

Application to DHCD Submitted through CAMS

Roanoke County

Universal Coverage Gaps Shentel Roanoke

Application ID: 95708252022112930
Application Status: Pending
Program Name: Virginia Telecommunication Initiative 2023 - Application
Organization Name: Roanoke County
Organization Address: 5204 Bernard Drive, SW, Rm 421
Roanoke, VA 24018
Profile Manager Name: Tom Rowley
Profile Manager Phone: (540) 315-0778
Profile Manager Email: trowley@roanokecountyva.gov

Project Name: Universal Coverage Gaps Shentel Roanoke
Project Contact Name: Bill Hunter
Project Contact Phone: (540) 777-8552
Project Contact Email: bhunter@roanokecountyva.gov
Project Location: 5925 Cove Road
Roanoke, VA 24019-2403
Project Service Area: Roanoke County

Total Requested Amount: \$409,000.00
Required Annual Audit Status: Accepted

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Budget Information:

Cost/Activity Category	DHCD Request	Other Funding	Total
Telecommunications	\$409,000.00	\$425,000.00	\$834,000.00
Other: Shenandoah Universal Coverage	\$409,000.00	\$425,000.00	\$834,000.00
Total:	\$409,000.00	\$425,000.00	\$834,000.00

Budget Narrative:

As a continuation of last years VATISF#2022-029 Shentel and the County have identified approximately 66 passings that do not meet the threshold of high speed Internet.

Questions and Responses:

1. Project Description and Need

Describe why and how the project area(s) was selected. Describe the proposed 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:

Rural areas of Roanoke County have been in need of Broadband connectivity for many years. An increasing number of requests from citizens over the years have brought much attention to these areas of the County. There are 65 locations without access to Broadband internet speeds in the areas of the County included in this project.

This proposed project fits into our larger plan to achieve universal Broadband coverage for Roanoke County. Roanoke County supports the Commonwealth Connect efforts to bring functional universal Broadband to Virginia. We are also focused on digital equity and making Broadband affordable for all.

2. List existing providers in the proposed project area and the speeds offered. Describe your outreach efforts to identify existing providers and how this information was compiled with source(s).

Answer:

The County of Roanoke conducted extensive outreach in the form of citizen surveys and direct contact with citizens in the area. Roanoke County provides a data collection tool with feedback loops where citizens report lack of Broadband service, the most recent version is:

<https://www.roanokecountyva.gov/FormCenter/CommIT-22/Broadband-Comments-133>

The county also refers to the I3 connectivity explorer: <https://internet-is-infrastructure.org/>

Broadband USA and ESRI Broadband availability

App: <https://broadbandusa.maps.arcgis.com/apps/webappviewer/index.html?>

USDA ReConnect maps, and FCC CAF 2 maps to determine coverage; then follows

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up with requests to service providers asking for service availability.

Wireless 4G Broadband Providers

Company Name

Download Speed

AT&T MOBILITY

768 Kbps - 1.5 Mbps

NTELOS

768 Kbps - 1.5 Mbps

SPRINT

768 Kbps - 1.5 Mbps

T-MOBILE

768 Kbps - 1.5 Mbps

US CELLULAR

768 Kbps - 1.5 Mbps

VERIZON WIRELESS

768 Kbps - 1.5 Mbps

Wireless LTE Broadband Providers

Company Name

Download Speed

AT&T MOBILITY

Minimum 4 Mbps

T-MOBILE

Minimum 4 Mbps

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US CELLULAR

Minimum 4 Mbps

VERIZON WIRELESS

Minimum 4 Mbps

Wireline (DSL) Broadband Providers

Company Name

Download Speed

VERIZON VIRGINIA LLC

Maximum 5 Mbps

3. Describe if any areas near the project have received funding from federal grant programs, including but not limited to Connect America Funds II (CAF II), ACAM, ReConnect, Community Connect, and Rural Digital Opportunity Funds (RDOF). If there have been federal funds awarded near the project area(s), provide a map showing these areas, verifying the proposed project area does not conflict with these areas. Label Map: Attachment 2 – Documentation on Federal Funding Area.

Answer:

Shentel and Roanoke County are unaware of any federal grant programs available in the project area included in this proposal that meet the speed requirements for the definition of Broadband

4. Overlap: 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 below 100/20 Mbps and with less than 25% service overlap within the project area for wireless projects and 20% for wireline projects. Describe any anticipated service overlap with current providers within the project area. Provide a detailed explanation as to how you determined the percentage overlap. Label Attachment: Attachment 3 – Documentation Unserved Area VATI Criteria.

Answer:

Our project area is unserved as each section is in a rural part of the County where current speeds are less than 10 Mbps Down / 1 Mbps Up. We used a combination of the FCC Maps, USDA Reconnect Maps, BroadbandNow.com, and the citizen broadband reports we collected to determine this. For each citizen broadband report we received we followed up with the citizen(s) inquiring if they had checked with other providers.

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5. Total Passings: Provide the number of total serviceable units in the project area. Applicants are encouraged to prioritize areas lacking 25 Megabits per second download and 3 Megabits per second upload speeds, as they will receive priority in application scoring. For projects with more than one service area, each service area must have delineated passing information. Label Attachment: Attachment 4 – Passings Form.
- a. Of the total number of VATI passings, provide the number of residential, business, non-residential, and community anchors in the proposed project area.
 - b. If applicable, of the total number of RDOF passings, provide the number of residential, business, non-residential, and community anchors in the proposed project area.
 - c. If applicable, provide the number of passings that will require special construction costs, defined as a one-time fee above normal service connection fees required to provide broadband access to a premise . Describe the methodology used for these projections.
 - d. If applicable, provide the number of passings included in the application that will receive broadband access because special construction costs have been budgeted in the VATI application. Describe the methodology used for determining which passings with special construction costs were budgeted in the application.
 - e. Provide the number of passings in the project area that have 25/3 Mbps or less. Describe the methodology used for these projections. (up to 15 points)

Answer:

- a.

Total Passings: 65

Residential Passings: 64

Business Passings (Non-Home Based): 1

Business Passings (Home Based): 0

Community Anchor Passings: 0

Non-Residential Passings: 0
- b. There are no RDOF passings in this project area.
- c. There are 42 passings in this project area that require special construction costs.
- d. Of all the 42 passings estimated to require special construction costs, we estimate that 28 of them will take service. This estimate represents 65% take rate for residential locations based on Shentel's historical experience.
- e. There are estimated to be 65 locations with speeds below 25/3 in this project area. This estimate was constructed primarily through comparisons against publicly available Broadband maps. Wireless providers were not included due to the sporadic nature of wireless coverage and the lack of precision involved in estimating wireless propagation.

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6. Describe if any blocks awarded in Rural Digital Opportunity Fund (RDOF) are included in the VATI application area. If RDOF areas are included in the VATI application, provide a map of these areas and include information on number of passings in RDOF awarded areas within the VATI application area, and Census Block Group ID number for each block group in the project area. Label Attachment: Attachment 5 – RDOF Awarded Areas Form in VATI Area

Answer:

There are no RDOF blocks included in this project area.

7. **For wireless projects only:** Please explain the ownership of the proposed wireless infrastructure. Please describe if the private co-applicant will own or lease the radio mast, tower, or other vertical structure onto which the wireless infrastructure will be installed.

Answer:

N/A

8. Network Design: 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. Provide a detailed explanation of how this information was determined with sources. Provide information on how capacity for scalability, or expansion, of how the network can adapt to future needs. If using a technology with shared bandwidth, describe how the equipment will handle capacity during peak intervals. For wireless projects, provide a propagation map for the proposed project area with a clearly defined legend for scale of map. Label Map: Attachment 6 – Propagation Map Wireless Project.

Answer:

Shentel will be building a new Wireline solution leveraging XGS-PON Fiber to the Home ("FTTH") technology via the ITU G.9807.1 standard to the VATI locations within this proposed project area. This 100% FTTH solution will involve building new fiber extensions in the County. These new fiber extensions will connect to Shentel's existing fiber plant within this same County. Because Shentel already has an existing Broadband Network in this same County (inclusive of existing Core Network access and existing Distribution Network), this proposed project will simply be an extension of existing Broadband services to the proposed VATI locations. Further, Shentel will maintain end-to-end ownership of its entire Broadband Network within the County and will not be sharing resources.

Shentel deploys XGS-PON for its FTTH product. XGS-PON (X=10, G=Gigabit, S=Symmetrical, PON = Passive Optical Network) is an advanced standard for Passive Optical Networks (PON). XGS-PON is scalable to support up to 10 Gbps symmetrical data. By contrast, earlier PON networks are extremely limited in the amount of downstream and upstream capacity available to the end user. Although XGS-PON required significant additional Shentel investment, the growing demand for symmetrical broadband made the investment in XGS-PON the best choice.

Shentel will initially provide speed tiers of 1 Gbps up and 1 Gbps down ("1Gbps Symmetrical"). However, the network is scalable to provide symmetrical data speeds of up to 10Gbps.

XGS-PON deployments are designed as both centralized and distributive fiber split topology, depending on the geography of the network. A single fiber from the service provider provides an efficient point-to-multipoint broadband connection for multiple end users. In this rural VATI project area, Shentel will use a Distributed Split architecture to provide a more direct approach to ensuring that fiber capacity, technology, and plant records can be easily managed and scaled for growing Broadband demands.

Shentel typically initiates the fiber split from the Optical Line Terminal (OLT) out to the Customer Premise. Each OLT is fed with dedicated fiber(s) from a Central Office (CO) or Point of Presence

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(POP). Shentel leverages these fibers to easily expand its fiber presence in each of the FTTH markets, and scale to future bandwidth requirements. This robust fiber infrastructure also allows us to accommodate commercial sales opportunities within the same areas.

Content Providers CDN Appliances

- Amazon
- Apple
- Facebook
- Google
- Netflix
- Akamai
- Verizon Media
- Twitch
- StackPack

Capacity Management

Network utilization for Border Routers, Core Routers, Edge Routers, Access Switches, Optical Line Terminals (OLT) are reviewed on a weekly basis. Shentel utilizes server tools with SNMP polling to report the maximum utilization of key network elements and link interfaces in 1-minute intervals. This data is transformed into the criteria shown below for visual representation. Once link utilization reaches the monitor stage, a high-level augment plan is created in preparation for increasing capacity. As traffic increases above the augment threshold, further analysis is performed to determine if the increase is a result of a one-time event or a result of growth. If the increase is determined to be normal growth, the augment plan is executed.

Core Network

Border Network

Edge Router

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Access Switch

CMTS/OLT Network Uplink

Good

<40%

<60%

<60%

<60%

<60%

Monitor/Plan

40%-60%

60%-90%

60%-80%

60%-80%

60%-80%

Investigate/Augment

>60%

>90%

>80%

>80%

>80%

Downstream and upstream utilization is reviewed on a weekly basis. A threshold report is

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utilized from Shentel's internal tools to report on any downstream and upstream interfaces that exceed 80% and 90% utilization. This report records the amount of time above the threshold during the previous week. This data is transformed into the criteria below to provide visual representation for the downstream and upstream interfaces that require research. If no other resolution can be used to reduce the utilization, an augment will be planned.

>80% Criteria

- >1 Hour = Highlighted in YELLOW
- <1 Hour = Flagged with GREEN flag
- >1<2.5 Hours = Flagged with YELLOW flag
- >2.5 Hours = Flagged with RED flag

>90% Criteria

- Yes = Highlighted in RED
- <1 Minute = Flagged with NO flag
- >1 Minute = Flagged with RED flag

Managing network resources based on an oversubscription method is an antiquated view. It becomes challenging to properly plan network resource usage because the users of network resources are a diverse group of users. Instead, Shentel manages network resources based on peak utilizations against the established criteria. Shentel will use some general oversubscription practices such as 2:1 oversubscription on 1 Gbps links and 6:1 oversubscription on 10 Gbps links, however. These general practices are intended to start the planning process when sizing the links between users of network resources and Shentel's network.

Finally, the aforementioned information was sourced by internal Shentel engineering resources and existing Shentel vendor relationships, and ultimately reviewed and approved by Harris Duncan, Vice President Network Engineering and Dan Meenan, Vice President Operations.

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9. **Speeds:** Describe the internet service offerings, including download and upload speeds, to be provided after completion of the proposed project. 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. List the private co-applicant's tiered price structure for all speed offerings in the proposed project area, including the lowest tiered speed offering at or above 100/20 Mbps. (up to 10 points)

Answer:

As already noted, this project is based on a full Fiber to the Home (FTTH) network design. The speeds that Shentel currently plans to offer in the project area are shown in the table below

This proposed rate structure is subject to change and reflects base pricing only. Promotions and periodic rate structure changes will be carried out at Shentel's sole discretion.

10. Explain how the proposed project achieves universal broadband coverage for the locality or fits into a larger plan to achieve universal broadband coverage for the locality. If applicable, explain the remaining areas of need in the locality and a brief description of the plan to achieve universal broadband coverage. (up to 50 points)

Answer:

Roanoke County is actively working to improve broadband connectivity throughout the community, as part of the "Connect Roanoke County to the World" Strategic Initiative outlined in the County's 2016 Community Strategic Plan. Citizens can find additional information and express concerns at: <https://www.roanokecountyva.gov/ruralbroadband>

11. **Project Readiness**

Describe the current state of project development, including but not limited to: planning, preliminary engineering, identifying easements/permits, status of MOU or MOA, and final design. Prepare a detailed project timeline or construction schedule, identifying specific tasks, staff, contractor(s) responsible, collection of data, etc., and estimated start and completion dates. Applicants are encouraged to extensively discuss, where applicable, easements relating to railroad crossings, federally-owned lands and parks, partnerships with the Virginia Department of Transportation, and mobile home parks. Applicants must include Memorandums of Understanding (MOUs) or Memorandums of Agreement (MOAs) between applicants (drafts are allowable). Label Attachments: Attachment 7 – Timeline/Project Management Plan; Attachment 8 – MOU/MOA between Applicant/Co-Applicant; (up to 10 points)

Answer:

Based on Shentel's existing assets and relationships, this project is in a very favorable state of development. A high-level network design is in place with the planned fiber routes. This network design is bolstered by Shentel's existing infrastructure, which will facilitate both project construction and management. Shentel's typical permitting and easement process is as follows.

- Shentel will complete a detailed review of the planned fiber route to validate and refine the route to include determining feasibility, costs, and challenges for construction. Review will consist of Shentel personnel visually inspecting the entire planned fiber route. Shentel typically follows utility routes such as power or telephone and permits with those utilities for new pole attachments when there are not existing Shentel attachments to allow for overlap.
- Shentel will adhere to the existing attachment guidelines and permit all utility pole owners for any overlap when required and for new pole attachments. For any utility pole that is located on private property and requires a new permit, Shentel would follow the Virginia and Federal codes that would allow Shentel to use existing like-kind utility easements. Shentel may engage the appropriate County staff for any questions that arise around such easements.

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- VDOT permits would be submitted in those locations where Shentel plans to place fiber in the VDOT ROW. All other permits such as city, town, railroad, or VMRC would be permitted as required.
- Shentel will provide contact information to any agency that will be permitted for the project.

Furthermore, Shentel's growing presence in Roanoke County and strong partnership with County staff, VDOT, and utility pole owners means that the needed easements and permitting processes are all well understood and can be processed in a timely manner. Shentel is already positioned with required attachment agreements with the existing pole owners and bond securities established with VDOT. Shentel's longstanding relationships with qualified contractors coupled with the large volume of both aerial and underground work Shentel has proposed across Bedford, Franklin, and Shenandoah counties places Shentel in an ideal position to bid for these contracting resources.

Across its cable, fiber, and fixed wireless services, Shentel has expanded Broadband service to over 93,000 homes in the last 12 months, and that number is constantly growing. This robust proven growth, along with Shentel's long history Roanoke County clearly demonstrates Shentel's ability to design and deploy a wide array of Broadband networks.

Shentel estimates, in conjunction with its proposals in Bedford, Franklin, and Shenandoah Counties, that the project will be completed within 18 months from contract execution. A detailed project timeline can be found in attachment 7.

An MOU between Roanoke County and Shentel **has been executed** and can be found in Attachment 8 - MOU/MOA between Applicant/Co-Applicant. The plan demonstrates a commitment to reach the 2024 completion date with a steady and phased-in process to

include: creating project account, performing field survey for construction, completing Dominion Power pole application process, designing project, securing VDOT permits and private property easements, ordering project materials, setting power supply units, performing aerial and underground construction, activating the network, and releasing the addresses. Shentel personnel overseeing the planning and construction phases have thoroughly reviewed the project management plan and timeline to confirm that all resources are available to complete the project by the required time frame. This project has passed engineering and financial commit stages and is approaching final design. Attachment 6 – Timeline/Project Management Plan is included and identifies all tasks, staffing, contracting work, with estimated start and completion dates.

12. Has the applicant or co-applicant received any VATI grants? If so, provide a list of these grants, with a detailed summary of the status of each.

Answer:

Applicant VATI Grant History

Roanoke County has been awarded four (4) previous VATI grants. The following is a summary of Roanoke County's awards. The status of the VATI grants awarded through the 2022 VATI cycle are listed below.

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County: Roanoke County

ISP: Shenandoah Cable Television, LLC

Passings: 213

VATI Award: \$490,000

Status: Contracting



County: Roanoke County

ISP: B2X Online

Passings: 311

VATI Award: \$170,069

Status: Contracting



County: Roanoke County

ISP: Craig Botetourt Electric Cooperative

Passings: 495

VATI Award: \$1,581,584

Status: Contracting



County: Roanoke County

ISP: Cox Communications

Passings: 396 (30 RDOF)

VATI Award: \$1,535,264

Status: Contracting



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Co-Applicant VATI Grant History

Shentel has been awarded five (5) VATI grants. The following is a summary of Shentel's grant awards. All of the projects listed below will deliver Internet, video, and phone through either a coax or fiber extension. The Internet speed packages offered in these extensions include a Gigabit option in addition to lower speed options. In addition, Shentel has been awarded several grants directly with a locality (Campbell County and Albemarle County through CARES funding). All grants at the local level have been successfully closed out, and are delivering Broadband to unserved locations. The status of the VATI grants awarded through the 2022 VATI cycle are listed below.

County: Bedford County

ISP: Shenandoah Cable Television, LLC

Passings: 4,734

VATI Award: \$9,148,553

Status: Contracting

County: Campbell County

ISP: Shenandoah Cable Television, LLC

Passings: 3,509

VATI Award: \$6,442,563

Status: Contracting

County: Franklin County

ISP: Shenandoah Cable Television, LLC

Passings: 3,508

VATI Award: \$11,832,456

Status: Contracting

County: Roanoke County

ISP: Shenandoah Cable Television, LLC

Passings: 213

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VATI Award: \$490,000

Status: Contracting

County: Shenandoah County

ISP: Shenandoah Cable Television, LLC

Passings: 4,139

VATI Award: \$12,176,662

Status: Contracting

13. Matching funds: Complete the funding sources table indicating the cash match and in-kind resources from the applicant, co-applicant, and any other partners investing in the proposed project (VATI funding cannot exceed 80 percent of total project cost). In-kind resources include, but are not limited to: grant management, acquisition of rights of way or easements, waiving permit fees, force account labor, etc. Please note that a minimum 20% match is required to be eligible for VATI, the private sector provider must provide 10% of the required match. If the private co-applicant cash match is below 10% of total project cost, applicants must provide financial details demonstrating appropriate private investment. If applicants and co-applicants are seeking to include prior expended funds as matching funds, Attachment 11 must be completed. Label Attachments: Attachment 9 - Funding Sources Table; Attachment 10 – Documentation of Match Funding; Attachment 11 - Prior Expended Match Form

Answer:

Requested VATI: \$409,000

Shentel: \$208,000

Roanoke County: \$217,000

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14. Leverage: Describe any leverage being provided by the applicant, co-applicant, and partner(s) in support of the proposed project. (up to 10 points)

Answer:

Beyond the leverage of using County resources and support for easements and working with VDOT, residents, and the power companies; the co-applicants plan to leverage strong relationships to provide distance learning and workforce training working with the Roanoke County Public Schools (RCPS) and Virginia Western Community College (VWCC).

We will also leverage support from our longstanding working relationship with the Roanoke Regional Commission. In addition, the Roanoke County Board of Supervisors appropriated funds in support of the program, coupled with dedicated time of at least three (3) County staff to work on the resulting project. We are also leveraging existing resources which continue work on the five current projects funded by the Roanoke County Board of Supervisors bringing Broadband to over 1,400 homes in the County. The County regularly sponsors Civic League meetings where Broadband needs are discussed. From those meetings, documents are created from the ideas and questions raised by the residents for use in any potential future projects and will be important assets for this new project and continue the Roanoke County goal for universal coverage.

15. Communications Plan: Describe efforts to keep the public informed of project progress and the broadband adoption plan.
- a. Explain how you plan on communicating the project status to stakeholders, including but not limited to County leadership, project areas residents, etc. (Up to 10 points)
 - b. Explain how you plan to promote customer take rate, including marketing activities, outreach plan, and other actions to reach the identified serviceable units within the project area. Provide the anticipated take rate and describe the basis for the estimate. (up to 10 points)
 - c. Describe any digital literacy efforts to ensure residents and businesses in the proposed project area sufficiently utilize broadband. Please list any partnering organizations for digital literacy, such as the local library or cooperative extension office.

Answer:

a. Roanoke County and Shentel will continue to work collaboratively to ensure that all stakeholders, including the Board of Supervisors, residents, business owners, and community anchors, are kept apprised of project developments. As part of the management of the project, the County will have access to the monthly progress reports that will be submitted to DHCD. Additionally, Shentel and the County will work together to establish an appropriate cadence on which to present updates to the Board of Supervisors. Residents and business owners will also be able to check their address on Shentel's website to determine if they are included in the project and to get an estimate of when service is expected to be live at their location.

b. Shentel will engage in a targeted iterative marketing effort during and after its construction to ensure awareness of this project and its benefits. In addition to providing regular updates to County Officials and working with the County to notify residents of project status, Shentel will carry out its own direct marketing outlined below.

45 Days prior to construction: Direct Mail to targeted service area announcing beginning

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construction.

3-Days prior to construction: Construction imminent door tags of affected homes

Construction Start Date: Email to pre-registered leads

30 Days before DCP is Active: Direct Mail to targeted service area with special offer to sign-up early

Construction progress: Email to pre-registered leads

Service Available: Email to pre-registered leads, Direct Mail postcard announcing order availability

Installation: Yard stake

Note: Direct marketing will include information informing long-drop eligible residents of their limited-time opportunity to have their long-drop costs covered through grant funding.

Shentel is also a participant in the Federal Affordable Connectivity Program which provides a discount of up to \$30.00 to qualifying households.

c. Roanoke County Public Libraries offer a wide range of free computer, Internet use and resource instruction to help people locate, evaluate, and use online resources. County libraries are vital centers for access to digital literacy and as library users continue to change, the County libraries continually evolve to meet the digital needs of our community. Launchpads offer hours of interactive learning and play for children. There's even a section for parents to gain feedback on time spent on the device.

Roanoke County Public Library has placed focused on community digital literacy programs over the past several years, offering free classes most every month at each Library location. Topics range from basic usage of the latest consumer technologies to specific classes dedicated to popular software (Microsoft Office applications, photography apps, social media, networking, etc.) and other popular topics.

16. Project Management: Identify key individuals who will be responsible for the management of the project and provide a brief description of their role and responsibilities for the project. Present this information in table format. Provide a brief description of the applicant and co applicant's history and experience with managing grants and constructing broadband communication facilities.

Answer:

Shentel is one of the largest regional internet service providers in the Mid-Atlantic. They have a 120-year operating history and an extensive fiber network that spans more than 7,900 miles and supports its rapidly growing and multifaceted Broadband services in Virginia, West Virginia, Maryland, Kentucky, and Pennsylvania. With Broadband service delivered to more than 67,000 homes in the past 12 months, Shentel has the clear and tangible financial and operational experience to not only construct, but also operate and manage the project proposed in this grant application. Shentel is currently operating and expanding its legacy cable markets, while also managing its highly successful and new Glo Fiber FTTH service. Launched in 2019, Glo Fiber is an XGS-PON FTTH network that is serving customers with symmetrical multi-gigabit speeds in more

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than a dozen communities across Virginia, West Virginia, Maryland and Pennsylvania. Shentel currently covers more than 112,000 homes with this service, bringing its total broadband footprint to over 324,000 homes, with 378,000 more planned by 2026.

Roanoke County Project Management Team

Bill Hunter, Director of Communications & Information Technology.

Role: Project Manager

Qualifications: Past project experience includes - Roanoke County Public Safety Center construction (IT Issues), and the Western Virginia Regional Jail construction project (IT Issues). Currently managing four (4) VATI grants with four (4) separate ISPs.

Joan Ruscitti-Ball, Business Coordinator

Role: Project Coordination

Qualifications: 8 years of local government administration.

Shentel Project Management Team

Employee

Title

Role

Qualifications

Dan Meenan

Vice President, Operations

Executive oversight of Fiber to the Home deployment for the VATI projects.

Executive with over twenty years of diverse telecommunications management experience inclusive of wireless mobility

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networks, fixed wireless networks, and cable television.

Harris Duncan

Vice President, Network Engineering

Executive oversight of Core integration & support for the VATI projects.

Executive with over twenty years of diverse telecommunications management experience inclusive of wireline fiber networks and cable television.

Brith Osinkosky

Director OSP Engineering & Construction

Responsible for Fiber to the Home engineering and construction for the VATI projects.

Accomplished leader with twenty years of experience in Outside Plant engineering, construction and operations, specializing in large-scope projects, and broadband acquisitions/overbuilds/upgrades. Currently managing 20,000+ miles of Shentel's OSP network. Extensive experience with FTTH designing and implementation.

Paul Lopez

Director of Broadband Operations

Responsible for all customer installation and support for Fiber to the Home.

Jessica Wilmer

Manager, Project Management

Responsible for the coordinated deployment of Fiber to the Home and for project management updates and cost reimbursement related to the VATI projects.

20 years of wireless telecommunications industry real estate acquisition and site development expertise. Previously project managed Shentel's Wireless Mobility network comprised of approximately 2,000 cell sites in seven states, including developing over 500 new cell sites. Former Zoning Administrator in Augusta County. Extensive experience with Zoning and Planning, the Wireless industry, and government affairs.

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17. Project Budget and Cost Appropriateness

Budget: Applicants must provide a detailed budget that outlines how the grant funds will be utilized, including an itemization of equipment, construction costs, and a justification of proposed expenses. If designating more than one service area in a single application, each service area must have delineated budget information. For wireless projects, please include delineated budget information by each tower. Expenses should be substantiated by clear cost estimates. Include copies of vendor quotes or documented cost estimates supporting the proposed budget. Label Attachments: Attachment 12 – Derivation of Costs; Attachment 13 - Documentation of Supporting Cost Estimates. (up to 10 points)

Answer:

As noted in questions 11 and 16, Shentel is a 120-year-old telecommunications company that has served Roanoke County for many years. Shentel is currently laying hundreds of miles of fiber per year to support its expanding Cable and FTTH services. As shown in attachments 12 and 13, all cost estimates are based off a long and active history in both the Broadband industry. While attachment 12 shows a high-level roll up of costs in alignment with DHCD guidance, attachment 13 provides detailed cost breakouts and supporting documentation from various vendor relationships for wireline service.

18. The cost benefit index is comprised of state cost per unit passed. Individual cost benefit scores are calculated and averaged together to create a point scale for a composite score. Provide the following:
- Total VATI funding request
 - Number of serviceable units
(up to 125 points)

Answer:

- The total VATI funding request is \$409,000.00
- The total number of serviceable units covered is 65.

19. Commonwealth Priorities (Up to 50 points)

Additional points will be awarded to proposed projects that reflect Commonwealth priorities. If applicable, describe the following:

- Businesses, community anchors, or other passings in the proposed project area that will have a significant impact on the locality or region because of access to broadband.
- Unique partnerships involved in the proposed project. Examples include electric utilities, universities, and federal/state agencies.
- Digital equity efforts to ensure low to moderate income households in the proposed project area will have affordable access to speeds at or above 100/20 mbps, include information regarding the internet service provider's participation in the Affordable Connectivity Program
- The co-applicant's efforts to mitigate supply chain constraints, including labor shortages and order-to-delivery delays on telecommunications materials required to construct broadband networks.
- The applicant's and co-applicant's efforts to promote broadband adoption, including, but not limited to: telehealth, smart farming, e-entrepreneurship, and distance learning.

Answer:

- The proposed project impacts 64 homes and home-based businesses in the area, through the introduction of Broadband will have a positive economic impact. Providing Broadband to these businesses allows them to complete in the global economy and include a telecommuting workforce as part of their growth plans; providing more jobs and more revenue for the County.
- N/A

Application to DHCD Submitted through CAMS

Roanoke County

Universal Coverage Gaps Shentel Roanoke

c. Roanoke County supports the Commonwealth Connect efforts to bring functional universal Broadband to Virginia. We are also focused on digital equity and making Broadband affordable for all. We review our Broadband plan on an annual basis. Roanoke County is also equally concerned about and working to solve challenges identified in the most recent Commonwealth Connect 2.0. We are working to reduce cost of equipment; implement means to utilize shared infrastructure for network deployment through support of reduced or no fees for pole attachments or other sharing of infrastructure such as conduit; support waiving the cost of easements for Broadband deployment; and through our ongoing Broadband survey and community outreach continue filling gaps and identifying borders of coverage; and working with ISPs to focus on technologies and projects which avoid or create difficult to serve areas. As discussed in question 6, Shentel is also leveraging this project to bring service to Low-to-Moderate residents who may not otherwise be able to receive it. Long drops are a notorious roadblock for low to moderate income residents to receive Broadband service. Shentel has included as part of the cost of this project long drop capital for approximately 14 long drops for homes that are believed to be Low to Moderate Income.

d. Shentel has an established supply chain with trusted and diversified vendors, a mobilized workforce, a dedicated Purchasing team, an extremely strong balance sheet, and a highly experienced management team. Notably:

1. Shentel currently has over 1,700 miles of fiber already in inventory.

2. To avoid risks associated with timely delivery, Shentel has an additional 3,500 miles of fiber on order for confirmed delivery in 2022 and 2023. Further, Shentel is in the process of ordering an additional 4,000 miles of fiber for 2024 delivery.

3. Shentel has completed over 1,500 miles of new fiber dedicated to Fiber to the Home over the last several years.

4. Shentel currently has over 5,000 miles of new fiber in various stages of development .

5. Shentel has constructed and certified over 125,000 new fiber to the home passings in the last several years.

6. Shentel is actively engaged with over 35 outside plant contract companies currently building fiber to the home across four states. These contractors want to work with Shentel because we treat them with respect, because we have materials when they need them, we are exceedingly organized and don't waste their time, because we believe in very safe working conditions, and because we pay them more efficiently than our competitors.

Application to DHCD Submitted through CAMS

Roanoke County

Universal Coverage Gaps Shentel Roanoke

e. This proposed project fits into our larger plan to achieve universal Broadband coverage for Roanoke County. This proposed project fills many gaps in the rural areas of the County. One of our goals is to provide quality and reliable broadband with redundancy and future proof so all Roanoke County residents and businesses benefit. Our interactive project map documents the project areas. We continue to work with residents who identify areas where service is unreliable, non-existent, or not affordable. Through ongoing speed test and report gathering; we will continue to build project areas for broadband service. Not until after all areas are served with affordable and reliable Broadband, will we consider our work done.

20. Additional Information

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

Attachment 14 – Letters of Support.

Provide the two most recent Form 477 submitted to the FCC, or equivalent, as well as point, polygon, and, for wireless providers, RSSI shapefiles for the project area **in .zip file form**. With attachments 17 through 20, attach any other information that the applicant desires to include. Applicants are limited to four additional attachments.

Label Additional Attachments as:

- a. Attachment 15 –Two most recent Form 477 submitted to the FCC or equivalent
- b. Attachment 16 - Point and Polygon shapefiles, in.zip file form, showing proposed passings and project area
- c. Attachment 17 - For wireless applicants: shapefiles, in .zip file form, indicating RSSI projections in the application area
- d. Attachment 18 – XXXXXXXX
- e. Attachment 19 – XXXXXXXX
- f. Attachment 20 – XXXXXXXX

Answer:

Attachment 18 contains a pdf. of all questions and answers. The red highlighted areas are information from question 8 that was oversized in number of characters to fit.

Attachments:

Map(s) of project area, including proposed infrastructure

ShentelRoanoke2023Attachment1ProjectAreamap8252022113913.pdf

Application to DHCD Submitted through CAMS

Roanoke County

Universal Coverage Gaps Shentel Roanoke

Documentation of Federal Funding (CAF/ACAM/USDA/RDOF, etc...) in and/or near proposed project area.

ShentelRoanoke2023Attachment2DocumentationofFederalFundingArea8252022113923.pdf

Documentation that proposed project area is unserved based on VATI criteria

ShentelRoanoke2023Attachment3DocumentationUnservedAreaVATICriteria8252022113934.pdf

Passings Form (Use template provided)

ShentelRoanoke2023Attachment4PassingsForm8252022113949.pdf

Documentation of RDOF awarded area in VATI project Area (Use template provided)

ShentelRoanoke2023Attachment5RDOFPassingsForm8252022113958.pdf

Timeline/Project Management Plan

ShentelRoanoke2023Attachment7ProjectManagementPlan8252022114013.pdf

MOU/MOA between applicant/co-applicant (can be in draft form)

ShentelRoanoke2023Attachment8MOUMOAbetweenApplicantCoApplicant8252022114023.pdf

Funding Sources Table (Use template provided)

ShentelRoanoke2023Attachment9FundingSourcesTable8252022114035.pdf

Documentation of Match Funding

ShentelRoanoke2023Attachment10DocumentationofMatchFunding8252022114044.pdf

Derivation of Cost/Project Budget (Use template provided)

ShentelRoanoke2023Attachment12DerivationofCosts8252022114115.pdf

Documentation of Supporting Cost Estimates

ShentelRoanoke2023Attachment13DocumentationofSupportingCostEstimates8252022123047.pdf

Two most recent Form 477 submitted to the FCC or equivalent

ShentelRoanoke2023Attachment15TwoMostRecentForm477SubmittedtotheFCCorEquivalent8252022114153.zip

Application to DHCD Submitted through CAMS

Roanoke County

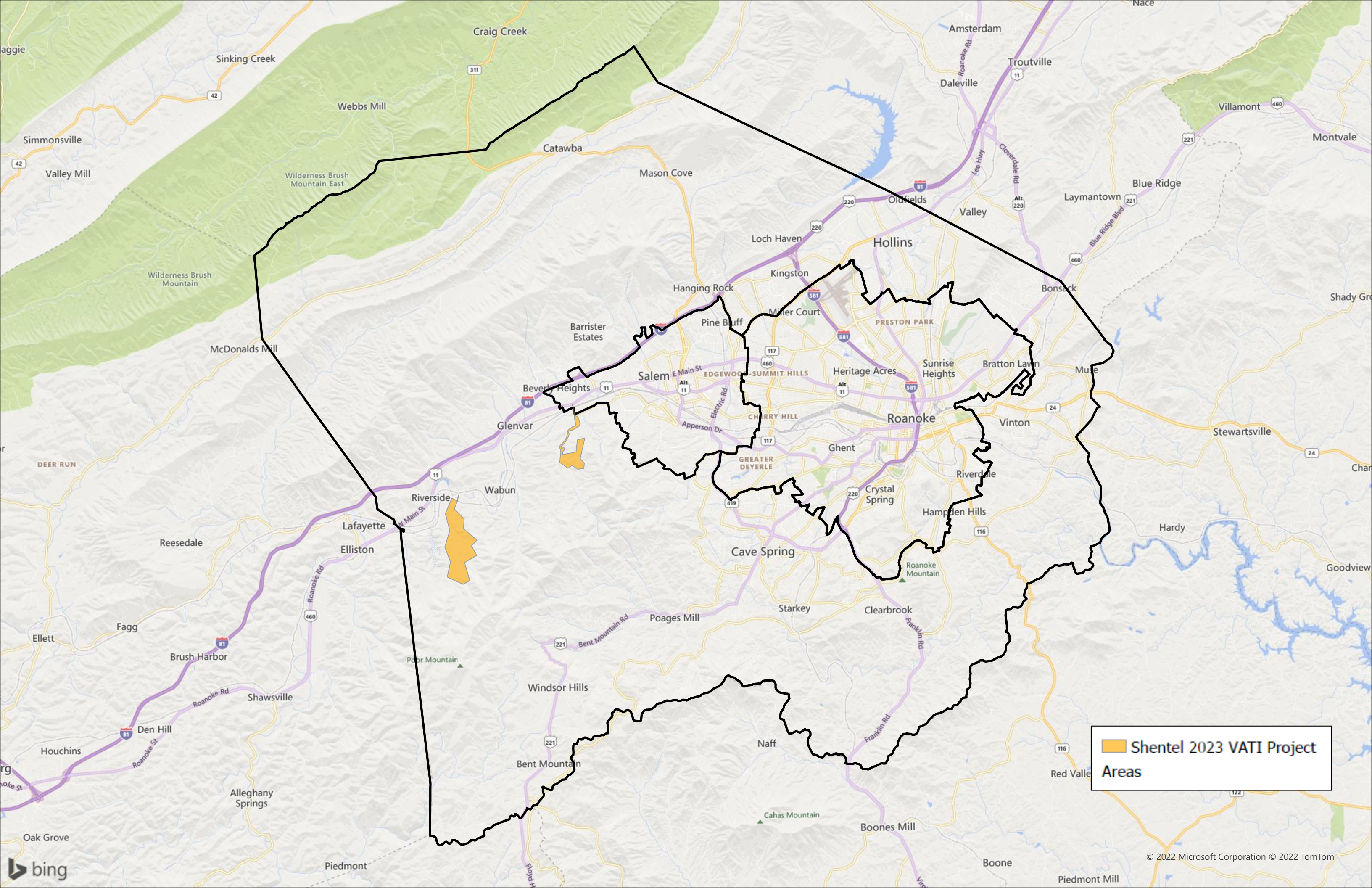
Universal Coverage Gaps Shentel Roanoke


Point and Polygon shapefiles, in.zip file form, showing proposed passings and project area

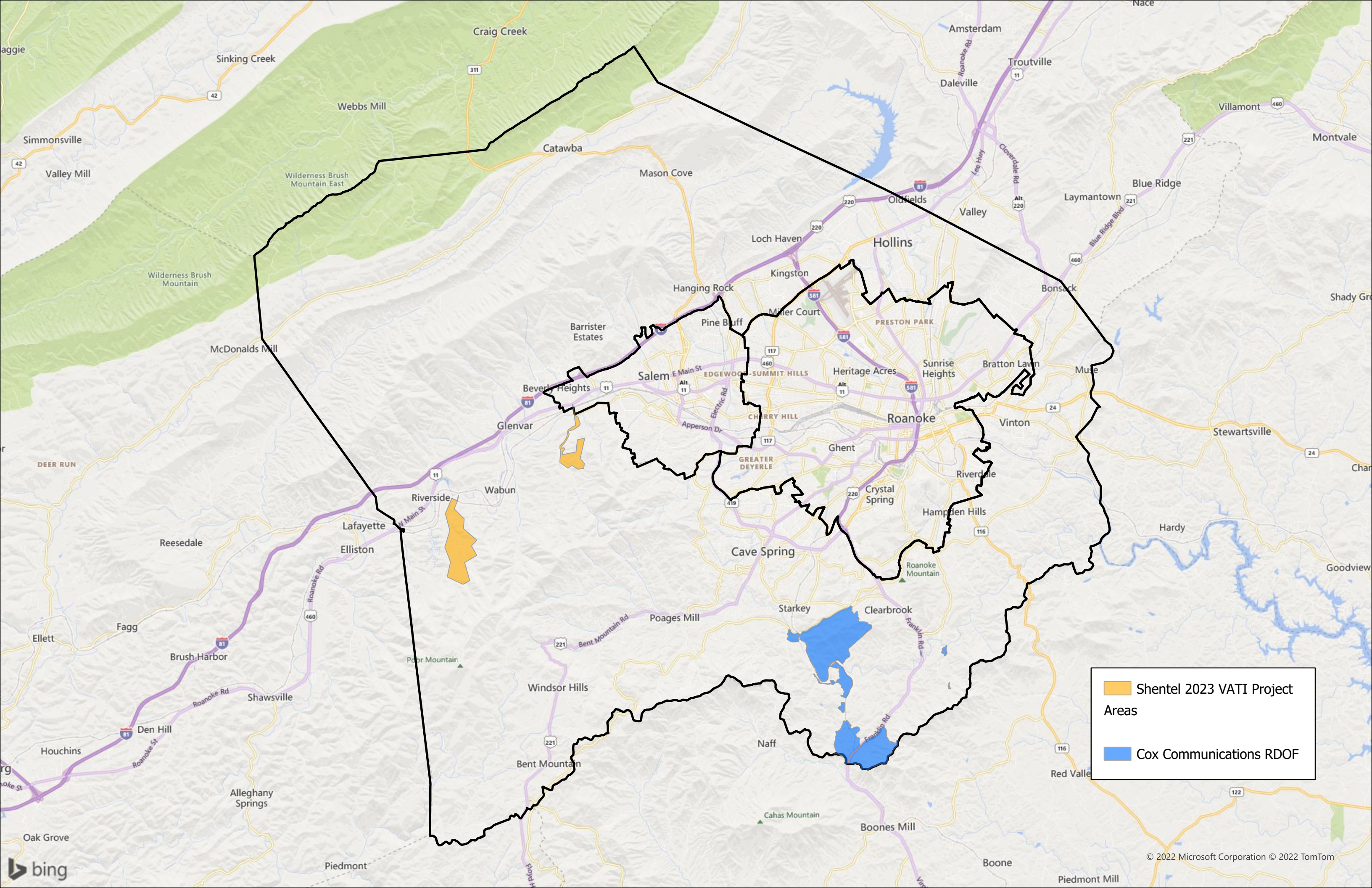
ShentelRoanoke2023Attachment16PointandPolygonShapefiles8252022114210.zip

Optional

ShentelRoanoke2023Attachment18QuestionsandAnswers825202235717.pdf



 Shentel 2023 VATI Project Areas



Shentel 2023 VATI Project Areas

Cox Communications RDOF

Shentel has defined its project area through an iterative and collaborative process of identifying unserved homes. The only homes included in Shentel's VATI application are believed to be unserved. As such, Shentel anticipates no overlap other than possible incidental overlap. The process for identifying unserved homes is complicated and involves several different data sources as well as local knowledge and citizen feedback. As such, there are possible holes in the estimate that may lead to a small amount of overlap. It is also important to note that Shentel did not consider any fixed wireless services in its analysis of existing broadband coverage. Wireless coverage is often spotty and inconsistent, making it impossible to accurately measure. More importantly, Shentel has seen no evidence that the wireless service providers in its project areas can provide speeds at or above 100/20 speeds to qualify for broadband.

Furthermore, Shentel is committed to continuing to minimize overlap throughout the life of this project. Rather than preemptively remove unserved homes, Shentel will cooperatively participate in the challenge process and work with DHCD and any providers that can adequately demonstrate that they provide broadband services to enough locations to sustain a valid challenge.

2023 Virginia Telecommunication Initiative (VATI) Passing Form

Type of Passings	Total Number of Passings in the Project Area ¹	Passings in the Project Area, without Special Construction Costs Required ²	Passings with Special Construction Costs budgeted in the Application ³	Number of Passings with Speeds at 25/3 or below in Project Area ⁴
Residential	64	22	28	64
Businesses (non-home based)	1	1	0	1
Businesses (home-based)	0	0	0	0
Community Anchors	0	0	0	0
Non-residential	0	0	0	0
Total	65	23	28	65

Note: The Total Number of Passings **MUST** be equal to the Residential, Business (non-home based), Non-residential and Community Anchors sum.

Note: Do not include passings in RDOF awarded areas that were awarded to the co-applicant; these passings should be included in the RDOF Passings Form. Passings included in this application in RDOF awarded areas that were not awarded to the co-applicant, unless successfully challenged, are considered unserved and should be counted as passings in this form.

¹The total number of structures in the project area that can receive service. See definition of passing below for more detail.

²The number of structures in the project area that will not require special construction costs to provide service to. These passings fall within the broadband provider's standard service connection drop length and do not require nonstandard equipment or any additional fees above normal service connection fees required to provide broadband access to a premise.

³The number of structures in the project area with all construction costs budgeted in the application. These passings will not require any additional special construction costs beyond those budgeted for in the VATI application.

⁴The number of structures in the project area that do not have access to internet at speeds of at least 25 mbps download and 3 mbps upload.

Definitions

Passing – any structure that can receive service. Multi-unit structures may be counted as more than 1 passing, provided individual connections and account are planned at that structure.

Business – An organization or entity that provides goods or services in order to generate profit. Businesses based in residential homes can count if they are a registered business (BPOL, LLC, etc.).

Community Anchor - schools, libraries, medical and health care providers, public safety entities, community colleges and other institutions of higher education, and other community support organizations and agencies that provide outreach, access, equipment, and support services to facilitate greater use of broadband service by vulnerable populations, including low-income, unemployed, and the aged.

Non-Residential Passing – places of worship, federal, state, or local facilities or other potential customers that are neither a residence, business or a community anchor as defined above.

2023 Virginia Telecommunication Initiative (VATI) RDOF Passings Form

Type of Passings	Total Number of Passings in the Project Area that lie within Preliminarily Awarded RDOF Areas ¹
Residential	0
Businesses (non-home based)	0
Businesses (home-based)	0
Community Anchors	0
Non-residential	0
Total Number of RDOF Passings	0

Note: The Total Number of RDOF Passings **MUST** be equal to the Residential, Business (non-home based), Non-residential and Community Anchors sum.

Definitions

Passing – any structure that can receive service. Multi-unit structures may be counted as more than 1 passing, provided individual connections and account are planned at that structure.

Business – An organization or entity that provides goods or services in order to generate profit. Businesses based in residential homes can count if they are a registered business (BPOL, LLC, etc.).

Community Anchor - schools, libraries, medical and health care providers, public safety entities, community colleges and other institutions of higher education, and other community support organizations and agencies that provide outreach, access, equipment, and support services to facilitate greater use of broadband service by vulnerable populations, including low-income, unemployed, and the aged.

Non-Residential Passing – places of worship, federal, state, or local facilities or other potential customers that are neither a residence, business or a community anchor as defined above.

Project Management Plan

	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Month 13	Month 14	Month 15	Month 16	Month 17	Month 18
Performance Milestones	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24
Field Engineering - Phased																		
Design Engineering - Phased																		
Permitting - Phased																		
Final Project Review - Phased																		
Construction - Phased																		
Customer Installation Commencement - Phased																		
Project Close-out - Phased																		Project Deadline

Detailed description of each of the aforementioned Project Tasks are as follows:

Project Tasks

Field Engineering – Phased

- Outside Plant:
 - Shentel shall complete a full review of the planned fiber route to determine feasibility, costs, and challenges for construction. This review shall consist of Shentel personnel visually inspecting the entire planned fiber route. Shentel typically follows utility routes such as power or telephone, with those utilities for new pole attachments when there is not existing Shentel attachment to allow overlash.
 - Shentel shall make a determination to go underground if the utility routes are deemed unfavorable or contain challenges that would result in high costs to construct.
 - Shentel shall collect all pole information and route information and prepare the proper permits to pole owners and VDOT.

Design Engineering – Phased

- Outside Plant:
 - Shentel shall complete a detailed Engineering Package that includes the entire defined fiber build route, as well as a complete list of all required materials to complete the fiber build.

- Engineering Package shall consist of geospatial drawings of the physical route (aerial versus buried), list all physical structures and other possible obstructions, provide required materials and their physical placement, and note key requirements that construction is required to follow to complete the project.
- Inside Plant:
 - Shentel shall complete a full design and procure all required equipment and ancillary hardware to support all planned services.

Permitting – Phased

- Outside Plant:
 - Shentel shall permit all utility pole owners for any overlash or new pole attachments.
 - For any new permitted utility pole that is located on private property, Shentel shall follow the Virginia and Federal code that would allow Shentel to utilize existing like-kind utility easements. Shentel shall engage the County to aid in any dispute that would arise from a landowner denying Shentel access to utility easements.
 - Shentel shall submit all other permits such as city, town, railroad, or VMRC permits as required.

Construction – Phased

- Outside Plant:
 - Shentel shall complete all construction requirements as outlined and defined in the Engineering Package once all permits have been approved.
 - Required changes during construction shall be communicated and approved before construction can be completed.
 - Shentel shall complete end-to-end fiber characterization and testing of fiber to determine if fiber passes all defined criteria. Any noted problems are corrected at the time of testing.
- Inside Plant:
 - Shentel shall configure, deploy, and install all equipment and ancillary hardware.
 - Shentel shall complete end-to-end testing and certification to validate the service.

Customer Installation Commencement – Phased

- Operations:
 - Release of addresses to sales database

- Shentel shall complete the installation, test, and turn-up of all customer CPE (Customer Premise Equipment) at the home/business to support the service.

Project Close-Out – Phased

- Shentel shall complete a full review of the completed construction against the Engineering Package to verify that all requirements have been completed.
- Shentel shall complete a full review of all received equipment and ancillary hardware to complete verify that all materials have been received and placed into service.
- Shentel shall complete a full review of all vendor invoices against their completed work and materials to verify billing accuracy.
- Shentel shall complete all financial true-ups and closeouts to complete the project.

Roanoke County Grant Management Team:

- **Bill Hunter, Director of Communications & Information Technology.**
Role: Project Manager
Qualifications: Past project experience includes - Roanoke County Public Safety Center construction (IT Issues), and the Western Virginia Regional Jail construction project (IT Issues). VATI 2022; 4 projects
- **Joan Ruscitti-Ball, Business Coordinator**
Role: Project Coordination

Shentel Project Management Plan

Shentel's project will build on its existing infrastructure and will be managed by many individuals that have been doing work in this area for many years. The Shentel project will be managed by the following individuals.

Employee	Title	Role	Qualifications
Dan Meenan	Vice President, Operations	Executive oversight of Fiber to the Home deployment for the VATI projects.	Executive with over twenty years of diverse telecommunications management experience inclusive of wireless mobility networks, fixed wireless networks, and cable television.
Harris Duncan	Vice President, Network Engineering	Executive oversight of Core integration & support for the VATI projects.	Executive with over twenty years of diverse telecommunications management experience inclusive of wireline fiber networks and cable television.
Brith Osinkosky	Director OSP Engineering & Construction	Responsible for Fiber to the Home engineering and construction for the VATI projects.	Accomplished leader with twenty years of experience in Outside Plant engineering, construction and operations, specializing in large-scope projects, and broadband acquisitions/overbuilds/upgrades. Currently managing 20,000+ miles of Shentel's OSP network. Extensive experience with FTTH designing and implementation.
Paul Lopez	Director of Broadband Operations	Responsible for all customer installation and support for Fiber to the Home.	Strategic and solutions-oriented leader with more than twenty years in the Telecommunications Industry. Responsible for the ongoing operations and maintenance of the Broadband Network as well as the installation and support of customers.
Jessica Wilmer	Manager, Project Management	Responsible for the coordinated deployment of Fiber to the Home and for project management updates and cost reimbursement related to the VATI projects.	20 years of wireless telecommunications industry real estate acquisition and site development expertise. Previously project managed Shentel's Wireless Mobility network comprised of approximately 2,000 cell sites in seven states, including developing over 500 new cell sites. Former Zoning Administrator in Augusta County. Extensive experience with Zoning and Planning, the Wireless industry, and government affairs.

Project Management Team Signatures

Roanoke County, VA

Date

Dan Meenan, Vice President, Operations
Shentel

Date

**MEMORANDUM OF UNDERSTANDING
BETWEEN THE COUNTY OF ROANOKE,
VIRGINIA, THE ECONOMIC DEVELOPMENT
AUTHORITY OF ROANOKE COUNTY,
VIRGINIA, AND SHENANDOAH CABLE
TELEVISION, LLC FOR APPLYING FOR VIRGINIA
TELECOMMUNICATIONS INITIATIVE FUNDING FOR
PROVIDING BROADBAND SERVICES**

I. PARTIES AND PURPOSE

This Memorandum of Understanding (MOU) is made and entered into as of the ____ day of August 2022, by and between Roanoke County, Virginia (the “County”), a political subdivision of the Commonwealth of Virginia, the Economic Development Authority of Roanoke County, Virginia (the “Authority”), a political subdivision of the Commonwealth of Virginia, and Shenandoah Cable Television, LLC (“Shentel”), for the purpose of creating a partnership to prepare and submit an application for grant funding through the Virginia Telecommunications Initiative (VATI) the Virginia Department of Housing and Community Development in an effort to expand and improve broadband services to the citizens of Roanoke County, Virginia.

The County and Authority recognize that in order to attain and maintain a high-quality level of broadband service to the citizens of Roanoke County, a close working relationship with the private internet providers is desirable and will be made possible in large part through state and federal grant funding opportunities.

The Authority is a political subdivision of the Commonwealth of Virginia, authorized to make grants for the purposes of promoting industry, developing trade, and inducing manufacturing, industrial, governmental, nonprofit and commercial enterprises and institutions to locate, remain, or expand facilities in the Commonwealth, under Section 15.2-4905 of the Code of Virginia, 1950, as amended.

The County wishes to make certain funds available to the Authority, and the Authority wishes to make a grant to Shentel, for the purposes of incentivizing Shentel to expand its facilities in Roanoke County, increase jobs and employment, enhance learning opportunities for students, and otherwise expand the tax base of the County while simultaneously assisting in preserving public health in the midst of the COVID-19 crisis.

II. SCOPE OF WORK

The County, Authority, and Shentel desire to cooperatively work together to prepare and apply for grant funding through the 2023 Virginia Telecommunications Initiative (VATI) Funding Program managed by the Virginia DHCD to provide fiber broadband service in several areas of the County by extending their existing fiber network. The application for funding anticipates coverage to be made available to approximately 65 households and businesses in the Catawba Magisterial District of the County that are currently unserved/underserved. Service is

envisioned to be provided through the following infrastructure improvements:

- Placement of approximately 1 mile of underground fiber optic cable.
- Placement of approximately 7.5 mile of aerial fiber optic cable.
- Associated construction and make-ready work.

The County, Authority, and Shentel agree to provide the necessary funding to construct the projects above to deliver internet service to the homes/businesses in these areas by providing minimum average internet speeds ranging from 300 Mbps/300 Mbps to 1 Gbps. The total cost of these projects is estimated at \$734,000.

To obtain necessary project funding, the County agrees to complete a grant funding application, with assistance from Shentel through the DHCD VATI Funding Program requesting \$360,000 (approximately 49% of the estimated project cost) to be allocated to the above projects. The County will contribute not more than \$191,000 (approximately 26% of the estimated project cost) toward completion of the projects. Shentel agrees to provide the remaining project funding to complete the above projects (which is anticipated to be \$184,000, or approximately 25% of the project cost).

The parties confirm that a detailed agreement shall be executed if funding is approved to outline all the obligations of the County, Authority, and Shentel and providing performance guarantees for service delivery and maintenance. If funding is approved from DHCD, the parties confirm and understand that Shentel will be responsible for providing the remaining of the funding necessary to complete the project for which DHCD funding was received.

Signatures on following page

IN WITNESS WHEREOF, the parties have executed this Memorandum of Understanding on the day, month, and year indicated:

FOR ROANOKE COUNTY, VIRGINIA:

By: _____
Richard L. Caywood
County Administrator

COMMONWEALTH OF VIRGINIA
COUNTY OF ROANOKE, to wit:

The foregoing instrument was acknowledged before me this ____ day of September 2021 by Daniel R. O'Donnell, on behalf of Roanoke County, Virginia.

My commission expires _____

Registration No. _____

Approved as to form:

By: _____
Peter S. Lubeck
County Attorney

FOR THE ECONOMIC DEVELOPMENT AUTHORITY OF ROANOKE COUNTY:

By: _____
Steven A. Musselwhite
Chairman

COMMONWEALTH OF VIRGINIA
COUNTY OF ROANOKE, to wit:

The foregoing instrument was acknowledged before me this ____ day of September 2021 by Steven A. Musselwhite, on behalf of the Economic Development Authority of Roanoke County, Virginia.

My commission expires _____

Registration No. _____

FOR SHENANDOAH CABLE TELEVISION, LLC:

By: _____

[name]

[title]

COMMONWEALTH OF VIRGINIA

COUNTY OF ROANOKE, to wit:

The foregoing instrument was acknowledged before me this ____ day of September 2021 by
_____, on behalf of Shenandoah Cable Television, LLC.

My commission expires _____

Registration No. _____

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	\$ 359,624	49%	Pending
Shentel	\$ 183,482	25%	Pending
Roanoke County	\$ 190,821	26%	Pending
TOTAL	\$ 733,927	100%	

Shentel is prepared to provide all necessary match funding in alignment with this grant application. All VATI grant projects will be accounted for in the annual budget and funded to the necessary level. Furthermore, Shentel is committed to the proposed projects and has more than adequate financial backing to support their completion.

SHENANDOAH TELECOMMUNICATIONS COMPANY AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
Years Ended December 31, 2021, 2020 and 2019

(in thousands, except per share amounts)

	2021	2020	2019
Service revenue and other	\$ 245,239	\$ 220,775	\$ 206,862
Operating expenses:			
Cost of services	102,299	89,657	83,572
Selling, general and administrative	82,451	85,016	77,846
Restructuring expense	1,727	—	—
Impairment expense	5,986	—	—
Depreciation and amortization	55,206	48,703	46,786
Total operating expenses	247,669	223,376	208,204
Operating loss	(2,430)	(2,601)	(1,342)
Other income, net	8,665	3,187	3,280
Income before income taxes	6,235	586	1,938
Income tax (benefit) expense	(1,694)	(990)	6
Income from continuing operations	7,929	1,576	1,932
Discontinued operations:			
Income from discontinued operations, net of tax	94,667	124,097	53,568
Gain on the sale of discontinued operations, net of tax	896,235	—	—
Total income from discontinued operations, net of tax	990,902	124,097	53,568
Net income	998,831	125,673	55,500
Other comprehensive income:			
Net gains (losses) on interest rate swaps, net of tax	4,706	(5,014)	(7,972)
Comprehensive income	\$ 1,003,537	\$ 120,659	\$ 47,528
Net income per share, basic and diluted:			
Basic - Income from continuing operations	\$ 0.16	\$ 0.03	\$ 0.04
Basic - Income from discontinued operations, net of tax	\$ 19.81	\$ 2.49	\$ 1.07
Basic net income per share	\$ 19.97	\$ 2.52	\$ 1.11
Diluted - Income from continuing operations	\$ 0.16	\$ 0.03	\$ 0.04
Diluted - Income from discontinued operations, net of tax	\$ 19.76	\$ 2.48	\$ 1.07
Diluted net income per share	\$ 19.92	\$ 2.51	\$ 1.11
Weighted average shares outstanding, basic	50,026	49,901	49,811
Weighted average shares outstanding, diluted	50,149	50,024	50,101
Cash dividends declared per share	\$ 18.82	\$ 0.34	\$ 0.29

See accompanying notes to consolidated financial statements.



Chris Kyle
 Vice President, Industry Affairs & Regulatory

ATTACHMENT 12 - Derivation of Costs

	Total	VATI	Non-VATI		
Product	100%	49%	51%	Source of Estimate	Date
Plant Build	\$ 692,216	\$ 339,186	\$ 353,030	Shentel - please see Attachment 13 for supporting documentation	8/19/2022
Long Drops at Customer Premise	\$ 22,211	\$ 10,883	\$ 11,328	Shentel - please see Attachment 13 for supporting documentation	8/19/2022
Core Network Capacity Additions	\$ 19,500	\$ 9,555	\$ 9,945	Shentel - please see Attachment 13 for supporting documentation	8/19/2022
	\$ -	\$ -	\$ -		
PROJECT TOTAL	\$ 733,927	\$ 359,624	\$ 374,303		
	100%	49%	51%		



August 26, 2022

Dr. Tamarah Holmes, Director
Office of Broadband
Virginia Department of Housing & Community Development
600 East Main Street, Ste 300
Richmond, VA 23219

Re: Attachment 13 – Documentation of Supporting Cost Estimates

Dr. Holmes:

The purpose of this letter is to provide information regarding Shentel's Attachment 13 – Documentation of Supporting Cost Estimates for its 2023 Virginia Telecommunications Initiative (VATI) applications in partnership with Bedford, Franklin, Roanoke, and Shenandoah Counties. On August 24, 2022, Shentel submitted a FOIA Exemption Request for its Attachment 13 information. On August 25, 2022, your office granted this FOIA Exemption Request. Shentel has a long history of accurately and conservatively estimating broadband deployment projects. To this end, we submitted confidential, detailed costing documentation as a part of our 2023 VATI applications under the FOIA Exemption we were granted.

If and when necessary, Shentel is willing to share additional cost information. If you or your office requires any additional information, please let me know.

Sincerely,

Chris Kyle
Vice President, Industry Affairs & Regulatory



August 26, 2022

Dr. Tamarah Holmes, Director
Office of Broadband
Virginia Department of Housing & Community Development
600 East Main Street, Ste 300
Richmond, VA 23219

Re: Attachment 15 – Two Most Recent Form 477 Submitted to the FCC or Equivalent

Dr. Holmes:

The purpose of this letter is to provide information regarding the recent Form 477 submissions or equivalent by Shentel to the Federal Communications Commission. Data from Shentel's submissions can be located at <https://www.fcc.gov/general/broadband-deployment-data-fcc-form-477>

Should you have any questions regarding this information listed above, please do not hesitate to contact me.

Sincerely,

Chris Kyle
Vice President, Industry Affairs & Regulatory

Application Questions

Project Description and Need (75 points)

1. Describe why and how the project area(s) was selected. Describe the proposed 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.

Rural areas of Roanoke County have been in need of Broadband connectivity for many years. An increasing number of requests from citizens over the years have brought much attention to these areas of the County. There are 65 locations without access to Broadband internet speeds in the areas of the County included in this project.

This proposed project fits into our larger plan to achieve universal Broadband coverage for Roanoke County. Roanoke County supports the Commonwealth Connect efforts to bring functional universal Broadband to Virginia. We are also focused on digital equity and making Broadband affordable for all.

2. List existing providers in the proposed project area and the speeds offered. Describe your outreach efforts to identify existing providers and how this information was compiled with source(s).

The County of Roanoke conducted extensive outreach in the form of citizen surveys and direct contact with citizens in the area. Roanoke County provides a data collection tool with feedback loops where citizens report lack of Broadband service, the most recent version is:

<https://www.roanokecountyva.gov/FormCenter/CommIT-22/Broadband-Comments-133>

The county also refers to the I3 connectivity explorer: <https://internet-is-infrastructure.org/>

Broadband USA and ESRI Broadband availability App:

<https://broadbandusa.maps.arcgis.com/apps/webappviewer/index.html?>

USDA ReConnect maps, and FCC CAF 2 maps to determine coverage; then follows up with requests to service providers asking for service availability.

Wireless 4G Broadband Providers

Company Name

Download Speed

AT&T MOBILITY

768 Kbps - 1.5 Mbps

NTELOS

768 Kbps - 1.5 Mbps
SPRINT
768 Kbps - 1.5 Mbps
T-MOBILE
768 Kbps - 1.5 Mbps
US CELLULAR
768 Kbps - 1.5 Mbps
VERIZON WIRELESS
768 Kbps - 1.5 Mbps
Wireless LTE Broadband Providers

Company Name

Download Speed

AT&T MOBILITY

Minimum 4 Mbps

T-MOBILE

Minimum 4 Mbps

US CELLULAR

Minimum 4 Mbps

VERIZON WIRELESS

Minimum 4 Mbps

Wireline (DSL) Broadband Providers

Company Name

Download Speed

VERIZON VIRGINIA LLC

Maximum 5 Mbps

3. Describe if any areas near the project have received funding from federal grant programs, including but not limited to Connect America Funds II (CAF II), ACAM, ReConnect, Community Connect, and Rural Digital Opportunity Funds (RDOF). If there have been federal funds awarded near the project area(s), provide a map showing these areas, verifying the proposed project area does not conflict with these areas. Label Map: Attachment 2 – Documentation on Federal Funding Area.

Shentel and Roanoke County are unaware of any federal grant programs available in the project area included in this proposal that meet the speed requirements for the definition of Broadband.

4. Overlap: 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 below 100/20 mbps and with less than 25% service overlap within the project area for wireless projects and 20% for wireline projects. Describe any anticipated service overlap with current providers within the project area. Provide a detailed explanation as to how you determined the percentage overlap. Label Attachment: Attachment 3 – Documentation Unserved Area VATI Criteria.

Our project area is unserved as each section is in a rural part of the County where current

speeds are less than 10 Mbps Down / 1 Mbps Up. We used a combination of the FCC Maps, USDA Reconnect Maps, BroadbandNow.com, and the citizen broadband reports we collected to determine this. For each citizen broadband report we received we followed up with the citizen(s) inquiring if they had checked with other providers.

5. Total Passings: Provide the number of total serviceable units in the project area. Applicants are encouraged to prioritize areas lacking 25 Megabits per second download and 3 Megabits per second upload speeds, as they will receive priority in application scoring. For projects with more than one service area, each service area must have delineated passing information. Label Attachment: Attachment 4 – Passings Form.

- a. Of the total number of VATI passings, provide the number of residential, business, non-residential, and community anchors in the proposed project area.

Total Passings: 65

Residential Passings: 64

Business Passings (Non-Home Based): 1

Business Passings (Home Based): 0

Community Anchor Passings: 0

Non-Residential Passings: 0

- b. If applicable, of the total number of RDOF passings, provide the number of residential, business, non-residential, and community anchors in the proposed project area.

There are no RDOF passings in this project area.

- c. If applicable, provide the number of passings that will require special construction costs, defined as a one-time fee above normal service connection fees required to provide Broadband access to a premise. Describe the methodology used for these projections.

There are 42 passings in this project area that require special construction costs.

- d. If applicable, provide the number of passings included in the application that will receive Broadband access because special construction costs have been budgeted in the VATI application. Describe the methodology used for determining which passings with special construction costs were budgeted in the application.

Of all the 42 passings estimated to require special construction costs, we estimate that 28 of them will take service. This estimate represents 65%

take rate for residential locations based on Shentel's historical experience.

- e. Provide the number of serviceable units in the project area that have 25/3 mbps or less. Describe the methodology used for these projections. **(up to 15 points)**

There are estimated to be 65 locations with speeds below 25/3 in this project area. This estimate was constructed primarily through comparisons against publicly available Broadband maps. Wireless providers were not included due to the sporadic nature of wireless coverage and the lack of precision involved in estimating wireless propagation.

6. Describe if any blocks awarded in Rural Digital Opportunity Fund (RDOF) are included in the VATI application area. If RDOF areas are included in the VATI application, provide a map of these areas and include information on number of passings in RDOF awarded areas within the VATI application area, and Census Block Group ID number for each block group in the project area. Label Attachment: Attachment 5 – RDOF Awarded Areas Form in VATI Area

There are no RDOF blocks included in this project area.

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

Not Applicable

8. Network Design: 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. Provide a detailed explanation of how this information was determined with sources. Provide information on how capacity for scalability, or expansion, of how the network can adapt to future needs. If using a technology with shared bandwidth, describe how the equipment will handle capacity during peak intervals. For wireless projects, provide a propagation map for the proposed project area with a clearly defined legend for scale of map. Label Map: Attachment 6 – Propagation Map Wireless Project.

Shentel will be building a new Wireline solution leveraging XGS-PON Fiber to the Home ("FTTH") technology via the ITU G.9807.1 standard to the VATI locations within this proposed project area. This 100% FTTH solution will involve building new fiber extensions in the County. These new fiber extensions will connect to Shentel's existing fiber plant within this same County. Because Shentel already has an existing Broadband Network in this same County (inclusive of existing Core Network access and existing Distribution Network), this proposed project will simply be an extension of existing Broadband services to the proposed VATI locations. Further, Shentel will

maintain end-to-end ownership of its entire Broadband Network within the County and will not be sharing resources.

Shentel deploys XGS-PON for its FTTH product. XGS-PON (X=10, G=Gigabit, S=Symmetrical, PON = Passive Optical Network) is an advanced standard for Passive Optical Networks (PON). XGS-PON is scalable to support up to 10 Gbps symmetrical data. By contrast, earlier PON networks are extremely limited in the amount of downstream and upstream capacity available to the end user. Although XGS-PON required significant additional Shentel investment, the growing demand for symmetrical broadband made the investment in XGS-PON the best choice.

Shentel will initially provide speed tiers of 1 Gbps up and 1 Gbps down ("1Gbps Symmetrical"). However, the network is scalable to provide symmetrical data speeds of up to 10Gbps.

XGS-PON deployments are designed as both centralized and distributive fiber split topology, depending on the geography of the network. A single fiber from the service provider provides an efficient point-to-multipoint broadband connection for multiple end users. In this rural VATI project area, Shentel will use a Distributed Split architecture to provide a more direct approach to ensuring that fiber capacity, technology, and plant records can be easily managed and scaled for growing Broadband demands.

Shentel typically initiates the fiber split from the Optical Line Terminal (OLT) out to the Customer Premise. Each OLT is fed with dedicated fiber(s) from a Central Office (CO) or Point of Presence (POP). Shentel leverages these fibers to easily expand its fiber presence in each of the FTTH markets, and scale to future bandwidth requirements. This robust fiber infrastructure also allows us to accommodate commercial sales opportunities within the same areas.

Equipment Vendors

Shentel maintains a diverse, geo-redundant core network using currently available hardware and software from the industry's leading vendors to provide infrastructure support and service assurance to all networks and customers. Internal controls maintain policies and procedures that dictate network management, performance criteria, and preventive maintenance. Strict guidelines and procedures ensure that Shentel's existing network continues to operation efficiently. For this project, Shentel will install new Calix Access Edge Optical Line Terminals (OLT) at strategic locations to feed end-user customers. At these same OLT sites, Shentel will also install out-of-band routers and console servers for remote management of our equipment.

Shentel's decision to utilize the industry's leader technology vendors has created an ecosystem whereas Shentel's ability to meet all current and future service requirements is guaranteed. Shentel has also partnered with its technology partners to

determine, implement, and support the adherence to stringent standards that support specific requirements to be positioned to provide best-in-class services to all customers.

Shentel's Core Network is built on Cisco's NCS-55A and NCS-5501 platforms. The Core Network is built around diversity and resiliency in mind, with a dual 100 Gbps or 200 Gbps architecture providing both physical diversity and resiliency if a network failure or fiber cut occurs. The Core Network is composed of ten Core devices and two 100 Gbps or 200 Gbps paths between each device. These Core devices are located in Hagerstown, Maryland; Beckley, West Virginia; and Ashburn, Virginia; Harrisonburg, Virginia; and Redwood, Virginia.

Shentel's Access Distribution Network is built on Cisco's ASR-90xx, ASR-99xx, NCS-5001, and NCS-540 platforms. The Distribution Network is made up of many platforms deployed throughout Shentel's existing service footprint. Although the Core Network is the primary element within Shentel's topology, it is the actual Distribution Network that is the workhorse of the network.

Shentel's XGS-PON Network is built on Calix's Access Edge Optical Line Terminal (OLT). The Calix Access Edge systems is available in several variants to allow Shentel the versatility to install the units in Central Offices, outside plant cabinets, or other remote environments. The Calix E7-2 system is a single-chassis system which can host up to 2,048 Optical Network Terminals (ONTs) with two 8-port XGS-PON cards operating up to a 1:128 split ratio. Several Calix E7-2 OLT systems will be deployed to support the rural customer base including systems located in both existing Shentel POPs, as well as in remote cabinets. Using a Distributed Split architecture, our implementation will begin with a per port split ratio of 1:64 through a distributed split architecture with a combination of cascaded 1x2, 1x4, and 1x8 optical splitters. The splitters will be placed such that future capacity upgrades can be easily accommodated through a combination of XGS-PON port additions and split ratio reductions by way of splitter removals. Each Calix E7-2 OLT system will operate at layer-2 (802.1q) and will be dual-homed to two separate Distribution-layer Cisco NCS-540s. A dual 20GE LAG utilizing LACP in an active/standby configuration will be employed for the dual-homing.

The Calix E7-2 OLT system is designed with redundant links to the two Cisco NCS-540 routers. Network links are provisioned between the routers for redundancy and throughput reliability. The routers are interconnected in a sub-ring configuration with 20 Gbps LAG interfaces to our geo-diverse routing platforms in the Distribution layer. Each of the routers in the Distribution and Core Network layers are configured in a ring/sub-ring configuration utilizing IS-IS and MPLS. The routers are fully redundant with processor cards, line cards, and power supplies. In addition to equipment and fiber diversity, Shentel has hardened switching and collocation facilities inclusive of generators, and battery backup of 8-hour capacity.

Customer Premise Equipment – FTTH

At the Customer Premise, a Network Interface Device (NID) is installed to serve as a transition point between Outside Plant Fiber and Inside Plant Fiber. For FTTH broadband services, a Calix GP1100X or GP11001X Optical Network Terminal (ONT) is utilized. The type of ONT deployed is determined by the service ordered. Both Voice and Internet Data services will be separated on to two separate VLANs from the ONT, through the OLT and onto the Distribution-layer routers. AES encryption is employed on the XGS-PON layer between the ONT and OLT to safeguard the customer's network. The ONT will be engineered to not exceed 22 km's from the OLT.

Core - Transit

Transit is Shentel's paid service that allows Shentel's network to connect to an upstream Internet provider. Shentel has established physical collocations in two major Internet Exchange Points (IXP) data centers. Shentel is currently using NTT and Arelia (formally, Telia Carrier) as its upstream Internet providers. Shentel is connected to NTT and Arelia in the Ashburn, VA and Atlanta, GA IXP's via 3 x 100 Gbps links to each upstream provider. At each IXP and in strategic locations on the Shentel network, private peering, public peering, and edge cache systems are deployed to increase capacity and lower latency with a total capacity of 1.31 Terabits per second. Actual addresses of these two IXPs are as follows:

Equinix Data Center
21715 Filigree Ct
Ashburn, Virginia

Digital Realty
56 Marietta St
Atlanta, Georgia

Shentel's transport network includes:

- Extensive Dense Wavelength Division Multiplexing (DWDM) network
- 200Gbps core routed network with distribution and access layers
- Metro Ethernet Forum (MEF) 3.0 certified network
- And the aforementioned Transit connections in Ashburn, VA and Atlanta, GA.

Core - Private Peering

Shentel has taken an aggressive approach to peer with Content and Service Providers to migrate internet traffic from Transit Links. This improves Shentel's ability to deliver content and reduce access costs. These critical network locations have allowed Shentel to support three tiers of peering. Private Peering is Shentel's dedicated peering links to specific Content Providers that allow traffic specifically belonging to them to route between the networks without using the Transit network. In addition to

these Private Peering links, Shentel has also placed the Content Provider's Content Delivery Network (CDN) appliances within the network. This strategy has allowed Shentel to originate content from within the network without having to depend on the Internet. If content is not available via the CDN appliances, the content is sourced over the Private Peering links. The Content Providers also use these Private Peering links for nightly content fills and updates on the CDN appliances.

Content Providers CDN Appliances

- Amazon
- Apple
- Facebook
- Google
- Netflix
- Akamai
- Verizon Media
- Twitch
- StackPack

Capacity Management

Network utilization for Border Routers, Core Routers, Edge Routers, Access Switches, Optical Line Terminals (OLT) are reviewed on a weekly basis. Shentel utilizes server tools with SNMP polling to report the maximum utilization of key network elements and link interfaces in 1-minute intervals. This data is transformed into the criteria shown below for visual representation. Once link utilization reaches the monitor stage, a high-level augment plan is created in preparation for increasing capacity. As traffic increases above the augment threshold, further analysis is performed to determine if the increase is a result of a one-time event or a result of growth. If the increase is determined to be normal growth, the augment plan is executed.

	Core Network	Border Network	Edge Router	Access Switch	CMTS/OLT Network Uplink
Good	<40%	<60%	<60%	<60%	<60%
Monitor/Plan	40%-60%	60%-90%	60%-80%	60%-80%	60%-80%
Investigate/Augment	>60%	>90%	>80%	>80%	>80%

Downstream and upstream utilization is reviewed on a weekly basis. A threshold report is utilized from Shentel's internal tools to report on any downstream and upstream interfaces that exceed 80% and 90% utilization. This report records the amount of time above the threshold during the previous week. This data is transformed into the criteria below to provide visual representation for the downstream and upstream interfaces that require research. If no other resolution can be used to reduce the utilization, an augment will be planned.

>80% Criteria

- >1 Hour = Highlighted in YELLOW
- <1 Hour = Flagged with GREEN flag
- >1<2.5 Hours = Flagged with YELLOW flag
- >2.5 Hours = Flagged with RED flag

>90% Criteria

- Yes = Highlighted in RED
- <1 Minute = Flagged with NO flag
- >1 Minute = Flagged with RED flag


Managing network resources based on an oversubscription method is an antiquated view. It becomes challenging to properly plan network resource usage because the users of network resources are a diverse group of users. Instead, Shentel manages network resources based on peak utilizations against the established criteria. Shentel will use some general oversubscription practices such as 2:1 oversubscription on 1 Gbps links and 6:1 oversubscription on 10 Gbps links, however. These general practices are intended to start the planning process when sizing the links between users of network resources and Shentel's network.

Finally, the aforementioned information was sourced by internal Shentel engineering resources and existing Shentel vendor relationships, and ultimately reviewed and approved by Harris Duncan, Vice President Network Engineering and Dan Meenan, Vice President Operations.

9. Speeds: Describe the internet service offerings, including download and upload speeds, to be provided after completion of the proposed project. 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. List the private co-applicant's tiered price structure for all speed offerings in the proposed project area, including the all speed offerings. Please note, DHCD reserves the right to request verified speed tests distributed throughout a service area at times of peak network usage from a co-applicant's existing network to verify a co-applicant's capability to provide broadband service at speeds at or above 100/20 mbps. Describe the co-applicant's methodologies for conducting speed tests. **(up to 10**

points)

As already noted, this project is based on a full Fiber to the Home (FTTH) network design. The speeds that Shentel currently plans to offer in the project area are shown in the table below.



08/22

Simple Pricing No Gimmicks No Hidden Fees <i>(except for taxes of course)</i>	
Internet	
100 Mbps.....	\$45.00
300 Mbps.....	\$65.00
1 Gbps (1000 Mbps).....	\$80.00
2 Gbps (2000 Mbps).....	\$100.00
Streaming TV	
Locals.....	\$45.00
Entertain.....	\$110.00
Delight.....	\$145.00
Indulge.....	\$185.00
Fiber Phone	
Unlimited Calling	\$20.00
Discounts	
Get a \$10 discount for Internet when you add any other service, or get a \$20 discount when you buy all 3.	

This proposed rate structure is subject to change and reflects base pricing only. Promotions and periodic rate structure changes will be carried out at Shentel's sole discretion.

10. Explain how the proposed project achieves universal broadband coverage for the locality or fits into a larger plan to achieve universal broadband coverage for the locality. If applicable, explain the remaining areas of need in the locality and a brief description of the plan to achieve universal broadband coverage. **(up to 50 points)**

Roanoke County is actively working to improve broadband connectivity throughout the community, as part of the "Connect Roanoke County to the World" Strategic Initiative outlined in the County's 2016 Community Strategic Plan. Citizens can find additional information and express concerns at: <https://www.roanokecountyva.gov/ruralbroadband>

Project Readiness (40 points)

11. Describe the current state of project development, including but not limited to: planning, preliminary engineering, identifying easements/permits, status of MOU or MOA, and final design. Prepare a detailed project timeline or construction schedule, identifying specific tasks, staff, contractor(s) responsible, collection of data, etc., and estimated start and completion dates. Applicants are encouraged to extensively discuss, where applicable, easements relating to railroad crossings, federally-owned lands and parks, partnerships with the Virginia Department of Transportation, and mobile home parks. Applicants must include Memorandums of Understanding (MOUs) or Memorandums of Agreement (MOAs) between applicants (drafts are allowable). Label

Attachments: Attachment 7 – Timeline/Project Management Plan; Attachment 8 – MOU/MOA between Applicant/Co-Applicant; **(up to 10 points)**

Based on Shentel's existing assets and relationships, this project is in a very favorable state of development. A high-level network design is in place with the planned fiber routes. This network design is bolstered by Shentel's existing infrastructure, which will facilitate both project construction and management. Shentel's typical permitting and easement process is as follows.

- Shentel will complete a detailed review of the planned fiber route to validate and refine the route to include determining feasibility, costs, and challenges for construction. Review will consist of Shentel personnel visually inspecting the entire planned fiber route. Shentel typically follows utility routes such as power or telephone and permits with those utilities for new pole attachments when there are not existing Shentel attachments to allow for overlash.
- Shentel will adhere to the existing attachment guidelines and permit all utility pole owners for any overlash when required and for new pole attachments. For any utility pole that is located on private property and requires a new permit, Shentel would follow the Virginia and Federal codes that would allow Shentel to use existing like-kind utility easements. Shentel may engage the appropriate County staff for any questions that arise around such easements.
- VDOT permits would be submitted in those locations where Shentel plans to place fiber in the VDOT ROW. All other permits such as city, town, railroad, or VMRC would be permitted as required.
- Shentel will provide contact information to any agency that will be permitted for the project.

Furthermore, Shentel's growing presence in Roanoke County and strong partnership with County staff, VDOT, and utility pole owners means that the needed easements and permitting processes are all well understood and can be processed in a timely manner. Shentel is already positioned with required attachment agreements with the existing pole owners and bond securities established with VDOT. Shentel's longstanding relationships with qualified contractors coupled with the large volume of both aerial and underground work Shentel has proposed across Bedford, Franklin, and Shenandoah counties places Shentel in an ideal position to bid for these contracting resources.

Across its cable, fiber, and fixed wireless services, Shentel has expanded Broadband service to over 93,000 homes in the last 12 months, and that number is constantly growing. This robust proven growth, along with Shentel's long history in Roanoke County clearly demonstrates Shentel's ability to design and deploy a wide array of Broadband networks.

Shentel estimates, in conjunction with its proposals in Bedford, Franklin, and Shenandoah Counties, that the project will be completed within 18 months from contract execution. A detailed project timeline can be found in attachment 7.

An MOU between Roanoke County and Shentel **has been executed** and can be found in Attachment 8 - MOU/MOA between Applicant/Co-Applicant. The plan demonstrates a commitment to reach the 2024 completion date with a steady and phased-in process to include: creating project account, performing field survey for construction, completing Dominion Power pole application process, designing project, securing VDOT permits and private property easements, ordering project materials, setting power supply units, performing aerial and underground construction, activating the network, and releasing the addresses. Shentel personnel overseeing the planning and construction phases have thoroughly reviewed the project management plan and timeline to confirm that all resources are available to complete the project by the required time frame. This project has passed engineering and financial commit stages and is approaching final design. Attachment 6 – Timeline/Project Management Plan is included and identifies all tasks, staffing, contracting work, with estimated start and completion dates.

12. Has the applicant or co-applicant received any VATI grants? If so, provide a list of these grants, with a detailed summary of the status of each.

Applicant VATI Grant History

Roanoke County has been awarded four (4) previous VATI grants. The following is a summary of Roanoke County's awards. The status of the VATI grants awarded through the 2022 VATI cycle are listed below.

County: Roanoke County
ISP: Shenandoah Cable Television, LLC
Passings: 213
VATI Award: \$490,000
Status: Contracting

County: Roanoke County
ISP: B2X Online
Passings: 311
VATI Award: \$170,069
Status: Contracting

County: Roanoke County
ISP: Craig Botetourt Electric Cooperative
Passings: 495
VATI Award: \$1,581,584
Status: Contracting

County: Roanoke County

ISP: Cox Communications
Passings: 396 (30 RDOF)
VATI Award: \$1,535,264
Status: Contracting

Co-Applicant VATI Grant History

Shentel has been awarded five (5) VATI grants. The following is a summary of Shentel's grant awards. All of the projects listed below will deliver Internet, video, and phone through either a coax or fiber extension. The Internet speed packages offered in these extensions include a Gigabit option in addition to lower speed options. In addition, Shentel has been awarded several grants directly with a locality (Campbell County and Albemarle County through CARES funding). All grants at the local level have been successfully closed out, and are delivering Broadband to unserved locations. The status of the VATI grants awarded through the 2022 VATI cycle are listed below.

County: Bedford County
ISP: Shenandoah Cable Television, LLC
Passings: 4,734
VATI Award: \$9,148,553
Status: Contracting

County: Campbell County
ISP: Shenandoah Cable Television, LLC
Passings: 3,509
VATI Award: \$6,442,563
Status: Contracting

County: Franklin County
ISP: Shenandoah Cable Television, LLC
Passings: 3,508
VATI Award: \$11,832,456
Status: Contracting

County: Roanoke County
ISP: Shenandoah Cable Television, LLC
Passings: 213
VATI Award: \$490,000
Status: Contracting

County: Shenandoah County
ISP: Shenandoah Cable Television, LLC
Passings: 4,139
VATI Award: \$12,176,662
Status: Contracting

13. Matching funds: Complete the funding sources table indicating the cash match and in-kind resources from the applicant, co-applicant, and any other partners investing in the proposed project (VATI funding cannot exceed 80 percent of total project cost). In-kind resources include, but are not limited to: grant management, acquisition of rights of way or easements, waiving permit fees, force account labor, etc. Please note that a minimum 20% match is required to be eligible for VATI, the private sector provider must provide 10% of the required match. If the private co-applicant cash match is below 10% of total project cost, applicants must provide financial details demonstrating appropriate private investment. If applicants and co-applicants are seeking to include prior expended funds as matching funds, Attachment 11 must be completed. Label Attachments: Attachment 9 - Funding Sources Table; Attachment 10 – Documentation of Match Funding; Attachment 11 – Prior Expended Match Form

Requested VATI: \$409,000

Shentel: \$208,000

Roanoke County: \$217,000

14. Leverage: Describe any leverage being provided by the applicant, co-applicant, and partner(s) in support of the proposed project. **(up to 10 points)**

Beyond the leverage of using County resources and support for easements and working with VDOT, residents, and the power companies; the co-applicants plan to leverage strong relationships to provide distance learning and workforce training working with the Roanoke County Public Schools (RCPS) and Virginia Western Community College (VWCC).

We will also leverage support from our longstanding working relationship with the Roanoke Regional Commission. In addition, the Roanoke County Board of Supervisors appropriated funds in support of the program, coupled with dedicated time of at least three (3) County staff to work on the resulting project. We are also leveraging existing resources which continue work on the five current projects funded by the Roanoke County Board of Supervisors bringing Broadband to over 1,400 homes in the County. The County regularly sponsors Civic League meetings where Broadband needs are discussed. From those meetings, documents are created from the ideas and questions raised by the residents for use in any potential future projects and will be important assets for this new project and continue the Roanoke County goal for universal coverage.

15. Communications Plan: Describe efforts to keep the public informed of project progress and the broadband adoption plan.
- a. Explain how you plan on communicating the project status to stakeholders, including but not limited to County leadership, project

areas residents, etc. **(Up to 10 points)**

Roanoke County and Shentel will continue to work collaboratively to ensure that all stakeholders, including the Board of Supervisors, residents, business owners, and community anchors, are kept apprised of project developments. As part of the management of the project, the County will have access to the monthly progress reports that will be submitted to DHCD. Additionally, Shentel and the County will work together to establish an appropriate cadence on which to present updates to the Board of Supervisors. Residents and business owners will also be able to check their address on Shentel's website to determine if they are included in the project and to get an estimate of when service is expected to be live at their location.

- b. Explain how you plan to promote customer take rate, including marketing activities, outreach plan, and other actions to reach the identified serviceable units within the project area. Provide the anticipated take rate and describe the basis for the estimate. **(up to 10 points)**

Shentel will engage in a targeted iterative marketing effort during and after its construction to ensure awareness of this project and its benefits. In addition to providing regular updates to County Officials and working with the County to notify residents of project status, Shentel will carry out its own direct marketing outlined below.

45 Days prior to construction: Direct Mail to targeted service area announcing beginning construction.

3-Days prior to construction: Construction imminent door tags of affected homes

Construction Start Date: Email to pre-registered leads

30 Days before DCP is Active: Direct Mail to targeted service area with special offer to sign-up early

Construction progress: Email to pre-registered leads

Service Available: Email to pre-registered leads, Direct Mail postcard announcing order availability

Installation: Yard stake

Note: Direct marketing will include information informing long-drop eligible residents of their limited-time opportunity to have their long-drop costs covered through grant funding.

Shentel is also a participant in the Federal Affordable Connectivity Program which provides a discount of up to \$30.00 to qualifying households.

- c. Describe any digital literacy efforts to ensure residents and businesses in the proposed project area sufficiently utilize broadband. Please list any partnering organizations for digital literacy, such as the local library or cooperative extension office.

Roanoke County Public Libraries offer a wide range of free computer, Internet use and resource instruction to help people locate, evaluate, and use online resources. County libraries are vital centers for access to digital literacy and as library users continue to change, the County libraries continually evolve to meet the digital needs of our community. Launchpads offer hours of interactive learning and play for children. There's even a section for parents to gain feedback on time spent on the device.

Roanoke County Public Library has placed focused on community digital literacy programs over the past several years, offering free classes most every month at each Library location. Topics range from basic usage of the latest consumer technologies to specific classes dedicated to popular software (Microsoft Office applications, photography apps, social media, networking, etc.) and other popular topics.

16. Project Management: Identify key individuals who will be responsible for the management of the project and provide a brief description of their role and responsibilities for the project. Present this information in table format. Provide a brief description of the applicant and co-applicant's history and experience with managing grants and constructing broadband communication facilities.

Shentel is one of the largest regional internet service providers in the Mid-Atlantic. They have a 120-year operating history and an extensive fiber network that spans more than 7,900 miles and supports its rapidly growing and multifaceted Broadband services in Virginia, West Virginia, Maryland, Kentucky, and Pennsylvania. With Broadband service delivered to more than 67,000 homes in the past 12 months, Shentel has the clear and tangible financial and operational experience to not only construct, but also operate and manage the project proposed in this grant application. Shentel is currently operating and expanding its legacy cable markets, while also managing its highly successful and new Glo Fiber FTTH service. Launched in 2019, Glo Fiber is an XGS-PON FTTH network that is serving customers with symmetrical multi-gigabit speeds in more than a dozen communities across Virginia, West Virginia, Maryland and Pennsylvania. Shentel currently covers more than 112,000 homes with this service, bringing its total broadband footprint to over 324,000 homes, with 378,000 more planned by 2026.

Roanoke County Project Management Team

Bill Hunter, Director of Communications & Information Technology.

Role: Project Manager

Qualifications: Past project experience includes - Roanoke County Public Safety Center construction (IT Issues), and the Western Virginia Regional Jail construction project (IT Issues). Currently managing four (4) VATI grants with four (4) separate ISPs.

Joan Ruscitti-Ball, Business Coordinator

Role: Project Coordination

Qualifications: 8 years of local government administration.

Shentel Project Management Team

Employee	Title	Role	Qualifications
Dan Meenan	Vice President, Operations	Executive oversight of Fiber to the Home deployment for the VATI projects.	Executive with over twenty years of diverse telecommunications management experience inclusive of wireless mobility networks, fixed wireless networks, and cable television.
Harris Duncan	Vice President, Network Engineering	Executive oversight of Core integration & support for the VATI projects.	Executive with over twenty years of diverse telecommunications management experience inclusive of wireline fiber networks and cable television.
Brith Osinkosky	Director OSP Engineering & Construction	Responsible for Fiber to the Home engineering and construction for the VATI projects.	Accomplished leader with twenty years of experience in Outside Plant engineering, construction and operations, specializing in large-scope projects, and broadband acquisitions/overbuilds/upgrades. Currently managing 20,000+ miles of Shentel's OSP network. Extensive experience with FTTH designing and implementation.
Paul Lopez	Director of Broadband Operations	Responsible for all customer installation and support for Fiber to the Home.	
Jessica Wilmer	Manager, Project Management	Responsible for the coordinated deployment of Fiber to the Home and for project management updates and cost reimbursement related to the VATI projects.	20 years of wireless telecommunications industry real estate acquisition and site development expertise. Previously project managed Shentel's Wireless Mobility network comprised of approximately 2,000 cell sites in seven states, including developing over 500 new cell sites. Former

			Zoning Administrator in Augusta County. Extensive experience with Zoning and Planning, the Wireless industry, and government affairs.
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Project Budget and Cost Appropriateness (135 points)

17. Budget: Applicants must provide a detailed budget that outlines how the grant funds will be utilized, including an itemization of equipment, construction costs, and a justification of proposed expenses. If designating more than one service area in a single application, each service area must have delineated budget information. For wireless projects, please include delineated budget information by each tower. Expenses should be substantiated by clear cost estimates. Include copies of vendor quotes or documented cost estimates supporting the proposed budget. Label Attachments: Attachment 12 – Derivation of Costs; Attachment 13 - Documentation of Supporting Cost Estimates. **(up to 10 points)**

As noted in questions 11 and 16, Shentel is a 120-year-old telecommunications company that has served Roanoke County for many years. Shentel is currently laying hundreds of miles of fiber per year to support its expanding Cable and FTTH services. As shown in attachments 12 and 13, all cost estimates are based off a long and active history in both the Broadband industry. While attachment 12 shows a high-level roll up of costs in alignment with DHCD guidance, attachment 13 provides detailed cost breakouts and supporting documentation from various vendor relationships for wireline service.

18. The cost benefit index comprises state cost per unit passed. Individual cost benefit scores are calculated and averaged together to create a point scale for a composite score. Provide the following:

- a. Total VATI funding request

The total VATI funding request is \$409,000.00

- b. Number of serviceable units

The total number of serviceable units covered is 65.

(up to 125 points)

Commonwealth Priorities (50 points)

19. Additional points will be awarded to proposed projects that reflect Commonwealth priorities. If applicable, describe the following:

- a. Businesses, community anchors, or other passings in the proposed project area that will have a significant impact on the locality or region because of access to broadband.

The proposed project impacts 64 homes and home-based businesses in the area, through the introduction of Broadband will have a positive economic impact. Providing Broadband to these businesses allows them to compete in the global economy and include a telecommuting workforce as part of their growth plans; providing more jobs and more revenue for the County.

- b. Unique partnerships involved in the proposed project. Examples include electric utilities, universities, and federal/state agencies.

Not Applicable.

- c. Digital equity efforts to ensure low to moderate income households in the proposed project area will have affordable access to speeds at or above 100/20mbps.

Roanoke County supports the Commonwealth Connect efforts to bring functional universal Broadband to Virginia. We are also focused on digital equity and making Broadband affordable for all. We review our Broadband plan on an annual basis. Roanoke County is also equally concerned about and working to solve challenges identified in the most recent Commonwealth Connect 2.0. We are working to reduce cost of equipment; implement means to utilize shared infrastructure for network deployment through support of reduced or no fees for pole attachments or other sharing of infrastructure such as conduit; support waiving the cost of easements for Broadband deployment; and through our ongoing Broadband survey and community outreach continue filling gaps and identifying borders of coverage; and working with ISPs to focus on technologies and projects which avoid or create difficult to serve areas. As discussed in question 6, Shentel is also leveraging this project to bring service to Low-to-Moderate residents who may not otherwise be able to receive it. Long drops are a notorious roadblock for low to moderate income residents to receive Broadband service. Shentel has included as part of the cost of this project long drop capital for approximately 14 long drops for homes that are believed to be Low to Moderate Income.

- d. The co-applicant's efforts to mitigate supply chain constraints, including labor shortages and order-to-delivery delays on telecommunications materials required to construct broadband networks.

Shentel has an established supply chain with trusted and diversified vendors, a mobilized workforce, a dedicated Purchasing team, an extremely strong balance sheet, and a highly experienced management team. Notably:

1. Shentel currently has over 1,700 miles of fiber already in inventory.
 2. To avoid risks associated with timely delivery, Shentel has an additional 3,500 miles of fiber on order for confirmed delivery in 2022 and 2023. Further, Shentel is in the process of ordering an additional 4,000 miles of fiber for 2024 delivery.
 3. Shentel has completed over 1,500 miles of new fiber dedicated to Fiber to the Home over the last several years.
 4. Shentel currently has over 5,000 miles of new fiber in various stages of development .
 5. Shentel has constructed and certified over 125,000 new fiber to the home passings in the last several years.
 6. Shentel is actively engaged with over 35 outside plant contract companies currently building fiber to the home across four states. These contractors want to work with Shentel because we treat them with respect, because we have materials when they need them, we are exceedingly organized and don't waste their time, because we believe in very safe working conditions, and because we pay them more efficiently than our competitors.
- e. The applicant's and co-applicant's efforts to promote broadband adoption, including, but not limited to: telehealth, smart farming, e-entrepreneurship, and distance learning

This proposed project fits into our larger plan to achieve universal Broadband coverage for Roanoke County. This proposed project fills many gaps in the rural areas of the County. One of our goals is to provide quality and reliable broadband with redundancy and future proof so all Roanoke County residents and businesses benefit. Our interactive project map documents the project areas. We continue to work with residents who identify areas where service is unreliable, non-existent, or not affordable. Through ongoing speed test and report gathering; we will continue to build project areas for broadband service. Not until after all areas are served with affordable and reliable Broadband, will we consider our work done.

Additional Information

20. Please attach any letters of support from stakeholders. If the applicant is not a

locality(s) in which the project will occur, please provide a letter of support from that locality. Attachment 14 — Letters of Support.

21. Provide any other information that the applicant desires to include. Applicants are limited to four additional attachments.