Application to DHCD Submitted through CAMS

Hanover County

Hanover County Comcast 2021

Application ID:	75708072020102045
Application Status:	In Progress - DHCD
Program Name:	Virginia Telecommunications Initiative 2021
Organization Name:	Hanover County
Organization Address:	
Profile Manager Name:	Kevin Nelson
Profile Manager Phone:	(804) 365-6168
Profile Manager Email:	knelson@hanovercounty.gov

Project Name:	Hanover County Comcast 2021
Project Contact Name:	Kevin Nelson
Project Contact Phone:	(804) 365-6168
Project Contact Email:	knelson@hanovercounty.gov
Project Location:	7497 County Complex Road Hanover, VA 23069-1529
Project Service Area:	Hanover County

Total Requested Amount: $6,367,193.00

Required Annual Audit Status: No Current Audits Found

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Budget Information:

Cost/Activity Category	DHCD Request	Other Funding	Total
Telecommunications	**$6,367,193.00**	**$1,781,157.00**	**$8,148,350.00**
Construction	$6,367,193.00	$1,781,157.00	$8,148,350.00
Total:	**$6,367,193.00**	**$1,781,157.00**	**$8,148,350.00**

Budget Narrative:

This broadband grant application is to implement broadband internet service to 1,307 homes, businesses, and community anchors in the Rockville and Old Church areas of Hanover County. The total project cost is $8,148,350. Comcast is providing $1,715,807 to the project as the co-applicant, which is 21% of the project cost. The Hanover County Board of Supervisor Community Development Committee authorized a County match of $50 per passing equating to $65,350. The funding is subject to appropriation by the full Board. The proposed VATI grant request is in the amount of $6,367,193, which is 78% of the project cost. The matching funds invested by Comcast and Hanover County include the full costs of the project, including planning, engineering, permits and easements, and materials and labor for the construction and installation of the fiber solution. Hanover County recognizes the need to expand access to broadband internet is critical for its citizens and businesses. As such, the County has dedicated funding and staff time and expertise to broadband expansion initiatives.

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:

The geographic area for this proposed project (the “Hanover Project”) includes approximately 112.5 miles of infrastructure generally dispersed throughout a portion of the western and much of the eastern area of Hanover County (“County”), as noted on the attached Project Area map and further detailed below.

The project area was selected after consultation between the County and Comcast and meets the eligibility criteria established by the Virginia General Assembly and the Department of Housing and Community Development (“DHCD”) for a Virginia Telecommunication Initiative (“VATI”) award.

There are an estimated 1,307 residential and commercial locations within 300’ of the road center in the Hanover Project area. Comcast proposes to extend its network so that the area is serviceable with broadband speeds of up to 1 gigabit per second (“Gbps”) over a hybrid fiber coaxial network for residential customers and 10 Gbps for Business customers. Consistent with the Hanover County franchise requirements for video service construction, Comcast will apply the same construction standards to the locations included in this project so that these 1,307

locations will be connected to Comcast's network without a customer contribution.

In addition, homes within the project area situated in excess of 300' from the road center would also have access to broadband service, but may require a contribution in aid of the construction if the actual costs of connection exceed the standard installation costs. Actual costs of construction are determined based on a number of factors. Factors such as distance from the network, necessary underground trenching, distance from certain electronics on the network, and easement and franchise requirements, among other factors, would be considered. Comcast would provide each home with a contribution estimate, if any, prior to construction. Comcast expects there are approximately 114 such homes that exceed the standard installation provision.

The County has undertaken extensive research on internet service availability, including significant community engagement. The County has received many comments from citizens and businesses on the lack of adequate internet in areas of the County. In addition, the County has worked with CenturyLink, Comcast, Verizon, and various wireless and satellite internet service providers to identify areas where better internet service is needed. This information led to the development of a broadband plan that identifies unserved areas of the County that should be targeted for internet service.

The geographic area for this proposed project is in two distinct areas of the County: Rockville in western Hanover and Old Church and Black creek areas in eastern Hanover.

Rockville Area, listed as Zone 1 and Zone 2:

Pinhook Road – from the Goochland County line northerly to its intersection with Vontay Road, including the Stancroft, Turkey Creek, Pembroke, and Red Bud subdivisions;

Pouncey Tract Road – from its intersection with Dogwood Trail to its intersection with Pinhook Road;

Bienvenue Road – its entire length;

Dogwood Trail Road – from its intersection with Watkins Road (including Watkins Road) to its intersection with Primrose Lane (excluding Primrose Lane).

Old Church Area, listed as Zone 3 and Zone 4:

Old Church Road – from its intersection with Immanuel Trail easterly to the Eastern View community;

Piping Tree Ferry Road – from its intersection with Old Church Road easterly to its intersection with Twin Cedar Lane (including Twin Cedar Lane);

Flannigan Mill Road – from its intersection with Old Church Road southerly to its intersection with Hopewell Road;

Hopewell Road – from its intersection with Flannigan Mill Road easterly to the County line;

Westwood Road – from its intersection with Happy Hill Lane (including Happy Hill Lane) northeasterly to its intersection with Flannigan Mill Road;

McClellan Road – from Rockhill Road south to its intersection with Goodman Forest Lane (including Goodman Forest Lane), including Black Creek subdivision.

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:

Hanover County conducted extensive outreach with existing wireline, wireless, and satellite internet service providers to determine if the areas proposed as part of the grant application had access to broadband internet service. Hanover County developed an internet survey website that was distributed to the community. This website allowed citizens and businesses to record their internet speeds and providers and report that information to the County. The service providers identified included satellite and wireless LTE services provided by Verizon and AT&T. For the specific proposed grant project area, Hanover reached out to Verizon as the general area is shown on FCC maps to have Verizon DSL internet service, albeit at speeds below the 25 Mbps down / 3 Mbps up threshold to qualify as a served area through the VATI program. Verizon responded as follows:

"We have reviewed the projects Hanover County is proposing for this year's round of Virginia Telecommunications Initiative (VATI) grants. Verizon does not have any objections to the service areas these proposals seek to cover and will not contest them during the challenge phase of the grant application process." Jeff Merriman, Verizon State and Local Government Affairs. Based on Verizon's response, the County represented to Comcast that the areas included in this proposal are unserved.

Information from the survey documented the following internet speeds:

- 293 survey responses
- 237 reported less than 10 Mbps / 1 Mbps
- 39 reported 10-24 Mbps / 1-3 Mbps
- 17 greater than 25 Mbps / 3 Mbps (via mobile hot spots or satellite)

Information on the County's intent to apply for VATI grants, including the areas proposed to be included in the grant application, has been posted on the County's website and a notice was distributed alerting the community of such with links to this information.

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, and Community Connect. If there have been federal funds awarded near the project, provide a map verifying the proposed project area does not conflict with these areas. Describe if there are Rural Digital Opportunity Fund (RDOF) eligible census blocks located in the proposed project area. Label Map: Attachment 2 – Documentation on Federal Funding Area.

Answer:

No areas within or immediately adjacent to the Hanover Project have received funding from federal grant programs

such as the Connect America Fund, ACAM, ReConnect, and Community Connect. As noted on the attached map, the area north of the western portion of the Hanover Project contains eligible areas and locations where CAF II funding was deployed by CenturyLink in 2017 to provide speeds of 10 Mbps down / 1 Mbps up.

Portions of the Hanover Project area contain Rural Digital Opportunity Fund ("RDOF") eligible census blocks, as noted in Attachment 3.

4. Overlap: To be eligible for VATI, applicants must demonstrate that the proposed project area(s) is unserved. An unserved area is defined as an area with speeds of 25/3 mbps or less and with less than 10% service overlap within the project area. Describe any anticipated service overlap with current providers within the project area. Provide a detailed explanation as to how you determined the percentage overlap. Label Attachment: Attachment 3 – Documentation Unserved Area VATI Criteria.

Answer:

Verizon DSL is the only Internet service provider in the Hanover Project areas other than satellite providers. According to the most recently Federal Communications Commission Form 477 data, no provider offers Internet speeds that meet the VATI definition of served.

The Federal Communications Commission Broadband map shows the fastest reported Internet speed in the area encompassing Zones 1 and 2, noted in Attachment 2 and also available online at: https://go.usa.gov/xfeT8, is 7 Mbps down / .768 Mbps up.

The fastest reported terrestrial internet speed in Zones 3 and 4 is 15 Mbps down / 1 Mbps up. The area is included in Pages 2 and 3 of Attachment 2. The FCC's interactive map is for Zone 3 is available online at: https://go.usa.gov/xfegf. The corresponding map for Zone 4 is available online at: https://go.usa.gov/xfegM.

The project area is unserved based on data available through the FCC's publicly available Form 477 website and from broadband providers. Hanover County conducted extensive outreach with existing wireline, wireless, and satellite internet service providers to determine if the areas proposed as part of the grant application had access to broadband internet service. Comcast and Hanover County anticipate no service overlap within the project area as there are no current broadband providers. While the attached map of FCC Form 477 data shows providers offering internet service in this area, Hanover County has verified that none of these providers offer service that would result in classifying the project area as served according to VATI guidelines.

Hanover County developed an internet survey website that was distributed to the community. This website allowed citizens and businesses to record their internet speeds and providers and report that information to the County. The only other providers identified by the survey were telephone company mobile hot spots, satellite, and some minor one-off wireless service providers (boip). Information from the survey documented the following internet speeds:

- 293 survey responses
- 237 reported less than 10 Mbps / 1 Mbps
- 39 reported 10-24 Mbps / 1-3 Mbps
- 17 greater than 25 Mbps / 3 Mbps (mobile hot spots, satellite)

In summary, the project area is unserved based on data available through the FCC's publicly available Form 477 website, broadband providers, and according to Hanover County residents.

5. 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 4 – Passings Form

   a. Of the total number of passings, provide the number of residential, business, non-residential, and community anchors in the proposed project area. Describe the methodology used for these projections.

   b. Provide the number of serviceable units in the project area that have 10/1 mbps or less. Describe the methodology used for these projections.

Answer:

According to Hanover County's analysis of the project area, the total number of residential serviceable units is 1307, 460 in the Rockville area and 847 in the Old Church area, which, based on recent Census person per household data, equates to 1,219 and 2,229 people respectfully (total of 3,448 people). These addresses have been plotted considering the infrastructure design provided by Comcast and using County GIS technology. This proposal excluded 58 homes in the Rockville area and 73 homes in the Old Church area (a total of 131 homes) where Comcast identified constraints to providing the service that were not cost effective. These represent an added opportunity if the constraints can be overcome during the project.

Based on the County's survey results, we estimate a minimum of 94% of these service units have less than 25 Mbps / 3Mbps and 81% have less than 10 Mbps / 1 Mbps internet access speeds. Comcast offers small and medium-sized businesses Internet services that accommodate significant bandwidth and networking needs, as well as a variety of voice services and plans that include multiple lines and calling features. Additionally, Comcast Business can provide multi-gig speeds to business customers in Comcast's footprint – whether an enterprise with locations across the country that needs multi-gigabit speed or a small business with only a handful of locations.

In addition to the county's research, Comcast performed a physical walk out of the project area and determined there are approximately 1,307 premises in the proposed project area. As detailed below, Comcast similarly determined the addresses are unserved.

Community Anchor Institutions (using Google Maps and County property records):

Rockville:

Rockville Community Center – 16238 Pouncey Tract Road

Monte Maria Monastery – 12221 Bienvenue Road

The School Board identified 193 K-12 students located in the Rockville project area.

The Commissioner of the Revenue identified 28 home-based businesses in the Rockville project area (a list can be provided). However, the County does not require a business license, which makes it more difficult to determine the true number of home-based businesses. The website survey documented 19 homes in the Rockville area that have a home-based business out of 74 submissions, so the number of actual home-based businesses may be much higher.

Old Church:

Old Church Community Center – 2080 Old Church Road

Camp Hanover – 3163 Parsleys Mill Road

Hanover County's Old Church emergency communication tower is within the proposed Old Church service area (Drakes Landing Court). Microwave is utilized for the backhaul however a broadband connection could provide public safety additional network resiliency by providing an alternate path in the event of a microwave failure.

The School Board identified 369 K-12 students located in the Old Church project area.

The Commissioner of the Revenue identified 54 home-based businesses in the project area (a list can be provided). However, the County does not require a business license, which makes it more difficult to determine the true number of home-based businesses. The website survey documented 58 homes that have a home-based business out of 221 submissions, so the number of actual home-based businesses may be much higher.

6. 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:

Not applicable.

7. 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.

Answer:

In 2019, Comcast increased the download speeds of several of its residential "Performance," "Performance Pro," and "Blast!" broadband options. The broadband infrastructure Comcast would put in place in Hanover County would offer all customers residential and business broadband options that exceed the minimum requirements for VATI, as noted in the tables below:

Residential Tier	Speeds up to	Xfinity Internet Service Only	With Xfinity TV or Voice Service
Performance Starter	25 Mbps down / 3 Mbps up	$49.95	$49.95
Performance	100 Mbps down / 5 Mbps up	$77.95	$64.95
Performance Pro	200 / 5	$92.95	$79.95
Blast!	300 / 10	$97.95	$84.95
Extreme Pro	600 / 10	$102.95	$89.95
Gig	1000 (1 Gbps) / 35	$107.95	$94.95
Gigabit Pro	2000 (2 Gbps) / 2000 (2 Gbps)	$299.95	$299.95

Business Tier	Speeds up to
Starter	35 Mbps down / 5 Mbps up
Business Internet 100	100 / 15
Business Internet 200	200 / 20
Business Internet 300 Plus	300 / 30
Business Internet 600	600 / 35
Business Internet 1G	1000 (1 Gbps) / 35

As more fully described below, eligible households will also have access to Comcast's low-income broadband adoption program Internet Essentials, which now offers speeds of 25 Mbps down / 3 Mbps up.

Upon completion of the Hanover Project, Comcast will be able to offer its full suite of products and services to residents in the proposed service area, including broadband services, voice, video, and home security.

Residential Xfinity Internet and Video customers will also have access to Xfinity X1. X1 is a video platform that delivers the simplest, fastest, and most complete way for customers to access all their entertainment on all their

screens. Features include Netflix and Amazon Prime Video access for those with a membership, YouTube access, advanced search and recommendations, and Xfinity apps for home and on the go. Xfinity X1 customers can also use the X1 Voice Remote for voice commands to change channels, search for shows, get recommendations, and more. And Peacock Premium is included for no additional cost for all Xfinity Flex customers and Xfinity X1 and video customers who have a subscription to Xfinity Internet.

In addition, upon completion of this project, Comcast customers who subscribe to an Xfinity Internet package will have access to Xfinity WiFi hotspots, including those that would be newly added to the Hanover Project area, for no additional cost. Moreover, these customers would be able to access any of Comcast's hotspots throughout Virginia and across the country. Comcast has the country's largest WiFi network, including more than 19 million hotspots nationwide and over 600,000 in Virginia. Even non-subscribers of Xfinity Internet can gain WiFi hotspot access using a WiFi On Demand pass.

Comcast Small and Medium Business customers will have access to gig speeds through the "Business Internet 1 Gig" [illegible]

8. Network Design: Provide a description of the network system design used to deliver broadband service from the network's primary internet point(s) of presence to end users, including the network components that already exist and the ones that would be added by the proposed project. Provide a detailed explanation of how this information was determined with sources. 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 5 – Propagation Map Wireless Project.

Answer:

Comcast has built a fiber backbone at the core of its network that stretches across the country with more than 600,000 route miles of fiber-optic and coaxial plant nationwide – using the industry's most advanced optics/lasers and Internet Protocol ("IP") routing technologies. Dozens of converged regional area networks interconnect to create this fiber backbone that delivers video, voice, and high-speed Internet services to tens of millions of customers throughout the country. IP technology ties all of this together, creating a highly scalable connectivity platform or "IP core." Comcast has been building fiber into its networks incrementally over the past decade. In 2015, Comcast introduced Gigabit Pro, the industry's first residential fiber-to-the-home 2 Gigabit-per-second ("Gbps") service ever offered by an Internet service provider in the United States. In 2018, Comcast announced that it is the nation's largest provider of gigabit broadband, providing access to nearly 59 million homes and businesses.

Comcast proposes to complete the construction of the area with a hybrid fiber coaxial ("HFC") solution, emanating from the closest facility to the project. Fiber optic cables would be constructed to the service area, commonly referred to as a serving node, where optical signals would be converted to electrical or radio frequency for distribution on the coaxial network. Comcast will use DOCSIS technology in building the network. DOCSIS technology is an international telecommunications standard that permits the addition of high-bandwidth data transfer to an existing cable TV system. It is employed by many cable television operators, including Comcast, to provide Internet access over an existing HFC infrastructure. The industry continues to deliver great speeds over DOCSIS 3.1, which Comcast completed deploying in Hanover County in 2018. DOCSIS 3.1 enables Comcast to bring broadband speeds of up to 1 Gbps to a service area.

According to the FCC's "Ninth Measuring Broadband America: A Report on Consumer Fixed Broadband

Performance in the United States,"[1] Comcast's actual upload and download speeds were over 100% of what was advertised. Residents and businesses in the proposed service area will be offered broadband services of the same quality and current price as those offered in other Comcast service areas. Comcast will not offer a separate rate applicable to only those customers within the project area included in this proposal. The customer will ultimately decide which service tier best suits their needs and preferences.

[1]https://www.fcc.gov/general/measuring-broadband-america-measuring-fixed-broadband

9. 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 6 – Timeline/Project Management Plan; Attachment 7 – MOU/MOA between Applicant/Co-Applicant.

Answer:

The Hanover County Board of Supervisors approved a resolution supporting the grant application with Comcast. Comcast and Hanover County will complete a formal agreement to make review of work and processing of payments as efficient as possible. Comcast anticipates submitting invoices no more frequently than monthly.

Hanover and Comcast have agreed in principle on the following responsibilities:

- Hanover County intends to partner with Comcast as a co-applicant for a VATI grant to extend broadband service to unserved areas of Hanover County;
- Hanover County would complete the grant application (with Comcast's assistance); submit the completed application(s) to the Virginia DHCD; and manage the processing of work payments;
- Hanover County will be the funded applicant in the event of award, so the county will timely process all VATI related Comcast invoices that applied directly to the approved work plans, design, and statement of work;
- Any delays in completing the work as planned would be negotiated with DHCD as partners;
- Hanover County also would provide services and support for any necessary citizen engagement activities, including but not limited to: processing applications for right of way in a manner consistent with all local, state, and federal law; advocating and describing the benefits of the project to those affected; and working with Comcast and other partner agencies (e.g. VDOT) and private industry (e.g. Dominion Energy) to help coordinate construction and/or pole attachments;
- Comcast would provide accurate VATI construction plans; associated material and work invoices to match the construction plans; detailed descriptions of necessary right of way or pole attachments; and timely notice of other needs to Hanover County.

The Hanover project is in the preliminary engineering phase. Final design will commence upon the award of the grant by DHCD and will continue to completion on or before the construction deadline pursuant to a final grant agreement. Comcast is confident it can complete the proposed work on time and within budget. Workflow is included in the attached project management plan. The specific initial tasks include project engineering and right of way preparation. Comcast may need to obtain the necessary permits from VDOT to place facilities underground in the VDOT right of way and will need support from the county in ensuring that necessary power supplies are coordinated and installed with the local electric company. Comcast will ask Hanover County officials to assist in obtaining these permits and power supplies expeditiously. This coordination will need to begin immediately upon notice of the grant award. Material procurement and some pre-construction work will occur during this period and will enable Comcast to proceed with actual construction as soon as VDOT issues the right of way permits.

Comcast anticipates completing the project within 18 months after contract execution between the County and DHCD. As contemplated by the 2021 VATI guidelines, Comcast may request an extension if it encounters permitting, pole attachment, or other circumstances beyond its control which may delay the project timeline. Activation of all HFC plant will be completed by both in-house Comcast employees and select contract personnel. The final quality control inspection of all new infrastructure will be completed by Comcast employees to ensure all new construction meets or exceeds FCC standards. As noted above, an additional notice of service availability will be provided not later than 20 days prior to the Completion Date.

10. 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 the 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's cash match is below 10% of total project cost, applicants must provide financial details demonstrating appropriate private investment. Label Attachments: Attachment 8 - Funding Sources Table; Attachment 9 – Documentation of Match Funding.

Answer:

The proposed project represents a partnership between Comcast and Hanover County. Comcast, the co-applicant, upon award of the VATI grant, will be responsible for any matching funds and will provide the labor and materials to complete the provision of services to the area delineated in the attached map. Comcast will provide approximately 21.1% of the projected construction costs of $8,148,351, totaling approximately $1,715,807. Hanover County will assist by providing a direct contribution of $50 per premise, or approximately $63,350, and in providing in-kind contributions including application analysis and preparation, coordination with the Department of Housing and Community Development, assistance with right of way permitting, and participating in further concert with Comcast as the project is approved and construction begins. The value of these services will depend on the level of activity occurring as the project commences.

A breakdown of costs is attached below.

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Hanover County Comcast 2021

Name	Locations	Mileage	HP/Mile	Total Cost	Comcast Contribution	Hanover County Contribution	Requested Gap Funding	VATI Gap Funding
Hanover Project	1307	112.5	11.6	$8,148,351	$1,715,807	$65,350	$6,367,193	78.1%

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

Answer:

N/A – there is no leverage funding being provided. Funding would be provided by DHCD, Comcast, and Hanover County as noted on Attachment 8 – Funding Sources Table.

Hanover County has provided local project management for numerous road improvement projects, including financial and construction oversight. The County also manages its own public utility system, including multiple treatment facilities and hundreds of miles of infrastructure. Managing these major infrastructure projects has given the County experience with acquiring applicable permits and easements, which will assist Comcast in this effort.

12. 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.

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:

Comcast's business model is not dependent upon a particular take rate. Forecasting a take rate with a high degree of accuracy is most challenging as the actual number of customers who choose to subscribe is beyond the parties' control. Comcast's take rate estimate for the project areas is based upon several unique factors. Hanover County's support for the project and involvement with the community is expected to add heightened awareness earlier than might otherwise occur. The public nature of the VATI program is also expected to add to the early awareness of residents of broadband availability and positively enhance the take rate.

All of the factors combined inform our estimate that, on the high end, some 45-55% of residents may take service within the first year after project completion. These projections for overall subscriber levels are dependent on several factors and even an initial prediction may change as the project progresses. Comparisons between applicants may not provide a useful measure of broadband access as each applicant will have different service offerings, marketing campaigns, and other intangibles that could drive take rates. For example, Comcast take rates may vary from those of other providers because Comcast offers more services than broadband alone – including

video, telephone, mobile telephone, and ho me security –and the company offers bundled pricing promotions from time to time. These additional products and pricing options can change the value proposition of Comcast service for each household that is unique among providers.

Comcast does undertake various actions to make residents aware that service is available. During the construction phase, before the service is active, the presence of Comcast vehicles visually alerts residents that service is coming. Comcast personnel involved with the construction in the public rights of way are often asked about availability. Soon after completing construction, Comcast provides notice to potential customers of service availability on a rolling basis. It typically employs various communication tactics to inform residents of availability. These tactics can include direct mail pieces or event sponsorships. These efforts augment existing advertising campaigns already in place within Hanover County for Comcast's existing customer base. Once service is established, Comcast may communicate with these residents through direct mail, direct e-mail, radio ads, video ads, and other marketing tactics.

If conditions allow, a public meeting will be held in or near the proposed project area to inform the residents about the upcoming work and answer questions. Nearer the completion of the project a public meeting will be held to educate potential customers on the proposed services and to encourage sign-ups and answer questions. The County's Public Information Office will promote the proposed internet service and educate residents and businesses on the opportunities of this service through email and social media.

Hanover County is using Cares Act funding to establish public wireless internet access at public buildings. This program includes placing wireless access points at up to 10 locations across the County with public access to internet services. Hanover County is a member of the Pamunkey Regional Library. The Library has a full digital literacy program that includes providing public wireless, mobile hotspots, and other mobile services (printing, etc.). Hanover County Schools will be providing an on-line educational program that includes issuance of tablets to all students in grades 3-12 and to all teachers. Schools will also provide complete web-based educational services.

13. 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 applicant is not a locality(s) in which the project will occur, please provide a letter of support from that locality. Attachment 10 – Letters of Support.

Answer:

Name	Title	Responsibility
Nathan Daugherty	Sr. Manager, Comcast Government Affairs	Project Coordination

Brian Engle	Manager, Comcast Construction	Construction Supervision
Frank Harksen	Deputy County Administrator	Project Coordination
Kevin Nelson	County IT Director	Project Management

In FY20 alone, the County processed nearly $25M in grant funds for everything from road construction to drug treatment programs to equipment installation and more. The County has also accepted over $18 million in Cares Act funds that are being solely administered by the County. Hanover is an annual recipient of most of these grants, which is indicative of the scope of grant management Hanover routinely handles. Grant tracking and reporting processes are continually reviewed for improvements and efficiencies. Grant reporting to both state and federal agencies is a standard business activity for Hanover and Hanover has consistently received positive results on annual audits. Grants management and acceptance is included County's Board approved financial policies.

Comcast has significant experience constructing broadband communications facilities. It is a leading communications provider in Virginia, offering video, high-speed Internet, home security, and phone services to residential customers under the Xfinity brand and also providing services to businesses through its Comcast Business suite of products. Comcast has invested in technology to build an advanced network that delivers among the fastest broadband speeds, and brings customers personalized video, communications, and home management offerings. Comcast has invested billions of dollars to create a network across the U.S. that makes broadband widely available, as part of its commitment to provide superior services to its customers.

Since 2011, Comcast made more than $1.8 billion in technology and infrastructure investments in Virginia to offer reliably fast speeds even during peak use periods. The company has invested significant resources in both local and national Network Operations Centers ("XOC") to ensure continued proactive monitoring of network health.

In Virginia, Comcast employs over 1,900 people. In 2019 it invested more than $216 million annually in payroll, benefits, and training for its Virginia workforce. The company maintains a large, locally based engineering technical operations team that works around the clock to maintain network reliability and to directly support the company's business and residential customers. For many decades, Comcast, through its Beltway Region, has served over 140 communities in Virginia. Many of these communities are very rural in nature.

Comcast has experience partnering with public agencies to deploy broadband infrastructure in unserved areas. Comcast was awarded three Virginia Telecommunications Initiative grants in 2018 and 2019. Each of these construction projects is now complete with Internet service offered to residences and businesses throughout the project footprints. Comcast was also awarded a VATI grant in 2020. Comcast is on schedule to fulfill its grant obligations for this grant, and planning and construction for the project is ongoing.

In 2018 Comcast also earned a Last Mile Broadband grant from the Virginia Tobacco Region Revitalization Commission to provide broadband access to nearly 7,000 homes and businesses. With construction expected to be complete in 2020 and ahead of schedule, Comcast has already provided access to more homes and addresses than originally estimated.

In Massachusetts, Comcast was awarded a grant of $4,000,000 from the Massachusetts Technology Collaborative

("Mass Tech") for construction of line extensions to areas in nine towns whose costs to construct exceeded Comcast's economic standards. Comcast completed the project on time, on budget, and reached 20% more homes than the 1,000 originally anticipated. Comcast was also awarded a grant of $805,800 by Mass Tech for construction of approximately 27 miles of line extensions in Montgomery, Massachusetts, a town which is currently unserved. Comcast is currently deploying broadband in three additional unserved towns in partnership with the MBI.

In 2013 and 2014, Comcast received two grants from the Vermont Telecommunication Authority ("VTA") totaling $336,558 to provide service to areas that were economically unfeasible for construction. In 2015 and 2017, the Vermont Department of Public Service ("DPS") twice awarded Comcast funds from its Connectivity Initiative grant totaling $359,850. The DPS awarded Comcast another grant to deploy broadband in unserved areas of Cavendish VT. Comcast has either fulfilled or is on schedule to fulfill its grant obligations to the VTA and DPS.

The following supportive documents are included in an attachment:

Hanover County Board of Supervisors Resolution

Delegate Fowler

Delegate Wyatt

Rockville – 35 supportive emails (names and emails attached – specific emails can be provided)

Old Church – 104 supportive emails (names and emails attached – specific emails can be provided)

Rockville – 68 support comments from on-line survey (names and emails attached – specific comments of support can be provided)

Old Church – 208 support comments from on-line survey (names and emails attached – specific comments of support can be provided)

Old Church – Christian Ridge and Baylor Springs Homeowners Association

Chamber of Commerce

Goochland County

14. 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 11 – Derivation of Costs; Attachment 12 - Documentation of Supporting Cost Estimates.

Answer:

See attachments for details.

15. The cost benefit index is comprised of three factors: (i) state share for the total project cost, (ii) state cost per unit passed, and (iii) the internet speed. From these statistics, individual cost benefit scores are calculated and averaged together to create a point scale for a composite score. Provide the following:

    a. Total VATI funding request
    b. Number of serviceable units
    c. Highest residential speed available in proposed project area

Answer:

a. Total VATI funding request - $6,367,193
b. Number of serviceable units – 1,307
c. Highest residential speed available in proposed project area – 1 Gbps down / 35 Mbps up

16. Commonwealth Priorities

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

    a. How the proposed project fits into a larger plan to achieve universal broadband coverage for the locality. Explain the remaining areas of need in the locality and a brief description of the plan to achieve universal broadband coverage.

    b. 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.

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

    d. 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:

The County has drafted a broadband expansion plan (attached), which is intended to provide a framework for implementation of adequate internet across the County focusing on those areas that have less than 25 Mbps download and 3 Mbps upload. In the absence of accurate mapping defining these areas, the County has identified five geographic areas where citizens and businesses have expressed frustration with their internet bandwidth (one of which is a part of this grant). The County has developed a survey tool where citizens can document their internet bandwidth, so that an accurate inventory of existing conditions can be compiled. This information shows additional areas where broadband internet is lacking.

The County is pursuing all means necessary to expand broadband internet across the County, including partnerships with private internet service providers and pursuing grants. Permitting processes have been streamlined to promote tower expansion and additional tower capacity. All known internet service providers have

been contacted by the County to encourage expansion within Hanover County. The Emergency Communications Department sent letters out to a number of wireless internet service providers and telephone companies to take advantage of the County's extensive emergency communication tower network consisting of 18 towers. A number of cellular providers have entered into tower lease agreements to co-locate on County towers with the plan to provide 4G LTE service (and potentially 5G service).

The County's received 295 responses to the broadband survey. Of these 295, 108 noted that they have a home-based business, so the County believes there are numerous home-based businesses in the area. The negative impact to these small businesses by not having broadband internet access is impactful. County staff have also drafted a broadband plan (see attached).

Hanover County is using Cares Act funding to establish public wireless internet access at public buildings. This program includes placing wireless access points at up to 10 locations across the County with public access to internet services. Hanover County is a member of the Pamunkey Regional Library. The Library has a full digital literacy program that includes providing public wireless, mobile hotspots, and other mobile services (printing, etc.). Hanover County Schools will be providing an on-line educational program that includes issuance of tablets to all students in grades 3-12 and to all teachers. Schools will also provide complete web-based educational services.

According to Hanover County School Board, there are 562 public school students within the project area who may be without access to broadband. Through construction of Comcast's network through the Hanover Project, more Hanover County school students would have Internet access, plus all qualifying low-income families will also have access to Comcast's Internet Essentials program. Internet Essentials is the nation's largest and most comprehensive broadband adoption program and Comcast's number one community impact initiative. Since August 2011, Internet Essentials has connected millions of low-income households to the Internet, most for the very first time. During that period, the program has grown from focusing on bridging the "homework gap" for school-age children to addressing digital equity issues for all Americans. The program offers low-cost, high-speed Internet service for $9.95 a month plus tax, provides access to free digital skills training in print, online, and in person, and includes the option to purchase a low-cost Internet-ready computer. All Internet Essentials customers will now also receive the xFi platform, which enables parents to control and manage their children's WiFi connected devices. xFi is a simple, digital dashboard where they can see what devices are connected, set safe-browsing modes so children can only access age-appropriate content, get notifications about activity on their home WiFi, and have the ability to pause devices for dinner or bedtime.

On August 13, Comcast announced launching the new "Internet Essentials Partnership Program," which is designed to help accelerate Internet adoption as distance learning plans roll out across the county due to the coronavirus. The program relies on public-private partnerships and enables communities to work together to coordinate funding to help connect K-12 students, including two months of free Internet service for new Internet Essentials customers. Earlier this year, Comcast announced a permanent speed increase for both new and existing Internet Essentials to 25 Mbps down / 3 Mbps up.

In 2010 the Board of Supervisors established a high speed internet advisory committee to develop a plan to expand high speed internet access across the County. The committee drafted a report that included a number of recommendations. The County has been implementing these recommendations. As the County has grown and technology has evolved, the reliance on adequate internet service has become a priority for citizens and businesses in the County. As such, in 2019 the Board of Supervisors established another broadband advisory committee. This

committee has been tasked with a similar goal to develop recommendations to expand broadband internet access across the County. The Committee's report is due in early 2021. Initial work is to identify strategies for the expansion and enhancement of broadband within the County.

The High Speed Internet Committee (HSIC) reported back in 2012 with a number of recommendations for consideration by the Board, which have served as the basis for the County's broadband planning effort. A summary of their recommendations:

- Designate point person for broadband – completed
- Communication – completed (on-going)
- Pursue grant opportunities – completed (on-going)
- Map internet availability – completed (using State/Federal mapping resources and on-line surveys)
- Ensure Libraries have broadband internet service – completed
- Consider establishing special tax districts – completed (Board of Supervisors determined not to proceed with this option)

17. Additional Information

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

Label Additional Attachments as:
a. Attachment 13 – Two most recent Form 477 submitted to the FCC or equivalent
b. Attachment 14 – XXXXXXX
c. Attachment 15 – XXXXXXX
d. Attachment 16 – XXXXXXX
e. Attachment 17 – XXXXXXX

Answer:

Attachment 14 - Hanover County Broadband Plan

Attachment 15 - Xfinity Services and Pricing

Attachments:

Map(s) of project area, including proposed infrastructure

Attachment1ProjectAreaMap817202061842.pdf

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

Attachment2DocumentationonFederalFundingArea817202064829.pdf

Application to DHCD Submitted through CAMS

Hanover County

Hanover County Comcast 2021

Documentation that proposed project area is unserved based on VATI criteria

Attachment3DocumentationUnservedAreaVATICriteria817202052339.pdf

Passings Form (Please use template provided)

Attachment4PassingsForm817202052947.pdf

Propagation Map if Wireless Project

Attachment5PropagationMapWirelessProject817202053317.pdf

Timeline/Project Management Plan

Attachment6TimelineProjectManagementPlan817202053702.pdf

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

Attachment7MOUMOAbetweenApplicantCoApplicant817202064903.pdf

Funding Sources Table

Attachment8FundingSourcesTable817202065324.pdf

Documentation for match funding

Attachment9DocumentationofMatchFunding817202064545.pdf

Letters of Support

Attachment10LettersofSupport817202050450.pdf

Derivation of Cost (Project Budget)

Attachment11DerivationofCosts817202062858.pdf

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

Attachment12DocumentationofSupportingCostEstimates817202062923.pdf

Two most recent Form 477 submitted to FCC

Attachment13TwomostrecentForm477submittedtotheFCCorequivalent817202064519.pdf

Application to DHCD Submitted through CAMS

Hanover County

Hanover County Comcast 2021

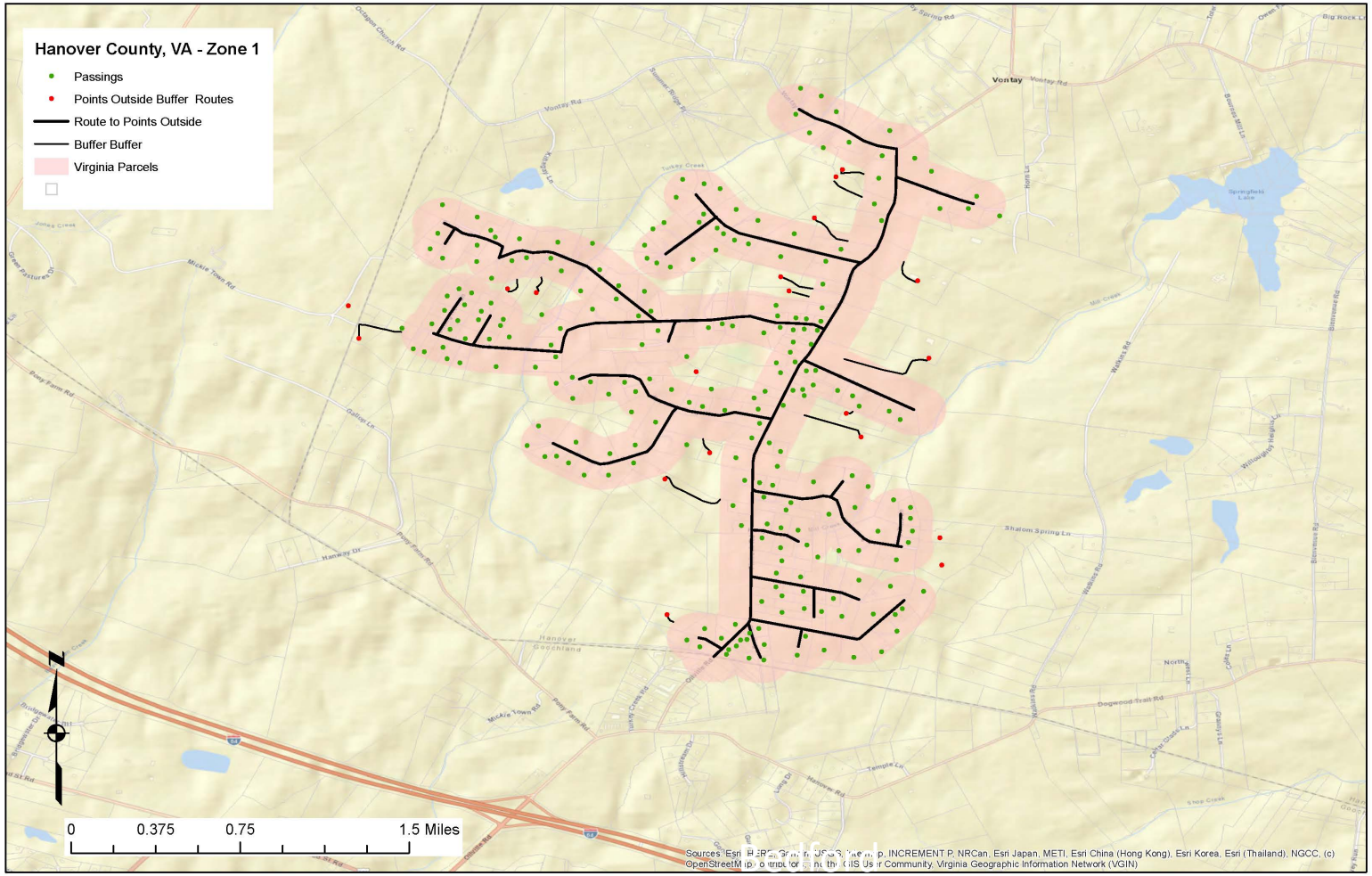
Optional

Attachment14HanoverCountyBroadbandPlan817202025401.pdf

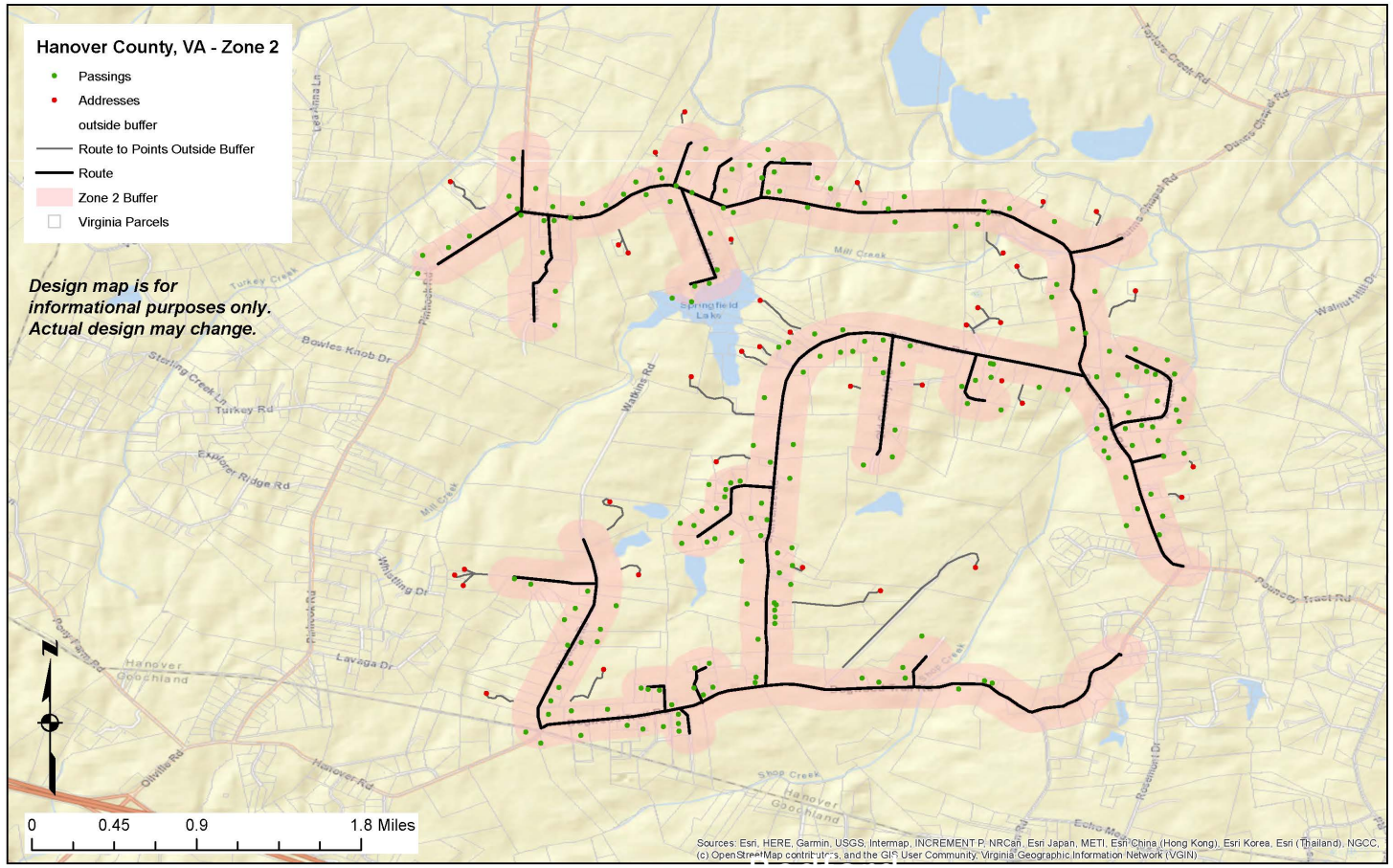
Optional

Attachment15XfinityServicesandPricing817202050501.pdf

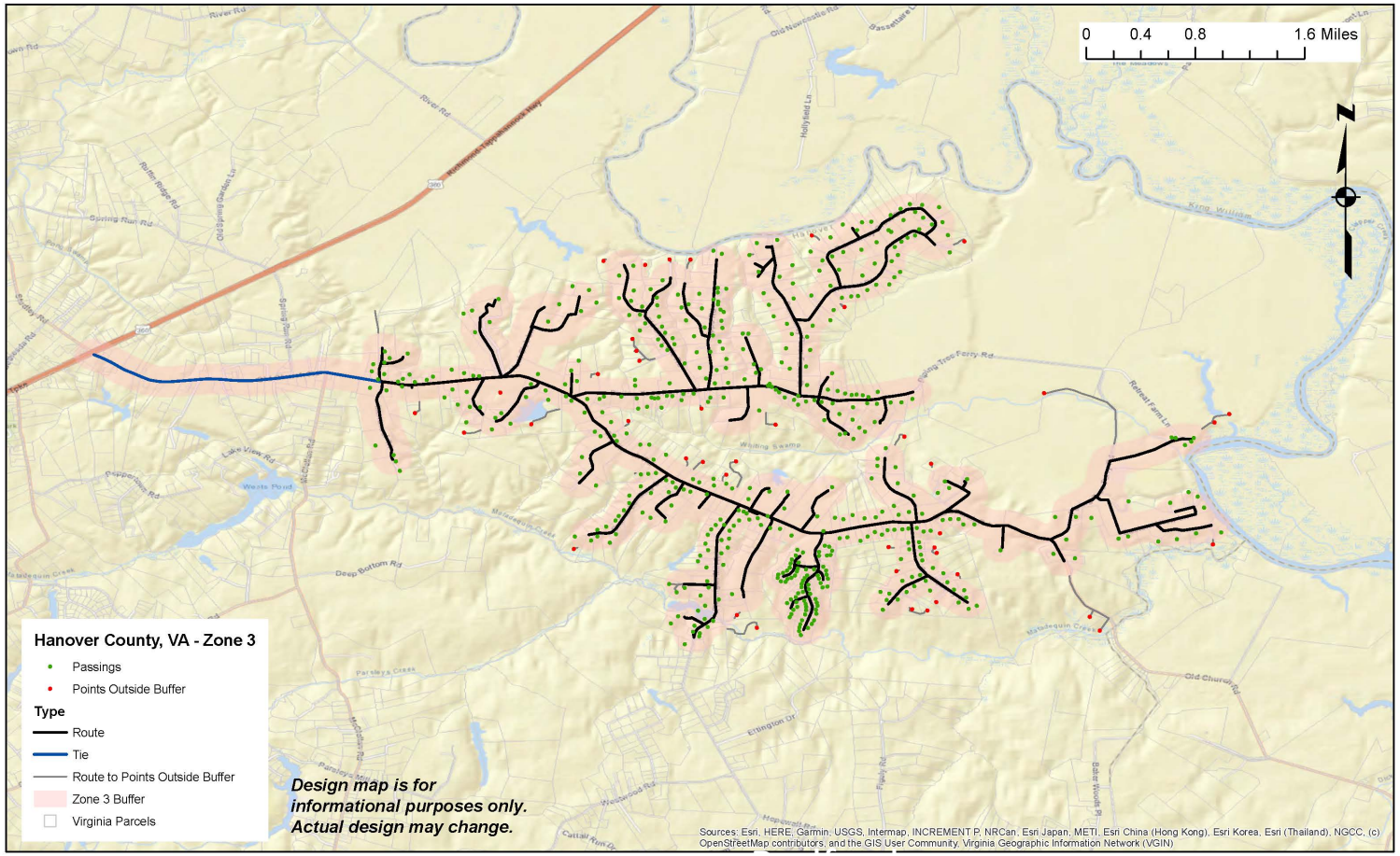
Hanover County – Zone 1



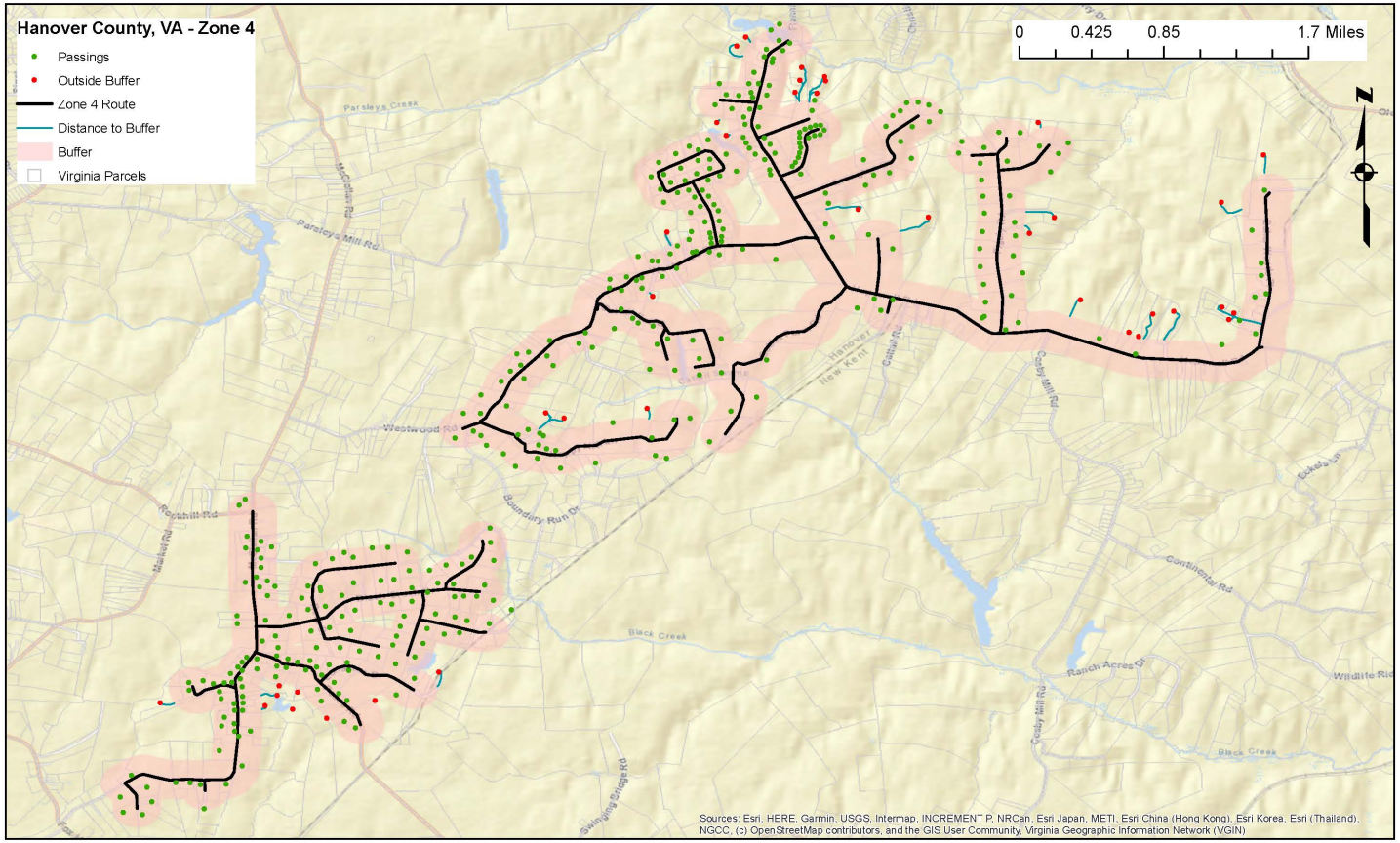
Hanover County – Zone 2

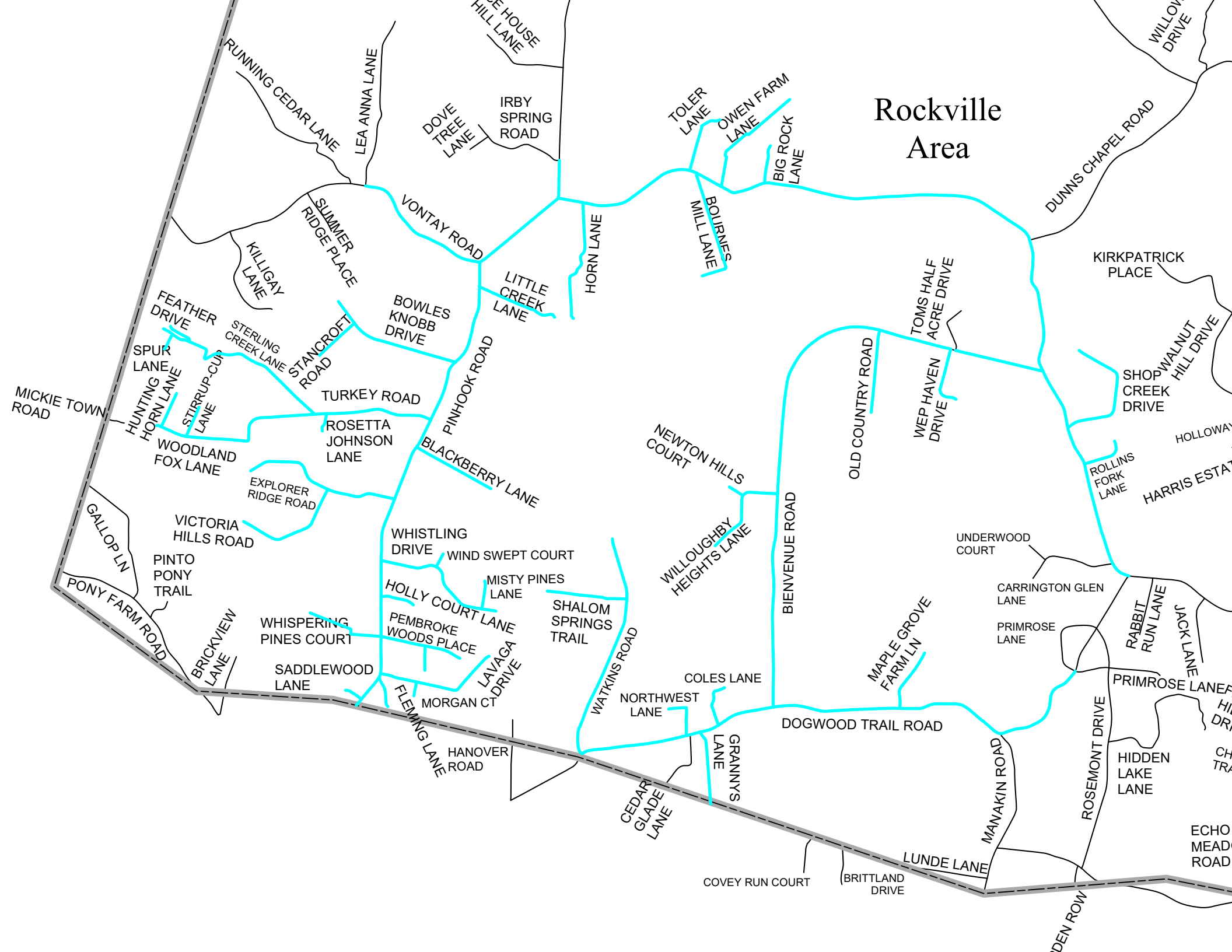


Hanover County – Zone 3

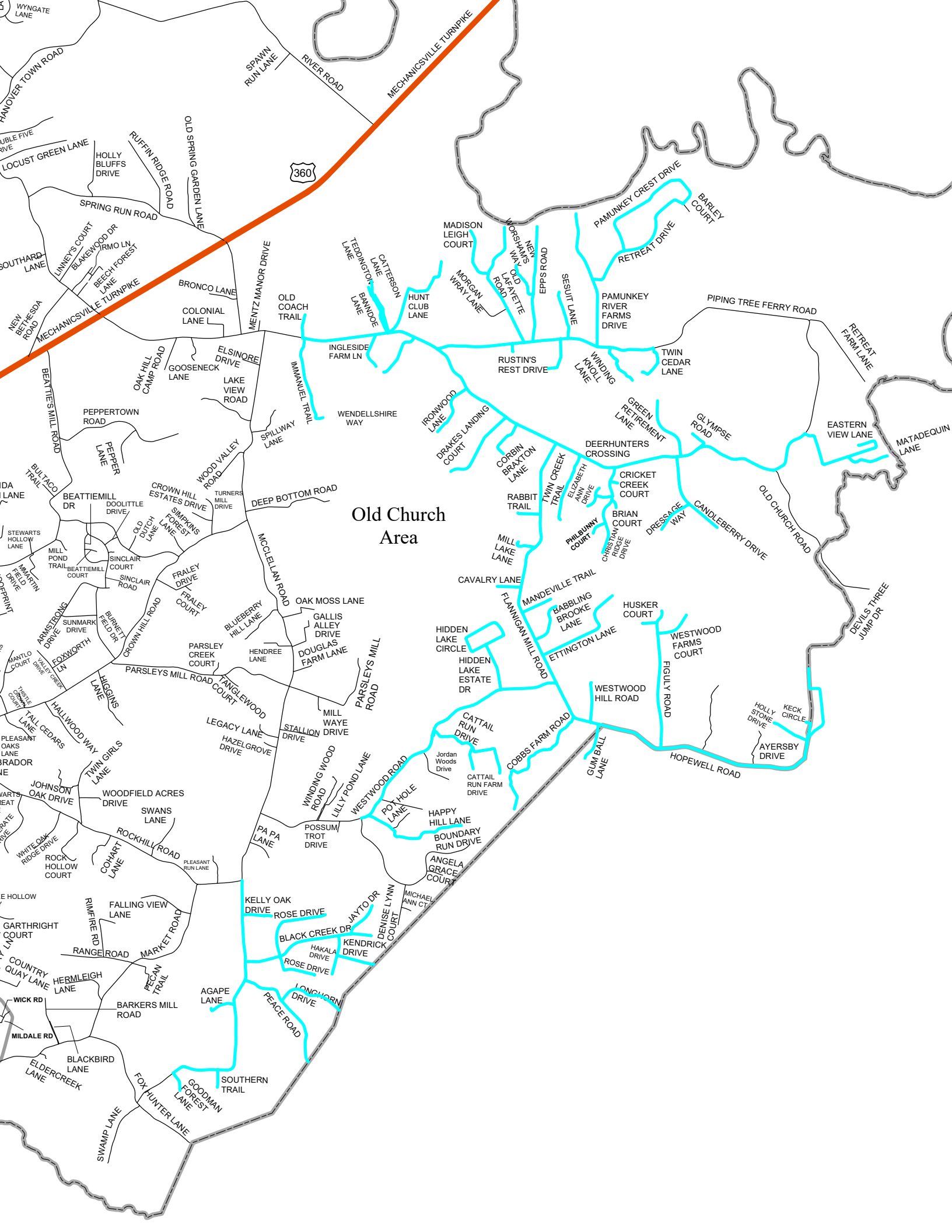


Hanover County – Zone 4

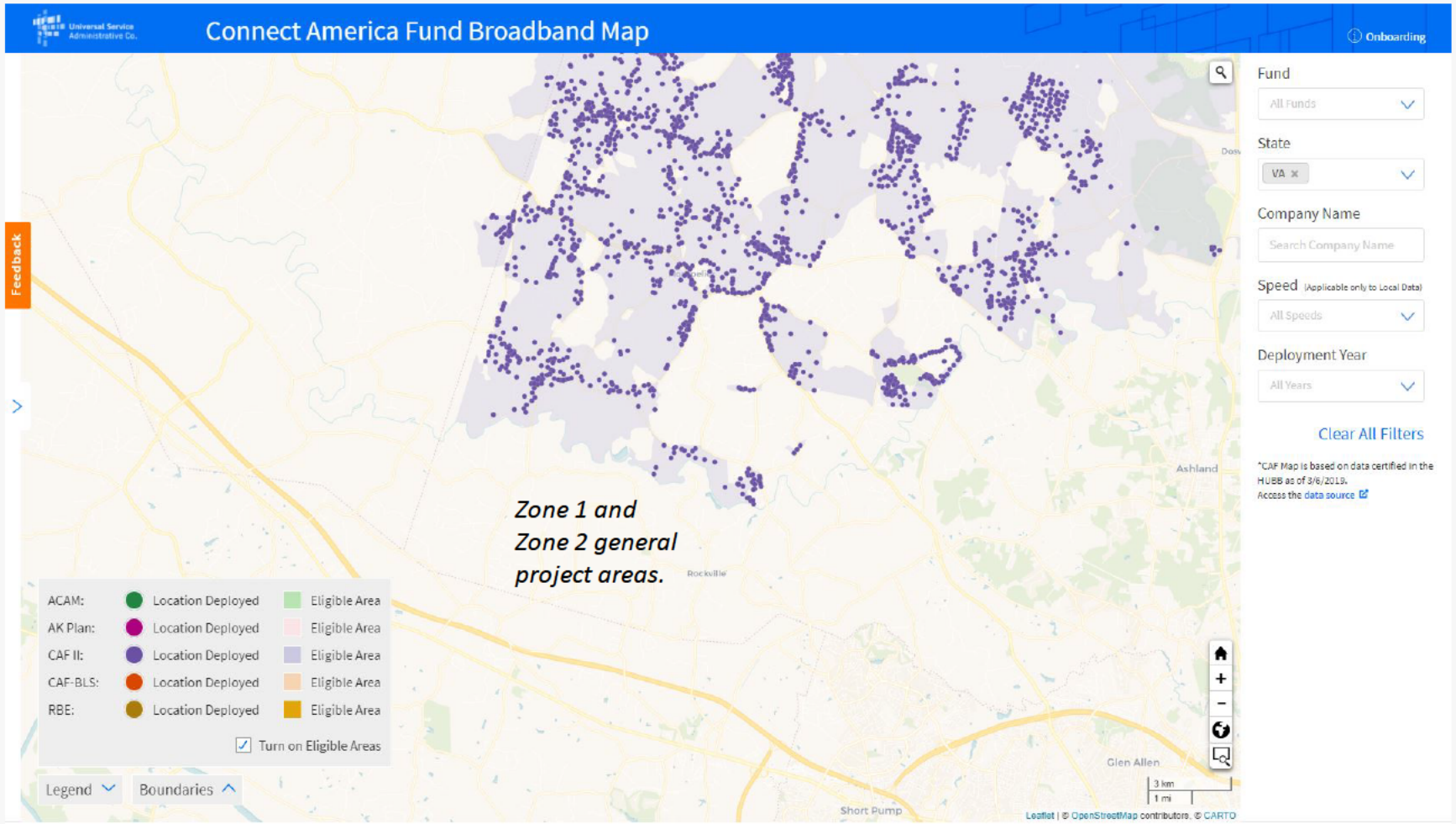



Rockville Area
RUNNING CEDAR LANE
LEA ANNA LANE
HILL LANE
DOVE TREE LANE
IRBY SPRING ROAD
TOLER LANE
OWEN FARM LANE
BIG ROCK LANE
DUNNS CHAPEL ROAD
WILLOW DRIVE
SUMMER RIDGE PLACE
VONTAY ROAD
KILLIGAY LANE
HORN LANE
BOURNES MILL LANE
LITTLE CREEK LANE
KIRKPATRICK PLACE
FEATHER DRIVE
STERLING CREEK LANE
STANCROFT ROAD
BOWLES KNOBB DRIVE
TOMS HALF ACRE DRIVE
WALNUT HILL DRIVE
SPUR LANE
STIRRUP-CUP LANE
HUNTING HORN LANE
MICKIE TOWN ROAD
TURKEY ROAD
PINHOOK ROAD
OLD COUNTRY ROAD
WEP HAVEN DRIVE
SHOP CREEK DRIVE
HOLLOWAY
ROSETTA JOHNSON LANE
WOODLAND FOX LANE
BLACKBERRY LANE
NEWTON HILLS COURT
ROLLINS FORK LANE
HARRIS ESTATE
EXPLORER RIDGE ROAD
GALLOP LN
VICTORIA HILLS ROAD
WHISTLING DRIVE
WIND SWEPT COURT
WILLOUGHBY HEIGHTS LANE
BIENVENUE ROAD
UNDERWOOD COURT
PINTO PONY TRAIL
MISTY PINES LANE
CARRINGTON GLEN LANE
HOLLY COURT LANE
SHALOM SPRINGS TRAIL
PRIMROSE LANE
RABBIT RUN LANE
JACK LANE
PONY FARM ROAD
WHISPERING PINES COURT
PEMBROKE WOODS PLACE
MAPLE GROVE FARM LN
BRICKVIEW LANE
WATKINS ROAD
SADDLEWOOD LANE
LAVAGA DRIVE
COLES LANE
PRIMROSE LANE
FLEMING LANE
MORGAN CT
NORTHWEST LANE
DOGWOOD TRAIL ROAD
HANOVER ROAD
GRANNYS LANE
ROSEMONT DRIVE
HIDDEN LAKE LANE
MANAKIN ROAD
CEDAR GLADE LANE
ECHO MEADOW ROAD
LUNDE LANE
COVEY RUN COURT
BRITTLAND DRIVE

Old Church Area



Hanover County – Unfunded by CAF and ACAM in Zones 1 and 2

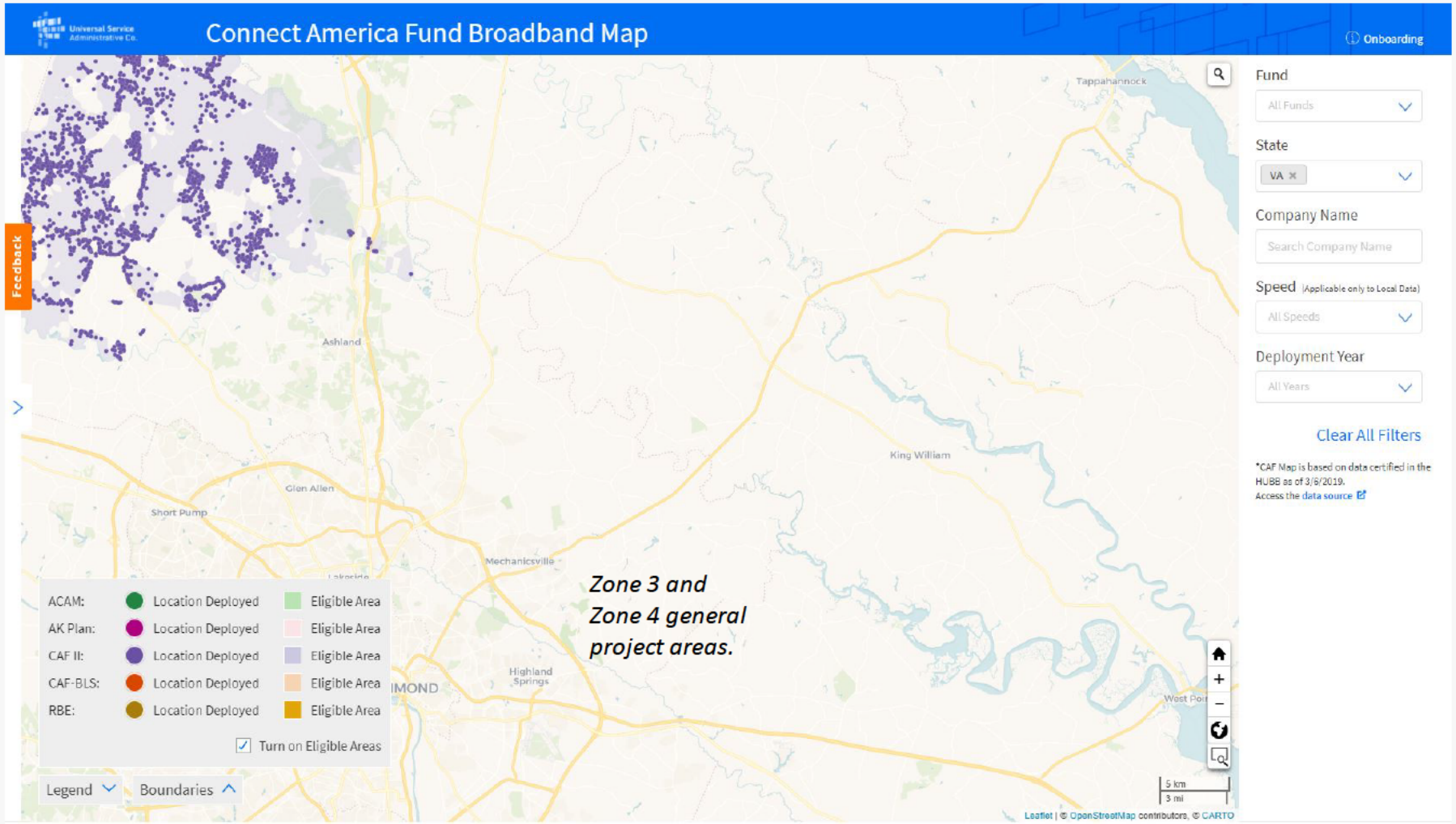


CAF II funding and eligibility areas lie north of Zone 1 and Zone 2 of the Hanover Project area.

xfinity

Source: Federal Communications Commission Connect America Fund Map (https://data.usac.org/publicreports/caf-map/)

Hanover County – Unfunded by CAF and ACAM in Zones 3 and 4

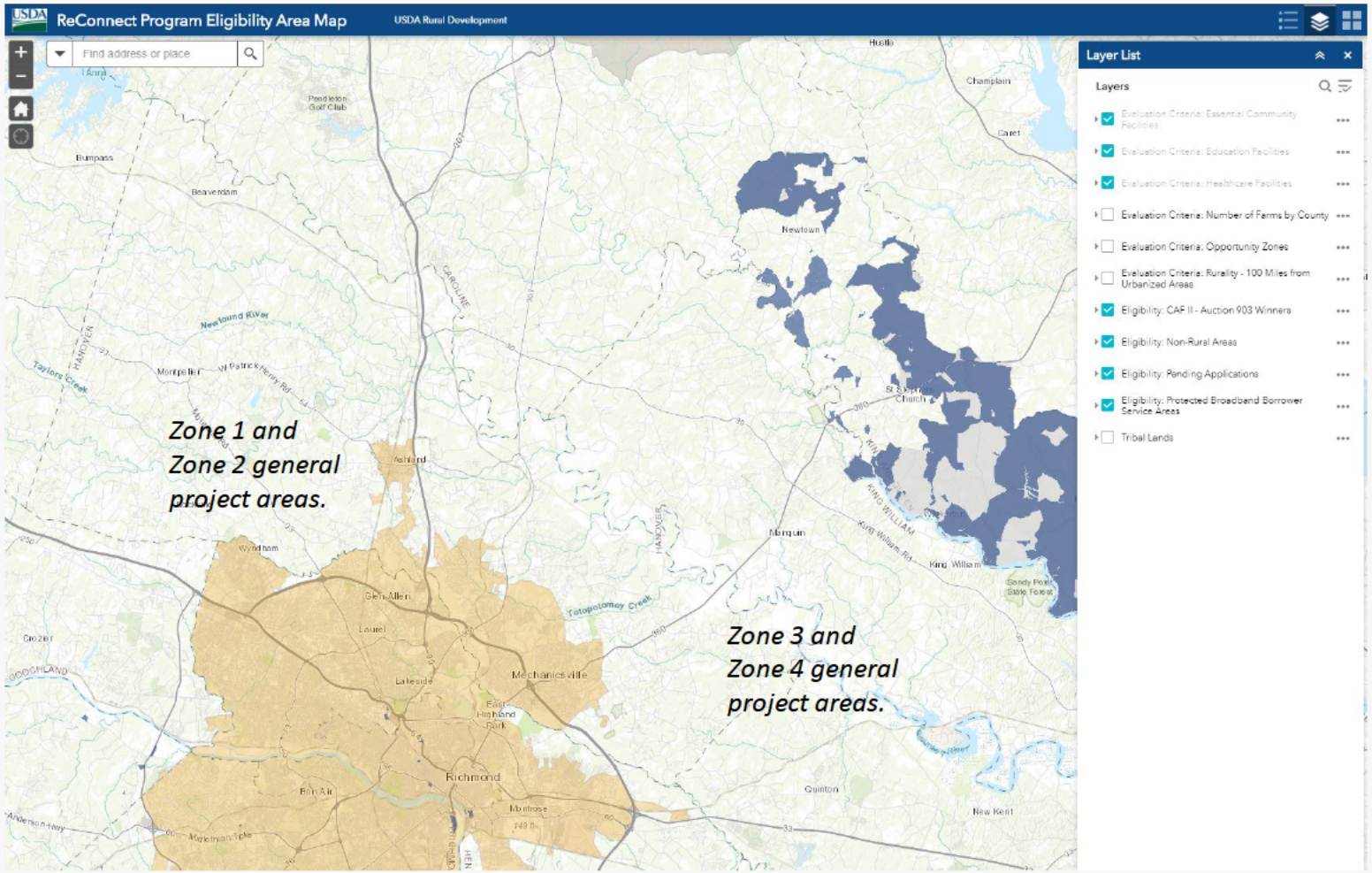


CAF II funding and eligibility areas lie northwest of Zone 3 and Zone 4 of the Hanover Project area.

xfinity

Source: Federal Communications Commission Connect America Fund Map (https://data.usac.org/publicreports/caf-map/)

Hanover Project has not received ReConnect funding

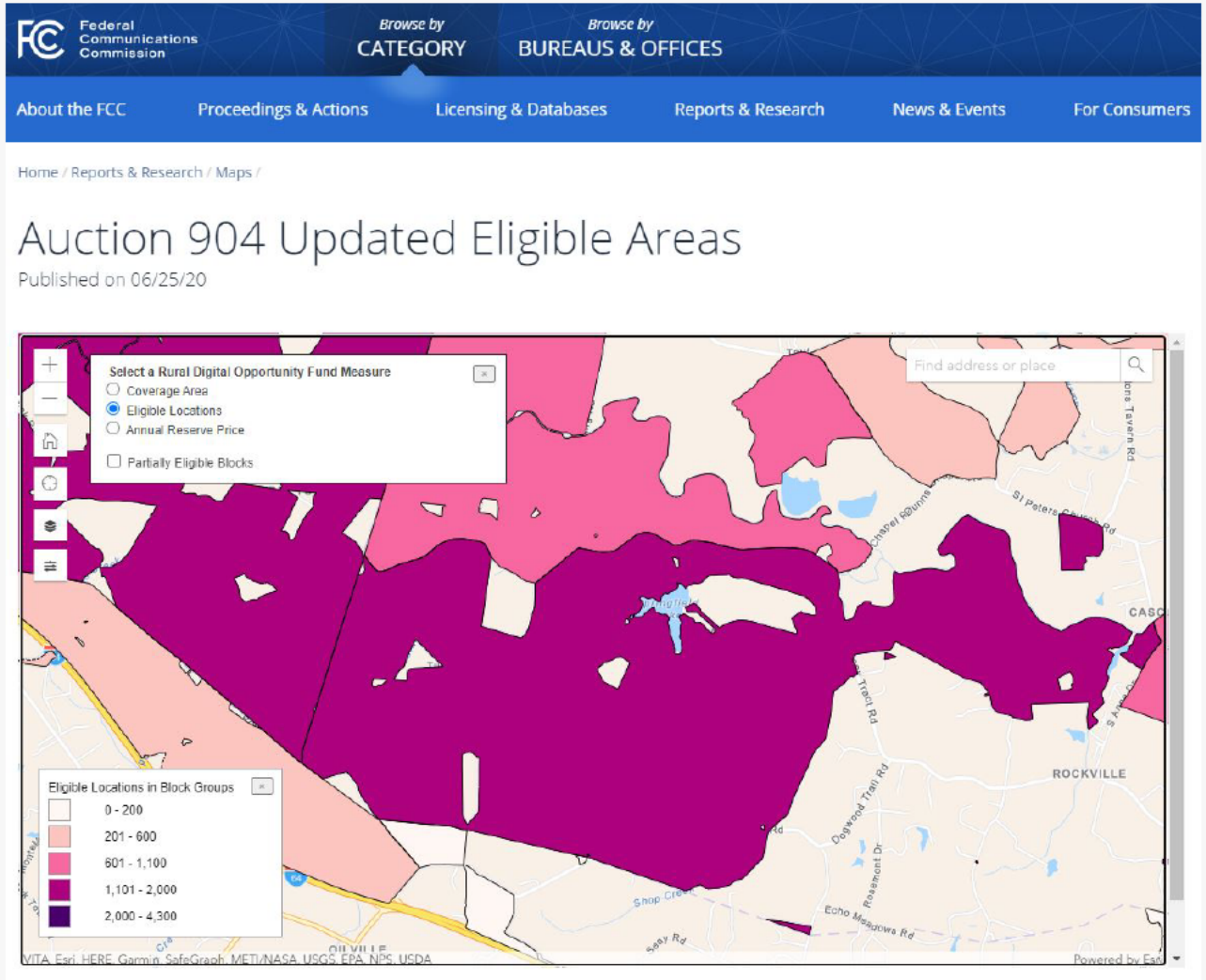


USDA ReConnect funding and eligibility areas lie outside both Zones 1 and 2, and Zones 3 and 4 of the Hanover Project area.

Source: USDA ReConnect Program Eligibility Map (http://ruraldevelopment.maps.arcgis.com/apps/webappviewer/index.html?id=51bbfce8e72549dcb5374d0aa32e1736)

xfinity

Hanover County – Rural Digital Opportunity Fund eligible areas

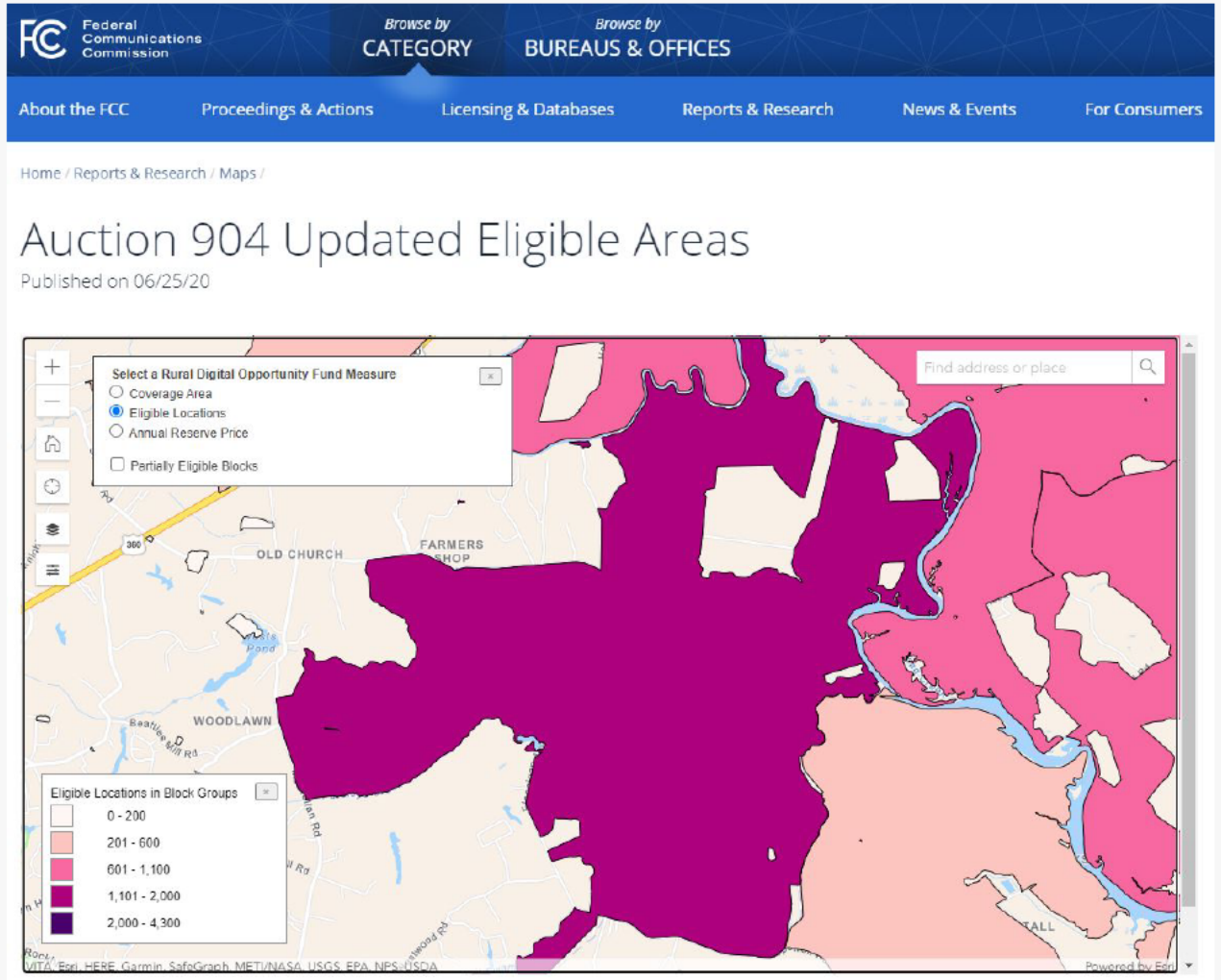


Zone 1 and Zone 2 project areas.

Source: Federal Communications Commission (https://www.fcc.gov/reports-research/maps/auction-904-updated-jun20-eligible-areas/)

xfinity

Hanover County – Rural Digital Opportunity Fund eligible areas

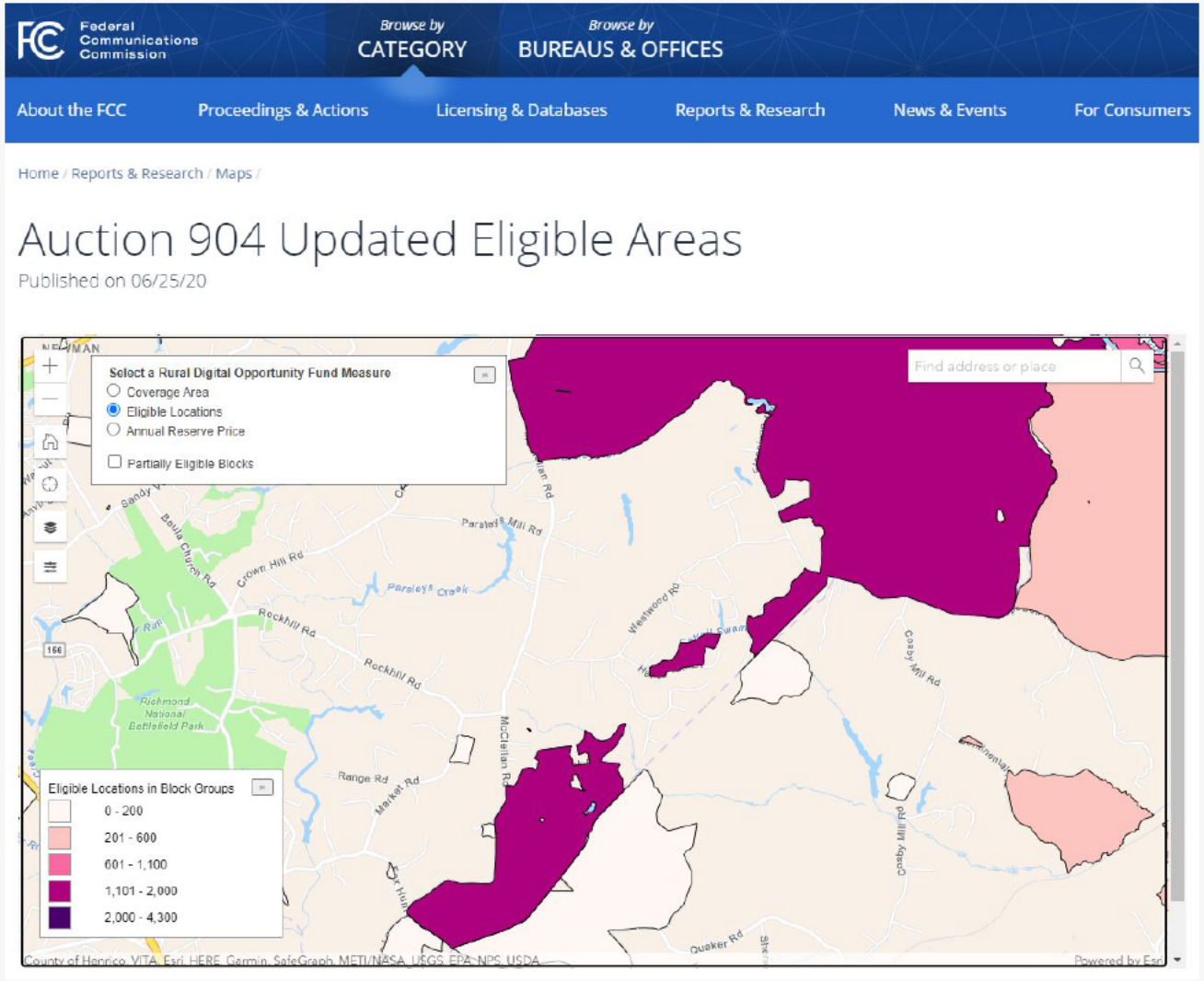


Zone 3 project area.

Source: Federal Communications Commission (https://www.fcc.gov/reports-research/maps/auction-904-updated-jun20-eligible-areas/)

xfinity

Hanover County – Rural Digital Opportunity Fund eligible areas

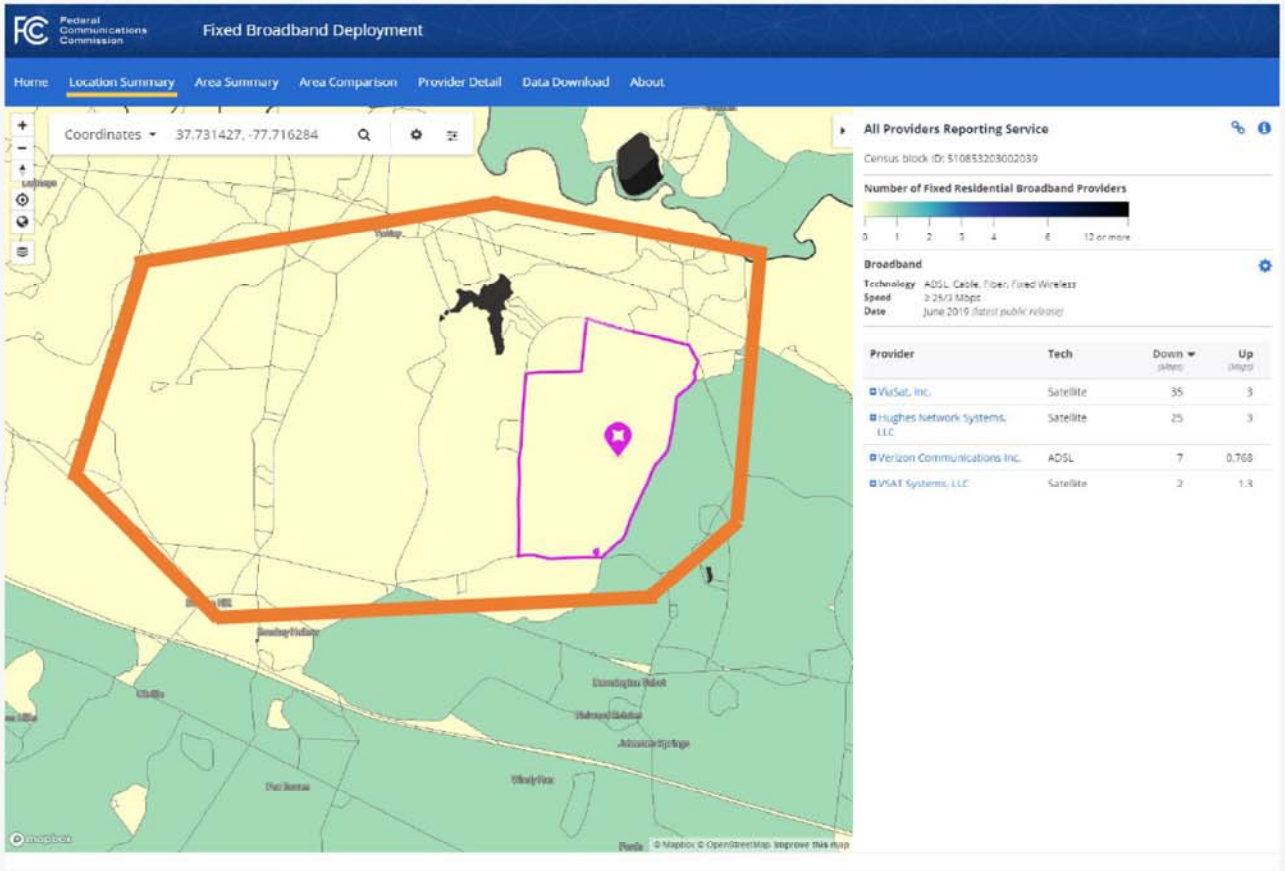


Zone 4 project area.

Source: Federal Communications Commission (https://www.fcc.gov/reports-research/maps/auction-904-updated-jun20-eligible-areas/)

xfinity

Hanover County – Unserved in Zones 1 and 2 per VATI criteria



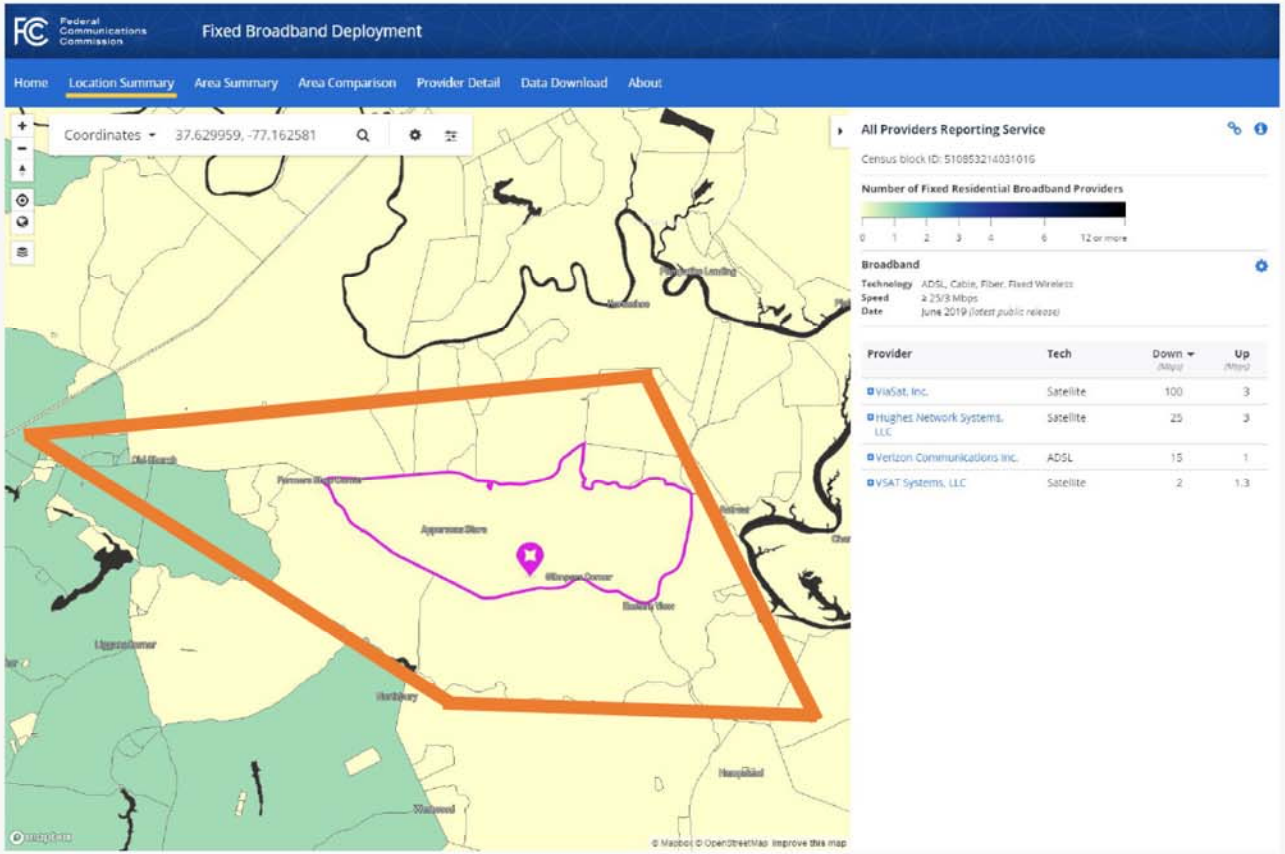
- Highest reported speed is 7 Mbps down / 0.768 Mbps up.

- Orange area generally outlines the combined project zones.

xfinity

Source: Federal Communications Commission Fixed Broadband Deployment Map (https://go.usa.gov/xfeT8)

Hanover County – Unserved in Zone 3 per VATI criteria



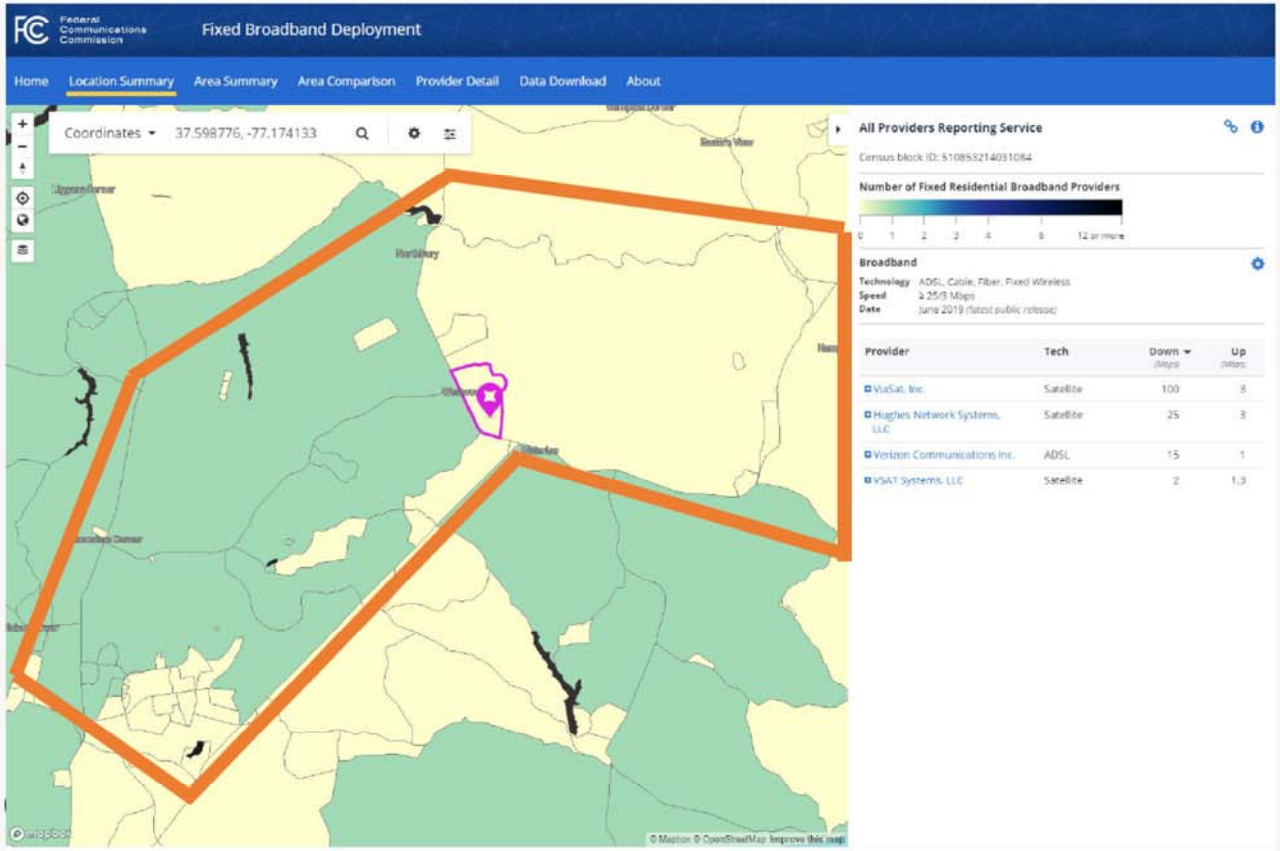
- Highest reported speed is 15 Mbps down / 1 Mbps up.

- Orange area generally outlines the project zone.

Source: Federal Communications Commission Fixed Broadband Deployment Map (https://go.usa.gov/xfegf)

xfinity

Hanover County – Unserved in Zone 4 per VATI criteria



- Highest reported speed is 15 Mbps down / 1 Mbps up.

- Orange area generally outlines the project zone.

Source: Federal Communications Commission Fixed Broadband Deployment Map (https://go.usa.gov/xfegM)

xfinity

2021 Virginia Telecommunication Initiative (VATI)
Passing Form

Overall:

Type of Passings	Total Number in Project Area	Number with Speeds at 10/1 or below in Project Area
Residential	1293	1047
Businesses (non-home based)	0	0
Businesses (home-based)	82	67
Community Anchors	4	4
Non-residential (churches)	4	3
Total Number of Passings	1301	1054

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

Speeds at 10/1 or below calculated based on County survey (81% of respondents).

Rockville Area:

Type of Passings	Total Number in Project Area	Number with Speeds at 10/1 or below in Project Area
Residential	457	370
Businesses (non-home based)	0	0
Businesses (home-based)	28	23
Community Anchors	2	2
Non-residential (churches)	1	1
Total Number of Passings	460	373

Old Church Area:

Type of Passings	Total Number in Project Area	Number with Speeds at 10/1 or below in Project Area
Residential	836	677
Businesses (non-home based)	0	0
Businesses (home-based)	54	44
Community Anchors	2	2
Non-residential (churches)	3	2
Total Number of Passings	841	681

Definitions

Passing – any structure that can receive service.

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.

COMCAST
324 West Main Street
Charlottesville, VA 22903

August 17, 2020

ATTACHMENT 5. Propagation Map if Wireless Project

Attachment 5 is not applicable to this grant application.

Proposed Timeline - Comcast / Hanover County Broadband Project																			
Task	Responsible Entity	January 2021	February	March	April	May	June	July	August	September	October	November	December	January 2022	February	March	April	May	June
Virginia Telecommunication Initiative (VATI) - project awards announced	VA DHCD																		
Finalize grant agreement(s)	Comcast, Hanover County, VA DHCD																		
Project engineering and design	Comcast, Hanover County																		
Obtain permits from VDOT for VDOT right of way	Hanover County, Comcast																		
Materials procurement	Comcast																		
Construction/installation of fiber	Comast																		
Turn-up, test and database work	Comast																		
Service availability notification to potential customers	Comcast																		
Final field inspection	Comcast, Hanover County, VA DHCD																		

MEMORANDUM OF UNDERSTANDING

The parties to this Memorandum of Understanding (MOU) are Hanover County and [Internet Service Provider]. The purpose of this MOU is to establish a commitment by the parties to participate in the development of a grant proposal in 2020 for the Virginia Telecommunications Initiative (VATI) program established by the Virginia Department of Housing and Community Development (DHCD). Hanover County and [Internet Service Provider] agree to work jointly to coordinate a complete VATI application, making decisions on roles and responsibilities where necessary to facilitate a timely and effective submission of necessary information. Although a partnership between Hanover County and [Internet Service Provider] has not yet been formalized for this proposed project, both parties are collaborating on an agreement to be executed if DHCD awards them a VATI grant. An agreement would cover the following areas.

[Internet Service Provider] commits to:

a. Draft a Project Management Plan;
b. Complete all Grant Activities described in pertinent DHCD agreements, as mutually agreed;
c. Provide regular updates to Hanover County on the status of the project;
d. Notify Hanover County if its assistance is needed;
e. Submit requests for payment (no more frequently than monthly) to Hanover County as work is completed;
f. Complete all work within the required timeframe;
g. Provide Hanover County information on the locations where broadband had been enabled; and
h. Propose any required nondisclosure agreements if [Internet Service Provider] were requested to share confidential information.

Hanover County commits to:

a. Processing requests for payment in a timely manner;
b. Review information provided by [Internet Service Provider] and submit requests for additional information in a timely manner;
c. Complete any necessary non-disclosure agreements;
d. Complete all Grant Activities described in pertinent DHCD agreements;
e. Assist [Internet Service Provider] in obtaining necessary rights of way within the scope of Hanover County's authority; and
f. Assist in contacting residents and others as appropriate to foster completion of the project within the required timeframe.

[Internet Service Provider]	HANOVER COUNTY
Name (printed):_____	Name (printed):_____
Title:_____	Title:_____
Signature:_____	Signature:_____

Date:_____ Date:_____

Comcast - Hanover County Broadband Project			
Development Funding Sources			
Source	Amount	Status	Documentation Included
Comcast	$ 1,715,807	committed	Yes
Hanover County	$ 65,350	committed	Yes
DHCD	$ 6,367,193	pending	No
	$ 8,148,350		

COMCAST
324 West Main Street
Charlottesville, VA 22903

August 17, 2020

John Budesky
Hanover County Administrator
7516 County Complex Road
Hanover, VA 23069

Dear Mr. Budesky:

The purpose of this letter is to provide documentation regarding the in-kind contributions for the projects proposed to the Virginia Telecommunication Initiative ("VATI") program.

The proposed project represents a partnership between Comcast and Hanover County. As indicated in the application, Comcast will provide approximately 21.1% of the projected construction costs of $8,148,351 totaling approximately $1,715,807. Hanover County will provide $50 per passing, or approximately $65,350, assist in providing in-kind contributions including application analysis and preparation, coordination with the Department of Housing and Community Development, assistance with right of way permitting, and participating in further concert with Comcast as the project is approved and construction begins. The value of these services will depend on the level of activity occurring as the project commences.

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

Nathan Daugherty
Sr. Manager, Government Affairs & Regulatory Affairs

VIRGINIA: At a regular meeting of the Board of Supervisors for Hanover County held in the Board Room of the Hanover County Administration Building on the 22nd day of July, 2020, at 3:00 p.m.

Present: Mr. Sean M. Davis, Vice-Chairman
Ms. Susan P. Dibble
Mr. F. Michael Herzberg, IV
Mrs. Angela Kelly-Wiecek
Mr. W. Canova Peterson
Ms. Faye O. Prichard

Absent: Mr. Aubrey M. Stanley, Chairman

A RESOLUTION APPROVING THE FILING OF A GRANT APPLICATION WITH THE VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT

WHEREAS, Virginia's Department of Housing and Community Development ("DHCD") administers the Virginia Telecommunications Initiative grant program to assist in constructing "last-mile" broadband telecommunications infrastructure in the unserved areas of the Commonwealth. The deadline for applications has been set for 17 August 2020; and

WHEREAS, the program guidelines for grant application, requires a government entity as the applicant with a qualified and experienced private sector broadband provider as the co- applicant; and

WHEREAS, Comcast Corporation has recently discussed its plans to extend parts of its system in several areas of the County. This project will bring high speed internet to portions of Hanover and could involve many miles of construction.

NOW, THEREFORE, BE IT RESOLVED, the Hanover County Board of Supervisors does hereby approve the submittal of a grant application to the Virginia Department of Housing and Community Development to assist in constructing "last-mile" broadband telecommunications infrastructure in the unserved areas of the Commonwealth and authorizes the County Administrator to take such action necessary to file the grant application with DHCD with the co-applicant, Comcast Corporation.

On motion by Mrs. Kelly-Wiecek, seconded by Ms. Prichard, the members of the Hanover County Board of Supervisors voted to adopt this Resolution, as follows:

	Vote:
Sean M. Davis	Aye
Susan P. Dibble	Aye
F. Michael Herzberg, IV	Aye
Angela Kelly-Wiecek	Aye
W. Canova Peterson	Aye
Faye O. Prichard	Aye
Aubrey M. Stanley	Absent

Date: July 24, 2020

John A. Budesky
County Administrator / Clerk
Hanover County Board of Supervisors

COMMONWEALTH OF VIRGINIA
HOUSE OF DELEGATES
RICHMOND

HYLAND F. "BUDDY" FOWLER, JR.
116 NORTH RAILROAD AVENUE
SUITE 13
ASHLAND, VIRGINIA 23005

FIFTY-FIFTH DISTRICT

COMMITTEE ASSIGNMENTS:
GENERAL LAWS
FINANCE
HEALTH, WELFARE AND INSTITUTIONS

August 7, 2020

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

Dear Dr. Holmes:

I would like to express my strong support for Hanover County's Virginia Telecommunications Initiative g rant application to increase access to broadband with Comcast by upgrading and expanding its network.

In my House district which includes western Hanover County, there is a demonstrated need for access to broadband. Residents and businesses alike have faced frustration with slow or no internet. Building broadband networks to unserved areas is often challenging due to larger distances to cover and fewer possible customers to purchase service. Internet service providers have indicated that in these areas of Hanover County population density is insufficient to make it economically feasible to build out at this time. Consequently, a Virginia Telecommunication Initiative grant would be a key factor in expediting increased broadband access.

Additional access to high speed broadband will allow businesses to compete more effectively, provide new educational opportunities for students, especially in this time of virtual learning, and offer residents more convenience and entertainment in their homes. Broadband will also attract new businesses and residents from outside the region by allowing telecommuting and other networking options suitable for today's global economy. I support the proposed infrastructure upgrade in Hanover County and request the Department of Housing and Community Development to approve the application because it will provide a great benefit to my neighbors and constituents in Hanover.

Thank you in advance for your consideration. If you have any questions or concerns, please do not hesitate to contact me personally.

Sincerely,

Hyland F. Fowler, Jr.

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COMMONWEALTH OF VIRGINIA
HOUSE OF DELEGATES
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SCOTT A. WYATT
POST OFFICE BOX 365
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NINETY-SEVENTH DISTRICT

COMMITTEE ASSIGNMENTS:
TRANSPORTATION
COUNTIES, CITIES AND TOWNS

August 5, 2020

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

Dear Dr. Holmes:

I am writing to express my strong support for Hanover County's Virginia Telecommunications Initiative grant application to increase access to broadband with Comcast by upgrading and expanding its network.

There is a demonstrated need in the 97th District, which covers eastern Hanover, for access to broadband. I have heard from residents and businesses alike who have experienced frustration with slow, or no, internet service. Building broadband networks to unserved areas is challenging due to the larger distances to cover and fewer possible customers to purchase service. Internet service providers have indicated that in these areas of Hanover County, the population density is insufficient to make it economically feasible to build out at this time. As a result, a Virginia Telecommunication Initiative grant is a key factor to providing much needed broadband.

Increased access to high speed broadband will allow businesses to compete more effectively; provide new educational opportunities for students, especially as many students will utilize virtual learning; and offer residents more convenience and entertainment in their homes. Additional broadband will also draw new businesses and residents from outside the region by allowing telecommuting and other networking options necessary in today's global economy.

I strongly support the proposed infrastructure upgrade in Hanover County and request that the Department of Housing and Community Development approve the application, as it will provide a great benefit to my neighbors and constituents in Hanover.

Thank you in advance for your consideration. Should you have any questions or concerns, please do not hesitate to contact me.

Sincerely,

Scott A. Wyatt
Member, Virginia House of Delegates

RECEIVED
AUG 10 2020
COUNTY ADMINISTRATOR'S OFFICE

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Baylor Springs Association Inc.
Baylor Spring Home Owner's Association
Babbling Brooke Lane
Mechanicsville, VA 23111

Mr. Kevin Nelson
Director of Information Technology
Hanover County, VA
P.O. Box 470
Hanover VA 23069

July 22, 2020

Mr. Nelson,

On behalf of the residents of Baylor Springs Homeowners Association, we would like to express our support for the approval and expedited completion of extending broadband Internet availability to the Old Church/Black Creek area within the Eastern corridor of Hanover County, Virginia through the Virginia Telecommunication Initiative (VATI) Grant.

Our requests in recent years for Hanover to prioritize developing the opportunity for high speed broadband Internet to this portion of the county have not been fulfilled. This is despite the fact that we reside in a digitally driven age in the year 2020 where Internet is a necessity for children and adults alike, for the purposes of education, communication, tele-work and at-home business. On top of this now exists the harsh reality many families face of having to homeschool or engage in distance learning options for their children due to the COVID-19 pandemic.

After surveying area residents, our only two Internet options at this time include satellite Internet which averages 33 mbps download speeds and cellular hotspot devices, which are averaging 5-12 mbps download speeds. Compare this with Comcast Internet that advertises their download speeds of100-300 mbps (based on the tier purchased).

Based on this information, Hanover County and its partner Comcast need to swiftly prioritize and expedite the completion of this broadband Internet expansion down Old Church Road, to Flannigan Mill Road and Hopewell/ Westwood Roads so that families are able to appropriately function during this unprecedented time.

Thank you,

Michael C. Jarvis

Michael Jarvis
HOA President
Baylor Springs Neighborhood

PO

CHRISTIAN RIDGE

Christian Ridge Homeowner's Association

Box 146 Studley, VA 23162

www.christianridge.net

August 27, 2019

Frank W. Harksen, Jr.
Deputy County Administrator
Hanover County
P.O. Box 470
Hanover, VA 23069

Dear Mr. Harksen,

The Christian Ridge Homeowners Association supports the expansion of broadband service in Hanover County generally and specifically supports Hanover's Virginia Telecommunication Initiative grant application for the Old Church Road corridor, which will bring broadband service to the Christian Ridge community.

Broadband service is important in our daily routines and expanded service in areas of Hanover currently unserved will provide residents much needed access to a variety of goods and services, provide service to home-based businesses, and support telecommuting by our residents and education of our children.

In addition, we can attest that several families have left Christian Ridge and the Old Church area due to not having reliable broadband service in our community.

If there is anything we can provide to assist in this grant, please let me know.

Sincerely,

William J. Slaughter
President

-----Original Message-----
From: Melissa Miller [mailto:melissa@hanoverchamberva.com]
Sent: Monday, August 17, 2020 11:46 AM
To: Harksen, Frank W. <fwharksen@hanovercounty.gov>
Cc: 'Kenny Janes' <kenny.janes@ubs.com>
Subject: RE: Grant Application Support

Hi Frank,

Our Chamber can comment the following on broadband expansion.

The Hanover Chamber of Commerce, VA, represents over 315 businesses and 650 individuals across our County; our membership includes every size business and industry. Our mission is to provide leadership within the Hanover County VA business community, to champion economic development while safeguarding business interests and property rights, to promote professional standards and ethics within the business community and to maintain positive relationships among businesses, educators, governments and residents.

The Hanover Chamber of Commerce, VA, supports the expansion of broadband service in Hanover County, in alignment with our mission to champion strong business within our community. Access to broadband service is important in our daily lives and essential to economic growth. The expansion of broadband to currently unserved areas of Hanover will enable home-based businesses to thrive, enhance the possibilities for telecommuting, agricultural operations and tourism, provide all County residents and students a better quality of life, and allow continued access to our members' many goods and services.

Again, thank you for contacting us on this topic.
Best,
Melissa

Melissa Miller
Executive Director
Hanover Chamber of Commerce

Office: (804) 442-2093
Direct: (804) 442-2094
melissa@hanoverchamberva.com

Events, News, Membership & more online at hanoverchamberva.com.

OFFICE OF THE COUNTY ADMINISTRATOR
Derek L. Stamey, MPA
Interim County Administrator

Todd Kilduff, P.E.
Deputy County Administrator

www.goochlandva.us

August 17, 2020

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

Re: VATI 2021 - Hanover County and Comcast Application

Dear Dr. Holmes:

Expanding broadband to unserved areas of Goochland is critically important for our citizens, businesses, and students. Goochland County has demonstrated this through our pursuit of Virginia Telecommunication Initiative (VATI) 2021 grant applications.

Recently, Goochland County was informed that our neighboring locality, Hanover County, is including plans to serve approximately fifteen homes in Goochland via their Comcast VATI project. These homes are located along a road that is primarily in Hanover, but dips into Goochland on a tiny section. Inclusion of these homes in Hanover's project ensures these homes are not passed over and prevents the need for a more expensive project to serve them in the future.

As such, Goochland County is pleased to offer our support for the inclusion of these homes in Hanover County and Comcast's VATI 2021 application.

Respectfully,

Derek L. Stamey
Interim County Administrator

c: Frank Harksen, Hanover County
Paul Drumwright, Goochland County

1800 Sandy Hook Road
P. O. Box 10, Goochland, VA 23063
(804) 556-5811 ● (804) 556-4617 Fax ● (TDD 711 (Virginia Relay))
Email: countyadmin@co.goochland.va.us | (804) 556-5800 Main Number

Comcast/Hanover

County VATI Derivation of Costs

Product	Total	VATI	Non-VATI	Source of Estimate	Date
Hanover Project					
Construction					
Broadband Construction - 112.5 miles	$8,148,351	$6,367,193	$1,781,157	Comcast survey	8/17/2020

COMCAST
324 West Main Street
Charlottesville, VA 22903

August 17, 2019

John Budesky
Hanover County Administrator
7516 County Complex Road
Hanover, VA 23069

Dear Mr. Budesky:

The purpose of this letter is to provide information supporting documentation for cost estimates for the Hanover Project proposed to the Virginia Telecommunications Initiative ("VATI") program.

Comcast's Construction and Design team managed projects that added thousands of miles to Comcast's regional hybrid fiber coaxial network in 2018-2019. Comcast's construction estimates are determined through a detailed project analysis that includes a field survey, an analysis of permitting costs (internal or external), a network impact study to determine necessary hub site preparation and possible infrastructure requirements, and a financial evaluation for overall build costs and likely return-on-investment. When contract labor is utilized, costs are accrued according to the fee schedule in the contract. This design and construction process is standard within the telecommunications industry.

The total build is estimated to be 112.5 miles of infrastructure and laterals. Estimated budget costs for construction of each of the four zones are:

Project Area	Number of Passings within 300' Buffer	Number of Passings beyond 300' Buffer	Materials Cost	Labor	Project Management	Total Project Cost
Zone 1	240	17	$388,613	$1,133,455	$97,153	$1,619,221
Zone 2	212	36	$463,080	$1,350,650	$115,770	$1,929,500
Zone 3	522	29	$595,010	$1,735,445	$148,752	$2,479,207
Zone 4	333	32	$508,902	$1,484,296	$127,225	$2,120,423
TOTAL	1,307	114	$1,955,604	$5,703,846	$488,901	$8,148,351

Examples of items that are included in the Materials category are power supplies, fiber, conduit, splice enclosures, pedestals, and taps. Examples of items in the Labor category are in-house and contract labor to trench and backfill, lay conduct and fiber, perform administration of VDOT permits, and provide crew supervision.

The precise amount to be spent on contract labor versus in house resources will be determined when the grant is approved and the work commences. The allocation of work will depend on the level of construction activity at that time. Any contracted engineering and design work outlined in this proposal will be performed by Comcast approved contractors.

Should you have any questions regarding the information listed above, please do not hesitate to contact Nathan Daugherty at nathan_daugherty@comcast.com or 434-238-0729.

Sincerely,

Tom Yates
Senior Director, Construction

COMCAST
324 West Main Street
Charlottesville, VA 22903

August 17, 2020

John Budesky
Hanover County Administrator
7516 County Complex Road
Hanover, VA 23069

Dear Mr. Budesky:

The purpose of this letter is to provide information regarding the two most recent Form 477 submissions by Comcast to the Federal Communications Commission. Public data from these submissions can be located at https://www.fcc.gov/general/broadband-deployment-data-fcc-form-477. Summaries of each are attached to this letter.

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

Sincerely,

Nathan Daugherty
Sr. Manager, Government Affairs & Regulatory Affairs

Federal Communications Commission

(RETAIN FOR YOUR RECORDS)

Form 477 Filing Summary

FRN: **0003768165** | Data as of: **Jun 30, 2019** | Operations: **Non-ILEC** | Submission Status: **Revised - Submitted** | Last Updated: **Nov 12, 2019 16:32:12**

Filer Identification

Section	Question	Response
Filer Information	Company Name	COMCAST CABLE COMMUNICATIONS, LLC
	Holding Company Name	Comcast Corporation
	SAC ID	
	499 ID	812736, 820956, 822102, 823798, 825948, 827142, 832043
Data Contact Information	Data Contact Name	Joanne Horstmann
	Data Contact Phone Number	(610) 665-2546
	Data Contact E-mail	joanne_horstmann@cable.comcast.com
Emergency Operations Contact Information	Emergency Operations Name	Edge Services Desk
	Emergency Operations Phone Number	(800) 777-9824
	Emergency Operations E-mail	CNOC_Voice_EventMgmt@cable.comcast.com
Certifying Official Contact Information	Certifying Official Name	Julie Laine
	Certifying Official Phone Number	(215) 286-2334
	Certifying Official E-mail	Julie_Laine@comcast.com

Data Submitted

Form Section	File Name	Date & Time	Number of Rows
Fixed Broadband Deployment	37.csv	Nov 12, 2019 15:35:38	143
	39.csv	Nov 12, 2019 15:35:38	5929
	41.csv	Nov 12, 2019 15:35:38	38157
	42.csv	Nov 12, 2019 15:35:38	181439
	45.csv	Nov 12, 2019 15:35:38	13259
	47.csv	Nov 12, 2019 15:35:38	63456
	48.csv	Nov 12, 2019 15:35:38	65909
	49.csv	Nov 12, 2019 15:35:38	30449
	50.csv	Nov 12, 2019 15:35:38	10673
	51.csv	Nov 12, 2019 15:35:38	61109

Form Section	File Name	Date & Time	Number of Rows
	53.csv	Nov 12, 2019 15:35:38	74753
	54.csv	Nov 12, 2019 15:35:38	15947
	01.csv	Nov 12, 2019 15:35:38	21257
	04.csv	Nov 12, 2019 15:35:38	3945
	05.csv	Nov 12, 2019 15:35:38	8489
	06.csv	Nov 12, 2019 15:35:38	139256
	55.csv	Nov 12, 2019 15:35:38	1644
	21.csv	Nov 12, 2019 15:35:38	5775
	22.csv	Nov 12, 2019 15:35:38	10370
	23.csv	Nov 12, 2019 15:35:38	2180
	24.csv	Nov 12, 2019 15:35:38	69004
	08.csv	Nov 12, 2019 15:35:38	62898
	09.csv	Nov 12, 2019 15:35:38	25438
	10.csv	Nov 12, 2019 15:35:38	13870
	11.csv	Nov 12, 2019 15:35:38	5086
	12.csv	Nov 12, 2019 15:35:38	156822
	13.csv	Nov 12, 2019 15:35:38	68019
	16.csv	Nov 12, 2019 15:35:38	49
	17.csv	Nov 12, 2019 15:35:38	175166
	18.csv	Nov 12, 2019 15:35:38	89879
	20.csv	Nov 12, 2019 15:35:38	1424
	25.csv	Nov 12, 2019 15:35:38	86475
	26.csv	Nov 12, 2019 15:35:38	98175
	27.csv	Nov 12, 2019 15:35:38	34223
	28.csv	Nov 12, 2019 15:35:38	20414
	29.csv	Nov 12, 2019 15:35:38	5391
	33.csv	Nov 12, 2019 15:35:38	17241
	34.csv	Nov 12, 2019 15:35:38	77519
	35.csv	Nov 12, 2019 15:35:38	22699
	36.csv	Nov 12, 2019 15:35:38	1698
Fixed Broadband Subscription	47.csv	Nov 12, 2019 16:29:39	17069
	04.csv	Nov 12, 2019 15:35:38	1767
	05.csv	Nov 12, 2019 15:35:38	1949

Form Section	File Name	Date & Time	Number of Rows
	06.csv	Nov 12, 2019 15:35:38	50734
	08.csv	Nov 12, 2019 15:35:38	19703
	09.csv	Nov 12, 2019 15:35:38	8111
	10.csv	Nov 12, 2019 15:35:38	3483
	11.csv	Nov 12, 2019 15:35:38	3014
	12.csv	Nov 12, 2019 15:35:38	41456
	13.csv	Nov 12, 2019 15:35:38	21124
	16.csv	Nov 12, 2019 15:35:38	12
	17.csv	Nov 12, 2019 15:35:38	43663
	18.csv	Nov 12, 2019 15:35:38	17671
	20.csv	Nov 12, 2019 15:35:38	552
	37.csv	Nov 12, 2019 15:35:38	36
	39.csv	Nov 12, 2019 15:35:38	954
	41.csv	Nov 12, 2019 15:35:38	9960
	42.csv	Nov 12, 2019 15:35:38	41323
	45.csv	Nov 12, 2019 15:35:38	2718
	49.csv	Nov 12, 2019 15:35:38	9630
	01.csv	Nov 12, 2019 15:35:38	4441
	21.csv	Nov 12, 2019 15:35:38	986
	22.csv	Nov 12, 2019 15:35:38	2289
	23.csv	Nov 12, 2019 15:35:38	461
	24.csv	Nov 12, 2019 15:35:38	21469
	26.csv	Nov 12, 2019 15:35:38	31087
	27.csv	Nov 12, 2019 15:35:38	12441
	28.csv	Nov 12, 2019 15:35:38	4084
	29.csv	Nov 12, 2019 15:35:38	1558
	33.csv	Nov 12, 2019 15:35:38	4032
	35.csv	Nov 12, 2019 15:35:38	5470
	36.csv	Nov 12, 2019 15:35:38	423
	51.csv	Nov 12, 2019 15:35:38	16237
	54.csv	Nov 12, 2019 15:35:38	2974
	55.csv	Nov 12, 2019 15:35:38	425
	48.csv	Nov 12, 2019 15:35:38	21257

Form Section	File Name	Date & Time	Number of Rows
	25.csv	Nov 12, 2019 15:35:38	22982
	34.csv	Nov 12, 2019 15:35:38	20255
	53.csv	Nov 12, 2019 15:35:38	22275
	50.csv	Nov 12, 2019 15:35:38	2469
Fixed Voice Subscription	01.csv	Nov 12, 2019 15:35:38	305
	04.csv	Nov 12, 2019 15:35:38	139
	05.csv	Nov 12, 2019 15:35:38	133
	06.csv	Nov 12, 2019 15:35:38	2928
	08.csv	Nov 12, 2019 15:35:38	1052
	09.csv	Nov 12, 2019 15:35:38	519
	10.csv	Nov 12, 2019 15:35:38	204
	11.csv	Nov 12, 2019 15:35:38	179
	12.csv	Nov 12, 2019 15:35:38	2570
	13.csv	Nov 12, 2019 15:35:38	1274
	16.csv	Nov 12, 2019 15:35:38	6
	17.csv	Nov 12, 2019 15:35:38	2510
	18.csv	Nov 12, 2019 15:35:38	1102
	20.csv	Nov 12, 2019 15:35:38	43
	37.csv	Nov 12, 2019 15:35:38	44
	39.csv	Nov 12, 2019 15:35:38	84
	41.csv	Nov 12, 2019 15:35:38	545
	42.csv	Nov 12, 2019 15:35:38	2590
	45.csv	Nov 12, 2019 15:35:38	185
	21.csv	Nov 12, 2019 15:35:38	102
	22.csv	Nov 12, 2019 15:35:38	156
	23.csv	Nov 12, 2019 15:35:38	56
	24.csv	Nov 12, 2019 15:35:38	1317
	25.csv	Nov 12, 2019 15:35:38	1319
	26.csv	Nov 12, 2019 15:35:38	2012
	27.csv	Nov 12, 2019 15:35:38	680
	28.csv	Nov 12, 2019 15:35:38	277
	29.csv	Nov 12, 2019 15:35:38	114
	33.csv	Nov 12, 2019 15:35:38	257

Form Section	File Name	Date & Time	Number of Rows
	34.csv	Nov 12, 2019 15:35:38	1338
	35.csv	Nov 12, 2019 15:35:38	331
	36.csv	Nov 12, 2019 15:35:38	72
	47.csv	Nov 12, 2019 15:35:38	1010
	49.csv	Nov 12, 2019 15:35:38	514
	50.csv	Nov 12, 2019 15:35:38	165
	51.csv	Nov 12, 2019 15:35:38	1097
	53.csv	Nov 12, 2019 15:35:38	1179
	54.csv	Nov 12, 2019 15:35:38	235
	55.csv	Nov 12, 2019 15:35:38	47
	48.csv	Nov 12, 2019 15:35:38	1249

Fixed Broadband Deployment

Census Block Counts by State, DBA Name and Technology

State	DBA Name	Technology	Blocks
Alabama	Comcast	Cable Modem – DOCSIS 3.0	5187
		Cable Modem – DOCSIS 3.1	16070
Arizona	Comcast	Cable Modem – DOCSIS 3.1	3945
Arkansas	Comcast	Cable Modem – DOCSIS 3.0	21
		Cable Modem – DOCSIS 3.1	8468
California	Comcast	Cable Modem – DOCSIS 3.0	3460
		Cable Modem – DOCSIS 3.1	135776
		Optical Carrier/Fiber to the End User	20
Colorado	Comcast	Cable Modem – DOCSIS 3.0	302
		Cable Modem – DOCSIS 3.1	62592
		Optical Carrier/Fiber to the End User	4
Connecticut	Comcast	Cable Modem – DOCSIS 3.0	4466
		Cable Modem – DOCSIS 3.1	20971
		Optical Carrier/Fiber to the End User	1
Delaware	Comcast	Cable Modem – DOCSIS 3.0	609
		Cable Modem – DOCSIS 3.1	13260
		Optical Carrier/Fiber to the End User	1
District of Columbia	Comcast	Cable Modem – DOCSIS 3.0	177

State	DBA Name	Technology	Blocks
		Cable Modem – DOCSIS 3.1	4908
		Optical Carrier/Fiber to the End User	1
Florida	Comcast	Cable Modem – DOCSIS 3.0	10068
		Cable Modem – DOCSIS 3.1	146751
		Optical Carrier/Fiber to the End User	3
Georgia	Comcast	Cable Modem – DOCSIS 3.0	10935
		Cable Modem – DOCSIS 3.1	57081
		Optical Carrier/Fiber to the End User	3
Idaho	Comcast	Cable Modem – DOCSIS 3.1	49
Illinois	Comcast	Cable Modem – DOCSIS 3.0	795
		Cable Modem – DOCSIS 3.1	174364
		Optical Carrier/Fiber to the End User	7
Indiana	Comcast	Cable Modem – DOCSIS 3.0	4699
		Cable Modem – DOCSIS 3.1	85179
		Optical Carrier/Fiber to the End User	1
Kansas	Comcast	Cable Modem – DOCSIS 3.0	4
		Cable Modem – DOCSIS 3.1	1420
Kentucky	Comcast	Cable Modem – DOCSIS 3.0	2923
		Cable Modem – DOCSIS 3.1	2852
Louisiana	Comcast	Cable Modem – DOCSIS 3.0	59
		Cable Modem – DOCSIS 3.1	10311
Maine	Comcast	Cable Modem – DOCSIS 3.0	190
		Cable Modem – DOCSIS 3.1	1990
Maryland	Comcast	Cable Modem – DOCSIS 3.0	5929
		Cable Modem – DOCSIS 3.1	63066
		Optical Carrier/Fiber to the End User	9
Massachusetts	Comcast	Cable Modem – DOCSIS 3.0	4101
		Cable Modem – DOCSIS 3.1	82356
		Optical Carrier/Fiber to the End User	18
Michigan	Comcast	Cable Modem – DOCSIS 3.0	9003
		Cable Modem – DOCSIS 3.1	89169
		Optical Carrier/Fiber to the End User	3
Minnesota	Comcast	Cable Modem – DOCSIS 3.0	31

State	DBA Name	Technology	Blocks
		Cable Modem – DOCSIS 3.1	34191
		Optical Carrier/Fiber to the End User	1
Mississippi	Comcast	Cable Modem – DOCSIS 3.0	7429
		Cable Modem – DOCSIS 3.1	12985
Missouri	Comcast	Cable Modem – DOCSIS 3.0	4
		Cable Modem – DOCSIS 3.1	5387
New Hampshire	Comcast	Cable Modem – DOCSIS 3.0	675
		Cable Modem – DOCSIS 3.1	16555
		Optical Carrier/Fiber to the End User	11
New Jersey	Comcast	Cable Modem – DOCSIS 3.0	4289
		Cable Modem – DOCSIS 3.1	73225
		Optical Carrier/Fiber to the End User	5
New Mexico	Comcast	Cable Modem – DOCSIS 3.0	2683
		Cable Modem – DOCSIS 3.1	20015
		Optical Carrier/Fiber to the End User	1
New York	Comcast	Cable Modem – DOCSIS 3.0	60
		Cable Modem – DOCSIS 3.1	1638
North Carolina	Comcast	Cable Modem – DOCSIS 3.0	7
		Cable Modem – DOCSIS 3.1	136
Ohio	Comcast	Cable Modem – DOCSIS 3.0	364
		Cable Modem – DOCSIS 3.1	5565
Oregon	Comcast	Cable Modem – DOCSIS 3.0	37
		Cable Modem – DOCSIS 3.1	38109
		Optical Carrier/Fiber to the End User	11
Pennsylvania	Comcast	Cable Modem – DOCSIS 3.0	10574
		Cable Modem – DOCSIS 3.1	170854
		Optical Carrier/Fiber to the End User	11
South Carolina	Comcast	Cable Modem – DOCSIS 3.0	3167
		Cable Modem – DOCSIS 3.1	10092
Tennessee	Comcast	Cable Modem – DOCSIS 3.0	10033
		Cable Modem – DOCSIS 3.1	53416
		Optical Carrier/Fiber to the End User	7
Texas	Comcast	Cable Modem – DOCSIS 3.0	329

State	DBA Name	Technology	Blocks
		Cable Modem – DOCSIS 3.1	65570
		Optical Carrier/Fiber to the End User	10
Utah	Comcast	Cable Modem – DOCSIS 3.0	78
		Cable Modem – DOCSIS 3.1	30370
		Optical Carrier/Fiber to the End User	1
Vermont	Comcast	Cable Modem – DOCSIS 3.0	515
		Cable Modem – DOCSIS 3.1	10158
Virginia	Comcast	Cable Modem – DOCSIS 3.0	12371
		Cable Modem – DOCSIS 3.1	48731
		Optical Carrier/Fiber to the End User	7
Washington	Comcast	Cable Modem – DOCSIS 3.0	64
		Cable Modem – DOCSIS 3.1	74682
		Optical Carrier/Fiber to the End User	7
West Virginia	Comcast	Cable Modem – DOCSIS 3.0	3759
		Cable Modem – DOCSIS 3.1	12187
		Optical Carrier/Fiber to the End User	1
Wisconsin	Comcast	Cable Modem – DOCSIS 3.1	1644
Total			**1785629**

Fixed Broadband Subscription

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

State	Technology	Census Tracts	Subscriptions		
			Consumer	Business / Govt	Total
Alabama	Cable Modem	4441	139911	16663	156574
Arizona	Cable Modem	1767	95493	3646	99139
Arkansas	Cable Modem	1949	60812	8586	69398
California	Cable Modem	50716	2804116	201672	3005788
	Optical Carrier/Fiber to the End User	18	22	0	22
Colorado	Cable Modem	19699	1172511	84414	1256925
	Optical Carrier/Fiber to the End User	4	4	0	4
Connecticut	Cable Modem	8110	472782	41839	514621
	Optical Carrier/Fiber to the End User	1	1	0	1
Delaware	Cable Modem	3482	195414	16330	211744
	Optical Carrier/Fiber to the End User	1	1	0	1

State	Technology	Census Tracts	Subscriptions		
			Consumer	Business / Govt	Total
District of Columbia	Cable Modem	3013	132294	15372	147666
	Optical Carrier/Fiber to the End User	1	1	0	1
Florida	Cable Modem	41453	2398462	237855	2636317
	Optical Carrier/Fiber to the End User	3	3	0	3
Georgia	Cable Modem	21121	1167549	113076	1280625
	Optical Carrier/Fiber to the End User	3	3	0	3
Idaho	Cable Modem	12	116	7	123
Illinois	Cable Modem	43656	2101446	170947	2272393
	Optical Carrier/Fiber to the End User	7	7	0	7
Indiana	Cable Modem	17670	786645	65274	851919
	Optical Carrier/Fiber to the End User	1	1	0	1
Kansas	Cable Modem	552	15634	1431	17065
Kentucky	Cable Modem	986	45863	4091	49954
Louisiana	Cable Modem	2289	90261	9682	99943
Maine	Cable Modem	461	33821	2167	35988
Maryland	Cable Modem	21460	935470	84721	1020191
	Optical Carrier/Fiber to the End User	9	9	0	9
Massachusetts	Cable Modem	22966	1478970	123032	1602002
	Optical Carrier/Fiber to the End User	16	18	0	18
Michigan	Cable Modem	31084	1291101	105904	1397005
	Optical Carrier/Fiber to the End User	3	3	0	3
Minnesota	Cable Modem	12440	636457	49315	685772
	Optical Carrier/Fiber to the End User	1	1	0	1
Mississippi	Cable Modem	4084	166778	18988	185766
Missouri	Cable Modem	1558	69703	4352	74055
New Hampshire	Cable Modem	4022	314982	25270	340252
	Optical Carrier/Fiber to the End User	10	11	0	11
New Jersey	Cable Modem	20250	1119470	87122	1206592
	Optical Carrier/Fiber to the End User	5	5	0	5
New Mexico	Cable Modem	5469	242855	20134	262989
	Optical Carrier/Fiber to the End User	1	1	0	1
New York	Cable Modem	423	21542	1594	23136

State	Technology	Census Tracts	Subscriptions		
			Consumer	Business / Govt	Total
North Carolina	Cable Modem	36	611	67	678
Ohio	Cable Modem	954	37285	3375	40660
Oregon	Cable Modem	9949	640736	55368	696104
	Optical Carrier/Fiber to the End User	11	11	0	11
Pennsylvania	Cable Modem	41312	1918578	169062	2087640
	Optical Carrier/Fiber to the End User	11	11	0	11
South Carolina	Cable Modem	2718	128208	12788	140996
Tennessee	Cable Modem	17062	723635	73533	797168
	Optical Carrier/Fiber to the End User	7	7	0	7
Texas	Cable Modem	21247	1020286	107691	1127977
	Optical Carrier/Fiber to the End User	10	10	0	10
Utah	Cable Modem	9629	450970	35124	486094
	Optical Carrier/Fiber to the End User	1	1	0	1
Vermont	Cable Modem	2469	124971	12143	137114
Virginia	Cable Modem	16230	763961	71151	835112
	Optical Carrier/Fiber to the End User	7	7	0	7
Washington	Cable Modem	22268	1533193	102489	1635682
	Optical Carrier/Fiber to the End User	7	7	0	7
West Virginia	Cable Modem	2973	142872	10635	153507
	Optical Carrier/Fiber to the End User	1	1	0	1
Wisconsin	Cable Modem	425	19886	1723	21609
Total		**492544**	**25495796**	**2168633**	**27664429**

Fixed Broadband Subscriptions by Bandwidths and End-user Type

Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Consumer	Business / Govt	Total
3.000	0.770	187345	6405	193750
5.000	1.000	3390	0	3390
6.000	1.000	0	1800	1800
7.000	1.000	0	4170	4170
8.000	2.000	787	0	787
10.000	2.000	731	0	731
15.000	2.000	1202481	0	1202481
16.000	2.000	1761	8090	9851

Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Consumer	Business / Govt	Total
19.000	4.000	420	0	420
20.000	1.000	174122	0	174122
22.000	5.000	0	42390	42390
25.000	2.000	679326	0	679326
25.000	4.000	1	0	1
25.000	5.000	4565	546861	551426
25.000	10.000	0	159525	159525
27.000	7.000	0	28160	28160
50.000	5.000	4368	0	4368
50.000	10.000	1824	417623	419447
60.000	5.000	3900217	0	3900217
70.000	5.000	142085	0	142085
75.000	5.000	115595	0	115595
75.000	10.000	268	0	268
75.000	15.000	3	437824	437827
100.000	5.000	432731	0	432731
100.000	10.000	23955	3152	27107
100.000	20.000	0	90381	90381
105.000	10.000	91180	0	91180
105.000	20.000	142626	0	142626
150.000	5.000	4895608	0	4895608
150.000	10.000	5132725	0	5132725
150.000	15.000	28686	0	28686
150.000	20.000	79321	284045	363366
200.000	10.000	798	0	798
205.000	20.000	7	0	7
250.000	10.000	4297182	0	4297182
250.000	20.000	1259943	0	1259943
250.000	25.000	65158	2074	67232
300.000	25.000	51611	63827	115438
400.000	10.000	1801666	0	1801666
500.000	35.000	0	7974	7974
986.500	35.000	773164	17178	790342

Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Consumer	Business / Govt	Total
1000.000	1000.000	0	47154	47154
2000.000	2000.000	146	0	146
Total		**25495796**	**2168633**	**27664429**

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	3.000	0.770	187345	6405	193750
	5.000	1.000	3390	0	3390
	6.000	1.000	0	1800	1800
	7.000	1.000	0	4170	4170
	8.000	2.000	787	0	787
	10.000	2.000	731	0	731
	15.000	2.000	1202481	0	1202481
	16.000	2.000	1761	8090	9851
	19.000	4.000	420	0	420
	20.000	1.000	174122	0	174122
	22.000	5.000	0	42390	42390
	25.000	2.000	679326	0	679326
	25.000	4.000	1	0	1
	25.000	5.000	4565	546861	551426
	25.000	10.000	0	159525	159525
	27.000	7.000	0	28160	28160
	50.000	5.000	4368	0	4368
	50.000	10.000	1824	417623	419447
	60.000	5.000	3900217	0	3900217
	70.000	5.000	142085	0	142085
	75.000	5.000	115595	0	115595
	75.000	10.000	268	0	268
	75.000	15.000	3	437824	437827
	100.000	5.000	432731	0	432731
	100.000	10.000	23955	3152	27107
	100.000	20.000	0	90381	90381
	105.000	10.000	91180	0	91180

Technology	Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Consumer	Business / Govt	Total
	105.000	20.000	142626	0	142626
	150.000	5.000	4895608	0	4895608
	150.000	10.000	5132725	0	5132725
	150.000	15.000	28686	0	28686
	150.000	20.000	79321	284045	363366
	200.000	10.000	798	0	798
	205.000	20.000	7	0	7
	250.000	10.000	4297182	0	4297182
	250.000	20.000	1259943	0	1259943
	250.000	25.000	65158	2074	67232
	300.000	25.000	51611	63827	115438
	400.000	10.000	1801666	0	1801666
	500.000	35.000	0	7974	7974
	986.500	35.000	773164	17178	790342
	1000.000	1000.000	0	47154	47154
Optical Carrier/Fiber to the End User	2000.000	2000.000	146	0	146
Total			**25495796**	**2168633**	**27664429**

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
Alabama	0	0	75854	47662
Arizona	0	0	44500	38107
Arkansas	0	0	32008	15822
California	0	0	1388429	994255
Colorado	0	0	570660	401080
Connecticut	0	0	356500	267430
Delaware	0	0	144061	112065
District of Columbia	0	0	72012	45079
Florida	0	0	1289848	832614
Georgia	0	0	602504	391479
Idaho	0	0	37	0
Illinois	0	0	1094657	737950

State	Total VGE Lines	Consumer VGE Lines	Total VoIP Subscriptions	Consumer VoIP Subscriptions
Indiana	0	0	391458	250984
Kansas	0	0	9670	6976
Kentucky	0	0	18751	12376
Louisiana	0	0	39592	26734
Maine	0	0	17004	14420
Maryland	0	0	618533	454303
Massachusetts	0	0	1128105	863879
Michigan	0	0	709816	480752
Minnesota	0	0	310656	218748
Mississippi	0	0	78901	50670
Missouri	0	0	36342	29218
New Hampshire	0	0	233431	182505
New Jersey	0	0	862743	691077
New Mexico	0	0	108904	69159
New York	0	0	19181	16051
North Carolina	0	0	933	0
Ohio	0	0	32238	24373
Oregon	0	0	320886	204351
Pennsylvania	0	0	1434518	1061453
South Carolina	0	0	57321	36979
Tennessee	0	0	355321	223876
Texas	0	0	518902	297635
Utah	0	0	199081	134166
Vermont	0	0	87515	65604
Virginia	0	0	475171	336309
Washington	0	0	764457	555760
West Virginia	0	0	81706	63360
Wisconsin	0	0	8973	5361
Total	**0**	**0**	**14591179**	**10260622**

Fixed Voice Subscription (iVoIP)

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

State	Total	Consumer	Business / Govt

State	Total	Consumer	Business / Govt
Alabama	0	0	0
Arizona	0	0	0
Arkansas	0	0	0
California	0	0	0
Colorado	0	0	0
Connecticut	0	0	0
Delaware	0	0	0
District of Columbia	0	0	0
Florida	0	0	0
Georgia	0	0	0
Idaho	0	0	0
Illinois	0	0	0
Indiana	0	0	0
Kansas	0	0	0
Kentucky	0	0	0
Louisiana	0	0	0
Maine	0	0	0
Maryland	0	0	0
Massachusetts	0	0	0
Michigan	0	0	0
Minnesota	0	0	0
Mississippi	0	0	0
Missouri	0	0	0
New Hampshire	0	0	0
New Jersey	0	0	0
New Mexico	0	0	0
New York	0	0	0
North Carolina	0	0	0
Ohio	0	0	0
Oregon	0	0	0
Pennsylvania	0	0	0
South Carolina	0	0	0
Tennessee	0	0	0

State	Total	Consumer	Business / Govt
Texas	0	0	0
Utah	0	0	0
Vermont	0	0	0
Virginia	0	0	0
Washington	0	0	0
West Virginia	0	0	0
Wisconsin	0	0	0
Total	**0**	**0**	**0**

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

		by End-user Type		by Bundle		by Last-mile Medium			
State	Total	Consumer	Business / Government	Sold w/ Internet	Sold w/o Internet	FTTP	Coax	Fixed Wireless	Copper
Alabama	75854	47662	28192	73150	2704	0	75854	0	0
Arizona	44500	38107	6393	43618	882	0	44500	0	0
Arkansas	32008	15822	16186	31154	854	0	32008	0	0
California	1388429	994255	394174	1365232	23197	0	1388429	0	0
Colorado	570660	401080	169580	555346	15314	0	570660	0	0
Connecticut	356500	267430	89070	348010	8490	0	356500	0	0
Delaware	144061	112065	31996	140422	3639	0	144061	0	0
District of Columbia	72012	45079	26933	70413	1599	0	72012	0	0
Florida	1289848	832614	457234	1248893	40955	0	1289848	0	0
Georgia	602504	391479	211025	588062	14442	0	602504	0	0
Idaho	37	0	37	0	37	0	37	0	0
Illinois	1094657	737950	356707	1066808	27849	0	1094657	0	0
Indiana	391458	250984	140474	379030	12428	0	391458	0	0
Kansas	9670	6976	2694	9435	235	0	9670	0	0
Kentucky	18751	12376	6375	18069	682	0	18751	0	0
Louisiana	39592	26734	12858	38250	1342	0	39592	0	0
Maine	17004	14420	2584	16613	391	0	17004	0	0
Maryland	618533	454303	164230	605973	12560	0	618533	0	0
Massachusetts	1128105	863879	264226	1092902	35203	0	1128105	0	0
Michigan	709816	480752	229064	686413	23403	0	709816	0	0
Minnesota	310656	218748	91908	303189	7467	0	310656	0	0

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
Mississippi	78901	50670	28231	76192	2709	0	78901	0	0
Missouri	36342	29218	7124	35534	808	0	36342	0	0
New Hampshire	233431	182505	50926	226817	6614	0	233431	0	0
New Jersey	862743	691077	171666	844920	17823	0	862743	0	0
New Mexico	108904	69159	39745	106601	2303	0	108904	0	0
New York	19181	16051	3130	18872	309	0	19181	0	0
North Carolina	933	0	933	0	933	0	933	0	0
Ohio	32238	24373	7865	31176	1062	0	32238	0	0
Oregon	320886	204351	116535	311620	9266	0	320886	0	0
Pennsylvania	1434518	1061453	373065	1393057	41461	0	1434518	0	0
South Carolina	57321	36979	20342	55619	1702	0	57321	0	0
Tennessee	355321	223876	131445	345399	9922	0	355321	0	0
Texas	518902	297635	221267	509976	8926	0	518902	0	0
Utah	199081	134166	64915	195200	3881	0	199081	0	0
Vermont	87515	65604	21911	85201	2314	0	87515	0	0
Virginia	475171	336309	138862	464831	10340	0	475171	0	0
Washington	764457	555760	208697	745276	19181	0	764457	0	0
West Virginia	81706	63360	18346	79805	1901	0	81706	0	0
Wisconsin	8973	5361	3612	8509	464	0	8973	0	0
Total	**14591179**	**10260622**	**4330557**	**14215587**	**375592**	**0**	**14591179**	**0**	**0**

Federal Communications Commission

(RETAIN FOR YOUR RECORDS)

Form 477 Filing Summary

FRN: **0003768165** | Data as of: **Dec 31, 2018** | Operations: **Non-ILEC** | Submission Status: **Original - Submitted** | Last Updated: **Mar 6, 2019 11:43:12**

Filer Identification

Section	Question	Response
Filer Information	Provider Name	COMCAST CABLE COMMUNICATIONS, LLC
	Holding Company Name	Comcast Corporation
	SAC ID	
	499 ID	812736, 820956, 822102, 823798, 825948, 827142, 832043
Data Contact Information	Data Contact Name	Joanne Horstmann
	Data Contact Phone Number	(610) 665-2546
	Data Contact E-mail	joanne_horstmann@cable.comcast.com
Emergency Operations Contact Information	Emergency Operations Name	Edge Services Desk
	Emergency Operations Phone Number	(800) 777-9824
	Emergency Operations E-mail	CNOC_Voice_EventMgmt@cable.comcast.com
Certifying Official Contact Information	Certifying Official Name	Julie Laine
	Certifying Official Phone Number	(215) 286-2334
	Certifying Official E-mail	Julie_Laine@comcast.com

Data Submitted

Form Section	File Name	Date & Time	Number of Rows
Fixed Broadband Deployment	55.csv	Mar 6, 2019 10:24:06	1644
	54.csv	Mar 6, 2019 10:23:04	15801
	53.csv	Mar 6, 2019 10:21:53	74667
	51.csv	Mar 6, 2019 10:20:41	60837
	50.csv	Mar 6, 2019 10:19:16	10630
	49.csv	Mar 6, 2019 10:17:20	30370
	48.csv	Mar 6, 2019 10:15:57	65358
	47.csv	Mar 6, 2019 10:14:18	63236
	36.csv	Mar 6, 2019 10:13:14	1698
	35.csv	Mar 6, 2019 10:13:14	22660

Form Section	File Name	Date & Time	Number of Rows
	34.csv	Mar 6, 2019 10:13:14	77336
	33.csv	Mar 6, 2019 10:13:14	17064
	29.csv	Mar 6, 2019 10:13:14	5377
	28.csv	Mar 6, 2019 10:13:13	20394
	27.csv	Mar 6, 2019 10:13:13	34274
	26.csv	Mar 6, 2019 10:13:13	97886
	25.csv	Mar 6, 2019 10:13:13	86271
	24.csv	Mar 6, 2019 10:13:13	68768
	23.csv	Mar 6, 2019 10:13:13	2159
	22.csv	Mar 6, 2019 10:13:13	10354
	21.csv	Mar 6, 2019 10:13:13	5740
	45.csv	Mar 6, 2019 10:07:30	13212
	42.csv	Mar 6, 2019 10:05:43	180886
	20.csv	Mar 6, 2019 10:04:30	1423
	18.csv	Mar 6, 2019 10:04:29	89717
	17.csv	Mar 6, 2019 10:04:29	174924
	16.csv	Mar 6, 2019 10:04:29	47
	13.csv	Mar 6, 2019 10:04:29	67676
	12.csv	Mar 6, 2019 10:04:29	156513
	11.csv	Mar 6, 2019 10:04:29	5073
	10.csv	Mar 6, 2019 10:02:31	13840
	09.csv	Mar 6, 2019 10:02:31	25089
	08.csv	Mar 6, 2019 10:02:31	62692
	06.csv	Mar 6, 2019 10:02:31	138878
	05.csv	Mar 6, 2019 10:02:31	8454
	04.csv	Mar 6, 2019 10:02:31	3940
	01.csv	Mar 6, 2019 10:02:31	21183
	41.csv	Mar 6, 2019 10:01:33	38072
	39.csv	Mar 6, 2019 10:00:45	5871
	37.csv	Mar 6, 2019 09:59:48	144
Fixed Broadband Subscription	53.csv	Feb 27, 2019 15:17:24	21083
	48.csv	Feb 27, 2019 15:17:24	20216
	55.csv	Feb 27, 2019 15:09:11	400

Form Section	File Name	Date & Time	Number of Rows
	54.csv	Feb 27, 2019 15:09:11	2893
	51.csv	Feb 27, 2019 15:09:11	15993
	50.csv	Feb 27, 2019 15:09:11	2451
	49.csv	Feb 27, 2019 15:09:10	9308
	47.csv	Feb 27, 2019 15:09:10	16888
	45.csv	Feb 27, 2019 15:06:12	2691
	42.csv	Feb 27, 2019 15:06:12	41012
	41.csv	Feb 27, 2019 15:06:12	9478
	25.csv	Feb 27, 2019 15:05:24	22956
	39.csv	Feb 27, 2019 15:04:45	944
	37.csv	Feb 27, 2019 15:02:15	35
	18.csv	Feb 27, 2019 14:56:48	17567
	17.csv	Feb 27, 2019 14:56:48	42931
	16.csv	Feb 27, 2019 14:56:48	10
	13.csv	Feb 27, 2019 14:56:48	20865
	12.csv	Feb 27, 2019 14:56:48	40656
	11.csv	Feb 27, 2019 14:56:48	3020
	36.csv	Feb 27, 2019 14:52:24	421
	35.csv	Feb 27, 2019 14:52:24	5186
	34.csv	Feb 27, 2019 14:52:24	20079
	33.csv	Feb 27, 2019 14:52:24	3985
	29.csv	Feb 27, 2019 14:52:24	1464
	28.csv	Feb 27, 2019 14:52:24	4051
	27.csv	Feb 27, 2019 14:52:23	11901
	10.csv	Feb 27, 2019 14:50:04	3458
	09.csv	Feb 27, 2019 14:50:03	8020
	08.csv	Feb 27, 2019 14:50:03	18759
	06.csv	Feb 27, 2019 14:50:03	48079
	05.csv	Feb 27, 2019 14:50:03	1896
	04.csv	Feb 27, 2019 14:50:03	1657
	01.csv	Feb 27, 2019 14:50:03	4314
	26.csv	Feb 27, 2019 14:46:25	30211
	24.csv	Feb 27, 2019 14:46:24	21378

Form Section	File Name	Date & Time	Number of Rows
	23.csv	Feb 27, 2019 14:46:24	436
	22.csv	Feb 27, 2019 14:46:24	2195
	21.csv	Feb 27, 2019 14:46:24	947
	20.csv	Feb 27, 2019 14:46:24	537
Fixed Voice Subscription	48.csv	Feb 27, 2019 14:31:10	1190
	37.csv	Feb 27, 2019 14:31:10	36
	55.csv	Feb 27, 2019 14:21:01	44
	54.csv	Feb 27, 2019 14:21:01	227
	53.csv	Feb 27, 2019 14:21:01	1164
	51.csv	Feb 27, 2019 14:21:01	1069
	50.csv	Feb 27, 2019 14:21:01	162
	49.csv	Feb 27, 2019 14:21:01	508
	47.csv	Feb 27, 2019 14:21:01	993
	45.csv	Feb 27, 2019 14:21:01	180
	42.csv	Feb 27, 2019 14:21:01	2559
	41.csv	Feb 27, 2019 14:21:01	541
	39.csv	Feb 27, 2019 14:21:00	81
	36.csv	Feb 27, 2019 14:21:00	65
	35.csv	Feb 27, 2019 14:21:00	329
	34.csv	Feb 27, 2019 14:21:00	1303
	33.csv	Feb 27, 2019 14:21:00	249
	29.csv	Feb 27, 2019 14:21:00	109
	28.csv	Feb 27, 2019 14:21:00	277
	27.csv	Feb 27, 2019 14:21:00	667
	26.csv	Feb 27, 2019 14:21:00	1991
	25.csv	Feb 27, 2019 14:21:00	1315
	24.csv	Feb 27, 2019 14:13:03	1316
	23.csv	Feb 27, 2019 14:13:03	54
	22.csv	Feb 27, 2019 14:13:03	154
	21.csv	Feb 27, 2019 14:13:03	94
	20.csv	Feb 27, 2019 14:13:03	38
	18.csv	Feb 27, 2019 14:13:03	1090
	17.csv	Feb 27, 2019 14:13:03	2502

Form Section	File Name	Date & Time	Number of Rows
	16.csv	Feb 27, 2019 14:13:03	3
	13.csv	Feb 27, 2019 14:13:03	1240
	12.csv	Feb 27, 2019 14:13:03	2541
	11.csv	Feb 27, 2019 14:13:03	179
	10.csv	Feb 27, 2019 14:08:19	202
	09.csv	Feb 27, 2019 14:08:19	504
	08.csv	Feb 27, 2019 14:08:19	1044
	06.csv	Feb 27, 2019 14:08:19	2865
	05.csv	Feb 27, 2019 14:08:19	133
	04.csv	Feb 27, 2019 14:08:19	132
	01.csv	Feb 27, 2019 14:08:19	305

Fixed Broadband Deployment

Census Block Counts by State, DBA Name and Technology

State	DBA Name	Technology	Blocks
Alabama	Comcast	Cable Modem – DOCSIS 3.0	5146
		Cable Modem – DOCSIS 3.1	16037
Arizona	Comcast	Cable Modem – DOCSIS 3.1	3940
Arkansas	Comcast	Cable Modem – DOCSIS 3.0	17
		Cable Modem – DOCSIS 3.1	8437
California	Comcast	Cable Modem – DOCSIS 3.0	804
		Cable Modem – DOCSIS 3.1	138051
		Optical Carrier/Fiber to the End User	23
Colorado	Comcast	Cable Modem – DOCSIS 3.0	282
		Cable Modem – DOCSIS 3.1	62406
		Optical Carrier/Fiber to the End User	4
Connecticut	Comcast	Cable Modem – DOCSIS 3.0	4426
		Cable Modem – DOCSIS 3.1	20662
		Optical Carrier/Fiber to the End User	1
Delaware	Comcast	Cable Modem – DOCSIS 3.0	599
		Cable Modem – DOCSIS 3.1	13240
		Optical Carrier/Fiber to the End User	1
District of Columbia	Comcast	Cable Modem – DOCSIS 3.0	170

State	DBA Name	Technology	Blocks
		Cable Modem – DOCSIS 3.1	4902
		Optical Carrier/Fiber to the End User	1
Florida	Comcast	Cable Modem – DOCSIS 3.0	10119
		Cable Modem – DOCSIS 3.1	146390
		Optical Carrier/Fiber to the End User	4
Georgia	Comcast	Cable Modem – DOCSIS 3.0	10945
		Cable Modem – DOCSIS 3.1	56728
		Optical Carrier/Fiber to the End User	3
Idaho	Comcast	Cable Modem – DOCSIS 3.1	47
Illinois	Comcast	Cable Modem – DOCSIS 3.0	743
		Cable Modem – DOCSIS 3.1	174173
		Optical Carrier/Fiber to the End User	8
Indiana	Comcast	Cable Modem – DOCSIS 3.0	3912
		Cable Modem – DOCSIS 3.1	85804
		Optical Carrier/Fiber to the End User	1
Kansas	Comcast	Cable Modem – DOCSIS 3.0	3
		Cable Modem – DOCSIS 3.1	1420
Kentucky	Comcast	Cable Modem – DOCSIS 3.0	5180
		Cable Modem – DOCSIS 3.1	560
Louisiana	Comcast	Cable Modem – DOCSIS 3.0	58
		Cable Modem – DOCSIS 3.1	10296
Maine	Comcast	Cable Modem – DOCSIS 3.0	186
		Cable Modem – DOCSIS 3.1	1973
Maryland	Comcast	Cable Modem – DOCSIS 3.0	5771
		Cable Modem – DOCSIS 3.1	62991
		Optical Carrier/Fiber to the End User	6
Massachusetts	Comcast	Cable Modem – DOCSIS 3.0	3971
		Cable Modem – DOCSIS 3.1	82284
		Optical Carrier/Fiber to the End User	16
Michigan	Comcast	Cable Modem – DOCSIS 3.0	9485
		Cable Modem – DOCSIS 3.1	88399
		Optical Carrier/Fiber to the End User	2
Minnesota	Comcast	Cable Modem – DOCSIS 3.0	28

State	DBA Name	Technology	Blocks
		Cable Modem – DOCSIS 3.1	34244
		Optical Carrier/Fiber to the End User	2
Mississippi	Comcast	Cable Modem – DOCSIS 3.0	7447
		Cable Modem – DOCSIS 3.1	12947
Missouri	Comcast	Cable Modem – DOCSIS 3.0	1
		Cable Modem – DOCSIS 3.1	5376
New Hampshire	Comcast	Cable Modem – DOCSIS 3.0	653
		Cable Modem – DOCSIS 3.1	16402
		Optical Carrier/Fiber to the End User	9
New Jersey	Comcast	Cable Modem – DOCSIS 3.0	4213
		Cable Modem – DOCSIS 3.1	73118
		Optical Carrier/Fiber to the End User	5
New Mexico	Comcast	Cable Modem – DOCSIS 3.0	2669
		Cable Modem – DOCSIS 3.1	19990
		Optical Carrier/Fiber to the End User	1
New York	Comcast	Cable Modem – DOCSIS 3.0	59
		Cable Modem – DOCSIS 3.1	1639
North Carolina	Comcast	Cable Modem – DOCSIS 3.0	9
		Cable Modem – DOCSIS 3.1	135
Ohio	Comcast	Cable Modem – DOCSIS 3.0	349
		Cable Modem – DOCSIS 3.1	5522
Oregon	Comcast	Cable Modem – DOCSIS 3.0	42
		Cable Modem – DOCSIS 3.1	38021
		Optical Carrier/Fiber to the End User	9
Pennsylvania	Comcast	Cable Modem – DOCSIS 3.0	9989
		Cable Modem – DOCSIS 3.1	170885
		Optical Carrier/Fiber to the End User	12
South Carolina	Comcast	Cable Modem – DOCSIS 3.0	3174
		Cable Modem – DOCSIS 3.1	10038
Tennessee	Comcast	Cable Modem – DOCSIS 3.0	10094
		Cable Modem – DOCSIS 3.1	53135
		Optical Carrier/Fiber to the End User	7
Texas	Comcast	Cable Modem – DOCSIS 3.0	311

State	DBA Name	Technology	Blocks
		Cable Modem – DOCSIS 3.1	65036
		Optical Carrier/Fiber to the End User	11
Utah	Comcast	Cable Modem – DOCSIS 3.0	78
		Cable Modem – DOCSIS 3.1	30291
		Optical Carrier/Fiber to the End User	1
Vermont	Comcast	Cable Modem – DOCSIS 3.0	504
		Cable Modem – DOCSIS 3.1	10126
Virginia	Comcast	Cable Modem – DOCSIS 3.0	12438
		Cable Modem – DOCSIS 3.1	48395
		Optical Carrier/Fiber to the End User	4
Washington	Comcast	Cable Modem – DOCSIS 3.0	63
		Cable Modem – DOCSIS 3.1	74596
		Optical Carrier/Fiber to the End User	8
West Virginia	Comcast	Cable Modem – DOCSIS 3.0	3797
		Cable Modem – DOCSIS 3.1	12003
		Optical Carrier/Fiber to the End User	1
Wisconsin	Comcast	Cable Modem – DOCSIS 3.1	1644
Total			**1780158**

Fixed Broadband Subscription

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

State	Technology	Census Tracts	Subscriptions		
			Consumer	Business / Govt	Total
Alabama	Cable Modem	4314	138114	16408	154522
Arizona	Cable Modem	1657	93468	3536	97004
Arkansas	Cable Modem	1896	58726	8285	67011
California	Cable Modem	48058	2746541	197417	2943958
	Optical Carrier/Fiber to the End User	21	25	0	25
Colorado	Cable Modem	18755	1144523	82087	1226610
	Optical Carrier/Fiber to the End User	4	4	0	4
Connecticut	Cable Modem	8019	458982	41003	499985
	Optical Carrier/Fiber to the End User	1	1	0	1
Delaware	Cable Modem	3457	190265	16048	206313
	Optical Carrier/Fiber to the End User	1	1	0	1

State	Technology	Census Tracts	Subscriptions		
			Consumer	Business / Govt	Total
District of Columbia	Cable Modem	3019	132236	14999	147235
	Optical Carrier/Fiber to the End User	1	1	0	1
Florida	Cable Modem	40652	2390180	230652	2620832
	Optical Carrier/Fiber to the End User	4	4	0	4
Georgia	Cable Modem	20862	1153484	110101	1263585
	Optical Carrier/Fiber to the End User	3	3	0	3
Idaho	Cable Modem	10	106	6	112
Illinois	Cable Modem	42923	2066959	166984	2233943
	Optical Carrier/Fiber to the End User	8	8	0	8
Indiana	Cable Modem	17566	770802	63498	834300
	Optical Carrier/Fiber to the End User	1	1	0	1
Kansas	Cable Modem	537	15347	1406	16753
Kentucky	Cable Modem	947	44970	3947	48917
Louisiana	Cable Modem	2195	86901	9466	96367
Maine	Cable Modem	436	32938	2130	35068
Maryland	Cable Modem	21372	918093	82782	1000875
	Optical Carrier/Fiber to the End User	6	6	0	6
Massachusetts	Cable Modem	22942	1460260	121246	1581506
	Optical Carrier/Fiber to the End User	14	16	0	16
Michigan	Cable Modem	30209	1259656	103579	1363235
	Optical Carrier/Fiber to the End User	2	2	0	2
Minnesota	Cable Modem	11899	625487	48546	674033
	Optical Carrier/Fiber to the End User	2	2	0	2
Mississippi	Cable Modem	4051	162307	18765	181072
Missouri	Cable Modem	1464	67900	4217	72117
New Hampshire	Cable Modem	3977	309360	24754	334114
	Optical Carrier/Fiber to the End User	8	9	0	9
New Jersey	Cable Modem	20074	1093491	86031	1179522
	Optical Carrier/Fiber to the End User	5	5	0	5
New Mexico	Cable Modem	5185	233112	19277	252389
	Optical Carrier/Fiber to the End User	1	1	0	1
New York	Cable Modem	421	21243	1570	22813

State	Technology	Census Tracts	Subscriptions		
			Consumer	Business / Govt	Total
North Carolina	Cable Modem	35	556	66	622
Ohio	Cable Modem	944	36327	3270	39597
Oregon	Cable Modem	9469	630789	54424	685213
	Optical Carrier/Fiber to the End User	9	9	0	9
Pennsylvania	Cable Modem	41000	1885330	165682	2051012
	Optical Carrier/Fiber to the End User	12	12	0	12
South Carolina	Cable Modem	2691	125678	12367	138045
Tennessee	Cable Modem	16881	708301	72129	780430
	Optical Carrier/Fiber to the End User	7	7	0	7
Texas	Cable Modem	20205	981666	104864	1086530
	Optical Carrier/Fiber to the End User	11	11	0	11
Utah	Cable Modem	9307	436762	34456	471218
	Optical Carrier/Fiber to the End User	1	1	0	1
Vermont	Cable Modem	2451	122143	11936	134079
Virginia	Cable Modem	15989	756338	69285	825623
	Optical Carrier/Fiber to the End User	4	4	0	4
Washington	Cable Modem	21075	1501401	99943	1601344
	Optical Carrier/Fiber to the End User	8	8	0	8
West Virginia	Cable Modem	2892	139666	10325	149991
	Optical Carrier/Fiber to the End User	1	1	0	1
Wisconsin	Cable Modem	400	19322	1691	21013
Total		**480371**	**25019872**	**2119178**	**27139050**

Fixed Broadband Subscriptions by Bandwidths and End-user Type

Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Consumer	Business / Govt	Total
3.000	0.770	226867	7426	234293
5.000	1.000	3813	0	3813
6.000	1.000	0	2350	2350
7.000	1.000	0	4711	4711
8.000	2.000	1855	0	1855
10.000	2.000	611	0	611
15.000	2.000	1088418	0	1088418
16.000	2.000	2770	9788	12558

Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Consumer	Business / Govt	Total
19.000	4.000	518	0	518
20.000	1.000	135043	0	135043
22.000	5.000	0	42895	42895
25.000	2.000	621920	0	621920
25.000	4.000	65	0	65
25.000	5.000	4960	541468	546428
25.000	10.000	0	187524	187524
27.000	7.000	0	33294	33294
50.000	5.000	3842	0	3842
50.000	10.000	1734	493055	494789
55.000	5.000	16	0	16
60.000	5.000	3712149	0	3712149
70.000	5.000	165642	0	165642
75.000	5.000	133153	0	133153
75.000	10.000	404	0	404
75.000	15.000	6	342257	342263
100.000	5.000	185305	0	185305
100.000	10.000	280320	3501	283821
100.000	20.000	0	104812	104812
105.000	10.000	113048	0	113048
105.000	20.000	188808	0	188808
150.000	5.000	5104672	0	5104672
150.000	10.000	5091950	0	5091950
150.000	15.000	27297	0	27297
150.000	20.000	100328	239069	339397
200.000	10.000	882	0	882
205.000	20.000	10	0	10
250.000	10.000	4561845	0	4561845
250.000	20.000	1131801	0	1131801
250.000	25.000	80771	1465	82236
300.000	25.000	66419	46890	113309
400.000	10.000	1507553	0	1507553
500.000	35.000	0	5360	5360

Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Consumer	Business / Govt	Total
986.500	35.000	474935	10361	485296
1000.000	1000.000	0	42952	42952
2000.000	2000.000	142	0	142
Total		**25019872**	**2119178**	**27139050**

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	3.000	0.770	226867	7426	234293
	5.000	1.000	3813	0	3813
	6.000	1.000	0	2350	2350
	7.000	1.000	0	4711	4711
	8.000	2.000	1855	0	1855
	10.000	2.000	611	0	611
	15.000	2.000	1088418	0	1088418
	16.000	2.000	2770	9788	12558
	19.000	4.000	518	0	518
	20.000	1.000	135043	0	135043
	22.000	5.000	0	42895	42895
	25.000	2.000	621920	0	621920
	25.000	4.000	65	0	65
	25.000	5.000	4960	541468	546428
	25.000	10.000	0	187524	187524
	27.000	7.000	0	33294	33294
	50.000	5.000	3842	0	3842
	50.000	10.000	1734	493055	494789
	55.000	5.000	16	0	16
	60.000	5.000	3712149	0	3712149
	70.000	5.000	165642	0	165642
	75.000	5.000	133153	0	133153
	75.000	10.000	404	0	404
	75.000	15.000	6	342257	342263
	100.000	5.000	185305	0	185305
	100.000	10.000	280320	3501	283821

Technology	Downstream Bandwidth (in Mbps)	Upstream Bandwidth (in Mbps)	Consumer	Business / Govt	Total
	100.000	20.000	0	104812	104812
	105.000	10.000	113048	0	113048
	105.000	20.000	188808	0	188808
	150.000	5.000	5104672	0	5104672
	150.000	10.000	5091950	0	5091950
	150.000	15.000	27297	0	27297
	150.000	20.000	100328	239069	339397
	200.000	10.000	882	0	882
	205.000	20.000	10	0	10
	250.000	10.000	4561845	0	4561845
	250.000	20.000	1131801	0	1131801
	250.000	25.000	80771	1465	82236
	300.000	25.000	66419	46890	113309
	400.000	10.000	1507553	0	1507553
	500.000	35.000	0	5360	5360
	986.500	35.000	474935	10361	485296
	1000.000	1000.000	0	42952	42952
Optical Carrier/Fiber to the End User	2000.000	2000.000	142	0	142
Total			**25019872**	**2119178**	**27139050**

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
Alabama	0	0	77738	49623
Arizona	0	0	45193	38661
Arkansas	0	0	32366	16635
California	0	0	1391487	998375
Colorado	0	0	573134	405529
Connecticut	0	0	358604	270004
Delaware	0	0	143484	112218
District of Columbia	0	0	73345	46970
Florida	0	0	1311660	860109
Georgia	0	0	613527	405090

State	Total VGE Lines	Consumer VGE Lines	Total VoIP Subscriptions	Consumer VoIP Subscriptions
Idaho	0	0	23	0
Illinois	0	0	1115178	764425
Indiana	0	0	397083	258069
Kansas	0	0	9771	7070
Kentucky	0	0	18866	12653
Louisiana	0	0	39989	27293
Maine	0	0	17031	14522
Maryland	0	0	623518	461779
Massachusetts	0	0	1141075	877862
Michigan	0	0	720546	493601
Minnesota	0	0	314434	224134
Mississippi	0	0	80744	52348
Missouri	0	0	36065	28956
New Hampshire	0	0	235711	185082
New Jersey	0	0	871338	699182
New Mexico	0	0	108245	69086
New York	0	0	19275	16210
North Carolina	0	0	901	0
Ohio	0	0	32142	24401
Oregon	0	0	326726	209211
Pennsylvania	0	0	1440673	1070417
South Carolina	0	0	57876	37988
Tennessee	0	0	358822	228430
Texas	0	0	519376	298825
Utah	0	0	199088	133825
Vermont	0	0	87758	66085
Virginia	0	0	475696	339654
Washington	0	0	771290	565072
West Virginia	0	0	81289	63207
Wisconsin	0	0	8946	5398
Total	**0**	**0**	**14730013**	**10437999**

Fixed Voice Subscription (iVoIP)

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

State	Total	Consumer	Business / Govt
Alabama	0	0	0
Arizona	0	0	0
Arkansas	0	0	0
California	0	0	0
Colorado	0	0	0
Connecticut	0	0	0
Delaware	0	0	0
District of Columbia	0	0	0
Florida	0	0	0
Georgia	0	0	0
Idaho	0	0	0
Illinois	0	0	0
Indiana	0	0	0
Kansas	0	0	0
Kentucky	0	0	0
Louisiana	0	0	0
Maine	0	0	0
Maryland	0	0	0
Massachusetts	0	0	0
Michigan	0	0	0
Minnesota	0	0	0
Mississippi	0	0	0
Missouri	0	0	0
New Hampshire	0	0	0
New Jersey	0	0	0
New Mexico	0	0	0
New York	0	0	0
North Carolina	0	0	0
Ohio	0	0	0
Oregon	0	0	0
Pennsylvania	0	0	0
South Carolina	0	0	0

State	Total	Consumer	Business / Govt
Tennessee	0	0	0
Texas	0	0	0
Utah	0	0	0
Vermont	0	0	0
Virginia	0	0	0
Washington	0	0	0
West Virginia	0	0	0
Wisconsin	0	0	0
Total	**0**	**0**	**0**

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
Alabama	77738	49623	28115	74640	3098	0	77738	0	0
Arizona	45193	38661	6532	44335	858	0	45193	0	0
Arkansas	32366	16635	15731	31445	921	0	32366	0	0
California	1391487	998375	393112	1368046	23441	0	1391487	0	0
Colorado	573134	405529	167605	557369	15765	0	573134	0	0
Connecticut	358604	270004	88600	349456	9148	0	358604	0	0
Delaware	143484	112218	31266	139670	3814	0	143484	0	0
District of Columbia	73345	46970	26375	71709	1636	0	73345	0	0
Florida	1311660	860109	451551	1268443	43217	0	1311660	0	0
Georgia	613527	405090	208437	598330	15197	0	613527	0	0
Idaho	23	0	23	0	23	0	23	0	0
Illinois	1115178	764425	350753	1086282	28896	0	1115178	0	0
Indiana	397083	258069	139014	383993	13090	0	397083	0	0
Kansas	9771	7070	2701	9527	244	0	9771	0	0
Kentucky	18866	12653	6213	18130	736	0	18866	0	0
Louisiana	39989	27293	12696	38526	1463	0	39989	0	0
Maine	17031	14522	2509	16596	435	0	17031	0	0
Maryland	623518	461779	161739	610507	13011	0	623518	0	0
Massachusetts	1141075	877862	263213	1103637	37438	0	1141075	0	0
Michigan	720546	493601	226945	695291	25255	0	720546	0	0

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
Minnesota	314434	224134	90300	307055	7379	0	314434	0	0
Mississippi	80744	52348	28396	77671	3073	0	80744	0	0
Missouri	36065	28956	7109	35235	830	0	36065	0	0
New Hampshire	235711	185082	50629	227442	8269	0	235711	0	0
New Jersey	871338	699182	172156	851861	19477	0	871338	0	0
New Mexico	108245	69086	39159	105897	2348	0	108245	0	0
New York	19275	16210	3065	18944	331	0	19275	0	0
North Carolina	901	0	901	0	901	0	901	0	0
Ohio	32142	24401	7741	31021	1121	0	32142	0	0
Oregon	326726	209211	117515	317287	9439	0	326726	0	0
Pennsylvania	1440673	1070417	370256	1396659	44014	0	1440673	0	0
South Carolina	57876	37988	19888	55982	1894	0	57876	0	0
Tennessee	358822	228430	130392	347692	11130	0	358822	0	0
Texas	519376	298825	220551	510264	9112	0	519376	0	0
Utah	199088	133825	65263	195140	3948	0	199088	0	0
Vermont	87758	66085	21673	85259	2499	0	87758	0	0
Virginia	475696	339654	136042	464974	10722	0	475696	0	0
Washington	771290	565072	206218	751703	19587	0	771290	0	0
West Virginia	81289	63207	18082	79199	2090	0	81289	0	0
Wisconsin	8946	5398	3548	8470	476	0	8946	0	0
Total	**14730013**	**10437999**	**4292014**	**14333687**	**396326**	**0**	**14730013**	**0**	**0**

County of Hanover

Public Broadband Expansion Plan Report

Initiative Overview

Hanover County comprises 471 square miles with 70% of the land area considered rural. Despite coverage maps indicating that virtually all of Hanover County has access to broadband (high speed) internet, a large portion of the County does not have adequate internet service coverage. Citizens and businesses located in the rural area have expressed significant frustration over their inability to acquire quality internet service. This lack of service affects their quality of life, their children's success at school, and their sense that Hanover County is a good place for them to continue to work and live.

Plan Purpose

This public broadband expansion plan is intended to provide a framework for implementation of adequate internet across the County focusing on those areas that have less than 25 Mbps download and 3 Mbps upload. In the absence of accurate mapping defining these areas, the County has identified five geographic areas where citizens and businesses have expressed frustration with their internet bandwidth. The County has developed a survey tool where citizens can document their internet bandwidth, so that an accurate inventory of existing conditions can be compiled. The County is pursuing all means necessary to expand broadband internet across the County, including partnerships with private internet service providers and pursuing grants.

Hanover County Digital Equity

Hanover County Schools have deployed devices to all teachers in support of on-line education. In addition, Schools are in the process of purchasing and deploying devices to students in third grade through high school. They will also deploy MiFi devices to those students with the biggest need. This has heightened the need for broadband internet access across the County.

Hanover County is a member of the Pamunkey Regional Library system. The Library has a full digital literacy program that includes providing public wireless, mobile hotspots, and other mobile services (printing, etc.). Six library branches are located in the County each with adequate internet service (40 Mbps – 100 Mbps). The Library has distributed MiFi devices for specific citizens.

Hanover County is using Cares Act funding to establish public wireless internet access at public buildings. This program includes placing wireless access points at up to 10 locations across the County with public access to internet services.

Wired and Wireless Efforts

Hanover County is primarily served by Comcast wired fiber internet. This service is generally available in the suburban area of the County. Comcast continues to work with the community to expand their services, but there remain pockets of homes that are within the Comcast service area that are not served. The County should continue to work with citizens to identify where these deficiencies exist and with Comcast to expand their internet services.

The western portion of the County is served by CenturyLink. CenturyLink provides DSL-based internet service, but is upgrading their infrastructure to a fiber-based internet service. DSL technology degrades the farther you get away from the main hub. The County should work with citizens to identify where service constraints exist.

Hanover continues to encourage other wired and wireless service providers to locate in the County, including having multiple discussions with Verizon to bring their advanced internet technology into the County.

For several years the County has tried to bring wireless internet service providers into the County. The Emergency Communications Department sent letters out to a number of wireless internet service providers and telephone companies to take advantage of the County's extensive emergency communication tower network consisting of 18 towers. A number of cellular providers have entered into tower lease agreements to co-locate on County towers with the plan to provide 4G LTE service (and potentially 5G service).

Hanover staff have also pursued wireless internet service provider partners. On July 13, 2015, County entered into a tower lease agreement with Last Mile Wireless to provide service in the Poor Farm area. Last Mile Wireless successfully brought its site online however less than a year later due to lack of subscribers in the area and other financial difficulties Last Mile defaulted on the terms of the agreement and discontinued service. In May of 2016, the County had discussions with All Points Broadband, a WISP. Ultimately, All Points made the decision not to enter into the Hanover market.

The next effort involved SCS Broadband, a WISP, and a comprehensive plan to serve most of the unserved and underserved areas of the County was developed. This plan involved the use of wireless internet technology installed on five existing Hanover communications towers (Phase 1) in far eastern and far western Hanover. Additional towers as mutually agreed upon would be added as part of Phase 2. On April 12, 2017, the Hanover Board of Supervisors approved the initial two lease agreements with SCS Broadband for access the eastern Hanover Communications towers at a greatly discounted rate, with the plan to lease an additional three towers. SCS Broadband never met any of its obligations.

Citizen Advisory Committees

In 2010 the Board of Supervisors established a high speed internet advisory committee to develop a plan to expand high speed internet access across the County. The committee drafted a report that included a number of recommendations. The County has been implementing these recommendations. However, at that time, internet service providers were not prevalent and the County was not able to generate any interest from private internet service providers to expand broadband internet service into rural areas of the County. In addition internet service technology has been greatly enhanced. In 2010 high speed internet was considered speeds greater than 4 Mbps download and 1 Mbps upload (today that is 25/3).

The High Speed Internet Committee (HSIC) reported back in 2012 with a number of recommendations for consideration by the Board, which have served as the basis for the County's broadband planning effort. A summary of their recommendations:

- Designate point person for broadband – completed
- Communication – completed (on-going)
- Pursue grant opportunities – completed (on-going)
- Map internet availability – completed (using State/Federal mapping resources and on-line surveys)
- Ensure Libraries have broadband internet service – completed
- Consider establishing special tax districts – completed (Board of Supervisors determined not to proceed with this option)

Additional activities the County has been pursuing related to broadband initiatives include:

- Permitting processes have been streamlined to promote tower expansion and additional tower capacity.
- All known Internet Service providers have been contacted by the County to encourage expansion within Hanover County. Most providers have expressed concern over their lack of opportunity to see a Return on Investment for the needed capital to provide service within less densely populated areas of the county.
- Engaged Secretary of Technology's office for assistance on identifying solutions to meet the needs of Hanover County Residents.
- Created list of providers and numbers to call that will be placed on the County website.

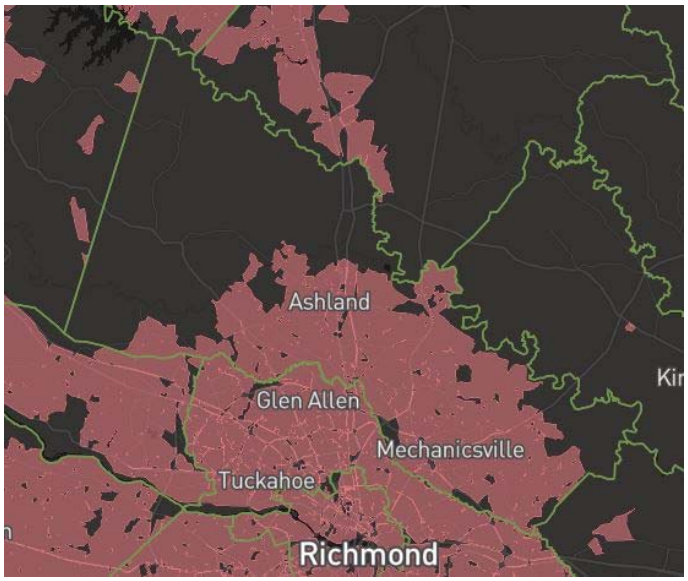
As the County has grown and technology has evolved, the reliance on adequate internet service has become a priority for citizens and businesses in the County. As such, in 2019 the Board of Supervisors established another broadband advisory committee.

This committee has been tasked with a similar goal to develop recommendations to expand broadband internet access across the County. The Committee's report is due in early 2021.

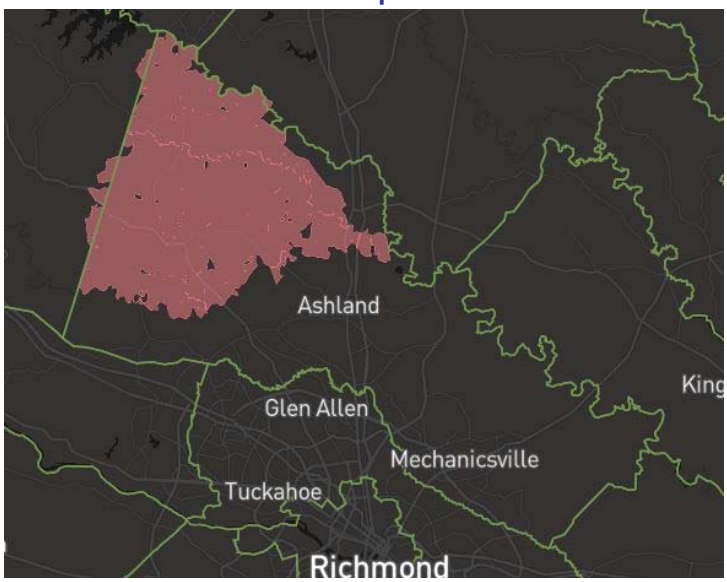
Targeted Geographic Areas

Hanover County has two major internet service providers, Comcast and CenturyLink. Comcast has established broadband service in most of the County's suburban area. CenturyLink has established some broadband service to communities in the western part of the County. CenturyLink's internet service can vary depending on how close a consumer is to where the service hub is located. Service areas for these providers is documented at https://broadband.fcc.gov as shown in the following maps. Various other internet service providers, such as Verizon, are located in the County primarily using DSL technology. Hanover is partnering with CenturyLink and Comcast on VATI broadband grant applications for 2020/2021.

Comcast Service Area



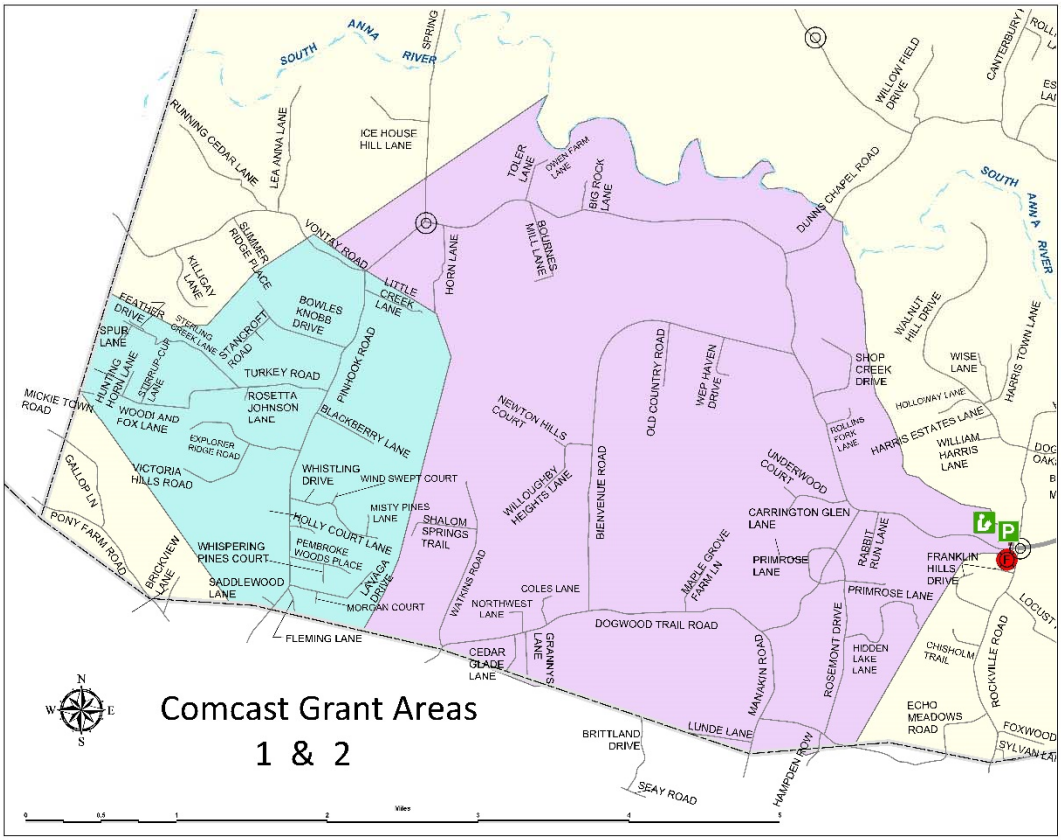
CenturyLink Service Area



The County is partnering with CenturyLink and Comcast to expand their services areas and/or service within their territories to provide broadband internet access. The County encourages any wireline or wireless internet service provider to implement internet service in the County. Based on these internet service provider territories, the County has identified five target areas that would serve the gaps between these two providers for the deployment of broadband level internet service. In general these areas are located in Gum Tree (Doswell), Rockville, Cold Harbor, and Old Church.

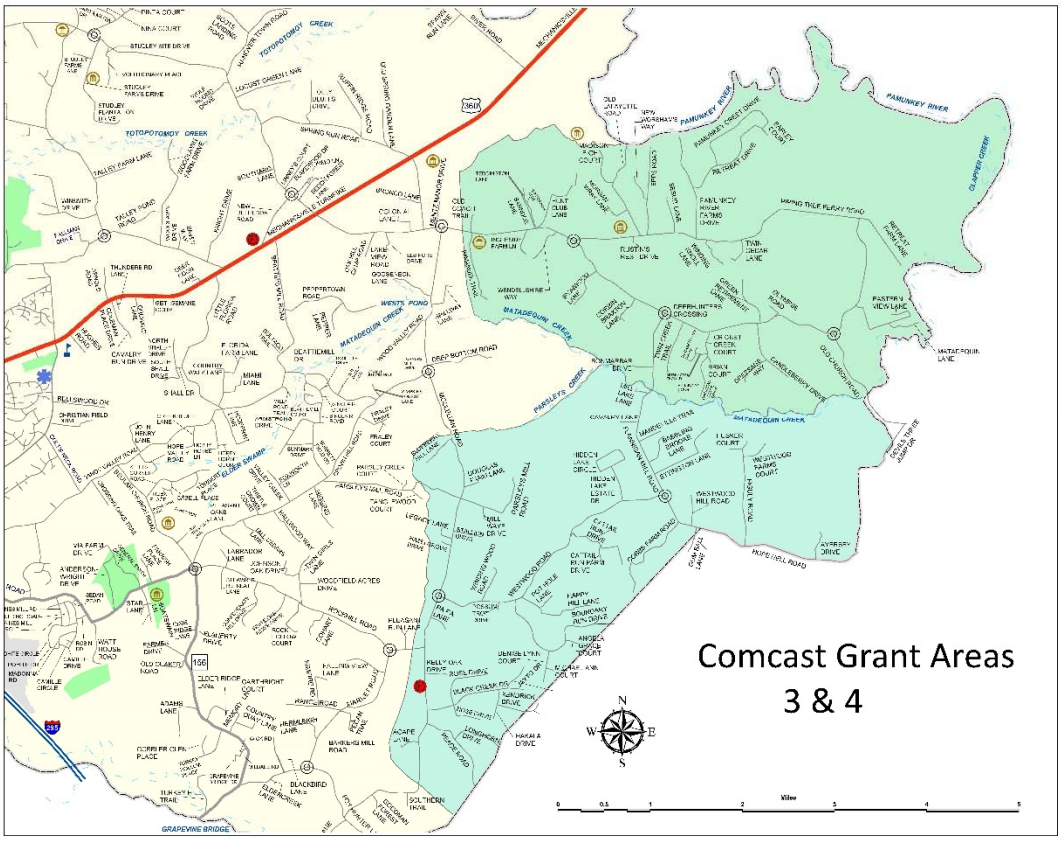
County of Hanover

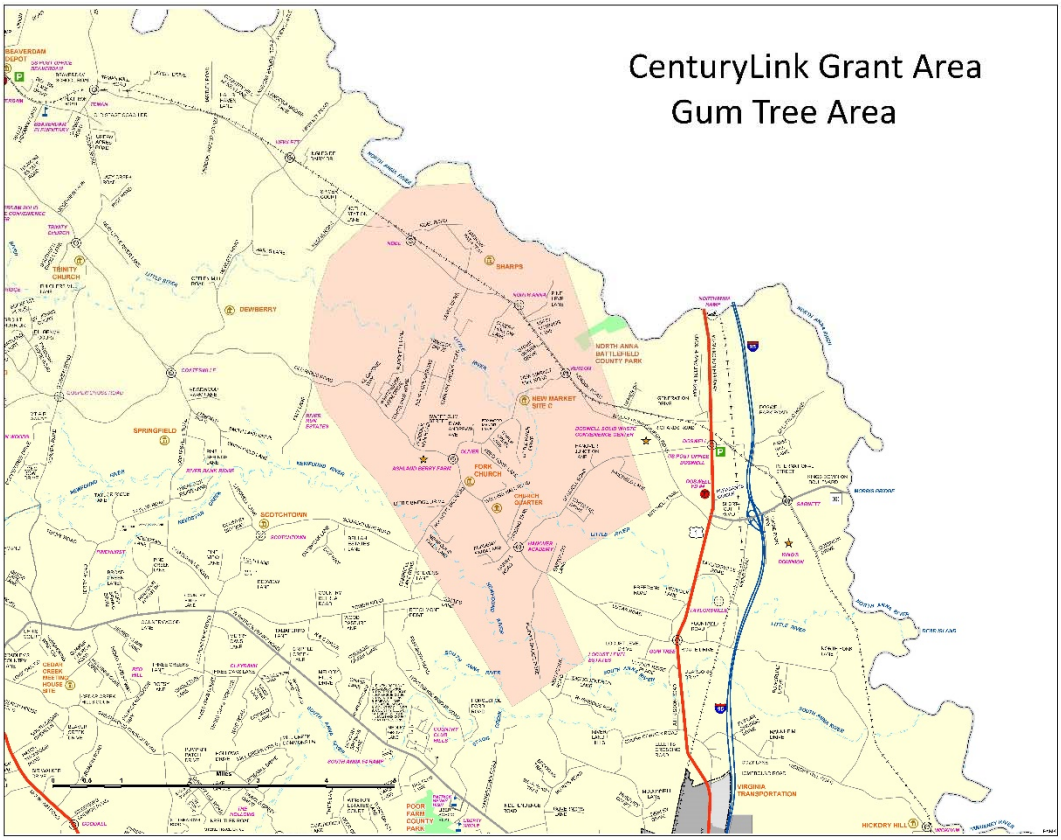
Public Broadband Expansion Plan Report



County of Hanover

Public Broadband Expansion Plan Report




CenturyLink Grant Area
Gum Tree Area

Richmond, Chesterfield & Caroline County

BUNDLED PACKAGES[1,2]

QUAD PLAY PACKAGES

QUAD PLAY PACKAGE PRICING BELOW IS ADDITIONAL TO TRIPLE PLAY PACKAGE PRICING

with Xfinity Home Security add[28]	$30.00
with Xfinity Home Security Plus add[29]	$40.00

TRIPLE PLAY PACKAGES[38]

Standard+ More	
Includes Limited Basic, Expanded Basic and HD programming for primary outlet, 20 Hour DVR Service, Performance Pro Internet and Unlimited Voice	$129.99
SurePrice[39]	$124.99
- with DVR Service upgrade add	$10.00
- with Premium DVR Service upgrade add	$20.00
- with Blast! Internet upgrade add	$20.00
- with Extreme Pro Internet upgrade add	$25.00
- with Gigabit Internet upgrade add	$30.00
- with Gigabit Pro Internet upgrade add[40]	$235.00
Select+ More	
Includes Limited Basic, Expanded Basic, Digital Preferred Tier and HD programming for primary outlet, DVR Service, Extreme Pro Internet and Unlimited Voice	$159.99
SurePrice[39]	$134.99
- with Premium DVR Service upgrade add	$10.00
- with Gigabit Internet upgrade add	$30.00
- with Gigabit Pro Internet upgrade add[40]	$235.00
- with Xfinity Mobile save	$-10.00
Signature+ More	
Includes Limited Basic, Expanded Basic, Digital Preferred Tier, Epix, and HD programming for primary outlet, Premium DVR Service, Gigabit Internet, Unlimited Voice and Netflix Standard HD Plan	$189.99
SurePrice[39]	$164.99
- with Netflix Premium UHD Plan upgrade add	$3.00
- with Gigabit Pro Internet upgrade add[40]	$235.00
- with Xfinity Mobile save	$-10.00
Super+ More	
Includes Limited Basic, Expanded Basic, Digital Preferred Tier, Epix, HBO Max, Showtime, TMC, More Sports & Entertainment Package and HD programming for primary outlet, Premium DVR Service, Gigabit Internet, Unlimited Voice and Netflix Standard HD Plan	$199.99
SurePrice[39]	$184.99
- with Netflix Premium UHD Plan upgrade add	$3.00
- with Gigabit Pro Internet upgrade add[40]	$235.00
- with Xfinity Mobile save	$-10.00

DOUBLE PLAY PACKAGES[38]

Choice Double Play[41]	
Includes Choice Limited TV and Performance Internet	$89.99
- with DVR Service upgrade add	$10.00
- with Premium DVR Service add	$20.00
- with Performance Pro Internet upgrade add	$15.00
- with Blast! Internet upgrade add	$20.00
- with Extreme Pro Internet upgrade add	$25.00
- with Gigabit Internet upgrade add	$30.00
- with Gigabit Pro upgrade add[40]	$235.00
Standard+	
Includes Limited Basic, Expanded Basic and HD programming for primary outlet, 20 Hour DVR Service, and Performance Pro Internet	$109.99
- with DVR Service upgrade add	$10.00
- with Premium DVR Service add	$20.00
- with Blast! Internet upgrade add	$20.00
- with Extreme Pro Internet upgrade add	$25.00
- with Gigabit Internet upgrade add	$30.00
- with Gigabit Pro Internet upgrade add[40]	$235.00
Select+	
Includes Limited Basic, Expanded Basic, Digital Preferred Tier and HD programming for primary outlet, 20 Hour DVR Service, and Blast! Internet	$139.99
- with DVR Service upgrade add	$10.00
- with Premium DVR Service upgrade add	$20.00
- with Extreme Pro Internet upgrade add	$25.00
- with Gigabit Internet upgrade add	$30.00
- with Gigabit Pro Internet upgrade add[40]	$235.00
Signature+	
Includes Limited Basic, Expanded Basic, Digital Preferred Tier, Epix, and HD programming for primary outlet, DVR Service, Extreme Pro Internet, and Netflix Standard HD Plan	$169.99
- with Premium DVR Service upgrade add	$10.00
- with Netflix Premium UHD Plan upgrade add	$3.00
- with Gigabit Internet upgrade add	$30.00
- with Gigabit Pro Internet upgrade add[40]	$235.00
Super+	
Includes Limited Basic, Expanded Basic, Digital Preferred Tier, Epix, HBO Max, Showtime, TMC and HD programming for primary outlet, DVR Service, Extreme Pro Internet, and Netflix Standard HD Plan	$189.99
- with Premium DVR Service upgrade add	$10.00
- with Netflix Premium UHD Plan upgrade add	$3.00
- with Gigabit Internet upgrade add	$30.00
- with Gigabit Pro Internet upgrade add[40]	$235.00

XFINITY TV[1]

BASIC SERVICES

Limited Basic[7]	$22.95
Broadcast TV Fee[20]	$14.95
Expanded Basic[9] Includes Kids & Family, Entertainment and Sports & News	$44.32

XFINITY TV SERVICES

Choice Limited TV[35] Includes Limited Basic, Streampix, 10 hours DVR Service and HD programming	$30.00
Choice TV[36] Includes Limited Basic, Streampix, 20 hours DVR Service, HD programming and Broadcast TV Fee	$25.00
- with TV Box	$30.00
Genre Packs[26] Choose up to 2	
Kids & Family Includes kid and family-friendly channels including Disney Channel, Nickelodeon and Universal Kids	$10.00
Entertainment Includes entertainment channels including A&E, AMC, Bravo, Food Network, FX, TNT and VH1	$15.00
Sports & News Includes sports and news channels including CNBC, CNN, ESPN, Golf, MSNBC and NBC Sports	$28.25
Digital Starter Includes Limited Basic, Expanded Basic, Movie Plex, access to Pay-Per-View and On Demand programming and Music Choice	$67.27
Digital Preferred Tier[12] Includes over 65 channels including CBS College Sports, Destination America, Disney XD, Encore and Science Channel	$17.95

*Refer to the last page for additional information. For information about Xfinity policies and terms of service, go to **xfinity.com/policies**.*

Digital Preferred Tier plus One Premium Includes Digital Preferred Tier and choice of Showtime, Cinemax, or The Movie Channel	$29.95
Digital Preferred Tier with HBO Max Includes Digital Preferred Tier and HBO Max	$32.95
Digital Premier Tier Includes Digital Preferred Tier, HBO Max, Showtime, Epix, Hitz and The Movie Channel	$64.95
More Sports & Entertainment Package[12] Includes over 15 channels including NFL Red Zone, ESPNews and TCM	$9.95
Deportes[9] Includes over 6 deportes channels including ESPN Deportes, FOX Deportes and NBC Universo	$7.00
With Choice Double Play or Standard, Select, Signature, Super Double or Triple Play Packages	$5.00
Xfinity TV Latino [9] Includes over 50 channels of Spanish language programming	$17.95
With Choice Double Play or Standard, Select, Signature, Super Double or Triple Play Packages	$10.00
HBO Max[9]	$15.00
Showtime[9]	$12.00
Starz[9]	$8.99
Cinemax[9]	$12.00
The Movie Channel[9]	$12.00
Epix[25]	$5.99
Playboy[9]	$15.00
HD Technology Fee[8]	$9.95
DVR Service[34]	$10.00
Premium DVR Service[42]	$20.00
Service to Additional TV[11]	$9.95
with DVR Service	$19.95
with CableCARD or compatible customer owned device[27]	$4.95
Service to Additional TV with TV Adapter[10]	$6.99

INTERNATIONAL SELECTIONS[31]

ART: Arabic	$9.99
TV Globo: Brazilian	$19.99
Brazilian 2 Pack Includes TV Globo and PFC	$24.99
Brazilian 4 Pack Includes TV Globo, PFC, Band Internacional and Record TV	$34.99
Mandarin 2 Pack Includes Phoenix Info News and Phoenix North America	$6.99
Mandarin 4 Pack Includes CTI Zhong Tian, CCTV4, Phoenix Info News and Phoenix North America	$19.99
Filipino 2 Pack Includes GMA Pinoy w/ GMA Video On Demand and GMA Life	$14.99
Filipino 3 Pack Includes GMA Pinoy w/ GMA Video On Demand, GMA Life and TFC	$22.99
TV5MONDE: French With Cinema On Demand	$9.99
DW Deutsche +: German	$9.99
Antenna: Greek	$14.99
The Israeli Network	$19.99
Rai Italia: Italian	$9.99
Italian 2 Pack Includes Rai Italia and Mediaset	$14.99
TV JAPAN	$24.99
SIC: Portuguese	$9.99
Portuguese 2 Pack Includes RTPi and SIC	$14.99
Impact TV: Russian Add-on With any International package	$6.99
Russian 2 Pack Includes Channel One Russia and NTV America	$14.99
Russian 4 Pack Includes Channel One Russia, RTN, TV1000 Russian Kino and NTV America	$26.99
Russian 5 Pack Includes Channel One Russia, RTVi, NTV America, RTR-Planeta and Rossiya 24	$26.99
Russian 8 Pack includes Channel One Russia, RTN, RTVI, TV1000 Russian Kino, NTV America, RTR-Planeta, Rossiya 24 and CTC	$34.99
Willow: Cricket Add-on With any International package	$6.99
Willow: Cricket	$14.99
Zee TV: Hindi	$14.99
SET: Hindi	$14.99
Hindi 2 Pack Includes Zee TV and SET	$24.99
Hindi Pack Includes Zee TV, SET, TV Asia and NDTV 24x7	$29.99
Hindi Plus Pack Includes Zee TV, SET, TV Asia, NDTV 24x7, Eros Now and Willow	$39.99
SBTN: Vietnamese	$14.99
TVB Jade: Cantonese	$10.99
Record TV: Brazilian	$14.99
ABP News: Hindi	$7.99
TFC: Filipino	$11.99

PAY-PER-VIEW AND ON DEMAND SUBSCRIPTION SERVICES

Eros Now On Demand[33]	$12.99
Eros Now On Demand[33] w/a South Asian international selection	$9.99
here! TV On Demand[33]	$7.99
Filipino On Demand[33]	$7.99
Filipino On Demand[33] w/a Filipino international selection	$5.99
The Jewish Channel On Demand[33]	$6.99
Kidstream On Demand[33]	$4.99
History Vault On Demand[33]	$4.99
Gaiam TV Fit & Yoga On Demand[33]	$6.99
Grokker Yoga Fitness On Demand[33]	$6.99
UP Faith and Family On Demand[33]	$4.99
Lifetime Movie Club On Demand[33]	$3.99
Anime Network On Demand[33]	$6.99
Stingray Karaoke On Demand[33]	$6.99
DOGTV On Demand[33]	$4.99
Gaia On Demand[33]	$9.99
AMC + On Demand[33]	$4.99
Stingray Classica On Demand[33]	$6.99
TumbleBooksTV On Demand[33]	$4.99
FitFusion On Demand[33]	$6.99
CuriosityStream On Demand[33]	$2.99
PlayKids On Demand[24]	$6.99
MagellanTV History On Demand[24]	$5.99
Disney Story Central On Demand[33]	$4.99
Acorn TV On Demand[33]	$5.99
Daily Burn On Demand[24]	$14.99
Xive TV On Demand[24]	$4.99
Quark On Demand[24]	$4.99
Stephens Drum Shed On Demand[24]	$4.99
Pro Guitar Lessons On Demand[24]	$4.99
Touchfit TV On Demand[24]	$4.99
Lion Mountain TV On Demand[24]	$3.99
Bluprint TV On Demand[33]	$7.99
WE tv + On Demand[33]	$4.99
The Great Courses Signature On Demand[24]	$7.99
DJAZZ On Demand[24]	$6.99
Pantaya On Demand[33]	$5.99
Outside TV Features On Demand[24]	$4.99
The Reading Corner On Demand[24]	$3.99
Hopster On Demand[24]	$6.99
Ride TV On Demand[24]	$4.99
Brown Sugar On Demand[24]	$3.99
Echoboom Sports On Demand[24]	$5.99
Stingray Qello On Demand[24]	$7.99
Revolution Golf+ On Demand[24]	$6.99
Hallmark Movies Now On Demand[24]	$5.99
Dove Channel On Demand[24]	$4.99

Kocowa On Demand[24]	$6.99
WHAM On Demand[24]	$2.99
Gravitas Movies On Demand[24]	$4.99
MHz Choice On Demand[24]	$7.99
Hi-YAH! On Demand[24]	$2.99
True Royalty On Demand[24]	$5.99
Real Vision On Demand[24]	$14.99
Docurama On Demand[24]	$2.99
Con TV On Demand[24]	$4.99
Walter Presents On Demand[24]	$6.99
Dekkoo On Demand[24]	$9.99
ZooMoo On Demand[24]	$2.99
Miniteve On Demand[24]	$1.99
Kids Room On Demand[24]	$5.99
Cinemoi On Demand[24]	$2.99
Fox Nation On Demand[33]	$5.99
Wanderlust On Demand[24]	$9.99
Music Choice Karaoke On Demand[24]	$6.99
Music Choice Relax On Demand[24]	$5.99
Curious World On Demand[24]	$3.99
kweliTV On Demand[24]	$5.99
Marquee TV On Demand[24]	$8.99
Passionflix On Demand[24]	$5.99
Conspiracy TV On Demand[24]	$4.99
FlixFling On Demand[24]	$7.99
Hitz[30,33]	$12.00
Streampix[18,33]	$4.99
Pay-Per-View and On Demand Movies and Events[3,33] (per title or event)	Prices Vary
Revry On Demand[24]	$6.99
Too Much for TV On Demand[33]	$14.99
Brazzers On Demand[13,33]	$19.99
Vivid On Demand Subscription[13,33]	$19.99
Hustler On Demand Subscription[13,33]	$19.99
TEN On Demand Subscription[13,33]	$19.99
Urban Fantasy On Demand[13,33]	$19.99
Falcon On Demand[13,33]	$19.99
Homegrown Amateur On Demand[13,33]	$19.99
Evil Angel On Demand[13,33]	$19.99
Mature Lust On Demand[13,33]	$19.99
Penthouse On Demand[13,33]	$19.99
Girlfriends Films On Demand[13,33]	$19.99
Wicked On Demand[13,33]	$19.99
XTSY On Demand[13,33]	$19.99
Reality Kings On Demand[13,33]	$19.99
Arouse On Demand[13,33]	$19.99
Bang On Demand[13,33]	$19.99

SPORTS PACKAGES[32]

MLB Extra Innings	Call 1-800-XFINITY for pricing
NHL Center Ice	Call 1-800-XFINITY for pricing
NBA League Pass	Call 1-800-XFINITY for pricing

XFINITY TV EQUIPMENT

TV Box Limited Basic	$4.60
TV Box	$4.60
Remote	$0.40
HD TV Box Limited Basic	$4.60
TV Adapter (Limited Basic — Primary TV)	$0.00
TV Adapter (Limited Basic — 1st and 2nd Additional TVs)	$0.00
TV Adapter (Limited Basic — 3rd Additional TV)	$0.50
CableCARD (first card in device)	$0.00

INSTALLATION (PER OCCURRENCE UNLESS NOTED)	**Initial Installation of Service**	**After Initial Installation of Service**
Professional Installation[16,17]	$79.99	N/A
In-Home Service Visit[37]	N/A	$40.00
Hourly Service Charge[16] (Custom Installation)	$50.00	$50.00

Xfinity Internet Gigabit Pro Professional Installation (per occurrence)	$500.00
Wireless Networking On-Site Professional Set-Up (Separate trip, per occurrence)	$99.95
Wireless Networking On-Site Professional Set-Up (each additional device over 4 devices per occurrence)	$29.95

REACTIVATION
(NO IN-HOME VISIT REQUIRED—PER OCCURRENCE UNLESS NOTED)

Reactivation - TV	$6.00
Reactivation - Internet	$6.00
Reactivation - Voice	$6.00

MISCELLANEOUS (PER OCCURRENCE UNLESS NOTED)

Customer-Owned Video Equipment Credit See www.xfinity.com/equipmentpolicy for additional information	$5.00
Regional Sports Fee[22] (per month)	$3.90
Field Collection Charge Visit to customer's residence required to collect past due balance or unreturned equipment	$30.00
Returned Payment Item (each)	$25.00
Late Fee	5%
Agent Assisted Payment For payment made by phone with a Customer Care Representative	$5.99
Unreturned or Damaged Equipment Fees[4] (per piece)	Replacement Cost
Self Install Kit Shipping and Handling	$15.00
Self Install Kit Shipping and Handling (Priority Shipping)	$29.95

XFINITY INSTANT TV[1,21]

BASIC SERVICE

Xfinity Instant TV Includes Limited Basic for simultaneous streaming on two devices, and 20 hours DVR Service	$10.00

XFINITY INSTANT TV ADDITIONAL SERVICES[23]

Kids & Family Includes 13 kid and family-friendly channels including Disney Channel, Nickelodeon and Universal Kids	$10.00
Entertainment Includes 22 entertainment channels including A&E, AMC, Bravo, Food Network, FX, TNT and VH1	$15.00
Sports & News Includes 14 sports and news channels including CNBC, CNN, ESPN, Golf, MSNBC and NBC Sports	$28.25
Deportes Includes over 6 deportes channels including ESPN Deportes, FOX Deportes and NBC Universo	$7.00
Latino Includes 13 latino channels including Cine Latino, Discovery en Espanol, Galavision, Viendo Movies and VME Kids	$5.00
HBO Max	$15.00
Starz	$8.99
Streampix	$4.99

XFINITY VOICE[1,5]

Xfinity Voice—Unlimited	$44.95
With TV and Internet Service	$39.95
Xfinity Voice—Local with More	$34.95
With TV or Internet Service	$24.95

XFINITY INTERNET[1,6]

	Xfinity Internet Service Only	with Xfinity TV or Voice Service[19]
Performance Starter	$49.95	$49.95
Performance	$77.95	$64.95
Performance Pro	$92.95	$79.95
Blast!	$97.95	$84.95
Extreme Pro[14]	$102.95	$89.95
Gigabit[14]	$107.95	$94.95
Gigabit Pro[14,15]	$299.95	$299.95

Modem Rental	$14.00
Wireless Adapter (each, one-time charge)	$30.00
Gigabit Pro Activation Fee (per occurrence)	$500.00
Unreturned or Damaged Equipment Fees[4] (per piece, per occurrence)	Replacement Cost

1 Certain services available separately or as a part of other levels of service. Xfinity services are subject to Comcast's standard terms and conditions of service. Unless otherwise specified, prices shown are the monthly charge for the corresponding service, equipment or package. Prices shown do not include applicable taxes, franchise fees, FCC fees, Regulatory Cost Recovery, Public Access fees, other state or local fees or other applicable charges (e.g., per-call toll or international charges). Prices, services and features are subject to change. If you are an Xfinity TV customer and you own a compatible TV Box or CableCARD device, please call 1-800-XFINITY for pricing information or visit www.xfinity.com/equipmentpolicy. © 2020 Comcast. All rights reserved.

2 Requires a compatible modem and TV Box with remote, CableCARD or compatible customer owned device.

3 Price of Pay-Per-View and On Demand Movie or Event is displayed prior to the completion of the Pay-Per-View or On Demand ordering process.

4 Contact 1-800-XFINITY for questions regarding equipment replacement charges.

5 Requires a compatible modem. Unlimited Local and Long Distance package pricing applies only to direct dialed calls from home to locations included in the plan. Plans do not include other international calls. For more information regarding Xfinity Voice pricing go to https://www.xfinity.com/Corporate/About/PhoneTermsOfService/ComcastDigitalVoice/cdvresidential.

6 A compatible modem is required. For more information regarding Xfinity Internet go to http://www.xfinity.com/internet-service.html.

7 Requires TV Box, TV Adapter, CableCARD or compatible customer owned device.

8 Not available to customers with Limited Basic only. Must subscribe to HD Technology Fee to receive HD programming.

9 Requires Limited Basic, TV Box, CableCARD or compatible customer owned device.

10 Includes TV Adapter and remote. Digital service tier on additional TV corresponds to digital service tier on primary outlet. Does not include access to On Demand content, premium channels or channel numbers above 1000 unless otherwise noted on the channel lineup. Not available to customers with Limited Basic only.

11 Includes TV Box. Digital service tier on additional TV corresponds to digital service tier on primary outlet. HD programming requires HD Technology Fee. Not available to Limited Basic only customers

12 Requires Digital Starter.

13 One month minimum purchase required. Not available in all areas.

14 Not available in all areas. May require installation and non-refundable installation charge.

15 Requires 2 year contract. Monthly rental of Gigabit Pro cable modem/router additional. Activation and professional installation fees additional. Gigabit Pro does not qualify for Comcast 30-day money back guarantee.

16 Standard installation includes installation of service line up to 125 feet from existing Comcast plant for the primary outlet only, except as otherwise required under local franchise agreement. Comcast does not perform custom installations, including installations which require in-wall wiring, wiring in extensive drop ceilings, basements, or crawl spaces.

17 Includes standard installation of Xfinity TV, Xfinity Internet and/or Xfinity Voice and installation of additional outlets and wireless networking set-up if requested at time order is placed. Does not include installations of Xfinity TV only, Xfinity Home Security or Xfinity Gigabit Pro Internet.

18 Requires Limited Basic and TV Box and remote or compatible customer owned device. Requires HD Technology Fee to receive HD programming.

19 Xfinity Internet discount does not apply to Xfinity Instant TV.

20 Applies to Limited Basic and Xfinity Instant TV.

21 Requires Xfinity Internet.

22 Applies to Digital Starter and above, and Sports & News.

23 Requires Xfinity Instant TV.

24 Requires Limited Basic with X1 TV Box and Xfinity Internet service.

25 Requires Limited Basic, HD Technology Fee and TV Box, CableCARD or compatible customer owned device.

26 Requires Choice Double Play, Choice Limited TV or Choice TV. Cannot be combined with Limited Basic only.

27 Not available to customers with Limited Basic only. Includes a customer-owned video equipment credit. An additional charge will apply for additional CableCARDs in the same device.

28 Equipment required at an additional cost. For additional information go to http://www.xfinity.com/homesecurity.

29 Includes Xfinity Home Security and 24/7 Video Recording for up to 4 cameras. Equipment required at an additional cost. For more information on 24/7 Video Recording go to http://www.xfinity.com/videorecording.

30 Requires Limited Basic TV service and a compatible Xfinity TV Box or customer owned device.

31 Requires Limited Basic with X1 TV Box or compatible customer owned device and Xfinity Internet service.

32 Requires Limited Basic, HD Technology Fee, X1 TV Box with remote or compatible customer owned device. Sports Package subscriptions can be billed at once or in 4 total payments. Call 1-800-XFINITY to cancel subscription within 30 days of first charge to bill. Charges are non-refundable after 30 days of first charge to bill. Restrictions may apply.

33 Requires Limited Basic, TV Box or compatible customer owned device with Xfinity Internet.

34 Requires HD Technology Fee and TV Box or compatible customer owned device DVR Service with compatible customer owned device limited to 60 hours DVR Service.

35 Requires TV Box, CableCARD or compatible customer owned device. 10 Hours DVR Service available with X1 TV Box (X1 TV Box requires subscription to one Genre Pack) or compatible customer owned device. Cannot be combined with Xfinity Voice or Xfinity Home Security.

36 Requires Xfinity Internet service and a TV Box, CableCard or compatible customer owned device. 20 hours DVR Service available with X1 TV Box or compatible customer owned device. Not eligible for multiproduct pricing on Xfinity Internet, Xfinity Voice or Xfinity Home Security.

37 Applies to installation, relocation and activation of additional outlets as well as upgrade downgrades of service after initial installation of service and in-home visits. Does not cover installation or in-home visits for Xfinity Home Security.

38 20 Hour DVR Service requires Xfinity Internet Service and either an X1 TV Box or compatible customer owned device.

39 SurePrice only available for 12 months to customers with Standard+ More, Select+ More, Signature+ More and Super+ More packages after qualifying 12 month promotional pricing.

40 Requires 2-year contract. Monthly rental of Gigabit Pro compatible modem/router additional. Activation and professional installation fees additional. Gigabit Pro does not qualify for Comcast 30-day money back guarantee.

41 Cannot be combined with Sports & News genre pack.

42 Requires Xfinity TV Latino, More Sports & Entertainment Package, Choice TV Double Play with one Genre Pack, Choice TV, or Digital Starter or higher, Xfinity Internet, TV Box or compatible customer owned equipment.

Xfinity Home Security License Numbers:
AL: *001484, 001504;* **AR:** *12-030;* **AZ:** *ROC 280515,* **BTR** *18287-0;* **CA:** *CSLB 974291, ACO 7118;* **CT:** *ELC 0189754-C5;* **DE:** *FAL-0299, FAC-0293, SSPS 11-123;* **FL:** *EF0000921, EF20001002, EF0001095;* **GA:** *LVU406303, LVU406264, LVU406190, LVU406354;* **IL:** *PACA 127-001503;* **LA:** *F1691;* **MA:** *SS-001968;* **MD:** *107-1776;* **ME:** *LM50017039;* **MI:** *3601206217;* **MN:** *TS674412;* **NC:** *2335-CSA, 29443-SP-FA/LV;* **NJ: Burglar and Fire Alarm Business Lic. #** *34BF00047700;* **NM:** *373379;* **NY: licensed by the N.Y.S. Department of State** *12000305421;* **OH: LIC#** *53-89-1732;* **OR:** *CCB 192945;* **SC:** *BAC-13497, FAC-13440;* **TN:** *ACL 1597, ACL 1604;* **TX:** *ACR-1672104,-1818, B16922, B02571;* **UT:** *8226921-6501;* **VA:** *2705145289, DCJS 11-7361;* **VT:** *ES-02366;* **WA:** *COMCABS892DS;* **WASHINGTON, DC:** *ECS 902687, BBL 602512000005;* **WV:** *WV049211.*

MS: 15018010

Valid 1/1/19. See www.xfinity.com/home-security for current list.

82996000: 0050;0060;0070;0080;0090;0100;0110;0130;0140