

Application to DHCD Submitted through CAMS

Culpeper County

Achieving Universal Broadband Coverage in Culpeper County FY23

Application ID: 95708232022102632
Application Status: Pending
Program Name: Virginia Telecommunication Initiative 2023 - Application
Organization Name: Culpeper County
Organization Address: 302 North Main Street
Culpeper, VA 22701
Profile Manager Name: Laura Loveday
Profile Manager Phone: (540) 727-3410
Profile Manager Email: lloveday@culpepercounty.gov

Project Name: Achieving Universal Broadband Coverage in Culpeper County FY23
Project Contact Name: Laura Loveday
Project Contact Phone: (540) 727-3410
Project Contact Email: lloveday@culpepercounty.gov
Project Location: 302 North Main Street
Culpeper, VA 22701-2622
Project Service Area: Culpeper County

Total Requested Amount: \$8,828,198.00
Required Annual Audit Status: Accepted

Application to DHCD Submitted through CAMS

Culpeper County

Achieving Universal Broadband Coverage in Culpeper County FY23

Budget Information:

Cost/Activity Category	DHCD Request	Other Funding	Total
Telecommunications	\$8,828,198.00	\$2,207,049.00	\$11,035,247.00
Construction	\$8,828,198.00	\$2,207,049.00	\$11,035,247.00
Total:	\$8,828,198.00	\$2,207,049.00	\$11,035,247.00

Budget Narrative:

The total cost of this project is \$11,035,249. The VATI grant amount requested is \$8,828,198 with a \$2,207,049 cash match provided by Comcast. Culpeper County will 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.

Questions and Responses:

Application to DHCD Submitted through CAMS

Culpeper County

Achieving Universal Broadband Coverage in Culpeper County FY23

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:

Culpeper County (“Partner” or “County”) and Comcast Cable Communications, LLC (“Comcast”^[1]) appreciate the opportunity to respond to the Commonwealth of Virginia’s Department of Housing and Community Development’s (“DHCD”) Virginia Telecommunication Initiative (“VATI”) with respect to deploying broadband infrastructure to eligible service areas in the County. As detailed further below, we propose to deploy qualifying broadband service to 758 households. This project represents the final aggregation of homes without high-speed internet access in Culpeper County.

The geographic area for this proposed project includes approximately 118 miles of infrastructure generally dispersed throughout areas county-wide which do not already have access to broadband service, 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 for a Virginia Telecommunication Initiative award. VATI eligibility criteria being more restrictive than that of some federal programs, the project area thus also meets eligibility criteria for the Coronavirus State and Local Fiscal Recovery Fund and the Capital Projects Fund established under the American Rescue Plan Act.

Comcast proposes to extend its network so that homes and businesses in the project area are serviceable with broadband speeds that reliably meet or exceed 100 Mbps download and at least 20 Mbps upload speeds and are scalable to a minimum of 100 Mbps symmetrical for download and upload speeds and [REDACTED].

The County has researched internet service availability for over a decade. In 2021, Culpeper County hired All Points Broadband to conduct a countywide assessment of broadband availability in advance of our FY22 VATI grant proposal. All Points’ field teams visited and visually inspected all areas within the County where incumbent cable providers are not offering service. The currently funded All Points and Culpeper County fiber to the home Initiative is solely located in the census blocks that are not claimed to be served by Comcast. As the project moved forward, Culpeper became aware of a number of locations without Internet service that are in the census blocks where All Points is not funded to provide service. The County has received comments from citizens and businesses on the lack of internet in areas of the County identified in this proposal and has analyzed them in order to propose a project that achieved universal broadband coverage in Culpeper County.

Application to DHCD Submitted through CAMS

Culpeper County

Achieving Universal Broadband Coverage in Culpeper County FY23

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

Answer:

To the best of our collective knowledge, there are no existing providers in the proposed project area which meet the qualifications to render the area ineligible for a VATI award. Comcast provides service to areas adjacent to the proposed project.

Virginia Broadband is a fixed-wireless provider who reports offering internet service in various portions of the County. Neither All Points, Comcast, nor the County were able to field-verify that Virginia Broadband offers speeds of 25/3 in any of the areas to be served by the project. None of the locations in the proposed project area that completed the broadband survey used to confirm the proposed project area indicated the ability to subscribe to reliable service of 25/3 or greater from Virginia Broadband.

Culpeper County began collecting data from our constituents in August 2021 regarding their experience with obtaining access to high-speed internet. Virginia Broadband is reported to often be unavailable, expensive, or not meet minimum speed standards (See attachment 14).

An internet search for VABB yields the following description of the company from their website “Virginia Broadband is a local company that offers high-speed Internet with speeds up to 25 Mbps in the rural areas and towns of Central and Eastern Virginia that offers better service than cellular Internet. We specialize in getting deep into the rural areas where there is no Internet coverage.”

The VABB services offered page <https://vabb.com/services/> describes only the highest of the 4 tiers of service meeting the minimum speeds required and costing \$225.00 monthly. Further, the service requires a two-year contract and is not available in all areas. We have no reports from residents who have been able to achieve the 100/50mbps speeds offered in the top tier of service.

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

Answer:

No areas within or immediately adjacent to the Culpeper County Project have received funding from federal grant programs such as the Connect America Fund, ACAM, RDOF, ReConnect, and Community Connect as noted on the attached map.

4. Overlap: To be eligible for VATI, applicants must demonstrate that the proposed project area(s) is unserved. An unserved area is defined as an area with speeds below 100/20 Mbps and with less than 25% service overlap within the project area for wireless projects and 20% for wireline projects. Describe any anticipated service overlap with current providers within the project area. Provide a detailed explanation as to how you determined the percentage overlap. Label Attachment: Attachment 3 – Documentation Unserved Area VATI Criteria.

Answer:

Culpeper County and Comcast anticipate no service overlap within the project area as there are no current broadband providers. The project area is unserved based on data available through the FCC's publicly available Form 477 website and from broadband providers.

- 5.

Application to DHCD Submitted through CAMS

Culpeper County

Achieving Universal Broadband Coverage in Culpeper County FY23

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

- a. Of the total number of VATI passings, provide the number of residential, business, non-residential, and community anchors in the proposed project area.
- b. If applicable, of the total number of RDOF passings, provide the number of residential, business, non-residential, and community anchors in the proposed project area.
- c. If applicable, provide the number of passings that will require special construction costs, defined as a one-time fee above normal service connection fees required to provide broadband access to a premise . Describe the methodology used for these projections.
- d. If applicable, provide the number of passings included in the application that will receive broadband access because special construction costs have been budgeted in the VATI application. Describe the methodology used for determining which passings with special construction costs were budgeted in the application.
- e. Provide the number of passings in the project area that have 25/3 Mbps or less. Describe the methodology used for these projections. (up to 15 points)

Answer:

Application to DHCD Submitted through CAMS

Culpeper County

Achieving Universal Broadband Coverage in Culpeper County FY23

5a. Comcast will extend service to 758 premises which currently do not have access to broadband at 100Mbps/20Mbps. As noted in Attachment 3- Documentation Unserved Area VATI Criteria, Verizon offers DSL service and Virginia Broadband LLC offers fixed wireless service to some census blocks in the county, however, the service does not reach speeds to render the areas ineligible for VATI.

5b. Not Applicable.

5c. The Culpeper County project is designed to achieve functionally universal coverage in the county. The cost estimate includes [Redacted]. As such, there will be no additional construction charges to customers that are included in the project that are connected to the network during the project construction period. If a premise requires service line installation and Comcast is not granted access during the construction period, Comcast reserves the right to charge the customer for such work should the property owner seek to be connected after the construction period is complete and the project is closed.

There are no passings that require special construction costs.

5d. Private, at-risk capital is not likely to be invested by a private provider in this area due to low population density. If undertaken alone, the extension of Comcast's plant proposed herein would not meet the criteria of Comcast's standard investment model. Comcast, therefore, anticipates all passings included in the application will receive access because special construction costs have been budgeted into the VATI application.

Of the 758 proposed passings, Comcast estimates [Redacted] will receive access without special construction costs. The remaining [Redacted] will receive broadband access because special construction costs have been budgeted in the VATI application.

5e. Comcast and the County analyzed areas that do not have access to Internet speeds of 25/3 Mbps or less in census blocks using data from the FCC Form 477 website. Based on that review, Comcast estimates 758 of the passings in the Project Area have access to Internet speeds of only 25/3 Mbps or less.

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

Answer:

There are no RDOF award areas in the VATI application area in Culpeper County.

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

Answer:

Not Applicable.

Application to DHCD Submitted through CAMS

Culpeper County

Achieving Universal Broadband Coverage in Culpeper County FY23

8. Network Design: Provide a description of the network system design used to deliver broadband service from the network's primary internet point(s) of presence to end users, including the network components that already exist and the ones that would be added by the proposed project. Provide a detailed explanation of how this information was determined with sources. Provide information on how capacity for scalability, or expansion, of how the network can adapt to future needs. If using a technology with shared bandwidth, describe how the equipment will handle capacity during peak intervals. For wireless projects, provide a propagation map for the proposed project area with a clearly defined legend for scale of map. Label Map: Attachment 6 – Propagation Map Wireless Project.

Answer:

Comcast has built a fiber backbone at the core of its network that stretches across the country with almost 260,000 sheath miles of fiber- using the industry's advanced optics/lasers and Internet Protocol ("IP") routing technologies. Dozens of converged regional area networks interconnect to create this fiber backbone that delivers high-speed Internet, video, and voice 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." Nearly all of the 60 million homes and businesses in its service areas can access ultra-fast Xfinity Gigabit Internet and Comcast Business Gigabit services, including customers in Virginia.

Comcast currently serves the more densely populated areas of the county. Comcast will leverage the existing network to extend to the unserved areas of the county. In general, Comcast can expand utilizing [Redacted].

Upon completion of construction, Comcast will be able to provide broadband download speeds [Redacted].

[Redacted].

[Redacted].

Recently, Comcast took another groundbreaking step forward in the road to 10G in what is believed to be the first-ever, end-to-end deployment by an Internet provider of advanced "hollowcore" fiber optics. Hollowcore fibers deliver significantly lower latency than traditional fibers and over time will provide critical performance attributes. These fibers will help power Comcast's network and support the delivery of multigigabit speeds through 10G. For more information on Comcast's hollowcore deployment, see the press release at <https://corporate.comcast.com/press/releases/comcast-first-isp-hollow-core-fiber-faster-speed-lower-latency>.

Additional information about these exciting developments is available at <https://www.cablelabs.com/path-10g-2020-update>.

For information on Comcast's Network Performance, please see Comcast's Network Performance Report at https://update.comcast.com/wp-content/uploads/sites/33/dlm_uploads/2022/02/0222_2021NetworkReport_V19.pdf

9. Speeds: Describe the internet service offerings, including download and upload speeds, to be provided after completion of the proposed project. Detail whether that speed is based on dedicated or shared bandwidth, and detail the technology that will be used. This description can be illustrated by a map or schematic diagram, as appropriate. List the private co-applicant's tiered price structure for all speed offerings in the proposed project area, including the lowest tiered speed offering at or above 100/20 Mbps. (up to 10 points)

Application to DHCD Submitted through CAMS

Culpeper County

Achieving Universal Broadband Coverage in Culpeper County FY23

Answer:

Comcast will offer customers multiple choices of residential and commercial broadband services, from which customers may choose depending on the customers' specific needs.

For your reference, the following services and prices are generally available throughout Virginia. Currently, the service tiers are offered at the prices noted in the table below.

Xfinity Residential Services

Tier	Speeds (Mbps)	Promotional Pricing (First 24 Months)	Regular Pricing (monthly)
Performance Starter	50 / 10	\$65.00	
Performance	100 / 10	\$83.95	
Performance Pro	300 / 10	\$49.99	\$98.95
Blast!	600 / 20	\$69.99	\$103.95
Extreme Pro	900 / 20	\$79.99	\$108.95
Gigabit	1,200 / 35	\$89.99	\$113.95

Comcast Business Tier

Tier Speeds (Mbps)
Business Internet 100 100 / 15

Business Internet 200 200 / 20

Business Internet 300 Plus 300 / 30
Business Internet 600 600 / 35
Business Internet 1G 1,200 / 35

Note:

Prices above do not include equipment or applicable taxes, fees, and surcharges. Rates stated are the monthly rates for standalone Internet service as of the date of this submission. Pricing and services are subject to change. Discounted pricing may be available to customers who accept promotional offers or term agreements for Internet service or buy one or more additional services. Promotional pricing is a limited time offer, restrictions apply.

Additional Services

In addition to its high-speed residential and business internet offerings, Comcast provides a variety of other services including video, mobile, and home services.

Comcast Business Services. Comcast offers a variety of products and services to businesses. High-speed Internet services provide downstream speeds that range up to 1 Gbps and fiber-based speeds that range up to 100 Gbps. Our service offerings for small business locations primarily include high-speed Internet services, as well as voice and video services, that are similar to those provided to residential customers, cloud-based cybersecurity services, wireless backup connectivity, advanced Wi-Fi solutions, video monitoring services and cloud-based services that provide file sharing, online back up and web conferencing, among other features. Comcast also offers Ethernet network services that connect multiple locations and provide higher downstream and upstream speed options to medium-sized customers and larger enterprises, as well as advanced voice services, along with video solutions that serve hotels and other large venues. In addition, Comcast provides cellular backhaul services to mobile network operators to help them manage their network bandwidth. Comcast has expanded its service offerings to include a software-defined networking product for medium-sized and enterprise customers. Larger enterprises may also receive support services related to Wi-Fi networks, router management, network security, business continuity risks and other services. These service

Application to DHCD Submitted through CAMS

Culpeper County

Achieving Universal Broadband Coverage in Culpeper County FY23

offerings are primarily provided to Fortune 1000 companies and other large enterprises with multiple locations both within and outside of Comcast's cable distribution footprint, where we have agreements with other companies to use their networks to provide coverage outside of our service areas.

Video Services. Comcast also offers a broad variety of video services, primarily through the X1 platform, an IP and cloud-enabled video platform that delivers the simplest, fastest, and most complete way for customers to access all their entertainment on all their screens. Video customers have access to hundreds of channels including programming provided by national broadcast networks, local broadcast stations, and national and regional cable networks, as well as government and public access programming. Comcast's video services also include access to video on-demand services and an interactive, on-screen program guide.

VoIP Services. Comcast offers voice services using interconnected Voice over Internet Protocol technology. Service options provided include either unlimited or usage-based local and domestic long-distance calling, as well as options for international calling plans, voicemail, readable voicemail, nuisance call blocking tools and various call features such as caller ID and call waiting. Voice services also include the ability to access and manage voicemail and other account features through an online portal or mobile app.

Xfinity Mobile. Comcast offers wireless services for handsets, tablets and smart watches using mobile virtual network operator rights to provide the services over Verizon's wireless network, including its 5G technology and Comcast's existing network of more than 22.5 million in-home and outdoor Wi-Fi hotspots. Customers may choose to pay for services on an unlimited data plan, shared data plans, or per gigabyte of data used. Customers have the ability to bring their own device or purchase them from us with the option to pay upfront or finance the purchase interest-free over 24 months.

Xfinity Home. Xfinity Home, powered by Xfinity Internet, is one of the fastest-growing home security providers in America. Not only does it offer peace of mind with 24/7 professional monitoring with battery and cellular backup, but it also includes smarter home security features like video monitoring and the ability to manage and control an increasing number of third-party smart home devices from a phone, tablet, the Xfinity Home touchscreen, or via the X1 Voice Remote.

Application to DHCD Submitted through CAMS

Culpeper County

Achieving Universal Broadband Coverage in Culpeper County FY23

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

Answer:

Achieving universal broadband access has been a long-term objective of the County.

In March 2016, Culpeper County was one of eight localities in Virginia to be awarded a \$75,000 Virginia Department of Housing and Community Development (DHCD) Virginia Telecommunications Initiative (VATI) grant to assess current and future broadband needs, evaluate current broadband service offerings, costs, and availability in the town and the county, identify public/private partnership opportunities with service providers, assess market demand, and recommend a comprehensive list of strategies to improve broadband connectivity. Through a competitive RFP, Culpeper County selected Design 9 as the consultant to draft the County's Broadband Plan. The process included six months of steering committee meetings comprised of a number of local ISP's, electric companies, interested citizens, planners, educators, and business owners.

In December 2021, Culpeper County in partnership with All Points Broadband was awarded an \$8,800,000 VATI grant award to serve all of the Census Blocks in Culpeper County that are classified as "unserved" or "underserved".

While our currently underway fiber-to-the-home initiative reaches almost 4,300 unserved households in Culpeper County, it quickly became apparent to us that there was a large number of remaining unserved locations within FCC-served census blocks. The remaining 758 locations without high-speed internet access within Culpeper County are located close to existing Comcast infrastructure. If awarded, this project is planned to achieve functionally universal broadband coverage in Culpeper County. It would expand Comcast's existing service area to include those locations which do not currently have access to service.

Application to DHCD Submitted through CAMS

Culpeper County

Achieving Universal Broadband Coverage in Culpeper County FY23

11. Project Readiness

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

Answer:

Comcast has completed the planning and preliminary engineering phase for the proposed project. Final engineering, design and construction will commence upon the award of the grant. The initial tasks include project engineering and right-of-way preparation. These projects include a combination of underground and aerial construction. Given that Comcast already has facilities near the project area, which it can leverage in this project, Comcast will be able to implement the project quickly, upon receiving the final permits.

Throughout the duration of the project, a dedicated Comcast team member will be in contact providing status and answering any questions the community may have.

Comcast anticipates completing the project within 18 months after contract execution between the County and DHCD. As contemplated by the 2023 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. Comcast will activate service as areas are completed so many residents will be able to access service earlier than the end of the project. Comcast will leverage existing pole attachment agreements with all the pole-owning utilities in the project area. Having deployed thousands of miles of plant in Virginia, Comcast, has extensive experience working with pole owners and their processes in order to obtain the required permits to attach to poles. [Redacted].

Culpeper County is supporting the grant application with Comcast as noted in the attached letter of support. Comcast and the county will complete a formal agreement to make the review of work and processing of payments as efficient as possible. Comcast has attached a sample MOU in draft form only.

Application to DHCD Submitted through CAMS

Culpeper County

Achieving Universal Broadband Coverage in Culpeper County FY23

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

Answer:

Between 2017 and 2021, DHCD awarded Comcast five Virginia Telecommunication Initiative ("VATI") grants. Comcast has successfully met or exceed the requirements of each of those awards, having constructed the projects on time and within the proposed budget. Comcast has deployed broadband, with speeds up to 1.2 Gbps and with services options designed for low-income households, to almost 3,000 locations throughout the project footprints. The FY22 Stafford County project is on track, with a timely completion expected.

In March 2016, Culpeper County was one of eight localities in Virginia to be awarded a \$75,000 Virginia Department of Housing and Community Development (DHCD) Virginia Telecommunications Initiative (VATI) grant to assess current and future broadband needs, evaluate current broadband service offerings, costs, and availability in the town and the county, identify public/private partnership opportunities with service providers, assess market demand, and recommend a comprehensive list of strategies to improve broadband connectivity. Through a competitive RFP, Culpeper County selected Design 9 as the consultant to draft the County's Broadband Plan. The process included six months of steering committee meetings comprised of a number of local ISP's, electric companies, interested citizens, planners, educators, and business owners.

In March 2018, Culpeper County in partnership with Virginia Broadband (VABB) applied for and received a \$120,800 VATI grant. Culpeper County was one of four VATI awards in the state that year at a time when \$1,000,000 was available statewide. VABB had a change in leadership between proposal and award contract and VABB ultimately declined acceptance of the grant.

In December 2021, Culpeper County in partnership with All Points Broadband applied for and received an \$8,600,000 VATI grant. Culpeper County and DHCD have recently executed the grant agreement and the project is underway.

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

Answer:

The proposed project represents a partnership between Comcast and Culpeper 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 20% of the projected construction costs of \$11,035,247, totaling approximately \$2,207,049. Culpeper County will 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.

A breakdown of costs is below.

Name: Culpeper County Project

Locations: 758

Mileage: 118

HP/Mile: 6.4

Total Cost: \$11,035,247

Comcast Cost: \$2,207,049

VATI Gap Funding: \$8,828,198

Application to DHCD Submitted through CAMS

Culpeper County

Achieving Universal Broadband Coverage in Culpeper County FY23

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

Answer:

Comcast has been providing broadband service in Culpeper County for several decades. In the last three years, Comcast, through its cable division, has invested nearly \$732 million in private, at-risk capital in Virginia, building, maintaining, and operating one of the smartest, most advanced fiber-based networks in the state.

Comcast has deployed its broadband infrastructure in adjacent areas included in the proposal and, if awarded, plans to extend the broadband infrastructure to unserved areas of the County, making Comcast a cost-efficient option. Comcast can provide the appropriate number of technicians, call center agents and other personnel to care for additional customers in Culpeper County.

15. Communications Plan: Describe efforts to keep the public informed of project progress and the broadband adoption plan.

a. Explain how you plan on communicating the project status to stakeholders, including but not limited to County leadership, project areas residents, etc. (Up to 10 points)

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

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

Answer:

Application to DHCD Submitted through CAMS

Culpeper County

Achieving Universal Broadband Coverage in Culpeper County FY23

15a. Community Outreach

Culpeper County publishes a quarterly newsletter in order to share information with residents. We will include project information in each issue printed during the project. Information will include how to pre-register and updates on the project progress.

<https://web.culpepercounty.gov/AboutCulpeper/CulpeperQuarterly>

Quarterly Coordination Meetings

Culpeper and Comcast will hold a quarterly coordination meeting during which Comcast will present a report on progress against established project milestones in the previous quarter, and an update on project activities anticipated in the next quarter.

Quarterly coordination meetings will be convened by Comcast and will include the county's project lead as well as representatives from Comcast.

Board of Supervisors Reports

Culpeper County staff will report on the project status monthly unless the meeting is cancelled.

15b. Comcast will drive broadband adoption through a variety of means including mailing information to residents, local media, and outreach to the community. Also, Comcast will drive adoption of the affordable subscriber options, Internet Essentials and Internet Essentials Plus, to all eligible residents. Interested residents will be able to sign up for service by calling Comcast's toll-free telephone number, using Comcast's website or in person at the nearest Xfinity store. Comcast employs a sales and marketing team of professionals to support these efforts and call center team members are skilled in addressing questions regarding Comcast's products and services. If conditions allow, a public meeting or event can be held in conjunction with Culpeper County in or near the proposed project area to inform the residents about the upcoming work and answer questions.

For a full response see Attachment 20

15c. The Culpeper County Library has established multiple remote public access Wi-Fi locations throughout the Coronavirus pandemic and has 22 cellular Wi-Fi units available for the public to check out. The units have circulated 1,434 times since the program began in 2016. The library currently provides assistance with resumes, online job applications, wireless internet services, wireless printing and other internet services as the digital divide continues to widen. The library also offers continuing education classes and tests through many online databases including free classes through DigitalLearn.org. This is a collection of self-directed tutorials for end-users to increase their digital literacy. Development courses include the most basic skills, such as using a computer, navigating a website, and searching. Modules are video-based with narration, 6 to 22 minutes long, written at the fourth-grade reading level, and help learners practice skills like using a mouse and setting up passwords. Nearly all modules are available in Spanish as well as English.

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

Answer:

Laura Loveday- Special Projects and Grants Administrator (Project Lead, Culpeper County)

Laura Loveday, AICP has served as Culpeper County Special Projects and Grants Administrator since 2017. Ms. Loveday has overseen Culpeper's broadband expansion efforts for many years and will serve as Culpeper County's

Application to DHCD Submitted through CAMS

Culpeper County

Achieving Universal Broadband Coverage in Culpeper County FY23

lead for this project.

Prior to being named Special Projects and Grants Administrator, she served as Culpeper County Comprehensive Planner from 2004-2017. In her current role, Ms. Loveday has applied for, received, and managed many Federal, State, Local, and Foundation grants and coordinated high-level planning and construction initiatives in Culpeper County.

Nathan Daugherty- Director, Comcast Government Affairs, (Project Coordination)

Steve Hill- Senior Director of Network Engineering, (Construction Supervision)

Comcast maintains large, locally based engineering and technical operations teams that work around the clock to maintain a high level of reliability and to directly support the Company's business and residential customers.

For Comcast's Management Team please see Attachment 20

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.

Comcast has invested \$1.7 billion in Virginia, including capital expenditures, employee wages and benefits, taxes and fees, and charitable giving in the past three years. These investments include \$732 million in technology and infrastructure investments in Virginia, including upgrades to its broadband network. 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 1,600 people. 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. As noted above, Comcast was awarded five Virginia Telecommunications Initiative grants in 2018, 2019, 2020, and 2022.

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. Construction was completed in 2020 and ahead of schedule. Comcast provided access to 1,000 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 has completed construction in two additional and is currently deploying broadband in one more unserved town 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 fulfil its grant obligations to the VTA and DPS.

Application to DHCD Submitted through CAMS

Culpeper County

Achieving Universal Broadband Coverage in Culpeper County FY23

17. Project Budget and Cost Appropriateness

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

Answer:

Comcast's Construction and Design team managed projects that added thousands of miles to Comcast's regional network in 2021-2022. Comcast's construction estimates are determined through a detailed project analysis that includes a desktop 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. The design and construction process is standard within the telecommunications industry.

As specifically noted in the attached project budget, examples of items that are included in the Material 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 conduit and fiber, perform administration of VDOT permits, and provide crew supervision.

Comcast estimates that this project will cost \$11,035,247.

As noted, the cost estimate includes [Redacted]. As such, there will be no additional construction charges to customers that are included in the project that are connected to the network during the project construction period. If a premise requires service line installation and Comcast is not granted access during the construction period, Comcast reserves the right to charge the customer for such work should the property owner seek to be connected after the construction period is complete and the project is closed.

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

- a. Total VATI funding request
- b. Number of serviceable units
(up to 125 points)

Answer:

- a. Total VATI funding request - \$8,828,198
- b. Number of serviceable units – 758

Application to DHCD Submitted through CAMS

Culpeper County

Achieving Universal Broadband Coverage in Culpeper County FY23

19. Commonwealth Priorities (Up to 50 points)

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

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

Answer:

19a. The project will provide a broadband network capable of delivering speeds that reliably meets or exceeds 100 Mbps download and at least 20 Mbps upload speeds, [Redacted] to 758 premises in Culpeper County.

19b. Comcast owns and operates its infrastructure exclusively.

19c. Comcast is proud to be an approved provider supporting the federal government's Affordable Connectivity Program (ACP) program. To date, ACP has connected over 11.5 million households. At a May 2022 White House event, Comcast was recognized for stepping up with innovative offerings like Internet Essentials Plus to help eligible families take full advantage of the ACP benefit. (White House Lines up Broadband Providers, Websites for ACP – MeriTalk; <https://www.meritalk.com/articles/white-house-lines-up-broadband-providers-websites-for-acp/>). Under the ACP program, qualifying customers may apply a credit of up to \$30 per month (\$75 per month in Tribal lands) to any Xfinity Internet service tier, including Blast!, Extreme, and Gigabit product tiers. As such, Comcast offers several lower cost options offering speeds in excess of 100Mbps/20Mbps. Importantly, qualifying customers may also apply the ACP credit to Internet Essentials, and one line of Unlimited on Xfinity Mobile. For example, an Internet Essentials customer (paying \$9.95/month) can add one line of Unlimited on Xfinity Mobile (\$45/month) for \$24.95/month after applying the ACP discount. Customers who subscribe to Internet Essentials or Internet Essentials Plus and enroll in ACP will effectively get broadband for free after the \$30/month government discount is applied. For more information, see <https://corporate.comcast.com/press/releases/comcast-affordable-connectivity-program-internet-essentials-service-xfinity-mobile>.

19d. In a time characterized by logistical constraints and supply chain delays, Comcast's extensive network of engineers, technicians, vendors, and partners provides an edge in ensuring a timely delivery of projects. The scale of Comcast's business also allows it to lock in competitive pricing on materials and equipment and effectively manage large projects.

19e.- Found in Question 20 text box.

20.

Application to DHCD Submitted through CAMS

Culpeper County

Achieving Universal Broadband Coverage in Culpeper County FY23

Additional Information

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

Attachment 14 – Letters of Support.

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

Label Additional Attachments as:

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

Answer:

19e. Providing broadband service to this unserved area will greatly improve the community's quality of life by enabling residents to bridge the local skills gap, expand their career pathways, access and engage in telehealth opportunities, pursue education, and more. Upon completion of this project, the homeowners will have access to some of the fastest and most reliable broadband speeds available nationwide.

Furthermore, with access to broadband, community residents will be able to pursue education from their own homes and on their own time, which could provide significant savings compared to an on-campus traditional education experience. Online courses can be taken by anyone: homeschooled children, college students, entrepreneurs, freelancers, officegoers, and retirees. Education resources such as those offered by universities allows students to obtain a degree at their own pace and schedule without the added costs of on-campus life. Without high-speed Internet and increased broadband capacity, residents lack the connectivity they need to pursue a modern education and compete in today's world.

Comcast is a long-time community leader and is actively engaged in an array of community programs targeted at bridging the digital divide, supporting diversity and inclusion, and promoting volunteerism.

Comcast's contributions are a significant driver of economic development and competitiveness in the county, and Comcast hopes to maintain this important role throughout the coming years.

Broadband Adoption

If selected, Comcast will drive broadband adoption for all consumers through a variety of means including mailing information to residents, local media, and outreach to the community. Comcast will also drive adoption of its affordable subscriber options, Internet Essentials and Internet Essentials Plus, to all eligible residents. Interested residents will be

Application to DHCD Submitted through CAMS

Culpeper County

Achieving Universal Broadband Coverage in Culpeper County FY23

able to sign up for service by calling Comcast's toll-free telephone number, using Comcast's website, or in person at the nearest Xfinity store. Comcast employs a sales and marketing team of professionals to support these efforts and call center team members are skilled in addressing questions regarding Comcast's products and services. If conditions allow, a public meeting or event can be held in conjunction with county in or near the proposed project area to inform the residents about the upcoming work and answer questions. Comcast will partner with local leaders, community organizations, and non-profit groups to further maximize the broadband adoption rate in the Project Area.

Telehealth

UVAHealth announced in October, 2018 that "A new telehealth partnership between Novant Health UVA Health System Culpeper Medical Center and UVA Health System would enable Culpeper-area patients to get easier access to UVA's heart and vascular experts." Rural residents benefit from the creation of these partnerships but can only access them through medical offices and hospitals when they lack internet access at home. A recent health needs assessment conducted by UVA noted that "access to healthcare" was a concern for Culpeper County. Many providers now offer telehealth options which make specialists and practitioners available to wider populations.

Smart Farming

One of the CARES funded broadband expansion areas in Culpeper County that Comcast now serves is the George Washington Carver Agriculture Research Center at the Carver Center. This location was noted to be of prime importance for internet access because it promotes agricultural innovation and education. According to the Senior Virginia Tech Cooperative Extension Agent, Carl Stafford, "slow internet capacity already requires farmers in Culpeper County to use a workaround to upload farm production data as part of their application of Smart Farming technology. The local producers are well aware that data collected in real time, on the go, with farm equipment like the planter, sprayer, fertilizer applicator and combine would increase their productivity. Currently, data is downloaded from the equipment computer to an iPad, then streamed via cell phone signal to the cloud." Culpeper County remains primarily agricultural in character and our local producers are ready to adopt new practices as soon as internet services are made available to them.

E-entrepreneurship

Culpeper County supports entrepreneurs through various partnerships. The County funds the Central Virginia Small Business Development Center (SBDC) and hosts both virtual and in-person office hours for free 1 on 1 counseling for aspiring and established entrepreneurs. SBDC also offers quarterly seminars. In FY22 SBDC will host additional targeted sessions based on feedback from Culpeper County entrepreneurs. This effort will culminate in a full day business summit to celebrate Culpeper business owners. In 2023 SBDC will host a Founders Series course to get entrepreneurs from idea to business.

The Community Investment Collaborative (CIC) also supports entrepreneurs in Culpeper County by offering small business financing. In 2023 CIC will host its 16-session entrepreneur workshop course in Culpeper.

Distance Learning

Germanna Community College provides quality, accessible, and affordable educational opportunities for the residents of the City of Fredericksburg and the counties of Caroline, Culpeper, King George, Madison, Orange, Spotsylvania and Stafford. GCC operates at 5 different campuses throughout the region. Each campus has a unique focus and many classes are not currently offered at multiple locations. Distance Learning provides learning opportunities of rigor and quality equivalent to traditional classroom delivery, providing quality and accessible lifelong learning opportunities that serve a diverse community population. Distance Learning provides access to opportunities that are not offered in-person in Culpeper County.

Application to DHCD Submitted through CAMS

Culpeper County

Achieving Universal Broadband Coverage in Culpeper County FY23

Attachments:

Map(s) of project area, including proposed infrastructure

Attachment1ProjectAreamap829202223949.pdf

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

Attachment2DocumentationofFederalFunding829202223956.pdf

Documentation that proposed project area is unserved based on VATI criteria

Attachment3DocumentationUnservedAreaVATICriteria829202224006.pdf

Passings Form (Use template provided)

Attachment4PassingsFormCulpeper829202224015.pdf

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

Attachment5RDOFAwardedAreasincludedinVATI829202224025.pdf

Propagation Map if Wireless Project

Attachment6PropagationMap829202221509.pdf

Timeline/Project Management Plan

Attachment7TimelineProjectManagementPlan829202221514.pdf

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

Attachment8MOUMOAbetweenApplicantCoApplicant829202221521.pdf

Funding Sources Table (Use template provided)

Attachment9FundingSourcesTable829202221528.pdf

Documentation of Match Funding

Attachment10DocumentationofMatchFunding829202221536.pdf

Prior Expended Match Form (use template provided)

Attachment11PriorExpendedMatchForm829202221543.pdf

Application to DHCD Submitted through CAMS

Culpeper County

Achieving Universal Broadband Coverage in Culpeper County FY23

Derivation of Cost/Project Budget (Use template provided)

Attachment12DerivationofCostsCulpeper829202221552.pdf

Documentation of Supporting Cost Estimates

Attachment13DocumentationofSupportingCostEstimates829202221559.pdf

Letters of Support

Attachment14LettersofSupportandVABBSurveys829202221608.pdf

Two most recent Form 477 submitted to the FCC or equivalent

Attachment15TwomostrecentForm477submittedtotheFCCorequivalent829202221619.pdf

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

Attachment16PointandPolygonshapefilesCulpeperCo829202221629.zip

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

Attachment17RSSIProjectionShapefiles829202221642.pdf

Optional

Attachment18NetworkPerformanceandDevelopments829202221701.pdf

Optional

Attachment19CommunityImpactandInternetEssentials829202221727.pdf

Optional

Attachment20Q15NarrativeQ16NarrativeNetworkExpansion829202221748.pdf

Application to DHCD Submitted through CAMS

Culpeper County

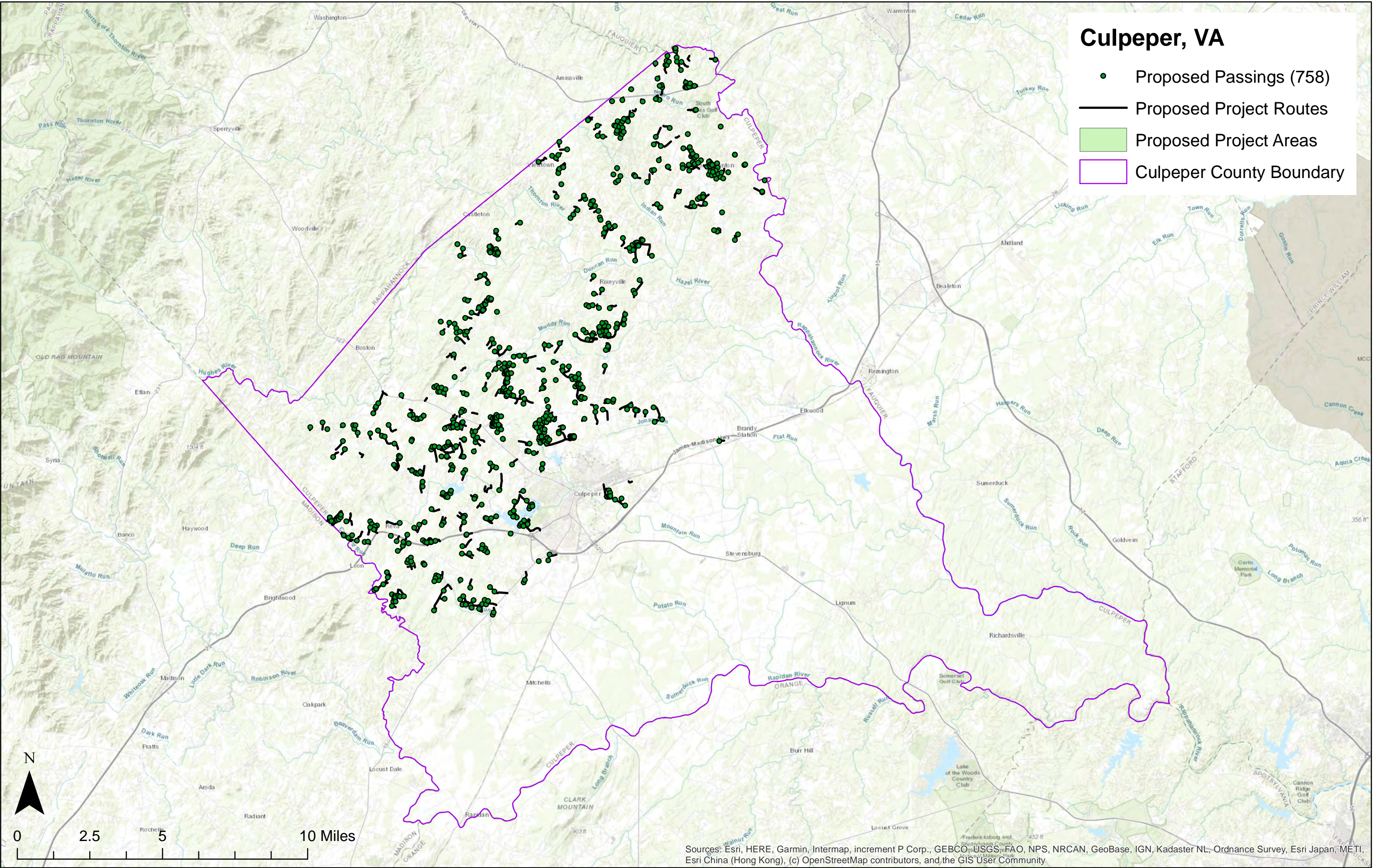
Achieving Universal Broadband Coverage in Culpeper County FY23

Notes:

In April 2022, Congresswoman Abigail Spanberger hosted a broadband summit in Culpeper County that included White House Senior Advisor and Infrastructure Implementation Coordinator Mitch Landrieu, the National Telecommunications and Information Administration's (NTIA) Special Representative for Broadband Andy Berke, and the Senior Advisor for Broadband and Technology Policy at the National Economic Council Lisa Hone, who oversees high-speed internet funding and the implementation of President Joe Biden's infrastructure law. The primary topic discussed was the way in which the FCC determines areas to be served or unserved and how that affects the locality's ability to pursue funding in those areas. This application is the final step in Culpeper County achieving universal broadband by working in partnership with Comcast to serve the remaining 758 locations without high-speed internet access. <https://spanberger.house.gov/posts/culpeper-times-spanberger-advocates-for-rural-internet>

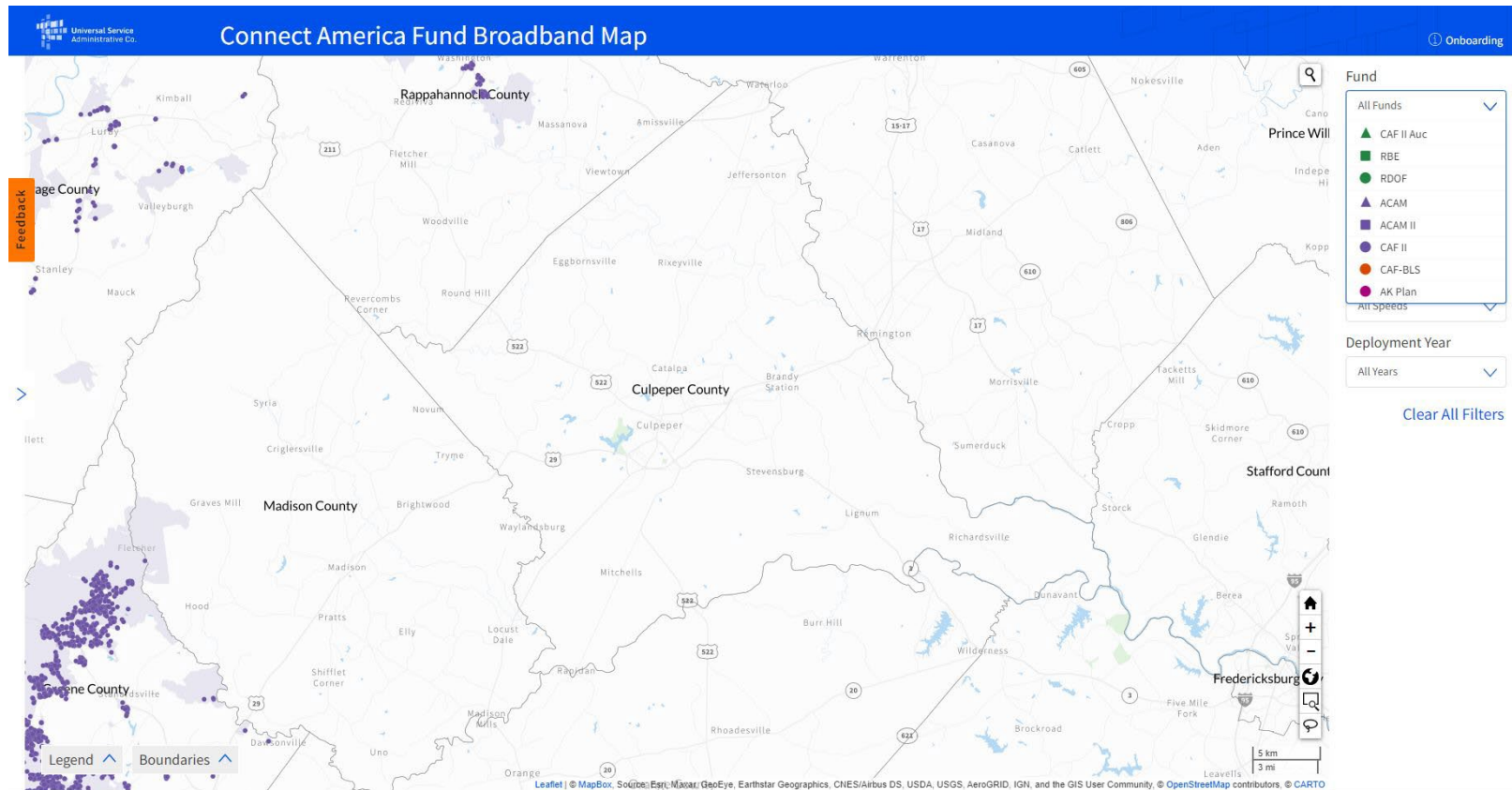
Culpeper, VA

- Proposed Passings (758)
- Proposed Project Routes
- Proposed Project Areas
- Culpeper County Boundary



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

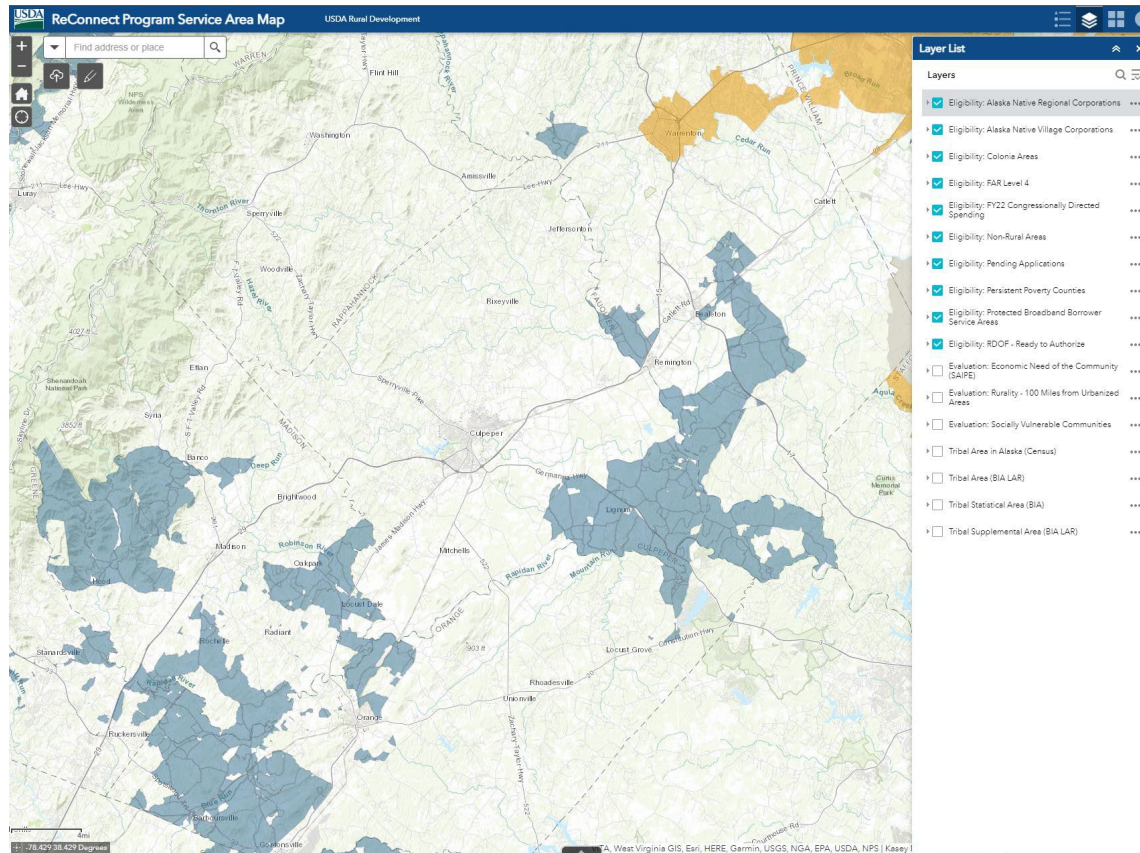
FY23 Virginia Telecommunication Initiative Attachment 2 – Documentation of Federal Funding



The map above notes no federal Connect America Funds II (CAF II), Alternative Connect America Cost Model (ACAM), and Rural Digital Opportunity Funds (RDOF) have been awarded in Culpeper County.

Source: <https://data.usac.org/publicreports/caf-map/>; accessed August 24, 2022

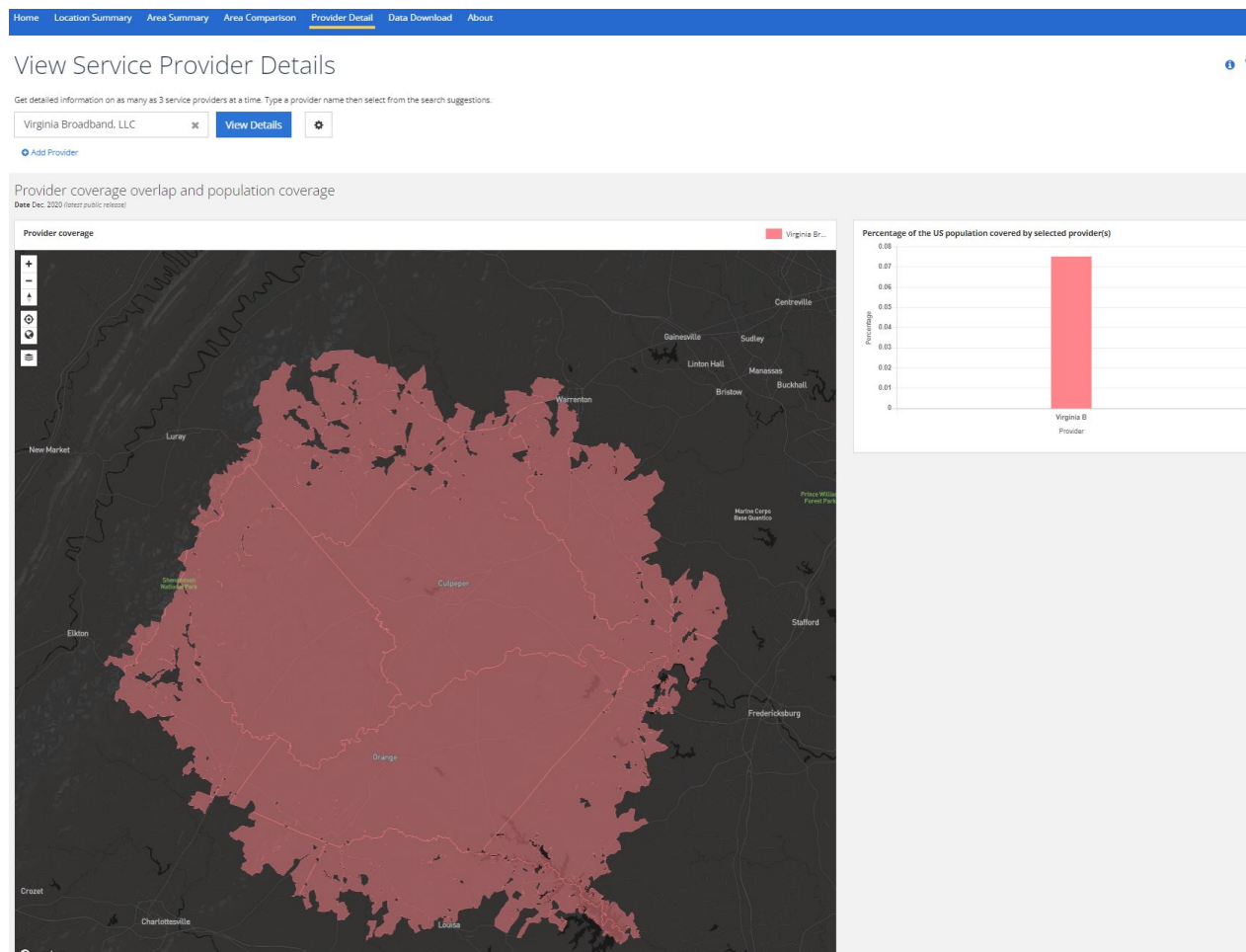
FY23 Virginia Telecommunication Initiative Attachment 2 – Documentation of Federal Funding



The map above notes no portion of Culpeper County is eligible for various funding programs through the United States Department of Agriculture ReConnect Program.

Source: <https://ruraldevelopment.maps.arcgis.com/apps/webappviewer/index.html?id=27bdf3ffca5e462c92bde6285d4358c0>; accessed August 24, 2022

FY23 Virginia Telecommunication Initiative
Attachment 3 – Documentation Unserved Area Criteria



The map above notes the reported area of fixed wireless coverage in Culpeper County.

Source: <https://go.usa.gov/xh2RZ>; accessed August 25, 2022

Type of Passings	Total Number of Passings in the Project Area ¹	Passings in the Project Area, without Special Construction Costs Required ²	Passings with Special Construction Costs budgeted in the Application ³	Number of Passings with Speeds at 25/3 or below in Project Area ⁴
Residential	758	734	24	58
Businesses (non-home based)	0	0	0	0
Businesses (home-based)	0	0	0	0
Community Anchors	0	0	0	0
Non-residential	0	0	0	0
Total	758	734	24	58

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

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

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

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

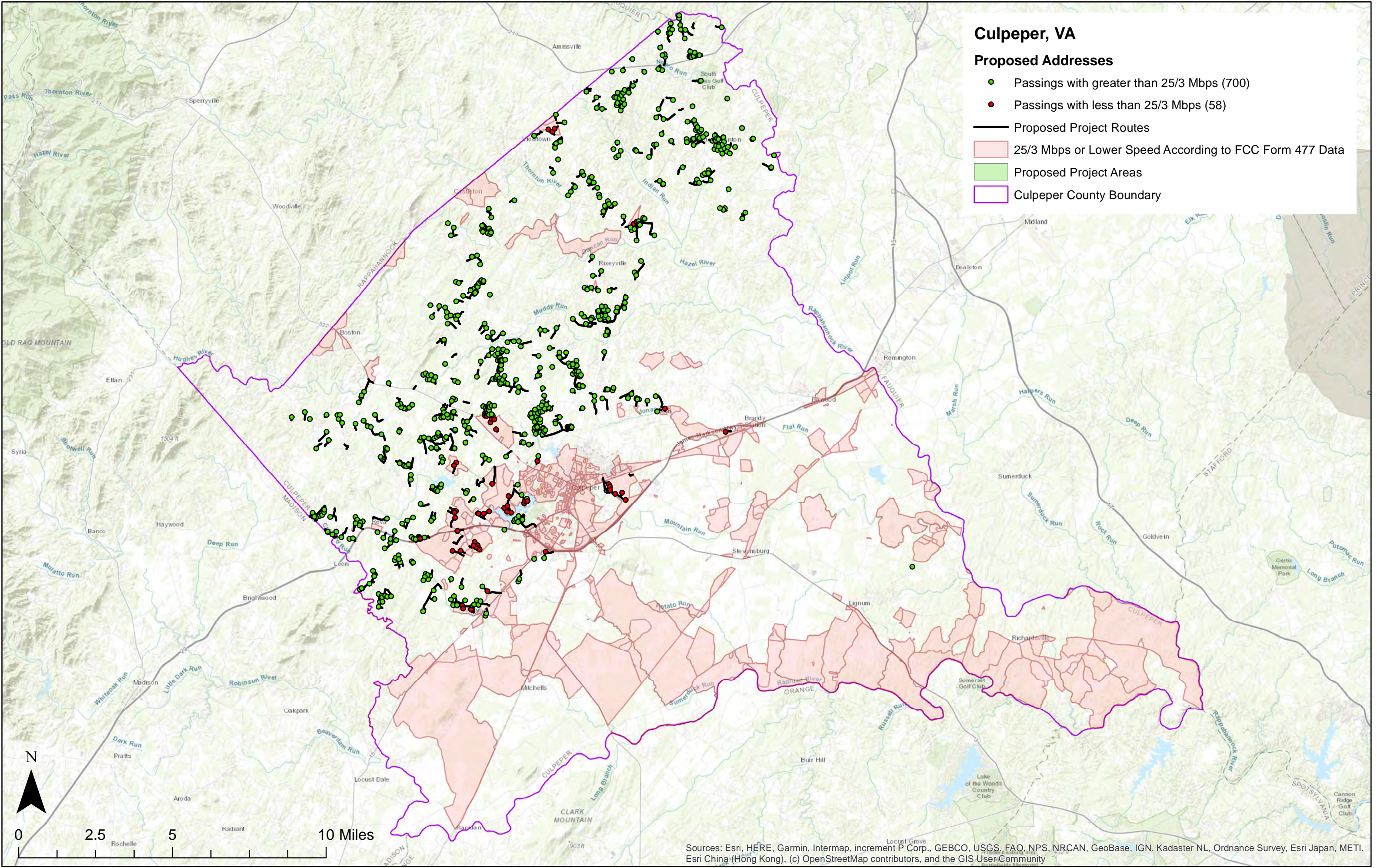
³ The number of structures in the project area with all construction costs budgeted in the application. These passings will not require any additional special construction costs beyond those budgeted for in the VATI application.

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

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.).

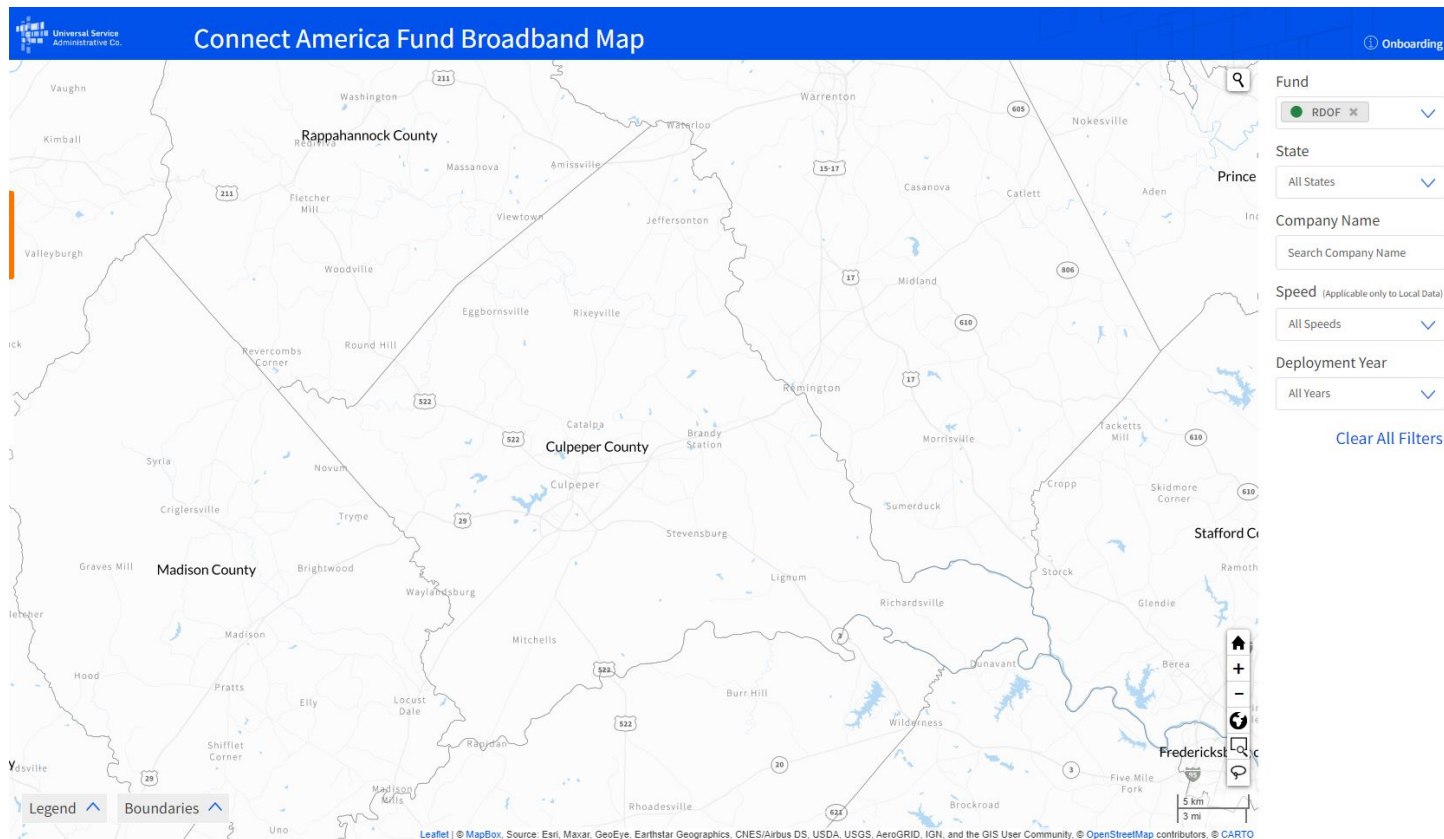
Community Anchor - schools, libraries, medical and health care providers, public safety entities, community colleges and other institutions of higher education, and other community support organizations and agencies that provide outreach, access, equipment, and support services to facilitate greater 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.



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

FY23 Virginia Telecommunication Initiative
Attachment 5 – RDOF Awarded Areas included in VATI Application



The map above notes no federal Rural Digital Opportunity Funds (RDOF) have been awarded in Culpeper County.

Source: <https://data.usac.org/publicreports/caf-map/>; accessed August 25, 2022



August 25, 2022

ATTACHMENT 6. Propagation Map if Wireless Project

Attachment 6 is not applicable to this grant application.

Comcast - FY23 VATI Network Expansion Project Proposal Timeline



START DATE

January 01, 2023

*Project timeline includes 3-month period following award announcement to execute VATI agreement and 18-month period to complete project.

				YEAR 1												YEAR 2								
Task	START DATE	END DATE	# of Business Days	01/23	02/23	03/23	04/23	05/23	06/23	07/23	08/23	09/23	10/23	11/23	12/23	01/24	02/24	03/24	04/24	05/24	06/24	07/24	08/24	09/24
Award announcement and finalize grant agreement(s)	01/01/23	03/30/23	64																					
Project Engineering (with DHCD pre-authorization)	02/01/23	08/31/23	152																					
Walk-out (with DHCD pre-authorization)	01/01/23	05/01/23	86																					
Permitting (with DHCD pre-authorization)	02/01/23	08/31/23	152																					
Design (with DHCD pre-authorization)	02/01/23	08/31/23	152																					
Materials (with DHCD pre-authorization)	12/01/22	04/15/23	97																					
Make Ready (with DHCD pre-authorization)	12/15/22	02/01/24	296																					
Construction	04/01/23	08/31/24	370																					
Total Project	04/01/23	09/30/24	391																					

**AGREEMENT BETWEEN CULPEPER COUNTY AND COMCAST
CABLE COMMUNICATIONS, LLC
FOR BROADBAND EXPANSION PROJECT**

This Agreement is dated [DATE] between Culpeper County, Virginia, hereinafter referred to as the “[County]” and Comcast Cable Communications, LLC, hereinafter referred to as “Comcast,” each a “Party” and together, the “Parties.”

WHEREAS, the County is authorized to expend American Rescue Plan Act (“ARPA”) funds to ensure that unserved residents and businesses in the County have access to broadband in order to promote economic development within the County, and

WHEREAS, Comcast provided an estimate of costs to support a “Project,” whereby Comcast will design, build, own, operate, manage and maintain a hybrid fiber coaxial cable or fiber EPON network extension that will provide access to broadband internet service to certain unserved residents in the County,

WHEREAS the County determined that the public interest is served by contracting with Comcast to bring broadband to certain residents in the County, and

WHEREAS, the County and Comcast intend to fund the Project as set forth in this Agreement;

Now THEREFORE, the parties hereto do mutually agree as follows:

1. Definitions.
 - a) “Qualifying Broadband Service” means high speed internet service capable of 100Mbps download and 20 Mbps upload speeds and be scalable to a minimum of 100Mbps symmetrical for download and upload speeds based on future technology advances.
 - b) “Cable Franchise Agreement” means the grant of authority issued to Comcast by the [Township] to own and operate its network in the public rights of way dated [DATE].
 - c) "Excusable Delay Event" means a delay that results from: (1) an event described in Section 13 of this Agreement that impacts Comcast’s ability to achieve Final Completion of the Project- including, but not limited to a make-ready work that is not completed within six (6) months of Comcast's submission of a proper application for utility pole attachments.
 - d) “Final Completion” means the date certified in writing by Comcast that construction of the Network has been completed by the Comcast and the locations in the Project Area are Serviceable.
 - e) “Network” means the hybrid fiber coaxial cable or fiber communications network extension that Comcast builds in the County.
 - f) “Project Area” means the residential or business addresses intended to be served by

the Network funded by the Project as set forth in Exhibit A.

- g) “Serviceable” means a location in the Project Area which has access to the Qualifying Broadband Service.

2. Term and Termination.

- a) This Agreement shall commence on [DATE] (the “Effective Date”) and shall expire upon the date of Final Completion, unless terminated sooner in accordance with the provisions of this Agreement. Notwithstanding the forgoing, Comcast may terminate this Agreement at any time, with or without reason, at its convenience by giving the County thirty (30) days prior written notice of such termination.
- b) This Agreement may be terminated for default for a breach of any one or more material terms of this Agreement that the breaching party fails to remedy in accordance with this section. In the event of a breach of one or more material terms of this Agreement, the non-breaching party must provide written notice of the breach(es) to the breaching party. In the event that the breaching party does not cure the breach(es) within thirty (30) calendar days from receipt of the non-breaching party’s written notice (or such longer time to which the Parties may agree), the non-breaching party may terminate this Agreement, in whole or in part.
- c) Termination of this Agreement by either Party as permitted herein shall not limit the legal rights and remedies otherwise available either Party.

2. Project Description

Comcast shall construct a Network capable of delivering Qualifying Broadband Service to certain unserved premises in the County (“Project Area”). The Project Area includes [NUMBER] ([]) residential/business premises that currently lack access to broadband service.

3. Performance of the Work.

- a) Comcast will design, build, own, operate, manage and maintain the Network that will provide access to Qualifying Broadband Service in the Project Area. Upon Final Completion, Comcast will operate the Network consistent with the terms of its Cable Franchise Agreement.
- b) Final Completion of the Project shall be within eighteen (18) months of the Effective Date of this Agreement; provided, however, that the date for Final Completion will be extended for each day of delay caused by the occurrence of an Excusable Delay Event. The Parties agree that they have a shared interest in pursuing options that would expedite the construction and completion of the Project in order to accelerate access to Qualifying Broadband Service in the Project Area. In furtherance of this shared interest, the Parties shall cooperate to identify appropriate mechanisms to accelerate Project performance, including, but not limited to assisting in expediting the issuance of necessary permits.

- c) Comcast acknowledges that it is solely responsible for all Project decisions, the preparation of all plans and specifications, and for developing, performing, and completing the Project.
- 4. Project Personnel.

Each Party shall provide written notice to the other Party within five (5) business days of the Effective Date identifying the person serving as each Party's point of contact to support effective communication and to report on the Project's progress. Each Party's notice shall also include the address, phone numbers, and email address for the point of contact. In the event there is a change in a Party's point of contact, the affected Party shall provide (a) prompt written notice to the other Party of the change and (b) the new point of contact's contact information.
- 5. Ownership of Project and Service Requirements.
 - a) Comcast shall retain ownership in and have exclusive use of the Network and all equipment used or deployed in connection with the Project.
 - b) Comcast shall operate and maintain the Network consistent with applicable industry standards and offer the Qualifying Broadband Service to each Serviceable location in the Project Area under terms, conditions and prices reasonably consistent with what Comcast offers to its customers in the County.
- 6. Payment.
 - a) In consideration of Comcast's agreement to complete the Project, County shall pay to Comcast an amount of [AMOUNT] DOLLARS (\$[]) payable as set forth in Section 7. The County represents and warrants that they are authorized to expend such funds and that they shall comply with any and all applicable laws related to the expenditure of such funds.
 - b) Comcast contribute [AMOUNT] DOLLARS (\$[]) for the Project.
- 7. Invoicing and Payment.
 - a) Reporting/Payment Schedule
 - i. Comcast shall submit invoices for payment and Project status reports to the County point of contact.
 - ii. Comcast shall submit invoices, accompanied by a Project status report, with appropriate supporting documentation, to County, no more frequently than quarterly.
 - iii. The County shall pay Comcast within thirty (30) days of receipt of an invoice and Project status report.
- 8. Confidentiality.

- a) “Confidential Information” includes, but is not limited to, information, drawings, data, specifications, technical information, and other information or materials furnished or made available by the disclosing Party to the receiving Party that reasonably should be considered proprietary and/or confidential and/or that the disclosing Party has indicated is proprietary and/or confidential.
- b) The Parties agree that during and after the expiration or termination of this Agreement, neither Party, nor any person, firm, corporation or other entity affiliated with, owned in whole or in part by, employed by or otherwise connected with the receiving Party, shall directly or indirectly, without the express written consent of the disclosing Party, divulge, use, sell, exchange, furnish, give away, or transfer in any way the Confidential Information of the disclosing Party.
- c) The Parties agree that, during the term of this Agreement and for a period of three (3) years from the expiration or termination thereof, any Confidential Information received from the other Party:
 - i. will only be used for the purpose of performing obligations and exercising rights under the Agreement;
 - ii. will not be disclosed to any third party without prior written approval of the disclosing Party, except for disclosures to third parties that are expressly contemplated hereunder;
 - iii. may only be disclosed within the receiving Party’s organization to employees that have a “need-to-know” such information in connection with the performance of the receiving Party’s obligations under the Agreement and who have been advised of the obligations regarding Confidential Information under the Agreement;
 - iv. will be treated with at least the same degree of care as the receiving Party treats its own Confidential Information, but in no event less than a reasonable degree of care;
 - v. will be copied only to the extent necessary for the purposes of this Agreement; and
 - vi. will remain the property of the disclosing Party.
- d) In the event that the receiving Party is served with a subpoena or other validly issued administrative or judicial process demanding the Confidential Information of the disclosing Party, the receiving Party shall promptly notify the disclosing Party so that the disclosing Party may seek a protective order or other remedy. The Parties shall reasonably cooperate with each other to quash such process or otherwise to limit the scope of any required disclosure. Unless the demand shall have been timely limited, quashed, or extended, the receiving Party shall be entitled to comply with such demand to the extent permitted by law. In the event that disclosure of any Confidential

Information is compelled, either Party shall seek an appropriate protective order from the court or administrative body to limit access to the Confidential Information.

- e) Upon the expiration or termination of this Agreement or upon the disclosing Party's request, the Contractor shall return all Confidential Information to the disclosing Party or at the disclosing Party's option, destroy all Confidential Information and provide, within ten (10) days of the disclosing Party's request, a written certification that all Confidential Information in all formats, including without limitation, paper, electronic and disk form, have been returned or destroyed, as the case may be.
- f) Each Party acknowledges that unauthorized disclosure or use of the other Party's Confidential Information could cause irreparable harm and significant injury to the disclosing Party that may be difficult to ascertain. Accordingly, each Party agrees that the disclosing party shall have the right to seek immediate injunctive relief from breach or threatened breach of this Agreement prohibiting any unauthorized disclosure or use of the Confidential Information, in addition to any other rights and remedies the disclosing Party may have.
- g) The confidentiality provisions of this section shall survive the termination or expiration of this Agreement.

9. Limitation of Liability.

- a) NOTWITHSTANDING ANY PROVISION IN THIS AGREEMENT TO THE CONTRARY, UNDER NO CIRCUMSTANCE OR LEGAL THEORY (TORT, CONTRACT OR OTHERWISE), SHALL COMCAST BE LIABLE TO THE COUNTY FOR INDIRECT, EXEMPLARY, SPECIAL, OR CONSEQUENTIAL DAMAGES INCLUDING, BUT NOT LIMITED TO, LOSS OF REVENUE, PROFIT OR USE OR COST OF CAPITAL OR OF SUBSTITUTE USE OR PERFORMANCE (COLLECTIVELY "CONSEQUENTIAL DAMAGES"), ARISING UNDER THIS AGREEMENT, IRRESPECTIVE OF WHETHER OR NOT THE [TOWNSHIP] HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.
- b) THE MAXIMUM LIABILITY OF COMCAST UNDER THIS AGREEMENT SHALL NOT EXCEED THE AMOUNT THE COUNTY WILL PAY TO COMCAST AS SET FORTH IN SECTION 6.a OF THIS AGREEMENT.

10. Changes.

In the event the County requests any change to the Project that causes an increase in the cost or time required for performance of the Project, Comcast shall notify the County of such within thirty (30) calendar days from the date of receipt of the County's written request. If the Parties agree to such changes in writing, the funding for the Project and the Final Completion date shall be equitably adjusted to incorporate such changes. Any request for work to be performed by Comcast outside the scope of this Agreement must be addressed under a separate agreement be executed by the Parties prior to performance.

11. Assignment; Transfer.

Neither Party may assign this Agreement in whole or in part, or delegate any of its duties or obligations thereunder, without the prior written consent of the other Party, except that without such consent Comcast (i) may assign this Agreement to a successor (by purchase, merger, operation of law, or otherwise) to all or substantially all of its business; and (ii) may assign this Agreement to an affiliate or subsidiary, provided such entity agrees in writing to be bound by the terms hereof. Any purported assignment in contravention of this section shall be null and void. Subject to the foregoing, this Agreement will bind and inure to the benefit of any permitted successors or assigns. Nothing herein is intended to limit Comcast's use of third-party consultants and contractors to perform the Project.

12. Nondiscrimination.

Comcast agrees to comply with all applicable federal, state, and local statutes, rules and regulations promoting fair employment practices or prohibiting employment discrimination and unfair labor practices. Comcast shall not discriminate in the hiring of any applicant for employment nor shall any qualified Comcast employee be demoted, discharged or otherwise subject to discrimination in the tenure, position, promotional opportunities, wages benefits or terms and conditions of their employment because of race, color, national origin, ancestry, age, sex, religion, disability, handicap, sexual orientation, gender identification, or for exercising any rights afforded by law.

13. Excusable Delay Event.

Neither party shall be liable to the other or be deemed to be in breach of this Agreement for any failure or delay in rendering performance arising out of causes beyond its reasonable control and without its fault or negligence. Such causes may include, but are not limited to, acts of God or of a public enemy, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, or unusually severe weather.

14. Governing Law and Venue.

This Agreement shall be interpreted and enforced in accordance with the laws of the VIRGINIA without regard to its conflict of laws principles. Any dispute arising under this Agreement that is not settled between the Parties shall take place in any court of competent jurisdiction in VIRGINIA. Each Party shall bear its respective legal costs. **TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, EACH PARTY IRREVOCABLY WAIVES ANY RIGHT IT MAY HAVE TO A TRIAL BY JURY IN CONNECTION WITH ANY LITIGATION ARISING OUT OF THIS AGREEMENT.**

15. Compliance With Laws.

The Parties agree to comply with all applicable local, state and federal laws, regulations, and ordinances in the performance of this Agreement.

16. Modification; Amendment.

This Agreement shall not be modified or amended, in whole or in part, except by written agreement signed by the Parties.

17. Survival.

The provisions of this Agreement that, by their sense and context, are intended to survive performance by either Party or the Parties shall also survive the completion, expiration, termination, or cancellation of this Agreement.

18. Headings; Exhibits.

The headings of paragraphs in this Agreement are for convenience only; they form no part of this Agreement and shall not affect its interpretation. All schedules, exhibits or attachments referred to in this Agreement shall be incorporated in and constitute a part of this Agreement.

19. Construction.

In the event that any portion of this Agreement is held to be invalid or unenforceable, the Parties shall replace the invalid or unenforceable portion with another provision that, as nearly as possible, reflects the original intention of the Parties, and the remainder of this Agreement shall remain in full force and effect.

20. Counterparts.

This Agreement may be executed and delivered in counterparts, all of which taken together shall constitute a single instrument.

21. Entire Understanding.

This Agreement constitutes the entire understanding of the parties related to the subject matter hereof, and supersedes all prior agreements, proposals, representations, statements, or understandings, whether written or oral, concerning the Project or the Parties' rights or obligations relating to the Project.

22. Waivers.

Conditions, covenants, duties and obligations contained in this Agreement may be waived only by written agreement executed by the Parties. Forbearance or indulgence in any form or manner by a Party shall not be construed as a waiver, nor in any way limit the remedies available to that Party.

23. Notice.

Any notice provided in accordance with this Agreement shall be in writing and shall be sent by electronic mail to the Project Manager with a copy to the individuals listed below.

County:

Comcast:

Any notice shall be deemed delivered and received when submitted in writing in person or when delivered by any other appropriate method evidencing actual receipt by the receiving party.

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed by a duly authorized representative by their hands and seals, intending to be so bound, as of the day and year firstabove written.

ATTEST: _____

COMCAST CABLE COMMUNICATIONS, LLC

By: _____

Name: _____

Title: _____

ATTEST: _____

CULPEPER COUNTY

By: _____

Name: _____

Title: _____

EXHIBIT A

[illegible]

VATI FUNDING SOURCES TABLE

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

Source	Amount	%	Status
REQUESTED VATI	\$ 8,828,198	80	Pending
PRIVATE	\$ 2,207,049	20	CONFIRMED
	\$		
	\$		
	\$		
	\$		
TOTAL	\$ 11,035,247	100 %	



August 25, 2022

Tammy Breski
Program Manager, Virginia Telecommunication Initiative
Virginia Department of Housing and Community Development
600 E Main Street, #300
Richmond, VA 23219

Dear Ms. Breski:

The purpose of this letter is to provide documentation regarding the in-kind contributions for the project proposed to the FY23 Virginia Telecommunication Initiative ("VATI") program.

The proposed project represents a partnership between Comcast and Culpeper County. As indicated in the application, Comcast will provide approximately 20% of the projected construction costs of \$11,035,247, totaling approximately \$2,207,049. Culpeper County will 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.

Sincerely,

A handwritten signature in blue ink, appearing to read "Misty Allen", is written over a light blue circular background.

Misty Allen
Regional Vice President, Government & Regulatory Affairs



August 25, 2022

ATTACHMENT 11. Prior Expended Match Form

Attachment 11 is not applicable to this grant application.

CULPEPER COUNTY

ATTACHMENT 12

Derivation of Costs



1215 E. Fort Avenue
Suite 103
Baltimore, MD 21230

Product	Total	VATI	Non-VATI	Source of Estimate	Date
EXAMPLE					
<u>Construction</u>					
<i>Broadband Construction – 118.1 miles</i>	\$11,035,247	\$8,828,198	\$2,207,049	Comcast	8/25/2022

FY23 Virginia Telecommunication Initiative

Attachment 13 – Documentation of Supporting Cost Estimates

Budget Category Budget Line Item	Unit	No. of Units	Unit cost	Total	Grant	Match	Other Funding	Description
BROADBAND NETWORKS								
Note: These items are general in nature, applicants should modify as required to describe their specific project.								
Electronic Equipment (cabinets, switches, routers, wireless radios, etc.)	All Electronic Equipment	See below (Total)	See below (Total)	\$ 275,225	\$ 220,180	\$ 55,045	\$ -	
Provide specific type of equipment to be funded								
SERVICE POWER INSERTER For XM or XM2 Series. P/N: 029-019-316(SP3-M). ALPHA	EA	1						POWER SUPPLY ACCESSORIES
FOSC 40 Closure, No Splice Traps	EA	115						FIBER SPLICE ENCLOSURES
FOSC 450 "B" & "BS" Splice Trap Kit - 24/fiber capacity	EA	115						FIBER SPLICE ENCLOSURES
FIBER SPLICE SLEEVE, SINGLE, 62 MM, FOSC, ACC, RNS SMOUL/12500, FVW-69079, RAYCHEL, 100 FIBER PACKAGE	EA	14						FIBER OPTIC SPLICES
2404226 Super vented PEDESTAL NODE DHOPE 2404226 LIGHT GREEN 7/16 LOCK ARMORCAST. P9001260ACH	EA	1						PEDESTALS
Vault, 30x36, 36" deep, bolt down with Shield lid, Comcast logo	EA	1						VAULTS
Vault, 36x36, 24" deep, bolt down, with Shield lid, Comcast logo	EA	489						VAULTS
FAULT W/L BOLT SPLIT-LID, W/ 100 PLUG (NO PEO), HOPE LID BODY, 24 X 36 X 24, P/N: SGL82482418410 CTANNELL	EA	14						VAULTS
Optima Pedestal Mount, 1000 1475 with two Fiber Tap Brackets, 181 Jack, 14 Green, anti insect vsmg, ground 12 X 8 Vial Valve Regulated Lead Acid 240 Runtime Minutes Standby Power Supply Battery Pack Comcast Embossed Pure Lead	EA	3						BATTERIES - POWER SUPPLY
6000 F4C POWER INSERTER POWER SWITCH MULTIFUNCTION P/N: ST21 SP3M SMART TECH 21 INC. DIE CAST ALUM. CDI POWERING	EA	1						POWER INSERTERS
BATTERY CABLE KIT, 4000000 00P SERIES P/N BCK-HB6874-202-20, ALPHA	EA	1						POWER SUPPLY ACCESSORIES
GROUND-MOUNTED ENCLOSURE, 3 BATTERY, 1200, 304, WBBX-RTB AND LAF-120	EA	1						POWER SUPPLY CABINETS
PRECISE P/D, 4 X 27, UPE SERIES, PCO, replaces CPE 1 1600 & 1601	EA	1						POWER SUPPLY CABINETS
XM2 Power Supply, 620W/18A @ 90% 600 grams, 120 V AC, Embedded LOCKS Transponder, DM3 APPS card and Smart AlphaGuard, 1 or 2 string S&G harness-wire kit, 3 battery, for XM2, 875-846-20, P/N: SAG-885-3	EA	1						POWER SUPPLY
1/4 Field Insululite Optical Splitter Component	EA	6						POWER SUPPLY ACCESSORIES
FEL Housing	EA	1						FIBER OPTIC SPLITTERS
Module	EA	6						FELM Housing Modules
Place New Ground Mounted Power Supply	Per Each Power Supply	1						Labor
Install Max	Per Each Max	6						Labor
Power Supply Meter Installation	Each Per Quote	1						Labor
Outside plant (fiber, coaxial, copper, etc.)	All Outside plant	See below (Total)	See below (Total)	\$ 10,078,309	\$ 8,862,648	\$ 2,015,661	\$ -	
Provide specific types of material to be funded								
48 INCH SQUARE NUT, HOT DIP GALVANIZED	EA	1,054						NUTS
GUY ATTACHMENT, FORMED STEEL, ONE BOLT, 2 X 1/4 INCH 1/16 HOLE, HOT DIP GALVANIZED	EA	106						GUY ATTACHMENTS
CABLE TV CONDUIT, 435 INCH, PS-304L, 1/2 INCH CONDUIT, SCHEDULE 40, TERRA COTTA	FT	35						CONDUIT
CONDUIT, INERDUCT, 1/2 SCH 40, TERRA COTTA W/1100 LB PULL TAP	FT	395,107						CONDUIT
SERVICE MAST DEADEND STRAP, 1 INCH TO 4 INCH DIA, 600 GALVANIZED STEEL, DROP CABLE DEADEND ATTACHMENT	EA	106						STRAPS
78 INCH X 6 FOOT, SUBCARRIER TERMINAL DROP TUBING, RISER, GRAY, PLASTIC, 1/2 I.D.	EA	106						GUARDS
96 FIBER SINGLE MODE (ITU G 652.D), RIBBON CABLE, S&S, 125 RIBBON, GEL FREE TUBE, 0.35/0.35/0.25 dB/km at 1310/1383/1550 nm (1383 nm unattenuated)	FT	716,496						FIBER RIBBON
144 Count, Low Water Peak, Loose Fibers, Dry Core and Dry Tube, Epoxy Glass or Epoxy-Strength Member, 600 Pounds Tensile Strength, Single-Tensile-Jacket, 35, 2500nm/1310/1550nm	FT	36,432						FIBER
STRAPS, LASHING, STAINLESS STEEL, FOR STRAND-MOUNTING FOSC 400 CLOSURES	EA	115						STRAPS
ANCHOR SCREW TRIPLEVEE	EA	106						GUY ATTACHMENTS
HITCHING BOLT, 5/8 X 16 INCH, HOT DIP GALVANIZED	EA	1,054						BOLTS
65 INCH X 6 FEET GROUND ROD, BONDED COPPER, UL LISTED	EA	2						GROUND ROD
GROUND CLAMP, 5/8" GROUND ROD, HEX HEAD BOLT, 10 STR 304, HEAVY DUTY, UL LISTED	EA	3						CLAMPS
SPLICE STRAND, 1/4" STRAND, 35" LONG	EA	106						STRAND SPLICES
SPLIT BOLT CONNECTOR (V), 1/8 SOLID TO 1/2 SOLID, 1/4 SOLID METAL WIRE STR, UL LISTED	EA	1,054						SPLIT BOLT CONNECTORS
1/4 INCH STRAND, EXTRA HIGH STRENGTH CLASS C COATING COASTAL, 7 WIRE, 600 MORE DIAMETER, 5000 FT REEL	EA	263,525						STRAND
WASHER, SQUARE, 2 X 1/8 INCH 1/16 INCH HOLE SIZE, HOT DIP GALVANIZED	EA	2,108						WASHERS
DIAG LASHING WIRE, 302 STAINLESS STEEL	CR	439						LASHING WIRE
LOCK, HIDDEN SHACKLE PADLOCK, KEY NUMBER 412424	EA	4						LOCKS
7 INCH X 8 FEET U PLANGED RISER GUARD, BUREL PLASTIC	EA	106						GUARDS
Composite New Greenfield Residential (SDUMDU) Aerial Construction	Per CR5 F3	263,525						Labor
Composite New Greenfield (SDUMDU) Underground 4" Directional Bore Construction for Coax/Fiber	Per Bore F3	391,195						Labor
Splice Loose Tube Fiber (Per Fusion 3-12)	Per Each Fiber	1,314						Labor
FELM Optimization	Each	1						Labor
Test and Tag MST Port	Per Each	758						Labor
Mount/Install/Temp MST	Per Each	24						Labor
Install New Splice Enclosure - Aerial	Per Each	46						Labor
Install New Splice Enclosure - Underground	Per Each	69						Labor
Back Addr	Foot	37,542						Labor
Bld Work - Bury Fiber Drop Conduit 12"	Quote	45,080						Labor
Customer Drops								
Provide a description of drop material to be funded								
	LF							
Customer premises equipment								
Provide a description of CPE to be funded								
	EA							
Towers - new or upgraded								Not Grant Eligible
New towers constructed must be owned by applicant								
Provide description of tower, study or structural improvement to be funded								
	EA							Not Grant Eligible
								Not Grant Eligible
Buildings - new construction or renovation	EA							Not Grant or Match Eligible
Provide description of building purchase or improvement to be funded								
								Not Grant or Match Eligible
								Not Grant or Match Eligible
Bandwidth Costs								Not Grant Eligible
Provide the credits being provided by MIBC for the use of their infrastructure								
	LS							Not Grant Eligible
								Not Grant Eligible
Engineering	All Engineering	See below (Total)	See below (Total)	\$ 681,713	\$ 545,370	\$ 136,343	\$ -	
Engineering costs must be tied to a Funded Capital Asset								
	LS							
Walkout and Field Verification of Existing Outside Plant - Coax and/or Fiber - Large Upgrade Projects > 20,000 ft	Foot	654,720						Walkout Costs
Walkout for Permit Fielding - 300' Complex	Each	1						Walkout Costs
Walkout for Permit Fielding Aerial	Each	1,054						Walkout Costs
Walkout for Permit Fielding greater than 300' Complex Underground	Foot	390,895						Walkout Costs
Walkout and Fielding for Power Supply Permit	Each	1						Walkout Costs
Permit Application within 300' Complex	Each	1						Permit Costs
Permit Application greater than 300' Complex Aerial	Each	1,054						Permit Costs
Permit Application greater than 300' Complex Underground	Foot	390,895						Permit Costs
Power Supply Permit Applications	Each	1						Permit Costs
Permit Payments Through 3rd Party - Make Ready	Aerial Miles	50						Permit Costs
Add lines as necessary to provide a full construction budget for the constructed network								
Total Broadband System				11,035,247.00	8,828,198.00	2,207,049.00	0.00	
OTHER CONSTRUCTION RELATED COSTS								
Provide a complete description of Other construction related costs								
Total Other Costs				0.00	0.00	0.00	0.00	
SUMMARY OF EXPENDITURES								
Broadband System				11,035,247.00	8,828,198.00	2,207,049.00	0.00	
Other				0.00	0.00	0.00	0.00	
TOTAL PROJECT CONSTRUCTION COSTS				11,035,247.00	8,828,198.00	2,207,049.00	0.00	

**Concast will invoice for any FY23 Virginia Telecommunication Initiative projects on a reimbursement basis. A reimbursement voucher(s) would include a detailed materials list, copies of vendor invoices, and documentation of payment of Concast expenses. Reimbursement vouchers may include confidential and proprietary information which Concast would submit following applicable program guidelines and law.



**John C. Egertson, AICP
County Administrator**

302 N. Main Street, Culpeper, Virginia 22701

Phone: (540) 727-3427

E-mail: jegertson@culpepercounty.gov

August 24, 2022

Tamarah Holmes, Ph.D.
Associate Director of Policy and Strategic Development
Virginia Department of Housing and Community Development
600 East Main Street, Suite 300
Richmond, VA 23219

Re: Virginia Telecommunication Initiative (VATI) 2022- "Achieving Universal Broadband Coverage in Culpeper County FY23"

Dr. Holmes,

I am writing to express Culpeper County's commitment to achieving universal broadband through our application submitted to the FY23 VATI grant opportunity. Culpeper County has committed millions of dollars over the past decade in order to achieve internet access for our rural residents. Most recently, Culpeper County contributed \$6,600,000 in cash match to the FY22 VATI grant cycle. While our currently underway fiber to the home initiative reaches almost 4,300 unserved households in Culpeper County, it quickly became apparent to us that there were a large number of remaining unserved locations within FCC served census blocks. Our community has widely embraced the fiber to the home project currently underway, but those residents that are not included and remain unserved are left frustrated and confused. We are pleased that Comcast has agreed to partner with us to reach the remaining 750 locations within Culpeper County that are located close to existing Comcast infrastructure. If awarded, this VATI grant will allow Culpeper County to finally achieve Universal Broadband Coverage. I urge you to support this project that will infill the final unserved areas of Culpeper County, and I appreciate all that DHCD has done to address rural broadband in the Commonwealth.

Sincerely,

John Egertson, AICP, Culpeper County Administrator

August 24, 2022

Dear Dr. Holmes,

I am writing to request you provide full and fair consideration of the application submitted by Culpeper County for the Virginia Telecommunication Initiative (VATI) funding opportunity as awarded by the Virginia Department of Housing and Community Development.

As I understand it, the purpose of this program is to provide financial assistance to supplement construction costs by private sector broadband service providers, in partnership with local units of government, to extend service to areas that presently are unserved by any broadband provider.

If awarded, Culpeper County says it will use funds for its “Achieving Universal Broadband Coverage in Culpeper County FY23” project, which will install a 118-mile network to reach the 750 homes, farms, churches, and businesses in the county that currently lack access to high-speed internet.

Culpeper County says while the FY22 VATI grant award it received will successfully bring internet services to more than 4,200 farms, homes and businesses, there are unserved areas in the County that were not included in the proposal due to their location in Comcast-served areas. Now partnering with Comcast on this “last mile,” Culpeper says this award would bring universal coverage across the county.

Expanding high-speed broadband access has been a key priority of mine while serving in Congress. I thank you for your time and attention to this grant application, as well as your service to the constituents of Virginia’s Seventh District, as we work to close the digital divide across the Commonwealth.

Kind Regards,

A handwritten signature in black ink, reading "Abigail Spanberger". The signature is fluid and cursive, with the first name "Abigail" written in a larger, more prominent script than the last name "Spanberger".

Abigail Spanberger
Member of Congress

Tamarah Holmes, Ph.D.
Associate Director of Policy and Strategic Development
Virginia Department of Housing and Community Development
600 East Main Street, Suite 300
Richmond, VA 23219

Re: Virginia Telecommunication Initiative (VATI) 2022- "Achieving Universal Broadband Coverage in Culpeper County FY23"

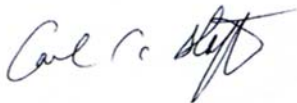
Dr Holmes,

I write to express support for the application submitted by Culpeper County and Comcast for the project known as "Achieving Universal Broadband Coverage in Culpeper County FY23". As a public/private collaboration, this project is expected to contribute to achieving stated VATI goals.

Slow internet capacity requires farmers to use a workaround to upload farm production data as part of their application of Smart Farming technology. They collect data in real time, on the go, with farm equipment. Then download the data from the equipment computer to an iPad, streaming uploads to the cloud as collected.

Those with fast internet use a thumb drive to move data batches from field equipment to the office computer, then upload collected batches via high speed fiber. Fiber at the farm office would allow batches of data to be uploaded and then immediately accessed for use while reducing the amount of hardware needed to stream small amounts over time.

Sincerely,



Carl C. Stafford
Senior Extension Agent, Livestock Forages



Office of the Division Superintendent

www.culpeperschools.org

471 James Madison Hwy., Suite 201
Culpeper, Virginia 22701

Tel./TTY (540) 825-3677 * Fax (540) 829-2111

August 24, 2022

Tamarah Holmes, Ph.D.
Associate Director of Policy and Strategic Development
Virginia Department of Housing and Community Development
600 East Main Street, Suite 300
Richmond, VA 23219

Re: Virginia Telecommunication Initiative (VATI) 2022- "Achieving Universal Broadband Coverage in Culpeper County FY23"

Dr. Holmes,

I am writing to convey my support of the application submitted by Culpeper County and Comcast. The project known as "Achieving Universal Broadband Coverage in Culpeper County FY23" will allow Comcast and Culpeper County to install a 118-mile network to reach the 750 remaining homes, farms, churches, and businesses in Culpeper County that currently lack access to high-speed internet.

As I understand it, the goal of the Virginia Telecommunication Initiative (VATI) is to extend broadband service to currently unserved areas. VATI prepares communities to build, utilize, and capitalize on telecommunications infrastructure with the goal of creating strong, competitive communities. This project is an innovative collaboration of both public and private entities that will help the Commonwealth achieve those goals.

For Culpeper County Public Schools this effort remains a priority and is greatly needed to reach the remaining homes in Culpeper County. High-speed internet access is critical to the success and sustainability of public education in Culpeper and across the Commonwealth. From communication to instruction, our services are highly dependent on access to reliable high-speed internet.

Sincerely,

Anthony S. Brads Ed.D.
Division Superintendent

"... every student will be inspired, empowered, and educated for success. "

Aug. 23, 2022

Tamarah Holmes, Ph.D.
Associate Director of Policy and Strategic Development
Virginia Department of Housing and Community Development
600 East Main Street, Suite 300
Richmond, VA 23219

Re: Virginia Telecommunication Initiative (VATI) 2022- “Achieving Universal Broadband Coverage in Culpeper County FY23”

Dr. Holmes,

I am writing to convey my support of the application submitted by Culpeper County and Comcast. The project known as “Achieving Universal Broadband Coverage in Culpeper County FY23” will allow Comcast and Culpeper County to install a 118 mile network to reach the 750 remaining homes, farms, churches, and businesses in Culpeper County that currently lack access to high-speed internet.

As I understand it, the goal of the Virginia Telecommunication Initiative (VATI) is to extend broadband service to currently unserved areas. VATI prepares communities to build, utilize, and capitalize on telecommunications infrastructure with the goal of creating strong, competitive communities. This project is an innovative collaboration of both public and private entities that will help the Commonwealth achieve those goals.

We at the Culpeper Chamber of Commerce are very passionate about broadband access in our community. We’ve heard from businesses, nonprofits and students that have not been able to participate in our community because of lack of broadband. Businesses owners have had to work longer hours because their home is not supported by broadband infrastructure. Students have missed opportunities to participate in programs that help earn scholarships because they cannot connect to the Internet. Increasing the infrastructure of our community is a vital part of our mission.

Sincerely,

Jeff Say

President/CEO, Culpeper Chamber of Commerce

LAURA LOVEDAY

From: dnnHELP <helpme@culpepercounty.gov>
Sent: Thursday, February 17, 2022 6:55 PM
To: LAURA LOVEDAY
Subject: Culpeper Internet Concerns

Name: [REDACTED]
Email: [REDACTED]
Phone: [REDACTED]
Address: [REDACTED]

- 1. Choose one.:** I am unhappy with my current internet service.
- 2. Please state your current service provider.:** VABB
- 3. Please describe why you are unhappy with your current internet service.:** I work from home and engage in video and phone sessions with clients; My internet connect is often unstable and slow for these kinds of services and sign into a VPN. I feel like I pay way too much for the type of mediocre service we have
- 4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:** I've never personally got a quote, although neighbors said it was hundreds of thousands of dillars
- 5. Please describe your experience trying to receive internet service.:** It's really frustrating, especially when there is inclement weather (because Internet even more unstable then). I've had to get mobile service Internet, which also isn't great. I pay over \$250/month for services that are less than average.
- 6. If I were able to get Comcast internet service I would commit to a 1 year contract.:** Yes

LAURA LOVEDAY

From: dnnHELP <helpme@culpepercounty.gov>
Sent: Tuesday, November 9, 2021 3:16 PM
To: LAURA LOVEDAY
Subject: Culpeper Internet Concerns

Name: [REDACTED]
Email: [REDACTED]
Phone: [REDACTED]
Address: [REDACTED]

1. Choose one.: I am unhappy with my current internet service.

2. Please state your current service provider.: VABB

3. Please describe why you are unhappy with your current internet service.: Unreliable and slow connection . It is even hard to get emails sometimes

4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.: They came out and did a survey and said it would cost \$25,000 to run the wire to our house from Old Orange Rd

5. Please describe your experience trying to receive internet service.: VABB is our only option , Cell reception is poor also for both Verizon and ATT. It use to be good but they adjusted tower on General Winder Rd

6. If I were able to get Comcast internet service I would commit to a 1 year contract.: Yes

From: [dnnHELP](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Tuesday, April 20, 2021 6:56:15 AM

Name: [REDACTED]
Email: [REDACTED]
Phone: [REDACTED]
Address: [REDACTED]

1. Choose one.: I am unhappy with my current internet service.

2. Please state your current service provider.: VABB, Blazing Hog

3. Please describe why you are unhappy with your current internet service.: Service is typically <10Mbps and drops out multiple times per day, making it inadequate for remote work, online learning, telehealth, VOIP, etc.

4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.: Comcast offered to extend service to our neighborhood for \$55,000 (42 homeowners along 1 mile of roads, plus about two dozen homeowners along the 3 miles of road between Riverbend and Seven Springs). They did not provide a survey number. Unfortunately, this is a working class region of the county - most residents don't have thousands of dollars sitting around to give to a highly profitable company.

5. Please describe your experience trying to receive internet service.: Numerous calls to Verizon and Comcast requesting (begging) that they extend service. Provided both companies with a list of 26 homes willing to commit to a multiyear agreement for internet, TV, or both. Companies said it wasn't profitable enough. We would be interested in working with a county on a VATI grant application once the next round of funding is accepting applications. Please contact me to discuss.

6. If I were able to get Comcast internet service I would commit to a 1 year contract.: Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Monday, September 14, 2020 5:56:49 PM

Name:

Email:

Phone:

Address:

1. Choose one.:

I am unhappy with my current internet service.

2. Please state your current service provider.:

VABB

3. Please describe why you are unhappy with your current internet service.:

Inability to stream

4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:

5. Please describe your experience trying to receive internet service.:

Only 2 options that have low bandwidth

6. If I were able to get Comcast internet service I would commit to a 1 year contract.:

Yes

From: [dnnHELP](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Monday, November 30, 2020 11:11:44 AM

Name: [REDACTED]
Email: [REDACTED]
Phone: [REDACTED]
Address: [REDACTED]

1. Choose one.: I am unhappy with my current internet service.

2. Please state your current service provider.: VA Broadband

3. Please describe why you are unhappy with your current internet service.: Inconsistent, very slow, often out

4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.: Never

5. Please describe your experience trying to receive internet service.:

6. If I were able to get Comcast internet service I would commit to a 1 year contract.: Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Sunday, September 13, 2020 2:17:25 PM

Name: [REDACTED]
Email: [REDACTED]
Phone: [REDACTED]
Address: [REDACTED]

- 1. Choose one.:** I have no internet service options at my home or business. (Skip to Question 4.)
- 2. Please state your current service provider.:**
- 3. Please describe why you are unhappy with your current internet service.:**
- 4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:** \$50,000
- 5. Please describe your experience trying to receive internet service.:** VA broadband is not available
- 6. If I were able to get Comcast internet service I would commit to a 1 year contract.:** Yes

From: [dnnHELP](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Monday, February 1, 2021 12:38:07 AM

Name: [REDACTED]
Email: [REDACTED]
Phone: [REDACTED]
Address: [REDACTED]

1. Choose one.: I am unhappy with my current internet service.

2. Please state your current service provider.: VA

3. Please describe why you are unhappy with your current internet service.: I'm using my mobile hot spot because Comcast is a mile away from my address, VABB did not have a consistent connection, and Hughes net is expensive and won't meet my internet needs according to their own representative.

4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:

5. Please describe your experience trying to receive internet service.: Comcast said if we paid for the extension we could get service. We can't afford that option. As mentioned above, VABB and Hughes net were my other options but VABB was very expensive for unlimited meanwhile their connection was not reliable. Hughes net stated I couldn't get unlimited for our family's needs.

6. If I were able to get Comcast internet service I would commit to a 1 year contract.: Yes

From: [dnnHELP](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Monday, November 30, 2020 10:00:28 AM

Name: [REDACTED]
Email: [REDACTED]
Phone: [REDACTED]
Address: [REDACTED]

- 1. Choose one.:** I am unhappy with my current internet service.
- 2. Please state your current service provider.:** AT&T
- 3. Please describe why you are unhappy with your current internet service.:** Only internet available is AT&T wireless. Cost is prohibitive.
- 4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:**
- 5. Please describe your experience trying to receive internet service.:** Have tried VABB, satellite and cellular. Cellular is best and most expensive.
- 6. If I were able to get Comcast internet service I would commit to a 1 year contract.:** Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Saturday, September 12, 2020 10:15:43 PM

Name: [REDACTED]
Email: [REDACTED]
Phone: [REDACTED]
Address: [REDACTED]

1. Choose one.: I am unhappy with my current internet service.

2. Please state your current service provider.: VABB

3. Please describe why you are unhappy with your current internet service.: Intermittent service

4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.: \$25,000

5. Please describe your experience trying to receive internet service.: Hot spot, Satellite, VABB. All had issues.

6. If I were able to get Comcast internet service I would commit to a 1 year contract.: Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Tuesday, September 15, 2020 6:22:49 AM

Name: [REDACTED]
Email: [REDACTED]
Phone: [REDACTED]
Address: [REDACTED]

- 1. Choose one.:** I am unhappy with my current internet service.
- 2. Please state your current service provider.:** Virginia Broad Band
- 3. Please describe why you are unhappy with your current internet service.:** Service is NOT consistent. We have many times throughout the day when it just doesn't work. The upload and download speeds vary throughout the day. It is just not reliable.
- 4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:**
- 5. Please describe your experience trying to receive internet service.:** It's been painful. Currently we use a combination of Virginia Broad Band, Verizon Hotspot and Verizon Jetpack. I switch throughout the day based on what is working the best. When I have major work presentations, I drive to Northern VA so I can use my Mom's Verizon High Speed Internet.
- 6. If I were able to get Comcast internet service I would commit to a 1 year contract.:** Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Tuesday, September 15, 2020 4:21:53 PM

Name: [REDACTED]
Email: [REDACTED]
Phone: [REDACTED]
Address: [REDACTED]

1. Choose one.: I am unhappy with my current internet service.

2. Please state your current service provider.: Virginia Broadband

3. Please describe why you are unhappy with your current internet service.: It is not reliable all the time and the speeds are mediocre at best. I came from Comcast and would very much prefer that.

4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:

5. Please describe your experience trying to receive internet service.:

6. If I were able to get Comcast internet service I would commit to a 1 year contract.: Yes

From: [dnnHELP](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Wednesday, August 11, 2021 1:30:35 PM

Name:

[REDACTED]

Email:

[REDACTED]

Phone:

[REDACTED]

Address:

[REDACTED]

1. Choose one.:

I have no internet service options at my home or business. (Skip to Question 4.)

2. Please state your current service provider.:

3. Please describe why you are unhappy with your current internet service.:

4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:

5. Please describe your experience trying to receive internet service.:

VA. Broadband had promised Internet service before construction but post construction I was repeatedly told it was not available at my location. Since the T Mobile/Sprint merger, hot spot usage via cell service has slowed to an undependable crawl.

6. If I were able to get Comcast internet service I would commit to a 1 year contract.: Yes

From: [dnnHELP](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Saturday, August 21, 2021 8:22:50 PM

Name:

Email:

Phone:

Address:

1. Choose one.:

I am unhappy with my current internet service.

2. Please state your current service provider.:

Virginia broad band

3. Please describe why you are unhappy with your current internet service.:

Speed and constantly out

4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:

5. Please describe your experience trying to receive internet service.:

Can't get any

6. If I were able to get Comcast internet service I would commit to a 1 year contract.:

Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Sunday, September 13, 2020 7:40:17 PM

Name: [REDACTED]
Email: [REDACTED]
Phone: [REDACTED]
Address: [REDACTED]

1. Choose one.: I am unhappy with my current internet service.

2. Please state your current service provider.: VABB

3. Please describe why you are unhappy with your current internet service.: Poor upload/download speeds, expensive, services goes down frequently due to tower issues

4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.: N/a

5. Please describe your experience trying to receive internet service.: VABB & Hughes Net are only providers in my area. Hughes net has worse rated service, cost more & has a wait list for my area

6. If I were able to get Comcast internet service I would commit to a 1 year contract.: Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Wednesday, September 30, 2020 3:54:07 PM

Name: [REDACTED]
Email: [REDACTED]
Phone: [REDACTED]
Address: [REDACTED]

1. Choose one.: I am unhappy with my current internet service.

2. Please state your current service provider.: Virginia Broadband

3. Please describe why you are unhappy with your current internet service.: It's slow and goes out and the drop of a hat

4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.: None

5. Please describe your experience trying to receive internet service.: Nothing works well we are 2 miles to far for Comcast

6. If I were able to get Comcast internet service I would commit to a 1 year contract.: Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Wednesday, September 30, 2020 2:46:30 PM

Name: [REDACTED]
Email: [REDACTED]
Phone: [REDACTED]
Address: [REDACTED]

- 1. Choose one.:** I am unhappy with my current internet service.
- 2. Please state your current service provider.:** Va broadband
- 3. Please describe why you are unhappy with your current internet service.:** Service goes out periodically for several hours to even the next day. We need internet to run out business and can't have down time. The svc as well is quite costly compared to bundle plans like comcast
- 4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:**
- 5. Please describe your experience trying to receive internet service.:** Comcast obviously has there hands tied. We've tried numerous times.
- 6. If I were able to get Comcast internet service I would commit to a 1 year contract.:** Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Thursday, October 8, 2020 7:24:54 PM

Name: [REDACTED]
Email: [REDACTED]
Phone: [REDACTED]
Address: [REDACTED]

1. Choose one.: I am unhappy with my current internet service.

2. Please state your current service provider.: VA

3. Please describe why you are unhappy with your current internet service.: Slow speeds, inconsistent service.

4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:

5. Please describe your experience trying to receive internet service.: Frustrating. Options are very limited and usually come with a data cap and high prices or very slow internet speed.

6. If I were able to get Comcast internet service I would commit to a 1 year contract.: Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Wednesday, September 16, 2020 1:20:17 PM

Name: [REDACTED]
Email: [REDACTED]
Phone: [REDACTED]
Address: [REDACTED]

1. Choose one.: I am unhappy with my current internet service.

2. Please state your current service provider.: VABB

3. Please describe why you are unhappy with your current internet service.: It is slow, overpriced, and unreliable.

4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.: n/a

5. Please describe your experience trying to receive internet service.: We originally had HughesNet which was horribly slow. Switched to VABB in 2016. I pay \$159.99 a month for upgraded service; however, it they have frequent outages and extended periods of slowness and it seems to be getting worse. This has made it extremely difficult (sometimes impossible) for me to work from home or take online classes, both of which I would do if I had reliable internet.

6. If I were able to get Comcast internet service I would commit to a 1 year contract.: Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Friday, September 18, 2020 3:27:56 PM

Name:

Email:

Phone:

Address:

1. Choose one.:

I am unhappy with my current internet service.

2. Please state your current service provider.:

Va broad band

3. Please describe why you are unhappy with your current internet service.:

No service 50%of the time. Very slow , the kids can't download school work

4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:

5. Please describe your experience trying to receive internet service.:

No help

6. If I were able to get Comcast internet service I would commit to a 1 year contract.:

Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Tuesday, September 15, 2020 11:05:09 PM

Name: [REDACTED]
Email: [REDACTED]
Phone: [REDACTED]
Address: [REDACTED]

1. Choose one.: I am unhappy with my current internet service.

2. Please state your current service provider.: VABB - Virginia Broadband

3. Please describe why you are unhappy with your current internet service.: Constant outages with no information provided by the provider. VABB never answers the phone when you call to report an issue. Takes hours - days to get service restored. Costs too much money for the horrible service being provided

4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.: N/a

5. Please describe your experience trying to receive internet service.: Horrible. Only one provider... VABB

6. If I were able to get Comcast internet service I would commit to a 1 year contract.: Yes

From: [dnnHELP](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Sunday, August 22, 2021 8:14:03 AM

Name: [REDACTED]
Email: [REDACTED]
Phone: [REDACTED]
Address: [REDACTED]

1. Choose one.: I am unhappy with my current internet service.

2. Please state your current service provider.: Vabb

3. Please describe why you are unhappy with your current internet service.: Spotty and very very slow

4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:

5. Please describe your experience trying to receive internet service.: Terrible

6. If I were able to get Comcast internet service I would commit to a 1 year contract.: Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Wednesday, September 16, 2020 9:41:42 PM

Name: [REDACTED]
Email: [REDACTED]
Phone: [REDACTED]
Address: [REDACTED]

- 1. Choose one.:** I am unhappy with my current internet service.
- 2. Please state your current service provider.:** VABB
- 3. Please describe why you are unhappy with your current internet service.:** The extremely high price for service that is slowed down after a certain data limit. Losing the signal, or no signal available. Poor customer service.
- 4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:** Comcast is not available where I live.
- 5. Please describe your experience trying to receive internet service.:** At this time, unless I purchase a hotspot, and pay high prices, the only other service available to meet the needs of my family for virtual learning and work is VABB.
- 6. If I were able to get Comcast internet service I would commit to a 1 year contract.:** Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Sunday, September 13, 2020 2:28:30 PM

Name: [REDACTED]
Email: [REDACTED]
Phone: [REDACTED]
Address: [REDACTED]

1. Choose one.: I am unhappy with my current internet service.

2. Please state your current service provider.: Virginia Broadband

3. Please describe why you are unhappy with your current internet service.: Overpriced, slow, in and out often, cannot sustain all family members

4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:

5. Please describe your experience trying to receive internet service.: Few viable options, very expensive especially for such poor service

6. If I were able to get Comcast internet service I would commit to a 1 year contract.: Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Wednesday, September 16, 2020 6:51:01 AM

Name: [REDACTED]
Email: [REDACTED]
Phone: [REDACTED]
Address: [REDACTED]

- 1. Choose one.:** I am unhappy with my current internet service.
- 2. Please state your current service provider.:** Blazing Hog just recently
- 3. Please describe why you are unhappy with your current internet service.:** Supposedly Blazing Hog may be kicked off the TMobile tower in Boston or we may have to pay a lot more than we currently are
- 4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:** The community has been told that Comcast isn't interested in extending services to Seven Springs even though it goes all the way to Riverbend subdivision. We have asked Comcast
- 5. Please describe your experience trying to receive internet service.:** Virginia Broadband was our previous provider until the end of July. As a teacher, they were not accommodating on overtures and not willing to work with us. The charges over the consumption were high and their other packages didn't offer faster service so you could stream, etc.
- 6. If I were able to get Comcast internet service I would commit to a 1 year contract.:** Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Tuesday, September 15, 2020 10:20:16 PM

Name: [REDACTED]
Email: [REDACTED]
Phone: [REDACTED]
Address: [REDACTED]

1. Choose one.: I am unhappy with my current internet service.

2. Please state your current service provider.: Virginia Broadband

3. Please describe why you are unhappy with your current internet service.: Outages, slows down, not reliable

4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:

5. Please describe your experience trying to receive internet service.: Not difficult to get VA Broadband

6. If I were able to get Comcast internet service I would commit to a 1 year contract.: Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Tuesday, September 15, 2020 4:05:23 PM

Name: [REDACTED]

Email: [REDACTED]

Phone: [REDACTED]

Address: [REDACTED]

1. Choose one.: I am unhappy with my current internet service.

2. Please state your current service provider.: Viasat

3. Please describe why you are unhappy with your current internet service.: speeds are inconsistent and seldom even close to service speeds contracted. The ping rate is also incredibly slow 700 ms versus a norm of 40-70 ms. Dealing with data limits is also an issue.

4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.: Comcast refused to provide service to Seven Springs neighborhood in Boston, VA at the end of Reva Road even though our internal survey indicated a potential revenue of ~\$50,000/year for a combination of internet, television, and telephone service.

5. Please describe your experience trying to receive internet service.: VBB was unable to provide service. Satellite internet, while workable, has many speed and reliability issues.

6. If I were able to get Comcast internet service I would commit to a 1 year contract.: Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Monday, September 14, 2020 4:37:42 PM

Name: [REDACTED]
Email: [REDACTED]
Phone: [REDACTED]
Address: [REDACTED]

1. Choose one.: I am unhappy with my current internet service.

2. Please state your current service provider.: Virginia Broadband

3. Please describe why you are unhappy with your current internet service.: Expensive and Slow

4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:

5. Please describe your experience trying to receive internet service.: Basically there is none available

6. If I were able to get Comcast internet service I would commit to a 1 year contract.: Yes

From: [dnnHELP](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Wednesday, December 2, 2020 9:00:54 PM

Name: [REDACTED]
Email: [REDACTED]
Phone: [REDACTED]
Address: [REDACTED]

1. Choose one.: I am unhappy with my current internet service.

2. Please state your current service provider.: Virginia Broadband

3. Please describe why you are unhappy with your current internet service.: The cost is way too high. \$160/month for only 25Mb/s service is difficult to manage.

4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.: Comcast never provided a quote, nor actually came out to survey. After numerous calls and online chats over the course of a month, they would only say that they do not provide service in our area.

5. Please describe your experience trying to receive internet service.: From Comcast, it was a massive headache. Numerous reps refused to go any further than telling us it wasn't available. When I did finally get a ticket submitted, I was told it would take up to a month. I never heard anything back, and any follow up I tried simply gave an answer of "they're still looking into it." Virginia Broadband did get us set up, but it took 3 weeks until they could come out, and the cost of service is quite high.

6. If I were able to get Comcast internet service I would commit to a 1 year contract.: Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Sunday, September 13, 2020 2:44:29 PM

Name: [REDACTED]
Email: [REDACTED]
Phone: [REDACTED]
Address: [REDACTED]

1. Choose one.: I am unhappy with my current internet service.

2. Please state your current service provider.: VaBB

3. Please describe why you are unhappy with your current internet service.: Spotty and dliw

4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:

5. Please describe your experience trying to receive internet service.: very limited options

6. If I were able to get Comcast internet service I would commit to a 1 year contract.: Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Tuesday, September 15, 2020 8:37:01 PM

Name: [REDACTED]
Email: [REDACTED]
Phone: [REDACTED]
Address: [REDACTED]

- 1. Choose one.:** I am unhappy with my current internet service.
- 2. Please state your current service provider.:** Virginia broadband
- 3. Please describe why you are unhappy with your current internet service.:** I have service about 50% of the time I need it. When I do have it, it frequently blinks out, sometimes momentarily, sometimes for hours, sometimes for days. Customer service is nonexistent.
- 4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:**
- 5. Please describe your experience trying to receive internet service.:** See above
- 6. If I were able to get Comcast internet service I would commit to a 1 year contract.:** Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Tuesday, September 15, 2020 3:07:17 PM

Name: [REDACTED]
Email: [REDACTED]
Phone: [REDACTED]
Address: [REDACTED]

1. Choose one.: I am unhappy with my current internet service.

2. Please state your current service provider.: Virginia Broadband

3. Please describe why you are unhappy with your current internet service.: TOO EXPENSIVE

4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:

5. Please describe your experience trying to receive internet service.: I live on rote 3 less than a mile from the 522 intersection. The lines for the Library of Congress run through my yard, but I can't get decent internet for under \$200 a month. People on dirt roads have decent internet but on a 4 lane highway nothing.

6. If I were able to get Comcast internet service I would commit to a 1 year contract.: Yes

From: [dnnHELP](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Monday, January 25, 2021 9:34:15 PM

Name: [REDACTED]
Email: [REDACTED]
Phone: [REDACTED]
Address: [REDACTED]

1. Choose one.: I am unhappy with my current internet service.

2. Please state your current service provider.: Virginia Broadband

3. Please describe why you are unhappy with your current internet service.: Service is inconsistent and disconnects/interruptions are frequent. Due to COVID I am forced to work from home which requires connecting over a VPN and frequent WebEx (including screen share) and VOIP calls throughout the day. VABB is too slow and it is embarrassing that my team cannot hear me and I cannot often hear them.

4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.: After repeated calls Comcast finally gave us a quote on January 21st - the total construction cost is \$12,712 and the customer contribution is \$9,912 if Comcast does all the work. If we do the trenching our selves the total construction cost is \$3,268 and our customer contribution is \$468

5. Please describe your experience trying to receive internet service.: Our experience with Comcast has been horrible. In 2017 when they extended service halfway down our road we tried to get them to include all of us - 12 houses. At that time Comcast told me that even if we could afford what they would charge us they probably wouldn't do it anyway because our business isn't worth it to them. Comcast came again this past fall and extended to our neighbor's house (16116 Laurel Springs). Again Comcast would not do a proper survey and work efficiently, from the end of the road out, to provide service to all of us. Now that we have a cost to extend to our house we realized the distance and total cost are very similar to what Comcast did in October, \$11,000 total for 16116 vs \$12,712 for ours, but our customer contribution is more twice what Comcast charged our neighbor - \$9,912 vs \$4,844. If Comcast would have done a proper survey in 2017 I would be willing to bet that each of us would have likely paid no more than \$2,000 each. Comcast's business practices are suspect at best and their customer service is horrible. To add a note on my answer to the next question, yes I'd commit for one year but only because there is no competition. If there is an adequate competitor I would much rather do business with anyone other than Comcast.

6. If I were able to get Comcast internet service I would commit to a 1 year Yes

contract.:

From: [dnnHELP](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Saturday, August 21, 2021 4:23:15 PM

Name:

Email:

Phone:

Address:

1. Choose one.:

I am unhappy with my current internet service.

2. Please state your current service provider.:

Vabb

3. Please describe why you are unhappy with your current internet service.:

Not fast

4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:

No they were rude

5. Please describe your experience trying to receive internet service.:

Terrible

6. If I were able to get Comcast internet service I would commit to a 1 year contract.:

Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Friday, October 9, 2020 8:39:06 PM

Name: [REDACTED]
Email: [REDACTED]
Phone: [REDACTED]
Address: [REDACTED]

- 1. Choose one.:** I am unhappy with my current internet service.
- 2. Please state your current service provider.:** Vabb
- 3. Please describe why you are unhappy with your current internet service.:** Slow. Unlimited is 225.00 a month
- 4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:** None
- 5. Please describe your experience trying to receive internet service.:** Comcast is all around us but refuses to come down our road. Told us to get a list of people that wanted it and a lady on this road did that. They said no. I went to Maryland to the top and they told me they could not make Culpeper put internet down my road.
- 6. If I were able to get Comcast internet service I would commit to a 1 year contract.:** Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Wednesday, October 7, 2020 7:25:07 PM

Name:

Email:

Phone:

Address:

1. Choose one.:

I am unhappy with my current internet service.

2. Please state your current service provider.:

VA Broadband

3. Please describe why you are unhappy with your current internet service.:

Expensive, not always reliable

4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:

5. Please describe your experience trying to receive internet service.:

6. If I were able to get Comcast internet service I would commit to a 1 year contract.:

Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Sunday, September 13, 2020 11:27:41 AM

Name: [REDACTED]
Email: [REDACTED]
Phone: [REDACTED]
Address: [REDACTED]

1. Choose one.: I am unhappy with my current internet service.

2. Please state your current service provider.: VABB

3. Please describe why you are unhappy with your current internet service.: Goes out frequently

4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:

5. Please describe your experience trying to receive internet service.: Expensive and Comcast is not available

6. If I were able to get Comcast internet service I would commit to a 1 year contract.: Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Thursday, October 1, 2020 7:23:08 PM

Name: [REDACTED]
Email: [REDACTED]
Phone: [REDACTED]
Address: [REDACTED]

1. Choose one.: I am unhappy with my current internet service.

2. Please state your current service provider.: VABB

3. Please describe why you are unhappy with your current internet service.: Slow, service very spotty at times, very expensive, company not responsive

4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:

5. Please describe your experience trying to receive internet service.: Horrible

6. If I were able to get Comcast internet service I would commit to a 1 year contract.: Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Friday, September 18, 2020 12:51:10 PM

Name: [REDACTED]
Email: [REDACTED]
Phone: [REDACTED]
Address: [REDACTED]

- 1. Choose one.:** I am unhappy with my current internet service.
- 2. Please state your current service provider.:**
- 3. Please describe why you are unhappy with your current internet service.:** Only reliable service in Brenridge Subdivision, Brandy Station is an STT hotspot. We cannot use it for TV service because we are limited on minutes.
- 4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:**
- 5. Please describe your experience trying to receive internet service.:** VABB - terrible service, poor reliability
- 6. If I were able to get Comcast internet service I would commit to a 1 year contract.:** Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Wednesday, September 16, 2020 2:53:58 PM

Name:

Email:

Phone:

Address:

1. Choose one.:

I am unhappy with my current internet service.

2. Please state your current service provider.:

VABB

3. Please describe why you are unhappy with your current internet service.:

Unreliable

4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:

5. Please describe your experience trying to receive internet service.:

It is either HUGHESNET which should be shutdown for fraud !!

6. If I were able to get Comcast internet service I would commit to a 1 year contract.:

Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Tuesday, September 22, 2020 6:23:22 AM

Name: [REDACTED]
Email: [REDACTED]
Phone: [REDACTED]
Address: [REDACTED]

1. Choose one.: I am unhappy with my current internet service.

2. Please state your current service provider.: Virginia Broadband

3. Please describe why you are unhappy with your current internet service.: Frequent outages

4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:

5. Please describe your experience trying to receive internet service.: Cellular hotspot, satellite and VABB are our only options. I'd like a more reliable, terrestrial service.

6. If I were able to get Comcast internet service I would commit to a 1 year contract.: Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Sunday, September 13, 2020 9:38:43 AM

Name:

Email:

Phone:

Address:

1. Choose one.:

I am unhappy with my current internet service.

2. Please state your current service provider.:

va broadband

3. Please describe why you are unhappy with your current internet service.:

spotty service/cost

4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:

5. Please describe your experience trying to receive internet service.:

only have one option unless service by satellite

6. If I were able to get Comcast internet service I would commit to a 1 year contract.:

Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Monday, September 14, 2020 12:12:38 PM

Name:

Email:

Phone:

Address:

1. Choose one.:

I am unhappy with my current internet service.

2. Please state your current service provider.:

VABB

3. Please describe why you are unhappy with your current internet service.:

Poor service

4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:

5. Please describe your experience trying to receive internet service.:

6. If I were able to get Comcast internet service I would commit to a 1 year contract.:

Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Sunday, September 27, 2020 9:29:06 PM

Name: [REDACTED]
Email: [REDACTED]
Phone: [REDACTED]
Address: [REDACTED]

- 1. Choose one.:** I am unhappy with my current internet service.
- 2. Please state your current service provider.:** Virginia Broadband
- 3. Please describe why you are unhappy with your current internet service.:** Inconsistent speeds, service drops particularly during a thunderstorm and there is no after hours contact, which means typically we won't have service until the next day. And if it's a weekend then the period is longer
- 4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:**
- 5. Please describe your experience trying to receive internet service.:** The only other option was some satellite based with Hughes and from all reports it slow and expensive
- 6. If I were able to get Comcast internet service I would commit to a 1 year contract.:** Yes

From: [dnnHELP](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Tuesday, December 22, 2020 10:10:09 AM

Name:

[REDACTED]

Email:

[REDACTED]

Phone:

[REDACTED]

Address:

[REDACTED]

1. Choose one.:

I have no internet service options at my home or business. (Skip to Question 4.)

2. Please state your current service provider.:

None

3. Please describe why you are unhappy with your current internet service.:

No service

4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:

5. Please describe your experience trying to receive internet service.:

I have called Comcast, Virginia Broadband, and vSat. No carrier services this area

6. If I were able to get Comcast internet service I would commit to a 1 year contract.:

Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Friday, September 18, 2020 1:44:22 PM

Name:

[REDACTED]

Email:

[REDACTED]

Phone:

[REDACTED]

Address:

[REDACTED]

1. Choose one.:

I am unhappy with my current internet service.

2. Please state your current service provider.:

Virginia Broadband

3. Please describe why you are unhappy with your current internet service.:

somewhat unreliable

4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:

5. Please describe your experience trying to receive internet service.:

6. If I were able to get Comcast internet service I would commit to a 1 year contract.:

Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Friday, September 18, 2020 1:44:56 PM

Name: [REDACTED]
Email: [REDACTED]
Phone: [REDACTED]
Address: [REDACTED]

- 1. Choose one.:** I am unhappy with my current internet service.
- 2. Please state your current service provider.:** VABB
- 3. Please describe why you are unhappy with your current internet service.:** Broadband wireless is weather-dependent and often unreliable and/or slow in speed upload and download. Homeschooling or online learning is difficult as a result. Overall is unsatisfactory.
- 4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:** N/A
- 5. Please describe your experience trying to receive internet service.:** We have limited internet service options.
- 6. If I were able to get Comcast internet service I would commit to a 1 year contract.:** Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Wednesday, September 16, 2020 9:18:37 AM

Name: [REDACTED]
Email: [REDACTED]
Phone: [REDACTED]
Address: [REDACTED]

1. Choose one.: I am unhappy with my current internet service.

2. Please state your current service provider.: VABB

3. Please describe why you are unhappy with your current internet service.: It is not strong enough for a family of six using the Internet whether it is for school, work or gaming. It's also quite expensive.

4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.: Comcast is not available in our neighborhood

5. Please describe your experience trying to receive internet service.: For question number six below, I would not commit to a year service because I am currently committed to Virginia Broadband. However, if the neighbors are happy with Comcast or any other Internet provider, I would certainly consider utilizing that service once our VA baby contract has expired

6. If I were able to get Comcast internet service I would commit to a 1 year contract.: No

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Wednesday, September 16, 2020 4:20:44 PM

Name: [REDACTED]
Email: [REDACTED]
Phone: [REDACTED]
Address: [REDACTED]

1. Choose one.: I am unhappy with my current internet service.

2. Please state your current service provider.: VBB

3. Please describe why you are unhappy with your current internet service.: It's down more than up.

4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:

5. Please describe your experience trying to receive internet service.: VBB was quick to install, but system is down way to much to call themselves a provider

6. If I were able to get Comcast internet service I would commit to a 1 year contract.: Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Monday, September 21, 2020 4:36:50 PM

Name:

Email:

Phone:

Address:

1. Choose one.:

I am unhappy with my current internet service.

2. Please state your current service provider.:

Virginia Broadband

3. Please describe why you are unhappy with your current internet service.:

Spotty connection at times and bad customer service

4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:

5. Please describe your experience trying to receive internet service.:

6. If I were able to get Comcast internet service I would commit to a 1 year contract.:

Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Monday, September 14, 2020 1:27:06 PM

Name: [REDACTED]
Email: [REDACTED]
Phone: [REDACTED]
Address: [REDACTED]

1. Choose one.: I am unhappy with my current internet service.

2. Please state your current service provider.: Vabb

3. Please describe why you are unhappy with your current internet service.: Intermittently outages, slow

4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:

5. Please describe your experience trying to receive internet service.: We have tried satellite and broadband. Broadband is better but nothing like Comcast could be

6. If I were able to get Comcast internet service I would commit to a 1 year contract.: Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Tuesday, September 15, 2020 9:56:21 PM

Name: [REDACTED]
Email: [REDACTED]
Phone: [REDACTED]
Address: [REDACTED]

1. Choose one.: I am unhappy with my current internet service.

2. Please state your current service provider.: VABB

3. Please describe why you are unhappy with your current internet service.: Not fast, and out of service often

4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.: \$80,000 +

5. Please describe your experience trying to receive internet service.: Spent over 6 years trying to get it out here , and nothing has worked.

6. If I were able to get Comcast internet service I would commit to a 1 year contract.: Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Tuesday, September 15, 2020 9:22:52 PM

Name: [REDACTED]
Email: [REDACTED]
Phone: [REDACTED]
Address: [REDACTED]

- 1. Choose one.:** I am unhappy with my current internet service.
- 2. Please state your current service provider.:** vabb
- 3. Please describe why you are unhappy with your current internet service.:** outages often.
- 4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:** They have, though it was multiple thousands of dollars when they quoted us to run lines to our house in a neighborhood of 55 homes. Unsure of survey number as it was over 6 years ago they quoted us.
- 5. Please describe your experience trying to receive internet service.:** It is a joke to try to get reliable internet as Comcast throws numbers out like \$30k we would have to pay to have a line run to us.
- 6. If I were able to get Comcast internet service I would commit to a 1 year contract.:** Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Tuesday, September 15, 2020 10:08:22 PM

Name: [REDACTED]
Email: [REDACTED]
Phone: [REDACTED]
Address: [REDACTED]

- 1. Choose one.:** I am unhappy with my current internet service.
- 2. Please state your current service provider.:** VA
- 3. Please describe why you are unhappy with your current internet service.:** Our provider is VABB: horrible speed, unreliable service and terrible customer service
- 4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:** I do not have a quote but our neighborhood has contacted multiple other ISPs and all are unaffordable to have cable run
- 5. Please describe your experience trying to receive internet service.:** Personally I contacted one ISP and was told they had no plans to ever bring service to our neighborhood even though they do provide service in 2 directions of a little over 1 mile away and in another direction a little over 3 miles away.
- 6. If I were able to get Comcast internet service I would commit to a 1 year contract.:** Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Sunday, September 13, 2020 7:30:43 PM

Name: [REDACTED]
Email: [REDACTED]
Phone: [REDACTED]
Address: [REDACTED]

- 1. Choose one.:** I have no internet service options at my home or business.
(Skip to Question 4.)
- 2. Please state your current service provider.:** VA
- 3. Please describe why you are unhappy with your current internet service.:**
- 4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:**
- 5. Please describe your experience trying to receive internet service.:** Moved here 3 years ago, every company we contacted said they could not provide service to us including Virginia broadband. We currently have to use a cellular hotspot.
- 6. If I were able to get Comcast internet service I would commit to a 1 year contract.:**

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Wednesday, September 16, 2020 7:57:03 PM

Name: [REDACTED]
Email: [REDACTED]
Phone: [REDACTED]
Address: [REDACTED]

1. Choose one.: I am unhappy with my current internet service.
2. Please state your current service provider.: Virginia Broadband
3. Please describe why you are unhappy with your current internet service.: Expensive for the lack of service received.
4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.: N/A
5. Please describe your experience trying to receive internet service.: Crappy
6. If I were able to get Comcast internet service I would commit to a 1 year contract.: Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Sunday, September 13, 2020 4:16:40 PM

Name:

Email:

Phone:

Address:

1. Choose one.:

2. Please state your current service provider.:

3. Please describe why you are unhappy with your current internet service.:

4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:

5. Please describe your experience trying to receive internet service.:

6. If I were able to get Comcast internet service I would commit to a 1 year contract.:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

I am unhappy with my current internet service.

Virginia broadband

Major lag, everyone can't be on it at the same time, price is high,

Considered too far out. But live right off 15.

Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Sunday, September 13, 2020 9:23:16 PM

Name: [REDACTED]
Email: [REDACTED]
Phone: [REDACTED]
Address: [REDACTED]

1. Choose one.: I have no internet service options at my home or business. (Skip to Question 4.)

2. Please state your current service provider.:

3. Please describe why you are unhappy with your current internet service.:

4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.: I have not pursued this.

5. Please describe your experience trying to receive internet service.: We have attempted hughes net and the service is extremely slow. VA broadband won't provide a quote, they state they can't service our home although they service other homes in our neighborhood. Verizon says no. Comcast is 1 mile up route 15. We currently use several mobile hotspots which are not always reliable.

6. If I were able to get Comcast internet service I would commit to a 1 year contract.: Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Thursday, September 17, 2020 6:51:31 AM

Name:

[REDACTED]

Email:

[REDACTED]

Phone:

[REDACTED]

Address:

[REDACTED]

1. Choose one.:

I am unhappy with my current internet service.

2. Please state your current service provider.:

Vbb

3. Please describe why you are unhappy with your current internet service.:

Always loseing connection no matter what and the download speed is awful.

4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:

I didn't get one please send one

5. Please describe your experience trying to receive internet service.:

6. If I were able to get Comcast internet service I would commit to a 1 year contract.:

Yes

From: [SuperUser Account](#)
To: [LAURA LOVEDAY](#)
Subject: Culpeper Internet Concerns
Date: Monday, September 14, 2020 10:34:14 AM

Name:

Email:

Phone:

Address:

1. Choose one.:

2. Please state your current service provider.:

3. Please describe why you are unhappy with your current internet service.:

4. If Comcast has provided a quote to extend service to you please share the quote details and Comcast survey #.:

5. Please describe your experience trying to receive internet service.:

6. If I were able to get Comcast internet service I would commit to a 1 year contract.:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

I am unhappy with my current internet service.

Virginia Broadband

It's spotty service, goes in and out

Comcast says they do not come to our house because it's too far

Yes

https://starexponent.com/business/virginia-broadband-weighs-in-on-future-of-internet-service-in-culpeper/article_1cdce8d5-029a-52df-a555-9e8420bb7a63.html

ALERT

FEATURED

Virginia Broadband weighs in on future of internet service in Culpeper

Allison Brophy Champion

Jun 6, 2022



CEO Warren Manuel (left) and Ed Long, of Virginia Broadband, an internet service provider based in Culpeper.
photos by ALLISON BROPHY CHAMPION / CULPEPER STAR-EXPONENT

Allison Brophy Champion

Virginia Broadband has been providing fixed wireless internet at high speeds to rural homes in the area and beyond since 2004, currently serving thousands of addresses from the Blue Ridge Mountains to the Bay.

The Culpeper-based technology firm, headquartered in the business center along Lovers Lane, is watching and willing to be part of an extension of the county government's eventual proliferation of fiber-to-the-home.

More than 4,000 addresses still not served with internet nearly a quarter of the way into the 21st century are slated to come online.

"I used to think our competition was people like Comcast and Verizon, AT&T, now it's still those guys, plus Culpeper County is in the business," said Virginia Broadband CEO Warren Manuel in a recent meeting.

Culpeper County's \$34 million fiber-to-home project, funded largely with state and federal grants, remains in contract negotiations nearly 20 months after county leaders launched a business relationship with Leesburg-based All Points Broadband, to build and operate the network. The internet will get to homes on existing power lines, per agreements with Dominion Power and Rappahannock Electric, with APB making extensions beyond the power lines to individual addresses.

People are also reading...

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 - 2 CASEY: Adventures in backyard pot farming, part 4 — we have buds!**
 - 3 Weldon Cooper Center: Culpeper region to see 33% population growth through 2050**
 - 4 Respected West Virginia snake researcher dies from rattlesnake bite**
-

White House officials in Culpeper in April for a broadband summit promised every home in America would get connected to reliable, affordable internet—the question is when?

That timeline remains uncertain, the digital divide widening.

Emerging as a certainty from the summit hosted by Rep. Abigail Spanberger was that it's going to take various technology solutions to serve every last home with reliable, affordable internet.

This especially applies to residences located way off the beaten path, where it is not economically feasible to extend glass fiber, and where fixed wireless, as provided by Virginia Broadband, might be a better option.

“With a cooperative attitude, there's no reason why we couldn't run fiber to the end of the line and put our broadcast point up and get the last mile,” Manuel said.

Reaching the end of the line

Whenever the Culpeper County broadband project starts, it will be 18 months until completion. The latest estimate was May or June for construction to start.

The board of supervisors will get a brief update at today's meeting from APB on working out continued contractual details with the state, as nearly a quarter of county households remain without good internet.

Virginia Broadband was not invited to the congresswoman's broadband summit, but the company's leaders wanted to weight in via follow-up correspondence and at the recent meeting with the Star-Exponent.

A marketing executive with the firm, Ed Long, of Culpeper, recently joined the company after 12 years in cellular sales with Verizon.

“It is our opinion that fiber will most likely never get to everyone any time soon,” he said.

“We hope to work with these fiber internet providers and get those customers at the end of the line connected by providing fixed wireless connections to their fiber network. We want to work with these new guys to get internet service to everyone that wants it.”

Former school board chairman Michelle North has shared her story of not having internet at her home with anyone who will listen. She told it to the White House officials at the summit about having to rely on unreliable hot spots.

“Unfortunately, our household has been shut out of the county project because Comcast says we’re in their service area, but when I contact them asking for cable service they say they can’t provide it at our address,” North said.

Per grant requirements, anyone listed as served on FCC maps, as North is, cannot be served through the county project. Those maps are recognized as being inaccurate and the federal government says it is working to update them by this fall—supposedly.

North had Virginia Broadband at her home for about six months ago years ago, and it was great, she said. Spring and fall foliage on their trees blocked reception to their home.

“Two fellows climbed on our roof for several hours trying to get service, but to no avail,” North said. “Alas we are in an internet dead-zone.”

Origins, potential

Manuel began his adult working life as a dairy farmer in Nokesville, by default, after his father died when he was still in high school. It cancelled his plans to study at Virginia Tech, exchanged for on-the-job training.

When his brother returned home from overseas with the U.S. Marines, Manuel served three years with the Marines, playing tuba with the band, in between the Korean and Vietnam wars, before branching into the technology of farming.

Starting in the early 80s, he was involved in developing breeding software for creating “the perfect cow” through artificial insemination. In the late 90s, Manuel worked on an internet program for dairy farmers, similarly assisting with optimal breeding criteria.

“We worked all over the world with that...my frustration was that I could do business in New Zealand, Peru, Ukraine, Korea, better than I could in rural Virginia because they had better internet,” Manuel said. “We decided to do something different.”

Upon visiting Culpeper Business Center in the early 2000s, and realizing it was served with fiber due to the proximity of a nearby world bank site, the CEO saw an opportunity to expand wireless high-speed in rural areas. Thus was born Virginia Broadband.

“We feed our systems with fiber, from there we take it wirelessly, see that tower over on Clark Mountain? We’re on that tower right there and Cargill Mill, got 122 different spots in 14 counties in Central Virginia,” Manuel said.

The company has been renting tower space—\$1,050 per tower per month—from Culpeper County from the start, he said.

“Now I find the county is underwriting \$34 million to compete with us,” Manuel said, adding, “Give me some relief on this tower rent because we’re going to have put up (equipment) in a lot more places in real rural areas to survive.”

All Points Broadband will be a competitor.

“We will lose customers. There is no question about that, but there is plenty of potential,” Manuel said.

The future of internet

Fiber may be the standard, but it's not the cure all, Long said, because it's very expensive to install. Even the larger internet providers are starting to realize it, he said, along with the federal government.

"No one system can get service to everybody so it's gotta' be a patchwork of people working together to get internet to everybody," he said.

Virginia Broadband, employing 14 including tech support, offers varying data packages, enough for most customers to video stream, game, work and school from home. The company's biggest hurdle is electricity, and topography in some places.

"If our broadcast points lose power, we go down," Long said, noting they have generators at key sites.

In the past, Manuel purchased hotspots for his own personal use from Long, when he was with Verizon. The CEO lives six miles from rural Richardsville, along the Rapidan River, in an area notoriously not served with internet.

"We have customers in my area that can get Virginia Broadband; I'm not one of them," Manuel said. "We are going to put a tower out there to serve those people."

Building up the company takes money, he added. Virginia Broadband has not received any grant funds to do that, and has managed to survive, even through some tough times.

Manuel left the company in 2012 following a dispute with partners that ended in litigation and a bankruptcy. He returned in 2018 to rebuild the company he started after internet speeds suffered and customers cancelled.

Reflecting on the \$32 million project the county is getting ready to start up and says it will finish in a year-and-a-half, Manuel was doubtful considering inflation, supply chain issues and the worker shortage.

"So far we're gritting our teeth, but if this kind of foolishness keeps on our costs for installation will go up," he added.

Working together, maybe the promise of 100 percent coverage can be done, Long added.

“What we need to concentrate on for the future, fiber’s coming, it’s here, it’s not going away, but it’s not going to be everywhere,” he said. “If we can get where we can work with these providers, let us provide that service, but connect to your fiber to be able to do it.”

abrophy@starexponent.com

(540) 825-4315

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Up to **12/3** Mbps

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Add-ons Available:

Static IP Address- \$9.99/mo

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MOST POPULAR

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Up to **25/5** Mbps

No Data Limits

Add-ons Available:

Static IP Address- \$9.99/mo

VABB Email - \$4.99/mo

Buy Now

ULTIMATE

\$225

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Up to **100/50** Mbps

No Data Limits

Add-ons Available:

Static IP Address- \$9.99/mo

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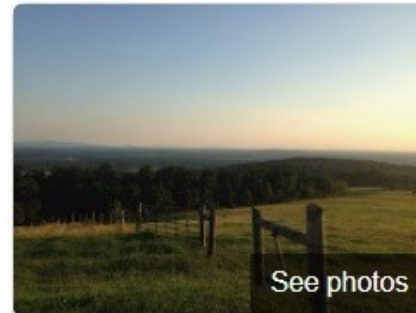
.virginia.gov › broadband-availability...

Availability Map | DHCD - Virginia.gov

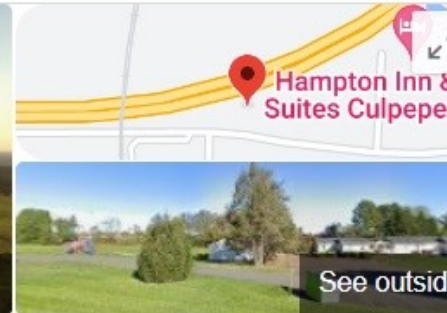
onwealth Connection: **Virginia's Broadband** Service Mapping and Analysis Tool

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Reviews from the web





August 25, 2022

Tammy Breski
Program Manager, Virginia Telecommunication Initiative
Virginia Department of Housing and Community Development
Main Street Centre
600 East Main Street, Suite 300
Richmond, Virginia 23219

Re: Attachment 15 – Two most recent Form 477 submitted to the FCC or equivalent

Dear Ms. Breski,

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

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

Sincerely,

A handwritten signature in blue ink, appearing to read "K. Broadhurst".

Kevin Broadhurst
Vice President of Government and Regulatory Affairs



August 25, 2022

ATTACHMENT 17. RSSI Projection Shapefiles

Attachment 17 is not applicable to this grant application.

Appendix 18: Network Performance and Developments

Recently, Comcast took another groundbreaking step forward in the road to 10G in what is believed to be the first-ever, end-to-end deployment by an Internet provider of advanced “hollowcore” fiber optics. Hollowcore fibers deliver significantly lower latency than traditional fibers and over time will provide critical performance attributes. These fibers will help power Comcast’s network and support the delivery of multigigabit speeds through 10G. For more information on Comcast’s hollowcore deployment, see the press release below.

Additional information about these exciting developments is also available below In CableLabs' Path to 10G update and Comcast's Network Performance report, as seen below.

Comcast Becomes First ISP in the United States to Deploy Advanced Hollowcore Fiber with Faster Speed, Lower Latency

Apr 20, 2022



PHILADELPHIA, PA

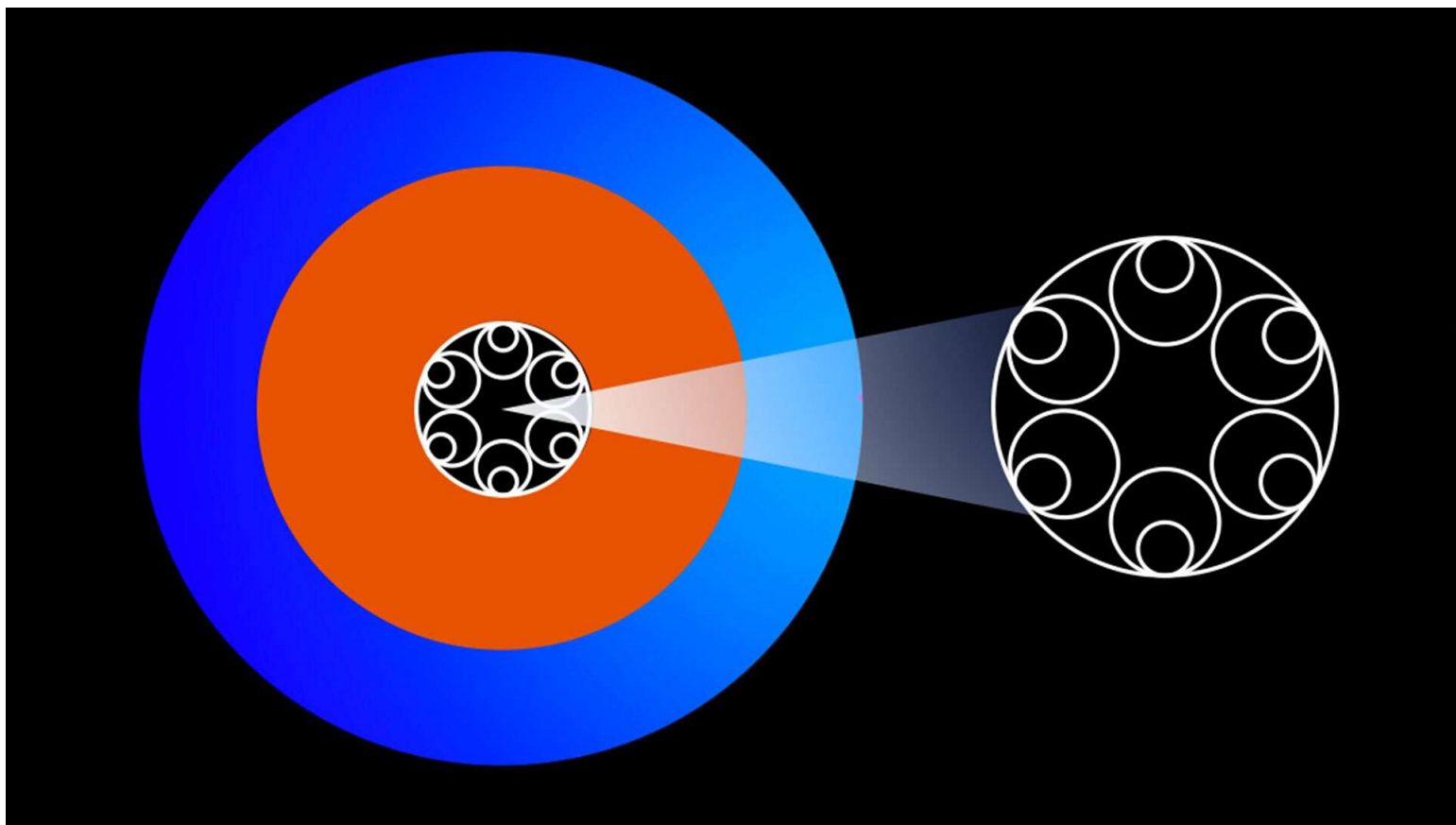
Comcast, the nation's largest gig-speed Internet provider, today announced what is believed to be the first-ever end-to-end deployment of advanced "hollowcore" fiber optics in the world by an Internet provider.

Hollowcore fibers deliver significantly lower latency than traditional fibers and over time will provide critical performance attributes. These fibers will help power Comcast's network <https://corporate.comcast.com/our-network> and support the delivery of multigigabit speeds through 10G.

How does Hollowcore work?

Since light travels nearly 50% faster through air than glass, data travels much faster through hollowcore than through traditional fiber. The faster speed can be used to double the reach for latency critical applications and speed up the transaction rates by around 47%.

<https://update.comcast.com/download/16764>
Download the Fact Sheet



Unlike traditional fibers, in which laser light travels over a solid glass core, hollowcore fibers are empty inside with air-filled channels. Since light travels nearly 50 percent faster through air than glass, data travels about 150 percent faster with up to 33 percent lower latency through hollowcore fiber compared to traditional fiber. The faster speed of light can be used to double the reach for latency critical applications or can speed up the transaction rates by around 47 percent. For the deployment announced today, Comcast worked with hollowcore fiber cable solutions provider, [Lumenicity](https://lumenicity.com/) <https://lumenicity.com/>.

“Hollowcore fiber is a leap forward in how we deliver ultra-fast, ultra-low latency and ultra-reliable services to customers,” said Elad Nafshi, EVP & Chief Network Officer at Comcast Cable.

As we continue to develop and deploy technology to

deliver 10G, multigigabit performance to tens of millions of homes, hollowcore fiber will help to ensure that the network powering those experiences is among the most advanced and highest performing in the world.

ELAD NAFSHI

EVP & Chief Network Officer at Comcast Cable

Comcast connected two locations in Philadelphia, which enables network engineers to continue to test and observe the performance and physical compatibility of hollowcore fiber in a real-world deployment. This 40-kilometer hybrid deployment of hollowcore and traditional fiber is believed to be the longest in the world by an Internet provider. Comcast successfully tested bidirectional transmission (upstream and downstream traffic traveling on a single fiber), used coherent and direct-detect systems (allowing for forward and backward technology compatibility), and produced traffic rates ranging from 10 gigabits per second (Gbps) to 400 Gbps all simultaneously on a single strand of hollowcore fiber.

“We are proud to be working with Comcast on the next generation hollowcore fiber, which we believe unlocks exciting new potential for connectivity around the world,” said David Parker, Executive Chairman of Lumenisity.

Hollowcore fiber will help to power the next generation of ultra-low latency technologies to support network virtualization, telemedicine, augmented and virtual reality, and other emerging services. Moving forward, Comcast is exploring opportunities to strategically deploy hollowcore fiber in select core- and access-network deployments. From 2017 to 2021, Comcast added more than 50,000 new

route miles of fiber to its network and is actively building more fiber into cities and towns across the United States.

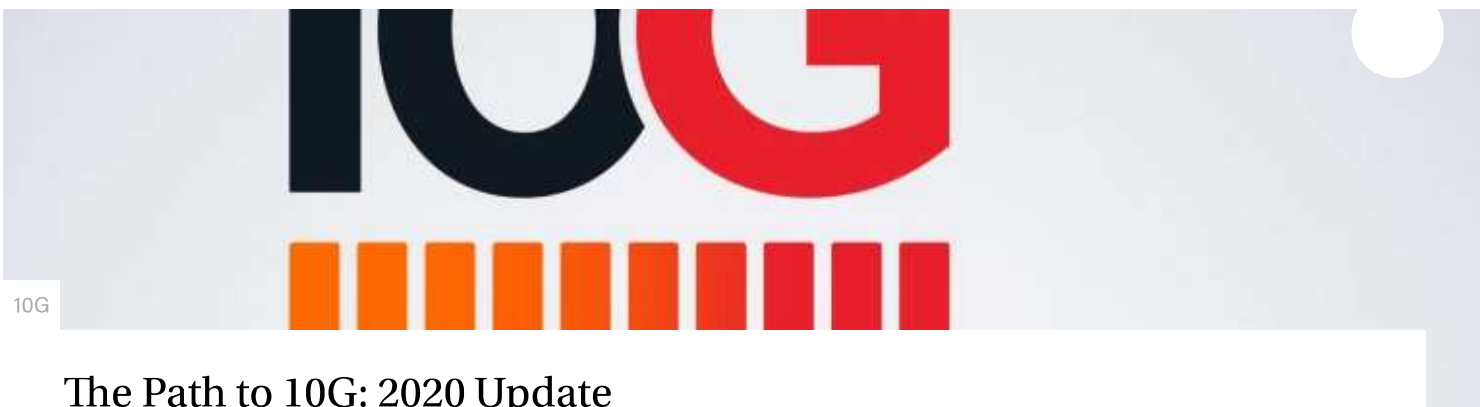
50K+

**New route miles of fiber added
to Comcast's network from 2017
to 2021.**

Comcast's ongoing work to expand and evolve its fiber deployments – including this groundbreaking step forward with hollowcore fiber – helps to power Comcast's [ongoing 10G evolution](https://corporate.comcast.com/press/releases/world-first-test-10g-modem-technology-multigigabit-speeds-to-homes) <https://corporate.comcast.com/press/releases/world-first-test-10g-modem-technology-multigigabit-speeds-to-homes>, which will deliver reliable multigigabit upload and download speeds over the connections already installed in tens of millions of homes and businesses.

What is 10G?

10G technology builds on the work Comcast has done over the past several years to build a smarter, more virtualized network. In addition to providing a path to multigigabit upload and download speeds at scale, 10G updates will deliver near-term benefits to customers in the form of increased reliability, performance, and lower latency.



10G

The Path to 10G: 2020 Update

Mariam Sorond Chief Research and Development Officer and Senior Vice President

Jan 3, 2020



The future of connectivity holds technical enhancements that are meant to change the way we live, work, learn and play. A fully realized connected network that enables all the different use cases and provides ubiquitous coverage through a seamless experience will need to rely on multiple access technologies and choices. Seeing this paradigm shift in the future of connectivity, the broadband industry came together to **announce the 10G Platform** in January 2019, led by CableLabs, SCTE-ISBE, **NCTA** and **GIGAEurope**. 10G will enable broadband connectivity with higher connection speeds, lower latency, higher reliability and increased security, and it also will enable and complement other access technologies.

Today, **DOCSIS 3.1** technology enables the cable industry to **offer 1 Gbps service** to 80% of U.S. households. Just one year after the announcement of 10G, we have made some exciting progress towards this milestone in just 12 months.

Speed

Feedback

As we march towards the frontier of 10G, new cable modems already being certified are capable of 5 Gbps capacity, with integrated standard 2.5 Gbps Ethernet ports that make it easier to distribute that capacity throughout the home. With full duplex and extended spectrum capabilities integrated into next-generation **DOCSIS 4.0** technology, the industry will be able to deliver on that 10 Gbps promise over hybrid fiber coax networks.

The 10G optical network (Figure 1), is the backbone of the distributed access architecture and will provide the industry with opportunities for true service convergence that leverages the flexibility and tremendous capacity provided by fiber optics.

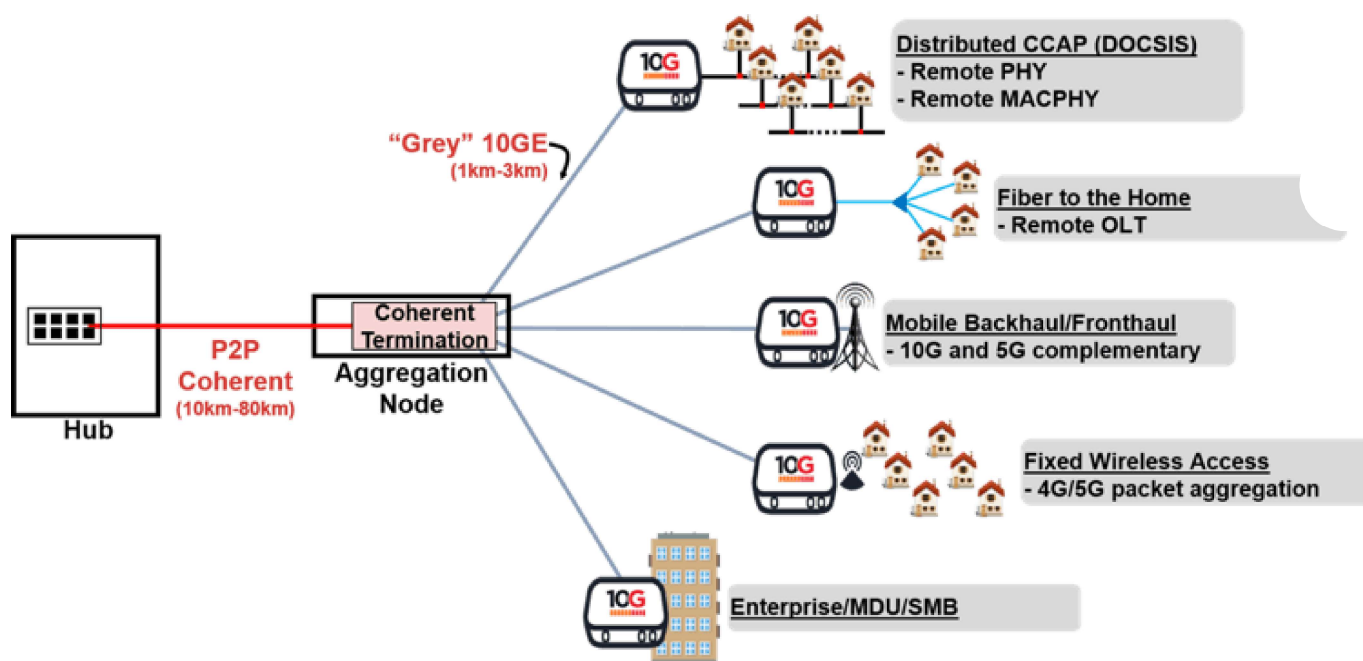


Figure 1: The 10G converged optical network

This year, CableLabs released an update to the 100 Gbps **point-to-point coherent optics** specification and released a new 200 Gbps specification – both intended to support the aggregation requirements of the distributed access architecture. While operators currently deploy **10G passive optical network technology (PON)** where fiber to the premise is preferred, the IEEE standard for next-generation 25G-PON and 50G-PON technology remains on track for mid-2020 completion.

Latency

Lower latency is an important network characteristic that is quickly becoming a key service differentiator for connectivity, especially when considering delivering top cloud gaming or telemedicine experiences. This year, CableLabs and industry partners completed the DOCSIS specification updates to include **Low Latency DOCSIS (LLD)**, a technique allowing traffic that requires low latency to transit the HFC network in just 1-2ms. Implementation of this technology quickly ramped up with seven vendors attending the LLD interoperability events.

Additionally, as part of the convergence of HFC networks with 5G networks, latency becomes critical when looking to use HFC as the transport layer. In 2019, we trialed two new technologies that enable mobile deployments over DOCSIS networks:

- **Low Latency Xhaul** pipelines DOCSIS bandwidth requests from mobile base stations, and was trialed and showed average DOCSIS network latency below 2ms.
- We also lead a trial of the **TIP vRAN Fronthaul project**, which is vRAN fronthaul designed to handle DOCSIS network latencies up to 30ms.

Security

Another key pillar of the 10G Platform is security, to which we have dedicated significant efforts over the last year, advancing four leading technologies:

- **Transparent Security** uses the programmable data plane inside the access network to perform in-band telemetry and traffic processing. This increases protection against distributed denial of service attacks and provides flexibility to the network operator in active defense techniques.
- **Device Onboarding** makes good on the 10G promise by requiring easy and secure onboarding and provisioning of devices connecting to the platform made possible through strong device identity credentials and lifecycle management.
- **Endpoint Identity** provides unique, immutable, and attestable identities for networked devices. Strong device identity provides the trust framework to enable all other security controls, making it fundamental for securing the 10G Platform.
- **Network Independent Credentialing**, an essential part of 10G security, allows for authentication and risk management across access networks. Supporting this vision, Release 2 of the CBRS-A specifications included CableLabs' work on Extended Credentials Authentication Framework (TS-1003) which extends the possibility to authenticate to CBRS-A Networks with different types of credentials – e.g., X.509 Digital Certificates. Building on that, the work is now focused on providing a common credentials management framework that can be integrated across the 10G platform (EAP-CREDS).

Reliability

Proactive network maintenance (PNM) has long been a key element to increasing the reliability of the HFC network and providing an excellent quality of experience for cable service subscribers, and it is no different with 10G. This year CableLabs has a more **robust portfolio of PNM activities** than ever before. By measuring key **“health” parameters** from millions of cable modems, operators are able to create solutions on the **Pro Ops platform** to solve problems before customers experience any degradation in service.

Our PNM accomplishments extend to Wi-Fi where CableLabs led the pursuit of establishing a standard set of health metrics and their reporting format for Wi-Fi networks – now officially called **Wi-Fi CERTIFIED Data Elements**– to optimize residential Wi-Fi networks. Soon, PNM for cable industry optical networks will integrate seamlessly with traditional industry network solutions.

In addition to PNM, we have delivered **Dual Channel Wi-Fi™**, which enables a 10G reliable Wi-Fi connection by ensuring optimized delivery of data services used in video, gaming, large file downloads, and time-sensitive services like video conferencing. A Dual Channel Wi-Fi reference implementation is currently available to the operators and vendors.

Looking into 2020

The connectivity catalyst of the future needs to occur across many spaces, including cyberspace, geospace, and electromagnetic space and it will all be coming to you in a virtualized cloud-native form. Technologies need to evolve to meet the vision through cost-effective solutions; wired, wireless, fixed, mobile, terrestrial, satellite, HAPS, unlicensed, licensed, low-band, high band, low-speed, high-speed, will all play a role to meet the demand of humans and things.

Over the past year, the industry has worked to create and introduce technologies that bring us one step closer to the promise of a 10G network, and are excited by the progress we have made. At CableLabs, we are excited about 10G and are actively involved with 5G, IEEE, and many other industry forums which are also working on advancing the future of connectivity.

Feedback

[Learn More About 10G](#)

 [COMMENTS](#)





NETWORK

REPORT

2021

OVERVIEW

In a year marked by shifts in Internet usage patterns as the COVID-19 pandemic ebbed and surged, Comcast's network continued to thrive as overall demand rose over historic 2020 levels. Data suggested a shift to pre-pandemic usage patterns, as peak download (downstream) traffic grew faster than peak upload (upstream) traffic.

In this second annual **Comcast Network Report**, we're sharing the major trends we observed on our network over the past year, and detailing how billions in strategic investment, combined with continuous innovation, allowed our network to thrive during a record-setting period of Internet demand.



INVESTMENT

In 2021 alone, Comcast invested more than **\$4.2 billion** to strengthen, expand and evolve the network – more than any previous year.

+50k

From 2017 to 2021, we built 50k new route miles of fiber into our network.

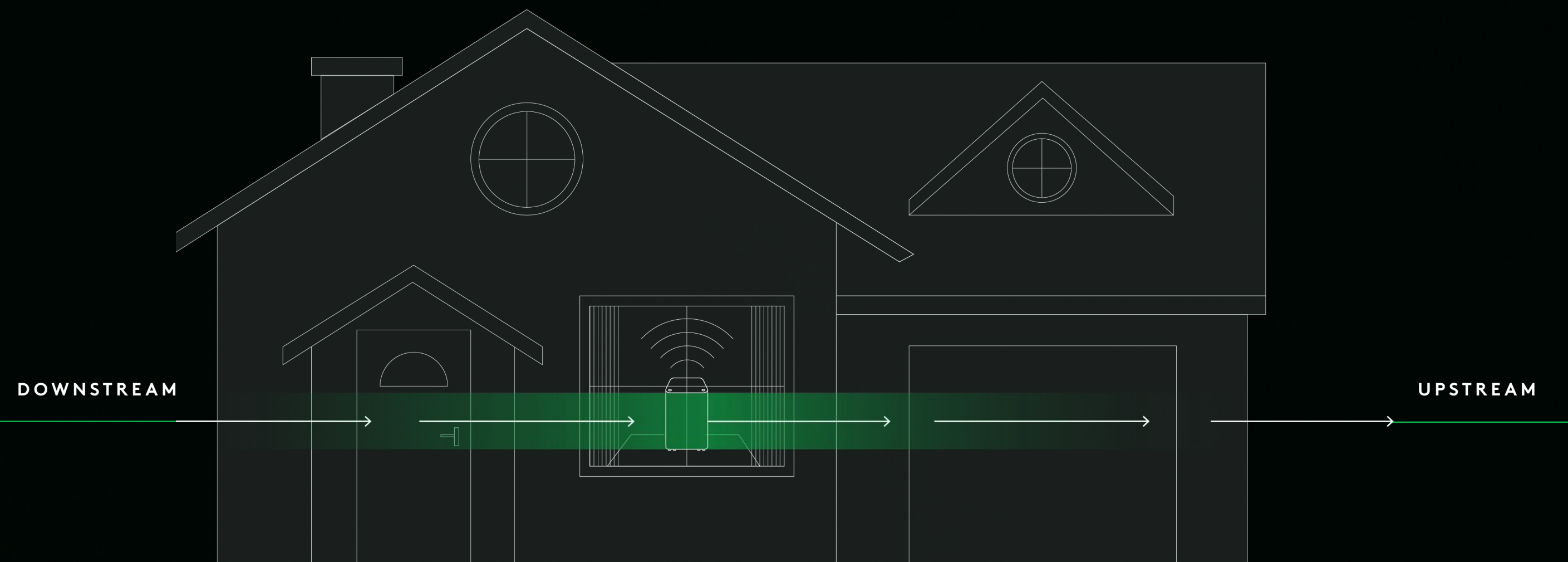
\$20B

In the past five years (2017-2021), we've invested nearly \$20 billion to evolve and grow our network.



TRAFFIC

Peak traffic growth continued to climb, even from record highs set in 2020. Peak downstream traffic grew **2x faster** than upstream traffic, more closely mirroring pre-pandemic trends.



+11%

Peak **downstream** traffic increased approximately 11 percent over 2020 levels.

+5%

Peak **upstream** traffic increased approximately 5 percent over 2020 levels.

Asymmetrical speeds: Network asymmetry increased throughout the year, with **total downstream traffic volumes 12.4x higher** than upstream for the first 6 months of the year, and **14.5x higher** for the last six months

Daily peak times shifted toward pre-pandemic norms throughout the year – peak upstream traffic times were 10am in January, 3pm in June, and 10pm in December.

10:00 AM

JAN

3:00 PM

JUN

10:00 PM

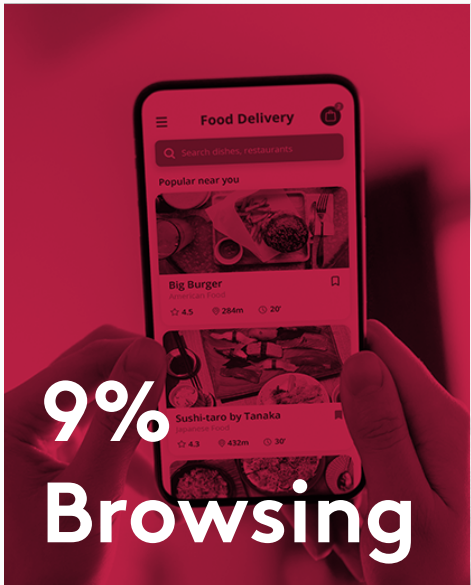
DEC

CONTENT

Similar to last year, entertainment activities dominated peak network traffic, with **video streaming** accounting for 71 percent of downstream traffic (same as 2020).

⬆ 10-20% increase in video streaming, gaming, and web browsing

Videoconferencing fell slightly as a percentage of peak network traffic, remaining less than 5 percent in 2021.



2021 NETWORK TRAFFIC



NETWORK INNOVATION & THE ROAD TO 10G

Investing billions to strengthen and grow our network is important...but it's only the beginning of building a smart network that's ready for anything.

Our network architects and software engineers continuously innovate and evolve our network technology to increase speeds, strengthen reliability and improve overall performance.

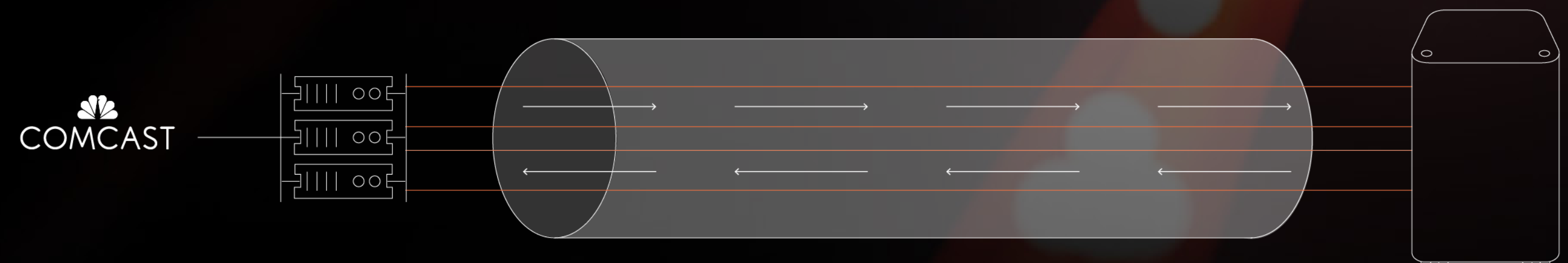
Innovating for Reliability

XMF, a new network technology, reduces the amount of time it takes for a technician to find and isolate a fiber cut from 2 hours down to one-and-a-half minutes. The XMF platform monitors hundreds of thousands of local broadband optical links every minute across the Comcast network, measuring both the optical spectrum and testing the length and quality of the fiber links. In practical terms, that means that with XMF installed, network engineers can pinpoint the exact point at which a local fiber network is experiencing an issue and share the precise geolocation with local technicians.

Leading the Way on 10G

We are evolving our network to 10G, a technology which will allow Comcast to deliver multigigabit upload and download speeds to tens of millions Americans over the cable connections already installed in their homes and businesses. In 2021, our work on 10G technologies kicked into high gear.

- In April, we conducted a lab test of DOCSIS 4.0 technology and showed ability to deliver 4-gig upload and download speeds.
- In October, we conducted the world's first test of a 10G connection all the way from our network to a modem. The team activated a virtualized cable modem termination system (vCMTS) powered by Full Duplex DOCSIS 4.0 Technology, another world's first.



DOCSIS 4.0

1. Dramatically increases the amount of data we can deliver both upstream and downstream, enabling multigigabit symmetrical speeds over traditional "cable" connections in homes and businesses.
2. Transforms **how** data is delivered over cable connections to be more efficient and support anything our customers choose to do online.

WIFI

The fastest network is only as good as its WiFi.

That’s why we’ve paired our network advancements with smart, supersonic WiFi that ensures customers have the best connected experiences however and wherever they connect.

Billions

Unique devices: Nearly **a billion** unique devices connected to WiFi in Xfinity households, a 12x increase from 2018.

xFi Advanced Security: Proactively blocks **billions** of cybersecurity threats before they reach our customers’ devices, and is included with our xFi gateway.

Millions

Smartphones: Continuing to be the main device connected in our customers’ homes, smartphones make up **1/3** of all devices connected to Xfinity WiFi.

xFi Pods: Help to cover the home with strong and reliable WiFi. **90-100 million** devices are connecting through our xFi Pods in the U.S. and Europe each day.

Pause/unpause: Xfinity customers used the pause/unpause WiFi feature nearly **100 million times**.

Parental Controls: More than **1 million** Xfinity customers are using xFi parental controls to help manage WiFi in their home.

Gigabits

Gig speeds: Even as demand on the network continued to grow, Comcast increased speeds for the most popular Xfinity speed tiers, including increasing gig speeds to **1.2 Gbps**.

xFi Advanced Gateway
Comcast’s most powerful device to date, the next generation xFi Advanced Gateway incorporates WiFi 6E, offering customers an unbeatable broadband experience with a faster, more reliable wireless connection. The gateway will boost capacity in the home with three WiFi bands – 2.4 GHz, 5 GHz, and a new, 6 GHz band.



PROJECT UP

As the world becomes more digital, it's our responsibility to use media and technology to ensure that everyone has the resources and opportunities they need to participate and excel in today's society. Project UP is our comprehensive initiative to advance digital equity and help **build a future of unlimited possibilities.**

PROJECT
UP

Backed by a \$1 billion commitment, Project UP encompasses the programs and community partnerships across Comcast, NBCUniversal, and Sky that connect people to the Internet, advance economic mobility, and open doors for the next generation of innovators, entrepreneurs, storytellers, and creators. Three of these programs are featured below:

internet»
essentials
FROM COMCAST

We have been committed to creating and supporting digital equity within the communities we serve for more than a decade. We launched Internet Essentials in 2011 to bring affordable, high-speed Internet to low-income families connecting a cumulative total of more than 10 million people from low-income families to the Internet at home in 10 years.



Comcast launched 1,000 Lift Zones nationwide to provide safe spaces for students to access free, high-capacity WiFi in 2021. Together with nonprofit partners and city leaders, we are building safe spaces for students and families to connect to free WiFi for distance learning at more than 1,000 Lift Zones in community centers across the country.



The Comcast RISE Investment Fund has granted \$11 million to 1,100 small businesses owned by people of color and the program will support 13,000 small businesses by the end of 2022. A program offering grants, marketing services, and technology upgrades – Comcast RISE stands for “Representation, Investment, Strength, and Empowerment,” and was created to strengthen and empower small businesses hard hit by COVID-19.

2022 AND BEYOND

In 2022, we're looking forward to accelerating our 10G roadmap, even as we expand our network to serve more people in more places, and deploy new technology innovations that deliver more speed, security and reliability to our customers. Whatever the future holds, our network will be ready to support whatever our customers can imagine.



[COMCASTCORPORATION.COM](https://comcastcorporation.com)



Appendix 19: Community Impact and Internet Essentials Reports

For more information on Comcast's Community Impact and Internet Essentials program, please see the 2022 Impact Report (https://update.comcast.com/wp-content/uploads/sites/33/dlm_uploads/2022/06/2022-Impact-Report.pdf) and the 2022 Internet Essentials Progress Report below.

Comcast is proud to be an approved provider supporting the federal government's Affordable Connectivity Program (ACP) program. At a May 2022 White House event, Comcast was recognized for stepping up with innovative offerings like Internet Essentials Plus to help eligible families take full advantage of the ACP benefits. For details, see the article attached below.

Under the ACP program, qualifying customers may apply a credit of up to \$30 per month (\$75 per month in Tribal lands) to any Xfinity Internet service tier, including Blast!, Extreme, and Gigabit product tiers. As such, Comcast offers several lower cost options offering speeds in excess of 100Mbps/20Mbps. Importantly, qualifying customers may also apply the ACP credit to Internet Essentials, and one line of Unlimited on Xfinity Mobile. For example, an Internet Essentials customer (paying \$9.95/month) can add one line of Unlimited on Xfinity Mobile (\$45/month) for \$24.95/month after applying the ACP discount. Customers who subscribe to Internet Essentials or Internet Essentials Plus and enroll in ACP will effectively get broadband for free after the \$30/month government discount is applied. For more information, see the press release below.

Internet» essentials

FROM COMCAST

Internet Essentials is the nation's largest and most successful broadband adoption program, connecting a cumulative total of more than 10M low-income Americans to the power of the Internet at home, a WiFi enabled device, and access to free digital skills training. Internet Essentials is backed by Project UP, Comcast's 10-year \$1B commitment to advance digital equity and build a future of unlimited possibilities.





Al Roker of NBC and TODAY surprises Digital Harbor High School Principal Swinton-Buck and students with free laptops and Internet Essentials service during Sunday Night Football (September 2021.)

TABLE OF CONTENTS

Letter from Broderick Johnson	2
Digital Divide in the United States	4
Program Impact	6
Program Timeline	8
Our Blueprint for Success	10
Refining Our Approach	13
Project UP	30
What's Next.....	31
Appreciation	33

Letter from Broderick Johnson

10M

low-income Americans
connected to Internet
Essentials cumulatively
since the launch of the
program in 2011

Just over 10 years ago, Comcast began an unprecedented journey to help connect under-resourced and unconnected Americans to the life-changing power of the Internet.

At one of our earliest Internet Essentials events, we were joined by the legendary civil rights leader Congressman John Lewis, who said that “availability and access to the Internet is the civil rights issue of the 21st century.” We stood with late Congressman Lewis then, and we are proud to stand now with those who are devoting their time, energy, and resources to achieving digital equity.

A decade of hard work and partnerships with thousands of nonprofits and community leaders has seen Internet Essentials grow to become the largest, most comprehensive, and most successful private-sector high-speed broadband adoption program for low-income Americans. Since launching in 2011, we have connected a staggering cumulative total of more than 10 million low-income Americans to the Internet at home.

As technology advances, the urgency of being connected is only increasing. Connection enables millions of children to stay plugged in to their school; furloughed workers the chance to learn new skills; families to exercise online, in the comfort of their own homes; doctors and patients the ability to share critical information using telemedicine; and proud parents the opportunity to introduce a newborn to family on the other side of the country or the world.

In 2020, we established our award-winning “Lift Zones” initiative to complement our Internet Essentials program. Working with our network of thousands of non-profit partners and city leaders, we launched more than 1,000 Lift Zones during 2021. Lift Zones provide free, robust WiFi in community centers to support students who, for a variety of reasons (including homelessness or housing insecurity), are simply unable to participate in distance learning at home. Lift Zones also serve diverse adult populations, as they enable access to hundreds of hours of free digital skills training for remote work, telehealth services, and more.

Looking ahead to the next 10 years, we are committed to expanding our impact through Project UP, our comprehensive initiative to advance digital equity and help build a future of unlimited possibilities. Backed by a **\$1 billion commitment to reach tens of millions of people**, Project UP encompasses the programs and community partnerships—including Internet Essentials and Lift Zones—across Comcast, NBCUniversal, and Sky that connect people to the Internet, advance economic mobility, and open doors for the next generation of innovators, entrepreneurs, storytellers, and creators.

As we continue to make substantial investments in digital equity through our own initiatives, we are also grateful for, and proud to participate in, the federal government’s massive investments in broadband access and adoption. Through the Infrastructure Investment and Jobs Act (IIJA), the government aims to improve broadband Internet access in rural areas, make broadband more affordable for lower-income households across the U.S., and promote broadband adoption initiatives like digital navigator programs.

We know families face many complex barriers to broadband adoption, including lack of awareness and digital skills, housing insecurity, distrust, and more. We pledge to bring the knowledge, experience, and best practices learned from the Internet Essentials program to the rollout of IIJA to support our thousands of non-profit partners, communities, and local governments, and to other ISPs looking to bring the transformative power of the Internet to low-income homes across their service areas.

We are committed to this because connection is at the core of Comcast’s corporate purpose, and it is at the heart of what we do. We pledge to honor that commitment, connecting the people who need it most to unlimited possibilities.

Sincerely,
Broderick Johnson
Executive Vice President
Public Policy & Executive Vice President, Digital Equity
Comcast Corporation

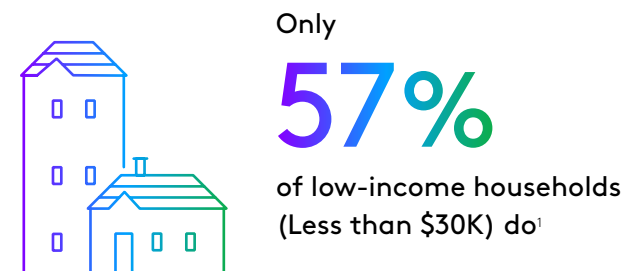
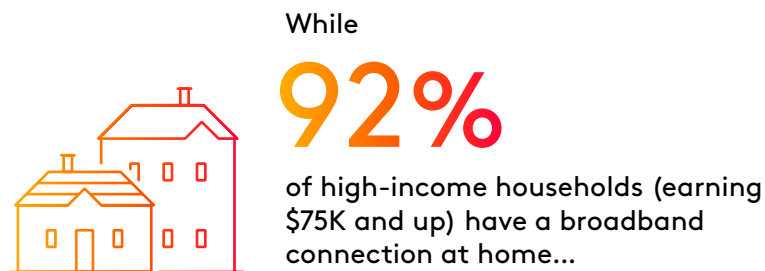


Project UP is our comprehensive initiative to advance digital equity and help build a future of unlimited possibilities



Digital Divide in the U.S.

For more than a decade, Comcast's unwavering commitment to spreading awareness about the benefits of a home connection and the skills to take advantage of the world of opportunity the Internet provides. We are steadfast in our support of the federal government's recently formed subsidy programs like the Affordable Connectivity Program (ACP) and the Emergency Connectivity Fund (ECF). These programs, along with others in the Infrastructure Investment Jobs Act, will continue to make a considerable impact on the digital divide in the years to come.



¹Internet/Broadband Fact Sheet. Pew Research Center, April 7, 2021.



Comcast teamed up with one of the company's Lift Zones and the Sacramento City Unified School District to host a drive through laptop giveaway where more than 1,000 laptops and school supply kits were distributed to residents in Sacramento.

Here at Comcast, we've worked for more than a decade to encourage all households to take advantage of the benefits of a home broadband connection. With focused attention from city, county, and state partners, nonprofits, and the federal government, collectively, we have made tremendous progress. Prior to the pandemic, in our service area, 40% of the growth in broadband adoption among low-income households with school-age children could be attributed to the Internet Essentials program.¹ And just since March of 2020, programs to enable distance learning during the pandemic reduced the number of students without home broadband service by 25%.² Yet, the digital divide persists. While fewer than 3% of Americans lack access to fixed terrestrial broadband,³ 23% do not currently subscribe.⁴ In other words, while availability gaps remain in rural areas, the larger, more significant driver of the digital divide is the broadband adoption gap.

¹Zuo, G. "Wired and Hired: Employment Effects of Subsidized Broadband Internet for Low-Income Americans." American Economic Journal: Economic Policy, August 2021.

²"The U.S. K-12 Digital Divide Has Narrowed, but Must Close to Eliminate Risks to Students and the Economy." Common Sense Media, 26 Jan. 2021.

³FCC Broadband Map data as of Dec 2020

⁴Internet/Broadband Fact Sheet. Pew Research Center, April 7, 2021.

Program Impact

Since March 2020, we have worked harder than ever to bring even more fresh solutions to an old challenge. At the start of the pandemic, we rapidly innovated to launch our Internet Essentials Partnership Program (IEPP) and Lift Zones initiatives, providing vital access to school, work, financial resources, healthcare, and more. As the pandemic persists, we have connected and continue to connect low-income Americans through Internet Essentials, the Emergency Broadband Benefit, the Affordable Connectivity Program, the Emergency Connectivity Fund, IEPP, and Lift Zones.

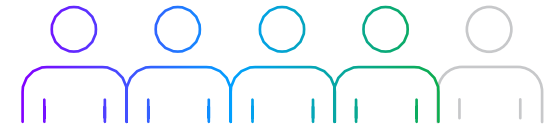
41%

of Internet Essentials customers say that without Internet Essentials they would only have an Internet connection over their mobile phone and...



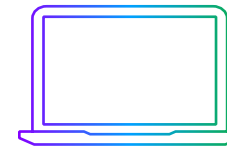
23%

say they wouldn't have Internet at all



80%

of Internet Essentials customers did not have broadband Internet prior to signing up for the program



200k

devices subsidized or donated since 2011, including...

35k

Laptops Donated

during the pandemic alone

In 2021, Comcast and home improvement channel HGTV partnered to bring hosts Ben and Erin Napier's "Home Town Takeover" treatment to three Lift Zones: Girls, Inc., Atlanta; Boys & Girls Club of Metro Baltimore—Brooklyn Club; and Inukai Boys & Girls Club in Hillsboro, OR. The partnership worked to rebuild spaces and amplify community spirit with HGTV donating \$150,000 toward the revitalization of the Lift Zones. HGTV also commissioned artists to create inspirational murals in each of the selected cities.



Program Timeline

Since 2011, Comcast has worked closely with our community partners to enhance the Internet Essentials program in meaningful ways and expand the program's eligibility more than a dozen times, without ever increasing the price of the service. The COVID-19 pandemic brought many more partners into the digital equity space. And for the first time, a large-scale national effort with federal support for connectivity—including both access and adoption through the IIJA—signals a faster end to the digital divide. Through Project UP, we are committed to continue advancing digital equity within the communities we serve.

2011-2019

- Program launch for public-school students receiving free lunch
- Extended the program indefinitely, beyond initial three-year commitment
- 12 Eligibility expansions
- 4 Speed increases
- 6 Application enhancements
- Offered free in- and out-of-home WiFi for customers
- Launched free online Learning Center
- Launched option to purchase subsidized, low-cost devices
- Cumulative total of 8 Million low-income Americans connected



2020

- Convened 2 Internet Essentials Impact Summits (see page 27)
- Implemented key COVID-19 response measures
 - 60 days free service for new Internet Essentials customers
 - Increased speeds to 25/3 Mbps
 - Launched the Internet Essentials Partnership Program (see page 22)
 - Launched award-winning Lift Zones initiative (see page 24)



PROGRAM ENHANCEMENTS



14

expansions of eligibility (available to all who qualify for the Affordable Connectivity Program and more)



17

enhancements to quality and value of the service (including speed, in- and out-of-home WiFi, computer options)



20+

product innovations (including improving our streamlined application process and supporting organizations using the Emergency Connectivity Fund)



12

innovations in digital literacy (including the creation of 1,000+ Lift Zones, \$100M Digital Equity Fund, Cybersplash)

2021

- Celebrated 10 years of advancing digital equity
- Launched Project UP, our 10 year, \$1B commitment to advancing digital equity
- 2 speed increases, 50/10 Mbps
- Introduced Internet Essentials Plus with speeds of 100/10 Mbps
- Expanded eligibility to Federal Pell Grant recipients
- Fully participated in federal Emergency Broadband Benefit (EBB)
- Connected all 1,000+ Lift Zones two years ahead of schedule
- Committed to install an additional 250 Lift Zones by end of 2022
- Convened third Internet Essentials National Impact Summit
- Committed to install up to 100 Lift Zones inside veteran-serving organizations



2022

- Launched full participation in federal Affordable Connectivity Program (ACP)
- Expanded eligibility to include all ACP participants
- Expanded ACP offers with Internet Essentials Plus and Xfinity Mobile bundle
- Lift Zones awarded People's Choice in SXSW 2022 Innovation Awards
- More to come...



Our Blueprint for Success

Internet Essentials has always strived to bring more than high-speed Internet into the home. From the beginning, we designed our program to address what comprehensive and consistent research has told us are the three main barriers to broadband adoption: 1) a lack of perceived need for or interest in (and even fear of) the Internet, mostly stemming from limited digital skills, 2) not having a functional computer, and 3) the cost of a monthly service subscription. These factors, coupled with a lack of awareness of low-cost offers and free government subsidies, **are focus areas for Comcast's digital equity strategy.**

We continue to rely on external research, as well as sponsoring and conducting our own, to expand our understanding of these complex and evolving issues.

A Comprehensive Approach

According to a 2021 U.S. Census and NTIA Internet Use Survey, the top reasons people do not subscribe to Internet at home include:



Lack of need for, interest in,
fear of the Internet



Cost of the monthly service



No computer, inadequate
equipment

To address these barriers, **Comcast designed Internet Essentials as a holistic solution that includes:**



Awareness & Training: We work with a network of partners to offer free in-person, online, and printed digital literacy training materials and classes.



Low-Cost & Free Service: We provide low-cost, high-speed broadband to low-income households across our service area. Customers can choose between two speeds of service: 50/10 Mbps for \$9.95 + tax or 100/10 Mbps for \$29.95 + tax. Both tiers are free when customers apply their \$30/month Affordable Connectivity Program credit.



Equipment: Internet Essentials customers can purchase a new, heavily subsidized and discounted computer for less than \$150 through our partnership with Dell Technologies, Inc.

Affordable Connectivity Program

The Affordable Connectivity Program (ACP) is a permanent extension of the federal government's Emergency Broadband Benefit (EBB) program designed to help low-income households connect to the Internet. Comcast participated in the EBB program since its inception in May 2021 and is proud to continue participating in ACP. Through EBB, current and new Comcast Internet customers with verified eligibility were able to receive a monthly credit of up to \$50 per month (up to \$75 in Tribal lands) toward their Internet service and leased Internet equipment. With ACP, this credit is now up to \$30 per month (\$75 in Tribal lands) for households enrolling in the benefit.

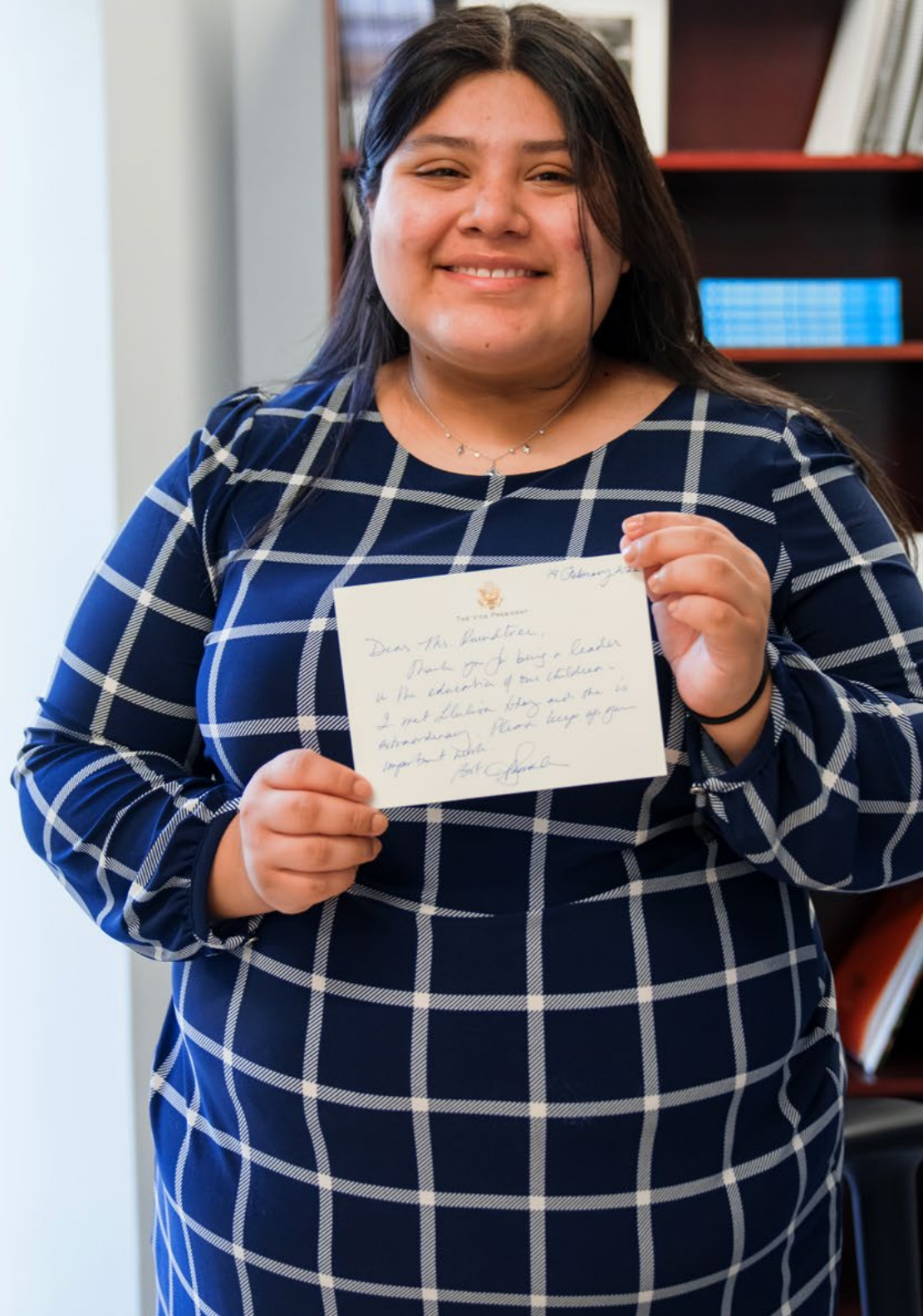
MEETING THE VICE PRESIDENT—LLULISA

Like many others, the Valdivia family did not subscribe to home Internet prior to the pandemic—they had not felt it was a necessity. As education and work moved online, the Valdivias signed up for Internet Essentials to allow their children, including their daughter Llulisa, to continue excelling in school. And when the federal government's Affordable Connectivity Program (ACP) became available, the Valdivias quickly applied for the monthly credit that would cover the cost of their home Internet subscription. On February 14, 2022, Llulisa joined Vice President Kamala Harris and other government leaders at the White House to tell her story about achieving her goal of being the first in her family to go to college. There, she spoke of the power of the Internet to connect her to resources that helped her complete her homework and apply to colleges online. Llulisa, who wants to be an immigration lawyer one day, is just one example of millions of people across the country benefitting from access to the Internet through programs like ACP, which offers a \$30/month discount on Internet service.



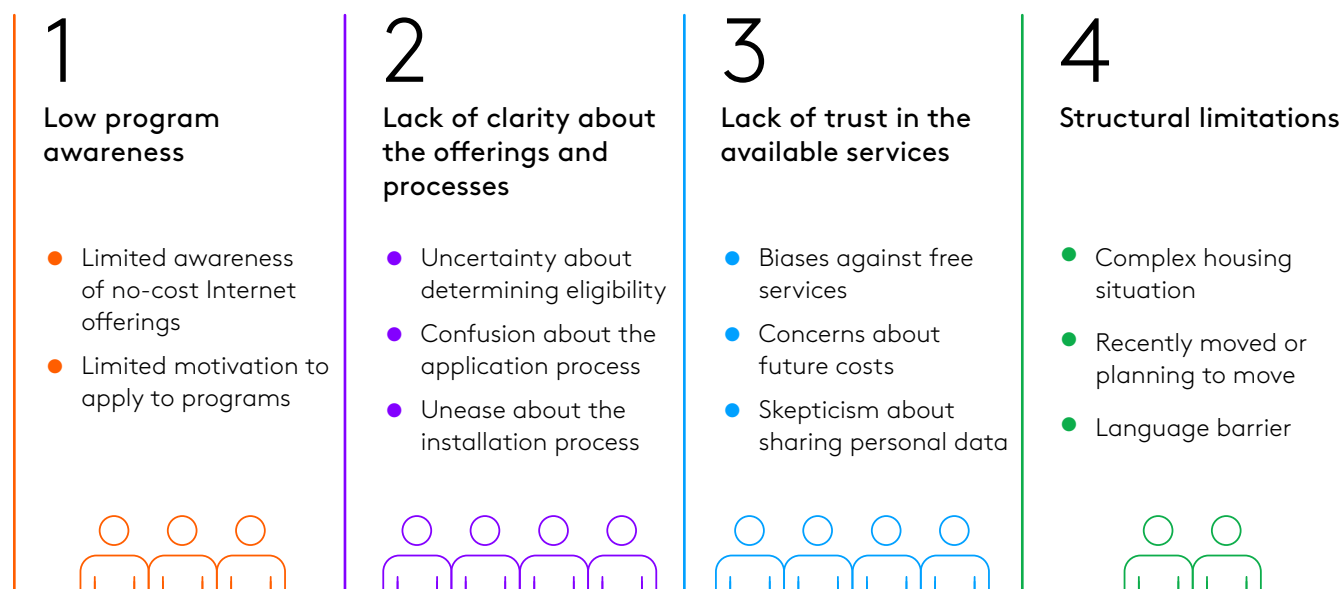
*I will be the first from my family to go to college,
but not the last.*

Llulisa Valdivia



Refining Our Approach

In 2021, we partnered with the Boston Consulting Group to better understand the barriers to broadband adoption, especially when the service was offered for free. Our research found four factors that hinder enrollment in sponsored-service programs:



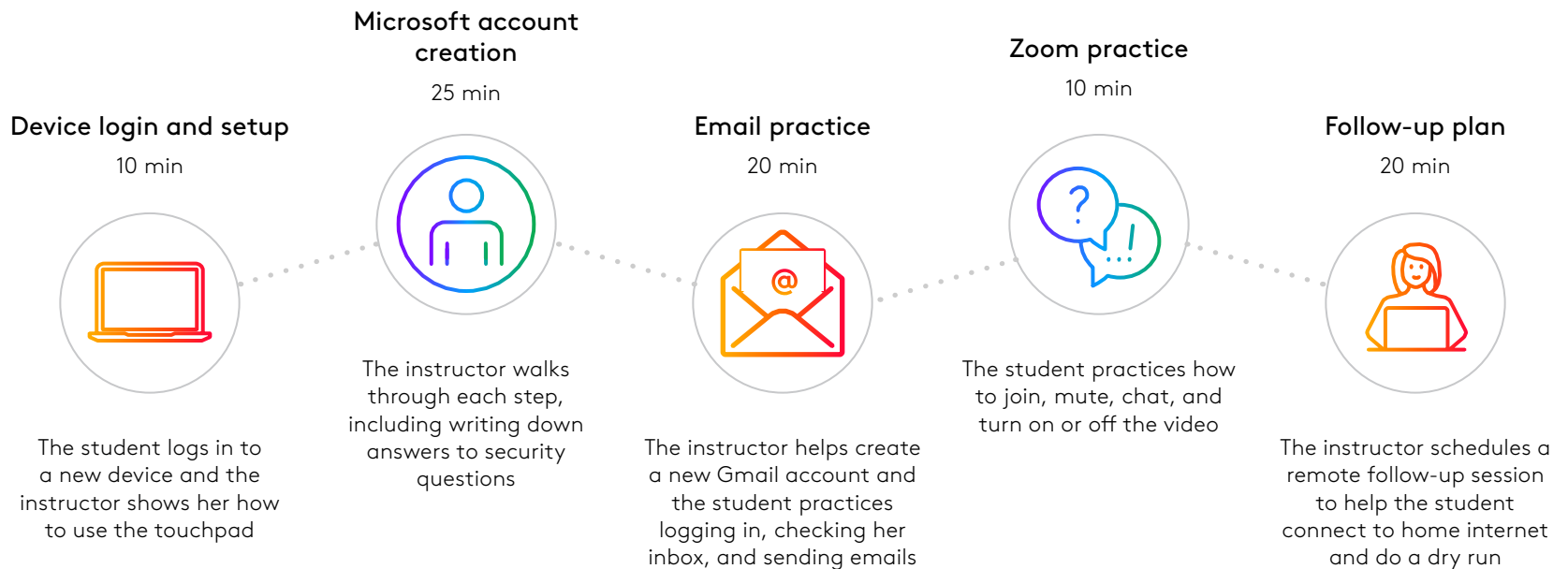
Eligible households affected (%)

Source: BCG's National Survey on Digital Adoption, January 6–11, 2021.

Overcoming Barriers with Digital Navigators

Just this year, we again partnered with the Boston Consulting Group to take a closer look at the key role our partners play in overcoming these barriers using Digital Navigators. Digital Navigators are individuals who address barriers to adoption with community members through repeated interactions. Our research found that trust and time are key components of successful Digital Navigator programs. Typically, Digital Navigator users require hands-on support from an instructor for more than a single one-on-one session. **Overwhelmingly, Digital Navigator users say their instructors quickly addressed their needs, fixed issues, and provided helpful instruction.**

An Example of a One-on-One Session with a Digital Navigator



Source: Kalmus, Matt. Hill, Hannah. Lee, Jean. Goodchild, Chris. Webb, David. (2022). A Human Approach to Closing the Digital Divide.

While time-consuming, the work done by Digital Navigators significantly impacts adoption barriers, digital usage, and digital comfort for users. Digital Navigators are particularly helpful to individuals who need step-by-step support in the sign-up process, assistance with self-installation kits, and setting up a device. **They are also critically helpful in building comfort with basic digital activities and connecting to the Internet.**



of Digital Navigator users now have Internet or computer / tablet at home



of Digital Navigator users have used more tech, incl. for healthcare, benefits, and jobs



of Digital Navigator users feel more confident or safer using technology¹

Deep Dive:
Digital Usage

% of Digital Navigator users

44% got better healthcare

43% got help with food, rent, etc.

37% got new job/higher income



Comcast and Onward Eugene joined the Project Hope Back-to-School Giveaway in Eugene, Oregon. Comcast donated 150 new laptops to help Lane County-area school kids kick off a successful school year.

8.4M

PSAs aired in 2021, valued at more than

\$93M

Supporting Our Partners to Support Our Communities

Closing the digital divide takes nothing short of a movement. We would not be successful without our network of partner organizations who serve as trusted voices in under-resourced communities. Empowering unconnected Americans to adopt the Internet at home, unlocking pathways to unlimited possibilities, requires a marketing mix and digital navigation. It requires both traditional methods, like direct mail and airing PSAs on TV, as well as grassroots partnerships with local voices like schools, public housing authorities, churches, libraries, social workers, and neighborhood businesses. Comcast teams cultivate these relationships, share outreach materials, host sign-up events that help increase awareness, and support Digital Navigator programs.

Our community partners range from large national nonprofits like the Boys & Girls Clubs of America, the National Urban League, and UnidosUS, to thousands of local nonprofits who not only help promote the program but also form the bedrock of our digital literacy training efforts. Nonprofit partners are supported by a corps of volunteer Ambassadors, Comcast employees who share information about the program with their friends and neighbors, who give their most valuable resource—time—to support their communities.



WEBINARS & PUBLIC AWARENESS: EMERGENCY CONNECTIVITY FUND

Working with the Consortium on School Networking, the National School Board Association, and the American Library Association, Comcast hosted two webinars in 2021 for hundreds of partners to learn about the Emergency Connectivity Fund. Partners had the opportunity to learn about ways they could work with us to help connect students and their families to Internet at home.

REGIONAL SIGNUP EVENT

Partnering with Total Life Prosperity and a regional bank branch, Comcast hosted digital equity and financial literacy events for residents of three Flint Housing Commission facilities, which also serve as Lift Zone partners. During these community engagements, Comcast representatives shared information about Internet Essentials and the Affordable Connectivity Program (ACP) and helped interested community members sign up for both. Comcast and the bank also provided catered meals for all attendees, and the bank shared financial literacy information and resources.

Tens of thousands

of community partners



OATS SENIORS PHONE EVENT IN WASHINGTON, DC; DETROIT; BOSTON

Older Adults Technology Services (OATS), in collaboration with Comcast and 18 local senior-focused organizations, is helping drive broadband and Affordable Connectivity Program (ACP) adoption with Internet Essentials in Washington, DC; Detroit, MI; and Boston, MA through targeted grassroots initiatives. In 2021, OATS organized a virtual resources fair, launched a senior-focused awareness campaign reaching senior centers across Washington, DC, and leveraged its Digital Navigators' helpline to support senior connectivity in Boston and Detroit. In addition, Detroit's Saint Patrick's Senior Center is leveraging a Comcast-sponsored computer lab to help seniors sign up for connectivity and gain new digital skills training.



GOODWILL

Internet Essentials from Comcast is supporting Goodwill Industries International's Workforce Opportunity Accelerator Program in 10 Comcast markets to help drive digital skills training, workforce certification, and Internet Essentials enrollment. Through our partnership, hundreds of individuals will gain the connectivity, skills, and support they need to upskill and obtain new employment in this increasingly digital world. We are also participating in Goodwill's Rising Together Initiative, joining a long list of industry leaders committed to helping support our communities and job seekers with the resources they need to obtain employment.

INTERNET ESSENTIALS AMBASSADORS

Our success closing the digital divide is in large part thanks to the work of our 3,000-plus Internet Essentials Ambassadors, Comcast employees who volunteer their time to share information about Internet Essentials with families who need help connecting to the Internet at home. These amazing teammates spread the word to their neighbors, friends, and customers through outreach at back-to-school nights, church fairs, block parties, and more. To celebrate their hard work, each year we acknowledge four Ambassadors for their commitment and dedication to connecting their communities. To honor these Ambassadors and the great work they are doing in their communities, we surprised each of them with \$10,000 to contribute to a nonprofit organization of their choice.

Nearly

3k

current volunteer
Ambassadors

20k

outreach engagements by
Ambassadors since 2013

OUR 2021 AMBASSADORS OF THE YEAR



Nicole Roma, Community Account Sales Representative, Manchester, NH



Oliver Hoang, Retail Store Manager, Tukwila, WA



Adyna Lungu, Sr. Technician, Customer Experience Strategy & Operations, Headquarters



Antonio Chaidez, Sr. Residential Technician, Installation & Service, McCook, IL

1.3M

unique Learning Center visits
in 2021

200+

videos, courses, and modules
covering from basic digital skills
training to career development and
STEAM curriculum available on the
Internet Essentials Learning Center

Promoting Digital Skills for Digital Equity

Time and again, research has shown how challenging it is to connect the unconnected,¹ as households that do not subscribe to broadband often face a range of challenging and interrelated barriers.

While it may surprise some to learn that many households do not sign up for free Internet service, the fact is people who use the Internet regularly take for granted how challenging it can be. A home broadband connection typically requires some degree of literacy, stable housing, and the digital skills necessary to understand how to safely and efficiently acquire reliable services and trustworthy information from the Internet. The digital divide is more pronounced in communities of color that have been historically disadvantaged, and many unconnected households do not believe that simply getting online offers a better future.

This focus on digital relevancy and digital skills development resonates, as research shows that enrolling in Internet Essentials increases the likelihood that a family will have a child who uses the Internet daily, that parents will use the Internet to be responsive to issues at the child's school, and that the Internet will be used to complete homework.¹

One of the ways that Comcast promotes the development of digital skills in communities is by investing in hyper-local organizations and special projects that build digital literacy skills for today's workforce economy. This work includes increasing basic digital and tech skills; advancing skills in online banking, telehealth, online safety, career development and STEAM; furthering awareness of Internet Essentials; accelerating broadband adoption; expanding workforce training/certifications for adults; and strengthening and forging partnerships to meet local business and community needs, and via Digital Navigator programs.

¹ Horrigan, John B. "Access and Impacts: Exploring how Internet access at home and online training shape people's online behavior and perspectives about their lives." *Technology Policy Institute*, May 2021.



CYBERSPLASH

Since the launch of Internet Essentials, online safety has been an important pillar for our teams and communities. Now more than ever, students are engaging online, and it is paramount that we provide our partners, parents, and young people with the tools they need to stay safe. Comcast's cybersecurity team stepped up during the pandemic and leveraged their expertise, resources, and people to create CyberSplash, a fun online interactive learning module aimed at teaching students necessary online safety skills. The game has been played over 100,000 times online since its launch in February 2021.

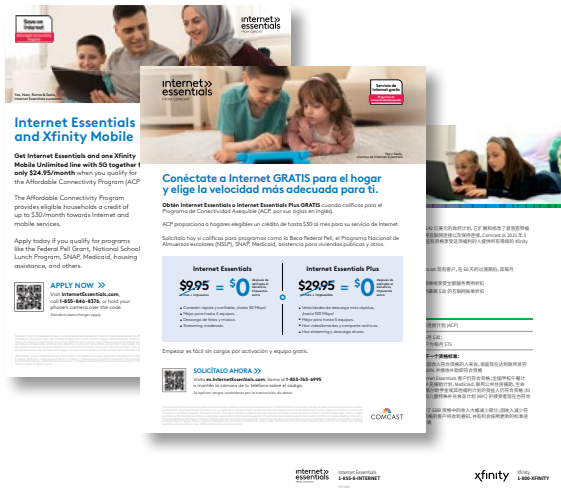


GBH PBS KIDS

Internet Essentials partnered with WGBH Boston to produce a set of online safety videos for kids titled "Search It Up," which were released in 2020. The videos have been viewed more than 13 million times and received two Public Media Awards from the National Educational Telecommunications Association. As an extension of those videos, and in partnership with WGBH, we released an Online Safety Interactive Module for kids using the themes and videos from our series. "Search It Up" educational modules educate kids ages 4–8 on how to safely explore and enjoy the world of smartphones, tablets, sharing, and the Internet. Each education journey is based on a fun, kid-friendly theme (animals, parties, food) and contains content based on the learning goals of online safety, healthy digital habits, technical information, and more.

35

The partner portal offers outreach and training materials in up to 35 different languages, including Arabic, Chinese, and Somali



Building Trust in Communities & Removing Structural Barriers

For many of the communities that find themselves on the wrong side of the digital divide, lack of trust in free or affordable offers is the key barrier. Without community partners serving as advocates, we at Comcast could not move the needle.

In addition to forging strong partnerships with community-based organizations that serve as trusted voices, we have also built trust by consistently communicating the benefits of the program for more than 10 years, including with materials that we co-brand with our partners. Based on the feedback from customers and partners alike, we know this consistency has been a key factor in our success.

To ensure busy households can easily sign up for Internet Essentials, the enrollment process has been streamlined so most applicants are approved within 10 minutes. To meet customers where they are, customers can sign up online or with one of our call center agents, who can provide support in more than 240 languages, including American Sign Language, via our chat feature online, or in our retail centers. We regularly host local sign-up events and empower our partners and their digital navigators with training and materials to support the enrollment process. These tactics help ensure low-income families consistently learn about the benefits of the Internet Essentials program, can easily have their questions answered, and have access to a fast and convenient enrollment process.



7

InternetEssentials.com and the Internet Essentials application are available in seven languages



Comcast donated \$10,000 and 100 laptops to the Boys and Girls Club of South Puget Sound through an existing event hosted by Team Xfinity gaming influencer, Marcel Cunningham.

INTERNET ESSENTIALS PARTNERSHIP PROGRAM

The COVID-19 crisis created an urgent need for a scalable solution to support school districts and partner organizations across the country. Through the Internet Essentials Partnership Program (IEPP), cities, school districts, and community-based organizations can sponsor connectivity for large numbers of low-income students and families to the Internet. In Philadelphia and Chicago, for example, Comcast partnered with cities, school districts, philanthropies, and multiple local institutions to create funds that would ensure every K-12 student has Internet service at no cost.



Comcast is proud to participate in Chicago Connected, Chicago Public Schools' program to connect thousands of low-income students across the city's 77 neighborhoods to broadband Internet service at home. The first and largest program of its kind, Chicago Connected creates a support system for city households by providing free access to high-speed Internet services already available in their neighborhoods. Utilizing Digital Navigators as key components to its outreach strategy, the program has been successful because it brings together the philanthropic community, non-profit and faith-based organizations, Internet Service Providers, and the city to make sure students have the resources they need to succeed in school and participate in an increasingly digital world.

EMERGENCY CONNECTIVITY FUND

The Emergency Connectivity Fund is a \$7.17 billion program funded by the American Rescue Plan Act of 2021 to help schools and libraries support remote learning. The program provides funding to schools and libraries for the reasonable cost of eligible equipment and services for students, teachers, and library patrons who lack connected devices, such as laptop or tablet computers, and/or lack broadband access during the pandemic. Comcast is proud to support connectivity and distance learning capabilities for students, school staff, and library patrons using funding from ECF, through our Internet Essentials Partnership Program (IEPP).

Partner Portal

Our Internet Essentials partner portal empowers nonprofits and volunteers with free digital and printed outreach and marketing materials, in up to 35 languages. These materials include brochures about Internet Essentials, federal subsidy programs, and online safety tips that have been proven to help connect the unconnected, which helps our partners spread digital equity across their communities.



72M

pieces of collateral distributed in up to 35 languages since 2011

Dozens

of outreach and digital skills training materials available

Expanding Free WiFi Access Through Lift Zones

Working with our network of thousands of non-profit partners and city leaders, we launched more than 1,000 Lift Zones during 2021. Our award-winning Lift Zones program complements Internet Essentials and helps those students and individuals who, for a variety of reasons (including homelessness, or housing insecurity), are unable to participate in distance learning from home, but need a place to get online for free.

Lift Zones provide a robust WiFi solution, powered by Comcast Business, inside nonprofits, community centers, gyms, parks and recreation facilities, and even small businesses. Lift Zones not only provide free Internet connectivity, but also access to hundreds of hours of educational and digital skills content to help families and site coordinators navigate online learning and digital skills training through the Internet Essentials Learning Center.

50%

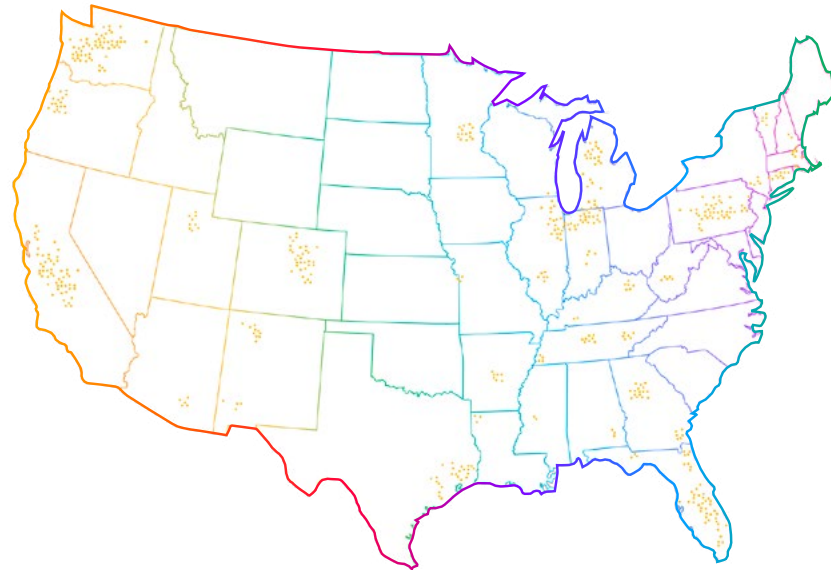
of low-income households have a Lift Zone in their neighborhood*

1,000+

Lift Zones launched

2M+

Lift Zones sessions between
February 1, 2021 and
December 21, 2021



*In counties that have the most Lift Zones, over half of low-income households live near a Lift Zone (Philadelphia, Washington DC, Suffolk, Hennepin, and San Francisco counties). Low Income is defined as eligibility for NSLP. Neighborhood is defined as within .5 miles to 1 mile, depending on commute type. Demographic data sourced from the Census' American Community Survey.



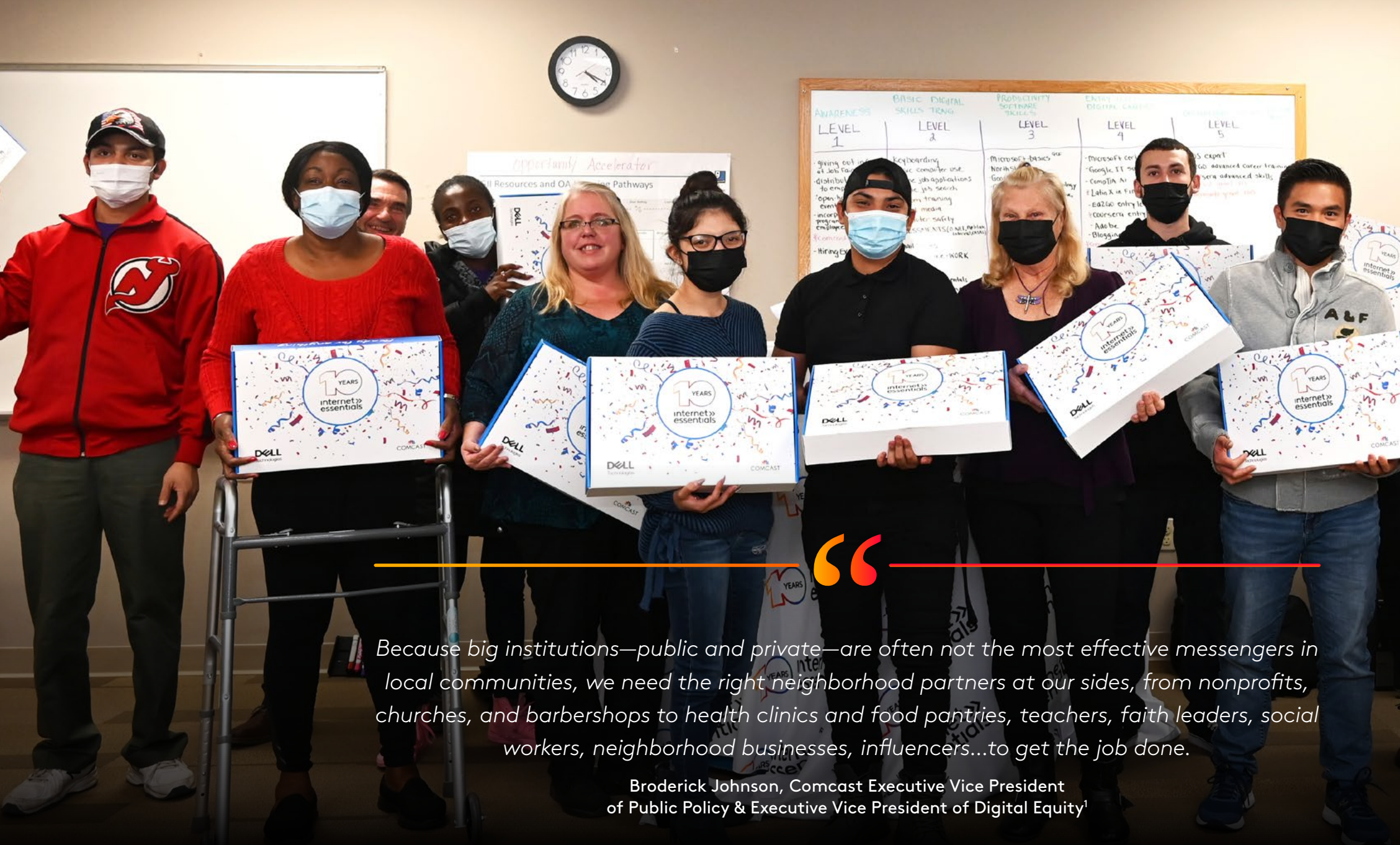
25M

homework hours in 2022



Comcast's Lift Zones initiative and pandemic response in 2021 won the People's Choice Award at SXSW 2022 in the category of "Innovation in Connecting People"

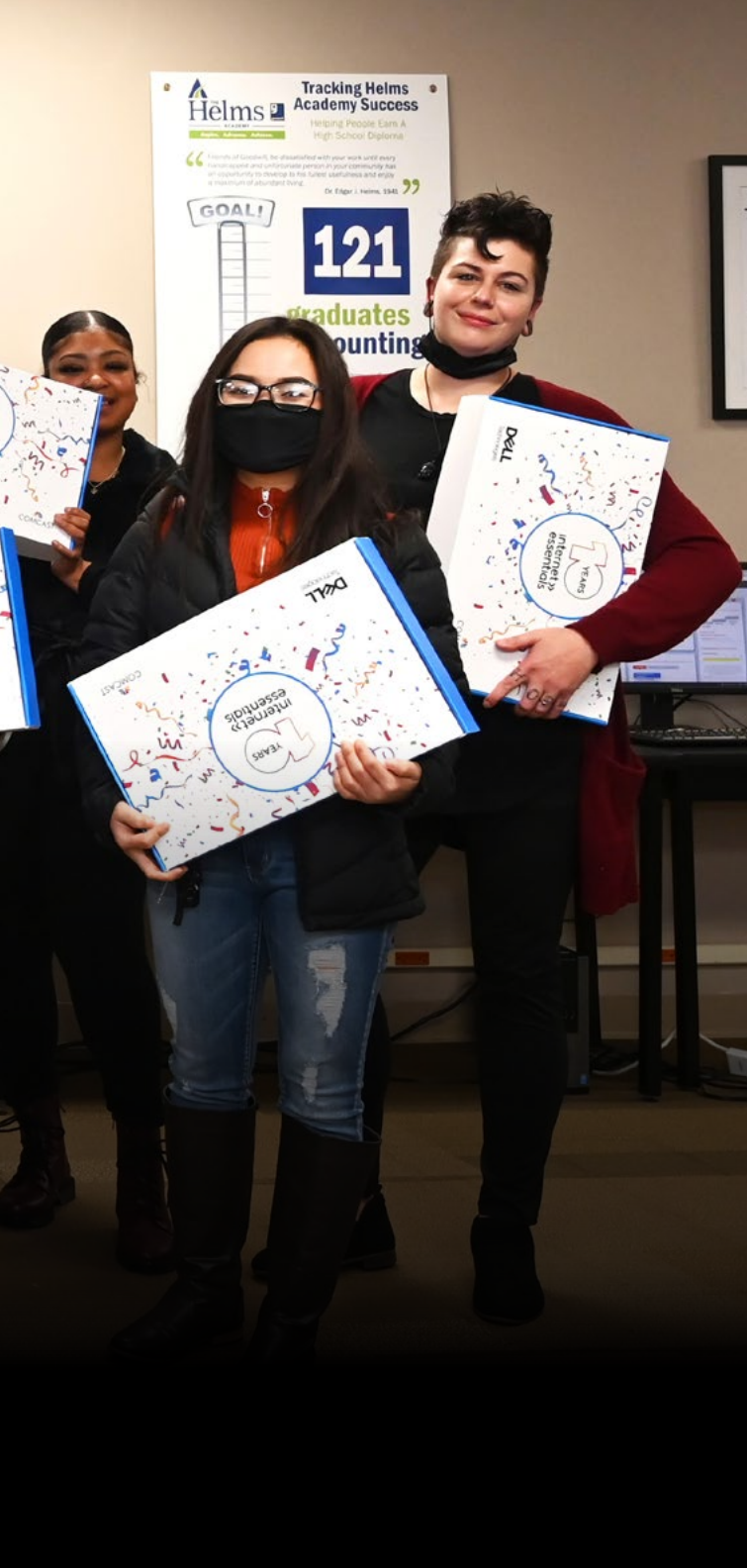




Because big institutions—public and private—are often not the most effective messengers in local communities, we need the right neighborhood partners at our sides, from nonprofits, churches, and barbershops to health clinics and food pantries, teachers, faith leaders, social workers, neighborhood businesses, influencers...to get the job done.

Broderick Johnson, Comcast Executive Vice President
of Public Policy & Executive Vice President of Digital Equity¹

¹“No more excuses’ attitude to encouraging broadband adoption.” *Baltimore Sun*, Dec 14, 2021.



IMPACT

ON WORKFORCE
DEVELOPMENT

INTERNET ESSENTIALS IMPACT ON WORKFORCE DEVELOPMENT SUMMIT

On November 17, 2021, Internet Essentials, in partnership with Goodwill Industries International, hosted its third Impact Series summit, focusing on the relationship between connectivity, positive workforce outcomes, and economic mobility. During the virtual event, leading experts and partners explored the ways public, private, and nonprofit partners can complement each other to ensure low-income communities have access to both foundational digital skills, as well as the occupational digital skills necessary to participate in today and tomorrow's workforce.

At the launch of a Lift Zone at Goodwill Industries of Southern New Jersey and Philadelphia's Stratford, NJ, location, Comcast donated grants totaling \$35,000 to support Goodwill's digital equity, inclusion, and literacy efforts. Comcast also donated 500 new laptops to support local job seekers receiving training services through Goodwill.

Project UP

Through Project UP—our comprehensive initiative to advance digital equity and build a future of unlimited possibilities—we’re committing \$1 billion to help ensure everyone has the resources and opportunities they need to participate and excel in today’s digital world. Project UP encompasses the programs and community partnerships across Comcast, NBCUniversal, and Sky that connect people to the Internet, advance economic mobility, and open doors for the next generation of innovators, entrepreneurs, storytellers, and creators.



BRIDGING THE CONNECTIVITY GAP

Building on a decade of progress and success, we are accelerating our work to connect people to the power of the Internet and address barriers to digital adoption.



10M

Connected more than **10M** people to the Internet and distributed **200,000** free and subsidized laptops since 2011.



1,000+

Opened more than **1,000** WiFi-enabled Lift Zones to help students and families connect to the Internet at community centers nationwide.

Participating in the **Affordable Connectivity Program** to further connect low-income Americans to the Internet at home.

Empowering thousands of digital navigators to educate the unconnected about the benefits of getting online.

EMPOWERING SMALL BUSINESS OWNERS

Through Comcast RISE, we’re equipping entrepreneurs and small business owners with the digital opportunities and resources they need to thrive.



6,700

To date, we’ve reached **6,700 small businesses** owned by people of color through Comcast RISE.

\$60 million

We awarded over **\$60 million in grants**, marketing support, and technology upgrades in 2021.

13,000

We’re on track to reach **13,000 small business** owners and entrepreneurs by the end of 2022.

BUILDING DIGITAL SKILLS

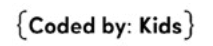
Through our programs and partners, we’re helping to provide technology and digital skills training and create equitable pathways to careers in media and technology.

1 million

Together with our partners, we are able to reach over **1 million** people each year with skills training.

\$60 million

We contributed over **\$60 million** in cash to our digital equity partners in 2021 alone.



What's Next

When we started on this journey, there was no roadmap and we weren't certain how far the program would go or how many people we could reach. The nation had just begun to focus on the importance of a home Internet connection, and the FCC had only recently released its 2010 National Broadband Plan, highlighting research on broadband adoption and digital inclusion.

We pledged then to listen to and learn from our partners, modify by trial and error, and rely on the best research in the field to build a program that would reach as many people as we could.

Now, more than 10 years later, as the federal government strengthens its commitment to broadband adoption through ACP and ECF, we are more committed than ever to building on this foundation and expanding our impact through Project UP, our comprehensive initiative backed by a \$1B commitment to advance digital equity and help build a future of unlimited possibilities in the years to come.

We are incredibly excited by what the future has in store. Whether it's sending one of our technicians to connect another family to Internet Essentials, opening a new Lift Zone at a neighborhood community center, or working with our nonprofit, government, and community partners around the nation to implement the Internet provisions of the IIJA, we are as ready as ever to bring the life-changing power of the Internet to as many people around the country as possible.

Thank you to all our partners for making this program possible. We can't wait to show you what's next.

2020

2021

2022



In May of 2021, Tommy graduated with honors from Florida State University and is now enrolled in a PhD program.

Appreciation

Our progress has been made possible thanks to the hard work of the Internet Essentials team, our colleagues across Comcast, and the many partners we have worked with over the last 10-plus years. Together, we have developed and refined innumerable expansions and enhancements to the Internet Essentials program to put the Internet, technology, and resources in the hands of more of the people who need it most. As we look forward to the next 10 years, we would like to thank everyone who has been part of this journey so far.



I am so proud of the Internet Essentials team, and all of our partners, employees, and customers who have worked tirelessly to ensure connectivity for everyone. The resilience, hope, and determination of our Internet Essentials families is what continues to drive our work forward to empower unlimited possibilities for millions more like Tommy.

Trinity Thorpe-Lubneuski, Executive Director, Internet Essentials at Comcast
Internet Essentials team member for seven years and counting



**internet»
essentials**
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1-855-SOLO-995 (1-855-765-6995)

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corporate.comcast.com/impact/project-up

DETAILS

BY: JOHN CURRAN
MAY 9, 2022
4:26 PM

White House Lines up Broadband Providers, Websites for ACP

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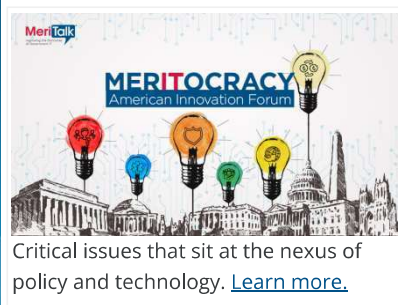
[Rep. Connolly Sets Sights on Oversight and Reform Committee Leadership](#)

The White House [said today](#) it has lined up 20 service providers that will offer high-speed broadband service within the price points set forth in the government's Affordable Connectivity Program (ACP), and also went live with a Federal website that people can use to find the services.

The Federal Communications Commission [launched](#) the ACP – the successor to its Emergency Broadband Benefit program – in January of this year. The \$14.2 billion ACP will build on the Emergency Broadband Benefit program's efforts, which helped almost nine million people to afford internet access during the COVID-19 pandemic.

The transition to the ACP follows congressional directives in the Infrastructure Investment and Jobs Act, which appropriated \$65 billion for numerous efforts to improve affordable access to high-speed broadband services in the United States, particularly in underserved areas and for people who need help affording it.

As part of ACP, eligible households can receive up to a \$30 per month discount toward internet service, and up to \$75 per month for households on qualifying Tribal lands. Additionally, eligible households can receive a one-time discount of up to \$100 to purchase a laptop, desktop computer, or tablet from participating providers if they contribute more than \$10 and less than \$50 toward the purchase price.



The White House today unveiled a roster of 20 broadband service providers who have committed to “either increase speeds or cut prices, making sure they all offer ACP-eligible households high-speed, high-quality internet plans for no more than \$30/month.”

The companies signing onto the commitment include very large providers – AT&T, Comcast, Verizon – all the way down to state-level providers including Comporium in North Carolina and the Jackson Energy Authority in Tennessee. Collectively, the companies' service areas cover about 80 percent of the U.S. population.

The result, the White House said, is that the commitments will allow “tens of millions of ACP-eligible households to receive high-speed internet at no cost.”

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ABOUT
JOHN CURRAN



John Curran is MeriTalk's Managing Editor covering the intersection of government and technology.

TAGS

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To spread the news, the White House said it is launching the GetInternet.gov website to explain which ACP-eligible households can sign up and find participating service providers.

In addition, Federal agencies that provide a variety of benefits to citizens will coordinate reach-out efforts for ACP. Households qualify for ACP based on income, or through participation in Federal programs including Pell Grants, Medicaid, or Supplemental Security Income, among many others.

On the state and local level, governments including those of Michigan, Massachusetts, Philadelphia, Mesa, Arizona, and New York City will text millions of eligible households about ACP availability, the White House said.

Talking about the potential size of the ACP population, the White House today cited experts who believe that 48 million U.S. households – or about 40 percent of all U.S. households – qualify for ACP.

“When we connect people with high-speed internet, we connect them with opportunity: the opportunity to get an education, to train for a new career, to build a business, to keep in touch with loved ones who are far away,” said Vice President Kamala Harris at a White House ceremony today publicizing the new broadband service provider commitments.

“Earlier this year, our administration called on internet service providers to take action to help folks get internet connected, in part by offering more affordable high-speed internet plans to their customers,” she said. “The providers joining us today have answered that call.”

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NEW: @GerryConnolly, long one of the prime movers in Congress on Federal #ITmodernization issues, said today he plans to run to become the top Democrat on the House Oversight and Reform Committee next year when the 118th Congress convenes. @OversightDems meritalk.com/articles/rep-c...

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DIGITAL EQUITY

Comcast Expands Affordable Connectivity Program Offers with Faster Internet Essentials Service and Xfinity Mobile

Mar 01, 2022



Comcast is participating in the federal government's Affordable Connectivity Program (ACP) and the \$30/month benefit can be applied to any tier of Xfinity Internet service.

Today, Comcast introduced two new ways for customers to connect through ACP and both are available to any customer who qualifies in all the company's service areas. Customers can sign up for Internet Essentials Plus, which includes 100 Mbps download speeds, a cable modem, and WiFi router, and is free after the government's ACP credit is applied. Additionally, Xfinity Internet customers participating in ACP now can add mobile service through Xfinity Mobile.

"As a company and a society, it is imperative that we work together to help people connect to the transformative power of the Internet both at home and on the go," said Broderick Johnson, Executive Vice President, Public Policy and Digital Equity, Comcast Corporation. "The Affordable Connectivity Program is a once in a lifetime opportunity that Comcast is proud to support. Connectivity is just the beginning, however. We will continue to partner with nonprofit organizations across the country to deliver digital literacy skills training so more people can learn how to take full advantage of everything the Internet has to offer."

For more than a decade, Comcast has been working with trusted community partners, businesses, and government to help millions of low-income households connect to the Internet and the technology they need to participate in the digital world. On February 14, 2022, the world saw how these efforts can produce inspirational results when Llulisa, a Comcast Internet Essentials customer who is enrolled in ACP, joined government leaders at the White House to tell her story about achieving her goal of being the first in her family to go to college.

Llulisa is just one example of millions of people across the country benefitting from access to the Internet through programs like ACP, which offers a \$30/month discount on Internet service (\$75/month on Tribal lands). Any Xfinity Internet or Internet Essentials customer who qualifies can use it to save money on their Internet bill. Comcast's expanded ACP offers include:

Internet Essentials Plus

Internet Essentials Plus is a new tier of service for Comcast's hallmark digital equity program that is available in all Comcast service areas to any customer who qualifies. It offers twice the download speed – up to 100 Mbps – of the traditional Internet Essentials service, which has a 50 Mbps download speed. Internet Essentials Plus is available for \$29.95/month to new customers who qualify. Existing Internet Essentials customers can upgrade to this new, faster tier at any time. Customers who subscribe to Internet Essentials Plus and enroll in ACP will effectively get broadband for free after the \$30/month government discount is applied.

Xfinity Mobile

Comcast's top-rated Xfinity Mobile service, which includes 5G, is now available to customers enrolled in ACP, giving them the ability to save money on their connectivity needs inside and out of the home. Internet Essentials customers can use their \$30/month ACP discount to pay for both Xfinity Internet and Xfinity Mobile service. For example, an Internet Essentials customer (paying \$9.95/month) can add one line of Unlimited on Xfinity Mobile (\$45/month) for \$24.95/month after applying the ACP discount.

Xfinity Mobile has no line access or activation fees and comes with unlimited talk and text, so customers only pay for cellular data. Customers can mix and match between two straightforward plans on Xfinity Mobile with 5G included, Unlimited or By the Gig, and pair these mobile plans with any tier of Internet service to provide ultimate flexibility. They can also switch back and forth between Unlimited and By the Gig mobile plans at any time. In addition, Xfinity Mobile devices automatically connect to millions of Xfinity WiFi hotspots across the country to reduce customers' dependence on cellular and save money.

Signing up for ACP

New and existing Xfinity Internet or Internet Essentials customers can visit www.xfinity.com/acp <http://www.xfinity.com/acp> or call 844-389-4681 for more information, to determine eligibility, and sign up.

Customers can also call to speak to a dedicated ACP Enrollment and Support Center that is available from 8AM to 12AM daily, with multi-lingual capabilities to assist anyone interested in the program.

Project UP and Comcast's \$1 Billion Commitment to Advance Digital Equity

Connecting more people to the Internet and the technology they need to participate and excel in an increasingly digital world has been a core focus for Comcast. Looking toward the next ten years, Comcast is building on that foundation and expanding its impact through Project UP, a comprehensive initiative to advance digital equity and help build a future of unlimited possibilities. Backed by a \$1 billion commitment to reach tens of millions of people, Project UP encompasses the programs and community partnerships across Comcast, NBCUniversal, and Sky that connect people to the Internet, advance economic mobility and open doors for the next generation of innovators, entrepreneurs, storytellers, and creators. For more information on Project UP and the latest news on efforts to address digital inequities visit <https://corporate.comcast.com/impact/project-up> <https://corporate.comcast.com/impact/project-up>.

15. Communications Plan

Community Outreach

Culpeper County publishes a quarterly newsletter in order to share information with residents. We will include project information in each issue printed during the project. Information will include how to pre-register and updates on the project progress.

<https://web.culpepercounty.gov/AboutCulpeper/CulpeperQuarterly>

Quarterly Coordination Meetings

Culpeper and Comcast will hold a quarterly coordination meeting during which Comcast will present a report on progress against established project milestones in the previous quarter, and an update on project activities anticipated in the next quarter.

Quarterly coordination meetings will be convened by Comcast and will include the county's project lead as well as representatives from Comcast.

Board of Supervisors Reports

Culpeper County staff will report on the project status monthly unless the meeting is cancelled.

Comcast will drive broadband adoption through a variety of means including mailing information to residents, local media, and outreach to the community. Also, Comcast will drive adoption of the affordable subscriber options, Internet Essentials and Internet Essentials Plus, to all eligible residents. Interested residents will be able to sign up for service by calling Comcast's toll-free telephone number, using Comcast's website or in person at the nearest Xfinity store. Comcast employs a sales and marketing team of professionals to support these efforts and call center team members are skilled in addressing questions regarding Comcast's products and services. If conditions allow, a public meeting or event can be held in conjunction with Culpeper County in or near the proposed project area to inform the residents about the upcoming work and answer questions.

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. The

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.

In Comcast's experience, take rates are relatively higher in areas that have not had access to broadband service in the past. Comcast anticipates no different outcome with this project. Nonetheless, as Comcast bears all operational risk once the project construction is complete and the proposed project area represents less than 1% of Comcast's current Virginia locations served, there is no risk to the state, or County, of lower-than-average take rates.

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 home 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 is committed to serving all residences and businesses within the project area on a non-discriminatory basis with a variety of service options for low-income individuals and families. Under Comcast's Internet Essentials offering – the most comprehensive and successful low-income broadband adoption program in the nation – qualifying residential customers can obtain broadband service at speeds of up to 50 Mbps/10 Mbps for \$9.95/month, or speeds of up to 100 Mbps/10 Mbps for \$29.95/month with Internet Essentials Plus (plus applicable taxes, fees and surcharges), as well as free digital skills training in person and online. Comcast invests in programs that serve diverse individuals seeking equitable access to the advantages of technology and digital skills. To help reach as many people as possible, Comcast offers 240 languages through its call center and 7 languages through the online Internet Essentials application portal. Customers also have the option to purchase a low-cost Internet-ready computer. Internet Essentials is open to virtually all low-income households within Comcast's footprint, including families that qualify for federal assistance (e.g., National School Lunch Program, Medicaid, housing assistance) and low-income veterans, senior citizens, and persons with disabilities.

Since launching in 2011, Comcast has made dozens of improvements to the program, including expanding eligibility 14 times—bringing Internet Essentials to new audiences

such as public housing residents, low-income veterans, seniors, community college students, and most recently, to all qualified low-income households living in Comcast's service area. Comcast has also increased the speeds for Internet Essentials, with the most recent speed increase to 50 Mbps/10Mbps occurring earlier this year. Since 2011, Internet Essentials has connected a cumulative total of more than ten million Americans to the Internet.

Illustrating this impact, in a 2021 Comcast survey, 76% of participants in Comcast's Internet Essentials broadband adoption program said their service has helped someone in their household find a job, and 78% of households with lost wages due to COVID-19 believe Internet Essentials has helped reduce that loss. 79% said the service has helped them find health and/or medical information. Significantly, 90% reported a positive impact on their child's grades.

In September of 2020, Comcast announced a multiyear program to launch WIFI connected "Lift Zones" in community centers nationwide for anyone to use, including students, adults, seniors, and veterans. Lift Zones are facilities primarily designed to help provide low-income students with a safe, clean space to participate in distance learning or do homework, however, are also available for adults for remote work, apply for a job, or learn digital skills.

Comcast has a long history of partnering with and supporting the communities we serve. Recently, Comcast has been focused on creating a world of unlimited possibilities through Project UP, championing Diversity, Equity & Inclusion, and protecting the environment. A few key accomplishments include:

- Installing 1,000+ Lift Zones nationwide in 2021 and committing to 250 more in 2022, to provide communities with free Internet access.
- Reaching our most inclusive employee representation in the ten years since we have been tracking diversity data:
 - o Our overall workforce is 36% women and 45% people of color as of the end of 2021.
 - o 47% of our new hires last year were women and 57% were people of color.
- Reducing our Scope 1 and 2 greenhouse gas emissions by 19% from 2020 to 2021, marking progress toward our carbon neutral goal.

For more information, please see the 2022 Impact Report (<https://corporate.comcast.com/impact/report/2022>) and the 2022 Internet Essentials

Progress Report (<https://corporate.comcast.com/stories/2022-internet-essentials-progress-report>)

The Culpeper County library has established multiple remote public access Wi-Fi locations throughout the Coronavirus pandemic and has 22 cellular Wi-Fi units available for the public to check out. The units have circulated 1,434 times since the program began in 2016. The library currently provides assistance with resumes, online job applications, wireless internet services, wireless printing and other internet services as the digital divide continues to widen. The library also offers continuing education classes and tests through many online databases including free classes through [DigitalLearn.org](https://www.digitallearn.org/). This is a collection of self-directed tutorials for end-users to increase their digital literacy. Development courses include the most basic skills, such as using a computer, navigating a website, and searching. Modules are video-based with narration, 6 to 22 minutes long, written at the fourth grade reading level, and help learners practice skills like using a mouse and setting up passwords. Nearly all modules are available in Spanish as well as English.

16. Project Management and Key Individuals

Laura Loveday- Special Projects and Grants Administrator (Project Lead, Culpeper County)

Laura Loveday, AICP has served as Culpeper County Special Projects and Grants Administrator since 2017. Ms. Loveday has overseen Culpeper's broadband expansion efforts for many years and will serve as Culpeper County's lead for this project.

Prior to being named Special Projects and Grants Administrator she served as Culpeper County Comprehensive Planner from 2004-2017. In her current role, Ms. Loveday has applied for, received, and managed many Federal, State, Local, and Foundation grants and coordinated high-level planning and construction initiatives in Culpeper County.

Nathan Daugherty- Director, Comcast Government Affairs, (Project Coordination)

Steve Hill- Senior Director of Network Engineering, (Construction Supervision)

Comcast maintains large, locally based engineering and technical operations teams that work around the clock to maintain a high level of reliability and to directly support the Company's business and residential customers.

Comcast's Management Team includes:

Michael Parker serves as the Senior Vice President of Comcast's Beltway Region. In this role, he leads multidisciplinary teams of thousands of employees focused on transforming the customer experience and delivering Comcast's best-in-class products to millions of customers in Maryland, Virginia and Washington, D.C., as well as parts of Delaware, North Carolina and West Virginia.

Mr. Parker joined the Northeast Division as Senior Vice President of Comcast's Western New England Region and was most recently the Senior Vice President of Comcast's Keystone Region. In this role, he was the head executive responsible for operations, financial performance and customer service for approximately 1.7 million customers in Pennsylvania, Ohio and parts of Maryland and West Virginia. He has also held roles as Vice President of Operations for Comcast's Greater Chicago Region, Area Vice President for Comcast's systems in New York and Connecticut, Vice President & General Manager for the company's Baltimore City system, Vice President of Government & Regulatory

Affairs for Comcast's Greater Detroit Region, and Vice President & General Manager of the company's Detroit system. Mike also worked for Tele-Communications, Inc. (TCI) and began his career serving as Illinois Assistant Attorney General.

Mr. Parker is a graduate of NAMIC's Executive Leadership Development Program, CTAM's Executive Management Program, the Society of Cable Telecommunications Engineer's (SCTE's) Tuck Executive Leadership Program and Comcast's Executive Leadership Forum. He has been recognized numerous times as one of CableFax: The Magazine's "Most Influential Minorities" and was honored on the "Top 50 Under 50" list of Black MBA Magazine.

Mr. Parker holds an MBA from the Kellogg Graduate School of Management at Northwestern University and earned degrees from the University of Miami School of Law and Lake Forest College. He is also a graduate of the Officer Candidates School in Quantico, Virginia, and attained the rank of First Lieutenant during his service with the U.S. Marine Corps Reserve.

Ray Roundtree is the Vice President of Finance & Accounting for Comcast's Beltway Region. In his role, Mr. Roundtree leads all financial and accounting functions, and oversees the region's Facilities and Warehouse teams and operations. Most recently, Mr. Roundtree was the Vice President of Finance and Business Operations for Comcast's Florida Region.

Mr. Roundtree has more than 21 years of financial management leadership at Comcast in roles of progressive responsibility. Before joining the Florida Region, he was the Vice President of Finance and Business Operations for the Keystone Region. His prior experience within the company includes Vice President of Finance and Business Operations for the Central Pennsylvania Region, Area Director of Business Operations for South Jersey, and General Manager for Chester and Lancaster Counties.

Mr. Roundtree served as the Executive Sponsor for the Florida Region's Black Employee Network Employee Resource Group (ERG) and was the co-lead for the Region's Diversity, Equity & Inclusion Council.

As Vice President of Government and Community Affairs for Comcast's Beltway Region, **Misty Allen** leads the government, regulatory and community affairs teams the Beltway Region. Prior to joining Comcast, Ms. Allen led state and local government affairs strategies at Baltimore Gas and Electric (BGE) as the Director of Government and

Legislative Affairs. Ms. Allen also served as Vice President of Asset Management for GenOn Energy Inc., a competitive power generator of wholesale electricity, where she contributed to the development of company legislative and regulatory policy and business development efforts in New Jersey, Maryland, and Virginia.

Ms. Allen is a graduate of Creighton University in Nebraska and earned a Bachelor of Science degree in Business Administration and a Juris Doctor degree. She also received a certificate in Nonprofit Leadership and Administration from Northern Virginia Community College. Beyond work, Misty serves on the Board of Directors for the Greater Washington Board of Trade, Maryland State Chamber of Commerce, Virginia Cable Telecommunications Association and Christmas in April - Prince George's County.

As Regional Vice President of Comcast Business for the Beltway Region, **Dan Carr** has regional responsibility for all sales, sales support, revenue, operating P&L and customer satisfaction for Comcast Business products and services. Before joining the Senior Leadership Team in Beltway, Mr. Carr had national responsibility for sales operations and support for Comcast Business, supporting the development of a high-performing field sales organization. He was directly responsible for the day-to-day support of the Enterprise Sales Channel and the critical functions to sales force productivity across all sales channels.

Prior to Comcast, Mr. Carr served as Senior Director at Level 3 Communications (now Lumen Technologies) and was responsible for leading pre and post-sale engineering activities for large accounts. While at Broadwing Communications (now Lumen Technologies) he led a sales operations team responsible for sales force productivity across the enterprise market. He has held various sales and technical leadership positions at MCI Communications (now Verizon Communications).

Mr. Carr holds an MBA from Saint Joseph's University and a BS in Computer Science from Widener University.

As Vice President of Technical Operations for the Beltway Region, **Robert Jones** leads the day-to-day operations for the Installation & Service team and works with Headquarters and Northeast Division Technical Operations leaders to implement strategies focused on delivering the best customer and employee experiences.

Previously, Mr. Jones spent a year leading the Florida region's Tech Ops and Fulfillment teams, and prior to that spent three years as the Area Vice President of Technical

Operations for Greater Philadelphia. He brings more than 30 years of experience in the telecommunications industry including as Senior Director of Operations for DIRECTV and field operations leader in Washington, D.C. and Chicago, IL for TCI.

Mr. Jones is a strong proponent of Diversity, Equity and Inclusion, and developing talent at Comcast, having served as the co-lead for the Black Employee Network Employee Resource Group in the Freedom Region. He received his B.A. from Southern New Hampshire University,).

Tom Kearney is the Vice President of Network Engineering for the Beltway Region. In this role, Mr. Kearney manages all network maintenance and construction teams who expand and maintain the Beltway Region's vast networks and also implement new technology-based products and services. Mr. Kearney brings 22 years of experience in the broadband and cable industry – 17 of them working for Comcast – to this role. Previously, he served as Area Vice President for Comcast in the Metro-DC Area and Senior Director of Engineering and Technical Operations. Prior to joining the industry, Mr. Kearney served as a Lieutenant in the U.S. Navy, served on board the USS Kinkaid (DD-965) and other stations and was deployed to the Persian Gulf and Western Pacific in support of various campaigns.

Mr. Kearney holds a Bachelor of Science (Mechanical Engineering) from Villanova University and a Master's degree in Business Administration from University of Baltimore. He graduated from the TUCK Executive Leadership Program in 2014 and from Comcast's Executive Leadership Forum in 2012. Currently, Mr. Kearney serves as the initial Executive Champion for the Beltway Region's VetNet ERG.

Jackie MayBeck serves as the Vice President of Sales & Marketing for Comcast's Beltway Region. Jackie joined the Region in 2019 as Vice President of Sales, responsible for executing our go-to-market strategies across all sales channels – Retail, Direct, Indirect and Inbound Sales – while driving a best-in-class customer experience. Jackie currently serves as a Co-Lead for Beltway's OUT chapter.

Prior to joining the Beltway Region, Jackie began her Comcast career in 2013 leading the Houston Region Retail channels. She was instrumental in developing a strong retail long-range plan. In 2016, Jackie joined the California Region team to lead Xfinity Communities with a specific focus on becoming a loved brand in the robust Multiple Dwelling Units of the region. She next led California's Retail channel, including 46 Xfinity Stores and more than 600 employees. Under Jackie's leadership, the California team transformed 17

Xfinity Stores and moved from last to first place in performance, claiming the West Division Elite award in 2018. Before working at Comcast, Jackie held various leadership positions within the wireless industry including Cricket, Verizon, Sprint, and Southwestern Bell Wireless. Jackie holds an MBA from the University of Houston-Downtown and received her bachelor's degree in Accounting from Sam Houston State University.

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.

Comcast has invested \$1.7 billion in Virginia, including capital expenditures, employee wages and benefits, taxes and fees, and charitable giving in the past three years. These investments include \$732 million in technology and infrastructure investments in Virginia, including upgrades to its broadband network. 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 1,600 people. 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. As noted above, Comcast was awarded five Virginia Telecommunications Initiative grants in 2018, 2019, 2020, and 2022.

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. Construction was completed in 2020 and ahead of schedule. Comcast provided access to 1,000 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 has completed construction in two additional and is currently deploying broadband in one more unserved town 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.

Together We Build



ABOUT COMCAST

We have consistent and strong financial results which allow us to constantly innovate and invest.

As of Q4 2021...

1963

Year Founded

Philadelphia

Headquarters

#26

Fortune 500 Rank

**Largest Converged IP
Network in the US**

\$4.2 Billion

Comcast's investment in 2021 to strengthen, expand, and evolve the network in the United States

**34 Million Comcast Cable
Customer Relationships**

Across the United States

\$1 Billion

Our commitment to invest in Digital Equity over the next decade

61 Million

Homes and businesses passed in the United States

189,000

Employees

OUR TEAM

The scale and resiliency of our business have enabled us to attract and develop top talent and make positive impacts in the communities where we live, serve, and work.

Here are a few recent awards, recognitions, and honors received by Comcast and its leadership.



#16 on the '100 Best Companies to Work For' list by Great Place to Work and Fortune



Comcast Business: 2021 and 2022 Most Innovative Technology Company of the Year by American Business Awards



#1 Best for Vets Employer by Military Times



Latino Leaders' Magazine's 25 Best Companies For Latinos



4 Technology & Engineering EMMY Awards for Innovation Technologies



Best Places to Work for LGBTQ Equality Based on HRC Foundation's 2021 Corporate Equality Index

OUR NETWORK

We're building a better network,
every single day, with a simple
purpose:
keeping our customers
connected — always.

As connectivity becomes even more important, we're working hard to build and evolve a smart, reliable network that delivers fast Internet speeds for customers to browse, video-conference, stream, and game.

With this work, we are further evolving the network that reliably delivered above-advertised speeds throughout the historic COVID-19 surge and is paired with ultra-advanced WiFi technology, giving customers a unique combination of speed, coverage throughout the home, advanced cybersecurity, and ultimate control of every connected device.



60M

Nation's largest provider of gig speeds
available to 60M homes and
businesses.

\$4.2B

In 2021 alone, we invested more than
\$4.2B to strengthen, evolve, and expand
our network—more than any previous
year.

A SIGNIFICANT EDGE IN CONSTRUCTION

Comcast has been a global leader in advancing network technology and delivering progressively faster, more robust service to our customers to not just meet customers' current needs but to stay well ahead of future demand.

We have a talented team of technicians and engineers who've done this for years. Today we offer some of the fastest speeds available anywhere, and we have the technological capacity and know-how to increase those even further in a way that is cost effective and minimally disruptive.



NETWORK INNOVATION & THE ROAD TO 10G

Investing billions to strengthen and grow our network is important...but it's only the beginning of building a smart network that's ready for anything.

Our network architects and software engineers continuously innovate and evolve our network technology to increase speeds, strengthen reliability, and improve overall performance.

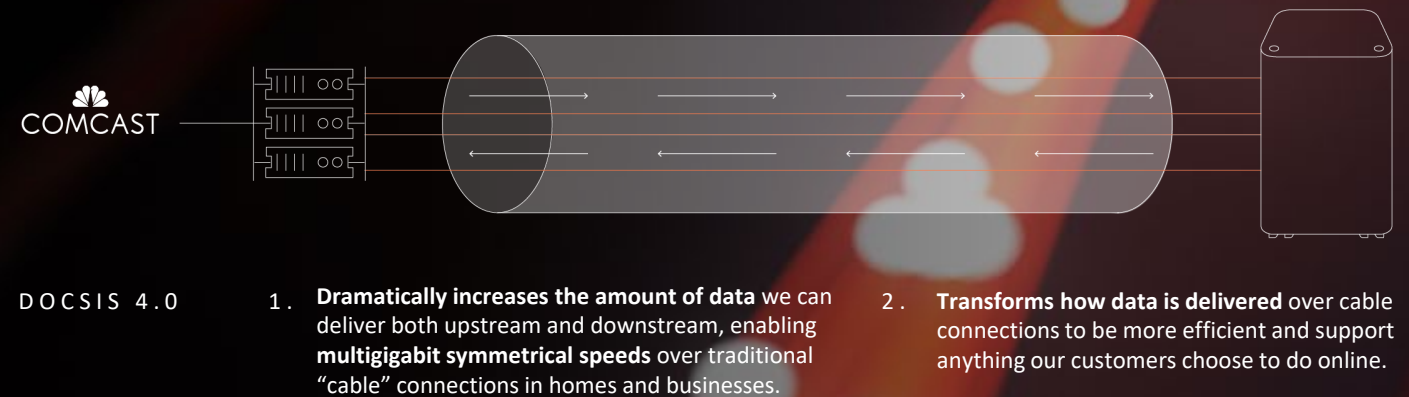
Innovating for Reliability

XMF, a new network technology, **reduces the amount of time it takes for a technician to find and isolate a fiber cut from 2 hours down to one-and-a-half minutes.** The XMF platform monitors hundreds of thousands of local broadband optical links every minute across the Comcast network, measuring both the optical spectrum and testing the length and quality of the fiber links. In practical terms, that means that with XMF installed network engineers can pinpoint the exact point at which a local fiber network is experiencing an issue and share the precise geolocation with local technicians.

Leading the Way on 10G

We are evolving our network to 10G, a technology which will allow Comcast to deliver **multigigabit upload and download speeds** to tens of millions Americans **over the cable broadband connections already installed** in their homes and businesses. In 2021, our work on 10G technologies kicked into high gear:

- In April, we conducted a lab test of DOCSIS 4.0 technology and showed ability to deliver 4-gig upload and download speeds.
- In October, we conducted **the world's first test of a 10G connection** all the way from our network to a modem. The team activated a virtualized cable modem termination system (vCMTS) powered by Full Duplex DOCSIS 4.0 Technology, another world's first.



CYBERSECURITY

Our team of security experts works 24/7 to monitor our network using a mix of highly sophisticated technologies, threat intelligence, and proprietary AI-powered software which helps us process hundreds of thousands of cyber events every second.

6B cyberthreats blocked

by xFi Advanced Security in our customers' homes between Jan and Aug 2020

104 cyberthreats per household

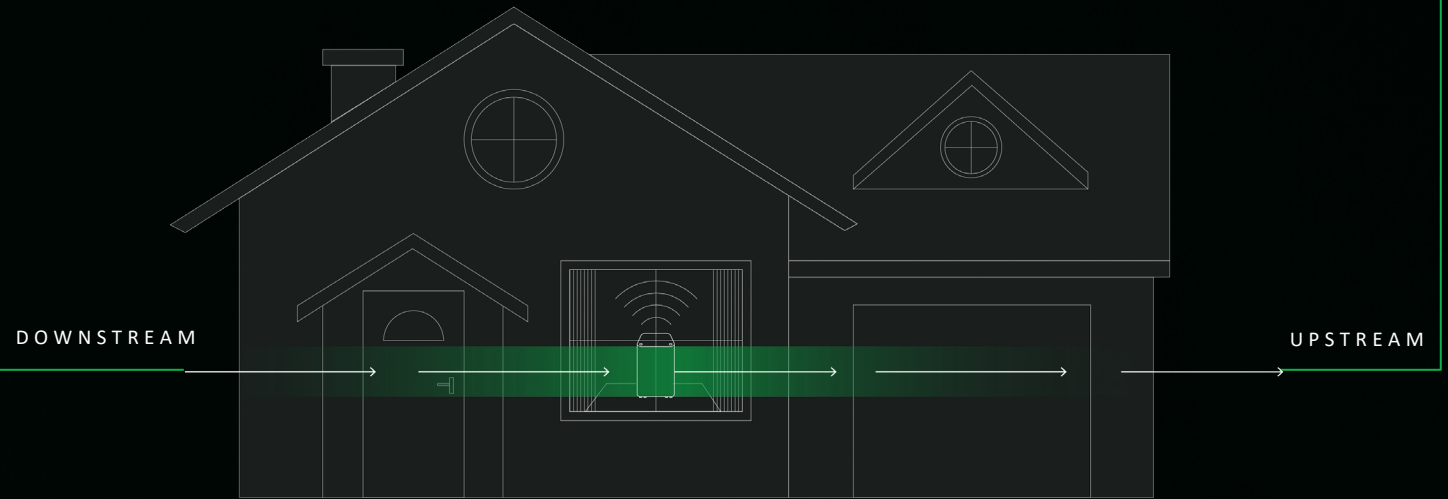
on average each month

Trusted by the Department of Defense

Comcast Business was awarded a 10-year contract by the United States Defense Information Systems Agency (DISA) to establish Commercial Ethernet Gateways providing Ethernet connections to its Defense Information Systems Network (DISN) in the Northeastern United States.

TRAFFIC

In 2021, peak traffic growth continued to climb, even from record highs set in 2020. Peak downstream traffic grew 2x faster than upstream traffic, more closely mirroring pre-pandemic trends.



+11%

Peak **downstream** traffic increased approximately 11 percent over 2020 levels.

+5%

Peak **upstream** traffic increased approximately 5 percent over 2020 levels.

Asymmetrical usage: Network asymmetry increased throughout the year, with total downstream traffic volumes **12.4x** higher than upstream for the first 6 months of the year, and 14.5x higher for the last six months.

Daily peak times shifted toward pre-pandemic norms throughout the year – peak upstream traffic times were 10am in January, 3pm in June, and 10pm in December.

10:00 AM

JAN

3:00 PM

JUN

10:00 PM

DEC

NETWORK MANAGEMENT
SUPPORT UNLIKE ANY OTHER

&

We work around the clock
to constantly improve
America's Largest
Gig-Speed Broadband Network
so it's better today
and even better tomorrow.

Comcast has thousands of technicians, engineers, cybersecurity professionals, highly-trained customer care agents, and other frontline team members who are always working to ensure fast, reliable Internet service. These heroes are in your neighborhood expanding access and improving connectivity, in our operations centers performing health checks to pinpoint potential issues, and across the country monitoring for privacy and security attacks.

Dedicated, seamless support

through various channels for your businesses, residents and community

Highly-trained agents

dedicated to supporting your network

700K+ network diagnostic speed tests

performed most days

24/7 proactive network and security monitoring

to help keep our customers' connection safe, secure and private



FIBER-RICH NETWORK

Whatever the future holds, our fiber-rich network will be ready to support anything your community can imagine.

+50K

Since 2017, we have built over 50k new miles of fiber into our network.

2x

We've doubled our network capacity every 2.5 years to stay well ahead of demand.



PRODUCTS & INNOVATIONS



We are always evolving and investing in our network to bring our customers the best and most innovative products.

With Xfinity, Comcast delivers the best in Internet, entertainment, mobile, voice, and home security, all working seamlessly together to connect customers to more of what they love.

Internet

Powerful, secure WiFi unlocked through the xFi Gateway. With Advanced Security included, protecting customers from **billions of cyberthreats a year**.

Entertainment

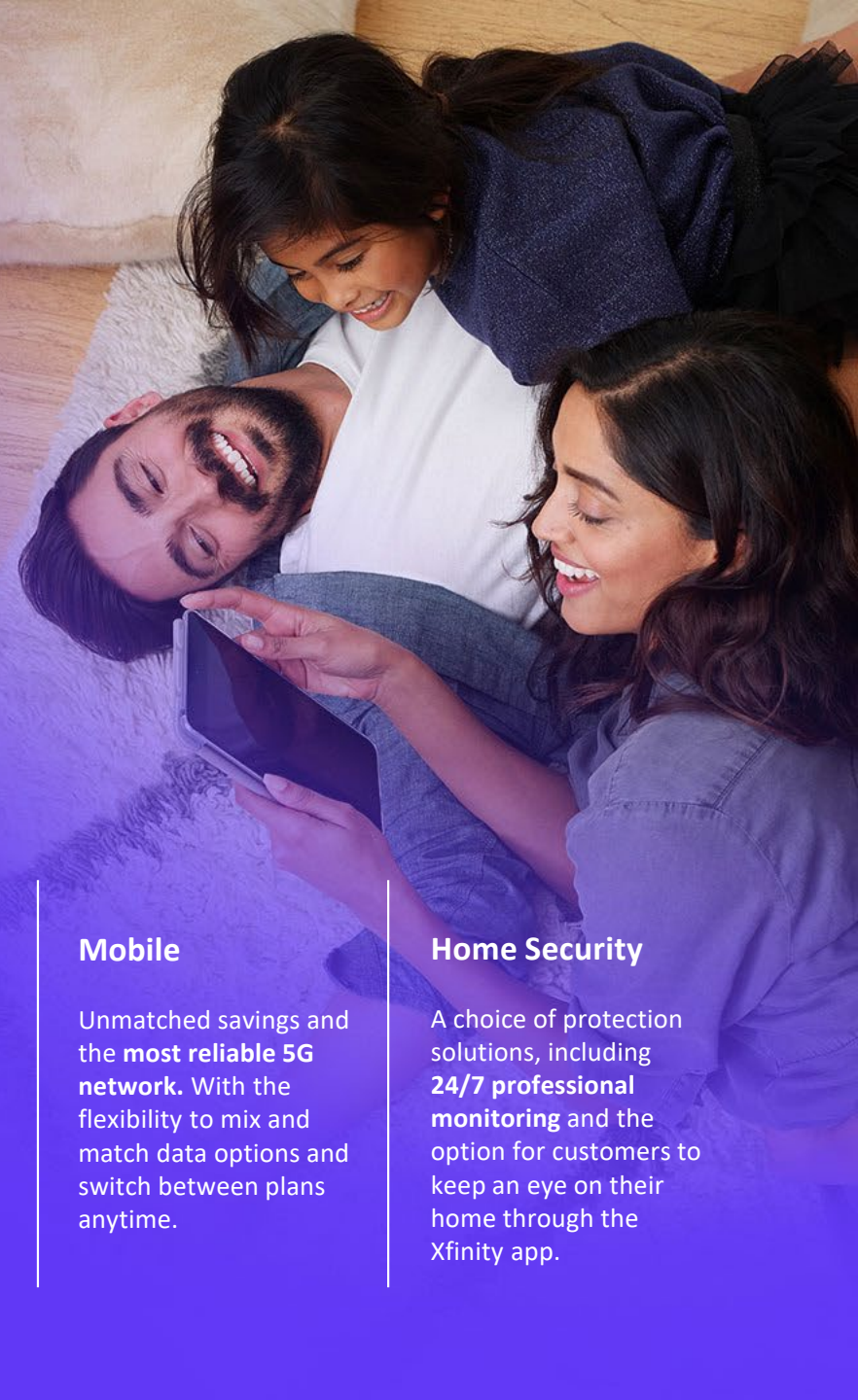
All the best entertainment, all in one place, starting at free for our Internet customers. With an award-winning voice remote to easily search and watch the latest shows and movies.

Mobile

Unmatched savings and the **most reliable 5G network**. With the flexibility to mix and match data options and switch between plans anytime.

Home Security


A choice of protection solutions, including **24/7 professional monitoring** and the option for customers to keep an eye on their home through the Xfinity app.



COMCAST BUSINESS

COMCAST BUSINESS

From Main Street to Wall Street
and across every industry, we
keep businesses prepared for
what's next with the best
technology solutions, support,
and expertise.



More businesses are powered by Comcast Business than any other provider. We are proud to serve businesses in a variety of industries with expansive experience in Retail, Financial Services, Hospitality, Food & Beverage, Education (including eRate services for schools and libraries), and Local, State and Federal government entities through GSA's Schedule 70 contract vehicle and direct partnerships.

Leading Network

Largest, fastest, and reliable network to more small businesses than any other provider

Most reliable 5G mobile network

Portfolio Breadth and Reach

Global, secure networking capabilities plus 50+ points of presence in cities around the world

Extensive on-premise and cloud-based options offering end-to-end secure network solutions

Advanced Security

Advanced security to protect your business from cyberthreats

Help protect all your connected devices at your business or on the go

Trusted Partnership with a Human Touch

Single provider that can customize and deliver solutions right for your business

Flexible delivery model to manage solution – fully manage, co-manage

W I F I

The fastest network is only as good as its WiFi.

That's why we've paired our network advancements with smart, supersonic WiFi that ensures customers have the best-connected experiences however and wherever they connect.

Billions

Unique devices: Nearly a **billion** unique devices connected to WiFi in Xfinity households as of 2021, a 1,000 percent increase from 2018.

xFi Advanced Security: Proactively blocks billions of cybersecurity threats before they reach our customers' devices and is included with our xFi Gateway.

Millions

Smartphones: Continuing to be the main device connected in our customers' homes, smartphones make up **1/3** of all devices connected to Xfinity WiFi.

xFi Pods: Help to cover the home with strong and reliable WiFi. **90-100 million** devices are connecting through our Pods in the U.S. and Europe each day.

Pause/unpause: Xfinity customers used the pause/unpause WiFi feature nearly **100 million times**.

Parental Controls: More than **1 million** Xfinity customers are using xFi parental controls to help manage WiFi in their home.

Gig speeds: Even as demand on the network continued to grow, Comcast has continued to increase speeds for all of its speed tiers, including increasing gig speeds to **1.2 Gbps**.

xFi Advanced Gateway: Comcast's most powerful device to date, the next generation xFi Advanced Gateway incorporates WiFi 6E, offering customers an unbeatable broadband experience with a faster, more reliable wireless connection. The gateway boosts capacity in the home with three WiFi bands – 2.4 GHz, 5 GHz, and a new, 6 GHz band.



PROJECT UP

As the world becomes more digital, it's our responsibility to use media and technology to ensure that everyone has the resources and opportunities they need to participate and excel in today's society. Project UP is our comprehensive initiative to advance digital equity and help build a future of unlimited possibilities.

PROJECT UP

Backed by a \$1 billion commitment, Project UP encompasses the programs and community partnerships across Comcast, NBCUniversal, and Sky that connect people to the Internet, advance economic mobility, and open doors for the next generation of innovators, entrepreneurs, storytellers, and creators. Three of these programs are featured below:

internet» essentials FROM COMCAST

We have been committed to creating and supporting digital equity within the communities we serve for more than a decade. We launched Internet Essentials in 2011 to bring affordable, high-speed Internet to low-income families connecting a cumulative total of more than 10 million people from low-income families to the Internet at home in 10 years.



Comcast began launching Lift Zones nationwide in 2020 to provide spaces for students to access free, high-capacity WiFi. By the end of 2021, we surpassed our goal to install 1,000 Lift Zones in community centers across the country together with nonprofit partners and city leaders.



The Comcast RISE Investment Fund has granted \$11 million to 1,100 small businesses owned by people of color, and the program will support 13,000 small businesses by the end of 2022. A program offering grants, marketing services, and technology upgrades, Comcast RISE stands for "Representation, Investment, Strength, and Empowerment," and was created to strengthen and empower small businesses hard hit by COVID-19.