



**VIRGINIA FUNDERS
NETWORK**

Virginia's Connected Future:

A guide for funders and philanthropists to
address digital divides in the Commonwealth

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PREFACE

ABOUT VIRGINIA FUNDERS NETWORK

Launched in 2020, the Virginia Funders Network (VFN) is a statewide membership association composed of over 110 philanthropic organizations working together to advance opportunities for all who call Virginia home. Each year, our members invest more than \$350 million to support a wide range of Virginia's community needs in areas such as education, health, housing, economic development, and social justice. Together, we're working to ensure that all of Virginia's communities are valued and thriving and are empowered by a strong and vibrant philanthropic sector.

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EXECUTIVE SUMMARY

In the last three years, Virginia has made significant strides to curtail the many facets of the digital divide that exist throughout the Commonwealth. Examples include a \$700 million commitment to broadband funding, the expansion of electric cooperatives into retail broadband, community and county commitment through innovative programs, and the passage of legislation to encourage greater deployment.

Broadband access impacts all areas of life, and that includes foundations and funders. No matter what a foundation's focus may be – be it children, seniors, mental health, economic development, diversity equity and inclusion, workforce development and so much more – broadband is an essential component both for achieving the foundation's mission and for their communities. As such, foundations and funders are as much stakeholders in the digital divide as any other type of organization. As critical broadband stakeholders in Virginia, philanthropic organizations (“funders”) have played and will continue to play vital roles as digital champions and in helping the Commonwealth positively address the digital divides.

There has never been a more crucial time to get involved in broadband planning and deployment, both in Virginia and around the country. The 2021 Infrastructure Act's \$65 billion commitment to broadband deployment, access, and equity is the largest public investment in telecommunications in the nation's history, and Virginia funders can help the Commonwealth prepare for an influx of capital funds and lay the groundwork for crucial connectivity work in the next five years.

As part of the Virginia Funders Network's (VFN) efforts to support the Commonwealth's commitment to achieve universal connectivity by 2024, this memo serves three functions. *First*, it provides funders with a high-level, plain-language overview of broadband developments in the Commonwealth of Virginia with a focus on the pandemic years of 2020-2022. *Second*, it highlights the efforts of a few Virginia funders who have supported broadband deployment. *Third*, it serves as an invitation and welcome to funders – of all shapes and sizes – who are considering investments in broadband or who are just starting to think about the critical role broadband plays in areas such as education, health care, economic development, workforce, and more.

This memo begins with a brief introduction to broadband and the digital divide before getting into specifics of recent federal legislation and grant programs, broadband in Virginia, and the work of the members of the Virginia Funders Network. It concludes with a set of best practices and recommendations.

This is both an exciting and pivotal time for funders to be thinking about connectivity in their communities and across the Commonwealth. Just like residents and businesses, funders are stakeholders in the digital divide and there is much for them to do, both immediately and in the near term. Funders can be the great connectors in Virginia!

Recommendations include:

1. **Organizing listening sessions and town halls to understand community needs**

We recommend organizing town halls around issues of community connectivity needs, public-private partnerships, affordability, and digital skills. Community events are also key moments to identify potential community digital champions and digital navigators.

2. **Building relationships with elected officials, policymakers, and providers**

Funders can leverage their relationships with elected officials to encourage attention to connectivity issues and represent the voices of concerned citizens to those in power.

3. **Identifying and supporting digital champions**

Digital champions can be anyone interested in, and passionate about, community connectivity. Often, they are community residents frustrated with the lack of connectivity. Digital champions are also people who can keep the flame alive during the times when the public's interest towards connectivity may wane. Funders can help both identify and support digital champions by profiling their efforts and funding training initiatives.

4. **Training digital navigators**

Digital navigators differ from digital champions in that they are typically employees of an anchor institution (e.g., community center, library, school, health center) who are specifically trained to help users “navigate” the entirety of the connectivity process, from connectivity to devices to skills. Digital navigators require specific training to bolster their skills, and this is where funders can play a decisive role. Funders may want to consider identifying potential navigators and offsetting their training costs or inviting a trusted trainer to work with participants.

5. **Promoting enrollment in the Affordable Connectivity Program (ACP) by both providers and customers**

Funders can hold information sessions in conjunction with local providers and elected officials to increase knowledge and drive participation in the ACP.

6. **Funding and supporting digital skill training and lifelong digital learning**

Funders can partner with providers and community anchor institutions to offer digital skill training and digital workforce development. Crucially, this should not be a “one off,” because the digital world continues to change. These classes and courses will require an ongoing effort by all stakeholders involved.

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INTRODUCTION

CONNECTING THE COMMONWEALTH

In the last three years, Virginia has made significant strides to curtail the many facets of the digital divide that exist throughout the Commonwealth. While trailing behind other states for years in both expenditure of public dollars for broadband deployment and rates of deployment, Virginia has made tremendous headway in achieving a 2024 goal of universal connectivity. Today, 441,435 households in Virginia are either unserved or underserved. An improvement from the over 600,000 un- and under-connected households in 2018, but there's room to grow.¹ Much of Virginia's success in connectivity occurred during the height of the global Coronavirus pandemic, which demonstrated the importance of high speed, affordable broadband.² For Virginia's broadband stakeholders, the pandemic offered a learning opportunity and eye opener that more needed to be done. The hallmark project in the last few years is a \$700 million commitment from Virginia's allocation from the American Rescue Plan Act (ARPA), specifically for broadband. This amount expanded Virginia's flagship broadband funding program – the Virginia Telecommunications Initiative (VATI) – from a 2021 budget of \$50 million. The Commonwealth also created a \$30 million Fast Track broadband program of which multiple counties made use during the pandemic. With shifts in the pandemic and a move towards a new social equilibrium, the Commonwealth has pledged more public funds, while counties, municipalities, and providers have been tremendously successful in securing federal grants from both the Federal Communications Commission (FCC) and the US Department of Agriculture. Most recently, the Commonwealth received notice that it won \$219.8 million for broadband deployment as part of the Treasury Department's Capital Projects Fund (CPF).³

In addition to raw dollars, communities throughout the Commonwealth have proven resilient and innovative when it comes to the deployment of broadband.⁴ For example, Central Virginia Electric Cooperative's (CVEC) Firefly Broadband has expanded to serve multiple counties in central Virginia. The City of Arlington partnered with Comcast to increase access to the latter's Internet Essentials Program.⁵ Louisa County pioneered the use of solar powered hotspots during the pandemic in a program called "Wireless on Wheels."⁶ Multiple counties and providers have also partnered with investor-owned utilities Dominion Energy and Appalachian Power to make use of their middle mile networks.⁷

As the Commonwealth gears up for the application process for the federal government’s \$42.5 billion Broadband Equity, Access and Deployment (BEAD) program administered by the National Telecommunications and Information Administration (NTIA), there is wide agreement that much needs to be done to quell the many digital divides in the Commonwealth. These divides include:

Deployment and accessibility

Does the infrastructure exist in the community?

Affordability

Can every household afford a high-quality broadband subscription?

Awareness

Does every stakeholder know where to find information, especially about funding programs?

Skills development

Does every subscriber know how to make the most of their connection?

Hardware access

Does everyone who wants it have access to a computer, tablet, or laptop?

Specialized skills

Do students, farmers, healthcare providers, etc. have the skills and connectivity necessary to do their jobs?

Solving these divides will require what this broadband scholar has called, an “all-hands-on-deck approach.”⁸ As critical broadband stakeholders in Virginia, philanthropic organizations (“funders”) have played and will continue to play vital roles as digital champions and in helping the Commonwealth positively address the aforementioned digital divide challenges. The fact that broadband deployment is one of the few non-partisan issues at the local, state, and federal levels means that politics can be put aside, and stakeholders can focus on the crucial task of getting Virginia connected.

As part of Virginia Funders Network’s (VFN) efforts to support the Commonwealth’s commitment to universal connectivity by 2024, this memo serves three functions. *First*, it provides funders a high-level, plain language overview of broadband developments in the Commonwealth of Virginia with a focus on the pandemic years of 2020-2022. *Second*, it chronicles the role of Virginia funders in broadband deployment. *Third*, it serves as an invitation and welcome to funders – of all shapes and sizes – who are considering investments in broadband or who are just starting to think about the critical role broadband plays in areas such as education, health care, economic development, workforce, and more. The memo begins with a brief introduction to broadband and the digital divide before getting into specifics of recent federal legislation and grant programs, broadband in Virginia, and the work of the members of the Virginia Funders Network. It concludes with a set of best practices and recommendations.

PART 1: What is Broadband, Anyway?

BROADBAND DEFINED

Broadband is defined by the Federal Communications Commission (FCC) as an “always on” internet connection with a minimum download speed of 25 megabits per second (Mbps) and a minimum upload speed of 3 Mbps (commonly depicted as “25/3”).

For years, the definition above has been challenged and questioned since present American usage drastically exceeds the 25/3 levels.⁹ For instance, the average download speed in the United States according to Ookla – a global leader in broadband and mobile networking testing – is 204 Mbps and the average upload speed 74 Mbps.¹⁰ At 25/3, a one-person household may be able to perform daily internet tasks (such as streaming, zooming, emailing), but greater bandwidth is necessary to support a larger household and to take into account the so-called “internet of things” where many more devices will require connectivity.¹¹ Taking heed of this discrepancy, FCC Chairwoman Jessica Rosenworcel released a Notice of Inquiry in July 2022 that proposed raising the definition of broadband to 100/20.¹² Previously, she had called 100/100 “table stakes” indicating her preference for faster speeds.¹³ Other agencies echo this approach. The Treasury Department’s Capital Project Fund, for instance, requires grant winners to meet symmetric speeds of 100/100.¹⁴ The same was proposed by the USDA’s ReConnect Program but was later punted back to 25/3 by Congress.¹⁵ Virginia has also taken heed of these changes in speed requirements and data usage. The 2023 VATI Guidelines and Criteria, for instance, defines broadband as “access to speeds at or above 100 megabits per second (Mbps) download and 20 Mbps upload.”¹⁶

The debate over speed as the defining characteristic of broadband is also a debate over technology because the type of technology deployed impacts the amount of bandwidth received by the customer. For instance, some telecommunications companies are against a dramatic rise in speeds to define broadband because it would mean replacing technologies (like DSL) that cannot measure up to faster speeds. Americans gain access to the internet through several different technologies, both wired (or “fixed”) and wireless.

Wired

Coaxial Cable

Coaxial cable using Data Over Cable Service Interface Specifications (DOCSIS) and operated by cable companies such as Comcast and Charter remain the most deployed type of internet connection. Cable offers fast download speeds but may suffer from asymmetric upload speeds and the possibility of network congestion (too many people in a neighborhood using the network at the same time may depress bandwidth).¹⁷ *Broadbandnow* reports average speeds of 500/50 for cable.¹⁸

Digital Subscriber Line (DSL)

DSL is a set of twisted copper wires and these networks are typically operated by telephone companies. DSL is the most widely used internet technology in rural areas.¹⁹ While better than some wireless technologies (notably geosynchronous satellite), DSL suffers from low upload and download speeds and “unreliable connecti[vity] the farther away you are from the provider.”²⁰ A 2019 study by broadband experts Whitacre and Gallardo found the median speeds of DSL to be 10/1 – a far cry from the 25/3 definition currently in use. Many telephone companies no longer offer new customers a DSL option,²¹ preferring instead to move them to fixed wireless (see below), or, if they’re lucky, fiber.

Fiber Optics

Fiber Optics have been called the “gold standard” of broadband connectivity. With data transmitted by light through glass filaments, a fiber to the home connection can easily offer symmetric speeds of 1Gig/1Gig (or 1000/1000 Mbps). Many companies, both large – Verizon Fios, Google Fiber, and AT&T – and small – most electric and telephone cooperatives – are offering fiber to the home (FTTH also called fiber to the premises, FTTP). The downside of fiber is that it is expensive to deploy (between \$27,000 and \$100,000 per mile).²² As a result, fiber has been slow to be deployed and presently reaches about 40% of households according to a report commissioned by Electric Freedom Foundation (EFF).²³ Fiber is the NTIA’s preferred mode of connectivity, which writes in the criteria for the BEAD program: “with respect to the deployment of last-mile broadband infrastructure, the Program prioritizes projects designed to provide fiber connectivity directly to the end user” (p. 7).²⁴ Legal scholar and renowned telecommunications policy expert Susan Crawford put it succinctly in her 2019 book *Fiber*: “money spent on wires other than fiber is wasted.”²⁵

Wireless

Fixed Wireless

Fixed wireless networks position an antenna atop a tower or other high structure that wirelessly transmits a data stream to an antenna on a subscribing household. Fixed wireless is provided by companies known as Wireless Internet Service Providers (WISPs) although it is also offered by companies that offer other broadband technologies like fiber (AT&T for instance offers fixed wireless). In the short term, it is a cheaper option than fiber, and offers speeds of up to 100/20, though circumstances and topography make the calculation of national averages difficult.²⁶ For instance, a recent report explained by Fierce Wireless found that “AT&T’s rural-focused LTE fixed wireless offering only commits to 10/1 Mbps service.”²⁷ On the other side, a recent study found

that “gigabit speeds are possible” if the network uses millimeter wave frequencies.²⁸ Fixed wireless networks also cover large areas so long as line-of-sight can be achieved to the tower making fixed wireless attractive for dispersed rural communities. Limitations include proximity, wherein distance from the tower along with line-of-sight impact speed and bandwidth availability, inclement weather, and depending on the frequencies used, trees.²⁹ Latency (the delay between a “request” from a user and the response) is also an issue with fixed wireless depending on technology and frequency. Ideally, a user wants less than 20 milliseconds of latency, something that can’t be guaranteed wirelessly without the use millimeter wave frequencies, which come with their own drawbacks.³⁰ Fixed wireless networks also require a fiber optic connection to offer “backhaul” (moving data from the household to the provider to the wider internet).³¹ Despite these limitations, however, fixed wireless has become a necessary component in the broadband toolkit and is particularly suited for agricultural areas where fixed technologies are impractical.

Satellite

Satellite internet comes in two different forms: geosynchronous and low-earth orbital (LEO). The former is the established satellite brand provided by two companies: Hughes and ViaSat. Customers subscribing to geosynchronous satellite internet have been vexed by slow speeds, expensive subscriptions, data caps, and inconsistent service often making it a last resort for Americans.³² For many, however, satellite is the only option. While approximately 8 million American households subscribe to satellite internet, for 2.2 million of these customers, satellite is their only option.³³ In contrast to geosynchronous satellite internet, LEO satellite, currently offered by Starlink, has proven a disruptor, offering download speeds between 50 and 500 Mbps and upload speeds between 10 and 40 Mbps without a data cap. While the hype of Starlink has certainly cooled in the last year, it may still be valuable for remote areas where fixed connectivity would be prohibitively expensive. That said, Starlink is still gaining subscribers and only time will tell how its network fares when operating at capacity.³⁴

Mobile

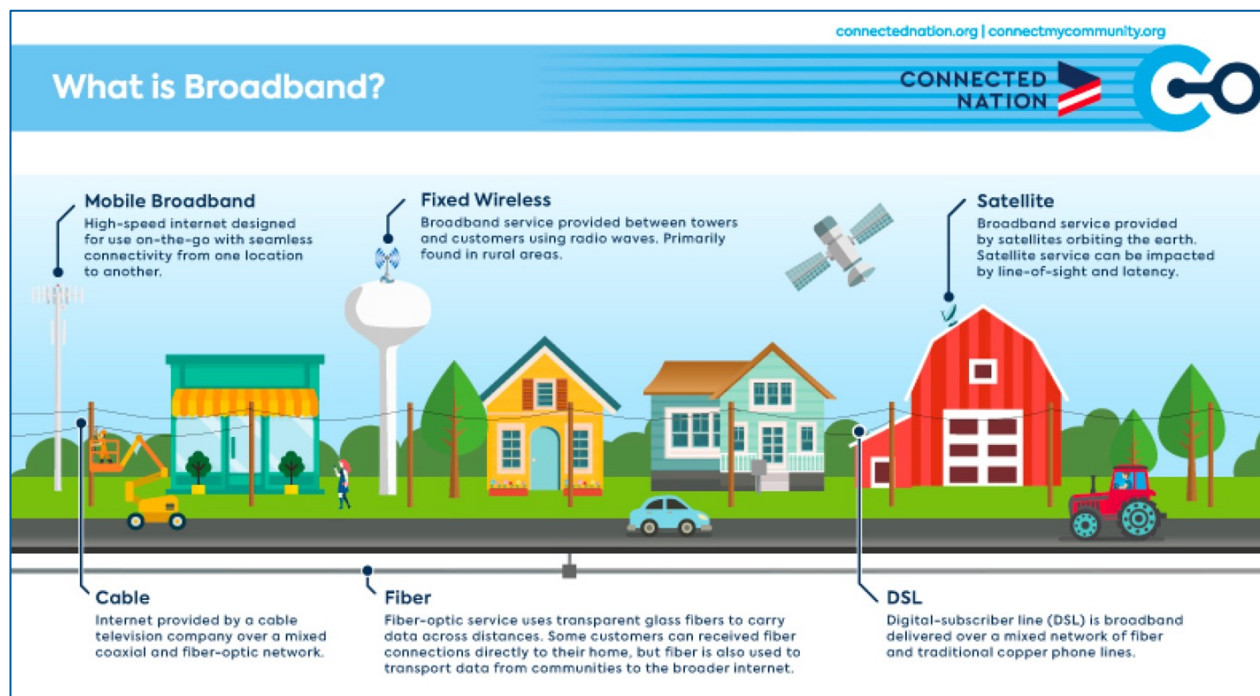
Mobile coverage is a near-ubiquitous broadband option for Americans. Upwards of 85% of all Americans own a smartphone and upwards of 15% of American adults use only their smartphone to connect to the internet.³⁵ Mobile connectivity is provided by telecommunication companies like AT&T, Verizon, T-Mobile, US Cellular, and MetroPCS. Pew Research has found that “reliance on smartphones for online access is especially common among younger adults, lower-income Americans and those with a high school education or less.” As the FCC has repeatedly stated, mobile is not a replacement for fixed broadband, since so many tasks (such as writing and data analysis) are impractical for a smartphone.³⁶ As a result, mobile-only may be limiting the abilities of certain users to fully participate in the digital world.

Hotspots

Hotspots are small devices used to amplify mobile broadband signals. Some smartphone plans offer hotspot options, while telecommunication companies like Verizon also offer a separate hotspot product for households that need a boost in mobile connectivity. While hotspots may give a user more “bars,” they are expensive to subscribe and come with limiting data caps.³⁷ Nevertheless, hotspots became de rigueur during the pandemic, with schools and libraries lending out so many to unconnected families that there was a national shortage.³⁸

What is Broadband?

Connected Nation, a highly respected and trusted broadband research non-profit developed the following infographic to help end users understand the differences in broadband technologies:



Source: Connected Nation: https://connectednation.org/wp-content/uploads/2021/09/What_is_broadband.pdf

The COVID-19 pandemic brought home the necessity for high speed, affordable broadband for every American, regardless of age, income, location, race, or ethnicity. Connectivity is crucial for economic development, health, education, public safety, civic engagement, and quality of life.³⁹ One study by the National Bureau of Economic Research found that those with highspeed broadband at home were more likely to social distance during the pandemic.⁴⁰ Other studies found that a fiber optic connection raises a person's home value by 3.1%,⁴¹ and students with a broadband connection at home will likely have a GPA that is half a letter grade higher than those students without.⁴² Broadband usage has been shown to decrease unemployment, raise community GDP,⁴³ and contribute to a sense of what broadband scholar Sharon Strover calls "digital dignity."⁴⁴ Taking heed of these monumental benefits thus begs the question: why haven't we solved the digital divide?

PART 2: Digital Divides: Connectivity, plus everything else

DIGITAL DIVIDE

The term “the digital divide” has an imprecise history, but most date its first usage to the mid-1990s and its original definition of being one of digital “haves” and “have nots.”⁴⁵ Those on the “good side” of the digital divide had internet access, while those on the “wrong side” did not. Since this time, however, we now speak of multiple digital divides, including availability, affordability, hardware, skills, and learning opportunities.

Connectivity

Infrastructure availability is the issue presently occupying lawmakers. The precise numbers of un- and under-served Americans are difficult to ascertain since the official data from the FCC is known to have serious flaws and is currently under revision.⁴⁶ Outside the FCC, best estimates suggest that upwards of 42 million Americans lack access to the internet, while another 120 million Americans are underserved and cannot gain access to the internet at 25/3 speeds.⁴⁷ Infrastructure availability is often assumed to be purely a rural issue, but this is a misconception. 27% of those who are unconnected live in rural areas and lack access but so do 2% of those living in urban areas. Alarming, 18% of New York City residents lack broadband.⁴⁸ According to Pew Charitable Trusts, 40% of schools lack broadband, while 60% of health care facilities outside of metropolitan areas lack broadband.⁴⁹

During the pandemic, media and policy attention focused heavily on student connectivity (or lack thereof), taking note of what FCC Chair Jessica Rosenworcel labeled “the new homework gap.”⁵⁰ This term depicts the gap in student connectivity levels: those who can do their homework because they have access to broadband at home, and those who can’t. Rosenworcel herself has called the homework gap “the cruelest part of the digital divide.”⁵¹ The digital divide among students maps onto existing racial, social, geographic, and economic inequalities: Latinx, Black, low-income, and rural students, are less likely than their white, middle class, urban peers to have a home broadband subscription.⁵² This unequal access to resources is a new and significant cause of inequality among youth. For instance, Common Sense Media reported in 2020 that upwards of 30% of all K-12 students, or some 15-16 million young people, lacked adequate internet access or devices “to sustain effective distance learning at home.”⁵³ Moreover, 37% of K-12 students in rural areas lack adequate connectivity, while 26% of Latinx students, 30% of Black students, and 35% of Native American students lack adequate access.⁵⁴

Affordability

Worse than infrastructure is affordability. Americans pay the most for broadband out of any country in the Organization for Economic Cooperation and Development (OECD), at approximately \$84.37/month.⁵⁵ The Pew Research Center found that 43% of households with an income under \$30,000 a year do not have a home internet subscription (compared to 93% of households with an income of \$100,000 a year or more who do).⁵⁶ Affordability also strikes at hardware ownership whereby 41% of households with an income under \$30,000 do not own a computer and 13% do not have access to a computer, tablet, or smartphone.⁵⁷

Digital Literacy

Even the fastest home internet subscription is useless unless the user has some form of digital literacy. Unfortunately, the US Department of Education found in a May 2018 study that roughly 16% of US adults (ages 16-65) lacked digital literacy.⁵⁸ Similarly, the National Skills Coalition found that almost a third of workers lack “foundational digital skills.” Specifically, “13% have no digital skills and 18% have very limited skills.”⁵⁹

These digital divides track alongside existing social, political, and economic inequalities. Those experiencing what Gallardo and Geideman call “digital distress”⁶⁰ are more likely to be part of a community which is already marginalized, notably those in rural areas, Tribal lands, minority communities (especially Black and Latinx), LGBTQ, and low income.

Together, the acknowledgement of this variegated digital divide has given rise to the practice of “digital inclusion” and the goal of “digital equity.”

DIGITAL INCLUSION & DIGITAL EQUITY

The National Digital Inclusion Alliance (NDIA) defines digital inclusion as:

“the activities necessary to ensure that all individuals and communities, including the most disadvantaged, have access to and use of Information and Communication Technologies (ICTs).

The five elements of digital inclusion are:

1. Affordable, robust broadband internet service
2. Internet-enabled devices that meet the needs of the user
3. Access to digital literacy training
4. Quality technical support; and
5. Applications and online content designed to enable and encourage self-sufficiency, participation, and collaboration.

Digital Inclusion must evolve as technology advances. Digital Inclusion requires intentional strategies and investments to reduce and eliminate historical, institutional, and structural barriers to access and use technology.”⁶¹

If digital inclusion is the practical goal, digital equity is the larger, conceptual goal.

The NDIA defines digital equity as:

“...a condition in which all individuals and communities have the information technology capacity needed for full participation in our society, democracy, and economy. Digital equity is necessary for civic and cultural participation, employment, lifelong learning, and access to essential services.”⁶²

PART 3: Bipartisan Infrastructure Law

DIGITAL EQUITY

Congress recently adopted the term “digital equity” in the Bipartisan Infrastructure Law, which created a State Digital Equity Program with a guarantee of \$2.75 billion in federal funds.

While Congress was originally slow in committing funds for household and business broadband deployment and equity in the initial waves of the COVID-19 pandemic, the Bipartisan Infrastructure Law (BIL, originally called the Infrastructure and Investment Jobs Act or IIJA) stands as the largest public investment in telecommunications in the country’s history.⁶³

Bipartisan Infrastructure Law

The BIL committed \$65 billion for broadband in the following ways:

1. \$42 billion for the Broadband Equity Access and Deployment (BEAD) program to fund deployment
2. \$14 billion for the Affordable Connectivity Program (ACP) to offset household broadband subscriptions
3. \$2.75 billion for Digital Equity Program (State Digital Equity Capacity Grant Program and the Digital Equity Competitive Grant Program)
4. \$2 billion for Tribal Connectivity
5. \$2 billion for USDA connectivity programs
6. \$1 billion for middle mile deployment
7. \$600 million for tax exempt bonds⁶⁴

BEAD Program

The BEAD program is the flagship broadband program of the BIL. It guarantees each state a minimum of \$100 million in funding, with the promise of more once the new FCC broadband deployment maps are released (funding is based on the number of un- and underserved areas in a state). *Broadband.Money*, for instance, estimates that Virginia's share of the BEAD program could be as much as \$1.4 billion.⁶⁵ As part of this commitment, states are required to produce a 5-year broadband plan and submit it to the NTIA. This plan must be inclusive of the state's digital equity plan "as an Eligible Entity cannot have a five-year action plan that does not address digital equity."⁶⁶ By law, when fashioning this plan, states are required to consult with "local, regional, and Tribal (as applicable) entities, as well as unions and worker organizations". Additionally, the plan must "detail the Eligible Entity's investment priorities and associated costs, and ... align the State or Territory's planned spending with its economic development, community benefit, workforce, telehealth, digital equity, and other related efforts."⁶⁷ Said differently, the five-year broadband plan must bring in all relevant stakeholders and participants. For its part, Virginia plans to roll out its 5-year plan by the end of 2022 according to those consulted for this report.

PART 4: Broadband in Virginia

VIRGINIA'S CONNECTIVITY

According to the State Council of Higher Education for Virginia (SCHEV), two hundred thousand K-12 students and 60,000 college students across the Commonwealth lack broadband.

Virginia has made great strides in its efforts to attain a goal of universal connectivity by 2024.⁶⁸ In 2021, the FCC reported that 94.3% of Virginia had access to a broadband network of 25/3. This includes 82.2% of rural areas and 98.1% of urban areas. Of those who have access, only 75% of Virginians subscribe to a broadband service. In 2022, BroadbandNow ranked Virginia as the 10th most connected state in the nation, with 89.3% availability.⁷⁰ That said, in 2022 Governor Youngkin's administration reported a discrepancy in Virginia's broadband numbers, finding that 441,435 homes were un- and under-served, almost double the 223,000 homes and businesses originally estimated to require service in 2021. Two hundred thousand K-12 students and 60,000 college students lack broadband according to the State Council of Higher Education for Virginia (SCHEV).⁷¹ Twenty percent of students in rural areas in the Commonwealth lack broadband access. SCHEV also reports that "25% of students in Portsmouth and Norfolk lack broadband in the home... these students... are also least likely to have a computer in the home than anywhere else in the Commonwealth (23%)."

To address the digital divide, the Commonwealth has multiple tools at its disposal. Presently, broadband policy and programs are set by the Office of Broadband, directed by Dr. Tamarah Holmes. The Office of Broadband is located within the Department of Housing and Community Development (DHCD). The Office of Broadband also spearheads the Commonwealth Connect program and consortium which is Virginia's "comprehensive effort to achieve universal broadband access."⁷² Previously, Virginia had a Chief Broadband Advisor, but with the departure of Evan Feinman, who held the post under Governor Ralph Northam, the position will not be filled, and all broadband planning will be run through the DHCD.

The Office of Broadband administers the Virginia Telecommunications Initiative (VATI) program, which administers grants using state funds.⁷³ In 2021, the program had \$50 million at its disposal, up substantially from the \$1 million allocated in 2017, and the \$19 million in 2019. Additionally, in 2021, then-governor Ralph Northam announced that \$722 million of Virginia's \$4.3 billion allocation from ARPA would be earmarked for broadband deployment. Doing so accelerated the plan for universal connectivity from 2028 to 2024.⁷⁴ The money was added to the VATI program and went to 35 projects to connect over 278,000 homes and businesses.⁷⁵ Virginia providers also have access to another fund through the Virginia Tobacco Region Revitalization Commission which offered \$11 million in broadband funding in 2019.⁷⁶

During the height of the pandemic Governor Northam's administration created a \$30 million Fast Track broadband program using CARES Act funding. This money went to 71 projects in 50 localities and saw 24,026 additional connections, and 6,796 "locations with more affordable broadband."⁷⁷ Counties also made innovative use of their CARES Act allocations. Nelson County, for instance, used \$205,000 to continue a partnership with Central Virginia Electric Cooperative's (CVEC) Firefly Fiber Broadband.

Last in this list of funding is the recent announcement that Virginia won \$219.8 million from the Treasury Department's Capital Fund for broadband programs. The funding will be administered by the VATI program, and the goal is to connect 76,873 locations (about 28% of the locations requiring connectivity).⁷⁸

The Virginia General Assembly has made three crucial decisions in recent years to make broadband deployment easier in the Commonwealth. First, in 2019, the Commonwealth permitted the municipalities and regions to fund broadband projects with a:

*"nongovernmental broadband service provider who will construct, maintain, and own communications facilities and equipment required to facilitate delivery of last-mile broadband services to unserved areas of the service district, provided that the locality documents that less than 10% of residential and commercial units within the project area are capable of receiving broadband service at the time the construction project is approved by the locality."*⁷⁹

This is in addition to 2003's Wireless Services Authorities Act that "enables counties, cities, and towns in Virginia to form their own Wireless Service Authorities to provide certain communications services, including but not limited to, high speed data and Internet access services."⁸⁰ This gives municipalities and regions flexibility when considering their broadband options, including the possibility of funding their own network (with certain limitations).⁸¹ Presently, Virginia has nine municipal or regional broadband networks in operation: Charles City County, Eastern Shore of Virginia Broadband Authority, FiberLync in Orange County, Martinsville Information Network (MINet), nDanville, Nelson County Broadband Authority, Roanoke Valley Broadband Authority, Rockbridge Area Network Authority, and Wired Road Authority.

Second, also in 2019, the legislature established a pilot program allowing the investor-owned utility companies, notably Dominion Energy and Appalachian Power, to partner with providers to make use of the companies' middle mile network (VA Code §56-585.1:9 Provision of broadband capacity to unserved areas in the Commonwealth).⁸² Dominion has announced partnerships in Botetourt County, King William County, Louisa County Northern Neck County, Central Virginia (Albemarle, Appomattox, Buckingham, Cumberland, Fluvanna, Goochland, Greene, Louisa, and Powhatan counties), Hanover County, and Surry County. Partnerships are with both traditional providers like All Points Broadband and electric cooperatives, such as Prince George Electric Cooperative. Appalachian Power announced a partnership with Meta (previously Facebook) and GigaBeam Networks to connect 6,000 households in Grayson County. Meta will provide the long-haul connection, Appalachian will provide the middle mile, and GigaBeam will provide the last mile.⁸³

Third, in 2021 the legislature included in its 2021 Budget Bill a requirement that the Broadband Office create a statewide broadband map.⁸⁴ This will be tremendously helpful because Virginia will need these updated figures to include in its Five-Year Broadband Plan. Already, Virginia Tech has launched a new mapping tool as part of the statewide broadband map order.⁸⁵

In addition to investor-owned utilities, electric cooperatives have made great strides in offering retail broadband, notably in rural areas.⁸⁶ Indeed, they have become the “unsung heroes” of broadband in rural areas. The best example is the Central Virginia Electric Cooperative’s Firefly Broadband. Supported by grants from the county, the State, and the federal government, CVEC is currently working on connecting central Virginia in a 13-county partnership known as the Regional Service Expansions Project (RISE).⁸⁷ The RISE project was made possible thanks to a \$79 million VATI grant. Other electric cooperatives, notably Rappahannock Electric Cooperative, Craig-Botetourt Electric Cooperative, and Prince George Electric Cooperative are all providing retail broadband in their service areas.

Like cooperatives, public entities and especially counties, are playing crucial roles in laying the groundwork for broadband deployment in the Commonwealth.⁸⁸ Often this takes the form of securing funding (the VATI grant requires a public-private partnership commitment), planning, and mapping. Counties will also play pivotal roles in the BEAD program, both in the creation of the five-year broadband plan, and in forming partnerships with providers. In the same breath, municipalities, notably cities which are distinct political entities from counties in the Commonwealth, will play crucial roles in establishing rights of way and offering attractive partners to providers.

While Virginia’s broadband ecosystem remains firmly in the hands of major providers, smaller, independent, and public providers have also emerged in rural communities. Notable here is FiberLync, serving Orange County. Launched in 2020, FiberLync is owned and operated by the Orange County Broadband Authority, making it rather unique in the Commonwealth. Its mere existence is an example and a testimony to the innovative measures Virginia communities take to connect themselves. It is first year, FiberLync connected 2,000 customers with 225 miles of fiber.⁸⁹

PART 5: Funders: The Great Connectors

PHILANTHROPY'S CRITICAL ROLE

“This report provides yet more evidence on why Virginia is a national leader in statewide broadband initiatives. Funders will play a critical role in building sustainable solutions to the digital divide – federal and state officials, local leaders, advocates, and researchers should view this report as a tool for helping funders find their seat at the table.”

- Kathryn de Wit, Pew Charitable Trusts

In spite of, or perhaps because of, the huge investments, both financial and political, to the issue of universal broadband, much needs to be done in the Commonwealth of Virginia and indeed throughout the country. Funders have played, and continue to play, crucial roles as stakeholders in the digital divide and as digital champions for their communities. The Virginia Funders Network (VFN) took its first steps into broadband advocacy in 2021. The initial inspiration was the \$700 million influx of capital through Virginia’s ARPA allocation. With planning support from a small group of VFN members who were already supporting broadband at varying degrees, VFN set up a “Broadband 101” webinar for members to learn from key stakeholders about broadband gaps in the Commonwealth. VFN members learned that philanthropy plays a pivotal role in providing support and funding preliminary evaluation needs. One example is Minnesota’s Blandin Foundation, which created a “Broadband Communities” program, where selected applicants participate in a two-year partnership that includes learning, mentorship, and a \$75,000 matching grant “for locally developed projects that advance community identified technology goals.”⁹⁰

In October and November 2021, VFN held online broadband convenings where attendees heard from thought leaders, researchers, and policymakers on the key issues impacting broadband deployment and accessibility in Virginia. In May 2022, representatives from Virginia foundations, the Virginia Broadband Office, and national broadband partners presented at VFN’s inaugural conference in May 2022. In the last twelve months, VFN also made crucial connections with broadband leaders including Connect Humanity, Evan Feinman (previously the Governor’s Broad-

band Advisor, now with NTIA), Dr. Tamarah Holmes, Director of Virginia's Office of Broadband, Kathryn de Wit of the Pew Charitable Trust, the Benton Institute for Broadband & Society, and the Media Democracy Fund just to name a few. As a result of these connections, one Virginia funder was invited to speak at Pew's national broadband conference, a few Virginia funders are being featured in a soon-to-be released report by the Benton Institute for Broadband & Society, and the Media Democracy Fund has invited VFN to join a small group that is discussing the possibility of mobilizing national funders to create a two-year Digital Equity Pooled Fund for state-based outreach efforts that would support local communities.

Individual VFN members have also been busy on the broadband front. Here, we look at three member organizations: The Cameron Foundation, PATH Foundation, and The Harvest Foundation.

The Cameron Foundation

Petersburg, VA

The Cameron Foundation, serving the tri-cities area of Petersburg, Colonial Heights, and Hopewell, has found that helping localities match their state-won broadband awards is a crucial component of their mission. To this end, The Cameron Foundation committed up to \$1.15 million to match the VATI awards won by two counties in the region, Dinwiddie and Sussex.⁹¹ According to President J. Todd Graham, matching grants are a productive way for funders to be involved in broadband. Matching grants allow funders to leverage their dollars while at the same time help local communities secure critical public funding. Jerry Kuthy, the Foundation's Program Officer for Education and Workforce, pointed out that relationship building is a crucial component of broadband development. Cameron has developed relationships with providers

like Prince George Electric Cooperative, state representatives (Dr. Tamarah Holmes), as well as civil society organizations Connect Humanity and the Benton Institute for Broadband & Society. Kuthy shared that, through this work, Cameron has learned how philanthropy can have a role in helping to close existing gaps in coverage as well as address the affordability of broadband, because many communities have access but it's financially out of reach. With the availability of significant federal and state pandemic relief funds for broadband, Graham reminds us that ***"this is a rare opportunity to work in partnership with the private sector as well as local, state, and federal agencies to bring about transformational change in some communities, and it's perhaps a once in a generation opportunity for broadband."***

PATH Foundation

Warrenton, VA

The PATH Foundation, serving Fauquier, Rappahannock, and Culpeper counties has found broadband success through collaborations. Andy Johnston, PATH's Director of Programs praised the Virginia Broadband Office for inviting philanthropic groups to the table. The PATH Foundation provided \$750,000 for broadband initiatives in Fauquier County in 2020 and had previously supported a hotspot library loan program through the county library system. PATH also funded a hotspot loan program with Culpeper County Libraries. More recently, PATH engaged in its most ambitious broadband funding collaboration committing \$1 million to Rappahannock County to offset part of the \$5.9 million match requirement for a \$6.9 million VATI grant with All Points Broadband.⁹² Fagus Family Foundation provided a

stunning \$3.5 million commitment towards the required match. When partnering with private broadband providers, Johnston reminds us that they need to match the values of the community. Community values should be communicated when developing public-private partnerships. As more and more communities look to partner with private providers, taking stock of, and adhering to community values is important. According to Johnston:

“At the PATH Foundation we have four focus areas that guide our grantmaking: childhood wellness, senior services, mental health, and access to health. We support broadband access, digital equity and inclusion because successes in all four focus areas absolutely depends on broadband for all.”

The Harvest Foundation

Martinsville, VA

Serving the city of Martinsville and Henry County, The Harvest Foundation lists broadband as one of its key funding priorities in their current five-year plan. Already, the Foundation has made great strides in bringing high speed connectivity to its communities. Specifically, the Foundation has found its stride in providing match funding for counties. In 2021, for instance, Henry County won a \$50,000 grant and Harvest provided a \$25,000 match for a study on broadband.⁹³ Harvest also pledged \$1.4 million in matching funds for Henry County's VATI grant with Appalachian Power. In our interview, DeWitt House, Senior Program Officer expressed his desire to

see more funders involved in broadband. President of the foundation, Kate Keller, echoed the need for greater investment in broadband:

“During the pandemic, it was abundantly clear that we needed to address access to broadband in our community. The Harvest Foundation did not have a history in this space but needed to get up to speed quickly. Through our partnership with VFN, we were able to learn from experts and other foundations, as well as share our learnings with foundations across the state. VFN helped to prepare us so that we could help our community.”

Funders can be the great connectors for broadband in Virginia, and as DeWitt House and Kate Keller told us, this is a critical issue that all Virginia funders should be addressing. Not only can they directly subsidize broadband deployment, such as through matching grants, but they have the ability, the relationships, and the resources to bring different stakeholders together to plan out Virginia's digital future. The following section outlines actions, both short term and long term, funders can take to get involved in the great connecting taking place in our Commonwealth.

PART 6: Now & Next: What can my organization do?

PHILANTHROPY'S CRITICAL ROLE

“Digital connectivity is key to nearly every issue philanthropy cares about. The pandemic drove this home in a way never before experienced. From accessing healthcare and mental health services, to going to school and work online, to supporting and advancing quality of life, broadband is the essential technology that enables it all.”

- Katy Moore, Virginia Funders Network

In this section, we respond to four questions we think are pertinent for funders just getting into broadband. This list is neither exhaustive nor exclusive, and we hope to keep it a living, dynamic resource as more funding organizations include broadband in their funding priorities. The list is divided between action items that can be accomplished in the short term (“NOW”) and those that require longer-time planning (“NEXT”).

1 What if my community does not have connectivity at all?

Communities exist throughout Virginia where meaningful, affordable broadband connectivity is either entirely absent or minimally available.

NOW: Identify your community connectivity needs

Funders can play several major roles in unconnected communities. First and foremost, they can host/sponsor/organize town halls and listening sessions for the community. Before broadband planning can begin it is vital to understand the connectivity needs of the community. Surveys are also a good way to connect with a large number of residents and businesses. Funders should engage with a wide array of stakeholders, including (but not limited to) users, businesses, health care centers, education institutions, libraries, civil society organizations (Lions, VFA, Rotary Clubs), minority organizations, faith-based organizations, and tribal representatives.

NOW: Identify digital champions

Hosting and organizing listening sessions can also assist funders in locating digital champions in their communities. Digital champions can be anyone interested in, and passionate about, community connectivity. Often, they are community residents frustrated with the lack of connectivity. These individuals “seek to promote the community broadband agenda [and] play a key role in community-led broadband initiatives.”⁹⁴ Digital champions are also people who can keep the flame alive during the times when public interest towards connectivity may wane.

NOW: Train digital navigators

Digital navigators differ from digital champions in that they are typically employees of an anchor institution (community center, library, school, health care center) who are specifically trained to help users “navigate” the entirety of the connectivity process, from connectivity to devices to skills. According to the NDIA “Navigators can be volunteers or cross-trained staff who already work in social service agencies, libraries, health, and more who offer remote and socially distant in-person guidance.”⁹⁵ Digital navigators require specific training to bolster their skills, and this is where funders can play a decisive role. Funders may want to consider identifying potential navigators and offsetting their training costs or bring in a trusted trainer to work with participants. The NDIA recently received a grant to create a National Digital Navigators Corps., of which Virginia funders should closely follow.

NOW: Mapping

One of the ongoing issues around connectivity is that of mapping. Communities often lack insightful maps as to which areas are un- or under-connected. These maps need to be as granular as possible to fully capture the extent of the digital divide. Ideally, mapping should be done at the parcel/housing level, rather than a larger, amalgamated level such as a zip code or census block. Funders can play crucial roles in both promoting the need for maps by discussing the issue with county boards of supervisors for instance, and in mobilizing community groups to help in grassroots mapping projects. High school students, college students, scouts, 4H, Future Farmers of America, and civil society organizations can all be mobilized to help map their communities! Organizations and communities should be able to upload their data to a centralized map, such as that created and managed by VATI/Virginia Tech. GeoPartners, a broadband analytics and mapping firm, for instance, uses a combination of metrics, including crowdsourced speed tests to populate its broadband maps.⁹⁶ Funders may be able to offset expenses for mapping projects, and even offset the purchasing of devices necessary for mapping.

NOW: Engage with elected officials

Funders have special relationships with elected officials and policymakers at all levels. These relationships should be mobilized in support of community connectivity. As noted in our case study vignettes, relationships with the Broadband Office and counties are particularly crucial. Funders should identify those elected officials and policymakers interested in broadband and begin conversations about the importance of connectivity. Funders can also help educate elected officials as to the need for broadband (especially using the listening session/town hall model noted above).

NEXT: Partnerships

The future of broadband connectivity, especially in rural areas, will depend on public-private partnerships (P3s).⁹⁷ Here, funders can play crucial match-making roles, helping communities identify potential private providers and potential partners. They can host meetings on neutral ground, and represent their community needs and interests to providers. This is particularly crucial in Virginia where the VATI program requires a public-private partnership to apply for state funding.

NEXT: Matching Grants

As exemplified by our case study vignettes of Cameron, PATH, and Harvest, Virginia funders have been incredibly successful in marshaling their resources to aid with matching grant requirements from the VATI program. Funders may consider this a best practice for ensuring that broadband reaches the most unconnected parts of their communities.

2 What if my community is partially connected?

More likely than not, a funder's community will be under-connected rather than entirely un-connected. This may mean that some areas are well-connected, some are un-connected, and others, which may appear connected "on the map," are under-connected in practice. This will require providers to upgrade their networks or to entice another provider (often called an "overbuilder") to come to the community and provide augmented service. Again, funders can play key roles here as digital champions and community ambassadors.

NOW: Bring providers and community members together

The provider(s) in a community may not be aware of community frustrations or may not have engaged adequately with the community. Funders can host and organize listening sessions that bring providers and the community together. This should not only be about listening to frustrations, but also coming up with actionable items that can be undertaken both by the community and by the provider. In this regard, anchor institutions such as schools, community centers, health care centers, libraries, and faith-based organizations can play crucial roles in mitigating under-connectivity with the support of the providers.

NEXT: Virginia Five-Year Broadband Plan

As required by the BEAD Program, Virginia will have to file a five-year broadband plan with NTIA within the next 12 months (end of 2022 is the target). Each state is required to author their respective plans in concert with localities and regions. This means that communities and counties must be mobilized to participate in the creation of the plan. Communities need to have their voices heard. As trusted institutions, funders can play three crucial roles. (1) They can host listening and recording sessions to get community views on record. (2) They can also be go-betweens between their communities and the authors of the broadband plan. (3) Funders are also broadband stakeholders, which means that every funding organization should be filing comments with the Virginia Broadband Office around their experiences and priorities when it comes to broadband in their communities. The VFN could also consider bringing its membership together to author a submission for consideration for the plan.

3 What if people in my community can't afford a subscription?

Cost is the major reason why households do not subscribe to a broadband plan. Created by the IJJA, the Affordable Connectivity Program (ACP) is managed by the FCC and offers eligible households a \$30 monthly subsidy for home connectivity (\$75 on tribal lands) and \$100 to offset a device purchase. The FCC is looking to drive subscriptions to the ACP.⁹⁸ In Loudoun County, for instance, only a third of eligible households have subscribed to the ACP.⁹⁹ Virginia funders can help make broadband a reality for low-income households by helping to drive registration for the ACP through word-of-mouth and sponsoring publicity campaigns.

NOW: Promote the ACP

Funders can hold information sessions in conjunction with local providers to increase knowledge and drive participation in the ACP. Innovative practices have proven successful in driving broadband awareness. The Merit Network in Michigan, for instance, paid for information stickers on pizza boxes at local restaurants to inform customers about broadband resources. Funders in Virginia can look to Merit Network as an example and fund similar initiatives.¹⁰⁰

NEXT: Make sure local providers participate

As trusted community organizations, funders can also make sure that all providers in their community are participating in the ACP. This can be done simply by contacting each provider in the community.

NEXT: Affordability Programs

Some states have developed or are contemplating the development of broadband affordability programs in addition to the funding provided by the ACP. Illinois, for instance, created a State Low Income Assistant Program.¹⁰¹ Local funders may want to consider a similar program on a localized basis for their community members. An example here is Arlington, Virginia, which used federal funding to partner with Comcast's Internet Essentials program.¹⁰²

NEXT: Board of Supervisors

Many counties have established broadband authorities, others delegate broadband authority to the Board of Supervisors. With either option, funders can meet with these governing bodies to investigate the need for additional subsidies for affordability. As noted above, Arlington did something similar with a portion of its CARES Act funds and a partnership with Comcast's Internet Essentials Program.

4 What if people in my community do not know how to use their devices/connections?

Device access and skill development remain major components of the digital divide, especially for low-income families, seniors, and minority communities (notably BIPOC communities). Funders can play both direct and indirect roles to mitigate these elements of the digital divide.

NOW: Community needs

Funders can fund surveys and town halls to determine what digital skills are lacking and what digital needs are outstanding. See previous sections for more details on who should be invited to town halls.

NOW: Training

In Jackson County, Kentucky, the Peoples Rural Telephone Network, a telecommunications cooperative and major fiber builder in the impoverished county, partnered with Teleworks USA to connect job centers and fuel the next generation of work.¹⁰³ Following this example, funders can partner with providers, and/or community anchor institutions, to offer digital skill training and digital workforce development. Crucially, this should not be a “one off,” as the digital world continues to change. These classes and courses will require an ongoing effort by all stakeholders involved. The same is true for training Digital Navigators, which was introduced in recommendation 1c.

In another example, in Orleans County in New York state, residents lacked the digital skills necessary to participate in telemedicine and even do online shopping. To ameliorate this situation, the local branches of the United Way and YMCA received a grant to conduct a community-needs assessment and perform ongoing digital support. The result was the launch of the Orleans Digital Literacy Initiative “to train volunteers with organizations already supporting the community to offer tech support” (i.e., digital navigators).¹⁰⁴ One such example is volunteers for Meals on Wheels.¹⁰⁵ Virginia funders have a history of supporting trusted community partners to share information, resources, and training for other critical initiatives like Medicaid expansion and enrollment and census completion. Funders in Virginia should take inspiration from this story and ask how they can be involved in similar initiatives in their own communities.

CONCLUSION

ALL HANDS ON DECK

PHILANTHROPY'S CRITICAL ROLE

“Virginia's success and continued progress in broadband expansion has been made possible by public-private partnerships, including philanthropic organizations. Not only have funders already stepped up to support broadband network expansion to unserved areas, philanthropy is also exploring ways to expand digital opportunity through broadband affordability and adoption - all of which will help Virginia close the digital divide.”

- Tamarah Holmes, PhD, Director,
Office of Broadband at the Virginia Department
of Housing and Community Development

It is crucial to remember that the digital divide does not end with connectivity. Indeed, the real digital divide work can only begin once every American is connected. Said differently, the digital divides will continue to exist so long as inequality and inequity exist. As a result, Virginia funders need to plan for the long term, especially around training and skill development. It is not enough to partner with a library to hold an individual class on digital skills. Instead, funders should be looking to sponsor or organize a year or two years' worth of training initiatives. It is crucial to recall that Virginia's five-year broadband plan, as mandated by the BEAD program, must also include a digital equity plan that goes beyond connectivity. Initiatives such as those mentioned above to promote skill development should be part of the digital equity component.

Funders also have opportunities and outlets that regular internet users do not. This includes relationships with elected officials, businesses, and even providers. Funders have a voice, and that voice could be used very effectively in meetings with local governing boards, broadband authorities, local broadband providers, and others in power to advocate for meaningful, affordable, high speed community connectivity and skill development.

For more information and helpful resources, funders may look to trusted agencies and institutions like:

Benton Institute for Broadband & Society | <https://www.benton.org>

Blandin Foundation | <https://blandinfoundation.org>

Commonwealth Connect | www.commonwealthconnect.virginia.gov

Institute for Local Self Reliance | <https://muninetworks.org>

National Digital Inclusion Alliance | www.digitalinclusion.org

Next Century Cities | <https://nextcenturycities.org>

Pew Charitable Trust | www.pewtrusts.org/en/projects/broadband-access-initiative

Virginia Broadband Office | www.dhcd.virginia.gov/broadband

There has never been a more exciting or more important time for funders to be thinking about connectivity in their communities. Just like local residents and businesses, funders are stakeholders in the digital divide and there is much for them to do, both immediately and in the near term. Funders can be the great connectors in Virginia, and the Virginia Funders Network encourages its members to get involved!

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 - completed that shows that the network will be profitable within one year of
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