Qtr. 3	Qtr. 4	Qtr. 1	Qtr. 2	Qtr. 3	Qtr. 4
Net add-ons									250	500	550	400	300	300	300	600	200	200	200	200	100
Cumulative subscribers									250	750	1300	1700	2000	2300	2600	3200	3400	3600	3800	4000	4100

Business Customers <i>50 Mb Service</i>	YEAR 0	YEAR 1				YEAR 2				YEAR 3				YEAR 4				YEAR 5			
		Qtr. 1	Qtr. 2	Qtr. 3	Qtr. 4	Qtr. 1	Qtr. 2	Qtr. 3	Qtr. 4	Qtr. 1	Qtr. 2	Qtr. 3	Qtr. 4	Qtr. 1	Qtr. 2	Qtr. 3	Qtr. 4	Qtr. 1	Qtr. 2	Qtr. 3	Qtr. 4
Net add-ons									5	10	15	20	20	10	5	3	3	3	3	2	1
Cumulative subscribers									5	15	30	50	70	80	85	88	91	94	97	99	100
<i>25 Mb Service</i>																					
Net add-ons									5	8	12	15	10	5	4	3	3	2	1	1	1
Cumulative subscribers									5	13	25	40	50	55	59	62	65	67	68	68	70
<i>10 Mb Service</i>																					
Net add-ons									75	25	50	50	40	20	30	30	20	20	25	20	20
Cumulative subscribers									75	100	150	200	240	260	290	320	340	360	385	405	425

Strategic Institution <i>100 Mb Service</i>	YEAR 0	YEAR 1				YEAR 2				YEAR 3				YEAR 4				YEAR 5			
		Qtr. 1	Qtr. 2	Qtr. 3	Qtr. 4	Qtr. 1	Qtr. 2	Qtr. 3	Qtr. 4	Qtr. 1	Qtr. 2	Qtr. 3	Qtr. 4	Qtr. 1	Qtr. 2	Qtr. 3	Qtr. 4	Qtr. 1	Qtr. 2	Qtr. 3	Qtr. 4
Net add-ons									6	11	12	7	5	3	3	3	3	0	0	0	0
Cumulative subscribers									6	17	29	36	41	44	47	50	53	53	53	53	53



Block denotes project implementation.
No new subscribers during this period.

Reasoned basis for subscriptions:

There are three major factors impacting subscriber growth. The first is the immediate adoption of fiber services among the residential, business and strategic organizations within 500 feet of the physical network and its interconnection points; the second is the expansion of residential household growth once the project is able to contract with Internet Service Providers; and the third is the impact of broadband adoption education programs to assist in driving continued adoption rates from the current level to a 95 percent level.

This subscription rate estimate is based only on the first of these factors, representing a conservative view of subscription levels.

The basis for subscription levels differ for each of the three major subscription populations:

- For residential households within three miles of the fiber network, it may be assumed that there will be initial strong subscription in the first 15 months by early adopters and others in unserved areas that would bring the subscription levels up to 66 percent, tapering thereafter to a slower adoption rate through the 95 percent level. Continued growth of the subscriber base will then be stimulated by the community education broadband adoption stimulus program that is part of this plan. For households in underserved areas, the initial adoption rates will likewise be strong among early adopters and those switching from other available formats (for reasons of higher upload and download rates, and for economy). Assuming that 30 percent of those presently served do not switch services, this means that the first 15 months will see growth from the 31st percentile up to the 66 percent level along the network route, with continued growth after 5 years based on stimulation of adoption and expansion of service areas by contracted ISPs.
- For business subscribers, the market is very elastic. Small businesses and home businesses will fall into both unserved and underserved areas, but will show growth beyond the current level of approximately 300 businesses once broadband makes it possible to utilize e-commerce tools and communication.. Mid-range businesses primarily exist within the unserved areas, and may elect (at levels of approximately 30 percent) to retain their current connectivity. This means an average pool of 70 medium-sized businesses, virtually all of whom will be captured early in the cycle. Again, this population will see growth due to economic development and "main street revitalization" projects, but at a more modest rate than with small businesses. Large businesses should see almost 100 percent penetration due to the economies of scale and superior performance of fiber over convention cable or wireless technologies. These will grow from current levels of approximately 65 companies to nearly 100 by the end of the five year period, due both to economic development programs and the rise of information services in Page County such as the new data center planned by Premier Technical Services.
- Strategic Institutions, of which there are 53 in Page County, are a dynamic subscriber base that will not show extensive growth after the initial five-year program. Because of existing service agreements, these are likely to come onto the system in blocks (e.g., the school district as one block, a town's facilities in one block, etc.). Therefore, these will show steady subscribership throughout the planning period to a level of 100 percent participation. Level of participation is based on the signed letters of intent from these strategic subscribers, as noted elsewhere in this application.

**SUBSCRIBER PROJECTION TABLE AND RATE PLANS
VOICE SERVICES**

**COMPLETE THE CHART BELOW FOR EACH PROPOSED FUNDED SERVICE AREA. FOR ALL
OTHER SERVICE AREAS, PLEASE PREPARE A CHART THAT AGGREGATES THIS
INFORMATION**

**THIS PROJECT WILL NOT BE OFFERING VOICE SERVICES AND
THEREFORE THIS TABLE IS NOT APPLICABLE TO THE SUBMISSION.**

	Census Community	Year 1		Year 2		Year 3		Year 4		Year 5	
		Res	Bus								
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
TOTAL											

Rates:
Residential Service:
Business Service:
Other (Specify):

Note: Complete a separate table for each service area.

VIDEO SERVICES

SUBSCRIBER PROJECTS AND RATE PLANS

COMPLETE THE CHART BELOW FOR EACH PROPOSED FUNDED SERVICE AREA. FOR ALL OTHER SERVICE AREAS, PLEASE PREPARE A CHART THAT AGGREGATES THIS INFORMATION

THIS PROJECT WILL NOT BE OFFERING VIDEO SERVICES THEREFORE THIS TABLE IS NOT APPLICABLE TO THE SUBMISSION.

	Census Community	Year 1			Year 2			Year 3			Year 4			Year 5		
		Pkg 1	Pkg 2	Other	Pkg1	Pkg 2	Other	Pkg 1	Pkg 2	Other	Pkg 1	Pkg 2	Other	Pkg 1	Pkg 2	Other
1																
2																
3																
4																
5																
6																
7																
8																
9																
10																
TOTAL																

Rates:

Package 1: (ex. 150 basic channels / \$35)

Package 2:
(ex. 150 basic channels and Premium / \$60)

Other (Specify):

Note: Complete a separate table for each service area. Column headings should be changed to reflect the name of the service package to be offered. Additional columns may

be added for each year if more than three packages are offered.

Question 50: Financial Assumptions	
General: All assumptions were developed during a one to two year study period by Icon Broadband Technologies and Consulting Gateway Services in conjunction with the local entity. All have been developed using locally applicable rates (e.g. utilities) or industry standards as a basis	
Revenue	
Fiber Leasing Costs:	Based on a fraction of the actual cost to build the fiber optic cable developed during the detailed studies. The build cost was converted to an annual amortized cost per mile at 5 percent interest. Leased mileages were determined based on provider interest in particular segments of planned fiber.
Tower Leases:	Typical tower leases are \$500-\$3000 per month for wireless providers with three attachments. Estimated revenues were based on a single provider at the low end of expected lease rates
Anchor Customers:	Broadband revenues per customer are based on wholesale loop charges from highly competitive markets (\$100/Mb/mo) discounted beyond that rate. Customer numbers are based on an evaluation of actual potential customers
Small Business Customers:	Revenue is attributed as a network access fee only, with ISP partners providing their customer support and internet access. Data rates available over the network could be as high as 1 Gbps (GPON), but would typically be limited to 100 Mbps
Expenses:	
Utilities and Leasing:	Based on local rates for the size building considered
Network Maintenance and Operations:	Based on a data only network (capable of voice and video) with minimum numbers of end use customers. Normal operations could be handled by one person.
Depreciation:	Based on an overall list of items purchased summed into 3, 7, 20 and 39 year lifetimes. Items are depreciated equally per year except in years one and the last year of service in accordance with accepted schedules
Equipment Licensing:	Included at vendor standard rates of 6-8% of installed equipment
Pole Attachment fees:	In accordance with local utility pricing where aerial fiber was used in the proposed design
Borrowing:	Borrowing is used during the first 1-4 years of operation to support operations while network revenues are building. An assumed cost of money of 5% has been utilized. Borrowing is likely available from the Virginia Resource Authority at lower borrowing rates.
Taxes:	No tax burden has been attributed in accordance with Virginia Law under the Broadband Act.

ATTACHMENT E – PROJECT PLAN (KEY PHASES AND MILESTONES TO DEMONSTRATE DEGREE OF COMPLETION)

- Use the following table to list the major network build-out phases and milestones that can demonstrate that your entire project will be substantially complete by the end of Year 2 and fully complete by the end of Year 3. This is to be done at the aggregate level (combining all proposed funded service areas.)
- Indicate how the milestones listed below will demonstrate these completion objectives. The applicant should consider such project areas as: a) network design; b) securing all relevant licenses and agreements; c) site preparation; d) equipment procurement; e) inside plant deployment; f) outside plant deployment; g) equipment deployment; h) network testing; i) network complete and operational. The applicant may provide any other milestones that it believes showcase progress.
- Project inception (Year 0) starts at the date when the applicant receives notice that the project has been approved for funding.
- In the table, provide any information (e.g., facts, analysis) to: a) demonstrate the reasonableness of these milestones; b) substantiate the ability to reach the milestones by the quarters indicated.
- On a separate sheet, describe the key challenges, if any, to a timely completion of the project, including any applicable mitigation plans.

Time Period	Quarter	List All Relevant Milestones	Support for Reasonableness/Data Points
Year 0	-	<ul style="list-style-type: none"> • Receive Project Funding • Project Inception 	<ul style="list-style-type: none"> • All time lines and activities included in this Project Plan are supported and have been verified by a study completed in 2008 by a certified engineer from Icon Engineering Inc.
Year 1	Qtr. 1	<ul style="list-style-type: none"> • Authorization to proceed with design 	<ul style="list-style-type: none"> • Same as above
	Qtr. 2	<ul style="list-style-type: none"> • Design complete • Design & bid DCC preparation • Licenses and agreements 	<ul style="list-style-type: none"> • Same as above
	Qtr. 3	<ul style="list-style-type: none"> • Bid evaluation and award 	<ul style="list-style-type: none"> • Same as above
	Qtr. 4	<ul style="list-style-type: none"> • Order equipment • Network construction & equipment deployment 	<ul style="list-style-type: none"> • Same as above

Year 2	Qtr. 1	<ul style="list-style-type: none"> • Network construction 	<ul style="list-style-type: none"> • Same as above
	Qtr. 2	<ul style="list-style-type: none"> • Network construction 	<ul style="list-style-type: none"> • Same as above
	Qtr. 3	<ul style="list-style-type: none"> • Network testing & launch of operations 	<ul style="list-style-type: none"> • Same as above
	Qtr. 4	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> •
Year 3	Qtr. 1	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> •
	Qtr. 2	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> •
	Qtr. 3	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> •
	Qtr. 4	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> •

Attachment E continued: Aggregate Projected Broadband Subscribers

Service Area	Institutions	Businesses	Households	Total
Luray Town	23	198	1312	1522
Luray Area	1	71	166	141
Rileyville	1	17	492	564
Shenandoah Town	9	95	656	760
Shenandoah Area	4	77	533	614
Stanley Town	8	90	615	713
Stanley Area	7	47	328	382

Question 34.

Challenges to the Project

It is anticipated that there could be a maximum of three challenges to the project:

- 1) Availability of equipment. Management will ensure that design engineers are early and punctual in their process to identify the equipment needed and provide a detailed list of equipment suppliers that can be informally contacted during the design process;
- 2) Availability of contractors. Management has already begun to identify contractors suitable to perform the job in this region and as soon as the grant is awarded contracts will be put in place;
- 3) Pole acquisition to string the fiber. Management has already made contact with the current owner of the poles and is prepared to finalize negotiations once funding is secured.