Application to DHCD Submitted through CAMS

Washington County, Virginia

Mendota Broadband Expansion Project

Application ID:	64508282019091838
Application Status:	Pending
Program Name:	Virginia Telecommunications Initiative 2020
Organization Name:	Washington County, Virginia
Organization Address:	One Government Center Place Abingdon, VA 24210-8484
Profile Manager Name:	Alicia Roland
Profile Manager Phone:	(276) 525-1300
Profile Manager Email:	aroland@washcova.com

Project Name:	Mendota Broadband Expansion Project
Project Contact Name:	Whitney Czelusniak
Project Contact Phone:	(276) 525-1300
Project Contact Email:	wbonham@washcova.com
Project Location:	1 Government Center Place, Suite A Abingdon, VA 24210-8484
Project Service Area:	Washington County

Total Requested Amount: $1,574,139.00

Required Annual Audit Status: Accepted

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Mendota Broadband Expansion Project

Budget Information:

Cost/Activity Category	DHCD Request	Other Funding	Total
Telecommunications	**$1,574,139.00**	**$1,093,893.00**	**$2,668,032.00**
Construction	$1,574,139.00	$1,093,893.00	$2,668,032.00
Total:	**$1,574,139.00**	**$1,093,893.00**	**$2,668,032.00**

Budget Narrative:

The total cost for this project is $2,668,032. The entirety of required matching funds for this project are provided as cash, by Co-Applicant Point Broadband (value-$1,093,893). DHCD requested funds ($1,574,139) will be utilized to support project construction activities including: engineering and project management, materials, labor, fixed electronics & optics, and CPE/Drop/Installation.

Questions and Responses:

1. Project Area

   Explain why and how the project area(s) was selected. Describe theproposed geographic area including specific boundaries of the project area (e.g. street names, local and regional boundaries, etc.). Attach a copy of the map of your project area(s). Label map: Attachment 1 –Project Area Map.

Answer:

The proposed project area includes over 40 square miles in the northwestern quadrant of Washington County, VA, and encompasses the entirety or portions of 113 census block groups. The eastern boundary for this project area terminates at/near Porterfield Highway (Highway 19/Alternate US 58), and the western boundary extends to at/about the North Fork of the Holston River near the Mendota community at/about Tally Ho Road. The northern perimeter for the project area largely follows along Mendota Road (Rt. 802), and the southern perimeter is mostly adjacent to Rt. 616 (Caney Valley Road/Walnut Grove Road/Little Wolf Run Road).

The project service area covers addresses with the following street names:

Mendota Rd	Heartland Dr	Walnut Grove Rd	Hamilton St
Cross Ln	Cain Rd	Little Wolfe Run Rd	Vermillion St
Ohyee Ln	Smith Creek Rd	Hollis Ln	Collier Dr
Coal Yard Rd	Caney Valley Rd	Kilgore Dr	Barnrock Rd
Garrett Creek Rd	Jasper Creek Rd	Anderson Dr	Robinette Gap Rd
Copperhead Rd	Percheron Rd	Shutters Cove Rd	Wooten Gap Rd

Roebuck Rd	Powers Ln	Civil Drive	Rivera Dr
Large Hollow Rd	Appaloosa Rd	Mansfield Rd	Alum Wells Rd
Dorsett Dr	Nordyke Rd	Tally Ho Rd	Pinnacle Rd
Little Creek Rd	Nakoma Dr	Benfield Ln	Turkey Ln
Federal Rd	Arabian Dr	Branch St	Swinging Bridge Rd

Washington County recognizes the importance of internet service as an infrastructure attribute necessary to support long-term economic viability and overall community livability. In 2017, the Washington County, VA Board of Supervisors created The Washington County Telecommunications Advisory Committee to identify areas of the county experiencing telecommunications coverage gaps, and to pursue opportunities to improve service offerings to residents and businesses of these geographies. The Washington County Telecommunications Advisory Committee's awareness of internet accessibility challenges in and around the Mendota community has persisted as a topic of interest since the committee's initial creation. Growth of ecotourism and river-based entertainment provide potential to precipitate future economic and community revitalization of Mendota, and drive concurrent growth and demand for residential, business, and visitor internet connectivity.

County efforts to address internet service coverage gaps also account for the needs of school-age children. As the nature of work and technologies are rapidly evolving, the future workforce must possess appropriate aptitudes needed to support a hyper-connected, information-driven society. School-age children in Washington County must be equipped with the technical tools and training necessary to ensure they possess baseline knowledge and skills related to digital literacy, proficiency for use of electronic equipment, and proper internet-based research techniques. The Washington County Public School System (WCPS) actively seeks to integrate emerging technologies and tools within learning activities to build technical competencies. The school system implements a division technology plan, components of which address residential internet accessibility. One example activity for WCPS includes issuance of Chromebooks to eighth and ninth grade students. Instructors also utilize online-based platforms such as Moodle for planning and communications. A present lack of reliable internet accessibility means that students and educators residing in the Mendota community face barriers which inhibit their full benefit of public education investments.

To begin to address challenges with overall internet accessibility throughout Washington County, County staff reviewed existing internet coverage maps to identify potential providers 1. currently serving customers with speeds of at least 10 Mbps/1 Mbps, and 2. having existing infrastructure in geographic proximity to areas known to experience a lack of service and/or connectivity challenges. Since 2017, County staff and individual members of the Washington County Telecommunications Advisory Committee engaged in conversations with multiple providers, including Point Broadband and CenturyLink, to assess interest for pursuing funding opportunities to address coverage and service gaps. Identification of existing needs and challenges for current service availability, specifically in and around the Mendota community, arose during on-going conversations with Point Broadband. Point Broadband indicated a desire to collaborate with Washington County and seek VATI funding for a project which builds upon the strengths of the company's existing network to maximize the number of potential units passed.

2.

Describe your outreach efforts to identify existing providers in the selected project area. Provide a detailed explanation of how this information was compiled and the source(s). Provide a map and list of all existing providers (fixed and wireless) and speeds offered within the project area. Label Map: Attachment 2 – Existing Provider Map; label documentation: Attachment 3 – Documentation on CAF Funding Area.

Answer:

Over the course of several months, representatives for Point Broadband met with County staff and elected officials to discuss service coverage gaps within Washington County, VA, including the Mendota and North Fork River areas. The proposed project area leverages existing backbone assets which are present within the Point Broadband network, but for which residential service is currently not offered. BVU Authority (now Point Broadband), CenturyLink, Inc. (DSL only) and iGo Technology (5 Mpbs wireless) are the only fixed and wireless providers reporting coverage via FCC 477 maps. Co-applicant Point Broadband also utilized perimeter addresses for the proposed project area to cross-reference service availability from Comcast, DSL, and satellite providers to verify potential presence and speed. Point Broadband's findings indicate there to be no overlaps, as perimeter addresses are not serviceable and/or do not meet required minimum speeds.

3. Project Need/Description

To be eligible for VATI, applicants must demonstrate that the proposed project area(s) is unserved. An unserved area is defined as an area with speeds of 10 Mbps / 1 Mbps or less and with less than 10 percent service overlap within the project area. Describe any anticipated service overlap with current providers within the project area. Provide specific information as to how you determined the percentage overlap. Label Attachment: Attachment 4 – Documentation Unserved Area VATI Criteria.

Answer:

The applicant and co-applicant utilized a mixed-method approach to determine service availability in and/around the proposed project service area. Examination of the most recently available FC 477 maps (as of August 2019), indicate the proposed project area encompasses portions of at least 113 Census Blocks, as defined by the United States Census Bureau. Of the noted 113 blocks, a total of 102 (90%) possess one provider (other than satellite) which indicates coverage in excess of 10 Mbps/1 Mbps up. This single provider is noted by FC 477 as fiber for BVU Authority (now known as Point Broadband).

For all project areas identified as experiencing coverage by BVU Authority (Point Broadband), project co-applicant Point Broadband verifies that residential service is presently unavailable within the proposed project area.

FC 477 maps of the remaining Census Blocks do note presence of multiple providers, specifically CenturyLink and Comcast. Point Broadband's due diligence efforts to cross-reference project area addresses to the websites for potential providers (as noted by the FC-477 maps) indicates a lack of current service availability to these addresses. CenturyLink is only a DSL provider in the area. Attachment 16- SWVA Telecommunications Needs Assessment and Development of Remedial Strategies also identifies Mendota as an under and unserved area by VATI's definition. Please also reference Attachment 4-Documentation Unserved Area VATI Criteria.

4. Provide the number of residential serviceable units in the project area(s). Describe the eligible premises that will be served by the proposed project and the basis for these projections.

Answer:

The proposed project area includes 681 serviceable passings which are located within a predominately rural district. The strong majority of structures/units located within the project area would be considered residential or agricultural. Review of the decennial census data for the Census Blocks of the project area indicates there to be at least 481-589 households, with an estimated population between 959-1,173 (estimates derived assuming 10% +/- of decennial census 100% counts). Comparable household income data is not available for Census Blocks included in this project; however, review of Census Block Group aggregate data most closely aligning to the project area (ACS 5-year estimates) indicates that an estimated 38% of households have annual average incomes greater than $50,000. Census Block Group aggregate data (ACS 5-year estimates) further reflects school age children (ages 5-19) represent an estimated 14.2% of the area population.

5. Indicate the numbers of businesses and community anchor institutions the proposed project will pass in the project area. Also indicate the number of home-based businesses. Provide specific information.

Answer:

The Mendota Community Center and the Mendota Branch of the Washington County Public Library System are two important community anchor institutions located within the proposed project service area. The Mendota Community Center serves as an important venue for many activities including town hall meetings, community events, and non-profit outreach and fundraisers. The community center also houses the Mendota Branch of the Washington County Public Library System (WCPLS). Assurance of access to reliable high-speed internet service is essential to the library's operation and community impact. The branch provides Mendota residents access to free wi-fi and public computers, as well as research databases. The Mendota Community Center is currently supported by Point Broadband's non-residential services. Extension for residential service to the Mendota community and surrounding project area allows patrons of the WCPLS-Mendota Branch an opportunity to utilize the library's remote access digital assets. As an additional outcome of this project, pending a successful VATI request, Point Broadband will provide the Mendota Community Center with free internet service for 2 years.

At present, Washington County does not require a business license nor levy BPOL taxes, thereby creating a challenge for accurate assessment of the number of home-based businesses located within the project service area. Agricultural, particularly cattle and livestock operations, are widely present across the proposed project area and rely on internet connectivity for e-commerce and operational support. Ecotourism represents an emerging industry throughout the project service area. Now in its fifth summer of operation, the proprietor of river outfitter Adventure Mendota reports over 10,000 visitors from across the Commonwealth and multiple states/countries. Continued efforts for development of the Mendota Trail provides promising opportunities to increase visitors and growth of entertainment, retail, food service, and accommodations. IT workers residing within the project area further note that barriers to internet accessibility curtail the potential to work from their residences. With improved internet services, commuting times/frequencies for IT and remote workers residing in the Mendota community can be potentially eliminated or reduced.

6. Understanding that projected take rates are an estimate, provide the anticipated take rate for the proposed service within one year of project completion and describe the basis for the estimate. Also detail all actions (e.g.

marketing activities, outreach plan) to be implemented to reach the identified potential serviceable units within the project area.

Answer:

Point Broadband estimates the take rate for the project area as 50%. This estimate is based on the company's internal and historic experience in unserved and underserved communities which are presented with opportunities to connect to fiber-to- the- home service. Point Broadband's past observations indicate that the greatest barrier to achieving or exceeding the estimated take rate is establishing contact with rural passings. Rural passings are typically more challenging to engage through traditional outreach and marketing channels. Applicant Washington County brings assets and expertise to assist co-applicant Point Broadband with project outreach and service offering awareness through its agreement to assist with community event promotion, and marketing efforts. Point Broadband provides a detailed rural marketing plan (reference Attachment 17- Point Broadband 2017 Rural Marketing Plan) to further outline company activities.

7. For wireless projects only: Please explain the ownership of the proposed wireless infrastructure. Will the wireless co-applicant own or lease the radio mast, tower, or other raised structure onto which the wireless infrastructure will be installed?

Answer:

Not applicable.

8. Provide the proposed download and upload speeds for the project area. Detail whether that speed is based on dedicated or shared bandwidth, and detail the technology that will be used. This description can be illustrated by a map or schematic diagram, as appropriate. Describe the Internet service offerings to be provided after completion of this project and your price structure for these services. The service offerings should include all relevant tiers.

Answer:

The technology utilized for this project is fiber to the premise. Internet service offerings provided upon project completion range from Lite (25 Mbps/5 Mbps) to Extreme (1 Gbps/ 500 Mbps). Price structures and service offerings are detailed as follows:

Internet Pricing-Mendota Project		
	Speed	Price
Lite	25 Mbps x 5 Mbps	$54.95
Basic	50 Mbps x 25 Mbps	$65.95
Performance	100 Mbps x50 Mbps	$70.95
Performance Plus	200 Mbps x 100 Mbps	$80.95
Ultra	500 Mbps x 250 Mbps	$100.95
Extreme	1 Gbps x 500 Mbps	$130.95

9. Provide a description of the network system design used to deliver broadband service from the network's primary Internet point(s) of presence to end users, including the network components that already exist and the ones that would be added by the proposed project. Also describe specific advantages of using this technology. Provide a detailed explanation on how this information was compiled and source(s). For wireless projects, provide a propagation map including the proposed project. Label Map: Attachment 5 – Propagation Map Wireless Project

Answer:

Please reference Attachment 18-Point Broadband Network Description for expanded details.

10. Project Readiness

What is the current state of project development (e.g. planning, preliminary engineering, identifying easements/permits, final design, etc.)? Prepare a detailed project timeline or construction schedule which identifies specific tasks, staff, contractor(s) responsible, collection of data, etc., and estimated start and completion dates. Provide any Memorandums of Understanding (MOUs) or Memorandums of Agreement (MOAs) (drafts are allowable), letters of support, etc. The timeline should include all activities being completed within 12 months of contract execution with DHCD. Label Attachments: Attachment 6 – Timeline/Project Management Plan; Attachment 7 – Relationship between Applicant/Co-Applicant; Attachment 8 – Letters of Support;

i. If the partnership is formalized in a written agreement, provide a copy of that agreement.

ii. If the partnership has not been formalized, provide a short description of the project management role, financial commitment, or other contribution to the project for the applicant, co-applicant, and any additional partners.

iii. If applicant is not a locality(s) in which the project will occur, please provide a letter of support from that locality.

Answer:

Co-Applicant Point Broadband possesses backbone fiber in the area, which the company acquired from Bristol Virginia Utilities. This project allows Point Broadband to leverage existing infrastructure to expand availability for rural residential broadband access. Preliminary engineering is complete for this project. The company identified the AEP poles and will prepare applications for each, to submit immediately upon announcement of VATI award. This project will begin once pole applications are approved by AEP. Please reference Attachment 6-Timeline/Project Management Plan. Attachment 7-Relationship between the Applicant/Co-Applicant indicates the steps necessary to formalize the project partnership between Applicant Washington County and Co-Applicant Point Broadband. *Attachment 7 also includes a resolution by the Washington County Board of Supervisors* supporting this project. Attachment 8-Letters of Support demonstrate community need and support for internet accessibility across the proposed project area.

11. Matching funds: Provide a description of the matching funds the applicant and co-applicant will invest in the proposed project (VATI funding cannot exceed 80 percent of total project cost). The Funding Sources Table must be completed. Label Attachments: Attachment 9 - Documentation of Match Funding; Attachment 10 – Funding Sources Table;

i. For each element of matching funds in the description, indicate the type of match (e.g. cash, salary expense, or

in-kind contribution).

ii. Identify whether the applicant or co-applicant is responsible for providing each element of the proposed matching funds.

iii. Include copies of vendor quotes or documented cost estimates supporting the proposed budget.

Answer:

The entirety of required matching funds for this project are provided as cash, by co-applicant Point Broadband. The value of this cash match is $1,093,893, or 41% of the total project cost. Attachment 9- Documentation of Match Funding provides a balance sheet for the company and indicates fiscal capacity necessary to support this project. In addition to required cash match, applicant Washington County, VA provides non-cash, in-kind support to this project in a value not to exceed $10,000.

12. Applicant and Co-Applicant: A description of the public-private partnership involved in the project. Detail the local government assistance: Local government co-applicants should demonstrate assistance to project that will lower overall cost and further assist in the timely completion of construction, including assistance with permits, rights of way, easements, and other issues that may hinder or delay timely construction and increase cost. Provide detail if this project includes additional partners such as municipal providers, middle-mile providers, or investor-owned utilities

Answer:

A formal agreement to establish the roles and responsibilities for applicant Washington County and Co-Applicant Point Broadband is completed upon notification of VATI award. This agreement is specifically tailored to address funding agency requirements. Co-Applicant Point Broadband provides the required cash match for this project, valued at $1,093,893. The company is envisioned as the lead entity responsible for ensuring the timely implementation of all project-related activities necessary to support the engineering, construction, marketing, and deployment of services across the proposed project area. Point Broadband will also share responsibilities for grant administrative activities, as may be required or established through the formal project agreement.

Local government applicant Washington County assists this project through provision of in-kind support not to exceed a value of $10,000. In-kind support may include, but is not limited to: staff time to assist with the county's roles and responsibilities for grant administrative activities, permitting, right of way, easement, project awareness communications, and mapping/GIS supported activities. In-kind support also includes free space rental and incidental meeting expenses to host project-related events at the Mendota Community Center. All County provided in-kind support seeks to assist with community project awareness, and timely completion of construction activities within the required project timelines.

13. Identify key individuals, including name and title, who will be responsible for the management of the project. Provide a concise description of their role and responsibilities for the project. Present this information in table format.

Answer:

Name	Organization	Title	Responsibility

Noah Maden	Point Broadband	Senior Operations Manager	Project Management
Joseph Puckett	Point Broadband	General Manager	Grant Administration
Mark Alldredge	Point Broadband	Senior Director of Engineering	Project Design and Engineering
Dave Whitmer	Point Broadband	Residential Sales Manager	Sales and Marketing of the Project
Jason Berry	Washington County	County Administrator	Lead County Point of Contact for Project
Keith Lloyd	Washington County	Director, Information Systems	Oversight of County Supported GIS-Related Task Completion
Whitney Czelusniak	Washington County	Director, Economic Development	Oversight of County Initiated Project Awareness Communications & Event Planning Efforts

14. Project Budget and Cost Appropriateness

    Applicants shall provide a detailed budget as to how the grant funds will be utilized, including an itemization of equipment and construction costs and a justification of proposed expenses. Expenses should substantiated by clear cost estimates. Label Attachment: Attachment 11 – Derivation of Costs; Attachment 12 - Documentation of Supporting Costs; Attachment 13 – Supporting Documentation of Cost Estimates.

Answer:

Please see Attachments 11-13. Cost estimates support construction-related activities/expenditures including: engineering and project management, materials, labor, fixed electronics and optics, and CPE/Drop/Installation.

15. The cost benefit index is comprised of three factors: (i) state share for the total project cost, (ii) state cost per unit passed, and (iii) the internet speed. From these statistics, individual cost benefit scores are calculated. Finally, the three component scores are averaged together and converted to a 30-point scale to form a composite score. Please provide the following three pieces of information:

    a. Total State funding requested / Total Project cost

b. Number of serviceable units

c. Highest residential speed available

Answer:

Responses by bullet above:

- Total State Funding Requested: $1,574,139/Total project cost: $2,668,032 = 59%
- Number of Serviceable Units: 681
- Highest Residential Speed Available: 1000 Mbps (1 Gbps)

16. A brief description of applicant and co-applicant's history or experience with managing grants and constructing broadband communication facilities in the Commonwealth of Virginia and elsewhere.

Answer:

Applicant Washington County, VA possess a lengthy track record for successful administration and management of grant programs, including those benefiting the development and/or enhancements of public infrastructure. Recent examples of DHCD supported infrastructure investments within Washington County within the past year include: The Rattle Creek Water System Project ($175,000) and Hidden Valley Water System Project Phase II ($362,500). The Washington County Department of Budget & Finance has adequate capacity to assist with support of this project. With a professional staff of three, under the direction of the County Administrator and the Director of Budget & Finance, Washington County, VA is responsible for the administration of several different federal, state, or regional grant funds annually.

Co-Applicant Point Broadband provides management experience for successful completion of publicly-funded broadband projects. At present, the company has one active grant contract in the State of Tennessee which is slated for completion in Q4 2019 and is currently in good standing. Additional examples of Point Broadband project experience can be referenced as Attachment 19-Point Broadband Project Experience.

17. Commonwealth Priorities

Additional points will be awarded to proposed projects that reflect Commonwealth priorities. Please describe if the project fits into a larger locality or regional universal broadband plan.

Answer:

In May 2019, consultants Thompson & Litton and Blue Ridge Advisory Service Group completed a needs assessment of telecommunications services in the thirteen counties and three cities of the LENOWISCO, Cumberland Plateau, and Mount Rogers planning districts, located in Southwestern Virginia. Within the Telecommunications Needs Assessment and Development of Remedial Strategies for Southwest Virginia, multiple locations throughout Washington County, VA are noted as target areas for improvement of broadband services. The Mendota community is amongst the areas of Washington County cited as possessing the greatest needs (pg.32). For additional information, please see Attachment 16-SWVA Telecommunications Needs Assessment

and Development of Remedial Strategies.

18. Additional Information

Any other equitable factor that the applicant desires to include. Applicants are limited to four additional attachments. Label Additional Attachments as:

a. Attachment 14 – Two most recent Form 477 submitted to the FCC or equivalent

b. Attachment 15 – Copy of Public Notice

c. Attachment 16 – XXXXXXX

d. Attachment 17 – XXXXXXX

e. Attachment 18 – XXXXXXX

f. Attachment 19 – XXXXXXX

Answer:

Four additional attachments may be referenced as follows:

Attachment 16-SWVA Telecommunications Needs Assessment and Development of Remedial Strategies

Attachment 17-Point Broadband 2019 Rural Marketing Plan

Attachment 18-Point Broadband Network Description

Attachment 19-Point Broadband Project Experience

Attachments:

Map(s) of project area, including proposed infrastructure

Attachment1ProjectAreaMap93201951515.pdf

Map(s) or schematic of existing broadband providers (inventory of existing assets)

Attachment2ExistingProviderMap93201961551.pdf

Documentation that proposed project area is not designated for Connect America Funding (CAF)

Attachment3DocumentationonCAFFundingArea93201951540.pdf

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Documentation that proposed project area is unserved based on VATI criteria

Attachment4DocumentationUnservedAreaVATICriteria93201960416.pdf

Project Management Plan

Attachment6TimelineProjectManagementPlan93201955347.pdf

Documentation of relationship between applicant and co-applicant (formal or informal)

Attachment7RelationshipbetweenApplicantCoApplicant93201951616.pdf

Letters of Support

Attachment8LettersofSupport93201954748.pdf

Documentation for in-kind contributions, including value(s)

Attachment9DocumentationofMatchFunding93201951656.pdf

Funding Sources Table

Attachment10FundingSourcesTable93201965028.pdf

Derivation of Cost (Project Budget)

Attachment11DerivationofCosts93201951731.pdf

Documentation supporting project costs (i.e. vendor quotes)

Attachment12DocumentationofSupportingCosts93201951743.pdf

Supporting documentation for costs estimates

Attachment13SupportingDocumentationofCostEstimates93201951756.pdf

Two most recent Form 477 submitted to FCC

Attachment14TwoMostRecentForm477SubmittedtotheFCCorEquivalent93201951806.pdf

Copy of Public Notice

Attachment15CopyofPublicNotice93201951817.pdf

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Optional

Attachment16SWVATelecommunicationsNeedsAssessmentandDevelopmentofRemedialStrategies93201951832.pdf

Optional

Attachment17PointBroadband2019RuralMarketingPlan93201951842.pdf

Optional

Attachment18PointBroadbandNetworkDescription93201951858.pdf

Optional

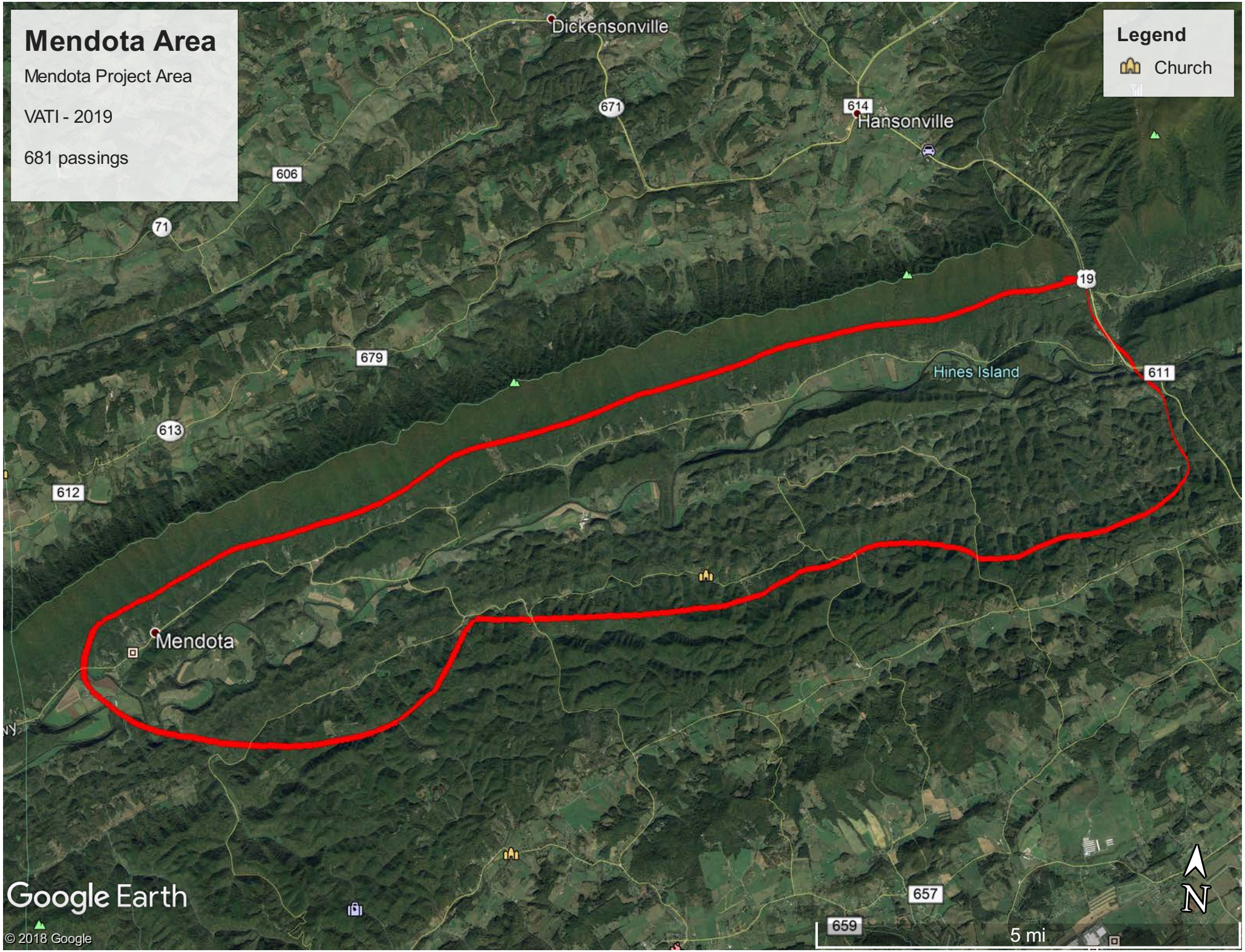
Attachment19PointBroadbandProjectExperience93201954418.pdf

Attachment 1-Project Area Map

Project Name: Mendota Broadband Expansion Project

Applicant: Washington County, VA

Co-Applicant: Point Broadband


Mendota Area
Mendota Project Area
VATI - 2019
681 passings
Legend
Church
Dickensonville
671
614
Hansonville
606
71
19
679
Hines Island
611
613
612
Mendota
657
659
N
5 mi
Google Earth
© 2018 Google

Attachment 2-Existing Provider Map

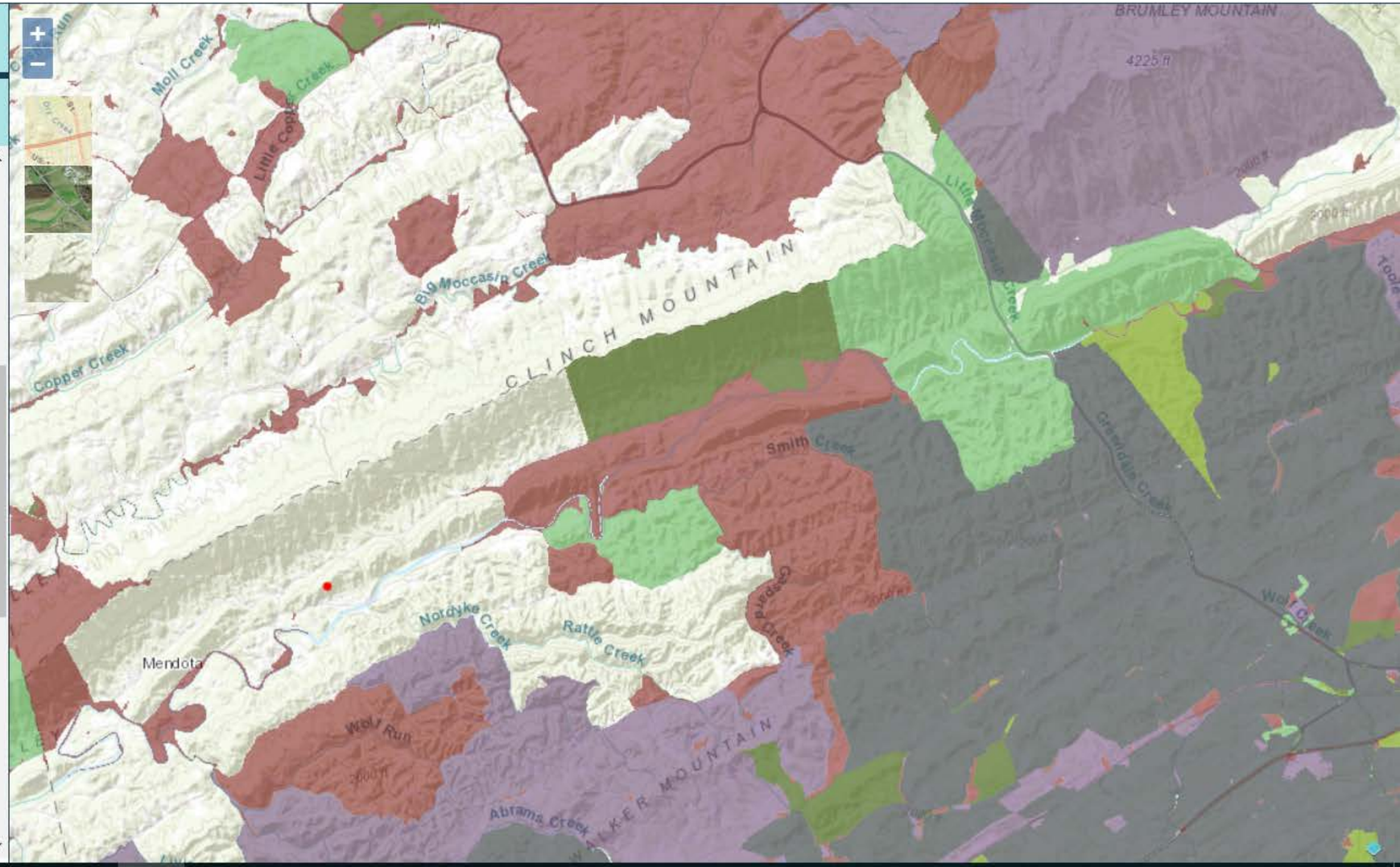
Project Name: Mendota Broadband Expansion Project

Applicant: Washington County, VA

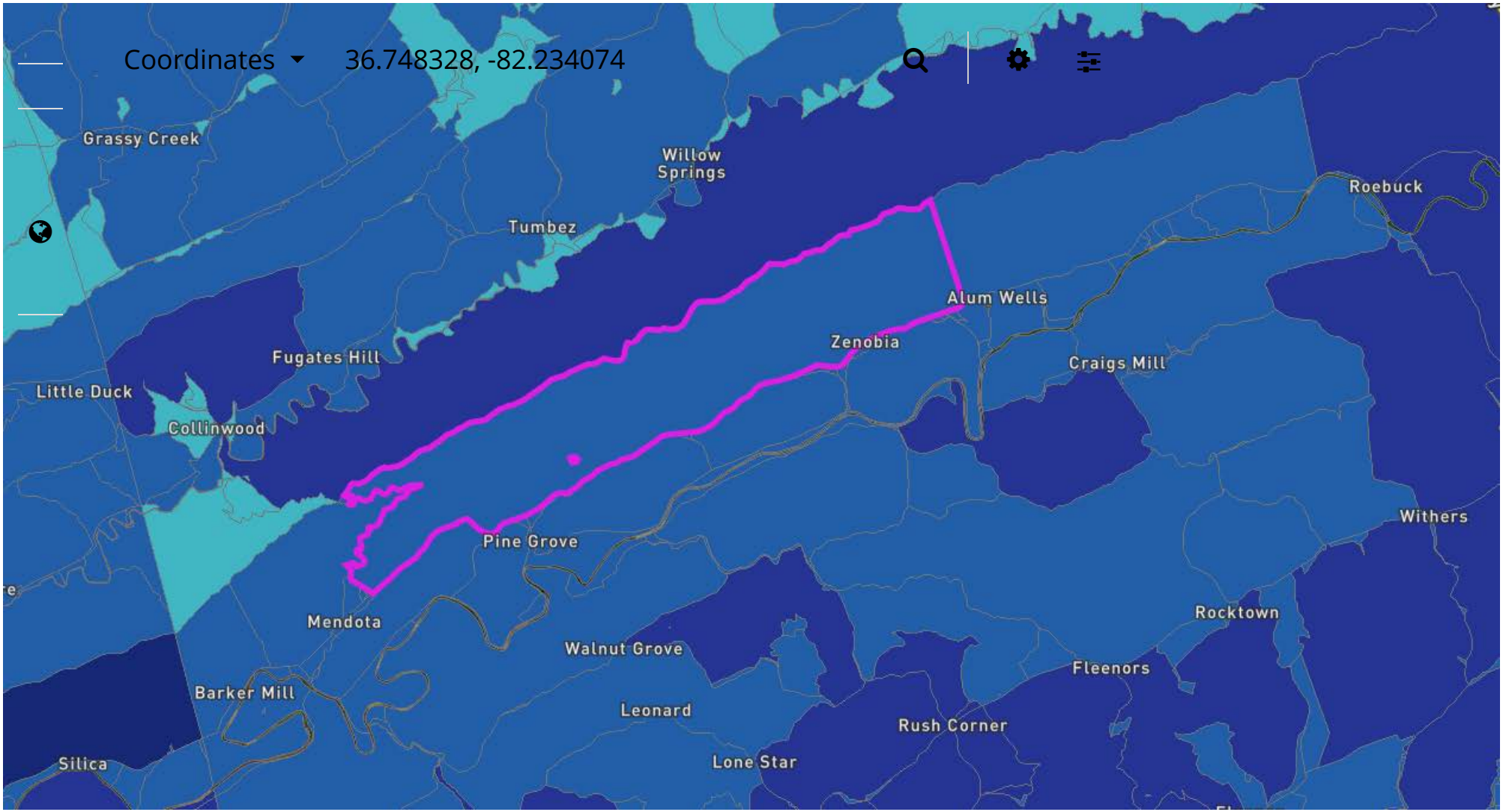
Co-Applicant: Point Broadband

Virginia Broadband Availability Map and Integrated Broadband Planning and Analysis Toolbox

- Fixed Wireless Coverage (Dec. 2017)
- Mobile Wireless Coverage (Dec. 2016)
- 4G/LTE Wireless Coverage (Dec. 2016)
- Satellite Coverage (Dec. 2017)
- Virginia Telecommunication Initiative Funding (VATI)
- Underserved Areas [greater than 10 Mbps download and 1 Mbps upload and less than 25 Mbps download and 3 Mbps upload] (Dec. 2017)
- Unserved Areas [below or equal to 10 Mbps download and 1 Mbps upload] (Dec. 2017)
- No Residential Broadband (25/3) reported (Dec. 2017)
- Vertical Assets (updated daily)
- Community Anchor Institutions (Dec. 2017)
  - School
  - Library
  - Hospital
  - Public Safety Entity
  - Government Building
  - Other
- DataCardinal Desktop Download Speeds (updated daily)
  - < 769 Kbps
  - 768 Kbps - 3 Mbps
  - 3 - 25 Mbps
  - 25 - 50 Mbps



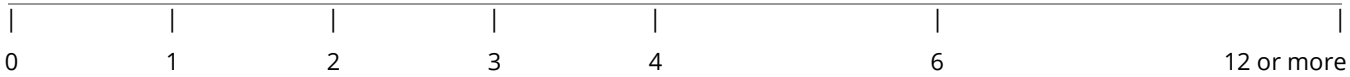
Fixed Broadband at a Location



All Providers Reporting Service

Census block ID: 511910103004029

Number of Fixed Residential Broadband Providers

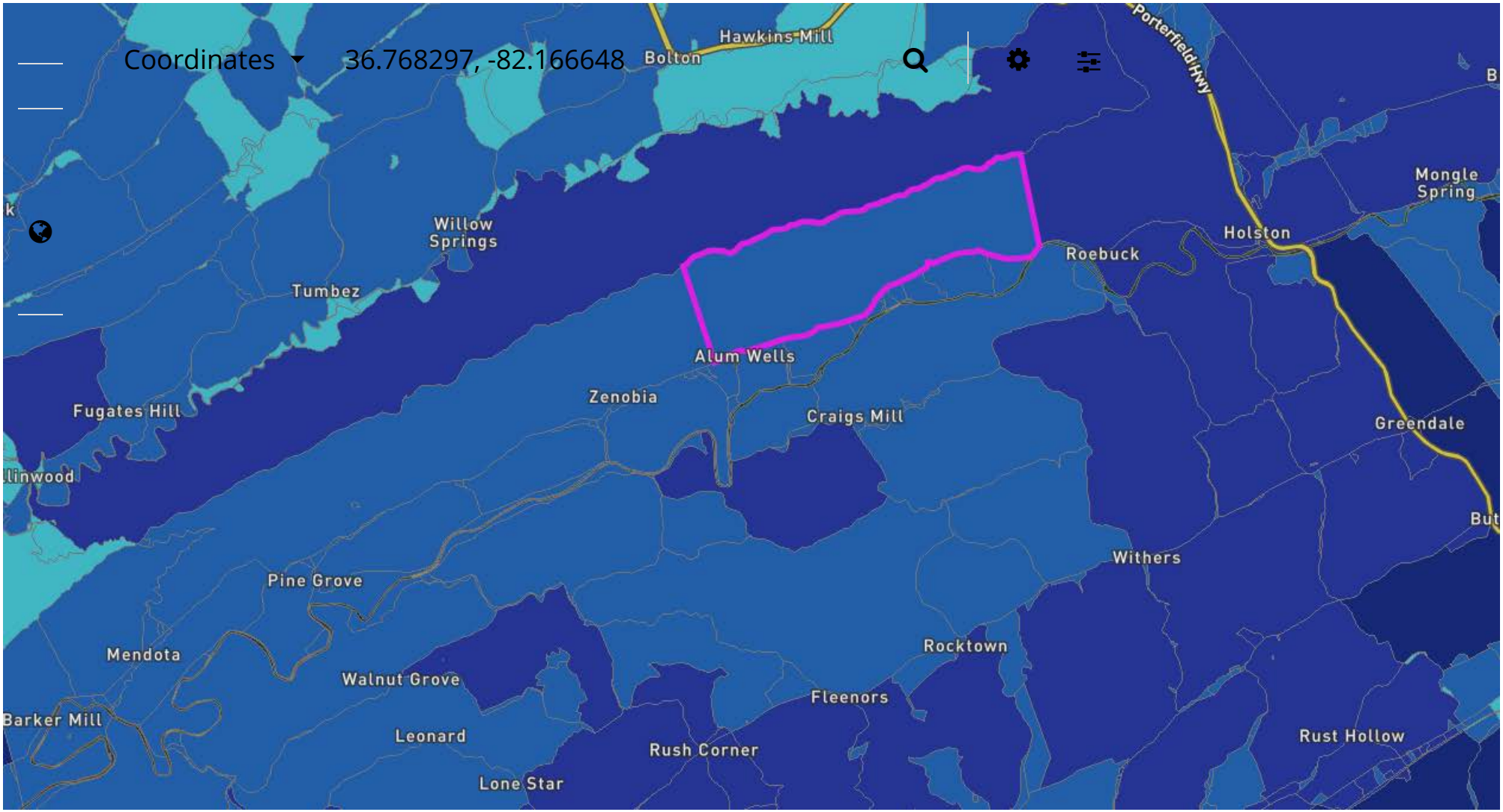


Broadband

Technology ADSL, Cable, Fiber, Fixed Wireless, Satellite, Other
Speed ≥ 25/3 Mbps
Date Dec. 2017 *(latest public release)*

Provider	Tech	Down (Mbps)	Up (Mbps)
BVU Authority	Fiber	1000	50
ViaSat, Inc.	Satellite	30	3
dishNET Holding, LLC	Satellite	25	3
iGo Technology, Inc.	Fixed Wireless	5	0.512
VSAT Systems, LLC	Satellite	2	1.3

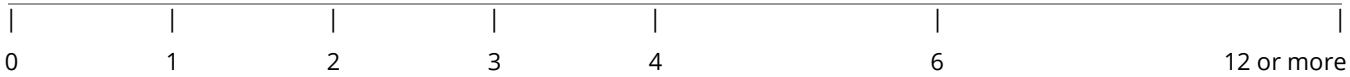
Fixed Broadband at a Location



All Providers Reporting Service

Census block ID: 511910103004003

Number of Fixed Residential Broadband Providers



Broadband

Technology ADSL, Cable, Fiber, Fixed Wireless, Satellite, Other
Speed ≥ 25/3 Mbps
Date Dec. 2017 *(latest public release)*

Provider	Tech	Down (Mbps)	Up (Mbps)
BVU Authority	Fiber	1000	50
ViaSat, Inc.	Satellite	30	3
dishNET Holding, LLC	Satellite	25	3
CenturyLink, Inc.	ADSL	6	0.768
iGo Technology, Inc.	Fixed Wireless	5	0.512
CenturyLink, Inc.	ADSL	3	0.768
VSAT Systems, LLC	Satellite	2	1.3

Sorry!

The location you entered is outside of our service area.

Even if you're outside of CenturyLink's service area, we can still help you:

Movearoo can help you find other phone, Internet and TV service providers in your area.

Address Entered:

Change Address (/mobile/login/ctap/index.vm)

Need help finding providers in your area?

We'll help you find Internet, TV and home phone providers in your area.

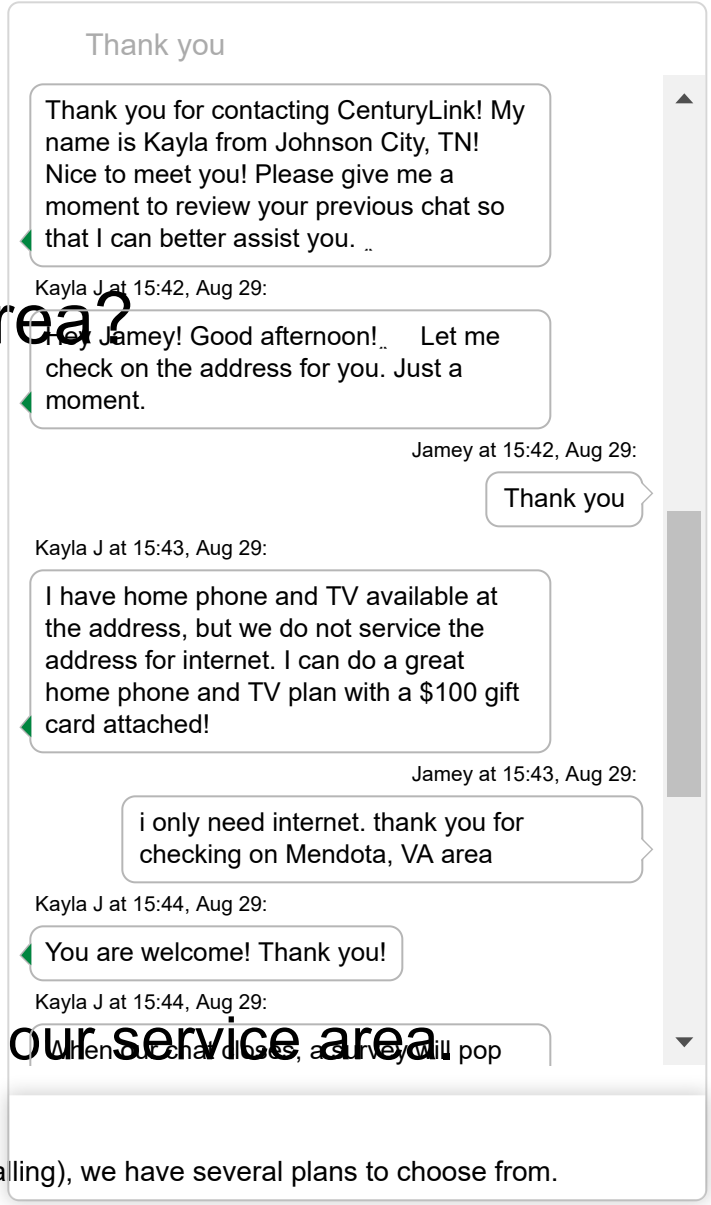
Find Providers (http://www.movearoo.com/centurylink/out-of-area?kbid=56641)

Get connected with
CenturyLink & Viasat
855-627-2223

Viasat offers a refreshing choice with trusted pricing and superfast speeds.

- 2-Year Price Lock Guarantee
- Bundle and save up to $10 a month for six months
- No-charge for all required service calls with EasyCare

Call: 855-627-2223



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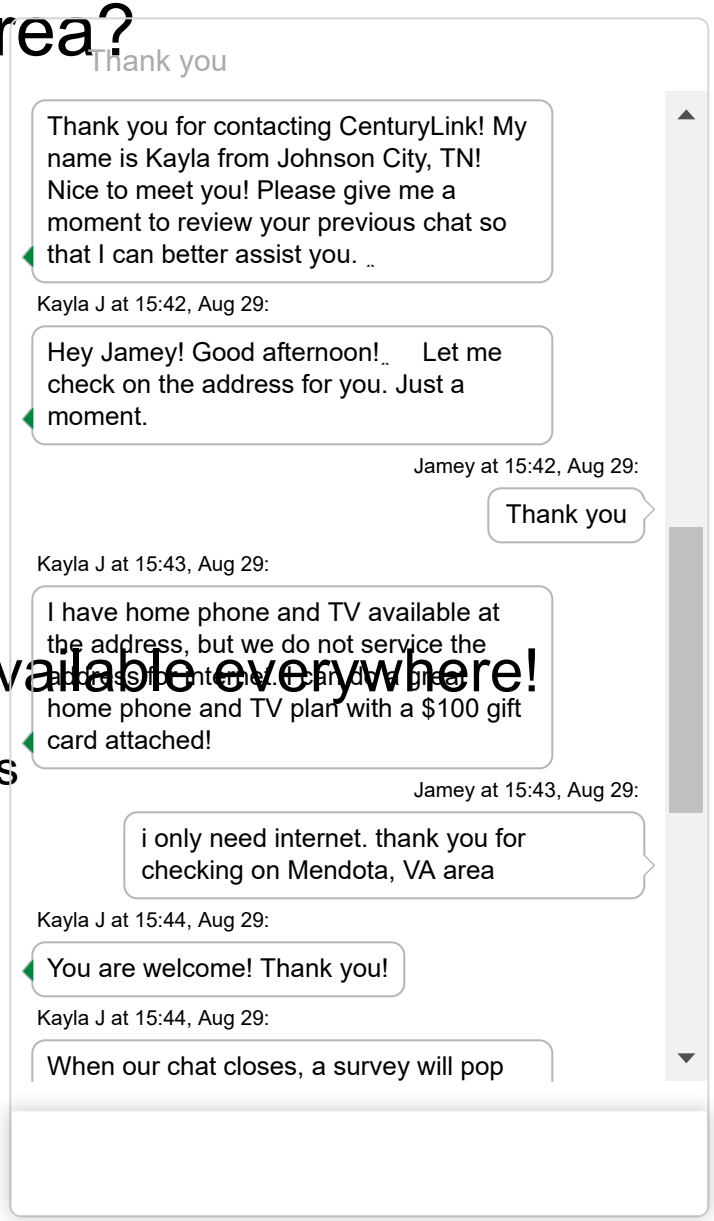

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CenturyLink® **Unlimited Long Distance**

- Call all you want to anywhere in the U.S.
- Pay a low monthly fee, which includes all your domestic calling
- Unlimited Calling to Puerto Rico and Canada included with CenturyLink® Unlimited

$3199 a month*

CenturyLink® **5 Cent Long Distance**

- One low rate to anywhere in the U.S.
- No calling time restrictions

$898 a month*

5¢
a minute

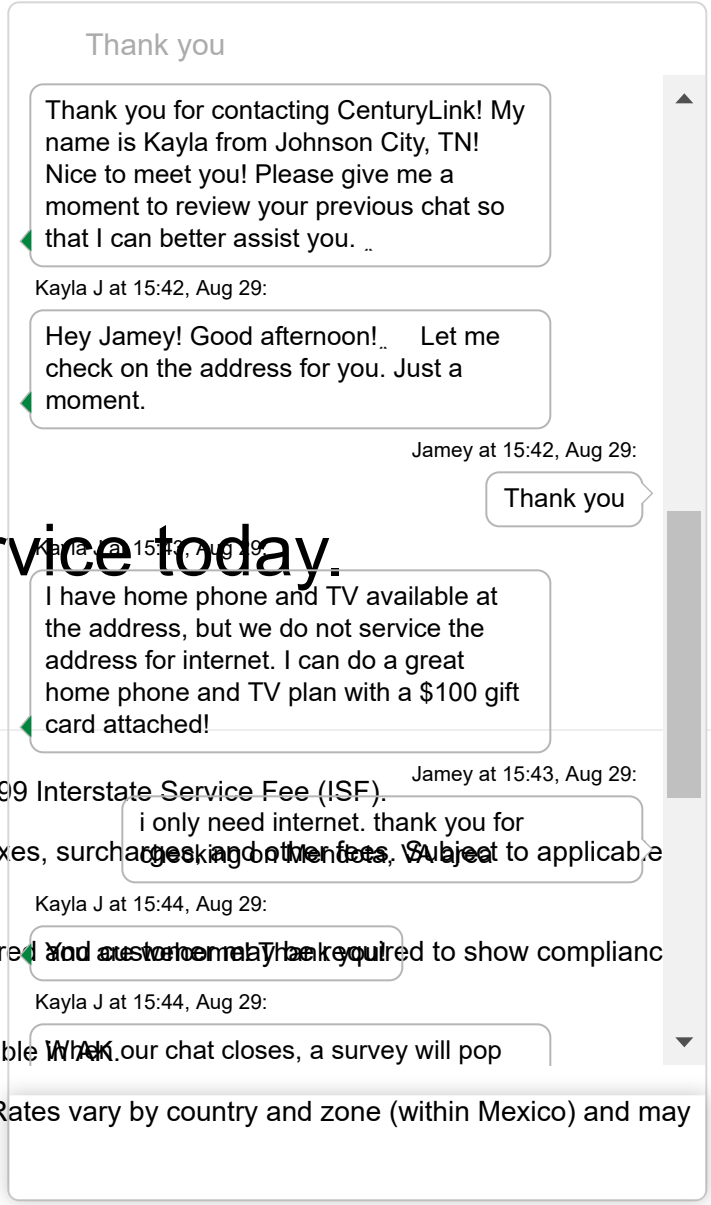
CenturyLink® **15 Cent Single Rate**
Long Distance

- One rate on direct-dialed, domestic calls
- No minimum usage requirement or calling time restrictions

$299 a month*
15¢
a minute
CenturyLink® **Choice™ International**

- Competitive rates for more than 200 countries
- No calling-time restrictions – call any time of the day, any day of the week

$400 a month*
Per minute
rates vary
by country.



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With approved credit. Services and combined billing not available in all areas. Prices exclude taxes, surcharges and other fees. Subject to applicable restrictions, tariffs and service agreements. Call CenturyLink for details.

CenturyLink® Unlimited: Cannot be used for business or Internet access. Usage may be monitored and customer may be required to show compliance if usage exceeds 5,000 minutes/mo. or non-compliance indicated.

CenturyLink® 5 Cent Plan and 15 Cent Single Rate Plan: Residential customers only. Not available in AK.

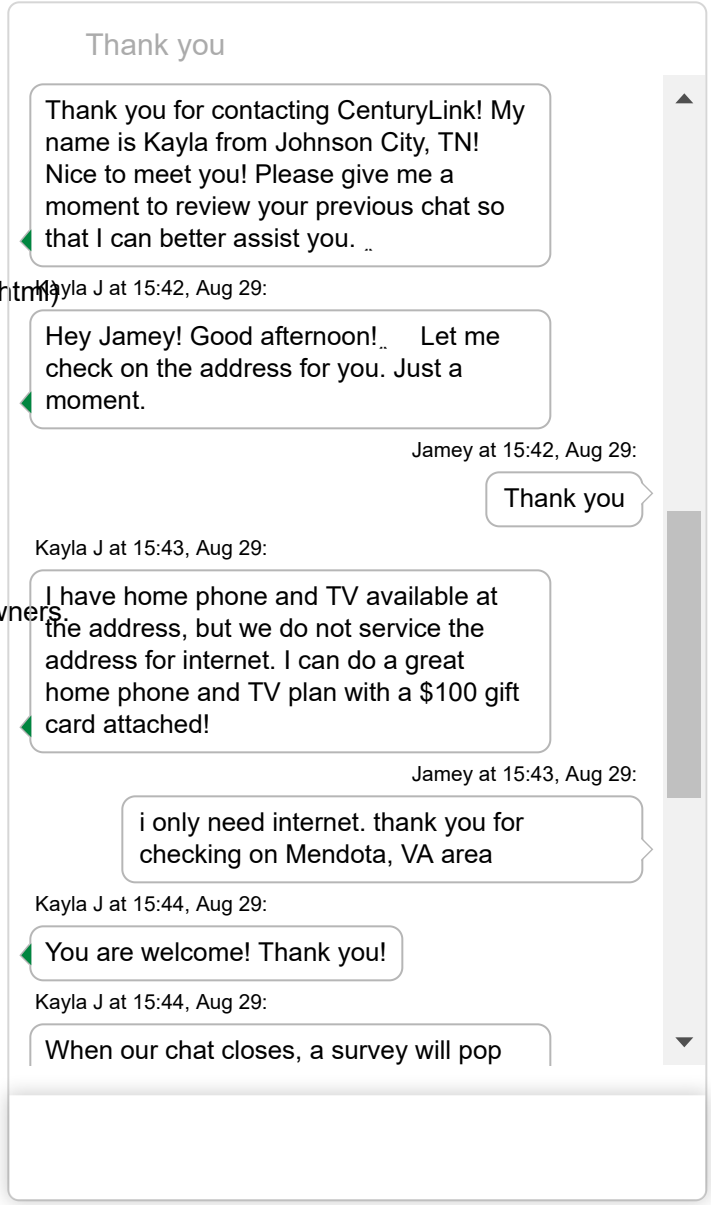
CenturyLink Choice® International Long Distance Plan: Requires domestic long-distance plan. Rates vary by country and zone (within Mexico) and may be higher for calls made to mobile phones.

EN:5000

- About Us (//www.centurylink.com/aboutus.html)
- Careers (https://jobs.centurylink.com/)
- Investor Relations (http://ir.centurylink.com/)
- Legal (//www.centurylink.com/aboutus/legal/)
- Legal Notices (//www.centurylink.com/legal/)
- Privacy Policy (//www.centurylink.com/aboutus/legal/privacypolicy.html)
- Public Policy (//www.centurylink.com/aboutus/company-information/public-policy.html)
- Site Map (//www.centurylink.com/sitemap.html)
- Tariffs (//www.centurylink.com/aboutus/legal/tariff-library.html)
- Contact Us (//www.centurylink.com/home/help/contact.html)
- Customers with Disabilities (//www.centurylink.com/aboutus/community/disabled/)
- CenturyLink Retailer (http://www.getcenturylink.com/)
- Fed Govt (//www.centurylink.com/public-sector/federal-government.html)
- State & Local Govt (//www.centurylink.com/public-sector/state-local/state-local-government.html)
- Education (//www.centurylink.com/public-sector/education/higher-education.html)
- Partners (//www.centurylink.com/business/partner.html)

- Residential (//www.centurylink.com/home/)
- Small Business (//www.centurylink.com/small-business/)
- Enterprise (//www.centurylink.com/business.html)
- Wholesale (//www.centurylink.com/wholesale/)

Feedback [+]



Unfortunately, XFINITY service is not available at this address.

We are unable to locate deals for **6942 mendota road, 24270**. To find a local provider, please contact SmartMove for assistance.

Try a different address, including apartment number

We couldn't find an online match for your address.

Please call the SmartMove Hotline toll-free at (844) 544-5181 to find your service provider.....

If you want to search another address, please enter your info below.

6942 MENDOTA ROAD

APT/UNIT **24270**

GET CONNECTED

Or give us a call **(844) 544-5181**

powered by smartmove

I WANT TO

View & Pay Bill

Check Email & Voicemail

Manage My Account

Check TV Listings

Watch TV Online

Contact Customer Support

Refer-a-Friend

Get Apps

Manage Parental Controls

Download Norton Security

Manage Users & Alerts

Reset My Password

Find My Account Number

Monitor Home Security

Upgrade My Service

Find My Xfinity Username

Get Help & Support

Program My Remote

Submit Feedback

Find an Xfinity Store

Move My Services

SHOP

Bundles & Promotions

Internet

Voice

Home

Xfinity Mobile

Customer Guarantee

TV

Compare the Competition

Service in my Area

Student Offers

Military Offers

Comcast Business

ABOUT COMCAST

About Comcast

Careers

Press Room

Corporate Site

Customer Agreements & Policies

Xfinity Internet Broadband Disclosures

Advertise with Us

Xfinity Voice: Use of Personal Info

Social Responsibility

Privacy Statement

Visitor Agreement

Discover Xfinity

Sitemap

Privacy Statement Visitor Agreement

Attachment 3-Documentation on CAF Funding Area

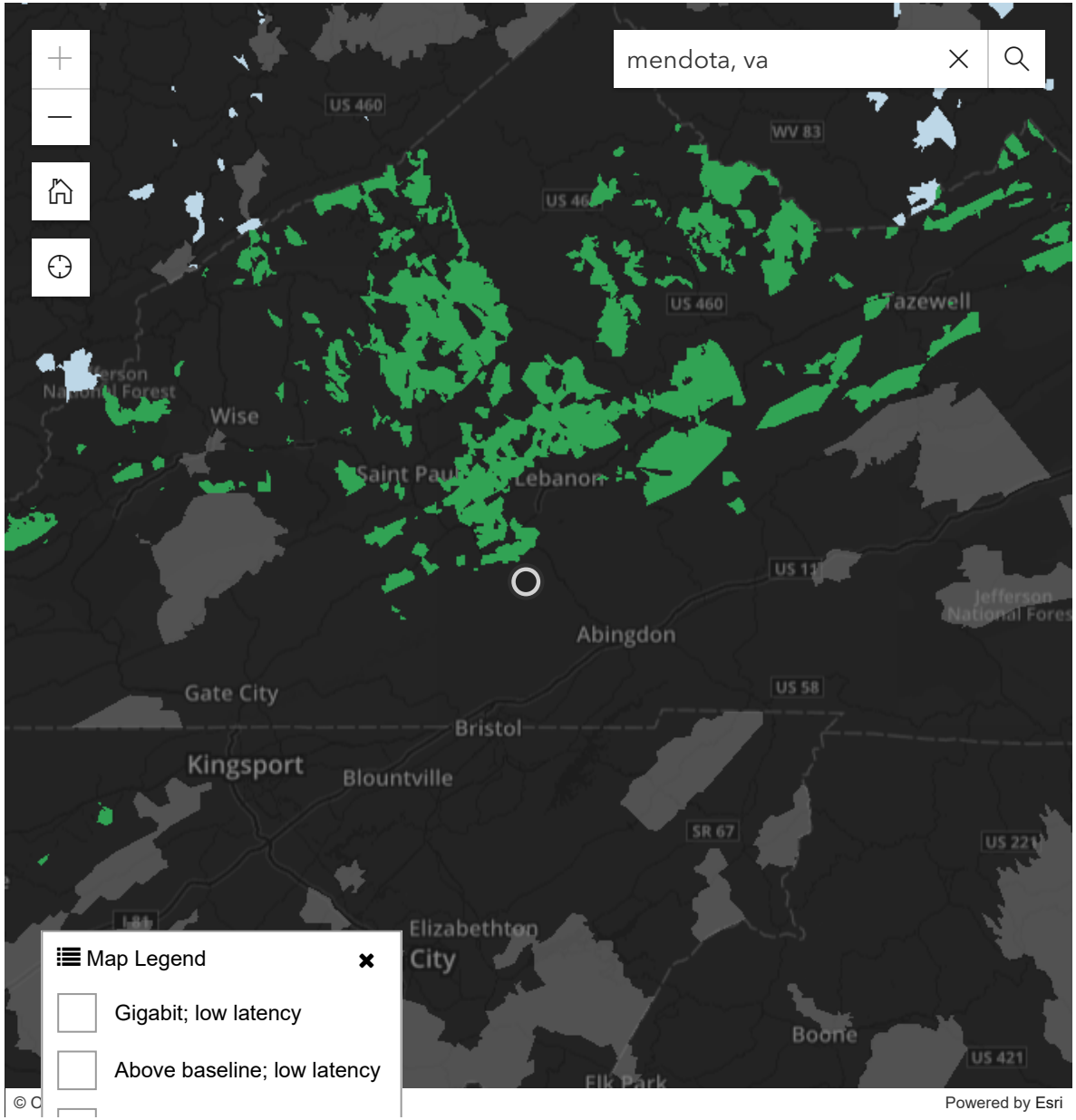
Project Name: Mendota Broadband Expansion Project

Applicant: Washington County, VA

Co-Applicant: Point Broadband

Connect America Fund Phase II: Auction 903 Results

Data as of 8/28/18



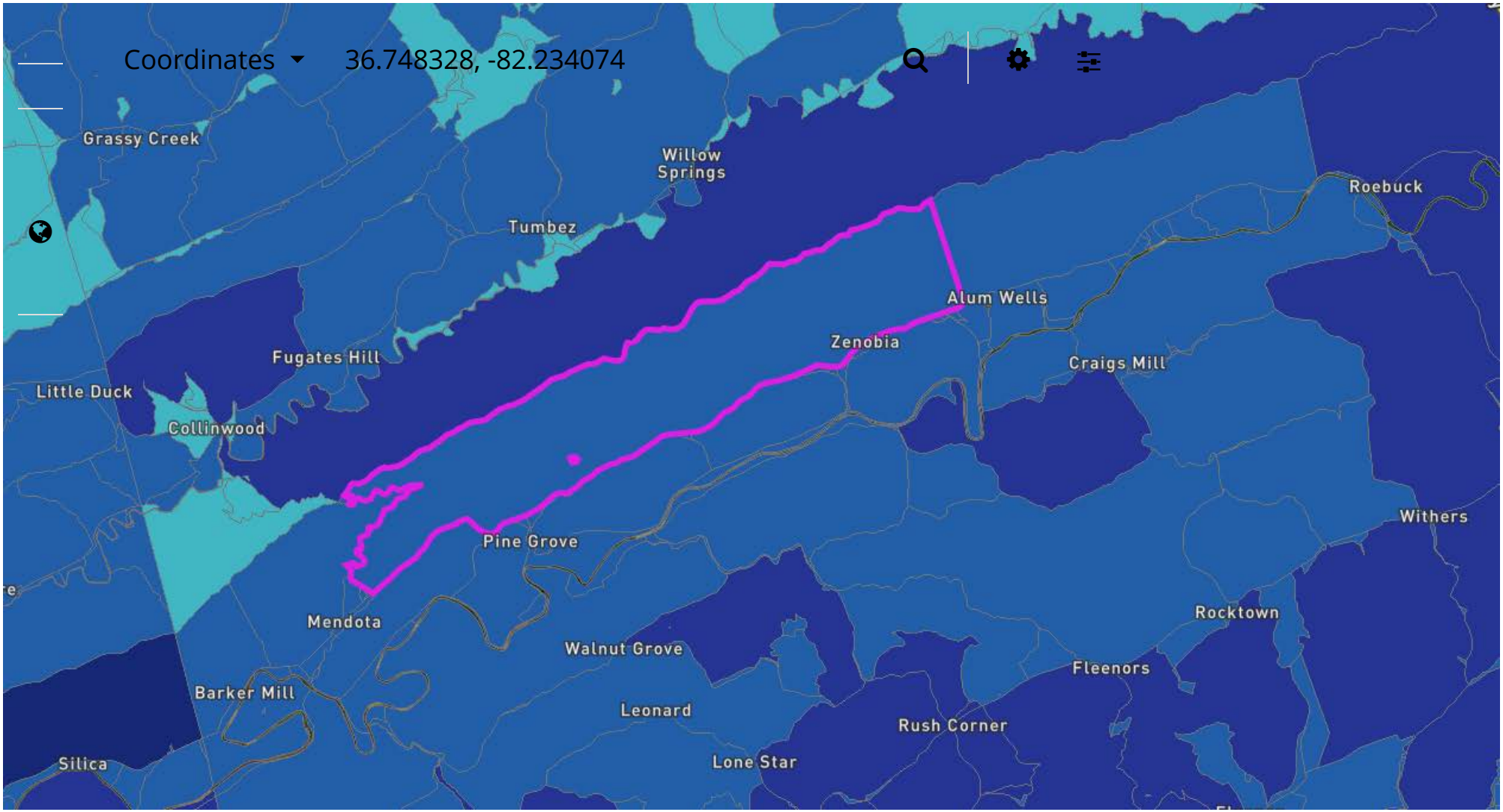
Attachment 4-Documentation Unserved Area VATI Criteria

Project Name: Mendota Broadband Expansion Project

Applicant: Washington County, VA

Co-Applicant: Point Broadband

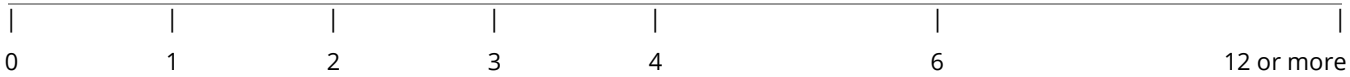
Fixed Broadband at a Location



All Providers Reporting Service

Census block ID: 511910103004029

Number of Fixed Residential Broadband Providers

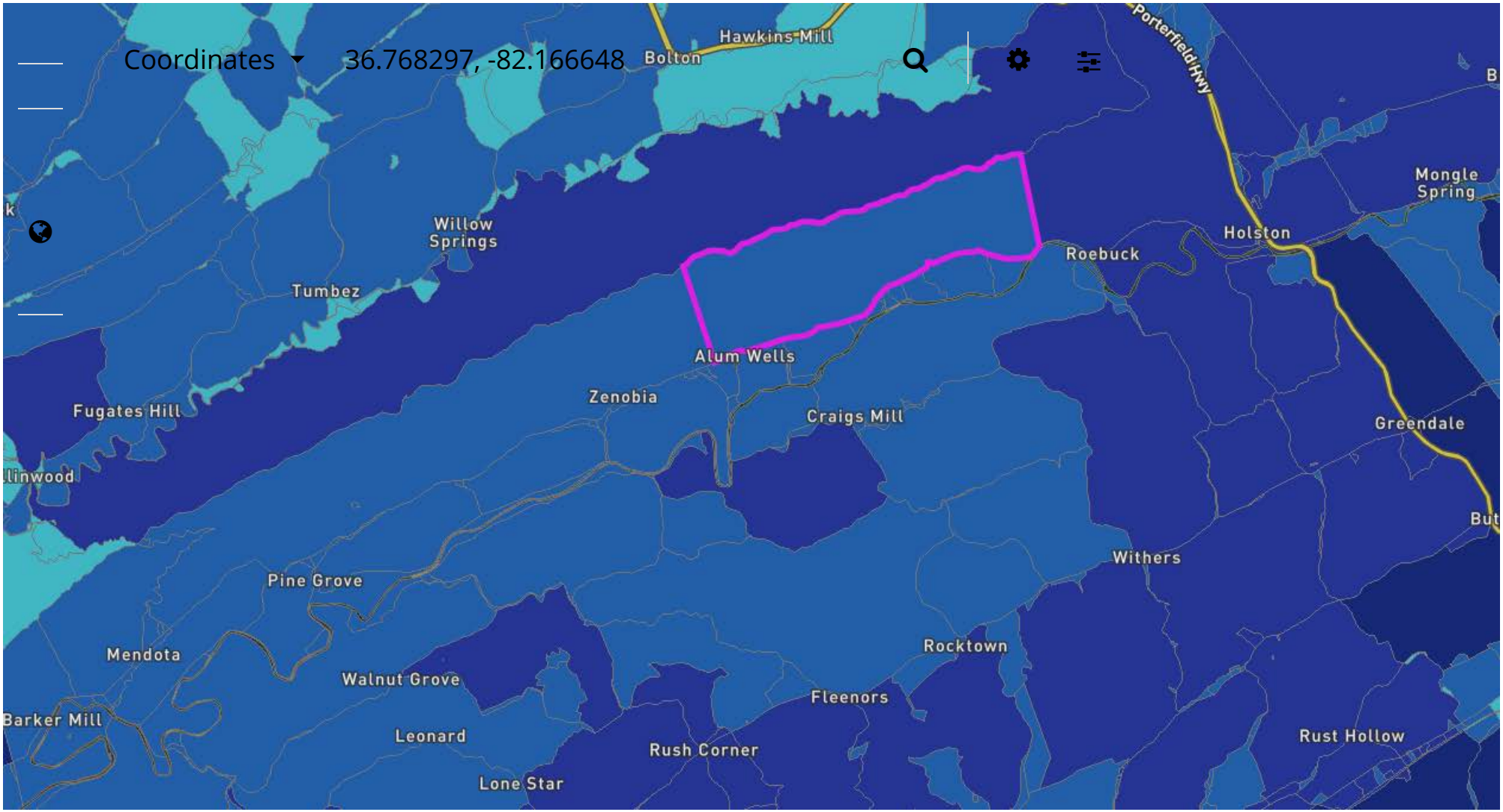


Broadband

Technology ADSL, Cable, Fiber, Fixed Wireless, Satellite, Other
Speed ≥ 25/3 Mbps
Date Dec. 2017 *(latest public release)*

Provider	Tech	Down (Mbps)	Up (Mbps)
BVU Authority	Fiber	1000	50
ViaSat, Inc.	Satellite	30	3
dishNET Holding, LLC	Satellite	25	3
iGo Technology, Inc.	Fixed Wireless	5	0.512
VSAT Systems, LLC	Satellite	2	1.3

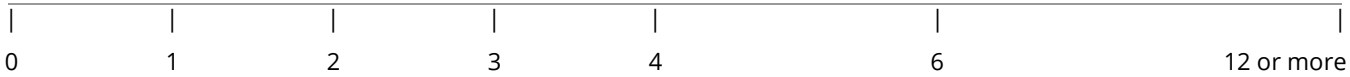
Fixed Broadband at a Location



All Providers Reporting Service

Census block ID: 511910103004003

Number of Fixed Residential Broadband Providers



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Provider	Tech	Down (Mbps)	Up (Mbps)
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dishNET Holding, LLC	Satellite	25	3
CenturyLink, Inc.	ADSL	6	0.768
iGo Technology, Inc.	Fixed Wireless	5	0.512
CenturyLink, Inc.	ADSL	3	0.768
VSAT Systems, LLC	Satellite	2	1.3

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Change Address (/mobile/login/ctap/index.vm)

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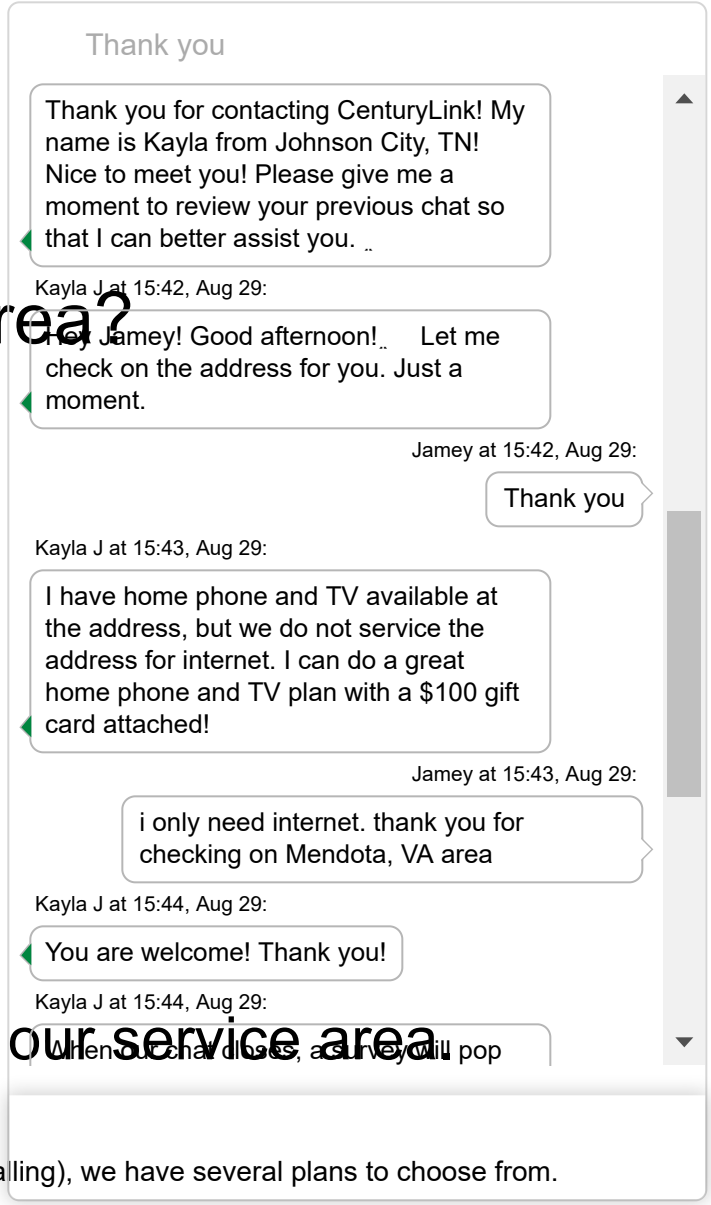

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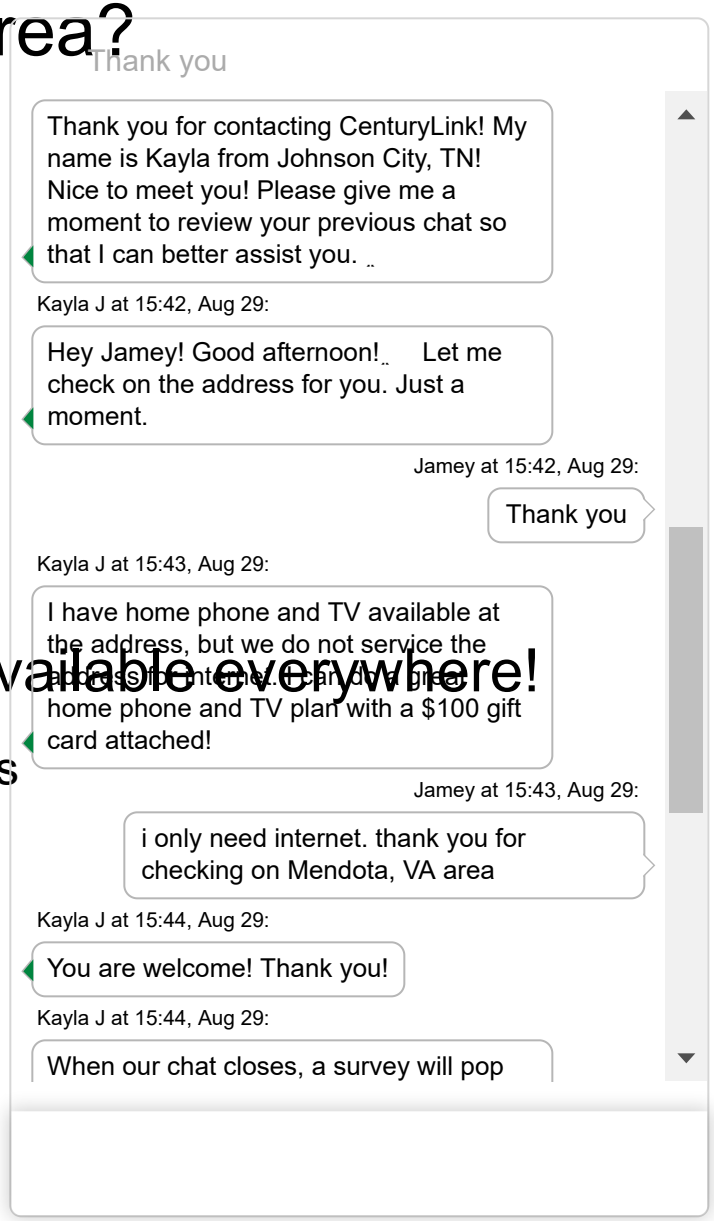

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Long Distance

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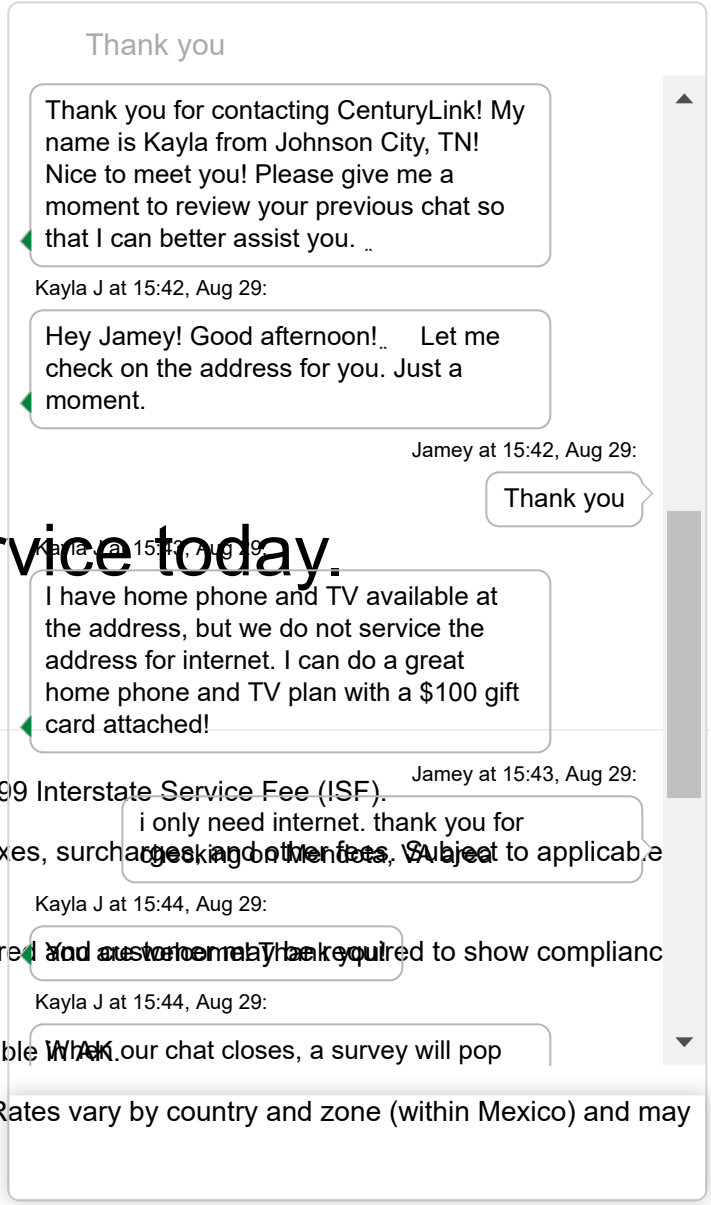

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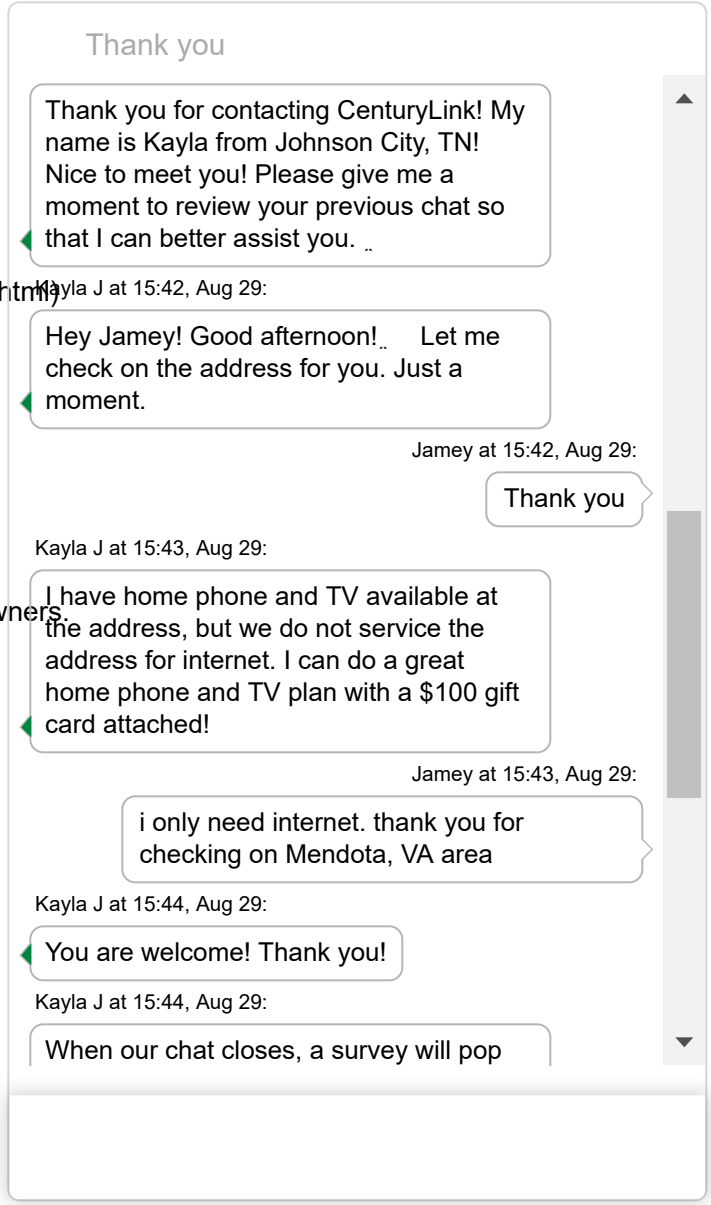
- Investor Relations (http://ir.centurylink.com/)
- Legal (//www.centurylink.com/aboutus/legal/)
- Legal Notices (//www.centurylink.com/legal/)
- Privacy Policy (//www.centurylink.com/aboutus/legal/privacypolicy.html)
- Public Policy (//www.centurylink.com/aboutus/company-information/public-policy.html)
- Site Map (//www.centurylink.com/sitemap.html)
- Tariffs (//www.centurylink.com/aboutus/legal/tariff-library.html)
- Contact Us (//www.centurylink.com/home/help/contact.html)
- Customers with Disabilities (//www.centurylink.com/aboutus/community/disabled/)
- CenturyLink Retailer (http://www.getcenturylink.com/)
- Fed Govt (//www.centurylink.com/public-sector/federal-government.html)
- State & Local Govt (//www.centurylink.com/public-sector/state-local/state-local-government.html)
- Education (//www.centurylink.com/public-sector/education/higher-education.html)
- Partners (//www.centurylink.com/business/partner.html)

- Residential (//www.centurylink.com/home/)
- Small Business (//www.centurylink.com/small-business/)
- Enterprise (//www.centurylink.com/business.html)
- Wholesale (//www.centurylink.com/wholesale/)

Feedback [+]



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GET CONNECTED

Or give us a call **(844) 544-5181**

powered by smartmove

I WANT TO

View & Pay Bill

Check Email & Voicemail

Manage My Account

Check TV Listings

Watch TV Online

Contact Customer Support

Refer-a-Friend

Get Apps

Manage Parental Controls

Download Norton Security

Manage Users & Alerts

Reset My Password

Find My Account Number

Monitor Home Security

Upgrade My Service

Find My Xfinity Username

Get Help & Support

Program My Remote

Submit Feedback

Find an Xfinity Store

Move My Services

SHOP

Bundles & Promotions

Internet

Voice

Home

Xfinity Mobile

Customer Guarantee

TV

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Service in my Area

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Military Offers

Comcast Business

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Careers

Press Room

Corporate Site

Customer Agreements & Policies

Xfinity Internet Broadband Disclosures

Advertise with Us

Xfinity Voice: Use of Personal Info

Social Responsibility

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Visitor Agreement

Discover Xfinity

Sitemap

Privacy Statement Visitor Agreement

Attachment 6-Timeline/Project Management Plan

Project Name: Mendota Broadband Expansion Project

Applicant: Washington County, VA

Co-Applicant: Point Broadband

Mendota

Point Broadband

Project Lead - Noah Maden

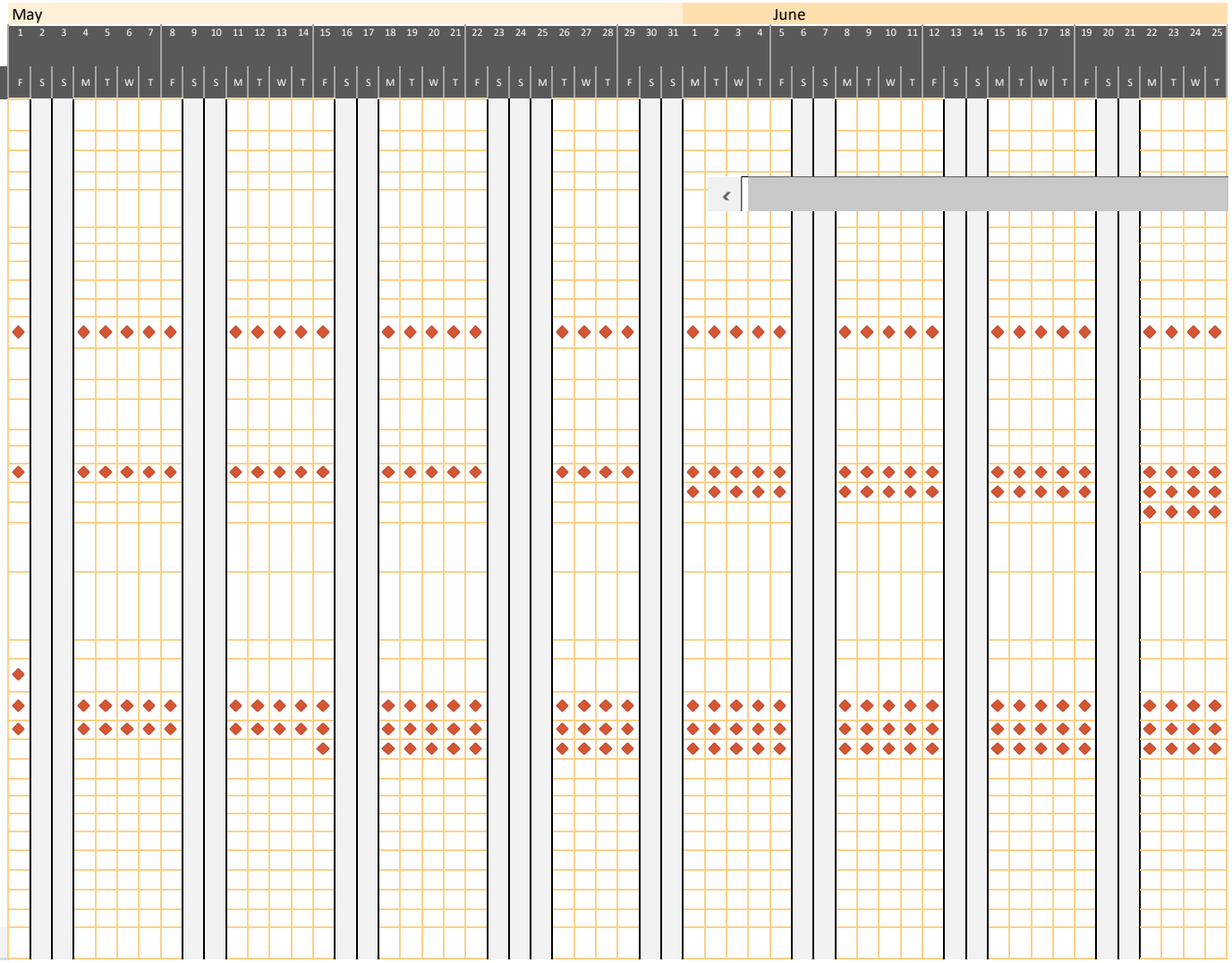
Project Start Date: 5/1/2020

Scrolling Increment: 0

Legend: On Track | Low Risk | Med Risk | High Risk | Unassigned

Milestone Description	Category	Assigned To	Progress	Start	Work Days	Cal Days
Route Development						
Project Approval	Milestone	Joe Puckett	0%	3/1/2020	1	2
Field Engineering	Goal	Mark Alldredge	50%	3/1/2020	30	41
Vetro Entry	Goal	Tyler Gillenwater	25%	3/15/2020	10	13
Final Engineering Review	Goal	Mark Alldredge	0%	4/1/2020	5	7
Splice Plan	Goal	Andy Hines	0%	4/8/2019	10	15
	Low Risk		0%		N/A	
Permitting						
Municipality	Goal	Mark Alldredge	0%	3/15/2020	15	20
DOT	Goal	Mark Alldredge	0%	3/15/2020	30	42
Power Co Pole Attachments	Goal	Mark Alldredge	0%	1/2/2020	150	213
ILEC Pole Attachment	On Track	N/A	0%		N/A	
Occupancy	On Track	N/A	0%		N/A	
Easement Acquisition	On Track	N/A	0%		N/A	
Railroad	On Track	N/A	0%		N/A	
Construction						
UG Backbone	Goal	Noah Maden	0%	5/1/2020	180	259
Aerial Lateral	Goal	Noah Maden	0%	6/1/2020	180	258
Splicing	Goal	Tommy Trent	0%	6/20/2020	180	258
Aerial Drop Installation & All Drop Splicing	Goal	Brian Jones	0%	6/30/2020	210	300
UG Drops Buried to the Prem / Inside Installation / Activation	Goal	Brian Jones	0%	6/30/2020	210	300
POP Construction						
Property Acquisition	Goal	Wade Clark	0%	3/1/2020	45	63
Pad and conduit installed	Goal	Tim Long	0%	4/15/2020	60	86
Power	Goal	Tim Long	0%	4/15/2020	60	86
Rack and Stack	Goal	Andy Hines	0%	5/15/2020	30	43
Marketing						
Direct Mail #1	Goal	Dave Whitmer	0%	6/30/2020	14	21
y Event	Goal	Dave Whitmer	0%	7/15/2020	1	1
Mail #2	Goal	Dave Whitmer	0%	7/30/2020	14	20
Comm	Goal	Dave Whitmer	0%	8/15/2020	1	3
Dials	Goal	Dave Whitmer	0%	6/30/2020	30	43
ect	Goal	Dave Whitmer	0%	7/30/2020	60	85
m	Goal	Dave Whitmer	0%	9/15/2020	1	1

To add more data, Insert new rows ABOVE this one



Holiday or Avoid

Days	Description
1/1/2018	New Years Day
3/30/2018	Good Friday
5/28/2018	Memorial Day
7/4/2018	Independence Day
9/3/2018	Labor Day
11/22/2018	Thanksgiving
11/23/2018	Thanksgiving
12/24/2018	Christmas Eve
12/25/2018	Christmas Day
1/1/2019	New Years Day
4/19/2019	Good Friday
5/27/2019	Memorial Day
7/4/2019	Independence Day
9/2/2019	Labor Day
11/28/2019	Thanksgiving
11/29/2019	Thanksgiving
12/24/2019	Christmas Eve
12/25/2019	Christmas Day
1/1/2020	New Years Day
4/10/2020	Good Friday
5/25/2020	Memorial Day
7/3/2020	Independence Day
9/7/2020	Labor Day
11/26/2020	Thanksgiving
11/27/2020	Thanksgiving
12/24/2020	Christmas Eve
12/25/2020	Christmas Day

Assumptions

Attachment 7-Relationship Between Applicant/Co-Applicant

Project Name: Mendota Broadband Expansion Project

Applicant: Washington County, VA

Co-Applicant: Point Broadband

This Attachment Includes:

- *Narrative*
- *Resolution- Washington County, VA Board of Supervisors*

Narrative:

Applicant Washington County supports efforts to provide internet service to residents of the Mendota community and surrounding area. On Tuesday, August 27, 2019 the Washington County Board of Supervisors passed a resolution supporting this application to the Virginia Telecommunications Initiative (VATI). If this project is funded, the Washington County Board of Supervisors will enter into an agreement with co-applicant Point Broadband to formalize partner roles and responsibilities. Examples of activities and responsibilities outlined in a future agreement would include a commitment of in-kind support from Washington County not to exceed a value of $10,000.

COUNTY OF WASHINGTON, VIRGINIA

COUNTY ADMINISTRATION
JASON N. BERRY
COUNTY ADMINISTRATOR
LUCY E. PHILLIPS
COUNTY ATTORNEY
GOVERNMENT CENTER BUILDING
1 GOVERNMENT CENTER PLACE
SUITE A
ABINGDON, VIRGINIA 24210
276-525-1300 TELEPHONE
276-525-1309 TELEFACSIMILE
WWW.WASHCOVA.COM

RESOLUTION 2019-21
BOARD SUPPORT FOR APPLICATION TO THE VIRGINIA TELECOMMUNICATION INITIATIVE (VATI)

WHEREAS, THE WASHINGTON COUNTY BOARD OF SUPERVISORS SUPPORTS AN APPLICATION FOR THE VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT'S VIRGINIA TELECOMMUNICATION INITIATIVE (VATI); AND

WHEREAS, WASHINGTON COUNTY WILL JOIN WITH POINT BROADBAND AS A CO-APPLICANT FOR THIS OPPORTUNITY TO ENHANCE BROADBAND SERVICES WHICH IMPROVE THE QUALITY OF LIFE FOR RESIDENTS AND BUSINESSES LOCATED IN UNSERVED AREAS OF THE COUNTY; AND

WHEREAS, THE VATI APPLICATION WILL REQUEST FUNDING ASSISTANCE TO PROVIDE NEW FIBER AND BROADBAND ACCESS TO SERVICEABLE UNITS LOCATED IN AND AROUND THE MENDOTA COMMUNITY; AND

NOW, THEREFORE, BE IT RESOLVED THAT: THE WASHINGTON COUNTY BOARD OF SUPERVISORS HEREBY GRANTS AUTHORITY FOR THE COUNTY ADMINISTRATOR TO EXECUTE THE REQUIRED GRANT AGREEMENTS NECESSARY TO SUPPORT THIS APPLICATION.

DONE THIS THE 27TH DAY OF AUGUST, 2019.

THE FOREGOING RESOLUTION WAS DULY ADOPTED BY THE FOLLOWING VOTE:

MR. MCCALL:	AYE
MR. PENNINGTON:	AYE
MS. MAYS:	AYE
MR. COPENHAVER:	AYE
MR. RUSH:	AYE
MR. HERNANDEZ:	AYE
MR. BALL:	AYE

JASON N. BERRY
COUNTY ADMINISTRATOR

Attachment 8- Letters of Support

Project Name: Mendota Broadband Expansion Project

Applicant: Washington County, VA

Co-Applicant: Point Broadband

INDUSTRIAL DEVELOPMENT AUTHORITY
OF WASHINGTON COUNTY
1 GOVERNMENT CENTER PLACE, SUITE D
ABINGDON, VIRGINIA 24210

(276) 628-8141
FAX (276) 628-3984

August 23, 2019

Ms. Whitney Czelusniak
Deputy County Administrator/Director
Economic Development & Community Relations
County of Washington, VA
1 Government Center Place, Suite A
Abingdon, VA 24210

RE: Letter of Support for County Application to the Virginia Telecommunications Initiative (VATI)

Dear Ms. Czelusniak:

I am writing to express the support of the County's funding request to the Virginia Telecommunication Initiative (VATI). The Industrial Development Authority of Washington County, VA recognizes the importance of infrastructure investments which contribute to long-term business growth and overall community vitality. We are proud of our past efforts to create pad-ready industrial sites that help to competitively position our location for future economic development opportunities.

Washington County's economic development goals seek to promote economic diversification through activities which precipitate talent attraction/retention, and new investments in technology-driven businesses. The IDA understands that access to reliable internet service is a fundamental location decision driver, quality of life attribute, and infrastructure need for information, technology, and knowledge-based industries and workers. As work spaces and operating structures for technology-driven businesses can be very diverse, the IDA recognizes that not only must our industrial and business parks feature robust telecommunications infrastructure, but internet connectivity should also be available to small businesses, ecotourism destinations, and residential areas throughout our County. A successful VATI award provides an impactful investment which supports our overall vision for economic diversification and will greatly benefit the residents and small businesses of the Mendota community.

Sincerely,

Randall Blevins
Chairman
Industrial Development Authority of Washington County, VA

MOUNT ROGERS PLANNING DISTRICT COMMISSION

TIM REEVES, Chairman
WILLIE GREENE, Vice-Chairman
BRENDA THOMPSON, Treasurer
AARON SIZEMORE, Executive Director

1021 Terrace Drive Marion, Virginia 24354 Phone 276-783-5103 Fax 276-783-6949

19, 2019

Ms. Whitney Czelusniak
Deputy County Administrator/Director
Economic Development & Community Relations
County of Washington, VA
1 Government Center Place, Suite A
Abingdon, VA 24210

RE: Letter of Support for County Application to the Virginia Telecommunications Initiative (VATI)

Dear Ms. Czelusniak:

I am writing to express the support of the County's funding request to the Virginia Telecommunication Initiative (VATI). The Mount Rogers Planning District Commission is a strong supporter of activities which seek to enhance broadband accessibility within our region. We are pleased that your community wishes to pursue a project which would result in numerous economic and community development benefits for the residents August and businesses of the Mendota community.

We support Washington County's economic development goals that promote economic diversification through activities which precipitate talent attraction/retention, and new investments in technology-driven businesses. Information, technology, and knowledge-based businesses often provide employees with flexibility to work from home or remote-based operations, thereby expanding the need to ensure internet accessibility in areas beyond traditional business parks and downtown districts. Furthermore, we recognize that from a quality of life and public safety perspective, internet accessibility is essential for our school-age population, and first responders who increasingly utilize digital and internet-interfacing tools and equipment. We are excited and hopeful that efforts to provide services to the Mendota community will soon come to fruition.

Good luck with your efforts!

Sincerely,

Aaron Sizemore
Mount Rogers Planning District Commission

Adventure Mendota
4457 Swinging Bridge Road
Mendota, VA 24270
(276) 645.1010

August 23, 2019

Mr. Jason Berry
Washington County Administrator
One Government Center Place
Abingdon, VA 24210

Dear Mr. Berry:

Thank you for providing me the opportunity to discuss the challenges of living and operating a small business in a rural area where reliable high-speed broadband is not available.

To understand our position, I will reacquaint you with Adventure Mendota, the small business my husband, Michael, and I own and operate. We have a river outfitter located on the North Fork of the Holston River in Mendota, Virginia featuring kayak rentals as our primary business. Adventure Mendota is primarily a downriver operation where guests rent kayaks and journey five river miles before arriving at a takeout point where we transport both kayaks and guests back to the base camp operation. During much of the five-mile river trip, guests kayak through a scenic but very remote area of the river. To-date, with five summer operating seasons complete, we have placed more than 10,000 guests down the river.

Adventure Mendota has the same challenges as other weather-dependent, outdoor recreation businesses, yet we have the added challenge of not having dependable, high-speed broadband.

At one time, my community had a tobacco-based economy--there were four stores, a school and a village where many lived and worked. Residents were not wealthy but there was a dignity in tobacco farming. When the traditional tobacco economy disappeared, residents began working in manufacturing or other types of job outside the community. Many moved away. Today we drive 17 miles to visit a grocery store and 11 miles for gasoline. However, it is a beautiful river valley, and one that Tri-Cities residents and tourists are re-discovering through Adventure Mendota. This year, a small seasonal store opened nearby which has been well received by my kayak guests and visitors to our community.

Likewise, Mountain Heritage owns and is currently developing the Mendota Trail. The Project Manager and General Counsel for Mountain Heritage, Attorney Frank Kilgore, feels that this trail

will eventually equal the Creeper Trail in popularity. He bases this on the landscape, grade of the trail, and the fact that a trailhead will exist near Bristol with easy access to tourists and residents. To date, 4.1 miles of the 12.2 mile trail are open to the public.

We feel we are poised for something very special for Southwest Virginia and Washington County as the Mendota Trail continues development. Adventure Mendota hopes to take our solid reputation and join bike companies in supporting this trail combining peddling and paddling. This would result in a business expansion with a longer operating season and number of employees.

Now, I want to discuss the internet and its value to my business. My existing internet service is adequate, but it is not reliable. I receive internet service from IGo Technology who is providing the service using microwave technology placed on the fire tower above Mendota. It requires line-of-sight to an antenna at the receiving location, thus limiting the number of subscribers. It's faster than satellite internet (HughesNet) which I've used before, but it may even be less reliable. The Clinch Mountain fire tower location makes the internet equipment vulnerable to electrical storms. This results in equipment failures, so the provider must "take down" service to protect equipment when there is a forecasted storm. This results in internet outages lasting from two hours to 24 hours, and these outages are during the summer when we ae trying to operate. In addition, the fire tower location receives its electrical power from AEP; and AEP subscribers in Mendota have a history of experiencing a high number of outages. In May of 2018, we experienced 11 outages during a 30-day period lasting anywhere between 3 hours to 48 hours. While I can and do power my home and Adventure Mendota's base camp with generators during these power outages, I cannot power the fire tower; so with each outage, I have no internet.

The internet is essential to operating my small business. I'll outline how in the following paragraphs:

Social media marketing: The internet allows me to move the Adventure Mendota story around and gain a solid following. I encourage you to look at Adventure Mendota's Facebook page which has thousands of "likes" and hundreds of positive reviews. During our operating season, guests smile for our cameras and that same evening, they visit Facebook or Instagram and recall the enjoyable time they had in the Great Outdoors at Adventure Mendota while looking at their pictures. Small groups are provided with Adventure Mendota videos of their experience. These guests share their pictures and videos with friends and these friends then visit. This marketing strategy results in exponential growth the entire summer. Likewise, if a weekend appears a bit slower than we'd like, we'll boost a Facebook post and the phone starts to ring. This effective, inexpensive marketing is powered by the internet.

However, when the internet is out, my marketing machine stops, and I must drive elsewhere and "borrow" internet. Even when it's working, since upload speed is much slower than download speed, what takes a few minutes with high-speed broadband, takes hours. In recent tourism

workshops, we're hearing how important video is to marketing. For me to upload a three-minute video to a You Tube Channel, I allocate three hours.

Safety: In an earlier paragraph, I mention that Adventure Mendota's guests are kayaking five river miles in an area that is very remote. There are no public roads or public exit points to get off the river during a storm for our kayakers. To prevent a kayak group from getting caught in a storm, we rely on WCYB's radar ap and it's look-forward feature. We are always looking 2-3 hours out to ensure a safe trip. When the internet is out—as it often is--we do not have this weather ap, and we must "roll the dice."

Payroll: Payroll is time sensitive. If it's not submitted timely, my employees do not get paid. Adventure Mendota uses Quick Books Online which works very well – but only when we have internet. On more than one occasion, the Lost Sock Laundry in Bristol, VA (17 miles from my home) has served as my internet so that my taxes and employees could be paid on time.

Point of sale: Adventure Mendota uses Square for our point of sale. When we opened our business and researched point-of-sale providers, we had to use a provider that allowed offline storage when there is no internet. Since Square had a buffering capability, it was our only choice. Square's per-transaction costs are higher than other point-of-sale systems; but without reliable internet, we must have the buffering. It allows me to continue accepting credit cards during the internet outages, but I have 48 hours to transmit them, so on occasion after a busy weekend and at night when my neighbors are tucked in, I am driving the 17 miles to the Lost Sock Laundry to hop on their wi-fi and allow my transactions to transmit and deposit.

Online booking: Without stable internet, this is not possible. It would be a great help to be able to offer online booking as we determine an expansion into biking as the Mendota Trail comes to life. Currently, if we had such a system, customers could book and cancel reservations themselves, but Adventure Mendota would be blind to what occurs during internet outages. At the present time, all reservations are manual (costly); and it does not allow booking at any time of day for our potential customers. They must wait until we answer the phone.

Overnight accommodations: Guests sometimes ask about staying in Mendota, and the Adventure Mendota umbrella includes overnight stays in our guest house. To date, the only complaint is that I advertised that we had internet in the guesthouse; but our guests--business people used to high-speed broadband--did not feel the internet sufficiently met their needs.

Communication: I have no cell phone service where I live. I have Century Link as my landline provider, and the service is poor (at best). With a smart phone and reliable high speed broadband, I could use my cell phone for wifi calling during the Century Link outages. Presently, I have *some* use of the cell phone in this manner but the internet is not robust enough for this to be very effective.

Off season disadvantage: Virginia is one of the states that Amazon allows work-from-home for their customer service. This would be a great asset for me during the offseason to work and pick

up extra income from my home. I have neighbors who would benefit from the same. However, the internet requirement by Amazon precludes satellite or arrangements such as I have with IGo. Naturally, they want high speed and reliability in the internet--something I do not have.

Other: Realtors share that one question they are always asked is "is broadband available?" Not having high-speed broadband affects the resale of our homes.

Education: Our local high school does not offer specific AP classes on site. They must be taken via the internet; yet our part of Washington County has places that internet is not readily available via even satellite.

My husband and I enjoy being small business owners. We've both worked in the corporate world but now owning our own business is very rewarding. We enjoy living in the rural environment where I was raised, and we are excited about being a "spark" in revitalizing an area and being part of a new, clean economy in Southwest Virginia.

Lastly, Michael is a retired broadband executive with some understanding of technology, and we have pushed our existing technology to the limit to facilitate our current needs. We squeeze every bit of reliability, cost savings and speed from our existing service. Owning a business during its first few years has many challenges, and it would be wonderful--and make my small business more competitive if this one challenge – the lack of reliable, high-speed internet--was removed.

We are not looking for a handout. We are looking for a level playing field. In the same manner that electricity flows into homes and businesses in Virginia, high speed broadband needs to do the same. It will improve the quality of life, provide income opportunities in these rural areas and allow businesses like mine to be competitive.

Thank you for your consideration. Hope to see you on the river next summer!!

Best regards,

Eva Beaule, Owner

Cc: Michael Beaule

Saul Hernandez, Tyler District Supervisor

August 26, 2019

Whitney Czelusniak
Washington Co. Economic Development
1 Government Center Place, Suite A
Abingdon, VA 24210

Dear Whitney:

It was a pleasure to speak with you concerning the upcoming proposal, and I am excited to hear Washington County is prioritizing rural broadband infrastructure. As a new resident of Abingdon who lives within the bounds of the proposed broadband expansion, the success of this project directly affects both my personal and professional life. The Appalachian region is very close to my heart and had significant weight in my recent job acceptance, but the lack of infrastructure outside of town is quite abysmal.

I work in the IT sector and require a "decent" internet connection and currently subscribe to the only provider available in my area (Hughes Net). Even when speeds reach 10 Mbps on a sunny day, latency is so horrible, many necessary applications cannot be used.

Additionally, I volunteer for several local organizations and with one, I am developing a computer science event for local schools. Before moving, I had hopes of starting a small part-time business helping others in the area with their IT needs. A reliable internet connection is vital in both of these circumstances and currently cannot support my efforts. I personally know new college graduates that are interested in the beauty of the Appalachian region but accepted jobs elsewhere because of the lack of infrastructure.

I sincerely hope the broadband expansion project breaks ground in 2020. It will be a vital step for the future of Southwest Virginia.

Respectfully,

Sadie Sweetman

Attachment 9-Documentation of Match Funding

Project Name: Mendota Broadband Expansion Project

Applicant: Washington County, VA

Co-Applicant: Point Broadband

This Attachment Includes:

- *Balance Sheet for Co-Applicant*

Sunset Digital Holding, LLC
Balance Sheet at December 31, 2018

Assets

Current Assets	
Cash and cash equivalents	$ 2,864,645
Accounts receivable	
Customers, net of allowance of $162,978	1,868,273
Other	101,101
Prepayments and other	680,711
Total current assets	5,514,730
Noncurrent Assets	
Goodwill, net	10,020,033
Other intangible assets, net	6,345,983
Other assets	53,872
Total noncurrent assets	16,419,888
Property, Plant, and Equipment	
Telecommunications plant in service	51,642,259
Construction and premise inventory	1,317,788
	52,960,047
Less accumulated depreciation	2,940,708
Net property, plant, and equipment	50,019,339
Total assets	$ 71,953,957

The accompanying notes are an integral part of these financial statements.

Liabilities and Shareholders' Equity

Current Liabilities		
Current maturities on long-term debt	$	218,652
Current portion of deferred grant proceeds for employment costs		47,222
Accounts payable		
Trade		1,853,138
Unearned revenue		921,716
Customer deposits and other customer prepayments		397,490
Accrued liabilities		
Taxes		801,926
Shareholders		538,569
Interest		370,348
Other		1,078,359
Total current liabilities		6,227,420
Long-Term Liabilities		
Notes payable		47,362,930
Less debt issuance costs		682,500
Less current maturities on long-term debt		218,652
Unearned revenue		563,885
Deferred grant proceeds for employment costs		160,555
Less current portion of deferred grant proceeds for employment costs		47,222
Total long-term liabilities		47,138,996
Total liabilities		53,366,416
Shareholders' Equity		
Capital contributions		23,200,000
Accumulated deficit		(4,612,459)
Total shareholders' equity		18,587,541
Total liabilities and shareholders' equity	$	71,953,957

Attachment 10-Funding Sources Table

Project Name: Mendota Broadband Expansion Project

Applicant: Washington County, VA

Co-Applicant: Point Broadband

VATI FUNDING SOURCES TABLE

Please fill in the chart below with a description of the project funding source (local, federal, state, private, other), the amount from that source, the percentage of total project funding that source represents, and a description of the current status of the funds (pending, secured, etc.).

Source	Amount	%	Status
REQUESTED VATI	$ 1,574,139	59	Pending
Private – Point Broadband	$ 1,093,893	41	SECURED
	$		
	$		
	$		
	$		
	$		
TOTAL	**$ 2,668,032**	**100**	

Attachment 11-Derivation of Costs

Project Name: Mendota Broadband Expansion Project

Applicant: Washington County, VA

Co-Applicant: Point Broadband

Product	Total	VATI	Non-VATI	Source of Estimate	Date
EXAMPLE					
Construction					
200 LF of fiber @$150/LF	$30,000	$15,000	$15,000	Company A	9/5/2016
Tower	$100,000	$80,000	$20,000	Company B	9/5/2016
Engineering	$20,000	$0	$20,000	ABC Engineering Firm	9/5/2016

Product	Total	VATI	Non-VATI	Source of Estimate	Date
Engineering and Project Management	**$ 806,868**	**$ 476,052**	**$ 330,816**	**Internal**	**8/29/2019**
Materials	**$ 612,663**	**$ 361,471**	**$ 251,192**	**Internal**	**8/29/2019**
Labor	**$ 892,100**	**$ 526,339**	**$ 365,761**	**Internal**	**8/29/2019**
Fixed Electronics & Optics	**$ 66,976**	**$ 39,516**	**$ 27,460**	**Internal**	**8/29/2019**
CPE/Drop/Installation	**$ 289,425**	**$ 170,761**	**$ 118,664**	**Internal**	**8/29/2019**
	$ -	**$ -**	**$ -**		
	$ -	**$ -**	**$ -**		
	$ -	**$ -**	**$ -**		
	$ -	**$ -**	**$ -**		

Attachment 12-Documentation of Supporting Costs

Project Name: Mendota Broadband Expansion Project

Applicant: Washington County, VA

Co-Applicant: Point Broadband

Supply Solutions, LLC
8107 PLAINWOOD AVE
STONEWOOD WV 26301
United States

Invoice

#INV3491

Sales Order #SO1632

07/29/2019

Bill To

SUNSET DIGITAL HOLDING, LLC
ACCOUNTS PAYABLE
WEST POINT GA 31833
United States

Ship To

SUNSET DIGITAL HOLDING, LLC
POINT BROADBAND LLC
15022 LEE HIGHWAY
FOUR POINTS SUITE #2
BRISTOL VA 24202
United States

TOTAL

$18,887.46

Due Date:
08/13/2019

Terms	Due Date	Customer PO #	Sales Rep	Shipping Method	Tracking Number
Net 15	08/13/2019	0701SupplyS	JN	Estes	123-0281429

Item	Qty Ordered	Qty Shipped	Qty B/O	Rate	Amount
800013673 CLOSURE, COYD928B	20	20	0	$442.95	$8,859.00
8006914 CLOSURE, COYOTE DROP CABLE, UNFILLED	15	15	0	$49.97	$749.55
800013672 CLOSURE, COYD622B	15	15	0	$190.00	$2,850.00
8006671 CLOSURE KIT, COYOTE RUNT CIFA#143376	20	20	0	$139.81	$2,796.20
LGSTS16 TRAY, LITE-GRIP, SHORT, 16/40CT 80808392BX, ARM # C02714 & T02520....	100	100	0	$19.80	$1,980.00

Subtotal	$17,234.75
Tax Total (%)	$950.65
Shipping Cost	$702.06
Total	$18,887.46

INV3491

Supply Solutions

Supply Solutions, LLC
8107 PLAINWOOD AVE
STONEWOOD WV 26301
United States

Invoice

#INV3653
Sales Order #SO2020
08/02/2019

Bill To

SUNSET DIGITAL HOLDING, LLC
ACCOUNTS PAYABLE
WEST POINT GA 31833
United States

Ship To

SUNSET DIGITAL HOLDING, LLC
POINT BROADBAND LLC
15022 LEE HIGHWAY
FOUR POINTS SUITE #2
BRISTOL VA 24202
United States

TOTAL

$4,132.84

Due Date:
08/17/2019

Terms	Due Date	Customer PO #	Sales Rep	Shipping Method	Tracking Number
Net 15	08/17/2019	0726Supply	JN	UPS	1Z99A2R30377413588 1Z99A2R30376253771 1Z99A2R30378128760 1Z99A2R30377254554 1Z99A2R30376712195

Item	Qty Ordered	Qty Shipped	Qty B/O	Rate	Amount
LGSTS16 TRAY, LITE-GRIP, SHORT, 16/40CT 80808392BX, ARM # C02714 & T02520	40	40	0	$19.80	$792.00
8003676 GROMMET, 7 HOLE GROMMET KIT FOR COYOTE	80	72	8	$10.75	$774.00
8003990 GROMMET, .50 - .60 (12.7 - 15.2) .125 - .25 (3.2 - 6.4) and Flat Drop, 4-hole	50	24	26	$10.75	$258.00
8006914 CLOSURE, COYOTE DROP CABLE, UNFILLED	40	7	33	$49.97	$349.79
CSSLH HEADS,CABLE SUPPORT , DELTEC, ARM # C01797 & T02847	1,000	0	1,000	$0.21	$0.00
CSS50B STRAP, DELTEC SYSTEM, ARM # C01796 & T02846	100	100	0	$16.35	$1,635.00

Subtotal	$3,808.79
Tax Total (%)	$208.02
Shipping Cost	$116.03
Total	$4,132.84
Amount Due	$4,132.84

INV3653

Supply Solutions, LLC
8107 PLAINWOOD AVE
STONEWOOD WV 26301
United States

Invoice

#INV1694
Sales Order #SO181
05/03/2019

Bill To

SUNSET DIGITAL HOLDING, LLC
SUNSET DIGITAL HOLDING, LLC
ACCOUNTS PAYABLE
WEST POINT GA 31833
United States

Ship To

SUNSET DIGITAL HOLDING, LLC
SUNSET DIGITAL HOLDING, LLC
333 FRALEY AVE
DUFFIELD VA 24244
United States

TOTAL

$173,913.48

Due Date:
06/02/2019

Terms	Due Date	Customer PO #	Sales Rep	Shipping Method	Tracking Number
Net 30	06/02/2019	10413		Drop Ship	

Item	Qty Ordered	Qty Shipped	Qty B/O	Rate	Amount
AT3BE27D6024CLIB FIBER, ADSS, Double Jkt PowerGuide ADSS Double PE Jkts, Dielectric Central Member ALLWAVE-SM-.35/.31/.25 db/km@1310/1385/1550 CABLE DIAMETER: 13.3 mm (.524 in.)	10,000	10,000	0	$0.369	$3,690.00
AT3BE27D6024CLIB FIBER, ADSS, Double Jkt PowerGuide ADSS Double PE Jkts, Dielectric Central Member ALLWAVE-SM-.35/.31/.25 db/km@1310/1385/1550 CABLE DIAMETER: 13.3 mm (.524 in.)	10,000	10,000	0	$0.369	$3,690.00
AT3BE27D6024CLIB FIBER, ADSS, Double Jkt PowerGuide ADSS Double PE Jkts, Dielectric Central Member ALLWAVE-SM-.35/.31/.25 db/km@1310/1385/1550 CABLE DIAMETER: 13.3 mm (.524 in.)	10,000	10,000	0	$0.369	$3,690.00
AT3BE27D6024CLIB FIBER, ADSS, Double Jkt PowerGuide ADSS Double PE Jkts, Dielectric Central Member ALLWAVE-SM-.35/.31/.25 db/km@1310/1385/1550 CABLE DIAMETER: 13.3 mm (.524 in.)	10,000	10,000	0	$0.369	$3,690.00
AT3BE27D6024CLIB FIBER, ADSS, Double Jkt PowerGuide ADSS Double PE Jkts, Dielectric Central Member ALLWAVE-SM-.35/.31/.25 db/km@1310/1385/1550 CABLE DIAMETER: 13.3 mm (.524 in.)	10,000	10,000	0	$0.369	$3,690.00
AT3BE27D6024CLIB FIBER, ADSS, Double Jkt PowerGuide ADSS Double PE Jkts, Dielectric Central Member ALLWAVE-SM-.35/.31/.25 db/km@1310/1385/1550 CABLE DIAMETER: 13.3 mm (.524 in.)	10,000	10,000	0	$0.369	$3,690.00
AT3BE27D6024CLIB FIBER, ADSS, Double Jkt PowerGuide ADSS Double PE Jkts, Dielectric Central Member ALLWAVE-SM-.35/.31/.25 db/km@1310/1385/1550 CABLE DIAMETER: 13.3 mm (.524 in.)	10,000	10,000	0	$0.369	$3,690.00

INV1694

Supply Solutions, LLC
8107 PLAINWOOD AVE
STONEWOOD WV 26301
United States

Invoice

#INV1694

Sales Order #SO181

05/03/2019

Item	Qty Ordered	Qty Shipped	Qty B/O	Rate	Amount
AT3BE27D6024CLIB FIBER, ADSS, Double Jkt PowerGuide ADSS Double PE Jkts, Dielectric Central Member ALLWAVE-SM-.35/.31/.25 db/km@1310/1385/1550 CABLE DIAMETER: 13.3 mm (.524 in.)	10,000	10,000	0	$0.369	$3,690.00
AT3BE27D6024CLIB FIBER, ADSS, Double Jkt PowerGuide ADSS Double PE Jkts, Dielectric Central Member ALLWAVE-SM-.35/.31/.25 db/km@1310/1385/1550 CABLE DIAMETER: 13.3 mm (.524 in.)	10,000	10,000	0	$0.369	$3,690.00
AT3BE27D6024CLIB FIBER, ADSS, Double Jkt PowerGuide ADSS Double PE Jkts, Dielectric Central Member ALLWAVE-SM-.35/.31/.25 db/km@1310/1385/1550 CABLE DIAMETER: 13.3 mm (.524 in.)	10,000	10,000	0	$0.369	$3,690.00
AT3BE27D6024CLIB FIBER, ADSS, Double Jkt PowerGuide ADSS Double PE Jkts, Dielectric Central Member ALLWAVE-SM-.35/.31/.25 db/km@1310/1385/1550 CABLE DIAMETER: 13.3 mm (.524 in.)	10,000	10,000	0	$0.369	$3,690.00
AT3BE27D6024CLIB FIBER, ADSS, Double Jkt PowerGuide ADSS Double PE Jkts, Dielectric Central Member ALLWAVE-SM-.35/.31/.25 db/km@1310/1385/1550 CABLE DIAMETER: 13.3 mm (.524 in.)	10,000	10,000	0	$0.369	$3,690.00
AT3BE27D6024CLIB FIBER, ADSS, Double Jkt PowerGuide ADSS Double PE Jkts, Dielectric Central Member ALLWAVE-SM-.35/.31/.25 db/km@1310/1385/1550 CABLE DIAMETER: 13.3 mm (.524 in.)	10,000	10,000	0	$0.369	$3,690.00
AT3BE27D6024CLIB FIBER, ADSS, Double Jkt PowerGuide ADSS Double PE Jkts, Dielectric Central Member ALLWAVE-SM-.35/.31/.25 db/km@1310/1385/1550 CABLE DIAMETER: 13.3 mm (.524 in.)	10,000	10,000	0	$0.369	$3,690.00
AT3BE27D6024CLIB FIBER, ADSS, Double Jkt PowerGuide ADSS Double PE Jkts, Dielectric Central Member ALLWAVE-SM-.35/.31/.25 db/km@1310/1385/1550 CABLE DIAMETER: 13.3 mm (.524 in.)	10,000	10,000	0	$0.369	$3,690.00
AT3BE27D6024CLIB FIBER, ADSS, Double Jkt PowerGuide ADSS Double PE Jkts, Dielectric Central Member ALLWAVE-SM-.35/.31/.25 db/km@1310/1385/1550 CABLE DIAMETER: 13.3 mm (.524 in.)	10,000	10,000	0	$0.369	$3,690.00

INV1694

Supply Solutions, LLC
8107 PLAINWOOD AVE
STONEWOOD WV 26301
United States

Invoice

#INV1694
Sales Order #SO181
05/03/2019

Item	Qty Ordered	Qty Shipped	Qty B/O	Rate	Amount
AT3BE27DT060CMBB FIBER, ADSS, DOUBLE JKT POWERGUIDE ADSS DOUBLE PE JKTS, DIELECTRIC CENTRAL MEMBER ALLWAVE-SM_.35/.31/.25 DB/KM@1310/1385/1550 CABLE DIAMETER: 13.4 MM (.528 IN.)	10,000	10,000	0	$0.515	$5,150.00
AT3BE27DT060CMBB FIBER, ADSS, DOUBLE JKT POWERGUIDE ADSS DOUBLE PE JKTS, DIELECTRIC CENTRAL MEMBER ALLWAVE-SM_.35/.31/.25 DB/KM@1310/1385/1550 CABLE DIAMETER: 13.4 MM (.528 IN.)	10,000	10,000	0	$0.515	$5,150.00
AT3BE27DT060CMBB FIBER, ADSS, DOUBLE JKT POWERGUIDE ADSS DOUBLE PE JKTS, DIELECTRIC CENTRAL MEMBER ALLWAVE-SM_.35/.31/.25 DB/KM@1310/1385/1550 CABLE DIAMETER: 13.4 MM (.528 IN.)	10,000	10,000	0	$0.515	$5,150.00
AT3BE27DT060CMBB FIBER, ADSS, DOUBLE JKT POWERGUIDE ADSS DOUBLE PE JKTS, DIELECTRIC CENTRAL MEMBER ALLWAVE-SM_.35/.31/.25 DB/KM@1310/1385/1550 CABLE DIAMETER: 13.4 MM (.528 IN.)	10,000	10,000	0	$0.515	$5,150.00
AT3BE27DT060CMBB FIBER, ADSS, DOUBLE JKT POWERGUIDE ADSS DOUBLE PE JKTS, DIELECTRIC CENTRAL MEMBER ALLWAVE-SM_.35/.31/.25 DB/KM@1310/1385/1550 CABLE DIAMETER: 13.4 MM (.528 IN.)	10,000	10,000	0	$0.515	$5,150.00
AT3BE27DT060CMBB FIBER, ADSS, DOUBLE JKT POWERGUIDE ADSS DOUBLE PE JKTS, DIELECTRIC CENTRAL MEMBER ALLWAVE-SM_.35/.31/.25 DB/KM@1310/1385/1550 CABLE DIAMETER: 13.4 MM (.528 IN.)	10,000	10,000	0	$0.515	$5,150.00
AT3BE27DT060CMBB FIBER, ADSS, DOUBLE JKT POWERGUIDE ADSS DOUBLE PE JKTS, DIELECTRIC CENTRAL MEMBER ALLWAVE-SM_.35/.31/.25 DB/KM@1310/1385/1550 CABLE DIAMETER: 13.4 MM (.528 IN.)	10,000	0	10,000	$0.515	$0.00
AT3BE27DT096CMDB FIBER, ADSS, 96CT, PowerGuide_96_F_AW_.35/.31/.25 @1310/1385/1550	10,000	10,000	0	$0.796	$7,960.00
AT3BE27DT096CMDB FIBER, ADSS, 96CT, PowerGuide_96_F_AW_.35/.31/.25 @1310/1385/1550	10,000	10,000	0	$0.796	$7,960.00
AT3BE27DT096CMDB FIBER, ADSS, 96CT, PowerGuide_96_F_AW_.35/.31/.25 @1310/1385/1550	10,000	10,000	0	$0.796	$7,960.00
AT3BE27DT096CMDB FIBER, ADSS, 96CT, PowerGuide_96_F_AW_.35/.31/.25 @1310/1385/1550	10,000	10,000	0	$0.796	$7,960.00

INV1694

Supply Solutions, LLC
8107 PLAINWOOD AVE
STONEWOOD WV 26301
United States

Invoice

#INV1694

Sales Order #SO181

05/03/2019

Item	Qty Ordered	Qty Shipped	Qty B/O	Rate	Amount
AT3BE27DT144CMCB FIBER, ADSS, 144CT, Double Jkt PowerGuide..ADSS Double PE Jkts, Dielectric Central Member..ALLWAVE-SM-.35/.31/.25 db/km@1310/1385/1550..CABLE DIAMETER: 20.7 MM (.815 IN.)	10,000	0	10,000	$1.108	$0.00
AT3BE27DT144CMCB FIBER, ADSS, 144CT, Double Jkt PowerGuide..ADSS Double PE Jkts, Dielectric Central Member..ALLWAVE-SM-.35/.31/.25 db/km@1310/1385/1550..CABLE DIAMETER: 20.7 MM (.815 IN.)	10,000	0	10,000	$1.108	$0.00
AT3BE27DT216CMIB FIBER, ADSS, 216CT, DOUBLE JKT..POWERGUIDE ADSS DOUBLE PE JKTS,..DIELECTRIC CENTRAL MEMBER..ALLWAVE-SM_.35/.31/.25 DB/KM..@1310/1385/1550NM CABLE DIAMETER:.21.1MM / .831 IN.	10,000	10,000	0	$1.446	$14,460.00
AT3BE27DT216CMIB FIBER, ADSS, 216CT, DOUBLE JKT..POWERGUIDE ADSS DOUBLE PE JKTS,..DIELECTRIC CENTRAL MEMBER..ALLWAVE-SM_.35/.31/.25 DB/KM..@1310/1385/1550NM CABLE DIAMETER:.21.1MM / .831 IN.	10,000	10,000	0	$1.446	$14,460.00
AT3BE27DT216CMIB FIBER, ADSS, 216CT, DOUBLE JKT..POWERGUIDE ADSS DOUBLE PE JKTS,..DIELECTRIC CENTRAL MEMBER..ALLWAVE-SM_.35/.31/.25 DB/KM..@1310/1385/1550NM CABLE DIAMETER:.21.1MM / .831 IN.	10,000	10,000	0	$1.446	$14,460.00

Subtotal	$165,160.00
Tax Total (%)	$8,753.48
Shipping Cost	$0.00
Total	$173,913.48

INV1694

Description	Supply Solutions Part No.	Average / Mile	U/M	Price	Extended
LASHING WIRE, .045X430, 1200' COIL	.045SS430ACW	9	EA.	$19.9500	$130.95
STRAND, 1/4" EHS CLASS A, DOMESTIC	EHSD1/4	5500	FT.	$0.1800	$990.00
WIRE, #6 BARE COPPER	1A0601S	250	FT.	$0.6500	$162.50
CLAMP, LASHING WIRE D TYPE	4040	50	EA.	$0.4000	$20.00
CLAMP, CROSSOVER	2909970	0.25	EA.	$1.6000	$0.40
STRAP, 10" STAINLESS STEEL	3408912	0	EA.	$0.2000	$0.00
STRAP, 16" STAINLESS STEEL	3408922	0	EA.	$0.2500	$0.00
GROUND ROD, 5/8" X 8' COPPER CLAD	6258	8	EA.	$14.1500	$113.20
SPACER, 1/2" BELL TYPE	7640B	0	EA.	$0.0600	$0.00
SPACER, 3/4", BELL	7640C	0	EA.	$0.0600	$0.00
CLAMP, GROUND ROD	2192	8	EA.	$1.2800	$10.24
PREFORM DEADEND, 1/4"	GDE1104LA	20	EA.	$1.2900	$25.80
SPLICE, STRAND, 1/4"	GLS1104	0.5	EA.	$3.0200	$1.51
WASHER, 2", SQUARE	11501	50	EA.	$0.3000	$15.00
CLAMP, 3-BOLT SUSPENSION	5080	20	EA.	$4.0500	$81.00
STRAP, DOWN GUY	8070	7	EA.	$2.2000	$15.40
GUARD, GUY, 8' YELLOW	PG-5718	7	EA.	$4.9500	$34.65
STAPLE, COPPER	J6493	70	EA.	$0.1000	$7.00
ROD, ANCHOR, 5/8" X 5'	5315	0	EA.	$16.9500	$0.00
NUT, THREADED EYE, 5/8"	J6510	6	EA.	$3.6500	$21.90
ANCHOR, 6" SCREW TYPE	6346	7	EA.	$20.8000	$145.60
ANCHOR, EXPANDING 8" (5/8 AND 3/4" ROD)	88135	0	EA.	$15.9000	$0.00
ANCHOR, EXPANDING, 10"	1082	0	EA.	$35.2900	$0.00
ANCHOR, ROCK 3/4" X 60"	R360	0	EA.	$43.3000	$0.00
ANCHOR, ROCK 3/4" X 30"	R330	0	EA.	$35.9000	$0.00
NUT, SLIP EYE, 5/8"	J6550C	5	EA.	$3.9500	$19.75
STAPLE, 2" GALV.	J7487	20	EA.	$0.0800	$1.60
CLAMP, 3-BOLT CURVE SUSPENSION	5083	4	EA.	$5.3700	$21.48
BOLT, 5/8" X 10" T.E.	J8051	1	EA.	$4.8400	$4.84
BOLT, 5/8" X 12" T.E.	J8052	2	EA.	$4.9200	$9.84
BOLT, 5/8" X 14" T.E.	J8053	2	EA.	$5.9400	$11.88
NUT, 5/8" SQUARE	8206	20	EA.	$0.2400	$4.80
BOLT, 10" X 5/8"	8810	1	EA.	$1.4100	$1.41
BOLT, 12" X 5/8"	8812	8	EA.	$1.7000	$13.60
BOLT, 14" X 5/8"	8814	4	EA.	$1.8000	$7.20
BOLT, 16" X 5/8"	8816	1	EA.	$2.6000	$2.60
SPLIT BOLT, #4	853	3	EA.	$0.9800	$2.94
CLAMP, UNIVERSAL BONDING	JCUL	7	EA.	$1.8200	$12.74
AUXILIARY EYE	BB155A	1	EA.	$11.9500	$11.95
GROUND WIRE MOLDING	PEGM1/2	8	EA.	$1.0000	$8.00
TREE GUARD, 2" X 6'	TG11	2	EA.	$2.9500	$5.90
HEAT SHRINK, 1.3"X48"	CFTV1300	0	EA.	$6.0000	$0.00
HEAT SHRINK, 1.5"X48"	CFTV1500	0	EA.	$6.1000	$0.00
HEAT SHRINK, 1.7"X48"	CFTV1700	0	EA.	$6.8000	$0.00
TAP BRACKET, 2-1/2" ALUMINUM	2919943	0	EA.	$2.3900	$0.00
FIBER OPTIC STORAGE SNOWSHOE, METAL, 10.25"	FOS10TMK	0	PR	$51.6000	$0.00
FIBER OPTIC STORAGE SNOWSHOE, METAL, 16.25"	FOS3TMK	0	PR	$55.7500	$0.00
FIBER MARKER	5005500	25	EA.	$2.2500	$56.25
HOOK, J 4 3/4" X 7/16"	J3316P	0	EA.	$0.6900	$0.00
WIRELINK, 1/4"	R5000	0	EA.	$9.0500	$0.00

WIRELINK, .109	R5059	0	EA.	$4.1400	$0.00
STRANDVISE, 1/4"	R5100	0	EA.	$8.8500	$0.00
WIREVISE, DEADEND, .109	R5058	0	EA.	$3.9600	$0.00
STRAP, DELTEC SYSTEM, 50'	CSS50R	1	EA.	$16.3500	$16.35
STACKABLE SPACER, DELTEC	CSS360	50	EA.	$0.1700	$8.50
HANGER, DELTEC	CSSLH	20	EA.	$0.2100	$4.20
					$1,988.28

Attachment 13-Supporting Documentation of Cost Estimates

Project Name: Mendota Broadband Expansion Project

Applicant: Washington County, VA

Co-Applicant: Point Broadband

Estimate for Mendota Grant

Homes		681
Footage		378,982
Total miles		71.78
Total cost of construction	$	2,378,606.51
Cost of Installation @ 50% take rate	$	289,425.00
TOTAL	**$**	**2,668,031.51**

Category	Item	QTY	Price	Unit	Cost
Engineering and Project Management	Field Engineering and Design	71.78	600.00	MI	43068.00
Engineering and Project Management	Pole Permits	25	500.00	Ea	12500.00
Engineering and Project Management	VDOT Permits	35	500.00	Ea	17500.00
Engineering and Project Management	Dedicated PM	160	100.00	Hr	16000.00
Engineering and Project Management	Poleline Makeready	71.78	10000.00	MI	717800.00
				TOTAL	**$ 806,868.00**
AE MATL	1/4" Strand	400000	0.14	FT	56000.00
AE MATL	Strand Hardware (includes DG, OHG, Lash Nut, Bolts etc.)	379000	0.47	FT	178130.00
AE MATL	144 Ct Fiber Cable	181911	0.92	FT	167358.45
AE MATL	60 Ct Fiber Cable	159172	0.47	FT	74811.05
AE MATL	24 CT fiber Cable	113695	0.26	FT	29560.60
AE MATL	Commscope FOSC D enclosure	10	313.00	Ea	3130.00
AE MATL	Commscope FOSC B enclosure	25	232.00	Ea	5800.00
AE MATL	Splice Tray 2 pak	48	30.00	Ea	1440.00
AE MATL	Coyote ATC kit	180	135.00	Ea	24300.00
AE MATL	Splice sleeves	4300	0.30	Ea	1290.00
AE MATL	OptiLoops	200	26.00	Ea	5200.00
				TOTAL	$ 547,020.09
				Tax and Handling	$ 65,642.41
				TOTAL	**$ 612,662.51**
AE LAB	Place Strand (Composite)	379000	0.70	FT	265300.00
AE LAB	Lash Fiber	379000	1.25	FT	473750.00
AE LAB	Overlash Fiber	0	1.00	FT	0.00
AE LAB	Splice fiber (includes OTDR)	4300	27.00	Ea	116100.00
AE LAB	Prep and Place Splice Case	35	165.00	Ea	5775.00
AE LAB	MidSheath Entry	215	145.00	Ea	31175.00
				TOTAL	**$ 892,100.00**
Fixed MATL	Calix E7 w/ two 8 port cards	1	18500.00	Ea	18500
Fixed MATL	10G optics	4	1125.00	Ea	4500
Fixed MATL	XFP	16	475.00	Ea	7600
Fixed MATL	288 Port LCP cabinet	2	6800.00	Ea	13600
Fixed MATL	1x32 splitter module	16	975.00	Ea	15600
				TOTAL	$ 59,800.00
				Tax and Handling	$ 7,176.00
				TOTAL	**$ 66,976.00**

Attachment 14-Form 477 Submissions

Project Name: Mendota Broadband Expansion Project

Applicant: Washington County, VA

Co-Applicant: Point Broadband

This Attachment Includes:

- *Two most recent Form 477 submitted to the FCC or equivalent*

(RETAIN FOR YOUR RECORDS)

Form 477 Filing Summary

FRN: 0006823991 Data as of: Dec 31, 2018 Operations: Non-ILEC Submission Status. Original - Submitted Last Updated: Mar 8, 2019 16:03:45

Filer Identification

Section	Question	Response
Filer Information	Provider Name	Sunset Fiber, LLC
	Hold ng Company Name	Sunset Fiber, LLC
	SAC ID	
	499 ID	822704
Data Contact Information	Data Contact Name	Chad Wachter
	Data Contact Phone Number	(708) 773-2663
	Data Contact E-ma l	cwachter@itchold.com
Emergency Operations Contact Information	Emergency Operations Name	Chad Wachter
	Emergency Operations Phone Number	(706) 773-2663
	Emergency Operations E-ma l	cwachter@itchold.com
Certifying Official Contact Information	Certifying Official Name	John Kemp
	Certifying Official Phone Number	(844) 407-6468
	Certifying Official E-mail	jkemp@itchold.com

Data Submitted

Form Section	File Name	Date & Time	Number of Rows
Fixed Broadband Deployment	2018-12-31_FCC477_Data_Deployment.csv	Mar 8, 2019 16:04:44	17096
Fixed Broadband Subscr ption	2018-12-31_BVU_FCC477_Fixed_Broadband_Subscription.csv	Mar 8, 2019 11:10:34	684
Fixed Voice Subscript on	2018-12-31_BVU_FCC477_Fixed_Voice_Data_Subscription.csv	Mar 7, 2019 15:39:41	74

Fixed Broadband Deployment

Census Block Counts by State, DBA Name and Technology

State	DBA Name	Technology	Blocks
Minnesota	OptiNet	Optical Carrier/Fiber to the End User	1
Tennessee	OptiNet	Optical Carrier/Fiber to the End User	1067
Texas	OptiNet	Optical Carrier/Fiber to the End User	1
Virginia	OptiNet	Optical Carrier/Fiber to the End Usur	16027
Total			17096

Fixed Broadband Subscription

Fixed Broadband Subscriptions by State, Technology and End-user Type

State	Technology	Census Tracts	Subscriptions		
			Consumer	Business / Govt	Total
Tennessee	Optica Carrier/Fiber to the End User	15	2	16	18
Virginia	Optica Carrier/Fiber to the End User	669	8053	2993	11046
Total		**684**	**8055**	**3009**	**11064**

Fixed Broadband Subscriptions by Bandwidths and End-user Type

Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Consumer	Business / Govt	Total
0.384	0.384	0	450	450
1.000	1.000	0	1	1
1.500	0.384	99	55	154
1.500	1.000	0	120	120
1.500	1.500	0	2	2
2.000	2.000	0	179	179
3.000	1.000	0	439	439
5.000	5.000	0	58	58
6.000	1.000	1	266	267
10.000	1.000	0	87	87
10.000	10.000	0	44	44
12.000	2.000	0	278	278
15.000	1.000	2317	1	2318
15.000	15.000	0	1	1
20.000	2.000	365	269	634
20.000	20.000	0	11	11
25.000	2.000	0	1	1
25.000	5.000	0	11	11
25.000	25.000	0	21	21
30.000	5.000	1978	301	2279
50.000	5.000	1917	169	2086
50.000	50.000	0	48	48
75.000	10.000	1250	0	1250
100.000	3.000	0	1	1
100.000	10.000	85	75	160
100.000	100.000	0	47	47

Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Consumer	Business / Govt	Total
150.000	20.000	43	0	43
150.000	150.000	0	21	21
200.000	20.000	0	8	8
200.000	200.000	0	18	18
300.000	50.000	0	2	2
300.000	300.000	0	1	1
400.000	400.000	0	1	1
500.000	500.000	0	3	3
600.000	600.000	0	1	1
1000.000	1000.000	0	15	15
2000.000	2000.000	0	1	1
5000.000	5000.000	0	2	2
10000.000	10000.000	0	1	1
Total		**8055**	**3009**	**11064**

Fixed Broadband Subscriptions by Technology, Bandwidths and End-user Type

Technology	Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Consumer	Business / Govt	Total
Optical Carrier/Fiber to the End User	0.384	0.384	0	450	450
	1.000	1.000	0	1	1
	1.500	0.384	99	55	154
	1.500	1.000	0	120	120
	1.600	1.500	0	2	2
	2.000	2.000	0	179	179
	3.000	1.000	0	439	439
	5.000	5.000	0	58	58
	6.000	1.000	1	266	267
	10.000	1.000	0	87	87
	10.000	10.000	0	44	44
	12.000	2.000	0	278	278
	15.000	1.000	2317	1	2318
	15.000	15.000	0	1	1
	20.000	2.000	365	269	634
	20.000	20.000	0	11	11
	25.000	2.000	0	1	1

Technology	Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Business / Consumer	Govt	Total
	25.000	5.000	0	11	11
	25.000	25.000	0	21	21
	30.000	5.000	1978	301	2279
	50.000	5.000	1917	169	2086
	50.000	50.000	0	48	48
	75.000	10.000	1250	0	1250
	100.000	3.000	0	1	1
	100.000	10.000	85	75	160
	100.000	100.000	0	47	47
	150.000	20.000	43	0	43
	150.000	150.000	0	21	21
	200.000	20.000	0	8	8
	200.000	200.000	0	18	18
	300.000	50.000	0	2	2
	300.000	300.000	0	1	1
	400.000	400.000	0	1	1
	500.000	500.000	0	3	3
	600.000	600.000	0	1	1
	1000.000	1000.000	0	15	15
	2000.000	2000.000	0	1	1
	5000.000	5000.000	0	2	2
	10000.000	10000.000	0	1	1
Total			8055	3009	11064

Fixed Voice Subscription

VGE Lines and VoIP Subscriptions by State and End-user Type

State	Total VGE Lines	Consumer VGE Lines	Total VoIP Subscriptions	Consumer VoIP Subscriptions
Minnesota	4	0	0	0
Tennessee	24	1	0	0
Texas	29	0	0	0
Virginia	12535	4859	0	0
Total	12592	4860	0	0

Fixed Voice Subscription (VGE Lines)

VGE Lines Provided to Unaffiliated Providers by State

State	Wholesale	UNE-L
Minnesota	0	0
Tennessee	493	0
Texas	0	0
Virginia	0	0
Total	**493**	**0**

VGE Lines Provided to End Users by State, Bundle and Product Type

		by Bundle		by Product Type			
				Consumer		Bus-Govt	
State	Total	Sold w/ Internet	Sold w/o Internet	& No PIC	& PIC	& No PIC	& PIC
Minnesota	4	4	0	0	0	0	4
Tennessee	24	24	0	0	1	0	23
Texas	29	0	29	0	0	0	29
Virginia	12535	10843	1692	774	4085	860	6816
Total	**12592**	**10871**	**1721**	**774**	**4086**	**860**	**6872**

VGE Lines Provided to End Users by State, Ownership and Last-mile Medium

		by Ownership			by Last-mile Medium			
State	Total	Owned	UNE-L	Resale	FTTP	Coax	Fixed Wireless	Copper
Minnesota	4	4	0	0	4	0	0	0
Tennessee	24	24	0	0	24	0	0	0
Texas	29	29	0	0	29	0	0	0
Virginia	12535	12535	0	0	12535	0	0	0
Total	**12592**	**12592**	**0**	**0**	**12592**	**0**	**0**	**0**

(RETAIN FOR YOUR RECORDS)

Form 477 Filing Summary

FRN: 0026198762 Data as of: Dec 31, 2018 Operations Non-ILEC Submission Status: Original - Submitted Last Updated Mar 7, 2019 15:29:20

Filer Identification

Section	Question	Response
Filer Information	Provider Name	Point Broadband, LLC
	Holding Company Name	Point Broadband, LLC
	SAC ID	
	499 ID	832079
Data Contact Information	Data Contact Name	Chad Wachter
	Data Contact Phone Number	(706) 773-2663
	Data Contact E-mail	cwachter@itchold.com
Emergency Operations Contact Information	Emergency Operations Name	Chad Wachter
	Emergency Operations Phone Number	(706) 773-2683
	Emergency Operations E-mail	cwachter@itchold.com
Certifying Official Contact Information	Certifying Official Name	Tanya Belk
	Certifying Official Phone Number	(706) 773-1015
	Certifying Official E-mail	tbelk@point-broadband.com

Data Submitted

Form Section	File Name	Date & Time	Number of Rows
Fixed Broadband Deployment	form477_deployments_QDfufQ.csv	Mar 6, 2019 17:55:52	1102
Fixed Broadband Subscription	form477_subscriptions_wiozJG.csv	Mar 6, 2019 17:56:26	148

Fixed Broadband Deployment

Census Block Counts by State, DBA Name and Technology

State	DBA Name	Technology	Blocks
Alabama	Point Broadband LLC	Terrestrial Fixed Wireless	204
Florida	Point Broadband LLC	Terrestrial Fixed Wireless	3
Georgia	Point Broadband LLC	Terrestrial Fixed Wireless	805
Louisiana	Point Broadband LLC	Asymmetric xDSL	4
		Terrestrial Fixed Wireless	22
Mississippi	Point Broadband LLC	Terrestrial Fixed Wireless	64
Total			1102

Fixed Broadband Subscription

Fixed Broadband Subscriptions by State, Technology and End-user Type

State	Technology	Census Tracts	Subscriptions		
			Consumer	Business / Govt	Total
Alabama	Terrestrial Fixed Wireless	48	409	27	436
Florida	Terrestrial Fixed Wireless	2	3	0	3
Georgia	Terrestrial Fixed Wireless	81	1607	95	1702
Louisiana	Asymmetric xDSL	1	5	0	5
	Terrestrial Fixed Wireless	2	82	1	83
Mississippi	Terrestrial Fixed Wireless	14	174	6	180
Total		**148**	**2280**	**129**	**2409**

Fixed Broadband Subscriptions by Bandwidths and End-user Type

Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Consumer	Business / Govt	Total
5.000	1.000	1	0	1
9.999	1.000	0	5	5
10.000	1.000	1183	32	1215
10.000	1.033	4	0	4
10.000	5.000	0	1	1
20.000	2.000	745	72	817
20.000	5.000	1	0	1
30.000	3.000	31	6	37
30.000	3.036	1	0	1
50.000	1.000	314	13	327
Total		**2280**	**129**	**2409**

Fixed Broadband Subscriptions by Technology, Bandwidths and End-user Type

Technology	Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Consumer	Business / Govt	Total
Asymmetric xDSL	10.000	1.000	5	0	5
Terrestrial Fixed Wireless	5.000	1.000	1	0	1
	9.999	1.000	0	5	5
	10.000	1.000	1178	32	1210
	10.000	1.033	4	0	4
	10.000	5.000	0	1	1
	20.000	2.000	745	72	817
	20.000	5.000	1	0	1

Technology	Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Consumer	Business / Govt	Total
	30.000	3.000	31	6	37
	30.000	3.036	1	0	1
	50.000	1.000	314	13	327
Total			**2280**	**129**	**2409**

Federal Communications Commission

(RETAIN FOR YOUR RECORDS)

Form 477 Filing Summary

FRN: **0010678001** Data as of: **Jun 30, 2018** Operations: **Non-ILEC** Submission Status: **Original - Submitted** Last Updated: **Dec 13, 2018 11:37:49**

Filer Identification

Section	Question	Response
Filer Information	Provider Name	Sunset Digital Communications, INC
	Holding Company Name	Sunset Digital Communications, Inc.
	SAC ID	
	499 ID	826320
Data Contact Information	Data Contact Name	Ryan B. Elswick
	Data Contact Phone Number	(276) 431-7200
	Data Contact E-mail	ryan@sunset-fiber.com
Emergency Operations Contact Information	Emergency Operations Name	Ryan B. Elswick
	Emergency Operations Phone Number	(276) 431-7200
	Emergency Operations E-mail	ryan@sunset-fiber.com
Certifying Official Contact Information	Certifying Official Name	Ryan B. Elswick
	Certifying Official Phone Number	(276) 431-7200
	Certifying Official E-mail	ryan@sunset-fiber.com

Data Submitted

Form Section	File Name	Date & Time	Number of Rows
Fixed Broadband Deployment	FBD_20180630.csv	Dec 13, 2018 11:31:00	1110
Fixed Broadband Subscription	FBS_20180630.csv	Dec 13, 2018 11:32:08	167
Fixed Voice Subscription	FVS_20180630.csv	Dec 13, 2018 11:32:35	23

Fixed Broadband Deployment

Census Block Counts by State, DBA Name and Technology

State	DBA Name	Technology	Blocks
Tennessee	Sunset Digital Communications, Inc.	Optical Carrier/Fiber to the End User	524
Virginia	Sunset Digital Communications, Inc.	Optical Carrier/Fiber to the End User	586
Total			**1110**

Fixed Broadband Subscription

Fixed Broadband Subscriptions by State, Technology and End-user Type

State	Technology	Census Tracts	Subscriptions		
			Consumer	Business / Govt	Total
Tennessee	Optical Carrier/Fiber to the End User	72	1801	36	1837

Virginia	Optical Carrier/Fiber to the End User	95	1460	67	1527
Total		**167**	**3261**	**103**	**3364**

Fixed Broadband Subscriptions by Bandwidths and End-user Type

Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Consumer	Business / Govt	Total
10.000	1.000	2425	0	2425
10.000	10.000	0	6	6
20.000	20.000	0	2	2
25.000	2.000	416	0	416
25.000	25.000	0	8	8
50.000	5.000	0	57	57
50.000	50.000	0	6	6
75.000	5.000	51	0	51
100.000	3.000	336	0	336
100.000	8.000	25	0	25
100.000	10.000	0	7	7
100.000	100.000	0	7	7
200.000	20.000	7	1	8
200.000	200.000	0	1	1
1000.000	50.000	1	0	1
1000.000	1000.000	0	5	5
3000.000	3000.000	0	2	2
10000.000	10000.000	0	1	1
Total		**3261**	**103**	**3364**

Fixed Broadband Subscriptions by Technology, Bandwidths and End-user Type

[illegible]	Downstream Bandwidth (in [illegible])	Upstream Bandwidth (in [illegible])	[illegible]	Business / [illegible]	[illegible]
Optical Carrier/Fiber to the End User	10.000	1.000	2425	0	2425
	10.000	10.000	0	6	6
	20.000	20.000	0	2	2
	25.000	2.000	416	0	416
	25.000	25.000	0	8	8
	50.000	5.000	0	57	57
	50.000	50.000	0	6	6
	75.000	5.000	51	0	51
	100.000	3.000	336	0	336
	100.000	8.000	25	0	25
	100.000	10.000	0	7	7

	100.000	100.000	0	7	7
	200.000	20.000	7	1	8
	200.000	200.000	0	1	1
	1000.000	50.000	1	0	1
	1000.000	1000.000	0	5	5
	3000.000	3000.000	0	2	2
	10000.000	10000.000	0	1	1
Total			**3261**	**103**	**3364**

Fixed Voice Subscription

VGE Lines and VoIP Subscriptions by State and End-user Type

State	Total VGE Lines	Consumer VGE Lines	Total VoIP Subscriptions	Consumer VoIP Subscriptions
Tennessee	0	0	457	421
Virginia	0	0	206	168
Total	**0**	**0**	**663**	**589**

Fixed Voice Subscription (iVoIP)

Over-the-top VoIP Subscriptions by State and End-user Type

State	Total	Consumer	Business / Govt
Tennessee	0	0	0
Virginia	0	0	0
Total	**0**	**0**	**0**

All other VoIP Subscriptions by State, End-user Type, Bundle and Last-mile Medium

		by End-user Type		by Bundle		by Last-mile Medium			
State	Total	Consumer	Business / Government	Sold w/ Internet	Sold w/o Internet	FTTP	Coax	Fixed Wireless	Copper
Tennessee	457	421	36	450	7	457	0	0	0
Virginia	206	168	38	9	197	206	0	0	0
Total	**663**	**589**	**74**	**459**	**204**	**663**	**0**	**0**	**0**

Attachment 15-Copy of Public Notice

Project Name: Mendota Broadband Expansion Project

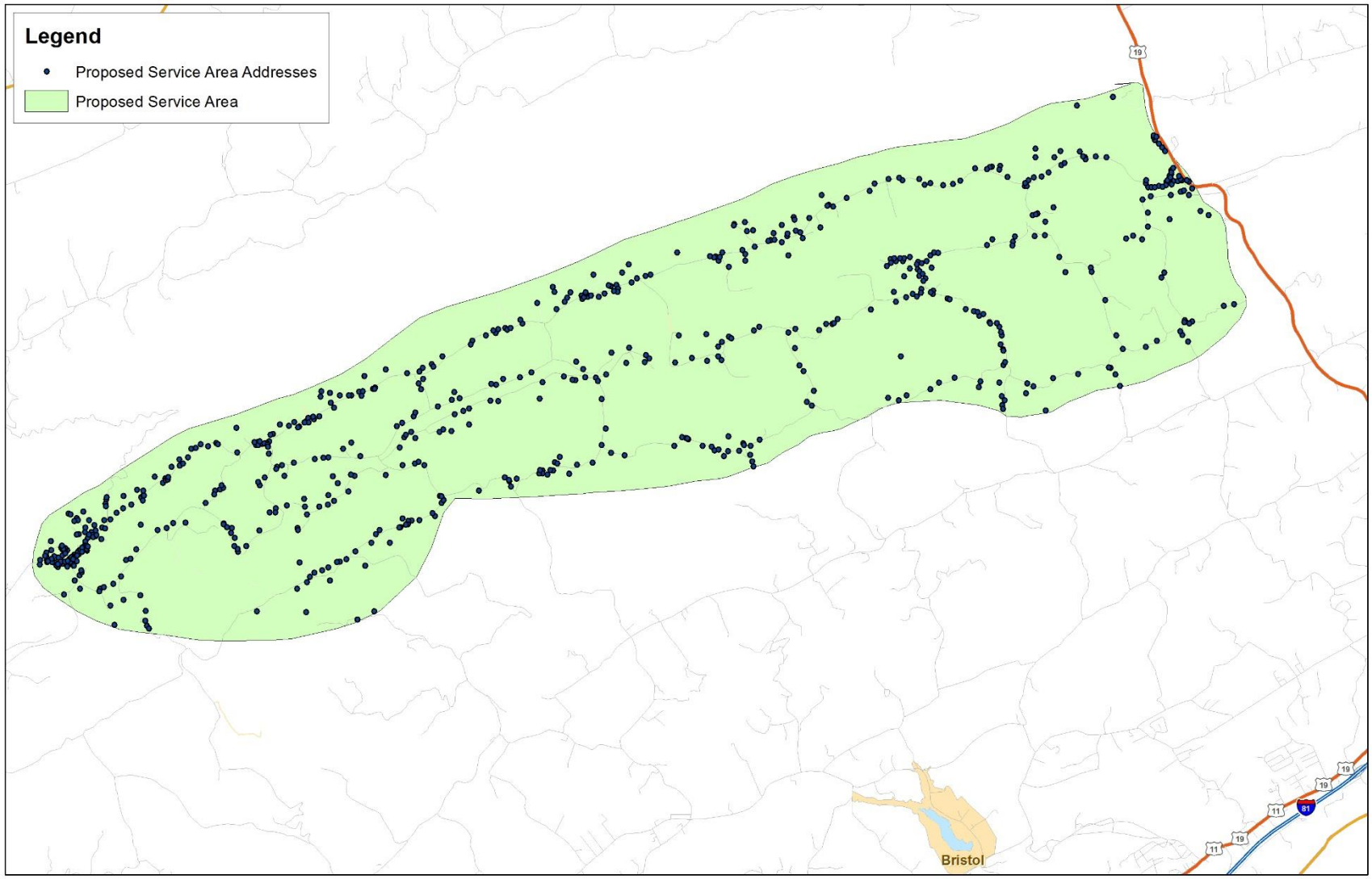
Applicant: Washington County, VA

Co-Applicant: Point Broadband

This Attachment Includes:

- *Official Project Public Notice- Mendota Broadband Expansion Project*

Mendota Broadband Expansion Project



The Washington County Board of Supervisors and its co-applicant, Point Broadband, will be submitting a grant application to the VATI program for the Mendota area of Washington County. The application passes 679 definable E-911 addresses. The Virginia Department of Housing and Community Development (DHCD) will implement the Virginia Telecommunication Initiative (VATI). The goal of VATI is to enhance sustainability and growth of communities throughout the Commonwealth by preparing those communities to build, utilize, and capitalize on telecommunications infrastructure. Consistent with the enabling legislation, DHCD will award the $19 million FY 2020 appropriation to eligible applicants to provide last-mile services to unserved areas of the State. DHCD reserves the flexibility to award any amount to eligible grantees, depending entirely on the quality and quantity of applications received. The primary objective of VATI is to provide financial assistance to supplement construction costs by private sector broadband service providers, in partnership with local units of government to extend service to areas that presently are unserved by any broadband provider.

Attachment 16-SWVA Telecommunications Needs Assessment

Project Name: Mendota Broadband Expansion Project

Applicant: Washington County, VA

Co-Applicant: Point Broadband

This Attachment Includes:

- *Study-Telecommunications Needs Assessment and Development of Remedial Strategies for Southwest Virginia. This document cross-referenced in Project Narrative Question 3 and Question 17.*

Telecommunications Needs Assessment and Development of Remedial Strategies for Southwest Virginia

Prepared for:

The Virginia Department of Housing and Community Development

The Town of Nickelsville

LENOWISCO, Cumberland Plateau, and Mount Rogers PDCs

May 8, 2019

Prepared by

THOMPSON & LITTON

and

BRASG
Blue Ridge Advisory Services Group

1 Table of Contents

2 EXECUTIVE SUMMARY

This report documents a comprehensive needs assessment of the telecommunications services in thirteen counties and three cities in Planning Districts 1, 2 and 3 in Southwest Virginia.

The rural parts of Southwest Virginia are largely under-served, with some areas completely *unserved*, by broadband providers. The low population density in the region and the highly challenging geography -- the Appalachian Mountain range -- make it unlikely that the region's leaders will be able to rely on the private sector to solve this problem – if there were a market-based business case, the investor-owned service providers would already be serving.

With few exceptions, the Incumbent Local Exchange Carriers' traditional copper and cable networks are insufficient to meet the current and future bandwidth needs of the region. Due to the financial impracticality of deploying current-technology networks, most incumbent local exchange carriers have neglected to extend, upgrade, or expand their networks in the region. Through public and private investment funds, others have built middle-mile fiber along the main corridors but generally without a last-mile solution.

This lack of ubiquitous, affordable, reliable broadband has had an ongoing impact on the region. In many areas covered in this study, populations are declining. Communities are having difficulties retaining youth. Economies are stagnant and lacking the means to grow. Residents are frustrated and, in some cases, indignant about the lack of broadband and wireless. Students are falling behind. Small businesses cannot compete. Larger businesses are moving out of the region. Not all of these maladies are caused by lack of sufficient broadband services, but it is certainly a contributing factor.

The need and demand for broadband communications services is great. The demand is sufficient to justify a long-term public investment. The total projected cost for broadband is estimated at $52 Million. This represents a high-level estimate of the total cost to solve the last-mile issue at 62 high-priority communities within the three Planning Districts. This cost estimate is based upon leveraging the existing investments made by the Virginia Tobacco Region Revitalization Commission, the Virginia Coalfield Economic Development Authority, the EDA, and other providers of capital in the regional communications infrastructure. The plan calls for approximately -372 miles of new backbone fiber and 931 miles of drops, resulting in an estimated cost of $ 7,584 per home. The investment will pass over 9,800 homes and it is estimated 6,884 will subscribe to service. It must be noted that these unserved and underserved 62 communities are the most difficult to reach with the sparsest population density. Also, once the backbone is built to serve these communities, additional incremental (those not subscribing to service in the initial buildout) can be added for approximately $2,200 per residence, depending upon drop length.

The following table displays the breakdown of the residences to be served, the miles of backbone and drops, and total estimated cost to remediate the targeted areas by Planning District.

Cost Estimate	Regional Total	PDC 1	PDC 2	PDC 3
Homes Passed	**9,831**	1,368	4,574	3,889
No. of Customers (at take rate)	**6,884**	957	3,202	2,725
Miles of Backbone	**372**	70	126	177
Miles of Drop	**931**	130	433	368
Total Cost (EST)	**$ 52,207,296**	$ 8,662,984	$ 20,566,494	$ 22,977,817
Cost per Home	**$ 7,584**	$ 9,052	$ 6,423	$ 8,432

This $52 million investment will not solve all of the regional connectivity problems. It will however, address access to high-speed Internet service for the communities in the greatest need.

Additionally, this plan does not address wireless services (cellular) in the region. Simply put, there is no path forward to improving commercial wireless services in the region without a partnership/collaboration with one of the major wireless operators. The region has immense potential to build upon the wireless infrastructure deployed for the 4g project, but it is fruitless to build additional towers, distributed antennae systems, or microcells in hopes that a wireless service provider will use the assets. Wireless operators are inscrutable in their network planning and never use assets simply because they have been made available.

The prioritized list of communities to be addressed are presented in Section 5 of this report. For implementation of this plan we recommend that the regional leaders find a way to formalize a relationship with Scott County Telephone Cooperative, Citizens Telephone Cooperative, and CPC Broadband. All three of these organizations have displayed a long history of *purpose-over-profit* and shared values with the regional planning leaders to improve the quality of life in the region and drive economic development. For any collaboration to work, shared values is the most important characteristic for success.

To fund this plan Section 7.2 of the Appendices lists the resources available to improve the lack of broadband services in the identified communities. It is recommended that a separate legal entity be organized to address the connectivity issues (broadband and

wireless) in the 13 -county region. Additionally, that Executive Director must be tasked with specific accountabilities (and rewards) to seek funding for these high priority communities. In short, all of rural America will be competing for these funds. The regional leaders must become tireless advocates for the region's communications needs.

Intuitively, everyone understands there is a correlation between investments in broadband and economic development. The relationships are well studied and there are a number of scholarly articles that quantify the impacts of investment in rural broadband and economic growth, specifically:

- Gross Domestic Product Per capita Increase,
- Median Household Income Increase, and
- Productivity Increase

One of the more recent studies commissioned by the World Bank, studied the economic impact in developing economies:

Digital Dividends. Exploring the Relationship Between Broadband and Economic Growth, by Michael Minges, 2016.

The study concludes that a 10 percentage point increase in fixed broadband penetration would increase GDP growth by 1.21% in developed economies and 1.38% in developing ones. The GDP of the 13 county region is approximately $12 Billion annually. The resulting economic impact in the region from the proposed investment can be expected to yield between $145 Million and $166 Million of economic growth, recurring annually.

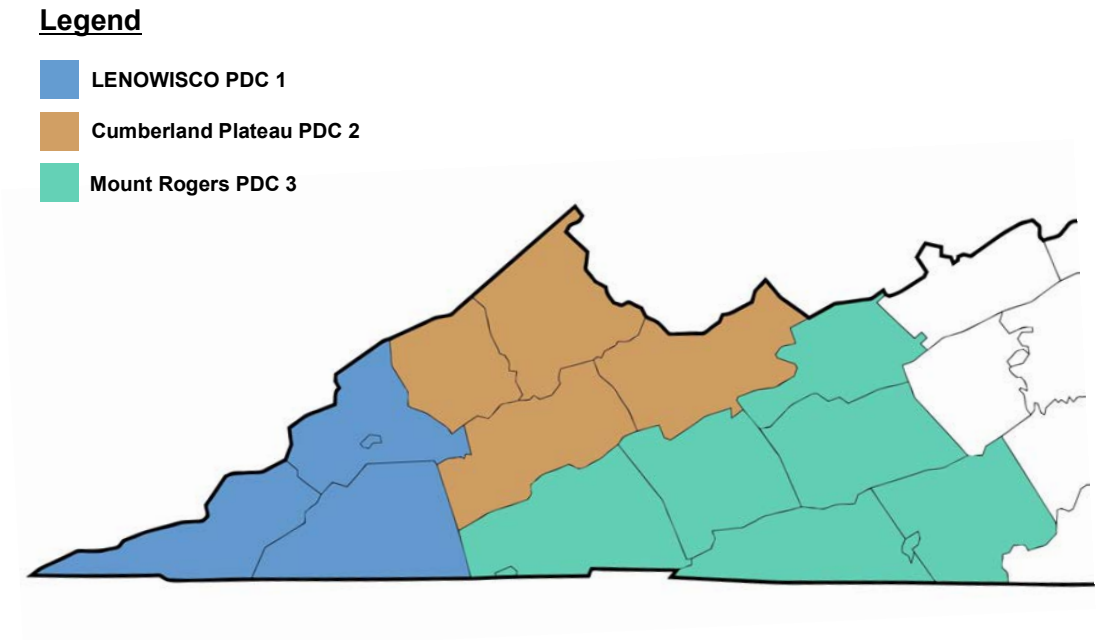
There are hundreds of scholarly articles supporting this expectation.

3 INTRODUCTION

This report documents a comprehensive needs assessment of the telecommunications services in thirteen counties and three cities in Planning Districts 1, 2 and 3 in Southwest Virginia.

3.1 Project Area

Broadband Project Assessment Area – SW VA



Despite the fact that Southwest Virginia has seen over $160 mm in capital investment over the last 20 years to improve the communications infrastructure, the region still has significant gaps in coverage. In 2016, a study by the Virginia Chamber of Commerce indicated that only 53 percent of rural Virginians had access to broadband Internet compared to urban areas with 96 percent.

During the course of this study, many communities have come forward to highlight the fact that there are areas completely unserved and underserved, and that many services are unaffordable. This outcry prompted leaders within the planning districts to strive to help improve high-speed Internet service, emergency communications service, and wireless service.

The areas studied are outlined in the following table. Across the region, population densities are low, and counties and cities are losing population due to the lack of vibrant economies. To support a growing economy, the region must have sufficient infrastructure and technologies.

Region	2010 Census	2018 Estimate	Percent Change	Square Miles	Density per Sq. Mile
Bland	6,824	6,432	-6%	358	18
Bristol city	17,835	16,877	-5%	13	1,297
Buchanan	24,098	21,576	-10%	503	43
Carroll	30,042	29,141	-3%	475	61
Dickenson	15,903	14,516	-9%	331	44
Galax City	7,042	6,587	-6%	8	799
Grayson	15,533	15,330	-1%	442	35
Lee	25,587	23,994	-6%	436	55
Norton City	3,958	3,908	-1%	7	522
Russell	28,897	27,057	-6%	474	57
Scott	23,177	22,121	-5%	536	41
Smyth	32,208	30,475	-5%	451	68
Tazewell	45,078	41,973	-7%	519	81
Washington	54,876	53,992	-2%	561	96
Wise	41,452	38,386	-7%	403	95
Wythe	29,235	28,650	-2%	462	62
Total/Average	**401,745**	**381,015**	**-5%**	**5,977**	**211**

3.2 Project Team

Thompson and Litton Engineers

Thompson & Litton Engineers (T&L), a local professional services firm, was selected to develop the study. T&L teamed with Blue Ridge Advisory Services Group, Inc. (Blue Ridge) to complete a comprehensive needs assessment and identify potential remedial solutions for the LENOWISCO (PDC 1), Cumberland Plateau (PDC 2), and Mount Rogers (PDC 3) planning districts.

T&L has over 100 employees in eight offices, offering an array of engineering, architectural, surveying, planning and construction services throughout Southwest Virginia, Tennessee, and West Virginia. T&L has designed 15 broadband projects and numerous wireless deployment projects since 2006.

With offices in Wise, Tazewell, and Chilhowie, T&L has a presence in each PDC associated with this study and is committed to providing superior service to the people within the region, as it has since 1956.

T&L's related project experiences include:

- Roanoke Valley Broadband Authority
- Citizens Telephone Cooperative
- Bristol VA Utilities/Cumberland Plateau
- Virginia Coalfield Coalition
- Verizon Wireless
- AT&T Mobility
- Nextel Communications
- SBA Communications
- Roanoke County, Virginia
- Virginia State Police

Blue Ridge Advisory Services Group

Blue Ridge Advisory Services Group (Blue Ridge) is a professional services firm that has been serving the telecommunications sector for 20 years. The firm provides strategies, business plans, feasibility studies, financial modeling, and other value-added related services to bring about actionable plans to improve communities.

Blue Ridge's related project experience includes:

- Dominion Energy Telecommunications,
- DukeNet,
- CaroNet,
- TVA Telecom,
- Bonneville Power Telecom,
- Mid-Atlantic Broadband (and LIT Networks),
- Virginia Coalfield Coalition 4g Wireless.
- LENOWISCO LLC
- Roanoke Valley Broadband Authority
- Consolidated Cooperative FTTH Initiative

The study is being funded by a grant from the Appalachian Regional Commission (ARC) and Virginia Department of Housing and Community Development (DHCD). It is sponsored by the Town of Nickelsville, the Cumberland Plateau, LENOWISCO and Mount Rogers PDCs, and the Virginia Coalfield Coalition (VCC). The results of this study will serve to increase awareness and knowledge of where the broadband gaps are and hopefully lead to improved broadband choices for all residents, businesses, and visitors in Southwest Virginia.

3.3 Deliverables

The final deliverables of this study include this written report, as well as two presentations to the management team. The first presentation was made in February 2019 and was followed by a second presentation in April 2019. All work products are the property of the ARC, DHCD, the VCC, the three PDCs, and the Town of Nickelsville.

3.4 Methodology

T&L and Blue Ridge worked with a cross-functional management team of regional representatives to define:

- Accomplishments in the Region,
- Community Needs,
- Regional Needs,
- Remedial Strategies and Associated Costs,
- Prioritized List of Communities in Greatest Need,
- Potential Funding Sources and Strategies, and
- Potential Service Providers.

To identify the specific needs of each community (as well as the regional needs identified in Section 7.1 of the Appendices to this report) Blue Ridge conducted 40 interviews with key stakeholders in the region, covering 13 counties and 3 cities in Southwest Virginia, including:

- 8 with LENOWISCO
- 6 with Cumberland Plateau
- 8 with Mount Rogers
- 7 with industry leaders/stakeholders in the region
- 11 with telecom service providers that are active in the region

3.5 Accomplishments in Southwest Virginia

Over the past 20 years, approximately $168 Million dollars of public investments have been made in Planning Districts 1, 2 and 3 to enhance broadband communication. The following table shows a breakdown of those investments by planning district.

Planning District	Amount Invested
LENOWISCO	$ 71,579,167
Cumberland Plateau	$ 45,758,931
Mount Rogers	$ 50,383,291
Total Public Investment in Planning Districts 1, 2, & 3	**$167,721,389**

Beginning in 2000, the PDCs, realizing that the Internet was more than a passing fad, began to aggressively integrate broadband planning into their regional planning. Attitudes towards broadband gradually shifted from being considered an *amenity* to being recognized as a *necessity*. Broadband has become a quality of life issue and a necessity for ensuring economic development in every region. Essentially, it is the modern day equivalent of the Rural Electrification Act from the 1930s that brought electricity to rural America. In fact, today many are calling broadband "*the fifth utility*."

On a national level, investments are being made in tele-health, school system technology, distance learning, and emergency preparedness. Telecommunications grants and loans are being made to improve services in each of these critical areas within the study area.

While some of these grant awards were single purpose and would not allow broadband operators to maximize their use by connecting all classes of commercial and residential customers in some cases, technology investment has driven and enhanced economic development in certain areas. A prime example of this is the Southwest Virginia Technology Center of Excellence, which is a software development and systems integration facility in the town of Lebanon in Russell County. CGI Group Inc., the fifth largest independent information technology and business process services firm in the world, invested in the area because of the grant-funded fiber optic backbone. Northrop Grumman Corporation, an American global aerospace and defense technology company, is also located in Lebanon.

Other examples include DP Facilities, Inc. data center in Wise County and Sykes Enterprises' call centers in Buchanan and Wise Counties. Norton (PDC 1) has a Medicare transportation call center and one of its partners – the medical records data center - is in Duffield (Scott County). It is billed as "the first Tier 4 commercial data center in the US."

4 Regional Needs

The region's needs to support technology-enabled, quality-of-life-improving applications were identified by interviewing key stakeholders throughout the three planning districts. Regional leaders view broadband as a necessity - a "4th utility." Some county leaders have taken the lack of broadband into their own hands and have begun their own initiatives to secure better services (Grayson County's RFP, for example).

Major Trends

These viewpoints and initiatives demonstrate the following major trends/needs that were identified during the interview process:

- Plenty of middle-mile fiber exists in the region but there is **very little last mile connection**, especially in the more rural areas/off the main corridors. This presents a real need for a last-mile solution, as several providers have deployed fiber in the region along the major corridors but haven't extended the lines. The existing last mile providers, the incumbent local exchange carriers (ILECs), have not invested in upgrading their networks to adequately serve customers or ensure reliability in service.
- Broadband is available in areas with higher densities (cities such as Bristol and/or Norton), but issues include **unaffordable prices, lack of competition, and low quality of service**
- Some areas lack the basics - *cable TV* and/or reliable *landline* service
- **Cellular service is spotty** throughout parts of the region; there is no comprehensive cellular solution. *Some areas still run on 3G.*
- Residents in the more rural areas seem to tolerate the lack of coverage. Visitors and prospective investors -- who are accustomed to better services -- do NOT. They take their business elsewhere.

Impact on Economic Development

While there is adequate connectivity to most of the industrial parks in the region, the lack of broadband in many areas has a profound impact on economic development.

- **Attracting Investment** - Prospective companies expect broadband to be available & won't wait for it to be built to suit. If a business expects to locate, high speed broadband with 4G is anticipated. Potential investors who cannot place a phone call from their cell phones are immediately turned off.
- **Tourism** - Tourists don't come back without cell service.
- **Infrastructure** - Broadband infrastructure is key to economic survival. Can't "get in the game" or even "sit on the bench" without it.
- **Workforce** - It's a serious "workforce issue" for retaining employees or getting new hires to relocate. Non-traditional, virtual jobs, and work from home will become more and more the future.

- **Innovation** - Broadband is necessary to foster innovation and to retain young people -- largest export is educated youth.
- **Real Estate** - Impacts home sales, as there is a noted lower demand for homes without access to broadband
- **Farming** - Impacts farming as operations become more technology-driven

Impact on Citizens

- **Options** - Without fiber and broadband, communities are unable to develop and provide advanced services
- **Price** - Consumers experience substantial pricing differentials across the region, depending on the level of competition
- **Speeds** – There is a gap between what's advertised and what residents are experiencing, plus asymmetry between upload and download speeds

Impact on Emergency Medical Services

- Seamless emergency services communication is necessary
- A large concern by EMS is reaching tourists who cannot place cellular calls from remote areas
- Some people have to use landlines to call 911. As an illustration, in Haysi, if a call doesn't go through, it doesn't get forwarded, and callers have no access to emergency service.

Impact on Educational System

- Schools are well connected, but there is a major disconnect between school and home accessibility, also known as the "homework gap"

5 PRIORITIZATION OF COMMUNITIES

To prioritize the communities, the following methodology was agreed upon and used:

Rank	Criteria	Weight
1	**Level of Need**	**50 points**
	a) Un-served	
	b) Underserved	
2	**Number of Potential Connections**	**30 points**
3	**Cost**	**20 points**
	a) Backbone Connection Cost	
	b) Cost Per Connection (wireless, fiber)	

5.1 Broadband – Target Areas for Improvement

The following areas have been identified as targets for remediation in descending order of priority.

PDC 1 -- Broadband

PDC 1 - LENOWISCO								
Priority	County	Target Area for Improvement - Broadband	Homes Passed	Cost per Customer	Customers (at take rate)	Backbone Miles	Drop Miles	Total Estimated Cost
1	Lee	District 5 (north of 58 Alt)	62	$ 8,100	43	3	6	$ 348,313
2	Scott	Gate City to Duffield	366	$ 10,688	256	24	35	$ 2,736,206
3	Wise	Appalachia - Stonega	268	$ 6,388	188	7	25	$ 1,201,032
4	Wise	Appalachia - Exeter	260	$ 6,578	182	8	25	$ 1,197,236
5	Wise	Coeburn	150	$ 7,005	105	5	14	$ 735,528
6	Wise	Guest River	103	$ 10,309	72	6	10	$ 742,264
7	Wise	Birchfield	91	$ 12,389	64	7	9	$ 792,921
8	Lee	Blackwater	39	$ 19,884	27	6	4	$ 536,867
9	Wise	Hurricane	29	$ 18,631	20	4	3	$ 372,618
		TOTAL - PDC 1	**1,368**	**$ 9,052**	**957**	**70**	**129**	**$ 8,662,984**

PDC 2 -- Broadband

PDC 2 - CUMBERLAND PLATEAU								
Priority	County	Target Area for Improvement - Broadband	Homes Passed	Cost per Customer	Customers (at take rate)	Backbone Miles	Drop Miles	Total Estimated Cost
1	Tazewell	Baptist Valley	712	$ 3,671	498	2	67	$ 1,828,233
2	Dickenson	Haysi	37	$ 5,454	26	1	4	$ 141,813
3	Russell	Cleveland to Carbo	690	$ 4,246	483	6	65	$ 2,050,899
4	Buchanan	Council to Davenport	473	$ 3,415	331	0	45	$ 1,130,458
5	Tazewell	Abbs Valley	370	$ 3,899	259	2	35	$ 1,009,884
6	Tazewell	Gratton Valley	341	$ 5,317	239	6	32	$ 1,270,687
7	Dickenson	Honey Camp	85	$ 9,467	60	5	8	$ 568,009
8	Buchanan	Conaway	77	$ 10,159	54	5	7	$ 548,573
9	Buchanan	Big Rock	76	$ 7,936	53	3	7	$ 420,621
10	Tazewell	Richlands to Jewell Ridge	248	$ 7,172	174	9	23	$ 1,247,892
11	Buchanan	Dismal River Rd to Whitewood	234	$ 11,460	164	17	22	$ 1,879,384
12	Dickenson	Clinchco	112	$ 4,267	78	1	11	$ 332,822
13	Tazewell/Buchanan	Jewell Ridge to Bearwallow	63	$ 13,490	44	6	6	$ 593,565
14	Tazewell	Thompson Valley	167	$ 11,241	117	12	16	$ 1,315,201
15	Russell	Green Valley Rd	139	$ 7,311	97	5	13	$ 709,206
16	Russell	Belfast Mills	129	$ 7,011	90	4	12	$ 630,976
17	Tazewell	Tannersville	122	$ 13,576	85	11	12	$ 1,153,952
18	Buchanan	Home Creek	105	$ 7,835	74	4	10	$ 579,798
19	Buchanan	Hurricane Creek	89	$ 9,166	62	5	8	$ 568,297
20	Dickenson	Breaks	78	$ 8,462	55	4	7	$ 465,385
21	Buchanan	Hurley	57	$ 9,021	40	3	5	$ 360,833
22	Dickenson	Hill Ridge	56	$ 6,974	39	2	5	$ 271,981
23	Dickenson	Lick Creek	79	$ 16,872	55	10	7	$ 927,987
24	Buchanan	Bearwallow to Peapatch	35	$ 22,402	25	6	3	$ 560,039
		TOTAL - PDC 2	**4,484**	**$ 209,957**	**3,139**	**126**	**425**	**$ 20,566,494**

PDC 3 -- Broadband

PDC 3 - MOUNT ROGERS									
Priority	County	Target Area for Improvement - Broadband	Homes Passed	Cost per Customer	Customers (at take rate)	Backbone Miles	Drop Miles	Total Estimated Cost
1	Washington	South of Glade Spring	182	$ 7,733	127	7	17	$ 982,091
2	Bland	Ceres	39	$ 6,271	27	1	4	$ 169,327
3	Grayson	Providence to Fries	374	$ 4,548	262	4	35	$ 1,191,642
4	Smyth	Sugar Grove	301	$ 4,910	211	4	29	$ 1,035,967
5	Bland	Clear Fork	113	$ 13,752	79	11	11	$ 1,086,374
6	Smyth	Rich Valley	443	$ 6,863	310	14	42	$ 2,127,419
7	Bland	Bland to Holly Brook	283	$ 10,703	198	19	27	$ 2,119,121
8	Carroll	Hillsville to Fancy Gap	254	$ 7,132	178	9	24	$ 1,269,484
9	Washington	Damascus	182	$ 3,768	127	1	17	$ 478,483
10	Wythe	Austinville	175	$ 5,955	123	4	17	$ 732,497
11	Bland	Grapefield	96	$ 16,083	67	11	9	$ 1,077,560
12	Grayson	Independence to Elk Creek	185	$ 9,485	130	10	18	$ 1,233,007
13	Bland	Dry Fork	151	$ 8,958	106	8	14	$ 949,500
14	Grayson	Baywood	76	$ 6,313	53	2	7	$ 334,601
15	Washington	Mendota	63	$ 4,959	44	1	6	$ 218,205
16	Grayson	Galax to Old Town	60	$ 5,962	42	1	6	$ 250,419
17	Washington	Hayter's Gap	45	$ 9,927	32	3	4	$ 317,649
18	Smyth	Chilhowie Industrial Park	1	$ 88,852	1	1	0	$ 88,852
19	Bland	Little Creek	119	$ 15,516	83	13	11	$ 1,287,826
20	Carroll	Dugspur to Laurel Fork	105	$ 15,285	74	11	10	$ 1,131,108
21	Grayson	Independence to Bridle Creek	101	$ 9,296	71	5	10	$ 660,010
22	Wythe	Castleton Road	98	$ 9,239	69	5	9	$ 637,484
23	Carroll	South of Woodlawn	73	$ 8,112	51	3	7	$ 413,735
24	Wythe	Barren Springs	53	$ 8,221	37	2	5	$ 304,195
25	Grayson	East of Troutdale	25	$ 7,217	18	1	2	$ 129,910
26	Grayson	Mouth of Wilson to Rugby	87	$ 14,762	61	9	8	$ 900,503
27	Grayson	Rte 58 to Providence	77	$ 12,331	54	6	7	$ 665,873
28	Grayson	Elk Creek to Comers Rock	74	$ 9,816	52	4	7	$ 510,407
29	Grayson	Bridle Creek to Mouth of Wilson	54	$ 17,752	38	7	5	$ 674,567
		TOTAL - PDC 3	**3,889**	**$ 349,720**	**2,725**	**177**	**368**	**$ 22,977,817**

5.2 Broadband Prioritized Target Areas for Improvement; All PDCs

Ranking	PDC	County	Target Area for Improvement - Broadband
1	PDC2	Tazewell	Baptist Valley
2	PDC3	Washington	South of Glade Spring
3	PDC3	Bland	Ceres
4	PDC2	Dickenson	Haysi
5	PDC2	Russell	Cleveland to Carbo
6	PDC2	Buchanan	Council to Davenport
7	PDC3	Grayson	Providence to Fries
8	PDC2	Tazewell	Abbs Valley
9	PDC2	Tazewell	Gratton Valley
10	PDC3	Smyth	Sugar Grove
11	PDC3	Bland	Clear Fork
12	PDC2	Dickenson	Honey Camp
13	PDC2	Buchanan	Conaway
14	PDC2	Buchanan	Big Rock
15	PDC1	Lee	District 5 (north of 58 Alt)
16	PDC3	Smyth	Rich Valley
17	PDC1	Scott	Gate City to Duffield
18	PDC3	Bland	Bland to Holly Brook
19	PDC1	Wise	Appalachia - Stonega
20	PDC1	Wise	Appalachia - Exeter
21	PDC3	Carroll	Hillsville to Fancy Gap
22	PDC2	Tazewell	Richlands to Jewell Ridge
23	PDC2	Buchanan	Dismal River Rd to Whitewood
24	PDC3	Washington	Damascus
25	PDC3	Wythe	Austinville
26	PDC2	Dickenson	Clinchco
27	PDC3	Bland	Grapefield
28	PDC2	Tazewell/Buchanan	Jewell Ridge to Bearwallow
29	PDC3	Grayson	Independence to Elk Creek
30	PDC2	Tazewell	Thompson Valley
31	PDC3	Bland	Dry Fork
32	PDC1	Wise	Coeburn
33	PDC2	Russell	Green Valley Rd
34	PDC2	Russell	Belfast Mills
35	PDC3	Grayson	Baywood
36	PDC3	Washington	Mendota
37	PDC3	Grayson	Galax to Old Town
38	PDC3	Washington	Hayter's Gap
39	PDC3	Smyth	Chilhowie Industrial Park
40	PDC2	Tazewell	Tannersville
41	PDC3	Bland	Little Creek
42	PDC3	Carroll	Dugspur to Laurel Fork
43	PDC2	Buchanan	Home Creek
44	PDC1	Wise	Guest River
45	PDC3	Grayson	Independence to Bridle Creek
46	PDC3	Wythe	Castleton Road
47	PDC2	Buchanan	Hurricane Creek
48	PDC2	Dickenson	Breaks
49	PDC3	Carroll	South of Woodlawn
50	PDC2	Buchanan	Hurley
51	PDC2	Dickenson	Hill Ridge
52	PDC3	Wythe	Barren Springs
53	PDC3	Grayson	East of Troutdale
54	PDC1	Wise	Birchfield
55	PDC3	Grayson	Mouth of Wilson to Rugby
56	PDC2	Dickenson	Lick Creek
57	PDC3	Grayson	Rte 58 to Providence
58	PDC3	Grayson	Elk Creek to Comers Rock
59	PDC3	Grayson	Bridle Creek to Mouth of Wilson
60	PDC1	Lee	Blackwater
61	PDC2	Buchanan	Bearwallow to Peapatch
62	PDC1	Wise	Hurricane

5.3 Cellular – Target Areas for Improvement

PDC 1 – Wireless

PDC 1	
County	**Target Area for Improvement - Cellular**
Lee	Blackwater
Lee	Ewing
Lee	Flatwoods
Lee	Keokee
Lee	LMU Vet School
Lee	Rose Hill
Lee	St Charles
Norton	Flag Rock Recreation Area
Norton	Hawthorne Drive
Scott	Clinchport to Dungannon
Scott	Dungannon
Scott	Fort Blackmore
Scott	Gate City to Duffield
Scott	Gate City to Nickelsville
Scott	Nickelsville
Scott/Russell	Nickelsville to Lebanon (Russell County, 30 mi)
Scott	Rye Cove
Scott	Twin Springs
Wise	Airport
Wise	Appalachia
Wise	Coeburn
Wise	Guest River area (NW of Norton, N of Blackwood)
Wise	Pound
Wise	Wise (past the airport towards Dickenson County)

PDC 2 – Wireless

PDC 2	
County	**Target Area for Improvement - Cellular**
Buchanan	US 460 Vansant to Richlands
Buchanan/Dickenson/Russell	Route 80/Scenic Bike Trail
Dickenson	Clintwood to St. Paul
Dickenson	Edwards Ridge
Dickenson	Haysi
Dickenson	Lick Creek
Russell	Cleveland
Russell	Dante
Russell	Honaker
Russell	Lebanon to Hansonville
Russell/Washington	Hansonville to Abingdon

PDC 3 – Wireless

PDC 3	
County	**Target Area for Improvement - Cellular**
Bland	Ceres
Bland	Clear Fork
Bland	Dry Fork
Bland	Grapefield
Bland	Holly Brook
Bland	Little Creek
Carroll	Dugspur
Carroll	Laurel Fork
Carroll	S of Woodlawn/NE of Lambsburg
Washington	Abingdon

Wireless Service in the Future

Unlike Broadband Service, little can be done by the regional leaders to improve wireless communications without the full cooperation and assistance of a major wireless carrier.

It is impossible to forecast the total capital cost to improve the wireless coverage in these unserved communities. The recent 4g wireless project undertaken by the Virginia Coalfield Coalition resulted in significant regional coverage expansion (estimated at 90% of the population in PDCs 1 and 2) for $15 Million, with a matching capital expenditure by a carrier. It is reasonable to estimate that a similar budget would be required to achieve 100% coverage.

One thing is clear from the initial 4g wireless initiative. There can be no economic development, eco-tourism, smart communities, smart electric grid, autonomous vehicles, or anything of the like without solid wireless communications network.

5th Generation Wireless (5G).

The next evolution of wireless communications (mobile point-to-multipoint communications, sometimes called "cellular") is called 5th Generation Wireless or 5G. 5G is a standards-based protocol that enables much higher data transmission speed to wireless devices than any previous standard.

Why is 5G important? 5th generation wireless will enable speeds of up to 4 gigabits per second. That is 80 times faster than the speeds experienced on a 4g LTE network. Our world is becoming increasingly more dependent upon mobile data. Things like Smart Cities, Smart Grid, Hi-definition Tele Health, and Autonomous Vehicles will all require 5G.

What is the network like? 5G operates at a much higher wave frequency than any of the previous generation's networks. This means the signals will travel shorter distances and not be able to travel through impediments. However, the frequencies will carry much greater data payloads.

The FCC concluded its first 5G spectrum auction this year in the 28 GHz band, and its auction of 24 GHz spectrum is taking place right now. Later this year, the FCC will auction the upper 37 GHz, 39 GHz, and 47 GHz bands.

5G will require a completely different network architecture and infrastructure than is currently in place. Instead of 200 foot-tall towers with large macro cells that can cover miles of territory, 5G will require small-cell or micro-cell architecture that broadcasts only a few hundred feet. It is generally believed that 5G cells will be required every thousand feet or so. Cells will be placed on light poles, utility poles, rooftops, and sides of buildings. The cells are small and require less power than macro cells. A key component of the network is fiber optic cable, as all cells must be connected with fiber to meet the bandwidth and latency requirements.

When will 5G be deployed? Carriers are working on beta tests and early network testing in a handful of metropolitan markets. The complete spectrum auction being managed by the FCC will not be completed until the end of 2019. Mobile handset makers like Apple will not release a 5G phone until late 2020 or 2021. 5G will not be widely available for several years. The initial deployments that have been announced are all major metropolitan areas. It is unknown how long, if ever, 5G will be deployed in rural markets like our three Planning Districts. ***There is nothing expected from 5G that would disrupt the plan outlined in this document for the foreseeable planning horizon.***

6 Recommendations and Next Steps

It is neither the purpose nor the intention of this study to point out the obvious to the leadership of PDCs 1, 2, and 3. The situation is plainly known to every planner, politician, stakeholder, and citizen in the region – **the communications infrastructure in Southwest Virginia is woefully inadequate to move the region forward**.

There are areas of breakthrough performance that can be pointed to as major successes:

1. LIT Networks bringing direct fiber connectivity and terabit speeds to the region from Ashburn thus enabling the development of critical data centers. Lowering the cost of wholesale Internet for all regional service providers. And providing diversity to the major Internet NAPs in Atlanta Georgia with ring protection.

2. Scott County Telephone's, Citizens Telephone's, and Sunset Digital's Fiber to the Home (FTTH) initiatives delivering gigabit speeds to residential customers.

3. The VCC 4g wireless project which enabled 4th generation wireless services to reach a reported 90% of the population of PDC's 1 and 2 (excluding Scott and Tazewell Counties).

4. CPC Broadband (formerly CPC OptiNet) is a subsidiary company of the Cumberland Plateau PDC. It was organized to serve Russell, Dickenson, Tazewell, and Buchanan Counties. Partnering with Point Broadband the Company has obtained over $37 million in grant funding for the construction of 700 miles of fiber optic broadband backbone that is now serving almost 900 industrial, commercial, governmental and educational institutions in the region, including Northrup Grumman, Sykes, Pyott-Boone, and Dickenson County Public Schools.

Yet, despite these successes, the plain truth is that without service **ubiquitously** in the region, there can be no sustainable economic development, job creation and retention, and work force development.

The purpose of this report is to identify a prioritized inventory of areas to address; presented in Section 5. Our recommendations for implementing improvement are as follows:

6.1 Recommendations

1. Address the broadband problem on a regional basis as three PDC's, not individually, competing against one another for scarce resources. Consider forming a separate legal entity (or repurposing an existing one like the VCC) specifically to attack solving the broadband problems in the region. Hire a

dedicated Executive Director and task him/her with time-specific and measurable goals. Link compensation to goal attainment.

2. This report presents a priority list by PDC, and a single integrated list. There are economies of scale to network deployment. It may be far more cost effective to attack the highest priority from PDC 3 and a middle priority from PDC 2 at the same time. This should be considered before undertaking a strict buildout of the presented priorities.

3. Formalize agreements with SCTC, Citizens, and CPC Broadband that outline the mechanics of how network will be funded, deployed, operated, and maintained, including any revenue sharing.

4. Continue to encourage WISPs such as iGo, HillCom, and Gigabeam to deploy their wireless networks in unserved markets. While wireless is neither as robust nor as high-a-quality service as fiber, this is a situation where anything is better than nothing for the unserved customer. The encouragement can come in the form of discounted costs for tower attachment, access to dark fiber, and assistance with grant/loan programs.

5. Ignore the notion that some communities may eventually be served by virtue of the Connect America Fund. The FCC Connect America Fund recipients are not obligated to serve customers for up to six years. The unserved residents of Southwest Virginia need service NOW.

6. Attain legislative assistance, particularly for wireless (cellular) deployments. Several times in this report it has been noted that there is no path forward for wireless expansion without a carrier's participation. When the VCC implemented the 4g wireless program in 2011, it was only possible because of the leadership of Delegate Kilgore and the Tobacco Commission striking a deal with a commercial wireless provider.

7. Strive to get Southwest Virginia broadband worked into the annual state budget. Governor Northam has noted several times that rural broadband is a priority for his administration. In December 2018, the Governor announced plans to ask the General Assembly to commit $46 million in the state's upcoming budget to assist rural areas of Virginia to get broadband Internet access. The Southwest Legislative Delegation should strive for a specific earmark for the region.

7 ATTACHMENTS AND APPENDICES

7.1 COMMUNITY NEEDS APPENDIX

LENOWISCO

The following table shows the population change and density per square mile for PDC 1 – LENOWISCO (Lee, Norton, Wise, and Scott).

PDC 1	2010 Census	2018 Estimate	Percent Change	Square Miles	Density/Sq. Mile
Lee	25,587	23,994	-6%	436	55
Norton City	3,958	3,908	-1%	7	522
Wise	41,452	38,386	-7%	403	95
Scott	23,177	22,121	-5%	536	41
Total/Average	94,174	88,409	-5%	1,382	68

Lee County

Lee County is served by Comcast and Verizon with additional services provided by Sunset Digital Communications.

Pennington Gap and Jonesville are the main population centers within the county and are relatively well served. However, St. Charles and the surrounding communities are not as well served. A few areas reported no telephone service in inclement weather and a complete void of multi-channel video service. Of course, high speed Internet service is non-existent. Business services are limited.

From Rose Hill westward toward Cumberland Gap, complaints about broadband service have been ongoing for years.

Verizon, the Incumbent Local Exchange Carriers (ILEC) in the region, is offering broadband services using DSL in some portions of the region. DSL has a physical

distance limitation that precludes it from being widely available. Even then, DSL is insufficient to meet the current FCC definition of broadband. Because of the technology limitations, it is understood there are no upgrades forthcoming for DSL that will keep pace with current bandwidth services in most of the nation.

Poor cellular service is a common complaint. New towers are being planned in Lee County for emergency services. The county planners are building these towers to accommodate commercial carriers in the hope that macro cells will be collocated on these towers and improve that wireless situation. To date, no commercial carriers have shown an interest in these new towers. Local officials understand that cellular wireless service is inadequate throughout the county and that it is an impediment to sustainability.

Communities identified as high-priority for broadband expansion are:

- District 5 (north of 58 Alt)
- Keokee
- Blackwater
- Flatwoods
- Rose Hill
- Ewing

"The two things which we must overcome as a community and as a region is the challenge of overcoming the older generation/leaders' way of thinking and planning for the expected exponential change in [broadband] capacity needs in the future." – Leton Harding, Powell Valley National Bank

Wise County

Wise County receives most of its digital services from Comcast, Verizon, Sunset Digital, and Scott County Telephone Cooperative (SCTC).

Wise County has several backbone networks traversing the county with acceptable service levels to many. As a result, the county has seen economic development opportunities improve. One major data center, two call centers, and one digital-operations-center have located in Wise County.

However, not all residents of Wise County are receiving satisfactory services. Customers farthest from the main networks experience service quality and reliability failures, and competitive services options are not available. Greater speeds for uploads and downloads are needed for work-at-home opportunities for entrepreneurs and the general workforce.

Wise County communities identified as high-priority for broadband expansion are:

- Powell Valley
- Appalachia and the immediately surrounding coal camps
- Blackwood
- Areas north of the City of Norton
- West of US. 23
- Areas outside of Coeburn toward Scott County
- Smaller communities northeast of the Town of Wise
- Coeburn Mountain area (including Airport Road)
- Northwest of St. Paul
- Pound

Scott County

Scott County Telephone Cooperative is the Incumbent Local Exchange Carrier for the county. SCTC has been very active in providing advanced telecom services throughout the county and region. Residents and businesses located near SCTC's central offices, remote access nodes, and switching centers receive excellent service. However, communities located further from the main exchanges don't have all of the bandwidth necessary to power their digital needs.

All schools in the county are well served; however, the lack of last-mile connectivity to residents hampers the full digital curricula potential.

The lack of adequate wireless (cellular) coverage throughout the county continues to be a challenge, with routine complaints coming in from various governmental entities within the county.

Specific communities in need for improved cellular service include:

- Nickelsville
- Fort Blackmore
- Rye Cove and
- Dungannon

"Our biggest obstacle is not the infrastructure, but our vision of how to use that infrastructure." – Danny Dixon, Vice Mayor of Nickelsville

City of Norton

The City of Norton has enjoyed robust communications services for years as a result of Verizon hosting a major Central Office in the downtown area. Economic development has taken advantage of that situation by successfully recruiting several digital businesses over the years including the Dual Party Relay Center providing services for the entire Commonwealth of Virginia through a contract with AT&T. That center recently closed as a result of contract changes and consolidation of services elsewhere. Verizon has also placed a directory assistance center within the city as has the statewide service that arranges Medicaid transportation services for their clients.

Cumberland Plateau

The following table shows the population change and density per square mile for PDC 2 – Cumberland Plateau (Buchanan, Dickenson, Russell, and Tazewell Counties).

PDC 2	2010 Census	2018 Estimate	Percent Change	Square Miles	Density/Sq. Mile
Buchanan	24,098	21,576	-10%	503	43
Dickenson	15,903	14,516	-9%	331	44
Russell	28,897	27,057	-6%	474	57
Tazewell	45,078	41,973	-7%	519	81
Total/Average	113,976	105,122	-8%	1,826	56

Buchanan County

Buchanan County is deep within the Coalfields of Virginia, adjacent to both Kentucky and West Virginia. The greatest communications network challenges in Buchanan County are the steep mountain terrain. However, a certain "can do" attitude exists which has fostered creative solutions to many problems.

This theme carried throughout the interviews conducted in the county. When solutions weren't forthcoming from the service providers, local leaders took the initiative to raise funds and, in some cases, worked directly with the incumbent providers to extend services into communities where a business case could be made.

Educational institutions have created strong demand for broadband and wireless services, making communications a critical success factor for the region. A private law school and college of pharmacy have been operational in Buchannan County since 1994 and 2003,

respectively. The Appalachian College of Optometry is in the planning stages. These institutions have helped stabilize an economy that is in transition from coal mining and related support industries.

However, several communities still lack adequate broadband service, including:

- Conoway
- Home Creek
- Pea Patch
- Hurricane Creek
- Bearwallow
- Dismal River Road

"I was told that representatives of Google were in town for a potential contract with Sykes Enterprises, but the representatives left when they couldn't place calls via their AT&T handsets. They were concerned about availability of broadband in general after that experience." – Craig Horne, Buchanan County Administrator

Dickenson County

Officials in Dickenson County report that connectivity is so poor that businesses are unable to utilize telemetry payment systems. Additionally, it was learned that residential needs were not being met adequately and that lack of competition results in excessive pricing.

Dickenson County is witness to the fact that poor cellular coverage results in a poor tourism experience. In a county where tourism is considered an "up-and-coming" industry, officials were clearly frustrated at the lack of a path forward to address the wireless problem.

Specific areas in need include:

- Haysi,
- The entire southern half of the county, and
- Approximate 12-mile radius around Sandy Ridge, and
- 5 miles in every direction from the center of Nora.
- Hills/Ridges
- Edwards Ridge
- Route 80
- Lick Creek

"Poor cellular overage results in unsatisfying tourism experiences for our visitors" - Rita Surratt, Director, Dickenson County Chamber of Commerce

Russell County

Service providers in Russell County include Shentel, Verizon, and the Cumberland Plateau Company through a partnership with Sunset Digital. Russell County has capitalized on the "gig economy" by successfully recruiting call centers and software development centers to the region.

High-speed fiber lines were first placed in Lebanon nearly two decades ago which allowed the creation of data center and software development jobs.

However, connectivity beyond the Lebanon and the transportation corridors is still a problem for most of the county.

Affordability of broadband services was mentioned as a particular issue in Russell County.

When interviewees were asked about particular Russell County needs, "***all areas beyond Lebanon***" was the response.

Particular communities outlined regarding cellular wireless service needs included:

- Lebanon to Gate City - 71 - No service 75% of the time (1 hr. drive)
- Lebanon to Hansonville - Dropped calls/spotty coverage
- Lebanon to Abingdon - Dropped calls/spotty coverage
- Dante (near St. Paul) - Dropped calls/spotty coverage
- Cleveland - Dropped calls/spotty coverage
- Swords Creek -- Dropped calls/spotty coverage

The most pressing concern however was the inability to foster innovation and retain young people without dependable, affordable, quality broadband communications.

From an economic development perspective, "you can't 'get in the game' or even 'sit on the bench' without broadband infrastructure." – Rachel Patton, WIAOne Assistant Director

Tazewell County

Service providers in Tazewell County include Verizon, Spectrum, Burkes Garden, Comcast and Sunset. Tazewell County communities identified as high-priority for broadband expansion:

- Gratton Valley
- Tannersville and Clear Fork
- Thompson Valley
- Baptist Valley
- Abbs Valley
- Jewell Ridge
- Bluestone Commerce Park

The poor condition of Verizon legacy infrastructure is of great concern. Even landline service, the most basic of all telecom services, is unreliable.

In terms of cellular service, the main transportation corridor running through the county was the only reliable area for wireless communication.

"The most important piece of technology in the classroom is the teacher." – Drennon Laney, Server and Systems Administrator, Tazewell County Public Schools.

Mount Rogers

The following table shows the population change and density per square mile for PDC 3 – Mount Rogers (Bland, Bristol, Carroll, Galax, Grayson, Smyth, Washington, and Wythe).

PDC 3	2010 Census	2018 Estimate	Percent Change	Square Miles	Density per Sq. Mile
Bland	6,824	6,432	-6%	358	18
Bristol City	17,835	16,877	-5%	13	1,297
Carroll	30,042	29,141	-3%	475	61
Galax City	7,042	6,587	-6%	8	799
Grayson	15,533	15,330	-1%	442	35
Smyth	32,208	30,475	-5%	451	68
Washington	54,876	53,992	-2%	561	96
Wythe	29,235	28,650	-2%	462	62
Total/Average	193,595	187,484	-3%	2,770	305

Bland County

Bland County, the least populated county studied, was recently awarded a $459,764 grant from the Appalachian Regional Commission for a 33-mile fiber build to businesses and institutions in the county. The fiber run will start in Rocky Gap, then south through Bastian, then to Bland. The fiber will run along the Route 52 corridor. Once the fiber construction is finished, an ISP partner will use wireless technology to reach additional locations off Route 52. The project will make Internet access available to 37 businesses, as well as Bland County Schools, the Board of Education offices and the Bland County Medical Clinic, a federally qualified health center.

The existing providers in Bland County primarily use fixed wireless and existing DSL network plant to provide service and include:

- Sunset - Middle-mile fiber along Rt. 42 to Bland Correctional Facility
- CenturyLink – Some 10 MBPS service over copper but mostly 3 MBPS
- Verizon
- Gigabeam – Serving approximately 200 residents using towers throughout the county. They provide 50 MBPS service for $79/mo. and 25 MBPS for $30/mo.

Bland currently has a public-private partnership with Gigabeam Networks for up to 2 gig wireless.

Currently, the residential needs are not being met. The following areas were identified as having the greatest needs:

- Ceres (agriculture, tourism, 42/52 split)
- Grapefield
- Dry fork, Clear Fork, and Little Creek
- Hollybrook

Carroll County

Carroll County has a population of approximately 29,724. Parts of the county are adequately served (the north side of Hillsville, for example), but other areas (specifically the south side of Hillsville) can only get about 1.5 MBPS, or “barely enough to e-mail.” In terms of cellular coverage, U.S Cellular has “good coverage” along main transportation corridors.

Resident complaints stem from CenturyLink and the lack of responsiveness to customers. The county has good broadband in the industrial parks, but workforce is the big issue for economic development.

CenturyLink is using its incumbent network (DSL) to serve customers and used CAF funding to make it look as if customers had access to broadband when, in fact, they didn't.

Areas of greatest need include:

- Pipers Gap
- Laurel Fork
- Dugspur Region
- South of Woodlawn/Northeast of Lambsburg (FastLink has about 300 customers north of Lambsburg)

Grayson County

Grayson County has been very proactive in pursuing solutions to its communities' broadband needs. In fall 2018, Grayson County issued an RFP for Broadband Services.

While a high level of detail on Grayson County's specific needs can be found in the RFP, a high level assessment is that most of the county is underserved or unserved.

- 77%, or 5,222 households have documented need for improved broadband
- Broadband is the number one need in the community. After Broadband, "Roads" are the number two need.
- Real estate sales and values are impacted by the degree to which broadband is available in a community.
- There is a potential growth opportunity for farmers to implement enabling technologies to better manage farm operations, but these technologies often require a broadband infrastructure
- Population retention & recruitment is a top priority for the Grayson County government. Broadband is considered #1 opportunity to solve this problem.

- As a former health care administrator, the County Administrator sees the value of connectivity to the entire population to improve health outcomes, especially in an area such as Grayson with a "graying population."
- A lack of high speed communications is also contributing to the loss of young people after graduation.
- Areas of greatest need in the county (from current RFP):
    - Wilson & Elk Creek Districts; Mouth of Wilson, Rugby, East of Troutdale, Comers Rock
    - Providence, Elk Creek and Old Town; Elk Creek, Independence, Baywood
    - Wilson & Elk Creek Districts; East Mouth of Wilson, Buck Mountain, Big Ridge, Bridle Creek
    - Wilson District; West Mouth of Wilson, Whitetop
    - Providence, Old Town Districts; Fries, Baywood (east)
- Existing providers include:
    - CenturyLink
    - HughesNet and Exceed (WildBlue)
    - Comcast
    - Lingo (via Wired Road)
    - Citizens Telephone
- There are 13 total towers in the County but providers lack the incentive to upgrade.

"*High speed communication is a driver and enabler for the community. After Broadband, 'Roads' are the number two need." – Bill Shepley, Grayson County Administrator*

Smyth County

Smyth County has some fiber assets in the area through Sunset but, like many other counties in the planning districts covered in this report, needs a last mile solution. The business community's needs are not being met and are at risk of leaving.

Providers serving Smyth County include CenturyLink, Comcast, and Sunset. There are no competitive local exchange carriers in the area. Cell phone service is "totally unreliable" in certain areas (northern and southern bands of the county), but providers won't locate off the towers in the area. The majority of the complaints are about CenturyLink's service.

The communities within Smyth County with the greatest need are:

- Sugar Grove
- Rich Valley.

Washington County

In Washington County, business needs are being met only along I-81 corridor and within the Town of Abingdon and the City of Bristol. Beyond a three-mile radius from that corridor, businesses are either underserved or unserved. Residential needs are even greater. Mendota, Glade Spring and Damascus are all in need of service. Complaints from residents are frequent.

Service providers include Sunset, Charter, CenturyLink, and Comcast. Cellular wireless providers include VZW, T-Mobile and AT&T.

The specific communities within the county with the greatest needs include:

- Mendota
- Glade Spring
- Damascus

Wythe County

In general, the industrial parks have good service. Businesses located along the transportation corridors are considered adequately served due to the amount of fiber available. However, residential coverage is spotty. The county has been suffering from economic stagnation in recent years. Historically, Wythe had been slowly growing while counties to the west were losing population. Only recently has the trend changed in Wythe as well. The current population is just over 29k.

The level of coverage in Wythe County varies depending on the part of the county. The denser areas (the eastern end of the county including Max Meadows and Austinville) have more coverage than less dense areas.

The current providers include CenturyLink and Shentel (which bought Rural Retreat Cable). Shentel offers “higher” speeds in Rural Retreat (up to 10 Mbps). The Chairman

of the BoS lives on Chapman road (the road running parallel to I-81/77 corridor (south side of Interstate) and is very dissatisfied with options and speeds available.

The Fort Chiswell/Lead Mines area is the one of greatest need. Also, the eastern end of the county is the largest growth area.

City of Galax

Galax is more dense than other areas with the planning district. Also, it is part of Wired Road and is a Regional Broadband Authority, so the businesses and residents' needs are being met for the most part.

- Big businesses include Albany Industries, Moag Industrial, Vaughn Bassett furniture company, etc. CrossRoads Facility is a business incubator, and XM Radio call center has about 150 employees.
- There are about 7,000 people over 8 square miles, so a bit denser than other areas in the planning district.
- Wired Road forced providers to upgrade and expand their networks
- Perceived positive impact on real estate (byers won't consider moving to homes without broadband)
- Important for small businesses' online sales
- Schools are seeing higher enrollments and were using Lingo, which is one of the Wired Road providers. They are now using CenturyLink.
- Galax is upgrading some cell towers to ensure reliability
- Fiber runs east up to Airport Road

The main regional service providers in Galax include:

- Comcast – up to 130 meg residential in some areas; has a retail store in downtown Galax.
- CenturyLink – up to 25 meg
- Wired Road RBA

7.2 Sources of Funding Appendix

National Funding

In December 2018, US Department of Agriculture (through RUS) announced a $600 million grant and loan Broadband Program, ReConnect, to assist with building rural broadband infrastructure. Telecommunications companies, rural electric cooperatives and utilities, Internet service providers, and municipalities may apply for funding. To be eligible, communities must have populations smaller than 20,000 people with no broadband service or where service is slower than 10/1. Loan applications are due April and May 2019, depending on the program applied for.

State Level Awards Granted

The state of Virginia, through Governor Northam, is heavily invested in the vision of equitable broadband coverage throughout the state. The Governor's vision is statewide broadband coverage within 10 years. The two agencies that have deployed the most capital to support broadband connectivity are the Virginia Tobacco Region Revitalization Commission (Tobacco Commission) and the Virginia Department of Housing and Community Development (DHCD). Part of receiving funding is a requirement that communities/localities have a "granular plan" for ensuring coverage.

Virginia Coalfield Economic Development Authority (VCEDA)

VCEDA has been involved with regional broadband expansion efforts for many years. They have been a provider of capital for the LENOWISCO Fiber-to-the-Home initiative, the Cumberland Plateau Company network expansion, and the Virginia Coalfield Coalition 4g Wireless project.

VCEDA indicated that "the more broadband deployed in the region, the more economic development is enhanced."

VCEDA identified the following communities as high potential candidates for broadband deployment:

- Haysi
- Nickelsville
- US 460 (between Richlands and Vansant)
- Hurley
- Whitewood
- Clinchco.

Regional Awards Granted

Appalachian Regional Commission (ARC)

The Appalachian Regional Commission, or ARC, believes that "access to advanced telecommunications infrastructure for all Appalachian communities is essential for the Region to reach economic parity with the nation."

ARC partners with public entities, non-profits, and the private-sector to spread access to telecommunications infrastructure and applications throughout the Region.

Specifically, ARC's POWER program is a congressionally funded initiative that targets federal resources to help communities and regions that have been affected by job losses in coal mining, coal power plant operations, and coal-related supply chain industries due to the changing economics of America's energy production. Virginia will receive 5 grants totaling more than $2.8 million as part of this program.

One of the grants will go to Bland County (in the amount of $459,764) for a 33-mile fiber build to businesses in the county. The fiber run will start in Rocky Gap, then south through Bastian, then to Bland. The fiber will run along the Route 52 corridor. Once the fiber construction is finished, an ISP partner will use wireless technology to reach additional locations off Route 52. The project will make Internet access available to 37 businesses, as well as Bland County Schools, the Board of Education offices and the Bland County Medical Clinic, a federally qualified health center.

Pending Applications at the Tobacco Commission

- Fiscal year 2019 pending last mile broadband applications to the Tobacco Commission for Southwest Virginia are outlined in the following table:

FY 2019 Last Mile Broadband - Pending Applications for SWVA

Req #	Organization	Project Title	Request Amount
3535	Carroll County Industrial Development Authority	The Wired Road/Carroll County Last Mile Neighborhood Pole Project	$200,000
3531	Cumberland Plateau Company	Cleveland Broadband Expansion Project	$544,137
3530	Grayson County	Connect Grayson	$325,000
3522	Industrial Development Authority of Dickenson County	Honey Camp Last Mile Broadband	$65,000
3519	Scott County Telephone Cooperative	Weber City Broadband Fiber-to-the-Home Initiative	$1,500,000
3525	Tazewell County Industrial Development Authority	Tazewell County Wireless Service Authority Broadband Expansion Phase III	$150,000
3527	Industrial Development Authority of Russell County VA	North Central Russell / South Buchanan Counties Broadband Expansion Project	$1,900,000
Total Potential Funding for SWVA			**$4,684,137**

Funding Strategy

Identify the highest potential providers of capital, including government and private sources, to fund the highest priority communities. Start at the regional level, then state, then national.

- Virginia Rural Broadband Planning Initiative (VRBPI)
- Connect America Fund
- Rural Utility Services
- Community Development Block Grants (CDBG)

Potential Funding Sources

The following table outlines a more comprehensive list of potential funding sources that have been identified by the Tobacco Commission.

Source	Opportunity	Brief Description	Application Timeline
State Funding Opportunities			
Department of Housing and Community Development (DHCD)	Community Development Block Grant Planning Grant http://www.dhcd.virginia.gov/index.php/community-partnerships-dhcd/79-community-development-block-grant-cdbg-planning-grant.html	Funds available for 3 areas: planning grants, local innovation grants, implementation and economic development, and large scale local level projects.	January – September
Department of Housing and Community Development (DHCD)	Virginia Telecommunication Initiative http://www.dhcd.virginia.gov/	Provides financial assistance to supplement construction costs by private sector providers to extend services to areas that are presently unserved by any broadband provider. Definition of unserved; speeds </= 10 Mbps/1 Mbps. Eligible applicants: towns, cities, counties, EDA/IDA, broadband/wireless authorities, PDC, etc.	Fall

Virginia Tobacco Region Revitalization Commission	TRRC Last-mile Grant and Loan Fund https://www.revitalizeva.org/grant-loan-program/grant-programs/research-development-grant-program/	Provides grants and loans to public/private partnerships between localities and ISPs to construct projects within its service area.	Announced annually
Virginia Resources Authority (VRA)	Virginia Pooled Financing Program http://www.virginiaresources.org/page/virginia-pooled-financing-program/	Provides financing to local governments for essential projects. All VRA's authorized project areas are eligible for financing in the Virginia Pooled Financing Program (VPFP). Since inception in 2003, over 100 local governments in Virginia have utilized this program to finance or refinance over $2 billion in infrastructure projects.	Multiple windows annually
Federal Funding Opportunities			
United States Department of Agriculture Rural Development (USDA)	Community Connect Grant program https://www.rd.usda.gov/programs-services/community-connect-grants	This program helps fund broadband deployment into rural communities where it is not yet economically viable for private sector providers to deliver service.	Announced periodically
United States Department of Agriculture Rural Development (USDA)	Rural Broadband Access Loan and Loan Guarantee https://www.rd.usda.gov/programs-services/rural-broadband-access-loan-and-loan-guarantee	This program offers financial assistance to eligible applicants that will construct, improve, or acquire facilities and equipment needed to provide service at the broadband lending speed as defined in the most recent funding announcement in eligible rural areas.	Announced periodically
United States Department of Agriculture Rural Development (USDA)	Telecommunications Infrastructure Loans & Loan Guarantees https://www.rd.usda.gov/programs-services/telecommunications-	This program provides financing for the construction, maintenance, improvement and expansion of telephone service and broadband in rural areas.	Applications are accepted on a continuing basis

	infrastructure-loans-loan-guarantees		
United States Department of Agriculture Rural Development (USDA)	Distance Learning and Telemedicine Program https://www.rd.usda.gov/programs-services/distance-learning-telemedicine-grants	This program helps rural communities use telecommunications to connect to each other and to the world for the purposes of distance learning and telemedicine.	Announced periodically
United States Department of Agriculture Rural Development (USDA)	Community Facilities Direct Loan & Grant Program https://www.rd.usda.gov/programs-services/community-facilities-direct-loan-grant-program	This program provides affordable funding to develop essential community facilities in rural areas.	Applications are accepted on a continuing basis
Federal Communications Commission (FCC)	Connect America Fund https://www.fcc.gov/general/connect-america-fund-caf CAF I, $1.5B over 10 years to 103 companies. CAF II $1.98 B over 10 years. Bidding ended 8/2018. Awards pending.	Provider funding for FCC eligible areas only. Eligible areas map: https://www.fcc.gov/reports-research/maps/connect-america-phase-ii-initial-eligible-areas-map/	No longer active for new bidders.
Federal Communications Commission (FCC)	FCC Mobility Fund Phase II https://www.fcc.gov/mobility-fund-phase-2	The FCC plans to make up to $4.53 billion in funding available to mobile operators that are building out 4G LTE networks to underserved rural markets. The funding will be made available over a 10-year period. Operators that receive the support from the auction will build out 4G LTE mobile service that will deliver at least 10 Mbps to customers in markets that lack access to unsubsidized 4G LTE.	Not yet active
Federal Communications Commission (FCC)	E-Rate Funding http://www.fcc.gov/encyclopedia/e-rate-schools-libraries-usf-program	The schools and libraries universal service support program, commonly known as the E-Rate program, helps schools and libraries to obtain affordable broadband.	Winter-Spring
Universal Service Administration Co. (USAC)	Lifeline Support https://www.usac.org/li/	Lifeline is a federal program that lowers the monthly cost of phone and Internet for eligible customers. Participating companies in Virginia: http://www.lifelinesupp	Applications are accepted on a continuing basis

		ort.org/ls/companies/CompanyListing.aspx?state=VA&stateName=Virginia	
Universal Service Administration Co. (USAC)	Rural Health Care – Healthcare Connect Fund https://www.usac.org/rhc/healthcare-connect/default.aspx	This program provides a 65 percent discount on eligible expenses related to broadband connectivity to both individual rural health care providers (HCPs) and consortia, which can include non-rural HCPs, if the consortium has a majority of rural sites.	Winter - Summer
Universal Service Administration Co. (USAC)	Rural Health Care – Telecommunications Program https://www.usac.org/rhc/telecommunications/default.aspx	This program provides reduced rates to rural health care providers (HCPs) for telecommunications services related to the use of telemedicine and telehealth.	Winter - Summer
US Economic Development Administration (EDA)	Planning Program and Local Technical Assistance Program https://www.grants.gov/web/grants/view-opportunity.html?oppId=301936	This program assists eligible recipients in developing economic development plans and studies designed to build capacity and guide the economic prosperity and resiliency of an area or region.	Applications are accepted on a continuing basis
US Economic Development Administration (EDA)	Public Works and Economic Adjustment Assistance Programs https://www.grants.gov/web/grants/view-opportunity.html?oppId=294771	Grants made under this program will leverage regional assets to support the implementation of regional economic development strategies designed to create jobs, leverage private capital, encourage economic development, and strengthen America's ability to compete in the global marketplace.	Applications are accepted on a continuing basis
Department of Education (DOE)	Promise Neighborhoods Competition http://www2.ed.gov/programs/promiseneighborhoods/index.html	This program provides funding to support eligible entities to significantly improve the educational and developmental outcomes of children and youth in our most distressed communities.	Spring
Appalachian Regional Commission (ARC)	ARC Project Grants https://www.arc.gov/funding/arcprojectgrants.asp	ARC funds a number of telecommunications activities, including strategic community planning, equipment	Announced annually

		acquisition, and hardware and software for network building. ARC funds can be used for strategic telecommunications planning activities, telecommunication service inventory and assessment activities, aggregation of demand projects, among other activities.	
Federal Reserve	Community Reinvestment Act (CRA) https://www.dallasfed.org/cd/pubs/digitaldivide.aspx	The Federal Reserve has issued guidance on how to leverage a bank's CRA resources in digital equity initiatives.	Ongoing
Tribal Funding Opportunities			
U.S. Department of Housing and Urban Development (HUD)	Indian Community Development Block Grant http://portal.hud.gov/hudportal/HUD?src=/program_offices/public_indian_housing/ih/grants/icdbg	Provides funds to eligible grantees for housing rehabilitation, land acquisition, community facilities, infrastructure construction, and economic development activities. Eligible applicants for assistance include any Indian tribe, band, group, or nation.	Winter
U.S. Department of Housing and Urban Development (HUD)	Indian Housing Block Grant (IHBG) program http://portal.hud.gov/hudportal/HUD?src=/program_offices/public_indian_housing/ih/grants/ihbg	The provision of broadband is eligible under this program. Eligible IHBG recipients are Federally recognized Indian tribes or their tribally designated housing entity (TDHE), and a limited number of state recognized tribes who were funded under the Indian Housing Program authorized by the United States Housing Act of 1937 (USHA).	Winter
Institute of Museum and Library Services	Native American Library Services https://www.imls.gov/nofo/native-american-library-services-basic-grants-fy16-notice-funding-opportunity	Basic Grants are available to support existing library operations and to maintain core library services. Indian tribes, Alaska native villages, regional corporations, and village corporations are eligible to apply for funding under the Native American Library Services grant program.	Spring

7.3 Addressable Market Appendix

Market Overview

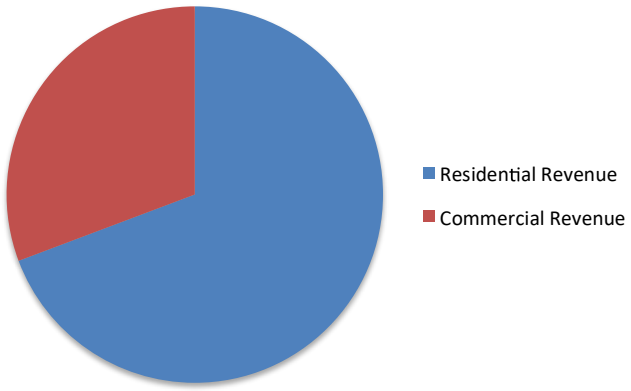
The telecommunications market in Southwest Virginia is estimated at $289 Million annually for voice, video, data, and wireless services. This estimate is based on the following key factors:

Key Economic Index Factors	SWVA Region
Residential	
Population (2018)	401,745
Households (BRASG 2018 Estimate)	84,270
Median Household Income (BRASG 2018 Estimate)	$38,945
Economic Index (Income Relative to US)	68%
Economic Index (Income Relative to VA)	56%
Commercial	
Businesses (BRASG Estimate)	7,430
Employment (BRASG Estimate)	49,423

On average, approximately 4% of household income is spent on all communication services.

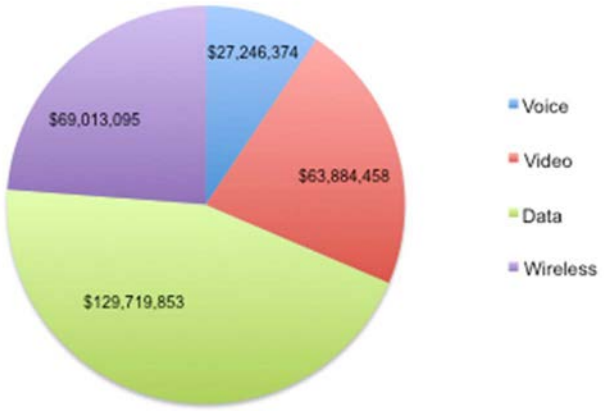
The overall market is roughly split between 31% commercial and 69% residential services.

Total Revenue – Residential vs. Commercial



By service, the revenue distribution is outlined in the following table, with broadband services driving most of the growth:

Total Annual Telecom Revenue at Year 1



The important market dynamics that will influence this addressable market are threefold:

1. **Cable TV Cord Cutting**. As wireless service becomes more reliable and ubiquitous, and as broadband becomes more available, there will be a continued defection not only from landline voice to wireless but also from cable tv to digital, a-la-carte streaming services. Cisco predicts that nearly four-fifths (79 percent) of the world's mobile data traffic will be video by 2022.

2. **Mobile Data Demand**. The explosion in mobile data demand only continues. It grew 23% in 2017 in North America. The increasing number of wireless devices and connections will continue to drive the surge in demand for wireless data.

3. **5G Technology**. The evolution of 5th Generation, or 5G, networks, holds the promise to deliver faster speeds. However, it is likely that rural areas such as Southwest Virginia may be last in line to see the carriers upgrade, as they will target the larger markets initially. A strong fiber backbone will still be needed to service the 5G network. 4G will carry most of the traffic for the next 10 years or so.

These trends will drive demand for expanded fiber and wireless-dependent services in the region, presenting an opportunity for service providers. However, the issue remains. The associated costs of upgrading networks to meet that demand is still extremely high due to the low population densities and challenging geography of the region. Regional leaders must find ways to partner with providers to bridge the gap so that their communities are not left behind.

7.4 Service Provider Appendix

Following is a brief description of the regional service providers and their capabilities:

Burkes Garden Telephone Company

Burkes Garden Telephone Company (BGTCo) is a small, investor-owned telephone company offering "triple-play" services via a fiber-optic system of approximately 72 fiber miles. The service area is tucked in the eastern edge of Tazewell County, adjacent to Bland County, Virginia. BGTCo migrated from copper to fiber over approximately two years.

The service area covers approximately 75 Sq. Miles from the top of Rich Mountain through Little Creek through Burkes Garden. The service area sits within a crater-like bowl with a mountain ridge totally surrounding the region. The customer count includes 160 full-time with as many as 185 during the summer season. Approximately 100 customers receive broadband, which equates to a take rate of 62%.

GPON and active Ethernet are utilized to serve these customers providing 15/10 Mbps service priced at $32.95/mo. There are no business customers on the system and approximately 13 or 14 customers are considered to be Amish and as such only utilize the telephone service.

Charter Communications

Charter / Spectrum is the second largest cable provider in the United States (third largest multi-channel video service provider when AT&T / DirecTV are considered) but has limited network operations in Southwest Virginia. Spectrum's local network is primarily in Buchanan and Tazewell counties, with some network in Russell County. Charter has an operational office in Richlands, with a head-end site in Cedar Bluff. Spectrum's network covers the Town of Tazewell, a good portion of Tazewell County, Grundy, and Richlands. Charter utilizes a hybrid-fiber-coaxial cable network architecture. 100 MBPS asynchronous service is Charter's standard/basic service at $44.99 per month. This price is dependent upon various bundling schemes.

Citizens Telephone Cooperative

Citizens is a regional ILEC with full-service communications offerings, including land-line telephone, VoIP, IPTV Video, web and e-mail hosting, DSL, and FTTP (Fiber to the Premise, and Business Ethernet. Citizen's serves portions of 7 counties in Southwest Virginia. Based in Floyd, Virginia, Citizens network is still 90% copper based, but they are rolling out gigabit FTTP.

There is some overlap of their services and a few counties within PDC's 1, 2, &3, including Carroll County, Grayson County, and Wythe County. Citizens' network stops at the Smyth County line. Their fiber runs from 58 to 16 (BVU/Sunset) and 221 to Sparta. They just completed a build on 221 (North) to Roanoke Co., passing over 1,000 homes with FTTH.

Century Link

CenturyLink is the incumbent local exchange carrier in many parts of the study region. CenturyLink still has their legacy network in place and have not invested in upgrading their network. As a result, customer satisfaction rates due to speed and reliability, were low across the board. The biggest complaint related to customer service and the perception of a total “lack of response.”

Comcast

Comcast is the largest cable provider in the United States (second largest multi-channel video service provider when AT&T / DirecTV are considered). Comcast operates a hybrid-fiber-coaxial system throughout the study area. Comcast is doing little in terms of upgrades, with some limited upgrades in PDC 1. In PDC 2, one respondent placed Comcast quality of service at the middle of the pack of the 5 service providers available in that area. Another respondent in the northwestern portion of PDC 2 listed Comcast as “adequate” with 4 stars. Still another official in the southwestern portion of region 3 gave Comcast high marks for quality of service.

CPC Broadband

CPC Broadband (formerly CPC OptiNet) is a subsidiary company of the Cumberland Plateau PDC. It was organized to serve Russell, Dickenson, Tazewell, and Buchanan Counties. Partnering with Bristol Virginia Utility's OptiNet division (now Point Broadband) the Company has obtained over $37 million in grant funding for the construction of 700 miles of fiber optic broadband backbone that is now serving almost 900 industrial, commercial, governmental and educational institutions in the region.

iGo Technologies

iGo, founded in 1994, is a Virginia-based Internet service company, providing wireless and fiber high speed Internet service to its customers who include residential and commercial clients, individuals and small to mid-size and large business. In 2017, iGo also began offering telephone service to its Internet customers.

iGo coverage areas include parts of Buchanan, Russell, Tazewell, Washington and Wise counties, with additional operations in Tennessee and West Virginia. iGo utilizes one VCC tower to reach unserved residents of the region.

iGo is mainly a fixed wireless provider with 6-8 towers, 520 customers, and 12 employees. Although existing customers are mostly wireless, iGo has successfully competed for USDA Community Connect grants for FTTH build outs. They are underway with a $1.78M project awarded in 2016 which will include 21 miles of fiber in the Buchanan County area north of Oakwood.

In 2017, they were awarded an additional $3.0M project for a buildup Garden Creek Rd toward Honaker. iGo was just awarded $455,581 to extend the build into Russell County and add interconnection with SCTC along Virginia Route 624.

The current build includes 468 customers passed. iGo is an essential element of solving the problem of unserved residents in the region.

Gigabeam Networks

Gigabeam Networks, a wireless Internet service provider, or WISP, provides service in Southwest Virginia, West Virginia and southeastern Kentucky. Their network is completely wireless, including the backhaul. Gigabeam is a small entrepreneurial venture owned by Michael Clemens. They have approximately 200 subscribers in Bland and utilize towers throughout the county. Their service packages include $79/mo. for 50 meg and $30 for 25 meg.

HillCom

HillCom, Inc is a family-owned wireless Internet service provider located in Dickenson County. The company started in 2016 out of necessity when a local resident was unable to access adequate Internet service but was able to create his own wireless broadband network solution. By 2017, HillCom had responded to neighbors requesting the service and grew to 20 customers. They then purchased DCWin (Dickenson County Wireless) and now have approximately 600 customers (95% in Dickenson County), with a mission to provide service to the entire county.

Most of the service requests HillCom receives are from the following areas within the county:

- Lick Creek
- Honey Camp
- Breaks

Point Broadband

Formerly BVU OptiNet, Point Broadband was organized in 2018 as the combination of Duffield-based Sunset Digital and Bristol-based BVU OptiNet. The organization is part of a family of telecommunications enterprises headquartered in West Point, Georgia called ITC Holding Company, LLC. ITC began as The West Point Telephone and Electric Company, founded in 1896. Point Broadband is in the process of an organization period, and their exact strategy is unknown. As with many other providers in the region, Point Broadband is attempting to determine how to affordably build out and maintain their network. Point Broadband is the recipient of a multi-million-dollar CAF II award for the study region including Lee County, and the Cumberland Plateau counties of Dickenson, Russell, and Tazewell.

Scott County Telephone Cooperative

Scott County Telephone Cooperative (SCTC), a local provider headquartered in Gate City, is a key player in the region. It serves 420 square miles of Scott County with some service in Tennessee. Their current service territory includes parts of Russell, Wise, Dickenson, and Lee Counties, and the City of Norton. They provide voice, video, and data Voice,

video, data, and security, primarily over a traditional copper/ILEC network but have been upgrading to eventually deploy and utilize an all fiber network to provide enhanced broadband services.

Using primarily grant funding, SCTC has upgraded about 100 miles of its network to fiber, with builds to 5 exchanges in the following areas:

- Ft. Blackmore
- Duffield
- Nickelsville
- Dungannon
- Clinchport

SCTC has approximately 7,000 access lines (about 5,000 in ILEC area and 2,000 in CLEC area). Additionally, they have about 7,000 high speed Internet customers.

Shentel

Shentel, or Shenandoah Telecommunications Company, is a publicly traded telecommunications company headquartered in Edinburg, Virginia. Shentel has digital wireless and wireline network in rural Virginia, West Virginia, Maryland and Pennsylvania. Shentel is also an affiliate of Sprint with wireless coverage in Pennsylvania, Maryland, Virginia, West Virginia, Kentucky and Ohio. It owns its own cell site towers built on leased land and leases space on these towers to both affiliates and non-affiliated service providers. Shentel has invested over $200 million in the past two years upgrading and expanding its wireless networks, primarily in rural markets. Shentel also provides fiber services to commercial and wholesale customers along its 5,641-mile fiber network across four states.

Shentel's cable segment provides video, Internet and voice services in franchise areas in Virginia, West Virginia, and portions of western Maryland and leases fiber optic facilities throughout its service area. It does not include video, Internet and voice services provided to customers in Shenandoah County, Virginia.

Shentel's wireline segment provides regulated and unregulated voice services, DSL Internet access and long-distance access services throughout Shenandoah County and portions of Rockingham, Frederick, Warren and Augusta Counties, Virginia. The segment also provides video services in portions of Shenandoah County and leases fiber optic facilities throughout the northern Shenandoah Valley of Virginia, northern Virginia and adjacent areas along the Interstate 81 corridor, including portions of West Virginia and Maryland.

Shentel has over 5,400 fiber route miles with fiber to over 325 cell sites, but with network in only Carroll and Russell counties. It has cable plant in Lebanon, Honaker, Swords Creek, Rye, Dante, Wytheville, and Rural Retreat.

Shentel does not actively purse grant funding, as they have not been very successful in the past doing so.

Wired Road

The Wired Road Authority is a collaborative effort between private sector service providers, the local governments of Grayson County, Carroll County, and the City of Galax, and the Carroll-Grayson-Galax Regional Industrial Facilities Authority (dba Blue Ridge Crossroads Economic Development Authority). Its purpose is to provide the critical enabling infrastructure to transform the regional economy into a dynamic, small business, and entrepreneurial economy. This transformation, enabled by The Wired Road and a complementary economic development focus on attracting and supporting entrepreneurs and small businesses, will allow the region's economy to spawn new businesses, generate jobs, create wealth, and protect the rural character of our region.

The Wired Road network has been in operation for over ten years and is a true public/private partnership with two service providers offering last mile services on the network. The Wired Road is an open access, fully integrated fiber and wireless regional broadband network offering "big broadband" 100 megabit and Gigabit fiber connections and multi-megabit wireless connections in Carroll County, Grayson County, and Galax.

Currently, the Wired Road is finishing a network extension which will connect fiber in Galax with fiber in Hillsville. It is also expanding its wireless coverage and constructing "community poles" to get service to areas that couldn't be reached before. Fiber Wireless Providers

The bill will allow Dominion Energy and Appalachian Power to provide or make available broadband capacity to service providers in unserved areas. It also authorizes the utility to own or lease broadband capacity equipment.

With existing infrastructure that already serves almost every resident and business in rural areas, utilities are uniquely positioned to bridge the gap between middle mile networks and last mile consumers.

References

Source data for population: Published on January 28, 2019 by the Weldon Cooper Center for Public Service Demographics Research Group https://demographics.coopercenter.org

Source data for county land area: U.S. Census Bureau, Census of Population and Housing. Land area is based on current information in the TIGER® data base, calculated for use with Census 2010.

Source: WideOpen Networks, The Wired Road, "Broadband Recommendations," April 2017, Revised, October 2017, pp. 32-34.

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Attachment 17-Point Broadband's 2019 Rural Marketing Plan

Project Name: Mendota Broadband Expansion Project

Applicant: Washington County, VA

Co-Applicant: Point Broadband

This Attachment Includes:

- *Planning Document- Point Broadband's 2019 Rural Marketing Plan. This document cross-referenced in Project Narrative Question 6.*

2019 Strategic Marketing Plan

Unique Selling Proposition – Fiber to the Home

Summary:

Point Broadband's strategic marketing plan is based upon our unique selling proposition of Fiber to the Home. Using this core strategy, we will differentiate our company, products and services significantly enough to achieve and exceed our planned market share. Our objective is to consistently deliver the fastest most reliable high-speed internet service with best in class customer service as we build and promote our brands as quality based. We aim to gain customers through the strength of our fiber to the premise network and the benefit of doing business with a local company.

Our approach is to completely alter the local landscape of telecommunications services. We are not a cable company or a telephone company. We are a fiber broadband company. We are the "experts" in this industry.

Our goal is to be known as an active local community asset, both commercially and charitably. We achieve this by maintaining a year around awareness of community events in each territory, contributions to specific educational or cultural programs and our own self-promotional events.

Realistically, when breakdowns do occur, we will be known as the company who responds with alacrity and integrity, taking responsibility and fixing the problem graciously. It is all about service, and we are specially trained to serve.

Marketing Strategy/Marketing Communications

At Point Broadband, we compete against telecommunications, ISP's and entertainment companies. To win and keep customers we must focus on our distribution channels and service goals. Our most critical tactical tool is our people – they understand that in every interaction they have with the customer, they determine Point Broadband's success. We support them with the following concreate tactical tools.

Digital Advertising:

Point Broadband will optimize its brand presence using digital media, SEO, SEM and Social Media. Strategic email campaigns will be used to target B2B clients and SMS messaging will be used to target residential customers.

Print Advertising

1. Direct Mail: utilizing targeted mailing areas we will utilize direct mail to announce new service areas and special promotions to drive in-bound potential customer activity.
2. Newspaper: Promotion and seasonal driven, Point Broadband supports local direct mail and radio promotions with tactical newspaper ads to enhance the promotion.

Broadcast Advertising

1. Television: both Point Broadband focused and coop advertising on local broadcast stations as well as cross channel on cable inventory will be used to create awareness and promote offers to drive in-bound activity.

Event Marketing

1. Upon the launch of a particular area Point Broadband will send direct mail to each newly serviceable address inviting the residents to a local community event where they can learn about all products and services provided by Point Broadband and will have the opportunity to order service at that time as well.
2. Community events are key to Point Broadband's success in converting customers and supporting the local community. Each event, both commercial and residential will be staffed with quality brand ambassadors who can answer questions and sign up new customers.
3. B2B events will be scheduled and coordinated with local chambers of commerce, business groups, networking events, industry specific events etc.…
4. Residential Community events will be scheduled and held in centralized area locations such as; Volunteer Fire Departments, Convenience Stores, etc.

Direct Sales

1. Direct sales: Our Door-to-Door sales program is designed to sell based on value and addressing the customer's needs. Upon the launch of a new area Point Broadband's street force penetrates new build areas and makes in person presentations. Our Business Account executives focus on high value commercial & enterprise customers with strong revenue potential with long term relationships.

Attachment 18-Point Broadband Network Description

Project Name: Mendota Broadband Expansion Project

Applicant: Washington County, VA

Co-Applicant: Point Broadband

This Attachment Includes:

- *Point Broadband Network Description. This document cross-referenced in Project Narrative Question 9.*

Point Broadband of Bristol, Virginia operates a Gigabit Passive Optical Network (GPON) to deliver triple play services to the communities of Southwest Virginia. GPON has the advantage of being able to support multiple users through a single optical fiber reducing equipment and satisfying both high density and rural areas (GPON.com, n.d.). Furthermore, Wang Zhaoqing of the IEEE denotes, “besides the transmission characteristics of good quality, large capacity, and long distance, GPON has the advantages of low maintenance cost, high confidentiality, and strong anti-jamming capability” (Zhaoqing, 2011). The following sections describe how Point Broadband uses this technology to provide superior broadband service to the consumers of Southwest Virginia.

Point Broadband’s broadband Internet services originate from two geo-redundant locations at Equinix in Ashburn, Virginia, and Digital Realty in Atlanta, Georgia. Within each diverse location Point Broadband is provided access to the Internet from both XO Communications, and Level3 (Century Link) service providers. Furthermore, the customer experience is enhanced by the connection to each location’s Internet Peering Exchange (Equinix Internet Exchange, Digital Realty Internet Exchange). An Internet exchange allows Internet Service Providers (ISPs) to directly interconnect networks and exchange Internet Protocol (IP) traffic. The exchanges provide the Point Broadband end user with a lower latency network, and increased redundancy through the availability of more paths and improved routing.

Traveling from each redundant location, for increased reliability Point Broadband has chosen transport partners offering three diverse paths over 10 Gigabit fiber links. For example, from the origination point in Atlanta, traffic is delivered through one of two 10 Gigabit paths of which both terminate in the Central Office located in Bristol, VA. Ashburn traffic passes through a 10 Gigabit path and terminates in Point Broadband’s Disaster Recovery Point of Presence located in Wytheville, VA. Each of the 10 Gigabit optical paths from Atlanta terminate into an edge routing device.

The 10 Gigabit transport data terminating in Wytheville travels along Point Broadband’s Dense wavelength division multiplexing (DWDM) fiber ring. The implementation of the DWDM ring affords Point Broadband the ability to transport high capacity, low latency, protected broadband data amongst 19 different POP locations. The ring allows for the East/West flow of up to 200 Gigabits per second. Customer traffic from Ashburn to Wytheville travels along this ring finally terminating at Bristol’s North POP on another edge routing device. The edge routing devices provide another distinct advantage to customers through the connection of content caching servers implemented from large providers like Google. Caching servers save both Point Broadband and the consumers from having traffic return to their origination points for content. By traffic not having to continuously flow back to the origin it decreases the overall bandwidth required at the origination point (Atlanta or Ashburn).

Point Broadband's protection and redundancy continues as traffic from each edge router flows into one of two Service Router devices. These devices, one located within the Bristol CO, and the other at the North POP are interconnected with each other through a 20 Gigabit Link Aggregation Group (LAG). The multiple chassis along with the LAG (MC-LAG) allow for more efficient use of bandwidth and sub-second failover in case one of the two chassis were to fail. Each service router uses a physical port or more to feed the customer facing network or Optical Line Termination (OLT).

The OLT is the origination point for the definition of the GPON network as described previously. OLTs much like network switches contain cards with ports each port represents a PON. 10 Gigabits of available broadband traffic is spread amongst cards containing from four to eight individual PON ports. Point Broadband has chosen to keep the customer per PON ratio in the customer's favor for a 32 to 1 standard. This standard means simply Point Broadband allows up to 32 customers per PON port. This is in direct comparison to the 64 or even 128 to 1 ratio, which reduce the overall bandwidth capabilities to each customer. Traffic flows from these PON ports connecting to a passive optical splitter located close to the customer within a fiber cabinet.

Each of the 32 splitter ports connects directly to a customer premise device or Optical Network Terminal (ONT). ONTs are attached directly to the customer's home or business. A single fiber connects to the ONT and from the ONT Category 3, Category 5/6 Ethernet, and even Radio Frequency connections are available. The ONT facilitates the transmission of data into customer's devices such as telephones, computers, routers, and video devices. Each customer can receive up to a 1 Gigabit per second service.

Sources GPON.com. (n.d.). Why GPON. Retrieved from Gigabyte Passive Optical Network (GPON): http://www.gpon.com/why-gpon Zhaoqing, W. (2011). Research on the Application of GPON Technologies.

Retrieved 12 13, 2018, from http://ieeexplore.ieee.org/xpl/abstractauthors.jsp?reload=true&arnumber=5957468&punumber=5955409

Attachment 19-Point Broadband Project Experience

Project Name: Mendota Broadband Expansion Project

Applicant: Washington County, VA

Co-Applicant: Point Broadband

Point Broadband currently has one active grant contract. It is with the state of Tennessee and it is in good standing. That project is projected to be complete in the fourth quarter of 2019.

Management Experience and Completed Funded Projects:

Tobacco Commission - Fiber Deployment Proof of Concept
2001 – Community Volunteer
● Construction on LENOWISCO Rural Area Network (RAN)
● Proved open ditch concept for fiber collocation with public water deployments.
Tobacco Commission - Fiber Deployment Phase I
2002 – Vice President and COO Cornerpost Software, LLC
● Construction on LENOWISCO Rural Area Network (RAN)
● Proved proof of concept for fiber deployments with 10 customers per mile.
● Rural fiber to the home
Tobacco Commission - Fiber Deployment Phase II – Last Mile
2003 – Vice President and COO Sunset Digital Communications
● Construction on LENOWISCO Rural Area Network (RAN)
● Fiber Backbone Geodesic Mesh© – Phase V(b)
Appalachian Regional Commission - Fiber Deployment
2004 – Vice President & COO Sunset Digital Communications
● Telecommunications Initiative – 400 yards to Jonesville
● Small town FTTH
Tobacco Commission – Dark Fiber Preliminary Engineering and Design
2005 – Vice President & COO Sunset Digital Communications
● Construction on LENOWISCO Rural Area Network (RAN)
RUS Community Connect Rose Hill
2005 – Vice President & COO Sunset Digital Communications
● Extended LENOWISCO Rural Area Network (RAN) into the Rose Hill, VA community.
Independence, VA – Blown Fiber Deployment
2006 – Vice President & COO Sunset Digital Communications
● Construction of blown fiber optic infrastructure for the town of Independence, VA.
RUS Community Connect Ewing
2006 – Vice President & COO Sunset Digital Communications
● Extended LENOWISCO Rural Area Network (RAN) into the Ewing, VA community.
Tobacco Commission – Fiber Deployment Phase III

2006 – Vice President & COO Sunset Digital Communications
● Construction on LENOWISCO Rural Area Network (RAN)
● Fiber backbone Geodesic Mesh© – Phase V(b)
VCEDA Last Mile
2007 – Vice President & COO Sunset Digital Communications
● Funded 500 last mile connections.
RUS Community Connect St. Charles
2007 – Vice President & COO Sunset Digital Communications
● Extended LENOWISCO Rural Area Network (RAN) into the St. Charles, VA community.
Additional Backbone Build Out for LENOWISCO Inc.
2008 – Vice President & COO Sunset Digital Communications
● Construction on LENOWISCO Rural Area Network (RAN) to extend network backbone reach
RUS Community Connect Blackwater
2008 – Vice President & COO Sunset Digital Communications
● Extended LENOWISCO Rural Area Network (RAN) into the Blackwater, VA community.
RUS BIP Project – Transform Tennessee
2010 – 2015 – Vice President & COO Sunset Digital Communications
● Funded backbone buildout, advanced DWDM Deployment, and 2500 last mile connections in Claiborne and Hancock Counties in TN.