

# Application to DHCD Submitted through CAMS

Shenandoah County Public Schools/ Shenandoah County of Virginia  
Shenandoah County VATI Broadband Grant Application 2022

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**Application ID:** 86509142021082208  
**Application Status:** Pending  
**Program Name:** Virginia Telecommunications Initiative 2022  
**Organization Name:** Shenandoah County Public Schools/ Shenandoah County of Virginia  
**Organization Address:** 600 N Main St, Ste 200  
Woodstock, VA 22664  
**Profile Manager Name:** Doug Culler  
**Profile Manager Phone:** (540) 459-6709  
**Profile Manager Email:** dlculler@shenandoah.k12.va.us

**Project Name:** Shenandoah County VATI Broadband Grant Application 2022  
**Project Contact Name:** Doug Culler  
**Project Contact Phone:** (540) 459-6709  
**Project Contact Email:** dlculler@shenandoah.k12.va.us  
**Project Location:** 600 N Main St, Ste 200  
Woodstock, VA 22664-1855  
**Project Service Area:** Shenandoah County

**Total Requested Amount:** \$12,176,662.00  
**Required Annual Audit Status:** No Current Audits Found

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## Budget Information:

Cost/Activity Category	DHCD Request	Other Funding	Total
Telecommunications	\$12,176,662.00	\$20,733,235.00	\$32,909,897.00
Construction	\$12,176,662.00	\$20,733,235.00	\$32,909,897.00
<b>Total:</b>	<b>\$12,176,662.00</b>	<b>\$20,733,235.00</b>	<b>\$32,909,897.00</b>

Budget Narrative:

## 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:

This project is designed to accomplish universal coverage in Shenandoah County. The project area therefore, is anywhere where there are unserved homes. There are no other VATI grants or federally funded coverage commitments in the County. The grant area was determined through a collaborative, multi-stage approach drawing on many different sources of data to identify all existing unserved homes without an existing funded coverage commitment. Local knowledge, historical service requests, Shentel serviceability databases, 477 data, and internal engineering estimates were used to estimate all unserved addresses, irrespective of drop length. While the focus of this project is the unserved areas of the County, this project will continue to involve collaboration with the towns of Strasburg, Toms Brook, Woodstock, Edinburg, Mt. Jackson, and New Market. An example of this collaboration will involve public WiFi availability in the towns that will support local commerce including the farmer's markets and general public Internet access. Because this project area is in a county where Shentel is headquartered and has been active for nearly 120 years, they have extremely good information on where the unserved locations are. See Attachment 1 – Project Area Map for greater detail.

2. List existing providers in the proposed project area and the speeds offered. Please do not include satellite. Describe your outreach efforts to identify existing providers and how this information was compiled with source(s).

#### Answer:

Current providers in the project area include satellite, and a few unlicensed fixed-wireless operators including:

- High Speed Link - Advertised up to 25Mbps
- LiveStream - Advertised speeds up to 225Mbps
- Fox Wireless – Advertised speeds up to 75Mbps

As noted above, Shentel has done extensive analysis to identify and certify unserved addresses in Shenandoah County. Shentel has worked closely with county staff to ensure minimal overlap with any existing providers. Without extensive knowledge of tower locations, spectrum, and equipment used, however, it is impossible to accurately verify wireless internet service providers' service area. While the above WISPS advertise service in select areas that may exceed 25/3Mbps, these speeds and service areas cannot be verified.

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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. Do not include areas awarded to satellite broadband providers. Label Map: Attachment 2 – Documentation on Federal Funding Area.

**Answer:**

N/A

4. Describe if any blocks awarded in Rural Digital Opportunity Fund (RDOF), excluding those awarded to satellite internet service providers, are included in the VATI application area. If RDOF areas awarded to terrestrial internet service providers 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 3 – RDOF Awarded Areas Form in VATI Area

**Answer:**

There are no RDOF funded blocks included in the VATI application area.

5. 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 25/3 mbps and with less than 25% service overlap within the project area for wireless projects and 10% 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 4 – Documentation Unserved Area VATI Criteria.

**Answer:**

The anticipated service overlap for this project is below the allowable 10% for existing wireline facilities. This project is designed to provide FTTH to the remaining unserved locations in Shenandoah County. As noted in question 1, Shentel has gone through a lengthy process for identifying unserved locations and has designed its network to cover those unserved homes, which in some cases requires building near the borders of other providers' service territory. Significant efforts have been made, however, to limit the overlap as much as possible. Despite the analysis that has gone into identifying unserved homes, Shentel estimates a 5% margin of error where incidental overlap may arise. Given the full FTTH nature of this build, however, and identified overlap can be easily controlled.

6. Total Passings: Provide the number of total serviceable units in the project area. Applicants are encouraged to prioritize areas lacking 10 Megabits per second download and 1 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 5 – 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. (Up to 10 points for businesses and community anchor institutions)
- 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 10/1 mbps or less. Describe the methodology used for these projections. (up to 15 points)

**Answer:**

Residential: 4,090  
Businesses: 42  
Community Anchors: 3  
Non-Residential: 4  
Total: 4,139

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Based on surveys and mapping detail of the proposed network coverage, Shentel has identified 3 community anchors, and 46 non-residential/business locations.

Several examples of businesses that will benefit from broadband coverage include the following:

Fort Valley

BUSINESSES

- FORT VALLEY BOB'S COUNTRY STORE
- CHARLES ASCHMANN LANGUAGE SERVICES
- FORT VALLEY RANCH

COMMUNITY ORGANIZATIONS

- SHENANDOAH COUNTY LIBRARY: FORT VALLEY BRANCH
- CAROLINE FURNCACE
- CAMP SHENANDOAH MEADOWS

ZEPP

- ORNDORFF'S TROUT FARM

STAR TANNERY

- DOUBLE SPUR OUTFITTERS
- SIMPLY SHENANDOAH (IN DEVELOPMENT STAGES)
- HUNT CLUB

These and other rural businesses provide vital services to the residents in hard to reach areas of the county and are integral parts of the community. As more and more business runs online and internet-based business management tools and education play an increasingly important role in business success, rural businesses without quality internet are in danger of being left behind. Furthermore, the lack of quality residential internet threatens to reduce these businesses clientele, as fewer people are able to live in areas without high speed internet access. This project will provide commercial, anchor institution and residential service, thereby catalyzing the positive economic cycle that is created when both residents and businesses are able to thrive, each spurring new opportunities and growth in the other.

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.

N/A

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 2,128 homes included with fiber drops in excess of 300 feet. Based on historical FTTH builds in unserved and underserved areas, Shentel assumed that 65% of homes requiring long-drops will take service. The costs for that 65% of the fiber long drops is reflected in the overall cost of the project and captured in the cost breakout in Attachment 13. In order to create as comprehensive a project as possible, Shentel included unserved homes within 2,000 feet of their fiber route as part of this project and included the necessary cost to serve these homes with long drops above standard installation rates. Of the 65% of long drops anticipated to take service, an estimated 270 of them are estimated to be low to moderate income households.

d. Provide the number of serviceable units in the project area that have 10/1 mbps or less. Describe the methodology used for these projections. (up to 15 points)

There are approximately 4,090 homes in the project area with an estimated speed of less than 10/1. As the incumbent wireline provider in the County, Shentel maintains very accurate, up-to-date service coverage maps. By referencing



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existing service locations, Shentel was able to accurately locate the remaining unserved addresses.

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. **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 25/3 mbps. (up to 10 points)

**Answer:**

As already noted, this project will adopt a full fiber to the home (FTTH) architecture. This FTTH network will use shared bandwidth. One 10Gbps port will be shared amongst 64 customers. The network is scalable and will be able to upgrade to 32 customers per 10Gbps port as needed. There will be approximately 4,090 locations served by FTTH. The below table lays out the speeds and prices for both service offerings.

Shentel plans to offer its FTTH service as a prepaid plan to better reach those customers who may be credit challenged. No credit check will be required and the service is for 30 days with an option to auto-renew.

9. **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:**

Overview

As noted Shentel is proposing a full FTTH solution that will deploy a fiber network to nearly every unserved home in Shenandoah County. The scalable, XGS-PON network will provide unserved Shenandoah County residents with enough bandwidth to meet and even exceed demand for many years. The details of this network are laid out below.

## Fiber-To-The-Home Network Description

Shentel intends to extend a new fiber network in Shenandoah County in support of its residential Fiber to the Premise (FTTP) service. Just like its existing cable network, this FTTH network will be connected to Shentel's expansive multi-state fiber network with redundant Tier 1 peering points located in Ashburn, VA and Atlanta, GA. Shentel deploys XGS-PON for its FTTP product. XGS-PON is an advanced standard for Passive Optical Networks (PON). This network can provide multi-gig speeds today and is scalable to support 10Gbps symmetrical data. As such, it provides more than enough bandwidth to meet current needs and is able to scale up to stay ahead of demand for many years to come. By contrast, earlier PON networks are extremely limited in the amount of downstream and upstream capacity available to the end user. Although XGS-PON requires significant investment, the growing demand for symmetrical broadband makes the investment in XGS-PON the best choice. XGS-PON deployments are built around centralized fiber split topology and designed to allow a single fiber the ability to maintain an efficient point-to-multipoint broadband connection for multiple end users.

Shentel typically utilizes a dedicated fiber split from the Local Convergence Point (LCP) out to the Customer Premise. Each LCP is fed with feeder fiber from a Central Office (CO) or Point of Presence (POP). Shentel will leverage their existing PoP in Edinburg. This robust fiber infrastructure allows us to accommodate commercial sales opportunities and provide improved service to businesses and community anchor institutions within the project area. A centralized fiber

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split also provides a more dedicated and direct approach to ensuring that fiber capacity, technology, and plant records can be easily managed.

## Primary Network Vendors – FTTP

1. LCP – Nokia 7360 Optical Line Terminal (OLT) - Each FTTP market is deployed with a dedicated Nokia 7360 OLT and connected back to Shentel's dedicated multiple 100Gbps core network that is powered by Cisco's NCS-55A/5501 platforms.
2. Optical Network System (ONS) - Cisco's ONS 15454 Series Multiservice Transport Platform and the Network Convergence System (NCS) 2000. The coherent ONS provides the transport layer of Shentel's backbone Network with 100Gbps and 200Gbps wavelengths.
3. Optical Fiber - Shentel will utilize G.625.D compliant optical fiber. Shentel's preferred suppliers are Commscope, Corning and OFS.
4. P-Route Core - Cisco's NCS-55A and NCS-5501 platforms. The Core network is composed of ten Core devices and two 100Gbps paths between each device. The dual 100Gbps architecture provides both physical diversity and resiliency if a network failure or fiber cut occurs. This is extended to the PE network as well. Each device interfaces with two separate P routers, which provides Shentel the best option for diversity.
5. PE-Route Distribution Network - Cisco's ASR-90xx and ASR-99xx platforms. The Distribution Network is made up of many platforms deployed throughout Shentel's service footprint. Although the Core is the primary element within Shentel's topology, it is the actual Distribution network that is the workhorse of the network.

## Customer Premise Equipment – FTTP

At the Customer Premise, a Network Interface Device (NID) is placed on the outside of the residence to serve as a transition point between Outside Plant Fiber and Inside Plant Fiber. For FTTP broadband services, a Nokia XS-250X-A or Nokia XS-020X-A Optical Network Terminal (ONT) is utilized. Customers have the option of purchasing wall to wall WiFi service which utilizes a wireless mesh network to provide coverage and in home WiFi speeds nearing 1Gbps over WiFi and multi-gigabit when using cat 5.

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:

This project achieves universal broadband coverage by designing a network to reach the unserved locations that lack existing service. There are no other projects in the county that involve federal, state, or locally funded coverage commitments. Specifically, Shentel's project, rather than being tied to a specific geographic area, is designed to reach the remaining identified unserved homes. While there may be a small number of homes that will likely remain unreached, these homes are the extreme outliers with long drops well in excess of 2,000 ft. of where several miles of fiber are needed to reach a small handful of homes. That being said, Shenandoah's goal in continuing collaboration with its private-sector partners is to continue to drive fiber further out to reach even these remaining homes. This effort will build off of existing expansion projects in the county as well as refined broadband maps being developed at the federal and state level. The Shentel project will address Shenandoah's known broadband needs, and as time goes on and more information is gained, the County will be excellently positioned with a vast fiber network that will be able to address any further broadband holes that emerge. Shentel is under an NDA and in regular discussions with local utility providers, Shenandoah Valley Electric Company (SVEC) and Dominion, to continue analyzing opportunities to partner and reach any remaining unserved homes that may be identified in a collaborative, cost-efficient way.

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## 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 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 20 points)

### Answer:

Based on Shentel's existing assets and relationships, this project is in a very favorable state of development. A FTTH network design is in place with planned fiber routes, comprising nearly 600 miles of fiber. This network design is bolstered by Shentel's existing infrastructure which will facilitate both project construction and management. A significant portion of the fiber that Shentel plans to deploy will be overlashed to existing infrastructure. This overlash opportunity reduces the need for make-ready work and permitting, as it merely requires a modification to what is already in place. Shentel's typical permitting and easement process is as follows.

- Ride out the planned service areas to validate and refine the fiber route design. Shentel typically follows existing utility routes such as power or telephone and permits with those utilities for new pole attachments when there is not existing Shentel attachment to allow for overlash.
- VDOT permits will be submitted in those locations where we plan to place our facilities in the VDOT ROW.
- Shentel will permit all utility pole owners for any overlash or new pole attachments. Any new permitted utility pole that is located on private property, Shentel would follow the Virginia code that would allow Shentel to ask the incumbent utility to utilize their existing easement on private property. Shentel would ask the County to help facilitate this process in the rare occurrence of any easement disputes with land-owners. Shentel has had a long history with SVEC, Dominion, and local VDOT offices, and is well acquainted with the people and processes that will be followed for all permitting activity along its planned fiber routes.
- 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 long-term presence and headquarters in Shenandoah County and strong partnership with County staff, VDOT, and utility pole owners (Dominion, and SVEC) means that the needed easements and permits are all well understood and can be processed in a timely manner. Shentel's longstanding relationships with qualified contractors coupled with the large volume of both aerial and underground work they have proposed put them 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 58,000 homes in the last 12 months and that number is constantly growing. In Shenandoah County, Shentel has delivered broadband to 400 new unserved homes in 2021, without the assistance of any subsidies. This robust, proven growth, along with Shentel's long history in Shenandoah County, clearly demonstrates its ability to design and deploy a wide array of broadband networks.

This project was designed with a FTTH architecture to provide robust universal broadband connectivity. As such, Shentel estimates, in conjunction with its proposals in Franklin and Campbell Counties, that the project will be completed within 24 months from contract execution. A detailed project timeline can be found in Attachment 7 – Timeline/Project Management Plan.

The executed MOU can be found in attachment 8.

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:

Previous Applicant VATI Grants

N/A

Previous Co-Applicant VATI Grants

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Shentel has applied for grants through both VATI and TRCC. In 2020, Shentel applied to VATI for three grants in Bedford, Campbell, and Franklin Counties. Shentel's application was not approved by VATI. Shentel used this experience to develop a better understanding of VATI's goals, and to develop a universal broadband plan for these counties for the 2021 VATI submission. Shentel is a trusted partner in the communities that we serve based on our history of delivering on our commitments, while always continuing to invest in our network, customer service, and community partnerships.

The following is a summary of Shentel's grant awards at the state level. All of the projects listed below 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 grant awards directly with a locality (Campbell County and Albemarle County through CARES funding). All grants, both at the state, and local levels have been successfully closed out, and are delivering broadband to unserved locations.

<b>Project</b>
<b>County</b>
<b>Funding Source</b>
<b>Award Date</b>
<b>Status</b>
Walnut Run
Franklin
TRRC
6/6/2019
Active
Old Salem School Road
Franklin
VATI
7/21/2020
Active
Windy Gap
Franklin
TRRC
6/6/2019
Active

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Burnt Chimney

Franklin

TRRC

6/6/2019

Active

The Retreat

Franklin

CARES

12/25/20

In Process

Parkway Ave

Franklin

CARES

12/25/20

In Process

Cedar Bay Road

Franklin

CARES

12/25/20

In Process

New Chapel

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Campbell

CARES

12/25/20

In Process

The four active projects have seen incredible early success. In the projects that have been completed, Shentel has seen take rates from 30-70% less than year after project completion.

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. Label Attachments: Attachment 9 - Funding Sources Table; Attachment 10 – Documentation of Match Funding

**Answer:**

Requested VATI - \$12,176,662 - 37%

Shentel - \$17,030,872 - 51.75%

Shenandoah County - \$3,702,363 - 11.25%

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:**

Applicant-Provided Leverage

Shenandoah County has committed staff hours [estimate?], as well as coordination with the local towns, to ensure this project plan is as effective long-term as it is achievable. Plans to locate public WiFi access points throughout the County have been organized and deployment will occur in the same 24-month timeframe as this FTTH project. County staff have supported Shentel's planning by providing key demographic, financial, and economic development data. This data has ensured Shentel's project will accurately address the remaining digital divide in the County.

Co-Applicant-Proposed Leverage

Shentel will provide leverage in several different forms to support this project. Shentel has a local office location and customer support center located in Edinburg, VA. This office will provide convenience to customers who prefer to do business in-person and excellent local customer support to all customers across Shenandoah County. This existing resource will allow Shentel to effectively manage the network and serve the customers in the project area. Shentel's existing local support and management capabilities also reduce fixed costs, as these important business elements do not need to be newly developed.

Another significant benefit to Shentel's existing local presence is the significant amount of infrastructure already in place. As noted in question 9, Shentel will be able to leverage its existing pole attachments to attach via overlash, rather than having to go through the entire permit and make ready process for the whole project. This will both reduce costs and increase deployment speed. Shentel will also be able to leverage its existing PoP and Central Offices (Cos) in Shenandoah County, further decreasing costs and increasing deployment speed. This PoP connection will also ensure high quality services by linking this network to Shentel's existing fiber network with redundant Tier 1 peering points located in Ashburn, VA and Atlanta, GA.

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15. Marketing: Describe the broadband adoption plan.

a. 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)

b. 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. Shentel has a strong and constantly improving marketing strategy, driven by its expansive growth in recent years. Our marketing plan utilizes public relations, mass media, social media, digital advertising, direct mail, email, printed collateral and merchandising pieces. All of these tactics are reinforced by a robust website, a dedicated customer service team and Sales & Marketing representatives on the ground, in market.

Shentel's existing Fiber to the Home business involves many customer touchpoints both before and after construction. Before construction begins, Shentel uses staged digital and direct mail announcements to alert customers of the upcoming service. This advance notice serves to both alert residents to the service that will be available to them and to give them advance warning of impending construction.

Advertising then continues through the construction phase. These construction alerts and coming soon ads help to continue to keep residents aware of the reason for the construction work that may involve work in the rights of way or easements near their home. They also bolster awareness and excitement surrounding new services being delivered. Throughout this process, door to door sales will be employed to maintain clear communication with residents. All contacts or pre-registrations that take place during and before the construction phase will then be followed up with after construction is complete and service is available. At that time, installations will begin, which will continue to drive increased awareness of available services. As time goes on, take rates will be closely monitored and further advertising will be developed and deployed as needed. Shentel believes 50% to 70% of the homes passed will subscribe to internet service within 5 years of availability. We have seen similar take rates in underserved areas with our current offerings. In Frederick County, VA, for example we have an area of prior unserved homes where we have seen a 69% take rate after 7 months of service being made available.

For the wireless drop component of the service that Shentel plans to make available, a more targeted advertising approach is taken. Shentel plans to promote customer take rate through an integrated marketing plan that utilizes multiple reinforcing tactics that are deployed well before & after a new coverage area goes "live".

1. 30 - 60 days prior to launch: PR outreach to local media outlets & social media posts on local pages announcing coverage areas that will soon be launched.
2. 30 days prior to launch: Digital ad campaign geo-fenced to focus on the coverage area, utilizing a "Coming Soon" theme. Social Media also shifts in its messaging to reinforce the digital ad messaging. We target mobile phones, tablets, laptops & traditional desktop computers within the coverage area. All ads link to our Beam website, where address serviceability may be checked and pre-registration can take place.
3. At launch: Direct mail letters are sent, targeting serviceable households in the new coverage area. Digital ads, social media, online search terms, billboards, updated press release and local marketing representatives place flyers and signs in public areas and local businesses. Where possible 30 second ads are run on small local radio stations that have tight broadcast coverage to the new Beam coverage area.
4. Post launch: In the weeks and months that follow, a second direct mail campaign is launched targeting the new coverage area, digital ads and social media ads and posts continue, as does the placement of posters, flyers and yard stake signs and marketing materials in local businesses and other public gathering places. Local events are also researched to evaluate if they may provide a good venue to further drive awareness and interest in Beam.

For examples of marketing material and processes that Shentel employs in other markets today, see Attachments 19.

b. The Shenandoah County Library System and Shenandoah County Public Schools promote digital literacy in the Shenandoah County community.

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Shenandoah County Library System worked with Shenandoah County Public Schools to offer opt-in digital library cards to all students who wanted one. This allowed students to use all of the library's online information resources, including a research database, and full access to their collection of downloadable e-books and e-audiobooks through the Overdrive/Libby service. Over the course of the pandemic, the library invested heavily in downloadable content in an attempt to increase the number of titles available and the variety of formats (print/audio) they are available in.

Shenandoah County Public Schools promotes digital literacy efforts for students, staff, families, and the community primarily through the use of its website and social media. There is a dedicated Digital Citizenship Resources page on the division website ( <https://www.shenandoah.k12.va.us/en-US/technology-245228d7/digital-citizenship-resources-2f6c5986>) to help parents understand how to keep themselves and their children safe on the internet. Shenandoah County Public Schools also shares resources found on Common Sense Education (<https://www.commonsense.org/education/digital-citizenship>) and EverFi (<https://everfi.com/k-12/>).

SEE COMPLETE ANSWER - ATTACHMENT 20 - Shenandoah Completed VATI Application 2022



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Shenandoah County Public Schools/ Shenandoah County of Virginia

Shenandoah County VATI Broadband Grant Application 2022

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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. 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 11 – Letters of Support.

**Answer:**

County grant management team:

- Douglas Culler (Director of IT, Shenandoah County Public Schools/Shenandoah County Government) - Coordinate with county personnel and service provider to develop and apply for the VATI grant.
  - Jenna French (Director of Tourism & Economic Development, Shenandoah County) – Working with the local business community and residents to determine current and future needs as they relate to enhanced quality of life and future economic growth. Coordinating with partners such as Shenandoah Memorial Hospital, Chamber of Commerce and Department of Social Services.
  - Evan Vass (County Administrator) – Administrative Overview of the grant process.
  - Mandy Belyea (Deputy County Administrator) – Administrative overview of the grant process.
- Shenandoah County has extensive experience managing both state and federal grants, including grants administered by DHCD. Most recently, the County received a \$550,000 Community Development Block Grant (CDBG) through DHCD to assist small businesses who had been impacted by the COVID-19 Pandemic. This grant enabled us to serve 47 small businesses in addition to several others who received similar grants through The County utilizing CARES Act money. You will find that our management of that grant was both organized and efficient in meeting deadlines and filing necessary reports. Jenna French, Mandy Belyea, and Evan Vass also serve on the management team for this grant.
- The County also received another DHCD Grant in partnership with People Incorporated several years ago and has been the recipient of numerous other grants from various state agencies including VEDP, Virginia Department of Emergency Management, VDACS, VDOT, Virginia Tourism Corporation, Virginia Department of Criminal Justice Services, and Department of Social Services.

Co-Applicant management team and experience

Shentel is one of the largest regional internet service providers in the Mid-Atlantic. They have a 119 year operating history and an extensive fiber network that spans more than 7,000 miles and supports its rapidly growing and multi-faceted broadband services in Virginia, West Virginia, Maryland, Kentucky, and Pennsylvania. With broadband service delivered to more than 58,000 homes in the past 12 months and nearly 600 miles of fiber laid so far in 2021, 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 two highly successful broadband initiatives in its GloFiber FTTH service and its Beam fixed wireless service. Launched in 2019, GloFiber is an XGS-PON FTTH network that is currently live and serving customers with symmetrical multi-gigabit speeds in Harrisonburg, Winchester, Front Royal, Staunton, Lynchburg, Roanoke, and Salem, with engineering and construction underway in several more markets in Virginia, West Virginia, Maryland, and Pennsylvania.

Meanwhile, Shentel launched its Beam fixed wireless service in 2020 and now has service live in Albemarle, Augusta, Buckingham, Clarke, Frederick, Goochland, Greene, Louisa, Orange, Nelson, Page, Rockingham, Shenandoah Counties in VA and Barbour and Randolph Counties in WV. This service is targeted to bring broadband access to unserved homes in rural hard to reach portions of these states and currently provides that access to over 24,000 of previously unserved homes.

The Shentel team that will manage this project is as follows:

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Shenandoah County VATI Broadband Grant Application 2022

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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 119 year old telecommunications company that has served Shenandoah County for over a century. Shentel is currently laying hundreds of miles of fiber per year to support its expanding Cable, FTTH, and Fixed Wireless services. As shown in attachments 12 and 13, all cost estimates are based off of a long and active history in 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.

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:

- Total VATI funding request

The total VATI funding request is [\$12,177,000]

- Number of serviceable units

The total number of serviceable unites covered is [4,090]

## 19. Commonwealth Priorities (Up to 40 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 25/3 mbps.

### Answer:

- Approximately 24 businesses exist within the unserved area including vineyards, meat processors, convenience stores, hospitality and lodging and senior and elder care facilities.

Of those businesses, we are aware of three that are planning expansions in the next few years where the addition of broadband would greatly impact their service. For many of the hospitality businesses such as Cave Ridge Vineyard, Shenandoah Vineyard, North Mountain Vineyard and Shenandoah River Lodge, access to broadband would enable them to expand on the number of special events they host or simply better attract visitors that have come to expect high speed internet everywhere they go, especially when those tourists come from well served urban areas such as Northern Virginia and DC.

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In addition to the tourism related businesses, two senior care facilities exist within the unserved areas of our county: Greenfield Reflections and Greenfield Senior Living. Access to improved broadband would not only allow their operations to function more efficiently, it would also enable friends and family to share images and content from outside with friends and family within the facility.

In addition to the businesses within the proposed area, there are also two community organizations, The Mount Zion Lutheran Church and the Columbia Furnace Community Club. By providing broadband to these organizations, many of the local community members that they serve will not be able to access broadband through their organization. The Columbia Furnace Community Club in particular offers a place for people of all ages to connect with one another and access resources.

Simply Shenandoah is a wellness retreat planned to open in 2025. They closed on over 550 acres in Star Tannery in Spring of 2020 with plans to develop a facility with over 100 rooms, dining, spa and recreation facilities with a focus on hospitality, wellness, locally sourced foods, regional history and regenerative land practices. A project such as this will be transformative for our community from an economic development standpoint while strongly aligning with our community's desire to conserve the land and its natural resources as a significant amount of the property will be placed under conservation easement. In a recently completed Economic Development Strategic Plan for the County, tourism & hospitality was identified as a key target industry for our community. While the retreat itself aims to have guests disconnect from technology and connect with nature, it will be critical to have fiber infrastructure serving this site to run the day to day operations associated with such a large facility.

Fort Valley Ranch is a well-established horseback riding venue with cabins and RV camp sites available for overnight stays. Not only is broadband limited in this area, cell phone reception does not exist in this part of Fort Valley. Access to broadband would not only enable the business to operate more efficiently but allow guests access to amenities and the ability to work remotely while staying on site.

Caroline Furnace is a Lutheran retreat and camp. The addition of broadband at this facility would enable them to host larger groups and events thus spurring economic development in the community.

b. Shentel has a variety of unique partnerships planned for this project. Some of the partnerships will lower costs, or enable increased availability of Internet access.

Shentel and SVEC have signed an NDA and are working together to analyze possible means to extend broadband to both the unserved and underserved areas of Shenandoah County as part of Shenandoah County's VATI grant application. Shentel also has an NDA in place and is exploring similar opportunities with Dominion.

Shentel is a leading E-Rate provider, and has a long history as a partner with school systems across our service footprint.

Shentel also has a formalized "resource sharing agreement" with VDOT. In exchange for right of way easements, and other efficiencies for Shentel's construction, Shentel provides fiber to VDOT that is utilized for cameras, and other safety and monitoring efficiencies for VDOT.

Shentel also has all of the Valley Health locations connected with fiber. Recently, Shentel also connected a new Sentara rural health location in Mount Jackson with fiber. This location offers primary care services and telemedicine, a vital health care tool for rural communities. Sentara has a targeted goal within their medical group to increase telemedicine services across their entire network. As a result, Shentel and Sentara are evaluating other joint, collaborative projects to increase the level, access, and quality of health care delivery in the Shenandoah Valley.

Shentel has designed this grant to provide the best technology (FTTH) at an excellent cost to both the state and County. In addition, this grant will align with the other efforts of the Northern Shenandoah Valley

c. This project will help provide digital equity within the Opportunity Zone where 75% of the population that would be impacted by this new service is considered ALICE or below and 29% living below the poverty level. ALICE is the

# Application to DHCD Submitted through CAMS

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population living above the poverty level but making less than the basic cost of living.

Throughout the entire area served by this project, 27% of those living in poverty and 28% of those considered ALICE will now have access to broadband that didn't previously therefore helping to provide digital equity to the entire population of Shenandoah County.

SEE COMPLETE ANSWER - ATTACHMENT 20 - Shenandoah Completed VATI Application 2022

## 20. **Additional Information**

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

### **Answer:**

Attachment 19 - Shenandoah Marketing and Citizen Engagement Plan

Attachment 20 - Shenandoah Completed VATI Application 2022

### **Attachments:**

Map(s) of project area, including proposed infrastructure

ATTACHMENT1ShenandoahProjectAreaMap914202141820.pdf

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

ATTACHMENT2ShenandoahDocumentationofFederalFundingArea914202192908.pdf

# Application to DHCD Submitted through CAMS

Shenandoah County Public Schools/ Shenandoah County of Virginia

Shenandoah County VATI Broadband Grant Application 2022

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RDOF Awarded Areas included in VATI Application (Use template provided)

ATTACHMENT3ShenandoahDOCUMENTATIONOFRDOFAWARDEDAREAINCLUDEDINVATIAPPLICATION914202192917.pdf

Documentation that proposed project area is unserved based on VATI criteria

ATTACHMENT4ShenandoahDocumentationUnservedAreaVATICriteria914202123121.pdf

Passings Form (Use template provided)

ATTACHMENT5ShenandoahPassingsForm914202194905.pdf

Propagation Map if Wireless Project

ATTACHMENT6ShenandoahPropagationMapifWirelessNotApplicable914202141143.pdf

Timeline/Project Management Plan

ATTACHMENT7ShenandoahTimelineProjectManagementPlan914202194941.pdf

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

ATTACHMENT8ShenandoahExecutedMOUSeptember142021914202134238.pdf

Funding Sources Table (Use template provided)

ATTACHMENT9ShenandoahFundingSourcesTable914202195012.pdf

Documentation of Match Funding

ATTACHMENT10ShenandoahDocumentationofMatchFunding914202195023.pdf

Letters of Support

ATTACHMENT11ShenandoahLettersofSupportVATI2022914202141150.pdf

Derivation of Cost/Project Budget (Use template provided)

ATTACHMENT12ShenandoahDerivationofCosts914202195042.pdf

Documentation of Supporting Cost Estimates

ATTACHMENT13ShenandoahDocumentationofSupportingCostEstimates914202195056.pdf

# Application to DHCD Submitted through CAMS

Shenandoah County Public Schools/ Shenandoah County of Virginia  
Shenandoah County VATI Broadband Grant Application 2022

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Two most recent Form 477 submitted to the FCC or equivalent

ATTACHMENT14ShenandoahTwomostrecentForm477submittedtoFCC914202195111.pdf

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

ZipFolderATTACHMENT15ShenandoahCountyPointandPolygonShapeFiles914202195149.zip

For wireless applicants: shapefiles, in .zip file form, indicating RSSI projections in the application area

ZipFolderATTACHMENT16ShenandoahFTTHProjectionShapefiles914202195140.zip

Optional

ATTACHMENT19ShenandoahMarketingandCitizenEngagementPlan914202150357.pdf

Optional

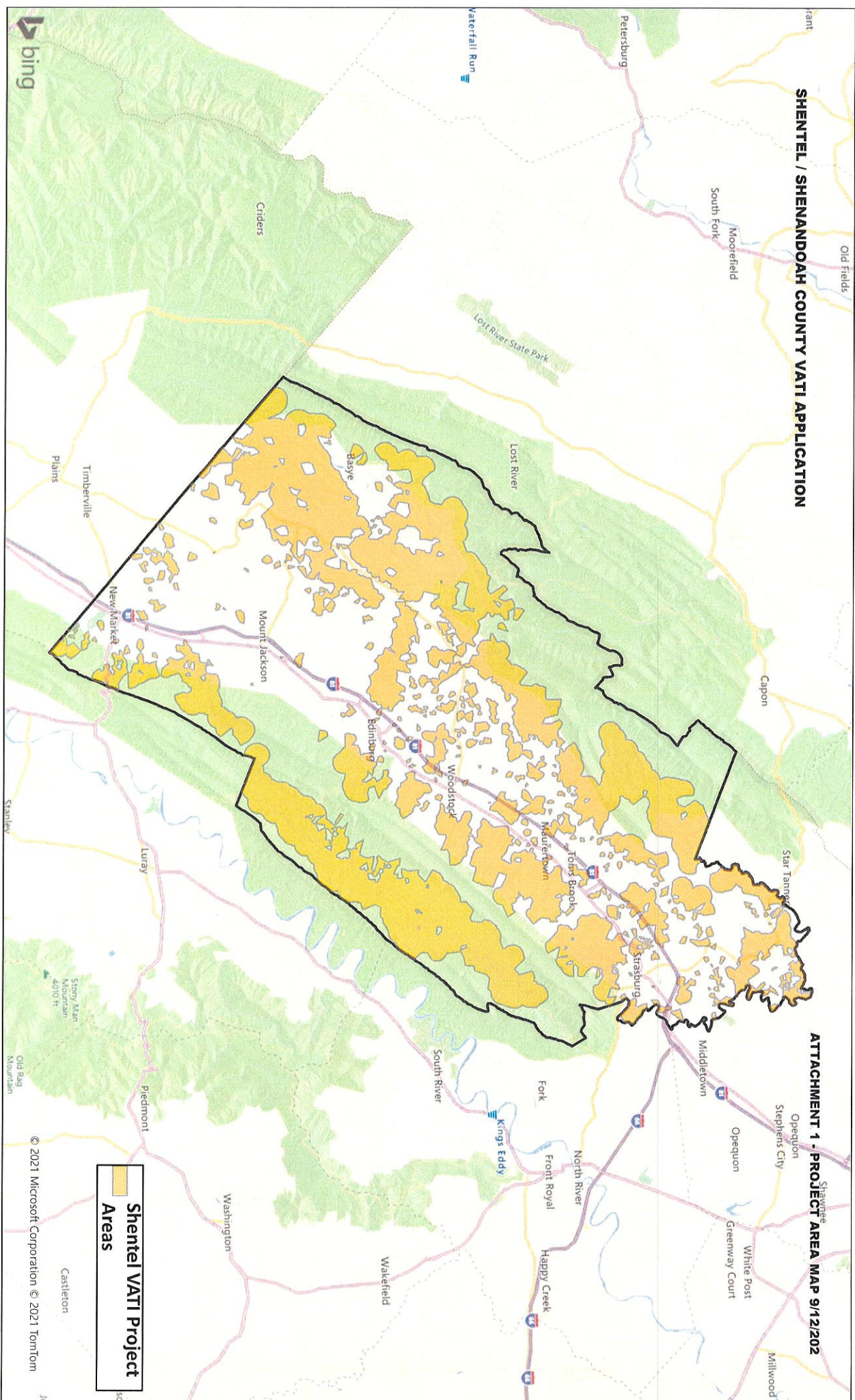
ATTACHMENT20ShenandoahCompletedVATIApplication2022914202150409.pdf

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**SHENTEL / SHENANDOAH COUNTY VATI APPLICATION**

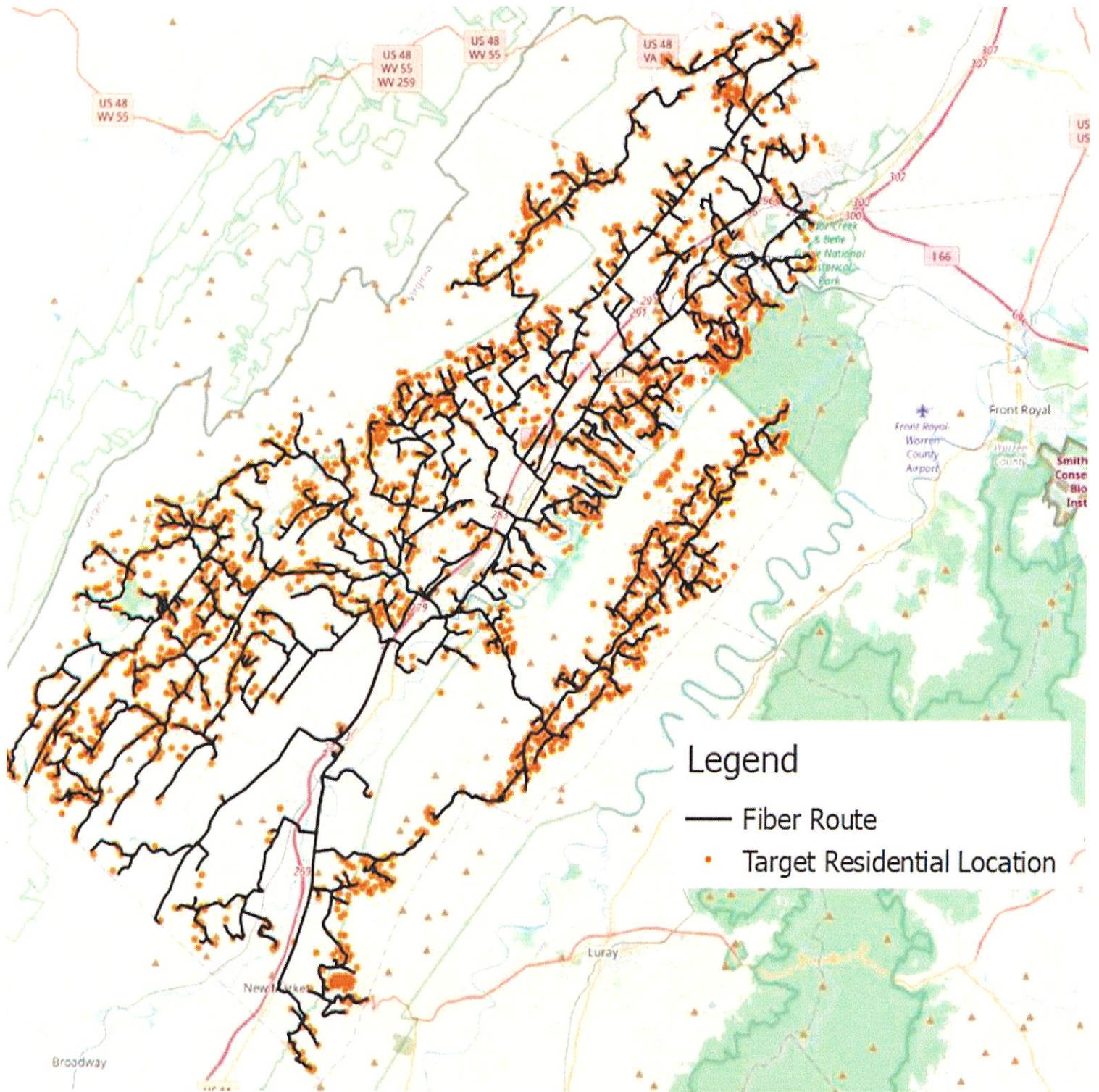
**ATTACHMENT 1 - PROJECT AREA MAP 9/12/202**



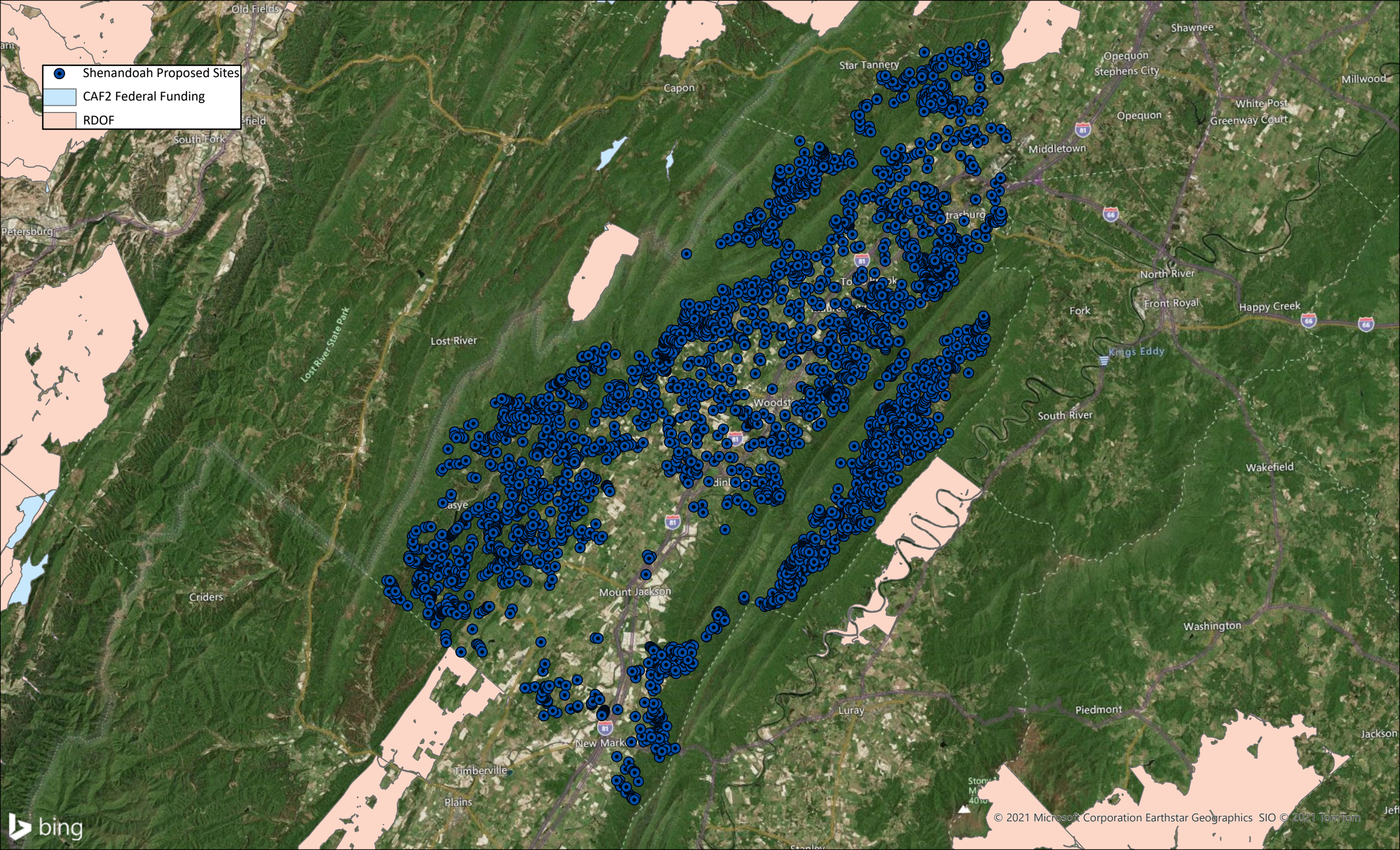
**Shentel VATI Project Areas**

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- Shenandoah Proposed Sites
- CAF2 Federal Funding
- RDOF



**ATTACHMENT 3 – DOCUMENTATION OF RDOF AWARDED AREA INCLUDED IN  
VATI APPLICATION**

Not applicable to this project.



As the dominant incumbent in Shenandoah County, as well as a regulated Telephone Company in portions of the county, Shentel attests that the addresses included in the project area are currently unserved by broadband service. Shentel has detailed knowledge of the existing service in Shenandoah County, coupled with decades of local knowledge and a strong working relationship with the county. Altogether, Shentel is able to draw from highly detailed information to identify unserved addresses. This detailed identification of unserved homes is the basis of the project area. As a fully fiber-to-the-home project, there is no anticipated overlap in this project area.

## 2022 Virginia Telecommunication Initiative (VATI) Passing Form

Type of Passings	Total Number of Passings in the Project Area <sup>1</sup>	Passings in the Project Area, without Special Construction Costs Required <sup>2</sup>	Passings with Special Construction Costs budgeted in the Application <sup>3</sup>	Number of Passings with Speeds at 10/1 or below in Project Area <sup>4</sup>
Residential	4,090	1,962	2,128	0
Businesses (non-home based)	42	42	0	0
Businesses (home-based)	0	0	0	0
Community Anchors	3	3	0	0
Non-residential	4	4	0	0
<b>Total</b>	4,139	2,011	2,128	0

**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.

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

<sup>2</sup>The 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.

<sup>3</sup>The 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.

<sup>4</sup>The number of structures in the project area that do not have access to internet at speeds of at least 10 mbps download and 1mbps 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.

N/A

# Shentel Attachment 7 – Project Timeline

## ATTACHMENT 7 (Question 11 Project Readiness)

<b>Project Timeline</b>																								
Month 1 = Contract Award Notification and Contract Fully Executed																								
Project Deadline = December, 2024 (24 months)																								
<b>Hybrid Broadband (includes FTTH and Fixed Wireless)</b>																								
	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	Month 19	Month 20	Month 21	Month 22	Month 23	Month 24
Performance Milestones	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23
Field Engineering - Phased	█	█	█	█	█																			
Design Engineering - Phased			█	█	█	█	█																	
Search Ring Release - Phased				█	█	█	█	█	█															
Site Acquisition - Phased					█	█	█	█	█	█	█	█	█	█	█	█	█	█	█					
Permitting - Phased						█	█	█	█	█	█	█	█	█	█	█	█	█	█	█				
Final Project Review - Phased							█	█	█	█	█	█	█	█	█	█	█	█	█	█				
Construction - Phased								█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	
Customer Installation Commencement - Phased																█	█	█	█	█	█	█	█	
Project Close-out - Phased																	█	█	█	█	█	█	█	█
																		Target Completion						Project Deadline

Detailed description of each of the aforementioned Performance Milestones for both Fiber to the Home and Fixed Wireless technologies are as follows:

### Performance Milestones – Fiber to the Home

#### 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

## Shentel Attachment 7 – Project Timeline

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 Attachment 7 – Project Timeline

- 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.

## Performance Milestones – Fixed Wireless

### Field Engineering – Phased

- Reconfirm previous analysis of unserved or underserved homes
- Competitive analysis of other providers

### Design Engineering – Phased

- Prediction modelling using InfoVista Planet platform
- Targeted coverage review/analysis

## Shentel Attachment 7 – Project Timeline

- Site configuration – macro vs. small cell
- Prediction and analysis of home counts

### Search Ring Release – Phased

- Creation of designated search ring area

### Site Acquisition – Phased

- Property Acquisition
- Prediction modelling using InfoVisto Planet platform of specific site candidates
- Regulatory Review/Title Review
- Lease/Easement acquired
- Construction Drawings
- Structural Analysis Review
- Environmental Review

### Permitting – Phased

- Zoning/Permitting with jurisdiction
- Land Use Permit filing with VDOT

### Final Project Review – Phased

- Notice to proceed issued
- Materials and equipment order finalized

### Construction – Phased

- Civil construction (includes backhaul, power and BTS set)
- Tower construction
- Integration of equipment/activation of site

### Customer Installation Commencement – Phased

- Release of addresses to sales database

## Shentel Attachment 7 – Project Timeline

- CPE (Customer Premise Equipment) installation at home/business

### 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.

**MEMORANDUM OF UNDERSTANDING  
BETWEEN SHENANDOAH COUNTY AND  
SHENTEL 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 this 14 day of September, 2021 by and between Shenandoah County, a political subdivision of the Commonwealth of Virginia and Shenandoah Cable Television, LLC, hereinafter referred to as "Shentel," for the purpose of creating a partnership to prepare and submit an application for grant funding through the 2021 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 Shenandoah County, Virginia.

Shenandoah County recognizes that in order to attain and maintain a high-quality level of broadband service to the citizens of Shenandoah 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.

**II. SCOPE OF WORK**

Shenandoah County and Shentel desire to cooperatively work together to prepare and apply for grant funding through the 2022 VATI Funding Program managed by the Virginia DHCD to provide universal fiber and fixed wireless broadband service to the unserved areas of the County by extending Shentel's existing network. The application for funding anticipates coverage to be made available to approximately 95% or the 4,270 currently unserved/underserved homes in the County.

Shenandoah County and Shentel agree, as described herein, to provide the necessary funding to construct the universal broadband project to deliver Internet service to the homes/businesses in these areas by providing minimum average Internet speeds ranging from 25 Mbps/3 Mbps to 1 Gbps.

To obtain necessary project funding, Shenandoah County agrees to complete a grant funding application in collaboration with Shentel through the DHCD 2022 VATI Funding Program on or before September 14, 2021. In the event that the grant application is successful, and subject to future appropriation at the discretion of the Board of Supervisors, Shenandoah County will provide either up to \$3.7M towards the hybrid fiber/fixed wireless project or up to \$6.1M towards a full fiber to the home project, with the remaining project costs being borne by Shentel and State funding through the VATI program.

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

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

**FOR SHENANDOAH COUNTY:**

Approved as to Form:

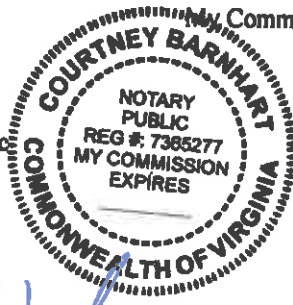
By: *Steven A. Baker*  
Steven A. Baker  
SHENANDOAH COUNTY BOARD OF SUPERVISORS CHAIRMAN

STATE OF VIRGINIA  
COUNTY OF SHENANDOAH, to wit:

The foregoing instrument was acknowledged before me this 14<sup>th</sup> day of September, 2021,  
by Steven Baker, on behalf of the Shenandoah County.

Registration #: 7365277 My Commission expires: 09/30/2022

*Courtney Barnhart* Notary Public



**FOR SHENTEL:**

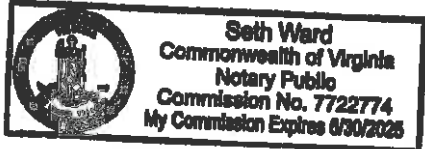
By: *Christopher S. Kyle*  
Christopher S. Kyle  
Vice President Industry Affairs and Regulatory

STATE OF VIRGINIA  
COUNTY OF SHENANDOAH, to wit:

The foregoing instrument was acknowledged before me this 14<sup>th</sup> day of September, 2021  
by Christopher S. Kyle, Vice President of Shenandoah Telecommunications Company (Shentel).

Registration #: 7722774 My Commission expires: 6/30/2025

*Seth Ward* Notary Public



**ATTACHMENT 9 – FUNDING SOURCES TABLE**

## 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	\$12,176,662	37%	Pending
SHENTEL	\$17,030,872	51.75%	SECURED
SHENANDOAH COUNTY	\$3,702,363	11.25%	SECURED
<b>TOTAL</b>	<b>\$ 32,909,897</b>	<b>100 %</b>	



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.

A handwritten signature in blue ink that reads "Chris Kyle". The signature is fluid and cursive, with the first letters of "Chris" and "Kyle" being capitalized and prominent.

Chris Kyle  
Vice President, Industry Affairs & Regulatory

## ITEM 6. SELECTED FINANCIAL DATA

The following table sets forth selected consolidated financial data for the years presented and at the dates indicated below. Our historical results are not necessarily indicative of our results in any future periods. The summary of our consolidated financial data set forth below should be read together with our consolidated financial statements and related notes, as well as the sections entitled "Risk Factors" and "Management's Discussion and Analysis of Financial Condition and Results of Operations," included elsewhere in this Annual Report on Form 10-K. All periods reflect the operating results, cash flows, and financial position, related to our Wireless operations as discontinued operations. Additionally, those assets and liabilities which are expected to transfer in the sale of our discontinued Wireless operations are presented as held for sale in our Consolidated Balance Sheets.

	Years Ended December 31,		
	2020	2019	2018
<i>(in thousands, except share and per share amounts)</i>			
Revenue	\$ 220,775	\$ 206,862	\$ 192,683
Operating expenses	221,922	207,581	195,652
Operating loss	(1,147)	(719)	(2,969)
Income tax (benefit) expense	(586)	173	(1,343)
Income from continuing operations	2,626	2,388	2,077
Income from discontinued operations, net of tax	124,097	53,568	44,518
Net income	\$ 126,723	\$ 55,956	\$ 46,595
Shareholder Information:			
Shares outstanding	49,867,676	49,670,603	49,630,119
Net income per share, basic and diluted:			
Basic - Income from continuing operations	\$ 0.05	\$ 0.05	\$ 0.04
Basic - Income from discontinued operations, net of tax	\$ 2.49	\$ 1.07	\$ 0.90
Basic net income per share	<u>\$ 2.54</u>	<u>\$ 1.12</u>	<u>\$ 0.94</u>
Diluted - Income from continuing operations	\$ 0.05	\$ 0.05	\$ 0.04
Diluted - Income from discontinued operations, net of tax	\$ 2.48	\$ 1.07	\$ 0.89
Diluted net income per share	<u>\$ 2.53</u>	<u>\$ 1.12</u>	<u>\$ 0.93</u>
Cash dividends per share	\$ 0.34	\$ 0.29	\$ 0.27
Years Ended December 31,			
	2020	2019	2018
Cash and cash equivalents	\$ 195,397	\$ 101,651	\$ 85,086
Assets held for sale	\$ 1,133,294	\$ 1,196,575	\$ 910,596
Total assets	\$ 2,031,707	\$ 1,898,902	\$ 1,487,488
Liabilities held for sale	\$ 452,202	\$ 422,335	\$ 46,487
Total liabilities	\$ 1,449,313	\$ 1,426,474	\$ 1,043,254
Capital expenditures	\$ 120,450	\$ 67,048	\$ 56,631





COMMONWEALTH OF VIRGINIA  
**HOUSE OF DELEGATES**  
RICHMOND

**C. TODD GILBERT**  
POST OFFICE BOX 309  
WOODSTOCK, VIRGINIA 22664  
  
REPUBLICAN LEADER

COMMITTEE ASSIGNMENTS:  
FINANCE  
AGRICULTURE, CHESAPEAKE &  
NATURAL RESOURCES  
RULES

September 9, 2021

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

Re: 2022 Virginia Telecommunication Initiative (VATI) Grant

Dear Dr. Holmes:

I am writing this letter in full support of the application for grant funding through the 2021 Virginia Telecommunication Initiative (VATI) of the Virginia Department of Housing and Community Development, submitted by Shenandoah County and Shenandoah Cable Television LLC (Shentel), to expand and improve broadband services to the citizens of Shenandoah County, Virginia.

The expansion of broadband internet access throughout the rural areas of Shenandoah County will be of great benefit to county residents and businesses alike. Shenandoah County is known for its outdoor recreation and agritourism attractions. These businesses are often located in rural areas that currently lack the high-speed internet necessary for many essential business functions. Expanded broadband access will benefit current businesses along with economic development and growth.

Thank you kindly for your consideration.

Sincerely,

A handwritten signature in black ink, appearing to read "C. Todd Gilbert".

C. Todd Gilbert  
House Republican Leader

Shenandoah County  
Department of Social Services  
494 N Main Street Suite 200  
Woodstock, Virginia 22664

Beth DeLullo, LCSW  
Director



540.459.6226  
540.459.6223 fax

August 30, 2021

Chandler Vaughan  
Department of Housing and Community Development

Dear Mr. Vaughan,

I am writing this letter to show support for the VATI Grant to bring broadband to underserved areas within Shenandoah County.

As an agency who serves our most vulnerable citizens, broadband access for every member of our community is crucial. Many of our citizens, due to either their remote location or economic hardship, do not have access to the internet. This lack of access adversely affects our citizens' ability to fully engage in essential functions such as school, work, and medical care.

In addition, access to public Wi-Fi would enable our citizens who cannot afford internet service in their homes the same service as those who can.

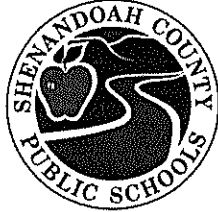
As schools, medical practices and places of employment move to a virtual platform, access to the internet has never been more important for our families. Equal access regardless of where you live or your socioeconomic status is paramount to the health and well-being of our citizens as well as our community.

Thank you for your time and please do not hesitate to contact me should you have any questions.

Sincerely,

*Beth DeLullo*

Beth DeLullo, LCSW  
Director



"Sharing the Journey Toward Excellence"

---

600 North Main Street, Suite 200 • Woodstock, VA 22664 • (540) 459-6222 • FAX (540) 459-6707  
Office of Superintendent

September 1, 2021

Tamarah Holmes, Ph.D  
Director, Office of Broadband  
Department of Housing and Community Development  
600 East Main Street, Ste 300  
Richmond, VA 23219

Re: 2022 Virginia Telecommunication Initiative (VATI) Grant

Dear Dr. Holmes,

I am writing this letter in full support of the application for grant funding through the 2021 Virginia Telecommunication Initiative (VATI) of the Virginia Department of Housing and Community Development, submitted by Shenandoah County and Shenandoah Cable Television LLC (Shentel), to expand and improve broadband services to the citizens of Shenandoah County, Virginia.

Shenandoah County Public Schools serves just under 6,000 students across ten schools. Digital equity continues to be a high priority for the division. Due to the COVID-19 pandemic, students learned in a virtual or hybrid model for the 2020-21 school year. Though students have returned to five-day in-person instruction this school year, the division continues to use its learning management system to provide resources and assignments to students. COVID-19 cases and exposures continue to lead to high numbers of student absences, and during these times teachers provide live instruction virtually. To access their learning, it is imperative that students have access to high-speed, reliable internet.

Shenandoah County Public Schools has worked diligently with its partners, including Shentel, to ensure that each student had some form of internet access in order to access virtual instruction and resources. However, due to the lack of high-speed internet throughout many of the rural areas of Shenandoah County, some students have more reliable, faster internet than others. Expanding and improving broadband service across Shenandoah County will help overcome the digital divide and offer more equitable access for our students and their families.

Sincerely,

---

Melody Sheppard, Superintendent  
Shenandoah County Public Schools  
600 N. Main Street, Suite 200  
Woodstock, VA 22664

 **ValleyHealth**  
**Shenandoah**  
**Memorial Hospital**

September 9, 2021

Chandler Vaughan  
Department of Housing and Community Development

Dear Mr. Vaughan,

I am writing this letter to show support for the VATI Grant to bring broadband to underserved areas within Shenandoah County.

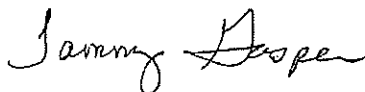
As an agency who serves the broader community including individuals and families in remote parts of Shenandoah County, we can attest that broadband access for every member of our community is crucial. Many residents within Shenandoah County, due to either their remote location or economic hardship, do not have reliable and efficient internet access and in many cases, lack access all together. This lack of access adversely affects people's ability to fully engage in essential functions such as school, work, and medical care.

In addition, access to public Wi-Fi that would be made available through this grant, would enable those who cannot afford internet service in their homes the same service as those who can. This would allow individuals access to remote learning, work and telemedicine opportunities.

As schools, medical practices and places of employment move to a virtual platform, access to the internet has never been more important for our families. Equal access regardless of where you live or your socioeconomic status is paramount to the health and well-being of our citizens as well as our community.

Thank you for your time and please do not hesitate to contact me should you have any questions.

Sincerely,



Tammy Gasper - FACHE  
Vice President, Shenandoah Memorial Hospital  
Medical Staff Services & Clinical Program Development



September 14, 2021

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

Re: 2022 Virginia Telecommunication Initiative (VATI) Grant

Dear Dr Holmes,

This letter is to express our support for Shenandoah County's VATI Grant application to extend broadband to underserved areas of our community. In addition to extending broadband to more remote areas of Shenandoah County, the project, if awarded, will provide areas of public Wi-Fi within the towns and more populated communities. These public access points will enable people on fixed and lower incomes to access high speed internet where it otherwise may be out of reach because of cost constraints.

As the Chairman of the Chamber of Commerce's Board of Directors and active in our Chamber's Nonprofit Council, I can attest to the need for public access to help serve our lower income populations. While many people live in areas that are currently served by broadband, access still remains an issue for many because of affordability. This grant would help break down those barriers by providing alternatives.

Sincerely,

David Hutton  
Chairman, Chamber Board of Directors

**103 S Main Street, P.O. Box 605, Woodstock, VA 22664**  
[www.shenandoahcountychamber.org](http://www.shenandoahcountychamber.org)

**ATTACHMENT 12 - Derivation of Costs**

Product	Total 100%	VATI 37%	Non-VATI 63%	Source of Estimate	Date
Fiber Plant Build	\$ 30,225,778	\$ 11,183,538	\$ 19,042,240	Shentel - please see Attachment 13 for supporting documentation	9/12/2021
Long Drops at Customer Premise	\$ 2,134,119	\$ 789,624	\$ 1,344,495	Shentel - please see Attachment 13 for supporting documentation	9/12/2021
Core Network Capacity Additions	\$ 550,000	\$ 203,500	\$ 346,500	Shentel - please see Attachment 13 for supporting documentation	9/12/2021
	\$ -	\$ -	\$ -		
<b>PROJECT TOTAL</b>	<b>\$ 32,909,897</b>	<b>\$ 12,176,662</b>	<b>\$ 20,733,235</b>		
	<b>100%</b>	<b>37%</b>	<b>63%</b>		

(RETAIN FOR YOUR RECORDS)  
Form 477 Filing Summary

FRN: 0002064145 | Data as of: Dec 31, 2020 | Operations: Non-ILEC | Submission Status: Original - Submitted | Last Updated: Mar 12, 2021 14:44:20

**Filer Identification**

Section	Question	Response
<b>Filer Information</b>	Company Name	Shentel
	Holding Company Name	Shenandoah Telecommunications Company
	SAC ID	
	499 ID	
<b>Data Contact Information</b>	Data Contact Name	Christina Price
	Data Contact Phone Number	(540) 984-5350
	Data Contact E-mail	christina.price@emp.shentel.com
<b>Emergency Operations Contact Information</b>	Emergency Operations Name	Shentel NOC
	Emergency Operations Phone Number	(540) 984-5531
	Emergency Operations E-mail	shentel-noc@shentel.net
<b>Certifying Official Contact Information</b>	Certifying Official Name	Ed McKay
	Certifying Official Phone Number	(540) 984-5303
	Certifying Official E-mail	ed.mckay@emp.shentel.com

**Data Submitted**

Form Section	File Name	Date & Time	Number of Rows
Fixed Broadband Deployment	CLEC_Broadband_Coverage.csv	Mar 12, 2021 08:39:53	40195
Fixed Broadband Subscription	CLEC_Broadband_Subscription.csv	Mar 10, 2021 19:01:30	2625
Fixed Voice Subscription	CLEC_Voice_Subscription.csv	Mar 10, 2021 18:57:27	321

**Fixed Broadband Deployment**

**Census Block Counts by State, DBA Name and Technology**

State	DBA Name	Technology	Blocks
<b>Kentucky</b>	Shentel	Cable Modem – DOCSIS 3.1	369
		Optical Carrier/Fiber to the End User	238
<b>Maryland</b>	Shentel	Cable Modem – DOCSIS 3.1	578
		Optical Carrier/Fiber to the End User	784
<b>Pennsylvania</b>	Shentel	Optical Carrier/Fiber to the End User	1375

State	DBA Name	Technology	Blocks
Virginia	Beam	Terrestrial Fixed Wireless	4530
	Glo Fiber	Optical Carrier/Fiber to the End User	1690
	Shentel	Cable Modem – DOCSIS 3.1	9320
		Optical Carrier/Fiber to the End User	8520
West Virginia	Canaan Cable TV	Cable Modem – DOCSIS 3.0	141
	Shentel	Cable Modem – DOCSIS 3.0	298
		Cable Modem – DOCSIS 3.1	6099
		Optical Carrier/Fiber to the End User	6253
<b>Total</b>			<b>40195</b>

## Fixed Broadband Subscription

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

State	Technology	Census Tracts	Subscriptions		
			Consumer	Business / Govt	Total
Kentucky	Cable Modem	41	2160	88	2248
Maryland	Cable Modem	45	2205	228	2433
	Optical Carrier/Fiber to the End User	19	0	38	38
Pennsylvania	Optical Carrier/Fiber to the End User	15	0	29	29
Virginia	Cable Modem	1023	62554	6337	68891
	Optical Carrier/Fiber to the End User	606	6103	870	6973
	Terrestrial Fixed Wireless	28	80	0	80
West Virginia	Cable Modem	650	17824	2260	20084
	Optical Carrier/Fiber to the End User	198	3249	382	3631
<b>Total</b>		<b>2625</b>	<b>94175</b>	<b>10232</b>	<b>104407</b>

### Fixed Broadband Subscriptions by Bandwidths and End-user Type

Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Consumer	Business / Govt	Total
1.000	0.512	5	0	5
1.000	1.000	0	3	3
1.500	0.512	0	28	28
3.000	0.768	2813	3	2816
4.000	1.500	64	0	64
5.000	1.000	9336	639	9975
5.000	5.000	0	9	9
6.000	1.000	4	0	4



Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Consumer	Business / Govt	Total
8.000	1.500	115	0	115
10.000	2.000	7369	1910	9279
10.000	5.000	36	0	36
10.000	10.000	1608	1554	3162
15.000	3.000	0	107	107
15.000	10.000	2	1138	1140
15.000	15.000	383	10	393
20.000	20.000	0	57	57
22.000	5.000	244	0	244
25.000	3.000	28	0	28
25.000	5.000	3909	903	4812
25.000	10.000	0	1360	1360
25.000	25.000	418	65	483
30.000	30.000	0	28	28
40.000	40.000	0	7	7
50.000	5.000	229	0	229
50.000	10.000	36131	1164	37295
50.000	50.000	343	216	559
60.000	60.000	0	2	2
70.000	70.000	0	3	3
75.000	75.000	0	6	6
80.000	80.000	0	2	2
95.000	95.000	0	1	1
100.000	10.000	2	0	2
100.000	100.000	133	243	376
101.000	10.000	277	382	659
150.000	10.000	22473	93	22566
150.000	150.000	0	44	44
200.000	200.000	47	76	123
250.000	250.000	0	22	22
300.000	10.000	3652	0	3652
300.000	300.000	2480	13	2493
350.000	350.000	0	2	2

Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Consumer	Business / Govt	Total
400.000	400.000	0	3	3
500.000	500.000	0	20	20
700.000	700.000	0	1	1
750.000	750.000	0	4	4
1000.000	10.000	401	15	416
1000.000	1000.000	1672	58	1730
2000.000	2000.000	1	6	7
3000.000	3000.000	0	6	6
5000.000	5000.000	0	7	7
6000.000	6000.000	0	2	2
7000.000	7000.000	0	2	2
10000.000	10000.000	0	18	18
<b>Total</b>		<b>94175</b>	<b>10232</b>	<b>104407</b>

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

Technology	Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Consumer	Business / Govt	Total
<b>Cable Modem</b>	1.000	0.512	5	0	5
	1.500	0.512	0	24	24
	3.000	0.768	2721	3	2724
	4.000	1.500	64	0	64
	5.000	1.000	8855	577	9432
	5.000	5.000	0	5	5
	6.000	1.000	4	0	4
	8.000	1.500	115	0	115
	10.000	2.000	6973	1894	8867
	10.000	5.000	36	0	36
	10.000	10.000	1608	1398	3006
	15.000	3.000	0	106	106
	15.000	10.000	1	1068	1069
	15.000	15.000	383	0	383
	22.000	5.000	244	0	244
	25.000	5.000	3637	901	4538
25.000	10.000	0	1291	1291	

Technology	Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Consumer	Business / Govt	Total
	25.000	25.000	418	24	442
	50.000	5.000	1	0	1
	50.000	10.000	33852	1134	34986
	50.000	50.000	342	15	357
	100.000	100.000	132	14	146
	101.000	10.000	251	356	607
	150.000	10.000	21212	85	21297
	200.000	200.000	47	0	47
	250.000	250.000	0	7	7
	300.000	10.000	3462	0	3462
	1000.000	10.000	380	11	391
<b>Optical Carrier/Fiber to the End User</b>	1.000	1.000	0	3	3
	1.500	0.512	0	4	4
	3.000	0.768	92	0	92
	5.000	1.000	481	62	543
	5.000	5.000	0	4	4
	10.000	2.000	396	16	412
	10.000	10.000	0	156	156
	15.000	3.000	0	1	1
	15.000	10.000	1	70	71
	15.000	15.000	0	10	10
	20.000	20.000	0	57	57
	25.000	5.000	272	2	274
	25.000	10.000	0	69	69
	25.000	25.000	0	41	41
	30.000	30.000	0	28	28
	40.000	40.000	0	7	7
	50.000	5.000	178	0	178
	50.000	10.000	2279	30	2309
	50.000	50.000	1	201	202
	60.000	60.000	0	2	2
	70.000	70.000	0	3	3

Technology	Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Consumer	Business / Govt	Total
	75.000	75.000	0	6	6
	80.000	80.000	0	2	2
	95.000	95.000	0	1	1
	100.000	100.000	1	229	230
	101.000	10.000	26	26	52
	150.000	10.000	1261	8	1269
	150.000	150.000	0	44	44
	200.000	200.000	0	76	76
	250.000	250.000	0	15	15
	300.000	10.000	190	0	190
	300.000	300.000	2480	13	2493
	350.000	350.000	0	2	2
	400.000	400.000	0	3	3
	500.000	500.000	0	20	20
	700.000	700.000	0	1	1
	750.000	750.000	0	4	4
	1000.000	10.000	21	4	25
	1000.000	1000.000	1672	58	1730
	2000.000	2000.000	1	6	7
	3000.000	3000.000	0	6	6
	5000.000	5000.000	0	7	7
	6000.000	6000.000	0	2	2
	7000.000	7000.000	0	2	2
	10000.000	10000.000	0	18	18
<b>Terrestrial Fixed Wireless</b>	25.000	3.000	28	0	28
	50.000	5.000	50	0	50
	100.000	10.000	2	0	2
<b>Total</b>			<b>94175</b>	<b>10232</b>	<b>104407</b>

## Fixed Voice Subscription

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

State	Total VGE Lines	Consumer VGE Lines	Total VoIP Subscriptions	Consumer VoIP Subscriptions
Kentucky	0	0	800	724

State	Total VGE Lines	Consumer VGE Lines	Total VoIP Subscriptions	Consumer VoIP Subscriptions
Maryland	0	0	833	502
Pennsylvania	0	0	133	0
Virginia	0	0	18683	8122
West Virginia	0	0	11138	8339
<b>Total</b>	<b>0</b>	<b>0</b>	<b>31587</b>	<b>17687</b>

**Fixed Voice  
Subscription  
(iVoIP)**

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

State	Total	Consumer	Business / Govt
Kentucky	0	0	0
Maryland	0	0	0
Pennsylvania	0	0	0
Virginia	0	0	0
West Virginia	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>

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

State	Total	by End-user Type		by Bundle		by Last-mile Medium			
		Consumer	Business / Government	Sold w/ Internet	Sold w/o Internet	FTTP	Coax	Fixed Wireless	Copper
Kentucky	800	724	76	712	88	0	800	0	0
Maryland	833	502	331	637	196	0	833	0	0
Pennsylvania	133	0	133	133	0	0	133	0	0
Virginia	18683	8122	10561	10869	7814	238	18445	0	0
West Virginia	11138	8339	2799	9276	1862	1140	9998	0	0
<b>Total</b>	<b>31587</b>	<b>17687</b>	<b>13900</b>	<b>21627</b>	<b>9960</b>	<b>1378</b>	<b>30209</b>	<b>0</b>	<b>0</b>

# Form 477 Filing Summary

FRN:  
0002064145

Data as of:  
Jun 30, 2021

Operations:  
Non-ILEC

Submission Status:  
Original - Submitted

Last Updated:  
Aug 30, 2021 04:04  
PM

## Filer Identification

Section	Field	Response
Filer Information	Company Name	Shentel
	Holding Company Name	Shenandoah Telecommunications Company
	Filing Type	Non-ILEC
	SAC ID	N/A
	499 ID	829505
Data Contact Information	Data Contact Name	Christina Price
	Data Contact Phone Number	(540) 984-5350
	Data Contact E-mail	christina.price@emp.shentel.com
Emergency Operations Contact Information	Emergency Operations Name	Shentel NOC
	Emergency Operations Phone Number	(540) 094-5531
	Emergency Operations E-mail	shentel-noc@shentel.net
Certifying Official Contact Information	Certifying Official Name	Rick Mason
	Certifying Official Phone Number	(540) 984-5164
	Certifying Official E-mail	rick.mason@emp.shentel.com

## Data Submitted

Form Section	File Name	Date & Time	Number of Rows
Fixed Broadband Deployment	CLEC Broadband Coverage.csv	Aug 30, 2021 09:02 AM	45,616
Fixed Broadband Subscription	CLEC Broadband Subscription.csv	Aug 29, 2021 03:26 PM	2,953
Fixed Voice Subscription	CLEC Voice Subscription.csv	Aug 29, 2021 03:27 PM	330

## Fixed Broadband Deployment

### Census Block Counts by State, DBA Name and Technology

State	DBA Name	Technology	Blocks
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State	DBA Name	Technology	Blocks
Kentucky	Shentel	Cable Modem – DOCSIS 3.1	369
		Optical Carrier/Fiber to the End User	238
Maryland	Shentel	Cable Modem – DOCSIS 3.1	578
		Optical Carrier/Fiber to the End User	787
Pennsylvania	Shentel	Optical Carrier/Fiber to the End User	1,437
Virginia	Beam	Terrestrial Fixed Wireless	7,453
	Glo Fiber	Optical Carrier/Fiber to the End User	2,473
	Shentel	Cable Modem – DOCSIS 3.1	9,348
		Optical Carrier/Fiber to the End User	9,868
West Virginia	Beam	Terrestrial Fixed Wireless	204
	Shentel	Cable Modem – DOCSIS 3.0	439
		Cable Modem – DOCSIS 3.1	6,103
		Optical Carrier/Fiber to the End User	6,319
<b>Total</b>			<b>45,616</b>

## Fixed Broadband Subscription

### Fixed Broadband Subscriptions by State, Technology and End User Type

State	Technology	Census Tracts	Subscriptions		
			Consumer	Business/Govt.	Total
Kentucky	Cable Modem	46	2,172	85	2,257
Maryland	Cable Modem	46	2,294	226	2,520
	Optical Carrier/Fiber to the End User	23	0	33	33
Pennsylvania	Optical Carrier/Fiber to the End User	21	0	23	23
Virginia	Cable Modem	1,079	62,352	8,425	70,777
	Optical Carrier/Fiber to the End User	749	9,717	997	10,714
	Terrestrial Fixed Wireless	81	488	0	488
West Virginia	Cable Modem	693	18,660	2,360	21,020
	Optical Carrier/Fiber to the End User	215	3,398	415	3,813
<b>Total</b>		<b>2,953</b>	<b>99,081</b>	<b>12,564</b>	<b>111,645</b>

### Fixed Broadband Subscriptions by Bandwidths and End User Type

Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Consumer	Business/Govt.	Total
--------------------------------	------------------------------	----------	----------------	-------

Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Consumer	Business/Govt.	Total
1.000	0.512	5	0	5
1.000	1.000	0	2	2
1.500	0.512	0	28	28
3.000	0.768	2,464	3	2,467
4.000	1.500	104	0	104
5.000	1.000	8,337	568	8,905
5.000	5.000	0	5	5
6.000	1.000	3	0	3
8.000	1.500	102	0	102
10.000	2.000	6,438	3,032	9,470
10.000	10.000	0	2,240	2,240
15.000	3.000	368	96	464
15.000	10.000	3	1,075	1,078
15.000	15.000	0	9	9
20.000	20.000	0	52	52
22.000	5.000	359	0	359
25.000	5.000	4,712	1,212	5,924
25.000	10.000	0	1,344	1,344
25.000	25.000	0	21	21
30.000	30.000	0	29	29
40.000	40.000	0	6	6
50.000	5.000	197	0	197
50.000	10.000	39,242	1,373	40,615
50.000	50.000	6	217	223
60.000	60.000	0	2	2
70.000	70.000	0	8	8
75.000	75.000	0	5	5
80.000	80.000	0	2	2
95.000	95.000	0	1	1
100.000	10.000	10	142	152
100.000	20.000	156	14	170
100.000	100.000	1	248	249
101.000	10.000	198	364	562



Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Consumer	Business/Govt.	Total
150.000	10.000	24,299	86	24,385
150.000	150.000	0	63	63
200.000	20.000	0	6	6
200.000	25.000	53	0	53
200.000	200.000	0	81	81
250.000	20.000	0	43	43
250.000	250.000	0	20	20
300.000	10.000	4,355	2	4,357
300.000	300.000	3,851	16	3,867
350.000	350.000	0	1	1
400.000	400.000	0	5	5
500.000	20.000	0	10	10
500.000	500.000	0	31	31
700.000	700.000	0	1	1
750.000	750.000	0	7	7
1,000.000	10.000	526	13	539
1,000.000	1,000.000	3,289	48	3,337
2,000.000	2,000.000	3	7	10
2,500.000	2,500.000	0	1	1
3,000.000	3,000.000	0	5	5
5,000.000	5,000.000	0	5	5
6,000.000	6,000.000	0	2	2
7,000.000	7,000.000	0	3	3
10,000.000	10,000.000	0	10	10
<b>Total</b>		<b>99,081</b>	<b>12,564</b>	<b>111,645</b>

### Fixed Broadband Subscriptions by Technology, Bandwidths and End User Type

Technology	Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Consumer	Business/Govt.	Total
Cable Modem	1.000	0.512	5	0	5
	1.500	0.512	0	24	24
	3.000	0.768	2,385	3	2,388
	4.000	1.500	104	0	104
	5.000	1.000	7,905	506	8,411

Technology	Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Consumer	Business/Govt.	Total
	5.000	5.000	0	4	4
	6.000	1.000	3	0	3
	8.000	1.500	102	0	102
	10.000	2.000	6,083	2,962	9,045
	10.000	10.000	0	2,097	2,097
	15.000	3.000	368	95	463
	15.000	10.000	3	1,001	1,004
	22.000	5.000	359	0	359
	25.000	5.000	4,207	1,185	5,392
	25.000	10.000	0	1,276	1,276
	50.000	10.000	36,329	1,311	37,640
	100.000	10.000	0	133	133
	100.000	20.000	155	14	169
	101.000	10.000	180	337	517
	150.000	10.000	22,638	77	22,715
	200.000	20.000	0	6	6
	200.000	25.000	53	0	53
	250.000	20.000	0	41	41
	300.000	10.000	4,102	2	4,104
	500.000	20.000	0	9	9
	1,000.000	10.000	497	13	510
Optical Carrier/Fiber to the End User	1.000	1.000	0	2	2
	1.500	0.512	0	4	4
	3.000	0.768	79	0	79
	5.000	1.000	432	62	494
	5.000	5.000	0	1	1
	10.000	2.000	355	70	425
	10.000	10.000	0	143	143
	15.000	3.000	0	1	1
	15.000	10.000	0	74	74
	15.000	15.000	0	9	9
	20.000	20.000	0	52	52

Technology	Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Consumer	Business/Govt.	Total
	25.000	5.000	353	27	380
	25.000	10.000	0	68	68
	25.000	25.000	0	21	21
	30.000	30.000	0	29	29
	40.000	40.000	0	6	6
	50.000	5.000	197	0	197
	50.000	10.000	2,596	62	2,658
	50.000	50.000	5	217	222
	60.000	60.000	0	2	2
	70.000	70.000	0	8	8
	75.000	75.000	0	5	5
	80.000	80.000	0	2	2
	95.000	95.000	0	1	1
	100.000	10.000	0	9	9
	100.000	100.000	1	248	249
	101.000	10.000	18	27	45
	150.000	10.000	1,655	9	1,664
	150.000	150.000	0	63	63
	200.000	200.000	0	81	81
	250.000	20.000	0	2	2
	250.000	250.000	0	20	20
	300.000	10.000	252	0	252
	300.000	300.000	3,851	16	3,867
	350.000	350.000	0	1	1
	400.000	400.000	0	5	5
	500.000	20.000	0	1	1
	500.000	500.000	0	31	31
	700.000	700.000	0	1	1
	750.000	750.000	0	7	7
	1,000.000	10.000	29	0	29
	1,000.000	1,000.000	3,289	48	3,337
	2,000.000	2,000.000	3	7	10

Technology	Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Consumer	Business/Govt.	Total
	2,500.000	2,500.000	0	1	1
	3,000.000	3,000.000	0	5	5
	5,000.000	5,000.000	0	5	5
	6,000.000	6,000.000	0	2	2
	7,000.000	7,000.000	0	3	3
	10,000.000	10,000.000	0	10	10
Terrestrial Fixed Wireless	25.000	5.000	152	0	152
	50.000	10.000	317	0	317
	50.000	50.000	1	0	1
	100.000	10.000	10	0	10
	100.000	20.000	1	0	1
	150.000	10.000	6	0	6
	300.000	10.000	1	0	1
<b>Total</b>			<b>99,081</b>	<b>12,564</b>	<b>111,645</b>

## Fixed Voice Subscription

### VGE Lines and VoIP Subscriptions by State and End User Type

State	Total VGE Lines	Consumer VGE Lines	Total VoIP Subscriptions	Consumer VoIP Subscriptions
Kentucky	0	0	783	700
Maryland	0	0	842	503
Pennsylvania	0	0	169	0
Virginia	0	0	20,339	8,200
West Virginia	0	0	11,162	8,339
<b>Total</b>	<b>0</b>	<b>0</b>	<b>33,295</b>	<b>17,742</b>

## Fixed Voice Subscription (iVoIP)

### Over-the-Top VoIP Subscriptions by State and End User Type

State	Total	Consumer	Business/Govt.
Kentucky	0	0	0
Maryland	0	0	0
Pennsylvania	0	0	0

State	Total	Consumer	Business/Govt.
Virginia	0	0	0
West Virginia	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>

### All Other VoIP Subscriptions by State, End User Type, Bundle and Last-Mile Medium

State	Total	by End User Type		by Bundle		by Last-Mile Medium			
		Consumer	Business/Govt.	Sold w/ Internet	Sold w/o Internet	FTTP	Coax	Fixed Wireless	Copper
Kentucky	783	700	83	614	169	0	783	0	0
Maryland	842	503	339	673	169	0	842	0	0
Pennsylvania	169	0	169	169	0	169	0	0	0
Virginia	20,339	8,200	12,139	17,868	2,471	1,456	18,883	0	0
West Virginia	11,162	8,339	2,823	7,673	3,489	2,038	9,124	0	0
<b>Total</b>	<b>33,295</b>	<b>17,742</b>	<b>15,553</b>	<b>26,997</b>	<b>6,298</b>	<b>3,663</b>	<b>29,632</b>	<b>0</b>	<b>0</b>

**Reminder: You must continue to use Census 2010 geographic codes in FCC Form 477.**

For help or assistance, please contact (877) 480-3201 or (717) 338-2834 (TTY) or you may submit an [online e-support ticket](#).

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Form 477 Filing Summary

FRN: 0002072668 | Data as of: Dec 31, 2020 | Operations: ILEC | Submission Status: Revised - Submitted | Last Updated: Mar 8, 2021 13:49:25

**Filer Identification**

Section	Question	Response
<b>Filer Information</b>	Company Name	Shenandoah Telephone Company
	Holding Company Name	Shenandoah Telecommunications Company
	SAC ID	190250, 197251
	499 ID	802200
<b>Data Contact Information</b>	Data Contact Name	Danielle Brooks
	Data Contact Phone Number	(540) 984-5389
	Data Contact E-mail	danielle.brooks@emp.shentel.com
<b>Emergency Operations Contact Information</b>	Emergency Operations Name	Harris Duncan
	Emergency Operations Phone Number	(540) 984-5838
	Emergency Operations E-mail	Harris.Duncan@emp.shentel.com
<b>Certifying Official Contact Information</b>	Certifying Official Name	Ed McKay
	Certifying Official Phone Number	(540) 984-5303
	Certifying Official E-mail	ed.mckay@emp.shentel.com

**Data Submitted**

Form Section	File Name	Date & Time	Number of Rows
Fixed Broadband Deployment	ILEC Broadband Coverage_Deployment.csv	Mar 8, 2021 13:41:33	4997
Fixed Broadband Subscription	ILEC Broadband Subscription.csv	Mar 8, 2021 13:46:36	160
Fixed Voice Subscription	ILEC Voice Subscription.csv	Mar 8, 2021 13:41:33	16

**Fixed Broadband Deployment**

**Census Block Counts by State, DBA Name and Technology**

State	DBA Name	Technology	Blocks
Virginia	Shentel	ADSL2	2012
		Optical Carrier/Fiber to the End User	973
		Other Copper Wireline	2012
<b>Total</b>			<b>4997</b>

**Fixed  
Broadband  
Subscription**

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

State	Technology	Census Tracts	Subscriptions		
			Consumer	Business / Govt	Total
Virginia	Asymmetric xDSL	94	6620	463	7083
	Optical Carrier/Fiber to the End User	65	191	118	309
	Other Copper Wireline	1	0	1	1
<b>Total</b>		<b>160</b>	<b>6811</b>	<b>582</b>	<b>7393</b>

**Fixed Broadband Subscriptions by Bandwidths and End-user Type**

Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Consumer	Business / Govt	Total
0.384	0.128	29	3	32
0.768	0.512	58	2	60
1.500	0.512	393	18	411
1.500	1.500	0	1	1
3.000	0.768	1665	104	1769
5.000	0.768	1249	204	1453
5.000	1.000	8	0	8
10.000	1.000	1609	107	1716
10.000	10.000	0	21	21
15.000	1.000	1654	25	1679
15.000	15.000	0	11	11
20.000	20.000	0	22	22
25.000	5.000	10	0	10
25.000	25.000	0	10	10
30.000	30.000	0	1	1
50.000	10.000	111	0	111
50.000	50.000	0	28	28
70.000	70.000	0	1	1
100.000	100.000	0	13	13
101.000	10.000	18	0	18
125.000	125.000	0	1	1
150.000	10.000	6	0	6
200.000	200.000	0	5	5
300.000	300.000	0	1	1
1000.000	10.000	1	0	1



Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Consumer	Business / Govt	Total
1000.000	1000.000	0	4	4
<b>Total</b>		<b>6811</b>	<b>582</b>	<b>7393</b>

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

Technology	Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Consumer	Business / Govt	Total
Asymmetric xDSL	0.384	0.128	29	3	32
	0.768	0.512	58	2	60
	1.500	0.512	393	18	411
	3.000	0.768	1665	104	1769
	5.000	0.768	1249	204	1453
	10.000	1.000	1583	107	1690
	15.000	1.000	1643	25	1668
Optical Carrier/Fiber to the End User	5.000	1.000	8	0	8
	10.000	1.000	26	0	26
	10.000	10.000	0	21	21
	15.000	1.000	11	0	11
	15.000	15.000	0	11	11
	20.000	20.000	0	22	22
	25.000	5.000	10	0	10
	25.000	25.000	0	10	10
	30.000	30.000	0	1	1
	50.000	10.000	111	0	111
	50.000	50.000	0	28	28
	70.000	70.000	0	1	1
	100.000	100.000	0	13	13
	101.000	10.000	18	0	18
	125.000	125.000	0	1	1
	150.000	10.000	6	0	6
	200.000	200.000	0	5	5
	300.000	300.000	0	1	1
	1000.000	10.000	1	0	1
1000.000	1000.000	0	4	4	
Other Copper Wireline	1.500	1.500	0	1	1
<b>Total</b>			<b>6811</b>	<b>582</b>	<b>7393</b>

**Fixed Voice  
Subscription**

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

State	Total VGE Lines	Consumer VGE Lines	Total VoIP Subscriptions	Consumer VoIP Subscriptions
Virginia	12070	8749	0	0
<b>Total</b>	<b>12070</b>	<b>8749</b>	<b>0</b>	<b>0</b>

**Fixed Voice  
Subscription  
(VGE Lines)**

**VGE Lines Provided to Unaffiliated Providers by State**

State	Wholesale	UNE-L
Virginia	0	0
<b>Total</b>	<b>0</b>	<b>0</b>

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

State	Total	by Bundle		by Product Type			
		Sold w/ Internet	Sold w/o Internet	Consumer		Bus-Govt	
				& No PIC	& PIC	& No PIC	& PIC
Virginia	12070	4473	7597	1656	7093	628	2693
<b>Total</b>	<b>12070</b>	<b>4473</b>	<b>7597</b>	<b>1656</b>	<b>7093</b>	<b>628</b>	<b>2693</b>

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

State	Total	by Ownership			by Last-mile Medium			
		Owned	UNE-L	Resale	FTTP	Coax	Fixed Wireless	Copper
Virginia	12070	12070	0	0	1753	0	0	10317
<b>Total</b>	<b>12070</b>	<b>12070</b>	<b>0</b>	<b>0</b>	<b>1753</b>	<b>0</b>	<b>0</b>	<b>10317</b>

# Form 477 Filing Summary

FRN:  
0002072668

Data as of:  
Jun 30, 2021

Operations:  
ILEC

Submission Status:  
Revised - Submitted

Last Updated:  
Aug 31, 2021 09:56  
AM

## Filer Identification

Section	Field	Response
Filer Information	Company Name	Shenandoah Telephone Company
	Holding Company Name	Shenandoah Telecommunications Company
	Filing Type	ILEC
	SAC ID	190250,197251
	499 ID	802200
Data Contact Information	Data Contact Name	Danielle Brooks
	Data Contact Phone Number	(540) 984-5389
	Data Contact E-mail	danielle.brooks@emp.shentel.com
Emergency Operations Contact Information	Emergency Operations Name	Shentel NOC
	Emergency Operations Phone Number	(540) 984-5531
	Emergency Operations E-mail	shentel-noc@shentel.com
Certifying Official Contact Information	Certifying Official Name	Rick Mason
	Certifying Official Phone Number	(540) 984-5164
	Certifying Official E-mail	rick.mason@emp.shentel.com

## Data Submitted

Form Section	File Name	Date & Time	Number of Rows
Fixed Broadband Deployment	ILEC Broadband Coverage.csv	Aug 31, 2021 09:49 AM	5,016
Fixed Broadband Subscription	ILEC Broadband Subscription.csv	Aug 31, 2021 09:52 AM	158
Fixed Voice Subscription	ILEC Voice Subscription.csv	Aug 31, 2021 09:49 AM	16

## Fixed Broadband Deployment

### Census Block Counts by State, DBA Name and Technology

State	DBA Name	Technology	Blocks
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State	DBA Name	Technology	Blocks
Virginia	Shentel	ADSL2	2,012
		Optical Carrier/Fiber to the End User	992
		Other Copper Wireline	2,012
<b>Total</b>			<b>5,016</b>

## Fixed Broadband Subscription

### Fixed Broadband Subscriptions by State, Technology and End User Type

State	Technology	Census Tracts	Subscriptions		
			Consumer	Business/Govt.	Total
Virginia	Asymmetric xDSL	92	6,398	440	6,838
	Optical Carrier/Fiber to the End User	66	230	124	354
<b>Total</b>		<b>158</b>	<b>6,628</b>	<b>564</b>	<b>7,192</b>

### Fixed Broadband Subscriptions by Bandwidths and End User Type

Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Consumer	Business/Govt.	Total
0.384	0.128	25	3	28
0.768	0.512	52	2	54
1.500	0.512	347	14	361
1.500	1.500	0	1	1
3.000	0.768	1,463	99	1,562
5.000	0.768	1,132	189	1,321
10.000	1.000	1,621	108	1,729
10.000	10.000	0	17	17
15.000	1.000	1,758	25	1,783
15.000	15.000	0	6	6
20.000	20.000	0	21	21
25.000	5.000	20	2	22
25.000	25.000	0	5	5
30.000	30.000	0	5	5
50.000	10.000	183	0	183
50.000	50.000	0	35	35
70.000	70.000	0	1	1

Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Consumer	Business/Govt.	Total
100.000	100.000	0	17	17
101.000	10.000	21	1	22
125.000	125.000	0	1	1
200.000	200.000	0	6	6
300.000	10.000	3	0	3
300.000	300.000	0	3	3
1,000.000	10.000	3	0	3
1,000.000	1,000.000	0	3	3
<b>Total</b>		<b>6,628</b>	<b>564</b>	<b>7,192</b>

### Fixed Broadband Subscriptions by Technology, Bandwidths and End User Type

Technology	Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Consumer	Business/Govt.	Total
Asymmetric xDSL	0.384	0.128	25	3	28
	0.768	0.512	52	2	54
	1.500	0.512	347	14	361
	3.000	0.768	1,463	99	1,562
	5.000	0.768	1,132	189	1,321
	10.000	1.000	1,621	108	1,729
	15.000	1.000	1,758	25	1,783
Optical Carrier/Fiber to the End User	1.500	1.500	0	1	1
	10.000	10.000	0	17	17
	15.000	15.000	0	6	6
	20.000	20.000	0	21	21
	25.000	5.000	20	2	22
	25.000	25.000	0	5	5
	30.000	30.000	0	5	5
	50.000	10.000	183	0	183
	50.000	50.000	0	35	35
	70.000	70.000	0	1	1
	100.000	100.000	0	17	17
	101.000	10.000	21	1	22
	125.000	125.000	0	1	1
	200.000	200.000	0	6	6

Technology	Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Consumer	Business/Govt.	Total
	300.000	10.000	3	0	3
	300.000	300.000	0	3	3
	1,000.000	10.000	3	0	3
	1,000.000	1,000.000	0	3	3
<b>Total</b>			<b>6,628</b>	<b>564</b>	<b>7,192</b>

## Fixed Voice Subscription

### VGE Lines and VoIP Subscriptions by State and End User Type

State	Total VGE Lines	Consumer VGE Lines	Total VoIP Subscriptions	Consumer VoIP Subscriptions
Virginia	11,659	8,468	0	0
<b>Total</b>	<b>11,659</b>	<b>8,468</b>	<b>0</b>	<b>0</b>

## Fixed Voice Subscription (VGE Lines)

### VGE Lines Provided to Unaffiliated Providers by State

State	Wholesale	UNE-L
Virginia	0	0
<b>Total</b>	<b>0</b>	<b>0</b>

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

State	Total	by Bundle		by Product Type			
		Sold w/ Internet	Sold w/o Internet	Consumer		Business/Govt.	
				& No PIC	& PIC	& No PIC	& PIC
Virginia	11,659	4,158	7,501	1,580	6,888	596	2,595
<b>Total</b>	<b>11,659</b>	<b>4,158</b>	<b>7,501</b>	<b>1,580</b>	<b>6,888</b>	<b>596</b>	<b>2,595</b>

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

State	Total	by Ownership			by Last-Mile Medium			
		Owned	UNE-L	Resale	FTTP	Coax	Fixed Wireless	Copper
Virginia	11,659	11,659	0	0	1,839	0	0	9,820
<b>Total</b>	<b>11,659</b>	<b>11,659</b>	<b>0</b>	<b>0</b>	<b>1,839</b>	<b>0</b>	<b>0</b>	<b>9,820</b>

**Reminder: You must continue to use Census 2010 geographic codes in FCC Form 477.**

For help or assistance, please contact (877) 480-3201 or (717) 338-2834 (TTY) or you may submit an [online e-support ticket](#).

Federal Communications Commission  
445 12th Street SW, Washington, DC 20554  
[Phone: 1-888-225-5322](tel:1-888-225-5322)

[TTY: 1-888-835-5322](tel:1-888-835-5322)

[Videophone: 1-844-432-2275](tel:1-844-432-2275)

[Fax: 1-866-418-0232](tel:1-866-418-0232)

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# Marketing & Citizen Engagement Plan





# Marketing & Citizen Engagement Plan

## Timeline

**Franchise agreement signed:** Press Release

**90 Days prior to construction:** post on our Glo Fiber social media pages

**60 Days prior to construction:** Direct Mail to LCPs announcing Glo Fiber beginning construction

**60 Days prior to construction:** Media efforts

**30 Days prior to construction:** Launch Press Release

**30 Days prior to construction:** Construction door tags

**3-Days prior to construction:** Construction imminent door tags

**Construction Start Date:** Coming Soon Digital Ads

**Construction Start Date:** Email to pre-registered leads

**30 Days before LCP is Active:** Direct Mail to LCPs with special offer

**Construction progress:** Email to pre-registered leads

**Service Available:** Email to pre-registered leads

**Installation:** Yard stake

# Marketing & Citizen Engagement Plan

90 days prior to construction

## Social Media

- Post on Glo Fiber Facebook and Instagram pages
- Text with post would provide more detail of availability
- Image provided to municipality to post on their social media pages



Sample

# Marketing & Citizen Engagement Plan

60 days prior to construction

## Direct Mail

- Sent to all households in the LCP slated for construction in the next 60 days
- Introduction to Glo Fiber
- 6x9 double-sided, folded mail piece

Front

PRESORTED  
STANDARD  
MAIL PERMIT  
NO. 1000  
U.S. POSTAGE  
PAID  
GLOFIBER

GLO\_20

<First\_name> <Last\_name>  
<Address\_1>  
<Address\_2>  
<City> <State> <Zip\_code> <Zip\_code\_plus>  
<IMB\_barcode>

\*Service not available in all areas. Subject to eligibility guidelines and other restrictions may apply.  
©2020 Glo Fiber. All rights reserved.

**glo fiber**  
internet of you  
20 S Mason Street  
Harrisonburg VA, 22801



Back

**Hello soon-to-be neighbor!**

It's not just time for a better internet provider. It's overdue. We're **Glo Fiber**, an internet provider that knows you don't have time to worry about your internet provider. So we're keeping things simple. In a few months, we will begin construction to provide you with dependable, fast, and easy-to-use fiber optic-based internet service. You know, the way internet service should be.

**GLO FIBER-FAST FACTS:**

- Reliable network**  
Powered by Shentel, our parent company founded in 1902.
- Fiber for the whole family**  
Options starting at 300 Mbps for internet, streaming, and phone services.
- Our fiber**  
A faster and more reliable internet option with customer service nearby.

HAVE A QUESTION?  
We placed your answer right over here.  
[glofiber.com](http://glofiber.com)

**Let's Glo**

[glofiber.com](http://glofiber.com) | 1-877-268-2GLO

# Marketing & Citizen Engagement Plan

30 days prior to construction

## Door Tags

- Deployed by D2D team
- All households in the LCP slated for construction in the next 30 days are tagged
- Provides basic overview of construction process and service offerings
- Website listed on door tag will provide more detailed information

**glo fiber**

We will start upgrading your neighborhood in the next 2-3 weeks  
Ready to experience fiber optic internet at the speed of light?

**Construction Steps:**

**Step 1:**  
Glo Fiber works with your local municipality to design the fiber-optic route.

**Step 2:**  
Glo Fiber or a Glo Fiber Contractor will be working on or around your property to place fiber optic lines. All work performed on private property is completed within a utility easement or public right-of-way. If our equipment or lines are located in a backyard utility easement, crews may require access to that easement. Flags and paint marking the existing utilities and digging will be required.

**Step 3:**  
Glo Fiber returns to splice the fiber that will connect your home. Glo Fiber then tests the connection.

**Step 4:**  
When you request service, Glo Fiber connects the fiber to your home in preparation for your install.

**Fiber Internet**

- Internet speeds that fit your lifestyle, up to 2 Gbps.
- Fiber to the home connection provides a high speed, bandwidth rich network. Get upload speeds as fast as your download speeds making the sharing of content faster.
- Wall to wall WiFi blankets your home in fast, reliable WiFi.

**Streaming TV**

- App based TV allows you to bring your own device. Use your Apple TV, Amazon Fire TV, mobile devices or some Smart TVs without the need for an additional cable box.
- Tailored show recommendations and parental controls.
- Watch your recordings and some of your channels on the go. Set recordings from your phone.

**Fiber Phone**

- Keep your existing number
- Crystal clear conversations
- Premium features come standard like call waiting, unlimited long distance, 3 way calling and robocall blocker.

To learn more, please visit:  
[glofiber.com/construction](http://glofiber.com/construction)

**glo fiber**

Date 8/24/21



# Marketing & Citizen Engagement Plan

3 days prior to construction

## Door Tags

- Deployed by Construction team
- All households in the LCP slated for construction in the next 3 days are tagged
- Provides update construction process and what to expect during that time
- Website listed on door tag will provide more detailed information

**glo fiber**

**Get Ready!**

**Construction is about to begin in your area!**

In the next few days, Glo Fiber or a Glo Fiber Contractor will be working on or around your property to place fiber optic lines. All work performed on private property is completed within an easement or right-of-way. Crews may need access to a backyard if it falls within that easement.

You may notice flags and/or paint markings indicating the proposed path of the new cable and the location of the existing utilities on your property. These markings are required by law.

Please be advised that private lines are unable to be marked. If you have any private underground lines, you will need to mark those lines to avoid any damage to those facilities.

Our goal is to perform the work safely and cause as little disruption as possible. Our typical work hours are Monday through Saturday 7:30 am to 5 pm.

For more information, please visit or call  
**glofiber.com/construction**  
**540-984-5510**

brought to you by Shentel



### Fiber Internet

- Internet speeds that fit your lifestyle, up to 2 Gbps.
- Fiber to the home connection provides a high speed, bandwidth rich network. Get upload speeds as fast as your download speeds making the sharing of content faster.
- Wall to wall WIFI blankets your home in fast, reliable WIFI.

### Streaming TV

- App based TV allows you to bring your own device. Use your Apple TV, Amazon Fire TV, mobile devices or some Smart TVs without the need for an additional cable box.
- Tailored show recommendations and parental controls.
- Watch your recordings and some of your channels on the go. Set recordings from your phone.

### Fiber Phone

- Keep your existing number.
- Crystal clear conversations.
- Premium features come standard like call waiting, unlimited long distance, 3 way calling and robocall blocker.

# Marketing & Citizen Engagement Plan

Construction start date

## Coming Soon Digital Ad

- Geotargeted to zip codes/neighborhoods that will be getting Glo Fiber
- Learn more button linked to Glo Fiber website for more information. User can check for serviceability and pre-register for updates

Digital Ad - Sample



# Marketing & Citizen Engagement Plan

Various stages throughout construction process

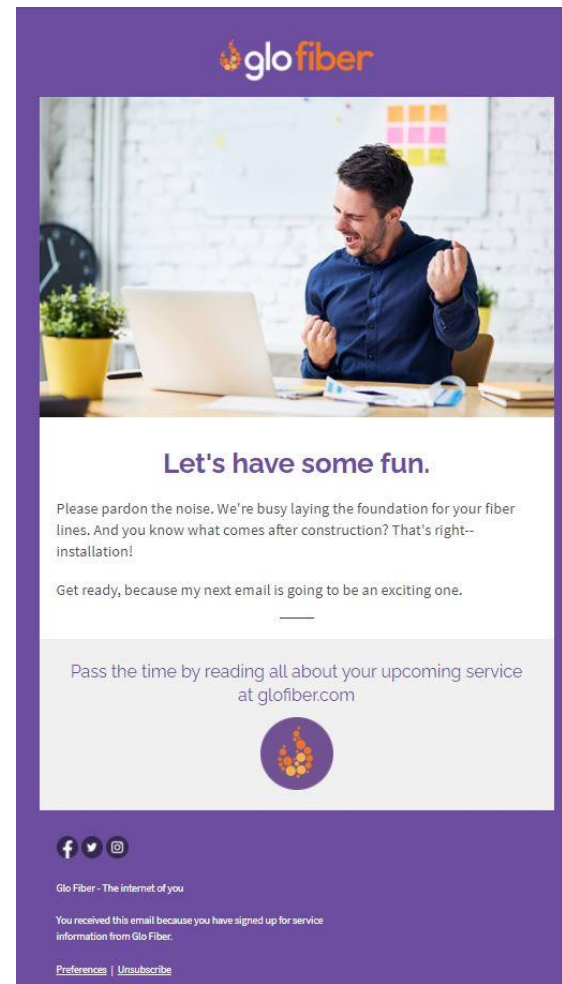
## Email notifications

- Sent to those that pre-register on Glo Fiber website informing of construction progress

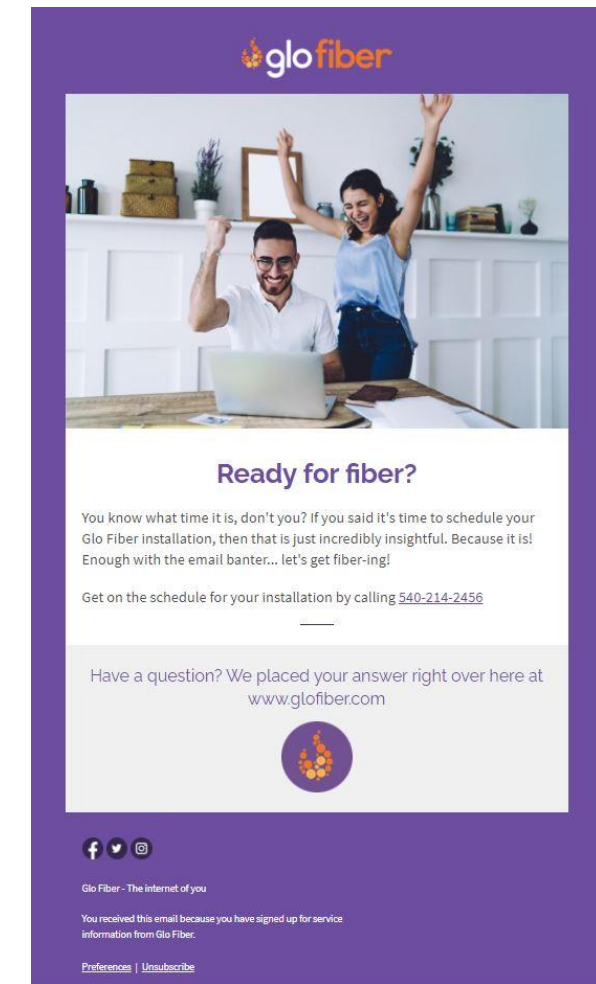
Construction start date



Construction in progress Email



Service Available





# Marketing & Citizen Engagement Plan

30 days before LCP is active

## Direct Mail

- Sent to all households in the active LCP
- Special offer as incentive to try Glo Fiber
- 6x9 double-sided, folded mail piece

Front



Back

**Be the first to try Glo Fiber in your neighborhood!**  
Experience internet the way it was always supposed to be - simple, genuine, and dependable.

- No contracts or hidden fees.
- Reliable service at a fair price.
- **Wall-to Wall WiFi:** Get a more powerful modem and extenders to cover all the livable areas of your home. Free when you sign up within 60 days of Glo Fiber launching in your neighborhood.

**Our straightforward pricing can provide you reliable service that fits your budget. What's not to love?**

Speed	Price per month
Faster Than A Speeding Bullet* 300 Mbps	\$65
Faster Than Lightning* 1 Gbps	\$80
Fastest. Internet. Period.* 2 Gbps	\$250

Give us a try! Call **1-866-821-1283**  
Visit [glofiber.com/gift](https://glofiber.com/gift)



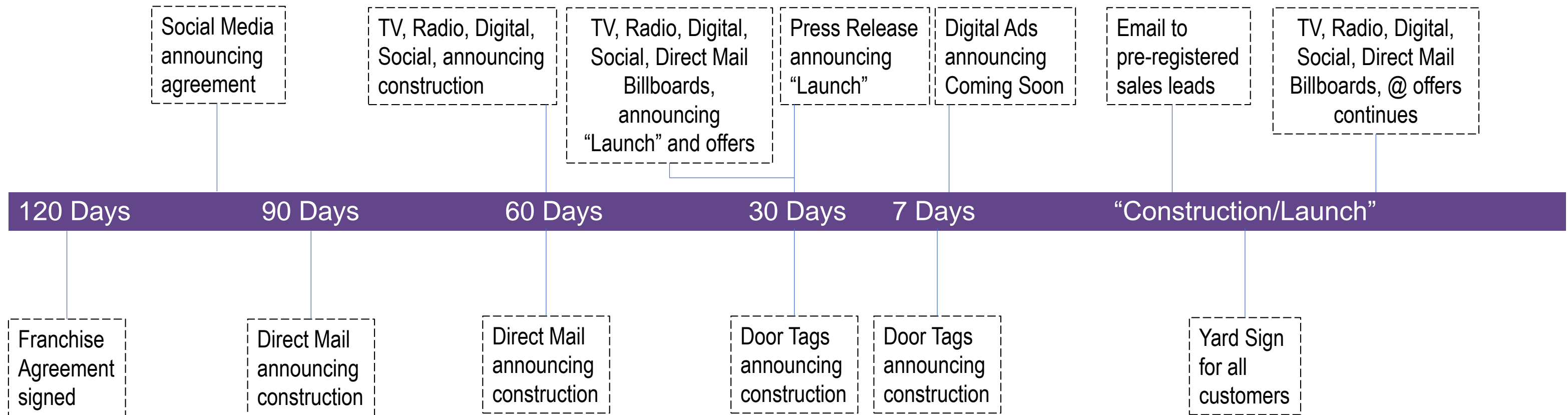
# Marketing & Citizen Engagement Plan

## Installation

### Yard Stake

- Used after installation in homeowner's yard
- Homeowner approval required





# Marketing & Citizen Engagement Plan



# Marketing & Citizen Engagement Plan

## Timeline

- **30 - 60 days prior to launch:** PR outreach to local media outlets & social media posts on local pages announcing coverage areas that will soon be launched.
- **30 days prior to launch:** Digital ad campaign geo fenced to focus on the coverage area, utilizing a “Coming Soon” theme. Social Media also shifts in its messaging.
- **At launch:** Direct mail letters are sent, targeting serviceable households in the new coverage area. Digital ads, social media, Online search terms, billboards, updated press release and local marketing representatives place flyers and signs in public areas and businesses.
- **Post launch:** In the weeks and months that follow, a second direct mail campaign is launched targeting the new coverage area, digital ads and social media continue, as does the placement of yard stake signs and marketing materials in local businesses and other public gathering places.

# Marketing & Citizen Engagement Plan

30 - 60 Days prior to launch

- **Public Relations Local Outreach**
- PR agency reaches out to local media outlets with pre-launch information about Beam.
- PR agency also pitches providing access to key Subject Matter Experts at Shentel for follow-up questions and additional news content and articles.
- Local newspaper(s), TV, radio stations, Chamber of Commerce, etc.



# Marketing & Citizen Engagement Plan

30 Days prior to launch

- **Social Media**
- Post on Beam Facebook and Instagram pages.
- Posts would provide additional details regarding benefits and availability.
- Posts can link to the Beam website, where local addresses can be checked for serviceability and pre-registration.



Pre-launch graphic example.



# Marketing & Citizen Engagement Plan

30 Days prior to launch

- **Coming Soon Digital Ads**
- Geo-targeted to zip codes/neighborhoods that will be getting Beam.
- Learn more button linked to the Beam website for more information. User can check for serviceability and pre-register.



# Marketing & Citizen Engagement Plan

30 Days prior to launch

- **Coming Soon Social Media Posts**
- Geotargeted to zip codes/neighborhoods that will be getting Beam
- Learn more button linked to the Beam website for more information. User can check for serviceability and pre-register



Pre-launch graphic example.



# Marketing & Citizen Engagement Plan

## At launch

- **Direct Mail**
- Traditional letter to provide thorough content and frequently asked questions & answers.
- Sent to all households in the new coverage area.
- Provides a strong call to action and follow-up contact information.

**beam**  
internet by shentel

Hey Neighbor,  
We're bringing a new high-speed internet option to your area. Say hello to **Beam Internet, by Shentel**.

We believe everyone should have access to high quality and reliable high-speed internet, regardless of where they live. That's why Shentel is working to expand affordable high-speed internet options in the areas we serve. We'll beam a signal directly to your house, so you can have reliable connectivity without paying a fortune.

Beam offers three service options. You can get speeds up to **25 Mbps for \$60 a month**, up to **50 Mbps for \$80 a month**, or up to **100 Mbps for \$160 a month**. These prices include all of your equipment and your service, so you won't get any surprises on your bill.

Sincerely,  
*Angela T. Washington*  
Angela T. Washington  
Vice President of Marketing

**Wanna learn more?**  
Visit [iwantbeam.com/hello](http://iwantbeam.com/hello)  
or call **(866) 583-1730**

**How It Works**

- 1. Inspection**  
A technician will come measure the Beam signal strength around your home to figure out which speeds are available to you, and where equipment would need to be placed to receive the best possible signal.
- 2. Installation**  
Our technician will install a receiver the size of a small pizza box on your home. We'll work with you to find the best place for it, based on your preferences and signal strength. We'll also install a WiFi router and power supply inside your home. All of this equipment is included at no additional cost to your monthly rate.
- 3. Experience**  
We'll help you connect your devices to your new WiFi network, so you can begin enjoying faster internet speeds than you may have ever thought possible!

**beam**  
internet by shentel  
500 Shentel Way  
Edinburg, VA 22824

A new option for fast, reliable internet in your area!

Plans starting at **\$60/month**  
Speeds up to **100 Mbps**

**beam**  
internet by shentel

**What is Beam?**  
Beam is a brand new high-speed internet service. We beam a signal to your house wirelessly from a nearby tower. This enables Beam's internet signal to reach people who haven't been eligible for other internet services in the past.

**Who can get it?**  
To be eligible for Beam Internet, your home needs to be within range of one of our towers. Before you pay anything, we'll send out a technician to make sure your home can get a strong signal.

**How is this better than DSL?**  
DSL usually has a maximum speed of 15 Mbps for users. Depending on your location, Beam can provide speeds from around 25 Mbps up to 100 Mbps.

**I've heard about these kinds of services before. What makes Beam different?**  
Other providers use a shared spectrum, which can make internet access spotty and unreliable when a large number of people, businesses and electronic devices are using that spectrum at the same time. To solve this issue we have invested in our own licensed spectrum, so you won't be competing for internet access because only Beam customers are on our network. Plus, with Beam's high powered network, external interference and most weather conditions won't affect your internet access.

**How reliable is the service?**  
Reliability is our first priority. We work hard to keep you from dealing with service interruptions, and pride ourselves in being able to offer a reliable product. However due to the technology used, sometimes things outside of our control can occasionally cause your internet speed to vary. Therefore you will likely not see the maximum speeds at all times.

**Do I need a clear line of sight to a tower?**  
Not necessarily. The signal we use can beam through many obstacles. However, there are some things that will block service, such as rock, metal buildings and dense tree growth. We can't be 100% certain about availability until a technician tests the signal strength at your house.

**What speed is best for me?**  
Every household is different and has different internet needs.

- Our entry-level service (up to 25 Mbps) is great for homes with a few internet users who only need basic web browsing and email.
- The mid-level package (up to 50 Mbps) is better for households that'll be streaming, gaming, learning, or working from home and have a few connected devices.
- Our fastest package (up to 100 Mbps) keeps families with a lot of streaming, gaming, and smart home devices connected without compromise.

**What about other services?**  
We're currently focused on building a high quality, high-speed internet network for those who need it most. However, we are looking to provide phone service in the near future.

**How long have you been in business?**  
Shentel, our parent company, has been offering telecommunications services for over 100 years. Everything we do is based on our core belief that everyone deserves access to high-quality services, regardless of where they live. Beam is the next step in this Shentel tradition, expanding options for reliable high-speed internet to places that couldn't get it before.

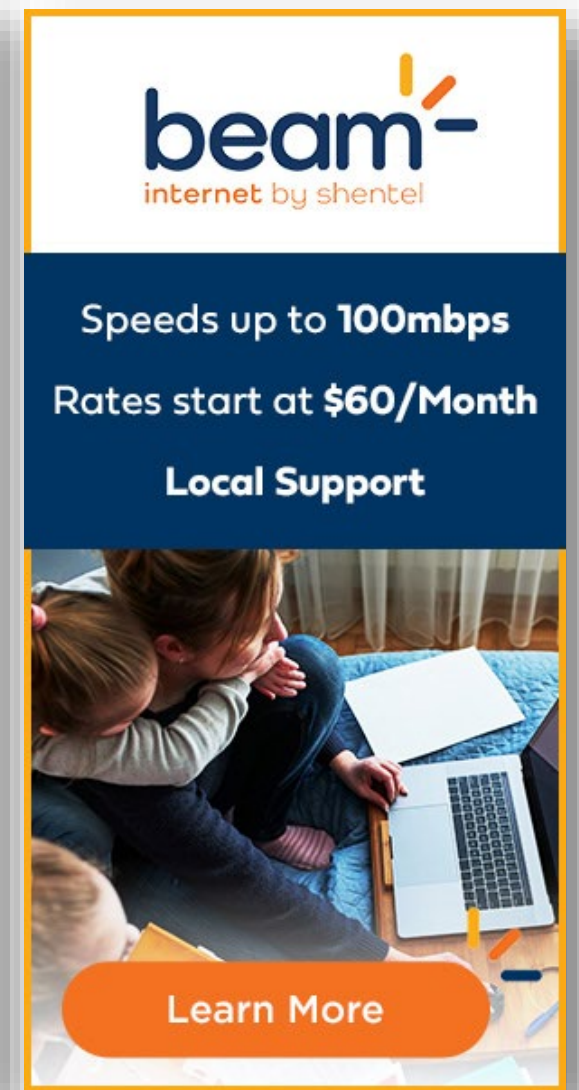
**Reach Out To Us**  
To sign up, or for more info call **(866) 583-1730**.

23101\_2021

# Marketing & Citizen Engagement Plan

At launch

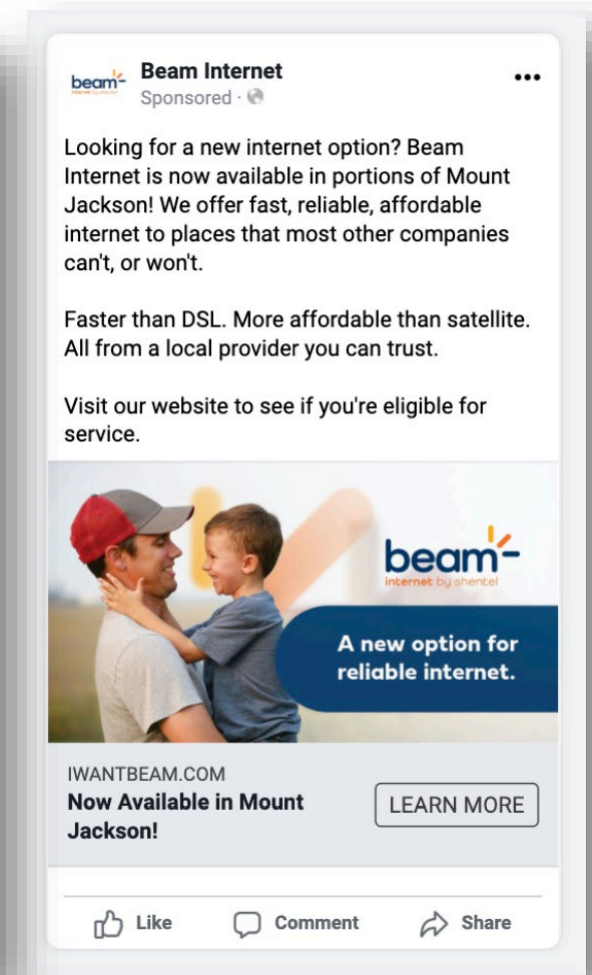
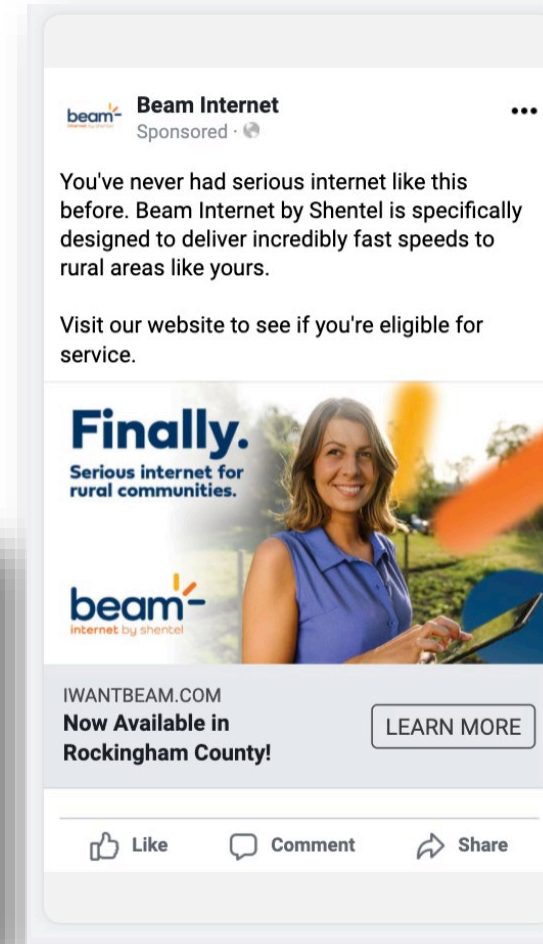
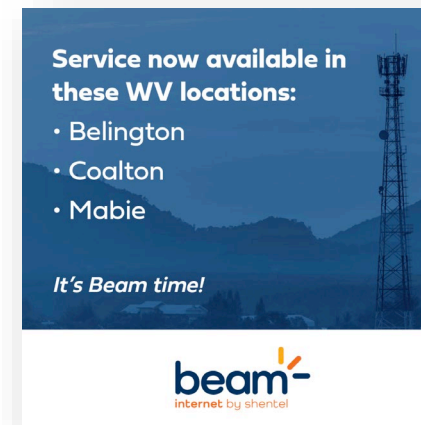
- **Digital Ads**
- Geo-targeted to zip codes/neighborhoods that will be getting Beam.
- Learn more button linked to the Beam website for more information. User can check for serviceability and pre-register.



# Marketing & Citizen Engagement Plan

At launch

- **Social Media**
- Post on the Beam Facebook and Instagram pages as well as paid advertising through Facebook.
- Posts would provide more details regarding benefits and availability.
- Posts can link to the Beam website, where local addresses can be checked for serviceability and pre-registration.

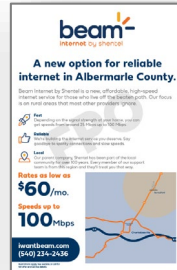




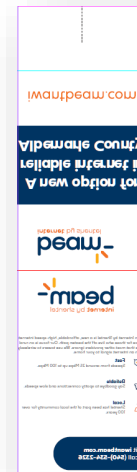
# Marketing & Citizen Engagement Plan

At launch

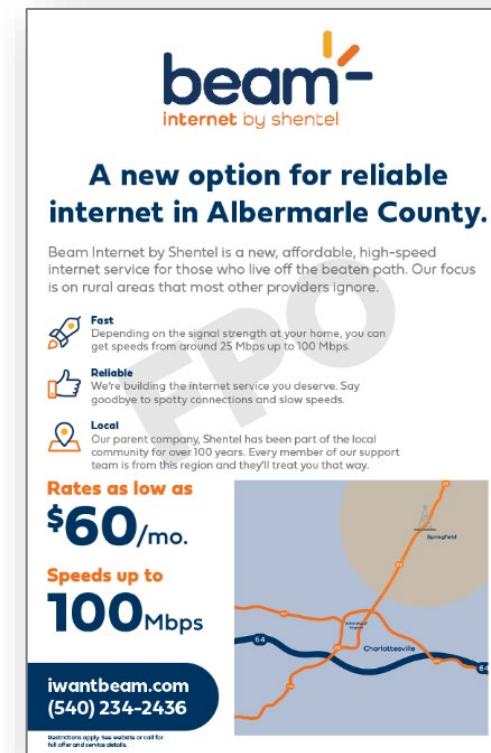
- **Local Marketing**
- Visit local businesses and common gathering places to introduce them to Beam and ask for permission to leave local marketing materials:
  - Flyers
  - Table Tents
  - Small Posters
  - Yard Signs



- 5"x7" Flyer, for local business countertops, pizza box toppers, etc.



- Table Tent for restaurants and local business countertops



- 11"x17" Customizable Poster

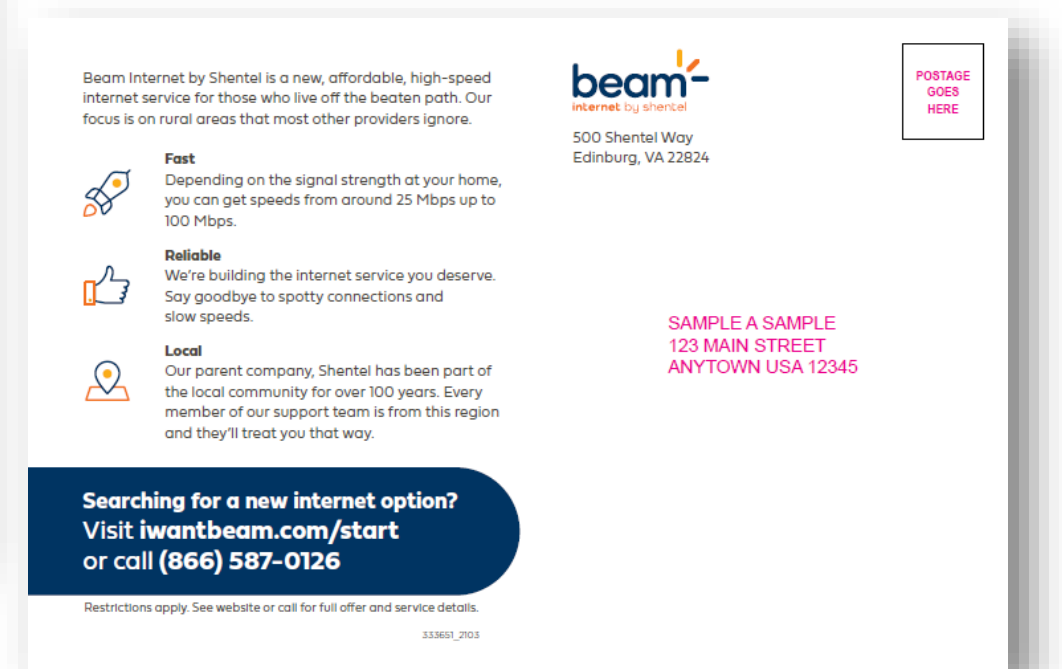


- 24"x48" Yard Stake Signs

# Marketing & Citizen Engagement Plan

Two weeks after launch

- **Direct Mail**
- Sent to all households in the active coverage area as a follow-up reminder of Beam service being available
- 6x9 postcard



# Marketing & Citizen Engagement Plan

90 Days prior to launch

- **Yard Stake**
- Placed in the homeowner's yard after service installation is complete.
- Promotes Beam to both the neighbors & all local traffic.
- Homeowner approval required.





# Marketing & Citizen Engagement Plan

## Post launch

- **Direct Mail**
- Sent to all households in the new coverage area around 90 days after launch.
- Introduction to Beam, the service benefits and the next steps to take to learn more & sign up.
- Large folded postcard that merges the primary content from the traditional Beam letter and the Beam postcard.

