



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

Submitted Date: Easygrants ID: 4506	
Funding Opportunity: Broadband Technology Opportunities Program	Applicant Organization: BRISTOL VIRGINIA UTILITIES BOARD
Task: Submit Application - BTOP	Applicant Name: Ms. Stacey E Bright

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A. General Application Information

Applicant Information	
Name and Federal ID for Applicant	
DUNS Number	066723990
CCR # (CAGE)	5G2N9
Legal Business Name	BRISTOL VIRGINIA UTILITIES BOARD
Point of Contact (POC)	WES ROSENBALM 2766458702 Ext. wesr@bvub.com
Alternate POC	STACEY BRIGHT 2766458707 Ext. sbright@bvub.com
Electronic Business POC	LINDA DAVIS 2766458751 Ext. ldavis@bvub.com
Alternate Electronic Business POC	DONNA BIGGS 2768216190 Ext. donnab@bvub.com

Name and Contact Information of Person to be Contacted on Matters Involving this Application:	
Prefix	Ms.
First Name	Stacey
Middle Name	E
Last Name	Bright
Suffix	
Telephone Number	276-645-8707



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Fax Number	276-642-2020
Email	sbright@bvub.com
Title	Executive Vice President and CFO

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

Project Role	Name	Phone	Email
Secondary Point of Contact	Mr. Wesley , Rosenbalm	2766458751	wesr@bvub.com
Other Contact	Mr. Doug , Dawson	2022557689	

Environmental Point of Contact

Prefix: Mr. Name: Copeland, David Suffix: Telephone Number: 2766458703 Title: VP of Field Operations
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Organization Classification

Type of Organization	City or Township Government
Is the organization a small business?	No
Does the organization meet the definition of a socially and economically disadvantaged small business concern?	No



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Authorized Organizational Representative	
AOR Name	BRIGHT, STACEY
Result	Applicant Authorized

Project Title and Project Description

Project Title: Southwest Virginia Middle Mile Project

Project Description: This grant is being requested by Bristol Virginia Utilities (BVU) to extend its existing middle mile fiber network throughout southwest Virginia. These middle mile fiber routes bring fiber closer to many communities, homes, business and anchor institution and middle mile fiber is the first step for bringing last mile services to these areas.

CCI Priority Checklist

The following items were selected from the CCI Priority Checklist:

- 3. This project will deploy Middle Mile broadband infrastructure in economically distressed areas.
- 6. This project will deploy Middle Mile broadband infrastructure and either includes a Last Mile infrastructure component in unserved or underserved areas or has received commitments from one or more Last Mile broadband service providers to utilize the Middle Mile components. Any Last Mile components in rural areas do not exceed 20% of the total eligible costs of the project.
- 7. This project will deploy Middle Mile broadband infrastructure and the applicant has proposed to contribute 30 percent or more in non-federal cost match.

Comprehensive Community Infrastructure Components

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

Middle Mile

BIP Applicants



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

- No

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

Title of Joint BIP Application:

Easygrants ID:

Other Applications

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

- Yes

Easygrants ID	Project Title
6848	NRV-ROAN (New River Valley Region Open Access Network)

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

BVU is collaborating with another grant filed in the second round of these grants. There is a grant being filed by Citizens Telephone Company of Virginia. Citizens is part of a three-party coalition who works together to extend the middle mile network seamlessly throughout rural Virginia. The coalition is known as LIT, and is comprised of BVU, Citizens Telephone Company and the Mid-Atlantic Broadband Cooperative. These three companies have worked closely to create meaningful fiber rings for diversity, to seek funding, and to make sure that their networks are interoperable for seamless transmission of data.

Citizens Telephone Company is filing a grant, EasyGrant ID 6848. This grant is titled the ‘NRV-ROAN (New River Valley Region Open Access Network). Among other things, this grant would connect Citizens to Virginia Tech. Citizens wants to create a peering arrangement with Virginia Tech in order to bring remote learning classes to a number of community colleges and high schools in their region. If Citizens gets this grant, BVU will then create a peering arrangement with Citizens so that BVU can bring these same classes to the four community colleges in our region along with a host of high schools. Education is key in this region to help train our next generation in IT and other useful skills.



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Further, the proposed routes being constructed by this grant add route redundancy and diversity to the fiber owned by Citziens, and the fiber being built by the Citizens grant add diversity and redundancy to the BVU fiber network.

Individual Background Screening

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

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

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

Name	Title	Employer

B. Executive Summary, Project Purpose and Benefits

Essay Question

Executive Summary of the proposed project:

The Bristol Virginia Utilities Middle-Mile Project proposes to enhance the broadband opportunities to anchor institutions, homes and businesses and to increase opportunities for employment, education, services to businesses, and eventually thousands of homes across a relatively poor, rural eight-county region located in far southwest Virginia in the Appalachian Mountains.

The grant request calls for a fiber-optic infrastructure build-out of 388 miles that will serve to extend an existing 900-mile fiber network built by partners Bristol Virginia Utilities (BVU) and Cumberland Plateau Company (CPC) during the past seven years.



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This important build-out of middle-mile fiber will bring fiber close to 122 anchor institutions and within two miles of more than 18,000 households and businesses. The middle-mile fiber will run through the heart of the counties of Bland, Buchanan, Dickenson, Russell, Smyth, Tazewell, Washington and Wythe in Southwest Virginia, setting the stage for future monies directed toward completing last-mile deployments for the service areas in this region by year 2020.

The Bristol Virginia Utilities Middle-Mile Project would establish needed infrastructure to link several of the most unserved and underserved locations in the nation to BVU’s all-fiber broadband network, called OptiNet, which was launched in 2003.

BVU is recognized globally as the first municipal entity in the nation to deploy an all-fiber network offering the triple-play of voice, video and data services.

BVU, which operates as the government enterprise fund for the City of Bristol, Virginia, originally launched its network in its own immediate utility service area encompassing Bristol and a portion of Washington County, Va. However, in 2003, the utility collaborated with Cumberland Plateau Company in a landmark partnership to extend the broadband network an additional 300 miles into the four CPC counties of Tazewell, Dickenson, Buchanan and Russell. CPC is the non-profit arm of the Cumberland Plateau Planning District Commission, a state-created organization working to improve economic development opportunities in its four counties.

It is important to know that these early build-outs were directed exclusively toward business growth (and not fiber-to-the-home) and were funded with \$34 million awarded by the U.S. Department of Commerce’s Economic Development Administration (EDA) and the Virginia Tobacco Indemnification and Community Revitalization Commission, otherwise known as the Virginia Tobacco Commission (VTC).

Significantly, BVU was also given separate grants from both entities (EDA and VTC) to construct and extend the fiber backbone into Wythe, Smyth and Bland counties. A separate award from the VTC also resulted in bringing a more expansive last-mile connectivity into Washington County, Va.

This middle-mile grant request seeks to fund middle-mile construction only to all eight targeted counties. This will make it possible for all homes, businesses and anchor institutions in these service areas to eventually to have last-mile fiber connectivity, gaining access to the vast opportunities that digital technology brings to any deprived region.



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The Problem

This part of central Appalachia is beautiful but has a rugged mountainous terrain, which creates unique challenges when installing infrastructure. The people of the region have struggled for decades because of a century-old reliance on coal mining and agriculture (particularly tobacco) as economic drivers. The people are generally poorly educated, which has led to low wages. Average household incomes are far below the national average and even further below wages offered in other parts of Virginia. This has led many of the region's best educated and talented young people to depart in search of job diversity and opportunity. BVU believes that the anchor institutions in these service areas – which include three community colleges, three institutions of higher education, 32 public safety entities and 16 healthcare providers – will not prosper without broadband intervention.

How the Grant Solves These Problems

The primary purpose of this grant is to get fiber within closer proximity to homes and businesses so that BVU and CPC, along with other last-mile providers can eventually build last-mile fiber. In an area as remote and mountainous as Southwest Virginia, regular commercial financing isn't going to be available for middle-mile build-outs. The construction can only be done using grant monies; in fact, 900 miles of fiber already exist from the use of grant funding. Once this middle-mile fiber is built, BVU and CPC can proceed to borrow money or raise additional grant funding to begin the deployment of last-mile fiber to homes and businesses.

BVU and economic development experts in Southwest Virginia believe that ubiquitous fiber and broadband is the first important step to begin solving the problems listed above.

- To date, BVU has been able to offer broadband to the industrial parks and largest employers in the eight targeted counties. This grant takes that process one step further by bringing fiber closer to homes and smaller businesses, which will allow BVU and other last-mile providers to eventually bring fiber to everyone in these rural counties.
- This project brings broadband close to many unserved and underserved areas that have little or no broadband today.



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- Broadband is the key to education and job training. For broadband to be effective, it needs to be affordable and reach the home. While anchor institutions are an important part of job training, broadband brings training into the home to allow residents to be more self-reliant.
- Broadband can create jobs and help stop the phenomenon in which the region’s brightest young people are leaving to look for more lucrative careers elsewhere.
- Broadband in the home promotes entrepreneurship and innovation.
- Broadband can attract new employers and retain existing employers.

When BVU and CPC built the first miles of their broadband network into Russell County in 2003, the area began undergoing a transformation that resulted in two technology giants – Northrop Grumman and CGI – deciding to locate there. BVU believes that continued growth of the network, starting with middle-mile construction, is the key to escalating this transformational growth in areas not already adequately served. Such growth will also eventually lead to last-mile deployment of advanced fiber.

The BVU Middle-Mile project has an overall cost of \$37.3 million, with BVU leveraging a 39.2% total match – \$5.7 million promised from the VTC and in-kind assets equal to \$8.9 million from BVU.

This proposed 388-mile infrastructure, expected to be complete in about two and one-half years, involves 18 service areas in the four CPC counties and 12 service areas in Bland, Wythe, Smyth and Washington counties. The construction will duplicate existing BVU OptiNet architectures, which, when extended as last-mile connectivity, will be capable of broadband service up to 1 Gbps (gigabit per second).

Distinctive Qualifications of BVU

BVU is highly qualified to receive grant funding because the utility already operates a profitable triple-play network today. Many of its personnel have almost a decade of experience in all aspects of fiber network delivery – from backbone construction in rough terrain to navigating the regulatory maze necessary in achieving middle-mile and last-mile connectivity. BVU has already established longstanding relationships with key equipment, telecom construction and software vendors that are needed to execute a middle-mile build-out.

Although not needed until last-mile connectivity is achieved, the company also has a dedicated staff in place to handle all other aspects of operating a successful, award-winning



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telecommunications business – maintenance workers, experienced accountants, marketing professionals, customer service representatives, Internet help desk, and so on. BVU’s credibility is evidenced by the many accolades it has achieved since 2008. These include being named to the 2010 Smart 21 list of Intelligent Communities of the Year and to last year’s Top Seven, sponsored by the New York-based Intelligent Community Forum. In addition, BVU received a 2008 National League of Cities Gold Award for Municipal Excellence, a 2008 Virginia Governor’s Technology Award in the Cross-Boundary Collaboration category, and the 2009 Community Broadband Fiber Network of the Year award from the National Association of Telecommunications Officers and Advisors (NATOA).

Summary of Jobs Created

This project will create 295 direct jobs in the areas of construction, engineering, inspection and project management; and 85 indirect jobs at the companies that manufacture the fiber and electronics for the system. The project is expected to create 19 induced jobs within five years.

Project purpose:

The primary purpose of the proposed grant is to stimulate economic growth in the area. BVU has been on a mission to use broadband to bring jobs to the region. To date BVU has built fiber to the large businesses and business parks in the area. As has been mentioned throughout this grant, bringing broadband to these natural business centers has had some success and over 2,000 good-paying jobs have created as a result of broadband.

However, job creation in the business parks is not enough and the next step is to bring broadband to homes and small businesses in the region. Studies have shown that the real job creation today in the US is from small and tiny businesses – businesses started by entrepreneurs working out of their homes. This region needs broadband in the home to enable our citizens to prosper. We need broadband as an incentive for our young people to stay in the community rather than to leave for jobs elsewhere. Today, while there is some rudimentary broadband in the County seats, the rural areas have either no broadband or very slow broadband. Even the county seats have first generation cable modems and DSL and have nothing equivalent to the Verizon FiOS broadband found in the urban parts of Virginia. Our whole region is already suffering from a broadband gap. The statistics may say that a lot of our region has broadband, but today there is a huge difference between broadband delivered with fiber and broadband delivered with copper wires.



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This grant is an opportunity for our region to take the next big step in bringing broadband to everybody in the region – to every home and business. Today, BVU has a fiber network that connects county seats and business parks. This proposed network goes a step further and brings broadband closer to where people live. Investing in last mile fiber is expensive, and without this middle mile project bring fiber closer to neighborhoods, then BVU or other last mile providers cannot afford to make the investment to build the last mile of fiber.

BVU and the economic development people in the area have a goal of bringing broadband to everybody in this region within a decade. Without this middle mile fiber, this goal will be delayed by many years in a region that needs it today.

It is important for the grant reviewers to understand how poor this area is today. The area has steadily been losing population, particular from the youngest and brightest among us. The population is aging as a result of the ‘brain drain’. Historic jobs in mining, farming and, garments are disappearing or are paying less.

Some basic Census data easy demonstrate the poverty of the region. Consider the basic Census data of median and per capita incomes. Shown below is the information for Northern Virginia, the area immediately surrounding Washington DC followed by the same information for the Counties covered by this grant proposal.

	2007	1999
	Median Household Income	Per Capita Income
Northern Virginia		
Arlington County	\$92,345	\$37,706
Fairfax County	\$104,984	\$36,888
Loudon County	\$107,200	\$33,350
 Grant Counties		
Bland	\$38,175	\$17,744
Buchanan	\$28,922	\$12,788
Dickenson	\$29,320	\$12,822
Russell	\$33,682	\$14,863
Scott	\$31,044	\$15,073
Smyth	\$35,970	\$16,105
Tazewell	\$34,702	\$15,282



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Washington	\$39,148	\$18,350
Wythe	\$38,321	\$21,510

This area is poor and is growing relatively poorer compared to our neighbors. We are part of Appalachia, and we need help. This grant does not propose to build any last mile fiber. Instead, it builds 388 miles of fiber that gets close to homes, neighborhoods, small businesses and anchor institutions. BVU and the Cumberland Plateau Company are going to keep seeking grants and borrowing money to build last mile facilities in order to get broadband to homes. This grant asks the federal government to help jump start that effort.

We have seen that a number of the first round middle mile grants have been awarded to middle mile projects that basically connect anchor institutions. BVU guarantees that if this grant is awarded that they will connect the 122 anchor institutions in the area within a few years, and they already have some funding to be able to do so. But a grant that emphasizes anchor institutions without focusing on citizens is the wrong priority for the federal government. In this region there is at least one carrier – BVU – who will absolutely leverage the middle mile fiber to serve real people. Grants that connect community colleges are nice, but connecting colleges is not going to catch the US catch up to broadband in other countries around the world. We need to get fiber to the least of us and the most rural of us if we are to remain a great nation.

This is one middle mile project that will immediately be leveraged to build last mile fiber and serve people in a region who need this badly.

Recovery Act and Other Governmental Collaboration:

The vast majority of the existing BVU network has been built by grants from the Virginia Tobacco Indemnification and Community Revitalization Commission. This is a fund of the state of Virginia that is funded through a settlement with the tobacco companies and which has been promoting broadband in the southern part of Virginia that once was the primary area for growing tobacco. BVU has borrowed over \$29 Million to build fiber, but most of the rest of the funding has come from the Tobacco Commission as well as some from the Department of Commerce’s Economic Development Administration (EDA).

BVU and the Cumberland Plateau Company are constantly seeking grants to expand the fiber network. Witness three recent grants received in 2009 for this purpose:



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1) In 2009 BVU got a grant from the Virginia Tobacco Commission (Grant #1768) for \$1,250,000 to build last mile facilities in Washington and Smyth Counties.
2) In 2009 BVU got a grant from the Virginia Tobacco Commission (Grant #1769) for \$1,250,000 to build last mile facilities in the Cumberland Plateau Company area.
3) In 2009, Cumberland Plateau Company got a \$1,000,000 grant from the Virginia Coalfield Economic Development Authority to build last mile fiber facilities.
Further, both BVU and the Cumberland Plateau Company are currently considering borrowing money to build last mile fiber. These two groups have a goal of bringing fiber to every home and business in the region within ten years.

Finally, BVU is collaborating with another grant filed in the second round of these grants. There is a grant being filed by Citizens Telephone Company of Virginia. Citizens is part of a three-party coalition who works together to extend the middle mile network seamlessly throughout rural Virginia. The coalition is known as LIT, and is comprised of BVU, Citizens Telephone Company and the Mid-Atlantic Broadband Cooperative. These three companies have worked closely to create meaningful fiber rings for diversity, to seek funding, and to make sure that their networks are interoperable for seamless transmission of data.

Citizens is filing a grant, EasyGrant ID 6848. This grant is titled the 'NRV-ROAN (New River Valley Region Open Access Network). Among other things, this grant would connect Citizens to Virginia Tech. Citizens wants to create a peering arrangement with Virginia Tech in order to bring remote learning classes to a number of community colleges and high schools in their region. If Citizens gets this grant, BVU will create a peering arrangement with Citizens so that BVU can bring these same classes to the four community colleges in our region along with a host of high schools. Education is key in this region to help train our next generation in IT and other useful skills.

Fit with BTOP CCI Priorities:

The grant proposal directly meets a number of the BTOP CCI Priorities, as follows:

1. Bolster Economic Growth. BVU has one of the best track records in the country of leveraging fiber to bring jobs. BVU has brought over 2,000 new jobs to these eight counties that can be attributed to fiber. Specifically, Russell County attracted two of the nation's largest knowledge-based companies – CGI Inc. and Northrop Grumman Corporation. In 2007, both companies located multimillion dollar facilities in the Russell Regional Business Technology Park. These



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two companies created 700 new jobs with an average salary of \$50,000 in an area where salaries average \$24,000 to \$27,000. Overall, BVU has not only created new jobs, but believes that fiber has stopped other jobs from leaving the region.

But we now know that bringing fiber only to the business parks is not enough. The majority of new jobs created in the US today are created by entrepreneurs who are starting small new companies. Many of these new enterprises are started today in homes, due to broadband. Further, broadband in the home unleashes a whole host of knowledge-based employees like architects, writers, consultants, engineers and others who can now work any place there is a fast enough broadband connection.

This grant proposal will improve the broadband in the area for the existing business parks and large businesses. This grant completes a number of fiber loops and increases redundancy, meaning that businesses in the region can now count on unbroken connectivity since they will not be knocked out of service from a fiber cut. But this grant's real potential is for much more in that this grant is the next big step for the region to get fiber to every home and business, where the real job creation is done. BVU and the Cumberland Plateau Company, as well as some other last mile providers who have supported this grant are dedicated to leveraging from this grant to get fiber to every home and business in the region within ten years. Construction of the last mile has already begin, but the region needs these vital fiber paths that are close to where people live if we are to find an affordable way to use broadband to revitalize our region and to create and protect jobs.

2. Provide more than a 30% match. BVU is making a total match for this grant of 39.2%. This is composed of a cash match of \$5,659,502 and an in-kind match of \$8,955,377.

3. Bring Broadband to Anchor Institutions, Community Colleges and Public Safety Entities. This grant does not directly bring any fiber to anchor institutions since this is a pure middle mile grant. However, BVU and the Cumberland Plateau Company have both already gotten grant funding to build last mile facilities in these areas. BVU believes that if this grant is awarded that it will be able to use other funding sources to directly serve 90% of the 122 anchor institutions listed in this grant within three years. It would expect to get to the remaining 10% within five years.



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BVU and the Cumberland Plateau Company are committed to serving all homes, businesses and anchor institutions in all eight counties within 10 years. Fiber is vital for this area to have a viable future and without fiber this region faces the possibility of being marginalized and wasting away.

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

- No

Is the applicant delinquent on any federal debt?

- No

If Yes, justification for delinquency:

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

- No

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

- No

C. Partners

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

- Yes

If YES, key partners are listed below:

Project Role: Other Name: Carr, Larry Phone: 2768891778 Email: larrycarr@bvunet.net Address 1: 224 Clydesway Drive Address 2: Address 3: City: Lebanon State: Virginia Zip Code: 24266 Organization: Cumberland Plateau Company



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Organization Type: Non-profit Corporation
Small business: No
Socially and economically disadvantaged small business concern: No

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

BVU has a very strong partner in this endeavor in the Cumberland Plateau Company (CPC). The Cumberland Planning District Commission formed the Cumberland Plateau Company nearly 30 years ago to give it a non-profit arm in which to promote economic development opportunities in the region. CPC is a Virginia 501(c)4 non-stock, not for profit corporation that has taken on the recent goal of bringing broadband to Buchanan, Dickenson, Russell and Tazewell Counties in Virginia. BVU is the day-to-day operator of broadband arm of the CPC business, but CPC is instrumental in finding grant funds needed to build more fiber in these areas.

On paper this grant looks like a grant request from BVU, but it is really a joint grant request from both BVU and CPC. CPC will not be putting in any direct matching for this grant, but CPC will be vital in raising and/or borrowing the funds needed to build the last mile fiber that will come after this grant. CPC has played a vital role in building the existing network. The Cumberland Plateau Company received funding from the Economic Development Administration and the Virginia Tobacco Commission to deploy 255 miles of the existing 900-mile network.

CPC's role is as the economic development agency for Buchanan, Dickenson, Russell and Tazewell counties Virginia as well as the towns of Richlands, Tazewell and Bluefield. CPC's goal is to improve the quality of life in the region. CPC is a major driver behind economic development in the region and works with the governments in the area to bring jobs and increase the tax base.

BVU will be the full operational partner for any grant funds received and will have full authority to accept the grant funds. BVU will own the network provided by this grant and will operate the middle-mile business. However, CPC will shoulder some of the responsibility for raising future funding and will influence BVU policies in the CPC area. Throughout the grant we generally just refer to BVU, but in any cases except for purely operational purposes, such references can be read to be BVU and CPC together.

D. Congressional Districts

Applicant Headquarters

- Virginia



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Project Service States

Virginia

Project Service Areas

Virginia - 9

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

- No

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

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

- No

E. Service Area Details

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

- No

Project Details

Service Area Type: Middle Mile
Service Area Name: Southwest Virginia Eight Counties
Rural Classification of the Last Mile Service Area: Rural
Service Status of the Last Mile Service Area: Underserved



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

Total Square Miles in Service Area: 1,552
Total Population in Proposed Service Area: 35,632
Total Number of Households in Service Area: 18,368
Total Number of Businesses in Service Area: 525
Total Number of Community Anchor Institutions and Public Safety Entities in Proposed Funded Service Area: 122
Unemployment Rate in the Service Area: 10
Median Income in the Service Area: 34,365
Estimated Percentage of Households with Access to Broadband: 24
Estimated Percentage of Households Subscribing to Broadband: 15

F. Community Anchor Summary

Community Anchor Summary	
Schools (k-12)	33
Libraries	4
Medical and Healthcare Providers	16
Public Safety Entities	32
Community Colleges	4
Public Housing	2
Other Institutions of Higher Education	3
Other Community Support Organization	10
Other Government Facilities	18



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TOTAL COMMUNITY ANCHOR INSTITUTIONS	122
Historically Black colleges and Universities	0
Tribal Colleges and Universities	0
Alaska Native Serving Institutions	0
Hispanic Serving Institutions	0
Native Hawaiian Serving Institutions	0
TOTAL MINORITY SERVING INSTITUTIONS	0

G. Project Benefits

Demographics

Jobs	
How many direct jobs-years will be created from this project?	295
How many indirect jobs will be created from this project?	85
How many jobs will be induced from this project?	19

Methodology used to estimate jobs:

This project creates 295 direct jobs.

Direct jobs are construction jobs and were estimated using the prevailing wages paid in the BVU are for each specific type of job. Construction jobs are estimated as follows:

	Year 1	Year 2	Year 3	Total
Aerial Fiber	3	3	0	6
Pole Make Ready	3	1	0	4
Buried Fiber	84	126	53	263



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POPs & Electronics	0	1	0	1
Engineering	5	5	0	10
Inspection	2	3	1	6
Project Management	1	2	1	4
Total	98	142	55	295

Indirect jobs are calculated by applying the Council of Economic Advisor’s methodology of creating 1 job for every \$92,000 in spending. The project includes \$7,767,871 of capital spending for equipment which equates to 85 indirect jobs.

This project will create 19 induced jobs over the first 5 years, and many more after that. We estimate that every 1,000 last mile customers that are added to this network will create about 2.5 new jobs at the last mile providers. Induced jobs are estimated as follows by year:

	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Induced jobs	0	6	3	6	4	19

Project Impact:

The primary purpose of this grant request is to build the middle mile fiber that is needed in this region so that BVU and other last mile service providers can bring last mile fiber to this region. While this grant does not directly build any last mile fiber, it builds the middle mile fiber that gets close to homes, businesses and anchor institutions in the area. BVU believes this grant will meet all of broadband needs of the community, because the fiber routes built by this grant will be used to then extend last mile fiber.

Both BVU and the Cumberland Plateau Company have a commitment to bring broadband to every home and business in this region within ten years. This grant request would build the last big middle mile piece of the network that will allow BVU to begin building needed last mile fiber. BVU has already built significant last mile fiber in the area. To date BVU has borrowed the money to build last mile fiber in Bristol Virginia and into nearby places in Washington County such as Abingdon, Virginia. BVU has gotten grant money to build last mile fiber into the industrial parks and to the largest employers throughout these eight counties. BVU has recently received additional grant money to begin building more last mile fiber. BVU is also looking at plans to borrow new money to build more last mile. BVU pledges that any middle mile fiber built by this grant will be a great investment for the federal government. The proposed middle mile fiber will be used to bring fiber and broadband to a very poor region of the country that badly needs it if it is to remain economically viable. These middle mile grants will directly serve the needs of the region, because BVU will build last mile facilities from these routes to get to every home, business and anchor institution.



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There are a number of ways that fiber will benefit the region and we could write a book on the topic. Some of the highlights are that fiber will:

- Allow for opportunities for training and re-training of employees to be able to do the kind of jobs needed in the 21st century.
- Promote entrepreneurship and innovation in the area allowing for the formation of home-based businesses.
- Provide broadband to anchor institutions that can help with job training and economic development.
- Can attract new businesses and employers to the area.
- Can help keep existing employers here.
- Can allow our businesses to be creative and competitive.
- Will save money for businesses and residents. BVU calculates that it has already saved over \$10 million in communications costs for its customers compared to what they were spending with the incumbents.

The question also asks us to answer a number of questions about anchor institutions. This grant would bring fiber within 2 miles of 122 anchor institutions. BVU believes that every one of these institutions would take service from BVU and we have talked to all of them about this. There are some support letters with this grant from some of these anchor institutions.

But we want to stress that this grant request is not only about anchor institutions. We think they are important to the area and BVU would expect to serve 90% of the 122 institutions within 3 years of receiving this grant. But the real purpose of this grant is to bring fiber to everybody in the region. This is a region in economic crisis and fiber is a way to help this region survive and thrive. The anchor institutions will certainly help lead the way for citizens, but the real benefit of fiber is that it enables people to help themselves. The people in this region are proud and self-reliant and BVU believes we just need to provide the needed infrastructure to help people help themselves.

This network is being built for last mile providers. BVU itself will probably be the largest last mile provider in the area, but we will not be the only one. The rules of this grant require that BVU operate an open access network, but BVU has had that same obligation under Virginia law since our inception. There are several other last mile providers in the area that will also get direct benefits of the fiber network. This includes:

- DC Win. This is a wireless provider using Wi-Fi radios that is owned by Dickenson County. DC Win could improve bandwidth delivery greatly with the bandwidth that can be delivered by the proposed network.



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- Cable Plus. This is a small cable provider in Russell County who says that they could vastly improve their data products with the bandwidth that can be provided by the proposed network.
- Virginia Mountain Micro is a wireless provider using Wi-Fi radios in Russell County, Virginia. They are supporters of the proposed network.
- Burke’s Garden Telephone Company is a small independent telephone company located in Tazewell County, Virginia. Today they pay over \$1,500 per month for an Internet T1 that they then use to get broadband to their customers. They say that the bandwidth that would come from this network would allow them to offer real broadband to their customers for the first time.

Vulnerable Populations:

The region as a whole is a poor one, by national standards, and one could argue that the whole area is vulnerable.

But a few parts of the region are particularly vulnerable. Dickenson County has been declared by the Appalachian Regional Commission (ARC) to be Distressed. Both Buchanan and Russell Counties are classified by ARC as being At Risk, meaning that they are moving towards being Distressed. ARC looks at a number of factors in determining if a County is distressed. They look at unemployment and at various measures of personal and household incomes. While Dickenson, Buchanan and Russell counties are the furthest behind the national averages, all eight of these counties are significantly below the nationwide average for incomes. For example, the average household income in the region for 2007 ranges from \$28,922 in Buchanan County to \$39,148 in Washington County, while many counties in northern Virginia have incomes over \$100,000. Much of this region has been losing population since 1980. For example, the population in the northern four counties of the grant area lost 11.9% population in the 1980s, 4.9 % in the 1990s and are expected to have a further small loss in the 2010 census. Smyth County is estimated by the US Census to have lost 5% of its population since 2000. The area is experiencing a brain drain - the youngest and best educated people are leaving the area looking for better jobs. This is evidenced by the fact that the average age in the region climbed from around 29 years old in 1980 to around 38 years old in 2000, and is expected to climb again with the new census. The region also has very low high school graduation rates. The graduation rates for adults over 25 years old is under 60% in a number of these counties. Workers in the area are untrained or undertrained in the kinds of skill that will allow the region to attract better paying jobs. Some of the County governments want to be able to use broadband to help untrained workers. The counties would like to use broadband to help people get their GEDs as well as pursue direct training for jobs. Job training today requires big broadband. Before broadband, people had to travel to schools or training centers to get any real training. Today, this can be done on-line if



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there is a sufficient data speed. These counties need massive amounts of job training if these counties are to remain as viable communities. The alternative is that the young people will continue to move away until there is no economic base here.

Level of Need:

The primary reason that BVU is requesting this middle mile grant is so that the last mile fiber can be built to residents, anchor institutions and businesses in these areas. While this grant asks only to build middle mile fiber, without these routes, much of this area will not get last mile fiber. As can be seen by this grant request, the cost of middle mile fiber is expensive and BVU cannot raise the money commercially to invest in middle mile fiber.

There really is no competitive landscape for the kind of bandwidth that BVU and other last mile service providers need to bring last mile services. BVU needs a minimum data pipe of 2.5 Gigabits to bring its full suite of voice, video and data to these areas. There are two primary carriers in our area that sell bandwidth – Verizon and CenturyLink. It is possible on a few major routes in the region, such as along Interstate 81, to buy bandwidth as large as an OC3, but an OC3 is not enough bandwidth to bring last mile services. However in the rural parts of these eight counties where this grant brings fiber, the biggest bandwidth generally available is T1s (1.45 Mbps) or DS3s (45 Mbps). The incumbent facilities along these rural roads are generally copper and not fiber.

We know that many middle grants are simply trying to bring broadband to anchor institutions. While BVU wants to serve anchor institutions too, our primary goal has been to bring broadband to everybody. While we know our anchor institutions can be leaders in trying to rebuild jobs in this area, the economic development leaders of these communities believe that broadband is a vital tool in helping our area not waste away into a permanent backwater.

This area suffers from severe economic problems:

Loss of historic core industries. The once predictable industries of mining, garment manufacturing, and agriculture are all in decline and the region needs to encourage knowledge based industries into the area to replace jobs. While mining is still vital to the area, some experts have estimated that the coal in the area might be depleted in as few as 36 years. During the 1980s and 1990s, production of cheaper (but lower-quality) coal from western states such as Wyoming roughly doubled, and the price of central Appalachian coal fell, causing many mines to close – a trend that continues today. Tobacco production also declined, causing the unemployment rate in Southwest Virginia to climb as high as 14 percent in some years. Garment manufacturing is basically gone from the area. Rural areas like the Southwest Virginia are scrambling to find solutions to deal with the constant job losses or job downgrades for the region.



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Declining population. In a large portion of the grant area the population has been declining since 1980. For example, the population in the northern four counties of the grant area lost 11.9% population in the 1980s, 4.9 % in the 1990s and are expected to have a further small loss in the 2010 census. The Census estimates that Buchanan County has lost almost 25% of its population since 1990.

The area is experiencing a brain drain - the youngest and best educated people are leaving the area looking for better jobs. This is evidenced by the fact that the average age in the region climbed from around 29 years old in 1980 to around 38 years old in 2000, and is expected to climb again with the new census. This area needs better jobs badly or else will suffer economic collapse.

Low Income and a need for better paying jobs. The average household incomes in the region are far below the national average and below other parts of Virginia. For example, the average household income in the region for 2007 ranges from \$28,922 in Buchanan County to \$39,148 in Washington County, while many counties in northern Virginia have incomes over \$100,000. Further, Dickenson County is listed by the Appalachian Regional Commission (ARC) as an economically distressed County. Buchanan and Russell Counties are listed as At Risk, and Tazewell County is listed as Transitional, meaning it could become Distressed. The area has an unemployment rate slightly higher than the national average, but the problem is not in having jobs, but in having jobs that will keep people in the area.

Need broadband at anchor institutions. BVU believes that the anchor institutions in the area need broadband. These institutions are critical to act to lead the area out of the economic malaise it is in today. Broadband for the government is going to help citizens get educated and retrained for 21st century jobs. Unlike many grants, anchor institutions are not the focus of this grant request. There are 122 anchor institutions near to the fiber route proposed by this grant. BVU pledges that if we get this grant that we will build to all of them using our own funds for last mile. But again, the real reason for this grant is to get fiber close enough to houses so that BVU and others can afford to build the last mile fiber.

BVU did an extensive analysis of the areas within two miles of the proposed fiber network. As described elsewhere in this application, BVU drove the entire area and also knocked on doors. It was determined that of the 18,368 homes that are near to the fiber that 5,304 are unserved, meaning that they have no access to broadband. 8,740 homes were determined to be underserved, meaning that they live in areas where there is less than a 40% broadband penetration or where there are no advertised speeds greater than 3 Mbps downstream. 4,324



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homes were determined to be served with broadband today, and these homes were primarily in a few towns where there is DSL and cable modem service. BVU knows that as one goes further than 2 miles from the proposed fiber that a much greater percentage of the homes will be unserved and underserved. While the roads followed by this fiber route are winding, hilly and rural, in this region they are considered as major roads. If one travels very far from the roads where the grant builds fiber there are even smaller and even unpaved roads where there is very little broadband.

This question asks us to explain how we will leverage our existing infrastructure. All of the fiber proposed by this grant is a natural extension of the existing 900-mile middle mile fiber network that we have already constructed. The fiber proposed by this grant serves one basic purpose – to extend our middle mile fiber closer to more homes, businesses and anchor institutions in the region. BVU is also leveraging everything at its headquarters – its highly trained staff, its service providing hardware to provide voice, data and cable services, its software systems and its overall expertise.

This question also asks us to discuss past experiences in trying to obtain the needed bandwidth from incumbent providers. For the vast majority of the routes proposed by this grant there is no existing fiber in the incumbent’s networks. These areas are instead served by copper wires, many which were built 50 to 75 years ago. The incumbents offer a handful of tiny bandwidth products at very high prices. None of their bandwidth products are anywhere close to adequate for providing real bandwidth to customers. Thus, asking why we haven’t obtained broadband from the incumbent providers is a moot question since they don’t provide large bandwidth products or own fiber in these areas.

BVU does not believe that the incumbent providers are willing to make the capital investments needed to improve the infrastructure in rural areas like Southwest Virginia. Verizon has poured billions of dollars into bringing fiber to the cities and suburbs of the northeast, but they have made virtually no new investments in this region in many years. One cannot blame them because they get a much bigger economic bang for their buck when they spend money in the densely populated areas like Washington DC, Philadelphia, Boston and New York City. BVU knows that if we do not build the fiber that is needed for this region that it will never get built.

This question also asks us to compare the cost of using incumbent circuits instead of building fiber. There is no comparison possible since the incumbents don’t provide fiber where it is needed, and don’t provide wholesale dark fiber even in those few places where they do own fiber.

H. Technology



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Technology Type

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

Wireline - Fiber-optic Cable

Other:

Technology Questions

Methodology for Area Status:

This project is a middle mile project that does not propose to serve any last mile areas directly with this grant. However, BVU already has some funding available to serve last mile areas and knows there are other last mile providers in the area that might also take advantage of these new fiber routes to bring service to areas close to the proposed middle mile routes. BVU undertook a detailed analysis of the areas that are within close range of the proposed middle mile fiber routes. In order to determine the unserved areas, BVU did a physical inventory of the area. BVU is very familiar with the grant area and has been considering bringing service there for several years. There have been previous door-to-door surveys conducted in some of these areas in the past in conjunction with other grants (Community Connect Grant, Virginia Tobacco Commission Grant and Phase 1 of the ARRA Grant). For this grant, BVU technicians drove the roads in any proposed service areas that were not studied earlier to determine the limits of cable TV service and DSL. BVU technicians are easily able to identify where cable is available (and thus cable modem service). BVU technicians also are able to understand where DSL is available. In a driving examination of the area BVU technicians can tell the physical limits of DSL availability by examining the telephone repeaters. In the field the telephone company deploys two different types of repeaters. One type is the traditional type of repeater that is used to boost the signal on telephone lines that extend more than 10,000 to 12,000 feet from the central office. These traditional repeaters do not allow for the passage of DSL. When DSL is employed, the telephone company must replace the traditional repeater with a 'DSL capable' repeater in order to allow DSL signal beyond the repeater to the next span of copper wire. By physical examination the BVU technicians determined the type of repeaters, and if the area was served with traditional repeaters they knew there was no DSL in the area.

BVU also stopped and knocked on doors and talked to residents to determine if there was broadband available, and if so, the types of products and speeds that are available.



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BVU then compiled the information from the field audit to determine the status of each last mile area.

BVU determined that some of the area is unserved, meaning there is no broadband today. Other areas are underserved, using the definition of the ARRA process. Finally, some of the areas close to the new routes are served with broadband that is faster than 5 Mbps. This last group of households are mainly in a few towns close to the fiber network.

In summary, BVU found the following in the areas close to the proposed fiber network:

- 5,304 Unserved Households (no broadband)
- 8,740 Underserved Households (limited broadband)
- 4,324 Served Households (with broadband, mostly in towns)
- 18,368 Total Households

Description of Network Openness:

BVU is already an operating ISP serving broadband to residents and businesses in and around Bristol, Virginia. As such, BVU is already in adherence with the required non-discrimination, network management and interconnection practices.

BVU will be solely responsible for operating this network.

In the area of non-discrimination, BVU already adheres to the principles contained in the FCC's Internet Policy Statement, FCC 05-151, adopted August 5, 2005. Consumers are entitled to access the lawful Internet content of their choice. Consumers are entitled to run applications and use services of their choice, subject to the needs of law enforcement. Consumers are entitled to connect their choice of legal devices that do not harm the network. Consumers are entitled to competition among network providers, application and service providers, and content providers, since BVU is competing against both a cable and telephone incumbents.

BVU already adheres to network neutrality and does not favor any lawful Internet applications and content over others.

In the area of network management, BVU already displays its policies in a prominent location on their web page and provides notice to customers of changes to these policies.

BVU does not discriminate among customers and every customer has an equal chance of receiving bandwidth. The BVU bandwidth system does not employ and Quality of Service (QOS), meaning that every bit on the network is treated the same, with no priorities given to any type of bandwidth or any customer.

In the area of interconnection, BVU already connects directly to the public Internet so that their network and this project is not an entirely private closed network. BVU is willing to interconnect



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with any other carrier. The network has been designed with multiple POPs and potential interconnection points.

This NOFA does require one additional set of interconnection principles that are most easily referred to as open access. By Virginia law BVU is required to have an open access network under Va. Code § 56-264.4:4.B.7 which requires:

Each locality that has obtained a certificate pursuant to this section shall provide nondiscriminatory access to for-profit providers of telecommunications services on a first-come, first-served basis to rights-of-way, poles, conduits or other permanent distribution facilities owned, leased or operated by the locality unless the facilities have insufficient capacity for such access and additional capacity cannot reasonably be added to the facilities.

BVU has made their network available to outside carriers since inception. BVU will continue to offer open access and will negotiate with potential retail providers in accordance with the rules of the NOFA and Virginia law.

System Design:

The project is proposing to extend BVU’s existing middle mile network to reach deeper into Bland, Buchanan, Dickenson, Russell, Scott, Smyth, Tazewell and Washington Counties of Virginia. A map of the project is included with the grant filing.

The main purpose of this grant is to extend BVU’s middle mile network to get closer to more unserved and underserved population. BVU has the ultimate goal of making sure that every home and business in these counties gets access to fiber connectivity. This grant takes BVU one step closer to being able to realize that goal. Without middle mile fiber, BVU or other last mile providers are unable to afford to build the last mile fiber needed to serve customers.

Backbone Network. The core backbone electronics on this network DWDM (Dense Wave Division Multiplexing) optics. BVU has chosen Infinera as the DWDM provider to mesh with the existing BVU network. BVU will initially be lighting one fiber pair on the network.

The initial bandwidth available will be 200 Gbps. The electronics can be upgraded to a maximum of 400Gbps of protected bandwidth at a later time. BVU can also light additional fiber pairs in the future and can achieve terabit throughput on this fiber as needed.

Most of the routes being constructed become parts of rings, for redundancy. Each DWDM ring has a sub 50 milliseconds re-route time to avoid service disruptions in the event of fiber breaks or cuts. The network electronics can carry Ethernet, traditional TDM between OC3 and OC48,



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and 10 Gigabit lightwaves. Services can be mapped between any two sites in increments of 2.5 Gigabit up to 10 Gigabit per tributary interface.

The fiber network will consist of both buried underground and aerial fiber. The network has been designed as aerial where there are existing poles and as buried where there are no existing poles. The network will construct 21 miles of aerial fiber and 366.2 miles of buried fiber, in conduit. Each fiber route consists of a 144-strand loose-tube fiber optic cable measuring 0.62” in diameter. The fiber cable will be installed utilizing a value engineering basis of aerial and underground construction techniques.

Distribution Network. The grant creates seven new POP sites that act as a fiber repeater and that also will give access to the local distribution network to serve unserved areas. These POP sites will consist of a small hut that will house power equipment and the Infinera DWDM equipment. Each POP site is also being equipped with a Calix OLT that will allow for the easy transition between middle mile fiber and last mile fiber.

Internet connectivity. The network will utilize the eBGP routing protocol to provide automatic traffic routing and load balancing between the two ISP peers. Internal routing between equipment is provided by iBGP and OSPF routing protocols.

Feasibility of the Proposed Network. BVU knows that this technology is feasible because it is similar to, and design to interconnect with the existing 900 miles of fiber that BVU owns in the region. These new fiber routes will mesh seamlessly into the existing BVU network. BVU currently monitors the network 24 / 7 from its network operations center. The entire BVU network consists of a number of large fiber rings that all eventually lead back to the BVU core hub location in Bristol, Virginia.

BVU knows that middle mile fiber is essential as a first step to be able to afford to build last mile fiber. Today BVU has one primary route through each of these counties, primarily connecting county seats. This proposed network will put a second fiber route into each County with the purpose of getting fiber closer to a large percentage of the households and businesses in each County.

BVU is convinced that constructing fiber in these rural areas is the only technology that makes sense. These areas are rugged, hilly and population areas are scattered. It is hard to picture any wireless system that can reach very far into these counties because of the topology. An only fiber



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can deliver true large bandwidth, the kind of bandwidth that is needed for economic development and for bringing a high quality of life to citizens.

The proposed fiber system is easy to upgrade. BVU will initially be lighting one fiber with 200 Gbps of bandwidth. Upgrading could be done in several ways. First, this lit fiber could be upgraded to 400 Gbps. Second, BVU could use a number of different technologies to light additional fiber pairs. BVU has created numerous POPs throughout the network and it would be easy for BVU to interconnect with other carriers at any of these POPs. The POPs have several racks of potential collocation space for accommodating equipment for collocating carriers. Again, the proposed routes are all middle mile fiber routes. We believe the network diagram and maps that are attached with the grant filing will provide additional clarity.

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

No

I. Project Budget

Project Budget		
	Federal Grant Request	Match
Last Mile	0	0
Middle Mile	22,698,010	14,614,879
Total	22,698,010	14,614,879

Project Budget Total: \$37,312,889

Match Percent: 39.2%

Projects Outside Recommended Funding Range:

- Project is within the recommended range.

Outside Leverage	
Applicant is providing matching funds of at least 20% towards the total	Yes



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eligible project costs?	
Matching cost detail	<p>Cash Match. The cash match for this grant is guranteed by the Virginia Tobacco Indemnification and Community Revitaliztion Commission. This is a fund of the state of Virginia that is funded through a settlement with the tobacco companies. There is a letter in the grant filing from the Tobacco Commission guaranteeing to provide the \$5,653,776 in cash matching should this grant be awarded. That represents 20% of the new capital required for this grant.</p> <p>In Kind Match. BVU is providing two different in-kind matches for the grant, both related to the fiber network.</p> <p>Rights-of-Way First is rights-of-way. BVU has been able to obtain a statewide guarantee of right-of-way that allows them to build on any state highway. This is a unique arrangement made with the Virginia Department of Transportation (VDOT). Normally, any utility that wants to build along a state highway has to apply for rights-of-ways for each stretch of every state highway they want to build on. BVU’s statewide agreement means that BVU is automatically granted right-of-way for every state highway and is only required to file minor paperwork before undertaking a project.</p> <p>The normal process of obtaining state rights-of-way is expensive and time consuming. It generally requires the preparation of extensive proposed construction drawings and documentation, both of which BVU is allowed to avoid.</p> <p>BVU has placed a value of \$0.75 per foot of network constucted for this right-of-way. We estimate this is the savings from the ability to avoid the normal permitting process and the associated paperwork. This project proposes to build 2,044,300 feet of buried fiber along state rights-of-way, which, at \$0.75 per foot is an in-kind contribution of \$1,533,225. If this grant was being proposed by anybody other than BVU in Virginia, they would incur this rights-of-way cost which would be added as a real cost to this project.</p> <p>The agreement with VDOT is included with the grant application.</p> <p>Existing Fiber The second in-kind contribution is for existing fiber, electronics and</p>



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	<p>POPs. There are portions of BVU’s existing fiber network which are necessary to make the new fiber routes functional. Without the use of the existing fiber routes, the new routes would not be part of fiber rings and would not be connected back to the BVU hub. Basically, the current grant request for middle mile is adding fiber to existing fiber routes to reach further into Southwest Virginia. This grant would not be possible had these earlier fiber routes not already been constructed. BVU has done a detailed analysis of the routes that are necessary for the grant fiber routes to be function. BVU has determined that there are 55.4 miles of aerial fiber and 51.3 miles of buried fiber that provide the connectivity of the new grant routes back to the BVU hub. The value of the in-kind contribution is as follows:</p> <ol style="list-style-type: none"> 1) BVU determined the book value of the specific fiber routes that provide the in-kind matching. This was determined to be \$2,742,300 for the aerial fiber and \$3,180,600 for the buried fiber. 2) BVU then looked at the electronics used to light these existing fiber routes and determined tha value of the electronics to be \$1,105,000. 3) BVU also determined that there were a number of POP sites along these routes that house the electronics that are necessary for the in-kind routes to function. The cost of the POP sites was determined to be \$1,690,000. 4) BVU then deducted the accumulated depreciation from each of these in-kind investments to determine the book value today of these investments. The total in-kind value for the existing network is calculated to be \$7,422,152, which represents the book value of the in-kind fiber, electronics and POP sites less the amount that they have been depreciated, to date. <p>The total in kind match, combining both in-kind assets is \$8,955,377.</p>
Unjust enrichment	BVU has not applied for or is otherwise receiving any federal funds for this or any similar project. BVU is not aware of any related party to BVU that has applied for federal funding for this project.
Disclosure of federal and/or state funding sources	<p>BVU is not receiving any federal funds for this project.</p> <p>BVU is not a recipient of Universal Service Funding from the Schools and Libraries Program, the Rural Health Care Program and Pilot</p>



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	<p>Program, or the High Cost Program.</p> <p>As mentioned elsewhere in this grant, the cash matching funds for this grant are being guaranteed by the Virginia Tobacco Indemnification and Community Revitalization Commission. This is a fund of the state of Virginia that is funded through a settlement with the tobacco companies. The Tobacco Commission is guaranteeing to provide the \$5,653,776 cash matching should this grant be awarded. That represents 15.2% of the cost of this project. BVU is also making an In-Kind match of \$8,955,377 which represents 24% of the project, bring BVU’s total match to 39.2%.</p>
Budget reasonableness	<p>BVU believes that all of the proposed costs for this grant are reasonable. BVU has built over 900 miles of fiber in recent years, much of it funded by grants. BVU always uses good purchasing practices to purchase both the materials and the construction labor for fiber projects.</p> <p>The estimates used to predict the cost of the fiber routes being built by this grant are based upon the most recent numbers BVU has for the cost of building fiber in this region. BVU has been building fiber almost continuously for a decade and this always knows the local factors that affect the cost of fiber construction.</p> <p>There are two primary costs to consider for this project, the cost per mile of aerial and buried fiber. BVU has projected that the cost of building aerial fiber in Southwest Virginia is ██████████ per miles. BVU knows that cost can be achieved because it has build aerial fiber in 2009 and now in 2010 that is at or near that cost per mile.</p> <p>BVU has projected that the cost for buried fiber in the region can be built for ██████████. Again, BVU has built significant buried fiber in 2009 and into 2010 and knows that this is a reasonable and achievable cost.</p> <p>Again, all BVU construction is done under competitive bid and BVU has used numerous contractors over the years depending upon which one would provide the best price.</p> <p>This proposal also includes two other components: network electronics and POP sites. BVU currently has a contract with Infinera,</p>



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	<p>Alcatel/Lucent and Calix for the purchase of electronics. These contracts were originally entered into under the competitive build process. However, BVU now buys sufficient electronics from these manufacturers that BVU has earned a good discount that avoids the need for additional competitive bids for each new purchase. With a 900 mile network, BVU is considered as a major network owner and is given preferred status and discounts by all of these vendors.</p> <p>BVU will go to competitive bids to construct the POP sites. These are small buildings that are constructed to house the electronics and to give a place for last mile providers to connect to the network. BVU has build dozens of these POP sites and we feel that our estimate of \$50,000 per site is a good estimate based upon POP sites we have built in the recent past.</p> <p>BVU believes the budget we have proposed is adequate to complete the project as proposed. We believe that we will be able to get fixed price contracts from fiber construction companies that will guarantee that the project can be finished at a negotiated price.</p> <p>BVU also believes that all of the budgetary numbers within the grant request are consistent across all of the forms and narrative.</p>
Demonstration of need	<p>BVU believes that this project would not be funded, or would at least not be funded for a very long time if we cannot get it funded from this grant. BVU has built virtually all of the existing middle mile network using grants. A large portion of our past grants came from the Virginia Tobacco Indemnification and Community Revitalization Commission. BVU and its partner the Cumberland Plateau Company have also gotten grants from the Economic Development Agency as well as from other sources of state funding in Virginia.</p> <p>BVU has borrowed in the past to finance last mile build-out. BVU is currently working on a plan for another round of borrowing to build additional last mile facilities. But BVU does not believe that it can sell bonds to finance middle mile projects. The people that buy bonds want a nearly guaranteed revenue stream to assure repayments of bonds and BVU has been told by bond experts that the uncertainty of the revenue stream from middle mile routes will not support bonding. Bond buyers are very conservative and will only buy bonds backed by very normal</p>



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types of government business, and generally guaranteed by tax revenues. Middle mile fiber is far too risky of a venture for this market.

Southwest Virginia is rural and rugged. It costs more per mile to build along our narrow and winding roads than it does in a lot of the rest of the country. There also is far less demand for large bandwidth transport that can help pay for middle mile fiber because there are very few large businesses or data users in the region. We are a backwater area due to the Appalachian Mountains. The only real purpose for middle mile fiber in our area is to get close enough to last mile customers so that the lat mile is affordable. Since BVU is committed to serve all of the homes and businesses in this region with fiber, we are the most likely probably user and most likely last mile provider for these middle mile routes.

Our Net Present Value analysis shows a difference of value with and without the grant of \$19.7 million (-\$20.0 million without the grant and -\$0.27 million with the grant. The grant we are requesting is \$22.7 million, which is slightly greater than the difference in Net Present Value. This shows that the government will be making a good investment with this grant.

BVU does not plan to give any substantial discounts to anchor institutions. BVU has the same concern as the government in that BVU today must be able to make bond payments when we borrow to build last mile facilities. We bring tremendous value to anchor institutions by bringing them vastly more bandwidth than they have available elsewhere, but we have always expected them to pay for it. This grant will not make us change this policy.

Funds to States/Territories

States	Amount of Federal Grant Request
Virginia	22,698,010



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Funds to States/Territories Total: \$22,698,010

J. Historical Financials

Matching Funds			
	2007	2008	2009
Revenue	10,973,174	14,525,312	17,234,687
Expenditures	10,660,209	13,075,080	15,377,480
Net Assets	20,589,999	26,662,163	25,792,817
Change in Net Assets from Prior Year	23,949,142	6,072,164	3,130,654
Bond Rating (if applicable)			

K. Project Readiness

BTOP Organizational Readiness

BVU is engaged in providing 900 miles of middle mile network and is also offering triple play services over a fiber network in the region. BVU intends to use all of the existing backoffice systems and personnel to implement, manage and operate the new proposed fiber routes. BVU is governed by a Board consisting of seven members. Two members must be Bristol Virginia City Councilpersons. One Board position is a Councilperson from Washington County. The remaining four seats on the Board are all citizens who are selected by the Bristol City Council. The Board of BVU has full operational control over the operations of BVU. The only issue that the BVU Board must take to the City Council is approval for borrowing new money. BVU today is managed by a Wes Rosenbalm, the President and CEO of BVU. It will be Wes's role to oversee the implementation and management of the new fiber route. The work of overseeing the construction of the new network will be delegated to David Copeland, the Vice President of Field Operations. BVU will rely on vendors and contractors to help construct and implement the new project. After construction BVU will manage the new network with existing personnel. BVU is staffed in order to be able to perform almost every function associated with being in the fiber business.

BVU will address the various aspects of implementing and the new network as follows:

- Engineering Design. To be performed by BVU staff.



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- Fiber Construction. This will be outsourced to a construction contractor. BVU will put this out for competitive bid and will choose the contractor before the award of the grant.
- There are existing contracts with Infinera, Alcatel/Lucent and Calix for fiber electronics.
- Provisioning and activation of the network will be done by BVU personnel.
- Billing is done in house at BVU using software provided by CHA.
- Sales and marketing are done today by BVU. BVU has a marketing manager on staff today.
- BVU receives internet backbone today from AT&T and Level3, with transport provided by the Mid-Atlantic Broadband Cooperative.
- BVU performs customer service in house using BVU employees.
- BVU performs Internet help desk services to answer customer technical questions in-house using BVU employees.
- BVU does routine maintenance of fiber facilities using BVU staff.
- BVU does routine maintenance of electronics in the headend using BVU staff.
- BVU does accounting in-house.
- BVU does human resources in-house.
- BVU uses both in-house attorney plus several external lawyers for legal advice.

BVU will proceed with the grant immediately upon award. The majority of the existing BVU network has been built using grant money, and BVU has been continuously building fiber for the last ten years. This project is ‘shovel ready’ and BVU would begin doing field engineering and ordering construction materials immediately after being awarded a grant. BVU expects that the project can be completed in 2.5 years or sooner.

Construction and Vendor Contracts

BVU will be using contractors and vendors for the following purposes:

- To construct the fiber network;
- To provide the network electronics;
- To construct seven POP sites;

BVU will be using and acquiring vendors in the following way:

1) Fiber Construction. BVU will go to competitive bid. BVU has been building fiber almost continuously for ten years and is very good at turning around the bid process quickly. BVU does not know yet if it will select one or multiple vendors to construct the proposed grant routes. Since the construction is spread over an 8-County area it is possible that it will be less cost costly to use more than one contractor. BVU has worked with most of the contractors in this region in



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the past, so the process of getting them under contract after competitive bid award should also go quickly.

2) Fiber Electronics. BVU has existing contracts with Infinera, Alcatel/Lucent and Calix for fiber electronics. This network will use each of these 3 vendors for some portion of the electronics. BVU has an existing contract with each vendor and an established discount based upon past purchases of electronics. BVU will not be going to competitive bid on the electronics since we believe we already get a substantial and meaningful discount.

3) POP Sites. BVU will go to competitive bid on construction of the POP sites. BVU had many of these sites built in the past and can get a quick turnaround on the bid and the contract process to get construction underway.

Customer Base

BVU will be the sole operator of the proposed network. BVU already operates a 900-mile fiber network and this network will mesh into the existing operations.

There are no existing BVU customers within the proposed service territory. However, as is shown in some of the financial forms filed with this grant, BVU believes that if this middle mile fiber is funded, that over time BVU and other last mile providers will be able to connect fiber to all of the residents and businesses in this area who want service.

BVU already has a substantial customer base. BVU has the following existing customers:

- BVU served 9,496 customers in Bristol, VA and nearby Abingdon.

- BVU serves 229 of the largest business in the counties outside of Washington County.

Licenses, Regulatory Approvals and Agreements

There is very little specific authority needed in Virginia to provide fiber middle mile backbone. Following are all regulatory or related tasks associated with this project:

Leases: There are no leases required for this proposed project.

Rights-of-way. BVU already has rights-of-way for building on all state highways. A n agreement with VDOT granting this right has been submitted with the grant application.

Permits. BVU will need some permits to cross railroad tracks, freeway underpasses and bridges. These permits will not be obtained until BVU receives the grant funding.



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Right-of-way for POP sites. BVU has identified several potential sites for the location of each POP site. These rights-of-way will not be negotiated with landowners until the award of the grant.

BVU is already a licensed carrier in the state of Virginia authorized to provide voice services. That authority is not needed specifically for owning middle mile fiber.

BVU has authority from the FCC for providing cable service and for selling international long distance. There is no specific FCC authority needed to own middle mile fiber.

SPIN Number

BVU's USF SPIN number is: 143019971.

BVU pays into the USF fund, but does not receive USF funding of any kind.

L. Environmental Questionnaire

Project Description

The proposed project will involve the installation of both aerial and buried fiber-optic cable. The installation of the buried cable will occur in the Rights-of-Way of the Virginia Department of Transportation (VDOT). The cable will be installed at 30" in depth and no closer than 24" to edge-of-pavement. The buried installation will take place in previously disturbed shoulder or median proximity. The aerial infrastructure will be attached to existing incumbent utility poles or poles to be installed in VDOT right-of-way.

The proposed pre-fabricated buildings to be used as our Points-of-Presence will be approximately 20'x20' of fenced in area. These POPs will be located on VDOT rights-of-way, county-owned property or private property. A 12" thick pad, approximately 14' x 16' will be required. There will be a disturbed area for pad construction of approximately 16' x 18' and 24" deep. All code required erosion and sediment control precautions will be in place, including silt fences. The ground will be restored using grass and/or stone.

According to the National Environmental Act, for a NTIA infrastructure grant, Bristol Virginia Utilities has submitted all necessary environmental information to the appropriate Federal, State



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and Local agencies. Uploaded with the grant information is a list of every agency that has been asked to give an option of the project for potential impact on the environment.

Property Changes

The buried fiber-optic cable will be installed along VDOT rights-of way by a combination of the plowing, trenching or boring. The cable will be installed at depth of approximately 30” in previously disturbed shoulder or median. The maximum width of any excavation method would be 12” in width. There will be no stream borings involved in this project. The aerial cable will be attached to previously installed, incumbent owned poles. There may be a need to install poles on VDOT R/W to cross streams and other crossing roads, but the disturbed areas will be very minimal.

The maximum disturbed area for the foundations of the pre-fabricated buildings is 16’ x 18’. Any buildings installed on VDOT right-of-way must have a separate permit from VDOT and must be approved in conjunction with the localities. All buildings must conform to local zoning ordinances and land use requirements. Each building location requires a building permit and an E-911 address be obtained prior to construction.

Buildings

The pre-fabricated buildings to be installed are of the pre-cast masonry type. The buildings to be installed will be 12’ x 14’ x 7’. The pad requirement for the buildings is 14’ x 16’. The buildings will be located on public, local government, or private property. All locations will be permitted and have unique E911 addresses. The maximum required property requirement is 20’ x 20’.

The linear construction for the fiber-optic cable installation will be located within previously disturbed public rights-of-way.

Wetlands

After several pre-engineering visits, ride-outs and map reviews, there are no apparent wetlands involved near or within our proposed project area. In accordance with the National Environmental Act, Bristol Virginia Utilities has submitted all necessary maps and environment applications to the proper local, state and Federal agencies, including the U.S. Fish and Wildlife Services. Once the review is complete, the U.S. Fish and Wildlife Services will issue an approval letter. The buried cable installation will take place in previously disturbed areas along VDOT



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rights-of-way, with the aerial fiber being installed on existing poles or applicant installed poles in VDOT right-of-way.

Critical Habitats

The proposed project crosses several creeks and rivers that contain endangered species; however, there will be no stream disturbance in construction of this project. Stream and river crossings will be accomplished by aerial installation on existing utility poles or through VDOT owned bridge attachments. No state, national forests or national game preserves are located within the proposed project area. In addition, no wilderness or scenic rivers will be disturbed by this project. Uploaded with the grant is a list of the endangered species identified within the 8-county region, where this project is proposed.

Floodplain

Floodplain areas should be minor within the proposed project area. There will be minimal impact on the floodplain region for both 100 and 500 year floodplains. The proposed construction techniques are non-invasive and will create no significant disturbance to the surrounding floodplain areas.

Preparation of maps showing the project's locations within the 100 and 500 year floodplains in each affected county will be prepared post-NTIA application. These maps take several weeks to prepare and our staff is very small. All maps will be completed prior to a Step 2, due diligence process.

Protected Land

The proposed BVU project has been submitted to the State Historic Preservation Office for review. The three (3) proposed questions as indicated on the questionnaire have been submitted with our application to SHPO. No part of this project is located on or near any tribal lands.

Coastal Area

The proposed Bristol Virginia Utilities project is not located within the boundaries of a coastal zone management area. The project is located within the mountains of southwestern, Virginia.

Brownfield



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None of the proposed project is located within a “brownfield site”. No toxic, hazardous or radioactive substances will be encountered or produced by this project. The buried fiber infrastructure will be located along VDOT highway rights-of-way, with the small percentage (6%) of aerial fiber located on previously installed utility poles.



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Uploads

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

Upload Name	File Name	Uploaded By	Uploaded Date
Service Offerings and Competitor Data	CCIServiceOfferingsandCompetitorDataAttachmentFINAL.xls	Bright, Stacey	03/26/2010
Network Diagram	BVUNetworkDiagramallsections.pdf	Bright, Stacey	03/25/2010
Build Out Timeline	BVUBuild-OutProjectPlan.pdf	Bright, Stacey	03/25/2010
List of Community Anchors and Points of Interest	CCIAnchorDetailandPOIAttachment.xls	Bright, Stacey	03/18/2010
Management Team Resumes and Organization Chart	ManagementTeamResumes&OrgChart.pdf	Bright, Stacey	03/18/2010
Government and Key Partnerships	2010.03NTIA-TotalSupportLetters.pdf	Bright, Stacey	03/26/2010



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Historical Financial Statements	BVU2007and2008.06AuditedFinancials.pdf	Bright, Stacey	03/23/2010
Budget Narrative	CCIBudgetNarrativeAttachment.doc	Bright, Stacey	03/18/2010
Detailed Budget	BVUDetailedBuget.xlsx	Bright, Stacey	03/25/2010
Pro-forma Forecast	BVUProFormaFinancials.xlsx	Bright, Stacey	03/25/2010
Subscriber Estimates	BVUSubscriberEstimates.xlsx	Bright, Stacey	03/25/2010
Dashboard Metrics	CPCBVUKeyMetricsDashboardAttachment031810.doc	Bright, Stacey	03/18/2010
Service Area Data	BVUCPCCCIServiceAreasAttachment03112010.xls.xlsx	Bright, Stacey	03/25/2010
Network Maps	2010BVUNetworkMaps.pdf	Bright, Stacey	03/23/2010
BTOP Certifications	SignedCCIBTOPCertificationsAttachment.pdf	Bright, Stacey	03/18/2010
SF-424 C and D	BVU_SF424CandD.xlsx	Bright, Stacey	03/25/2010



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Supplemental Information	EnvironmentaDEQ031910.pdf	Bright, Stacey	03/26/2010
Supplemental Information	MatchingFundsLetter.pdf	Bright, Stacey	03/26/2010