Virginia Digital Opportunity Plan

VIRGINIA DHCD

Contents

Executive Summary

The Virginia Digital Opportunity Plan is a first-of-its-kind undertaking to assess all facets of the digital divide in the Commonwealth and develop a strategy to close it. The plan, which studies and outlines how the Commonwealth will close the digital divide focuses on three areas that form this gap in connectivity: access, affordability, and adoption. These three need areas, and their scope, are defined below.

- Access: Broadband services are not available to a home, business, or community anchor. Preliminary estimates identify 162,107 locations[1] that do not have access to broadband and are not included in a state or federally funded project area to extend broadband infrastructure access to the location.
- Affordability: Broadband access is available, but the service is unaffordable, often because of limited household income. The Office of Broadband estimates that 1.047 million Virginia households are eligible for the Affordable Connectivity Program and may struggle to afford broadband service. According to Federal Communication Commission public enrollment data, as of the end of September 2023, 422,195 Virginians were enrolled in the program, only 40% of the DHCD-estimated eligible households.
- Adoption: Broadband services are available, and affordable, but users do not fully understand how to utilize the service and connectivity. Gaps in adoption range across a wide variety of need areas; however, from a connected device perspective, while less than 1% of individuals under the age of 18 do not have a computer in the household, 10% of individuals 65 and over – 136,524 individuals - do not have a computer in the household according to American Community Survey data.

To develop this Digital Opportunity Plan, the Office of Broadband employed a methodology focused on empowering local community-based organizations, conducting representative stakeholder engagement, launching a statewide data collection effort, and identifying expert best practices:

1. Regional Digital Opportunity Plans: The Office of Broadband facilitated a subgrant planning funds to Community Action Agencies to develop 9 regional digital opportunity plans. This program, conducted with assistance from the Department of Social Services Office of Economic Opportunity and the Virginia Community Action Partnership, empowered trusted local community-based organizations to assess the digital divide in their regions and propose an implementation strategy tailored to their region's needs.
2. Digital Opportunity Case Study Program: The Office of Broadband awarded grants to organizations across Virginia with innovative and unique ideas for tackling an identified element of the digital divide. These organizations developed case studies showcasing a successful digital opportunity program for inclusion in the plan as an exemplar to scale for statewide replication.
3. Virginia Digital Opportunity Survey: The Office of Broadband deployed a survey statewide to gather data on digital literacy, broadband adoption, affordability and access to broadband services. The Virginia Digital Opportunity Survey received over 7,000 responses

[1] Data from Virginia's analysis of data Federal Communications Commission Broadband Data Collection Process.

representing every locality in the Commonwealth and provided data critical for informing the Plan's needs assessment and implementation strategy.

4. Stakeholder Engagement: The Office of Broadband hosted focus groups with key stakeholders to discuss the digital divide and conducted 17 1:1 interviews with a wide array of partners and stakeholders to ensure diverse representation in the planning process.

Through these activities, the Office of Broadband compiled an asset inventory of digital opportunity assets in the Commonwealth and a needs assessment detailing the digital needs of Virginians identified through the planning process.

The Digital Opportunity Plan concludes with key priorities, and a proposed implementation strategy for how Virginia can utilize Digital Equity Act (DEA) Capacity Grant funds and any remaining non-deployment funds from the Broadband Equity Access and Deployment (BEAD) program to address the digital needs of Virginians and close the digital divide. These key priorities include:

1. Return on Investment for the Commonwealth and its Residents: The initiative must have a generational impact on residents of the Commonwealth and address the digital divide in a sustainable manner. Sustainable program models are paramount to addressing broadband affordability and adoption in the long term beyond federal funding investments.
2. Addresses an Identified Component of the Digital Divide: The initiative should address a component of the digital divide beyond access to broadband infrastructure that is supported by data from the Virginia Digital Opportunity Survey and consistent with the findings of the Virginia Digital Opportunity Plan and/or locality and Tribal digital opportunity plans.
3. Innovative Solutions: The initiative should address an aspect of the digital divide without a current solution or supplements an existing solution in an innovative and sustainable manner.
4. Capacity and Experience: Organizations in the prospective pool of applicants must generally have the experience and organizational capacity necessary to administer a impactful program.

The proposed implementation strategy includes four categories of support from the Commonwealth's implementation strategy that addresses the digital barriers identified in the planning process.

- Systemic solutions are needed to address barriers that are experienced by all Virginians, such as a lack of awareness of digital opportunity resources and lack of access to devices and affordable service options.
- For certain covered populations, given the unique needs of individuals within those covered populations, tailored solutions in addressing barriers will be required. A key takeaway from the assessment process has been the need for capacity building programs that support organizations doing digital opportunity work at a more individualized scale than is possible with statewide or regional subgrant programs.
- Large scale non-deployment, broadband adoption initiatives are needed to support Virginians as they transition to the digital era by incorporating broadband into the utilization of technology in traditionally manual/non-digitized practices.

Ensuring broadband affordability and full broadband adoption will ensure Virginia residents have affordable, reliable, and high-speed internet access, and the skills necessary to use it to its full potential. By acting on this plan, Virginia will be positioned to be one of the first states to achieve its goal of universal broadband and also achieve full Digital Opportunity – where residents have access to affordable, reliable high-speed internet, device access and the digital skills required to fully participate in the modern world.

2 Introduction & Vision for Digital Equity

2.1 Vision

As established in Virginia's Five-Year Plan under the BEAD program, Governor Youngkin's vision prioritizes affordable, reliable, high-speed internet access, universally across the Commonwealth of Virginia. Universal broadband access remains paramount for full engagement in the increasingly digital society and ensuring Virginia is the best place to live, work, and raise a family. The Commonwealth's dedicated efforts over the past several years have led to the broadband access for hundreds of thousands of homes, business and community anchors, by supporting projects that cut the digital divide significantly, established a nationally recognized state broadband expansion program, and set Virginia on a path to be one of the first large states in the country to achieve universal broadband. The digital divide, however, is not only comprised of access to this critical infrastructure, but also addressing gaps in broadband affordability and adoption.

The vision to achieve universal broadband under the Digital Opportunity Program is to ensure that every Virginian has access to affordable, reliable, and high-speed internet service, as well as the opportunities necessary to fully participate in the economy and society. To achieve this goal, the Commonwealth will explore utilizing its forthcoming federal resources through the State Capacity Grant and any remaining BEAD non-deployment programs to address identified needs in broadband affordability and adoption.

To meaningfully advance both broadband affordability and adoption, all facets of state government must be considered. New programs, collaborations amongst state agencies, and innovative solutions will all be necessary to close identifedthes gaps in digital opportunity. Given the nature of the digital divide, these solutions and practices will look different under affordability and adoption.

> Affordability: State-level efforts to advance broadband affordability have been channeled to planning documents and participation in federal outreach grants to promote the Affordable Connectivity Program (ACP). Locally, more efforts are ongoing. As identified through stakeholder engagement through the development of this plan, a handful of local governments across the Commonwealth are establishing broadband affordability subsidy programs in addition to the $30/month ACP benefit to ensure affordability for all. Other local organizations are advancing affordability through promoting enrollment in ACP. As an avenue to address affordability, these local efforts may be considered on a statewide scale.
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> Adoption: State level efforts to advance broadband adoption have been focused on incentivizing broadband adoption programs and partnerships as an activity of broadband deployment grants. Fortunately, the structure of state government, enabled by DEA Capacity Grant Funding, along with remaining BEAD non-deployment dollars and cross-agency collaborations lends itself to advance broadband adoption across multiple need areas. For example, a collaboration between the Office of Broadband and a statewide agricultural outreach agency could enhance adoption of smart farming principles and best management practices utilizing connected technologies. Partnerships such as this will be critical to successfully addressing broadband adoption.

While the funding provided by both the DEA through its capacity grant program, as well as the non-deployment funding under the BEAD program is finite, the Office of Broadband is seeking to design programs that are sustainable in the long-term. In addition, the effectiveness of these to-be-established digital opportunity programs will provide a foundation for exploring future investment.

By closing the digital divide, Virginians are empowered to connect, learn, work, and thrive in the digital age, regardless of where they live or their socio-economic status. Together, ensuring broadband affordability and full broadband adoption will make Virginia a Commonwealth of digital opportunity – one whose residents have affordable, reliable, and high-speed internet access, and the skills necessary to use it to its full potential.

2.2 Alignment with Existing Efforts to Improve Outcomes

The Office of Broadband is the administering entity for the DEA program and the BEAD program under the federal Infrastructure, Investments, and Jobs Act. The Office has submitted to the National Telecommunications and Information Administration a Five-Year Plan that presents the Commonwealth's strategy for closing the digital divide through Virginia's Digital Equity Capacity Grant allocation, as well as remaining BEAD funds for non-deployment programs.

The implementation strategy proposed in this plan supplements the Commonwealth's Five-Year Plan with a proposal for how the forthcoming Capacity Grant, as well as remaining BEAD non-deployment funds may be used in concert to address different components of the digital divide to ensure a holistic approach and avoid duplicative efforts.

The Commonwealth of Virginia is in a unique position in the BEAD program in that – because of prior investments in expanding last-mile broadband access – there is an expected surplus in funds under BEAD from what is needed to achieve universal broadband access in the Commonwealth. This anticipated surplus of approximately $500 million in BEAD funds will enable the potential for transformational investments in broadband affordability and adoption via allowable non-deployment uses of funds under BEAD.

This anticipated surplus in BEAD funding significantly heightens the importance of digital opportunity planning activities. In order to successfully address needs in broadband affordability and adoption, it is critical to conduct ongoing stakeholder engagement and build capacity in organizations that can meaningfully address these needs. To this end, Virginia, under its BEAD Planning Grant Funds allocated funding for Local and Tribal Government Affordability and Adoption Planning Grants. These grants are set to be made available to localities in early 2024 and will be a keystone to building capacity locally to identify and address needs in digital opportunity.

It is critical to note; however, this plan is not solely based and contingent on the anticipated surplus in BEAD funding. First, and most importantly, the Digital Equity Act's Capacity Grant Program will allow the Commonwealth to implement key solutions identified in this plan.

Looking forward, the needs, goals, objectives, and strategies identified in this plan will inform planning for investing DEA capacity grant funds and remaining BEAD non-deployment funds to long term and sustainable solutions that address the digital divide. For example, data has shown that Aging Individuals lack critical knowledge in being safe online from identity theft, financial

fraud, or computer viruses.[2][3] If identified as a need for this covered population, possible strategies may require partnerships with libraries utilizing DEA Capacity Grant and remaining BEAD non-deployment funds to do workshops with Aging Individuals to address these concerns and inform this covered population on how to be safe online.

2.2.1 Alignment with State Priorities

Governor Youngkin's priorities revolve around making sure Virginia is the best state to live, work, and raise a family. These priorities span over three overarching objectives: increasing economic competitiveness, bolstering Virginia's education system, and boosting Virginians' quality of life through safeguarding communities from recurrent environmental challenges, as well as crime. To accomplish these aims, Governor Youngkin's goal is to accelerate the transformation of government, leading it to be more efficient for the residents it serves.

Full broadband access, affordability, and adoption will only enhance the ability to accomplish these priorities. By each of these three areas, below is a synopsis of how bridging the digital divide is interwoven with these priorities.

Increasing Economic Competitiveness

To ensure that Virginia is the best state to start and locate a business, regardless of its size, access to broadband infrastructure for the business, as well as its employees, is paramount. Corporate leaders are focused on ensuring telecommunication capabilities at sites, but equally focused on ensuring that employees, regardless of where they choose to live, have access to highspeed internet. Universal broadband access will be key to Virginia's competitiveness to attracting and retaining businesses of all sizes. This priority aligns directly with Goal 1, Measurable Objective 1.1 of this Digital Opportunity Plan and indirectly throughout all goals and objectives.

Bolstering Virginia's Education System

Like economic competitiveness, connectivity is also critical to reinventing a strong education system. Learning in the 21st century goes beyond the physical classroom and eliminating the barriers of lack of access, affordability, and adoption of broadband will be key to ensuring all students in Virginia, regardless of age or location, have equal opportunity for a strong education from pre-school through high school, and beyond in post-secondary education. This priority aligns directly with Goals 1, 2 and 3 of this Digital Opportunity Plan, including Measurable Objectives 1.1, 1.2, 1.3, 2.3, and 3.1. This priority is reflected indirectly throughout all goals and objectives, especially when considering school-aged children and their families.

Safeguarding Virginia from Recurrent Environmental Challenges and Crime

Safeguarding Virginia from recurrent environmental challenges also calls for ensuring that when broadband networks are built, they are built in a way that is resilient to the climate challenges that Virginia faces today and will face in the coming decades.

Reducing crime in the Commonwealth can be addressed by making sure those recently released from incarceration are digitally literate and understand how to navigate the online world through areas like online communications, applying for a job, and online banking. Making sure

[2] An Empirical Assessment of Senior Citizens' Cybersecurity Awareness... | Nova Southeastern University (2018)

[3] Elder Fraud Report | Federal Bureau of Investigation (2021)

broadband is accessible and affordable, combined with adoption and digital literacy programs will assist in meeting these goals. This priority aligns directly with Goals 1, 2 and 3 of this Digital Opportunity Plan, including Measurable Objectives 1.1, 1.3, 2.1, 2.2, 2.3, 3.1, and 3.2. This priority is reflected indirectly throughout all goals and objectives.

In addition to these three priority areas of the Youngkin Administration, aligning this plan with other state priorities will be critical in promoting digital opportunity. These areas include workforce development, health outcomes, civic and social engagement, and delivery of essential services.

- Workforce Development: Virginia recently established a statewide workforce development agency which aligns all workforce development programs of the state under one umbrella. This effort will prove critical to advancing workforce development initiatives in the Commonwealth to meet the needs of the private sector. Alignment of digital opportunity efforts with this new agency will be critical to advancing digital skills needed in the 21st century workplace. This priority aligns directly with Goals 1, 2 and 3 of this Digital Opportunity Plan, including Measurable Objectives 1.3, 2.3, and 3.1. This priority is reflected indirectly throughout all goals and objectives.
- Health Outcomes: The Virginia Department of Health (VDH) is dedicated to protecting and promoting the health of Virginians. The VDH is made up of a statewide Central Office in Richmond and 35 local health districts. These entities work together to promote healthy lifestyle choices that can combat chronic disease, educate the public about emergency preparedness and threats to their health, and track disease outbreaks in Virginia. The Office of Broadband will explore partnerships with VDH, especially in the areas of advancing telehealth adoption and services. The Office of Broadband will also explore partnerships with the University of Virginia's telehealth programs, which were considered in the development of this plan. This priority aligns directly with Goals 1, 2 and 3 of this Digital Opportunity Plan, including Measurable Objectives 1.3, 2,1, 2.3, and 3.1. This priority is reflected indirectly throughout all goals and objectives.
- Civic and Social Engagement: Robust civic and social engagement is critical for a thriving society. This planning document discussed connectivity in the technological aspects, but also outlines how these efforts enable interpersonal connectivity. Throughout the implementation of these planning efforts, civic and social engagement will be critical as a method to ensure this plan continues to stay relevant in an everchanging world. This priority aligns directly with Goals 1, 2 and 3 of this Digital Opportunity Plan, including Measurable Objectives 1.2, 1.3, 2,1, 2.2, 2.3, and 3.1. This priority is reflected indirectly throughout all goals and objectives.
- Delivery of other Essential Services: This document explores multiple need areas across a variety of essential services. The Office of Broadband, as appropriate through the implementation of this plan, will identify how digital opportunity programs align with other essential services delivered by the Commonwealth. This priority aligns directly with Goals 1, 2 and 3 of this Digital Opportunity Plan, including Measurable Objectives 1.2, 1.3, 2,1, 2.2, 2.3, 3.1, and 3.2. This priority is reflected indirectly throughout all goals and objectives.

As broad-based administrative priorities, these state priorities holistically address all covered populations as identified under the Digital Equity Act.

2.3 Strategy and Objectives

To achieve digital opportunity in the Commonwealth of Virginia, it is essential to establish strategic goals and objectives that address various aspects of the digital divide within the state.

Goal 1: ACCESS and AFFORDABILITY: Virginians will have access to affordable, reliable, high-speed internet

Measurable Objective 1.1: Complete broadband deployment as indicated as part of the Commonwealth's BEAD 5-Year Action Plan. Initial estimates for a baseline of unserved and underserved locations, based on December 30, 2022, coverage data from the Federal Communication Commission's Broadband Availability Map, identify 162,107 locations without qualifying broadband access and outside a funded project area. Awards for these funds are targeted to be made in Fall 2024, contingent on the final proposed timeline from NTIA, with projects reaching substantial completion within 4 years of contract execution. All covered populations, especially individuals living in rural areas, will be impacted by this objective, except for incarcerated individuals.

Measurable Objective 1.2: Increase enrollment of eligible households in the Affordable Connectivity Program (ACP) by more than 5% within 12 months after beginning promotional efforts, through existing and future efforts, contingent on continued funding for the programs. Baseline data indicates that currently 1,088,427 households in Virginia are eligible for ACP, approximately 43% (446,900) Virginians are enrolled in ACP according to Federal Communications Commission enrollment data. All covered populations will be impacted by this objective, except for incarcerated individuals.

Measurable Objective 1.3: Design and support sustainable digital opportunity program(s) utilizing DEA State Capacity grant funding and remaining BEAD funding for initiatives related to digital literacy, telehealth, activities related to the incorporation of "smart" technologies and capabilities into farming practices, cybersecurity training and education, and other activities, related to broadband adoption. The Commonwealth will assess utilization of these digital practices and resources to establish baselines and progress measures for each new non-deployment program.

Goal 2: DIGITAL SKILLS and LITERACY: Virginians will have access to digital learning resources and sustainable devices

Measurable Objective 2. 1: Reduce the broadband adoption gap by more than 5% between covered and non-covered population by making digital literacy training available to all Virginians, including efforts targeting all covered populations within 24 months after beginning efforts to address these needs. All covered populations will be impacted by this objective and population-specific data will be collected to measure the reduction of this gap for specific populations.

- *Baseline data from our statewide survey indicates there is between a 10% to 14% gap between noncovered and covered populations of being comfortable using devices to do most tasks, but less so for virtual doctor's appointments.*

- *Literary for Life Case study finding indicated that 75% of participants self-reported confidence in their digital literacy skills using email, their NorthStar Assessment results indicated less than 10% of them had a passing score on the email unit.*

Measurable Objective 2.2: Increase the number of community-based organizations offering digital navigator and technical assistance programs. The Commonwealth of Virginia will assess the identified community-based organizations, including community anchor institutions (CAIs) to establish a baseline of digital navigator programs across the state. All covered populations will be impacted by this objective. The timeline of this effort will be 24 months after establishing the baseline for the number of such organizations.

Measurable Objective 2.3: Increase the percentage of covered populations who have access to a computing device that can connect to the internet by 5% and 10% using laptop or tablet, respectively. According to the baseline data from our statewide survey indicates that, 74% of covered populations indicated using a laptop computer and 51% indicated using a tablet to connect to the internet. All covered populations will be impacted by this objective. The timeline of this objective is 24 months after beginning efforts to address these needs.

Goal 3: ADOPTION: Virginians will be equipped with the knowledge and skills to fully utilize broadband services, whether it be at their home or business.

Measurable Objective 3.1: Increase the applications of internet-enable technologies/devices in precision farming, telehealth, distance learning and online small business development. The Commonwealth has not established baseline data for this objective, though the state will assess the utilization of the internet-enabled technologies/devices to establish a baseline. All covered populations will be impacted by this objective. The timeline of this effort will be 24 months after establishing the baseline for utilization of existing technology.

Measurable Objective 3.2: Increase individual comfort and understanding of online privacy and cybersecurity. The Commonwealth has not established baseline data for online privacy and cybersecurity, though the state will assess individual comfortability and understanding with online privacy and cybersecurity to establish a baseline of this metric. All covered populations will be impacted by this objective. The timeline of this effort will be 24 months after establishing the baseline for comfortability and understanding of online privacy and cybersecurity.

These strategic goals and objectives aim to address the digital opportunity by utilizing the investment of funds effectively, providing necessary resources for digital assistance, increasing digital literacy, providing secure and reliable access to connected devices and spreading awareness about existing available broadband resources and services. By developing programs around access to devices, digital navigation, and technical assistance, online privacy, and cybersecurity, to increase awareness of existing resources, and digital literacy skills training, the Commonwealth of Virginia can make significant progress towards achieving digital opportunity for all its residents.

Recognizing that 81.1% of Virginias fall under one or more of the covered populations designated in the National Telecommunications and Information Administration's (NTIA) State Digital Equity Program, Virginia identified goals and objectives outlined in this section to intentionally serve multiple covered populations. This comprehensive approach ensures that no Virginian is excluded from the Commonwealth's commitment to achieving full digital access and

adoption. By addressing the needs of all covered populations, the plan fosters an implementation plan where all Virginians have the opportunity to thrive in our increasingly digital world.

3 Current State of Digital Equity: Barriers and Assets

3.1 Asset Inventory

3.1.1 Digital Inclusion Assets by Covered Population

The Office of Broadband and its partners conducted an extensive analysis effort to capture the current state of digital assets throughout the Commonwealth of Virginia. Assets were identified through research and stakeholder engagement. The following report section outlines high-level information gathered during this effort. In particular, the inventory captures existing plans, assets, and ongoing programs aimed at addressing the digital opportunity needs of Virginians. Existing programs are organized by their scope (i.e., digital opportunity initiatives that are general in nature vs. targeted to a specific group / set of groups). Additional detail can be found in the attached Appendices.

There are several key themes that stand out from findings:

Sustainment
While many digital opportunity programs and initiatives exist and continue to emerge, sustained funding and capacity for expansion are key concerns cited by stakeholders.

Focus
Although many organizations exist that already directly serve one or more covered populations in the Commonwealth, few have dedicated programs aimed at addressing the digital opportunity needs of these groups.

Partnerships
The Commonwealth of Virginia has an extensive number of existing and potential partners that can be activated to drive digital opportunity at a local level, while simultaneously coordinating around state-level goals.

Awareness
Awareness of available assets remains a consistent barrier regardless of level of availability (i.e., localities rich in digital assets encounter the same challenge in raising awareness and use of these resources as localities with fewer resources.

Capacity
Localized funding models for statewide networks (i.e., Dept. of Social Services' local offices, library networks, area agencies on aging, etc.) mean that availability and quality of resources can vary significantly even within the same organization /

In this section, we break down known digital opportunity assets by covered population, as well as two additional categories (i.e., General, Other) determined to be of value in articulating what assets exist and where they are being deployed. While this section details many of Virginia's active broadband programs and initiatives, it does not reflect the exhaustive list of all programming available to members of the Commonwealth.

General

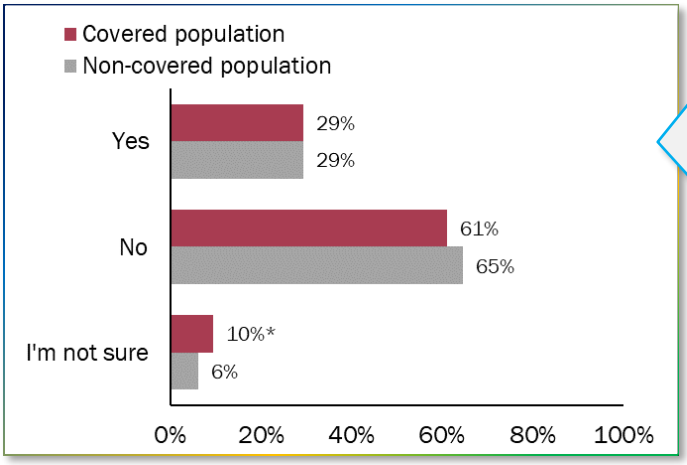
Assets categorized under "General" can be considered those that are not intentionally targeted towards any specific covered population(s). These may be assets available to the public (e.g., device rental programs through a library), an organization, or a forum with a direct or indirect relationship to digital opportunity in the Commonwealth. While not defined as a covered population by the National Telecommunications Infrastructure Agency (NTIA), the inclusion of these assets was determined to be important in illustrating the breadth of resources available to all Virginians. Assets that are no longer currently active have not been included in this analysis.

Need	Asset
Available / Affordable Broadband Access	**Virginia Telecommunication Initiative (VATI)** | Through DHCD, VATI extends 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. **Community Development Block Grant (CDBG)** | This CDBG program funds eligible units of local government for planning and implementation projects, which target "last mile" installation of broadband (i.e., no long-haul backbone systems will be installed with CDBG funds). Construction funding must be a part of a larger community comprehensive development project. **Appalachian Regional Commission (ARC)** | Virginia's Appalachian Regional Commission (ARC) funding fosters economic development and improves the quality of life for Appalachian citizens. ARC assists with facilitating broadband expansion in unserved communities in the ARC region. **Tobacco Region Revitalization Commission (TRRC) Last Mile Broadband Program** | Since the inception of the Commission, over $150 million has been granted to construct robust broadband fiber infrastructure in every Tobacco Region locality. The primary objective of the Last-Mile funding is to provide one-time 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. **Tribal Broadband Connectivity Program |** This project will provide affordable broadband services through payment assistance, as well as provide citizens in need with laptops. These services will be provided to improve tribal citizens' access to telehealth, tele-education, and other modern economic development activities that promote job growth and household connectivity for the Upper Mattaponi community.**Connecting Minority Communities Pilot Program** | The Connecting Minority Communities Pilot Program is a grant program that awards HBCUs, TCUs, and MSIs funding to support the purchase of broadband service. *See Virginia's BEAD Initial Proposal Volume 1 for additional programs, including federal programs to expand broadband access.*

Available / Affordable Device Access	**Virginia Public Wi-Fi Hotspots** | Many of Virginia's localities have elected to provide publicly available hotspots in gathering points throughout their community. As of June 2023, there are over 1,000 public hotspots available to residents of the Commonwealth. **Public Library Device and Hotspot Programs** | The majority of Virginia's public library systems offer device rental programs; however, availability and capacity vary due to disparities in funding. Some of the more robust programs offer laptop, tablet, and hotspot rentals, whereas other libraries have only a handful of hotspots available for public use. **Arlington Workforce Development Center Device Provision** | The Arlington Workforce Development Center makes Chromebooks available to members of the public in order to facilitate their reentry into the workforce or support their workforce advancement journey. **Hampton Roads Community Action Project (HRCAP) Computer Lab** | HRCAP has made a computer lab available to the public and has adopted a whole-family approach to digital supports.
Awareness / Adoption	**Commonwealth Connect** | Commonwealth Connect is the Commonwealth of Virginia's comprehensive effort to achieve universal broadband access. The Commonwealth Connect webpage provides an overview of ongoing efforts to expand broadband access and promotes resources that will help local leaders expand broadband infrastructure in their communities.
Digital Literacy / Skill Development	**Public Library Digital Literacy Programming** | Some of Virginia's public library systems offer individualized or group-based digital literacy trainings. Depending on staffing and resource capacity, libraries are able to offer 1:1 appointments to address digital needs and educational gaps. **Computer Core Digital Literacy Programming** | Computer Core offers a host of computer classes and digital skills trainings to the public. **Public Library Digital Navigator Program** | A handful of Virginia's public libraries offer formal Digital Navigator programs that provide support to the public as they participate in the digital landscape. Digital Navigators are equipped to support residents in securing accessible and affordable internet, learning new digital skills, and accessing digital technologies and devices. **Fairfax County Community Technology Program** | The Community Technology Program is designed to enhance the digital literacy among children and adults in underserved communities throughout Fairfax County. The After-School Program offers a structured environment for technology education and academic support for children and teens. Staff also host workshops and provide specialized instruction for adults during the day. **Virginia Beach Schools Digital Literacy Programming** | The Adult Learning Centers through the Virginia Beach Schools system teach computer skills courses to support residents and improve their digital literacy. **Arlington Education and Employment Program Digital Literacy Courses** | The Arlington Education and Employment Program offers digital literacy courses to improve the workforce readiness of participants. **CED Solutions Virginia Classroom Certification Boot Camps** | CED Solutions, LLC provides thorough training on over 100 programs throughout Virginia and the country. They train thousands of students each year on digital softer such as Microsoft, Cisco, Novell, Oracle, CompTIA, SCP, Adobe, Linux/Unix, ISC and more. Their Virginia Classroom Certification Boot Camps include hands-on instruction, all course materials, practice exams, and all certification exams.

Overall, there are many existing digital opportunity programs available throughout the Commonwealth that are not restricted or targeted to specific groups and instead are widely available to Virginians regardless of their demographics. However, there are two major challenges around this category of assets: awareness and sustainability.

Awareness of these assets and how they can be used is a significant issue encountered even in digital resource-rich areas of the Commonwealth. Many of those impacted by the digital divide are either unaware of the existence of these assets or – more commonly – are unaware of their benefits and applicability to their needs. As a result, regular and clear education on what these assets are, where they are, and how they provide value is necessary.



Survey response data underscores the lack of awareness around existing digital opportunity resources for Virginians.

Statewide, roughly two-thirds of respondents (~70%) are aware of these programs. While there were no significant variations between regional awareness, respondents located in the Southeast / Southwest regions of Virginia were 10% more likely be aware of federal digital opportunity programs compared to other areas. There is no immediately apparent link between these regional findings and the presence of covered populations.

Sustainability of these assets is also a key concern; the uncertainty around whether the Affordability Connectivity Program (ACP) fund will be replenished creates a barrier for expanding existing programs while simultaneously creating uncertainty around whether these programs will be able to continue. Although some are funded through the private sector or have transitioned partially or fully to a sustainable budget source, many still rely on federal funds. Capacity building is limited as a result, as organizations are hesitant to commit to bringing on new staff and resources needed to support assets without a clarity on future funding. As a result, exploring alternative funding models and assisting existing assets with developing sustainability so that these assets do not disappear is a priority for DHCD before directing funds to launching additional assets.

While these challenges are applicable to nearly all digital assets regardless of covered population, the following sub-sections focus on assets that are targeted to a specific group. Each section details active digital opportunity assets by covered population.

Aging Individuals

An individual who is 60 years of age or older.[4]

Need	Asset
Available / Affordable Broadband Access	**AARP Age-Friendly Community Programs** | A nationwide program currently active in a select number of Virginia localities (Albemarle County, Alexandria, Arlington County, Charlottesville, Grayson County, Roanoke) focused on supporting the ability of older adults and residents of all ages to live successfully in their communities. Age-friendly communities encourage and benefit from diverse citizen engagement by including residents in a process to identify the community's needs and develop and implement an action plan to address those needs. Participation in the network involves following a multi-step process of improvement.
Digital Literacy / Skill Development	**Manassas Senior Center Digital literacy programming** | Computer classes are offered to educate residents / aging individuals. **Cyber Seniors Digital literacy programming** | Cyber Seniors provides one-on-one tech assistance and digital literacy webinars for the aging population of Virginia. Cyber Seniors provides direct training and consulting services for organizations that wish to provide digital literacy programs for seniors. Additionally, they have published a free, detailed guidance document that other entities can use to develop their own in-person cybersecurity programming, ranging from course-content recommendations, outreach tips, volunteers training, and tailoring programs to meet the needs of different levels of digital fluency. **Scam Jam** | Financial fraud, identity theft, romance scams, check washing, tech support, and social media. These were some of the topics addressed recently by a panel of professionals at the 6th Annual Scam Jam, a joint effort by AARP Virginia and Fairfax County's Silver Shield Task Force. **Virginia Department for Aging and Rehabilitative Services (DARS) Title V Senior Community Service Employment Program (SCSEP)** | SCSEP is a program that serves unemployed low-income persons aged 55 or older and who have poor employment prospects by training them in part-time community service assignments, and by assisting them in developing skills and experience to facilitate their transition to unsubsidized employment. The program fosters economic independence and community service. The DARS SCSEP is also focused on providing digital literacy training and access to technology for participants.

[4] DE Planning Grant NOFO

Covered Households (Low-Income Households)

A household with an income < 150 percent of the federal poverty level as established by the Bureau of the Census.[5]

Need	Asset
Available / Affordable Broadband Access	**Comcast LiftZones** | Working with a network of thousands of nonprofit partners and city leaders nationwide, LiftZones provide a robust Wi-Fi solution powered by Comcast Business in neighborhood locations such as nonprofits, community centers, gyms, parks, recreation facilities, and small businesses. **Verizon Forward** | The Verizon Forward Program is a discount that provides internet access to our customers who are enrolled in the Affordable Connectivity Program (ACP). With ACP and Verizon Forward Program customers can get free internet service with no fees or equipment charges. **Fios Forward** | Allows customers approved for the ACP to receive free Fios Home Internet with Verizon's Fios Forward discount. **Access from AT&T** | Access from AT&T provides low-cost internet service for eligible households; up to $30/month with for 100/25 Mbps speeds. **Spectrum / Charter Internet Assist** | This program is an affordable, reliable internet option for low-income households, facilitating enrollment in the ACP. **Line Extension Customer Assistance Program** | The Line Extension Customer Assistance Program is designed to support the extension of existing broadband networks to low-to- moderate income residents. **Cox Communications Connect2Compete** | Connect2Compete is an affordability program offered by Cox Communications that provides low-cost internet access to qualified households. To qualify for Cox Connect2Compete, your household must have at least one K-12 student and participate in a government assistance program. **Albemarle County ACP Bridge Program** | The ACP Bridge program is a locally funded benefit that supplements the standard ACP grant. Provides an additional $20 to eligible ISPs on behalf of qualified participants. **Lifeline** | Lifeline is a monthly subsidy program for up to $9.25 for phone, internet, or bundled services. Lifeline is open to consumers who have household incomes that are 135 percent or less than the Federal Poverty Guidelines or if a household member participates in any of these programs: SNAP, Medicaid, Supplemental Security Income, Federal Public Housing Assistance, or the Veterans Pension and Survivors Benefit. For households on tribal lands benefits are expanded up to a $34.25 monthly discount and up to a $100 reduction in connection charges. Once qualified, Lifeline is accessed through phone or internet companies that offer Lifeline services. **Arlington Public Schools Internet Essentials Support (Subsidy)** | Arlington Public Schools (APS) believes that having a reliable Internet connection in your home is essential to support learning. To support families without Internet service, Arlington Public Schools is offering to pay for Comcast Internet Essentials service for qualified APS families. **ENROLL Virginia** | ENROLL Virginia is a network of community-based organizations committed to helping Virginians access high quality, affordable health coverage. The program employs navigators and enrollment experts that are trained and certified to provide free, unbiased assistance

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	with health insurance options available through HealthCare.gov, Medicaid, and FAMIS. These navigators support individuals with online enrollment and teach basic digital skills that facilitate participation in the digital health environment.

Veterans

Any person who served in the active military, naval, air, or space service, and who was discharged or released therefrom under conditions other than dishonorable.[6]

Need	Asset
Available / Affordable Broadband Access; Awareness / Adoption	**Digital Divide Consultant** | Through a "Digital Divide Consult" the Veterans Health Administration will refer veterans to a VA social worker who can assist with evaluating device and connectivity needs and determine eligibility for programs that can help. The VA is also able to offer internet-connected tablets for the purposes of healthcare visits. Certain providers will also waive data charges for users of the VA Video Connect application (used to interface with VA providers).
Available / Affordable Device Access; Digital Literacy / Skill Development	**Tech for Troops** | Headquartered in Richmond, Tech for Troops (T4T) provides veterans and military families with computers, skills, and information technology work force training. T4T provides on-the-job, classroom training for veterans, providing computer literacy, job skills and business connections for a career or job. Training programs are free, hands-on opportunities for Veterans to learn computer skills.
Other	**Virginia Gold Standard Digital Hub** | The Gold Standard Digital Hub is an online tool offered through the Virginia Department of Veterans Services and serves to ensure veterans and military families can easily access information regarding earned benefits and resources. The Hub will serve as a single point of access to all veteran centric resources available for cross-agency support. Information from veteran service organizations and non-profits is available in one seamless single point of access. While this tool does require a device and internet connection, it helps Veterans who may be digitally literate but experience challenges accessing their benefits through federal tools.

Incarcerated Individuals

Any individual currently incarcerated in a non-federal correctional facility.[7]

Need	Asset
Digital Literacy / Skill Development	**Job Training Program** | The Virginia Department of Corrections offers a program that provides instruction that will enable the students to use basic skills for computer literacy to prepare them for reentry to the workforce. A number of courses are offered including Computer Systems Technology, Introduction to Computers, and Computer Literacy. Emphasis is placed on using the computer and software to apply word processing and spreadsheet skills and basic use of the internet. **Community Corrections Alternative Program** | Community Corrections Alternative Program (CCAP) is an alternative program to incarceration, giving probationers and parolees the opportunity to engage in

[6] DE Planning Grant NOFO
[7] DE Planning Grant NOFO

	treatment, education, vocational training, digital skills training, and employment in a structured setting in order to promote long lasting public safety.

Individuals With Disabilities

Any individual with a physical or mental impairment that substantially limits one or more major life activities of such individual; a record of such an impairment; or being regarded as having such an impairment.[8]

Need	Asset
Available / Affordable Device Access	**ICanConnect** | This national program provides people with both significant vision and hearing loss with free equipment and training. **Assistive Technology Loan Fund Authority (ATLFA)** | The Assistive Technology Loan Fund Authority (ATLFA) is a Commonwealth of Virginia State Authority created with public funds to help Virginians with disabilities obtain assistive technology. The ATLFA provides affordable financing alternatives (loans with below-market interest rates, no down payments, longer repayment terms, etc.) to help make adaptive equipment a possibility for individuals who might not otherwise be eligible for borrowing. Any type of equipment can be financed as long as it relates to an individual's disability; examples include recreational equipment, vision aids, communication and hearing devices, and vehicles with modifications.

Individuals With a Language Barrier

Any individual who: are English Learners; and have low levels of literacy.[9]

Need	Asset
Digital Literacy / Skill Development	**Blue Ridge Literacy Digital Literacy Programming** | In FY 21-22, Blue Ridge Literacy started offering English and Digital Literacy Programs using the NorthStar Digital Literacy curriculum. Adult learners can take a placement test at Blue Ridge Literacy to test their computer skills, build skills in key areas and demonstrate their computer and digital literacy knowledge by earning certificates and badges. **Cville Tulips Literacy Programming** | Programming in the Charlottesville area is provided for local refugee and immigrant women. These programs encompass, professional and intentional English instruction for women, digital literacy including keyboarding and accessing school and medical information on the internet, and the purchase of tablets for digital literacy training. **Digital Literacy Resource Repository** | Funded by the Office of Refugee Resettlement (ORR) and implemented by the International Rescue Committee (IRC), this multimedia library of content provides resources for serving refugees and immigrants in adult education programs. **Refugee Resettlement - Digital Literacy Program** | This program, led by the Catholic Charities of Roanoke, helps newly arrived refugees learn basic computer skills and complete various online tasks. Program tasks include setting up email and other accounts, teaching families how to use online platforms like Zoom, apply for online jobs, etc.

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	Digital Literacy Online Classes | The US Committee for Refugees and Immigrants offer online digital literacy courses that build technological skills and confidence in refugee and immigrant populations.

Racial or Ethnic Individuals

Any individual who is a member of a racial or ethnic minority group.[10]

Need	Asset
Digital Literacy / Skill Development	**Digital Skills Learning Management System** | The Virginia Hispanic Chamber of Commerce has offered all members access to an online repository and learning management system that educates users on digital skills. The courses provide lessons in cybersecurity, online small business promotion, social media, and a variety of business software. **HBCU-Focused Google Career Readiness Program** | Google has launched a Career Readiness Program through a million-dollar grant that embeds its national online skills training initiative, Grow with Google, and custom workforce readiness workshops into the career centers of all HBCUs.

Rural Individuals

Any individual who resides in an area other than: a city or town that has a population of greater than 50,000 inhabitants; any urbanized area contiguous and adjacent to a city or town that has a population of greater than 50,000 inhabitants; and in the case of a grant or direct loan, a city, town, or incorporated area that has a population of greater than 20,000 inhabitants.[11]

Need	Asset
Digital Literacy / Skill Development	**IT Academy** | The IT Academy at the Southern Virginia Higher Education Center was created in 2015, with support from technology firms working in the area. Offering affordable practical training and professional IT certification, it has since helped 400 people train for jobs requiring IT skills. Nearly 90 percent of students secure a job within 12 months of completing the program, and many go on to well-paying roles in technology. **Microsoft Datacenter Community Development Initiative** | Microsoft sponsors small communities by partnering with local nonprofits and developing datacenters where residents can hone their IT and digital skills.

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Other

This category is intended to capture assets that may be targeted towards individuals / groups other than the general population of Virginia and the covered populations in the Digital Equity NOFO. The inclusion of these assets was determined to be important in illustrating digital opportunity assets that may not directly serve a covered population.

Need	Asset
Available / Affordable Broadband Access	**Affordable Internet Assistance Services** | The Prison Scholar Fund supports a repository of Digital Navigation Services that include one year of affordable (free) internet services for formerly incarcerated individuals. **E-Rate Program** | The FCC's E-Rate program makes telecommunications and information services more affordable for schools and libraries. Via the Universal Service Fund, E-Rate provides discounts for telecommunications, Internet access, and internal connections to eligible schools and libraries.
Available / Affordable Device Access	**Virginia Department of Education Virginia e-Learning Backpack Initiative** | Qualified schools are eligible for: A supplemental grant of $400 per student reported in ninth grade fall membership for the purchase of a tablet or laptop computer device, and a supplemental grant of $2,400 to purchase two content creation packages for teachers. **Virginia Student Training and Refurbishment (VA STAR) program** | To assist families who do not have a home computer, the Virginia Student Training and Refurbishment (VA STAR) program, provides free, refurbished computers to identified students to support academic achievement. The program is funded through the State Budget, with technology donations from private sector, public sector, and government entities. **Internet-Enabled Device Services** | The Prison Scholar Fund supports a repository of Digital Navigation Services that include provision of a laptop and cellphone for qualifying applicants.
Digital Literacy / Skill Development	**Albemarle County School District Digital Citizenship Coursework** | Schools in Albemarle County promote digital citizenship in their classrooms by offering a host of age-appropriate digital skills programming for students. **Manassas Public Schools Digital Literacy Tool** | Virginia's Manassas City Public Schools (MCPS) is partnering with Footsteps2Brilliance to launch a free, digital literacy tool for the district's 4-year-olds. **Culturally Literate Workforce Training Services** | The Prison Scholar Fund supports a repository of Digital Navigation Services, including employment-relevant digital literacy skills for formerly incarcerated individuals. **Grow with Google Career Readiness for Reentry Program** | The Grow with Google Career Readiness for Reentry Program offers community organizations online resources to supplement technology programs for formerly incarcerated individuals. Google's new free online curriculums contain certificate programs, video tutorials and project-based courses, many of which are centered around skills needed to run a small business, like email marketing and how to set up a website.
Other	**LGBT Technology Partnership & Institute** | The LGBT Technology Institute strives to serve LGBT communities through education, programs, partnerships and research. Currently the research available around the LGBT community and technology, including research about adoption, use, trends and benefits is limited. The LGBT Technology Institute is committed to expanding this research to better LGBT communities all around the world.

3.1.2 Existing Digital Opportunity Plans

Through research efforts, DHCD identified several existing plans that directly or indirectly addressed digital opportunity needs for various localities throughout the Commonwealth. Currently, there are no existing Tribal government Digital Equity Plans in development within the Commonwealth.

Plan Name	Description
City of Alexandria Digital Equity Plan	The City of Alexandria secured funding through the American Rescue Plan Act (ARPA) and is now undertaking the development of a Digital Equity Plan to understand the digital needs throughout the city and then prioritize how to invest in bridging this digital divide. The plan will also help the city launch digital literacy innovation programs and test new ways to provide technology and support to high-need communities.
OneFairfax Plan	Fairfax County articulates the need for digital opportunity as an area of focus in their OneFairfax Plan. Overall, this policy defines expectations for consideration of racial and social opportunity and, in particular, meaningful community involvement when planning, developing, and implementing policies, practices, and initiatives. It provides a framework to advance opportunity in alignment with the County's stated visions and priorities.
Arlington County Digital Equity Access Project (DEAP)	In an effort to collect data on digital opportunity in the County, the Digital Equity Access Project conducted eight focus groups, three 1:1 interviews, and 200 telephone interviews with digitally underserved individuals. These findings informed the County's final DEAP report.
Alexandria's Community Health Improvement Plan 2025 (CHIP)	In their 2025 CHIP - a community-centered and data-driven blueprint for better health - the City of Alexandria identified eliminating the digital divide as one of several health strategies to achieve by 2025. Execution of this strategy relies on four defined tactics: 1) Institutionalize access to high-speed internet for low-income individuals and families; 2) Provide devices to under-resourced residents; 3) Provide classes and tutoring in multiple languages to increase digital literacy; and 4) Monitor and engage in the creation and implementation of Alexandria's Digital Equity Plan.
Blue Ridge Health District MAPP2Health Plan	In their 2022 Mobilizing for Action through Planning and Partnerships (MAPP) plan, the Blue Ridge Health District Leadership Council identified Digital Access and Literacy as a health policy target and key social determinant of health for the region.

Blue Ridge Health District Community Health Improvement Plan (CHIP)	In their 2023 - 2025 CHIP, the Blue Ridge Health District expanded upon the Digital Access and Literacy health policy target defined in their MAPP2Health plan by outlining explicit goals and objectives to address broadband access, literacy, hardware, and software components of connectivity to navigate daily life and healthcare encounters. These goals include: 1) Expand broadband service areas; 2) Expand literacy improvement services; 3) Provide digital navigators; 4) and Increase access to affordable hardware and software.
Virginia State Plan for Aging Services	In their draft 2023-2027 Plan for Aging Services, the Virginia Department for Aging and Rehabilitative Services (DARS) identifies the importance of maintaining a program through the Senior Community Service Employment Program (SCSEP) that provides digital literacy training and access to technology for aging Virginians.
Improving Participation of Refugees in Virginia's Workforce	This plan, submitted by the Secretary of Labor in 2021, examines the role of Virginia's refugees in the workforce and makes recommendations for addressing any barriers that prevent them from using their work experience gained outside of the United States to obtaining employment in occupations in Virginia. Digital literacy and skill-building are articulated as needs.
Digital Learning Integration Standards of Learning for Virginia Public Schools	The 2020 Digital Learning Integration Standards, prepared and produced by the Virginia Department of Education, provide comprehensive standards statements that articulate the skills and competencies that are expected of Virginia's student population. While not directly built around digital opportunity, these standards expressly outline the requirement for students to develop skills in becoming empowered learners, digital citizens, and computational thinkers. This plan offers learning methods to afford all of the Commonwealth's students the opportunity to hone their digital skills.
Albemarle County Broadband Accessibility and Affordability Office Regional Digital Equity Plan	Established in May of 2021, the Broadband Accessibility and Affordability Office (BAAO) seeks to ensure that Albemarle County residents of all means have access to adequate and affordable broadband service. The Office is currently working with stakeholders to develop digital opportunity plans and strategies.

3.1.3 Existing Digital Equity Programs

Throughout the information gathering process, organizational relationships and partnerships continuously arose as one of the most significant assets available in the Commonwealth for advancing digital opportunity. These are digital opportunity / digital opportunity-adjacent assets at an organizational level (e.g., library systems, state-wide broadband networks, regional

organizations) that have a direct or indirect impact on digital opportunity in Virginia. While not all organizations presently offer digital opportunity services, their deep reach into their respective communities are a valuable tool for the Commonwealth to understand how digital opportunity needs may differ throughout Virginia, as well as deploy resources quickly and effectively to communities in need. The list that follows represents key examples of leading organizations in Virginia, however it does not represent the exhaustive list of existing organizational assets throughout the Commonwealth.

Virginia Department of Housing and Community Development (DHCD) Office of Broadband: The DHCD Office of Broadband leads statewide deployment and digital opportunity efforts for the Commonwealth.

Commonwealth Connect: Commonwealth Connect is the Commonwealth of Virginia's comprehensive effort to achieve universal broadband access. Commonwealth Connect is working towards universal broadband through four main tracks: 1) Increased state grants to public/private partnerships to "make the math work" and build broadband to unserved communities; 2) Policy changes to accelerate universal broadband; 3) Better support and resources for local broadband planning; 4) Convening over 100 broadband stakeholders in the Commonwealth Connect Coalition.

The Broadband Association of Virginia (VCTA): Established in 1966, VCTA consists of eight of the largest broadband providers in Virginia - connecting homes, businesses, and government offices to the internet. VCTA members provide high-speed internet connections to households and businesses of all sizes, educational institutions, hospitals, data centers, nonprofit organizations, and many of Virginia's government and military facilities. For example, the Broadband Together Conference is co-hosted by VCTA, the Virginia Municipal League (VML), and Virginia Association of Counties (VACO). This conference gathers policymakers, ISPs, state agencies, community organizations, and interested members of the public to explore topics that help expand broadband throughout the Commonwealth.

The Broadband Advisory Council: Established in 2017 by the state legislature, the Council advises the Governor on policy and funding priorities to expedite deployment and reduce the cost of broadband access in the Commonwealth. The Council is comprised of 17 members: seven legislative members, six non-legislative citizen members, and four ex-officio members.

Community Action Agencies (CAAs): Born out of the Federal Economic Opportunity Act of 1964, Virginia's first CAAs were established in the mid-1960's. CAAs are local organizations with the mission of reducing poverty through locally designed and delivered programs and services that are targeted to the specific needs of the community. CAAs throughout the Commonwealth are digital opportunity core partners due to the hands-on digital programming and initiatives they offer directly to their communities. Virginia possesses 31 non-profit private and public community action agencies. Presently, eight CAAs have been engaged to develop RDOPs to help address the variance in digital opportunity need and capacity across Virginia.

Virginia Broadband Industry Association (VBIA) – Formerly the Virginia Telecommunications Industry Association (VTIA), the Virginia Broadband Industry Association (VBIA) is a group that represents internet service providers and promotes the common interests of the members in all matters affecting the broadband industry in the Commonwealth of Virginia.

The Rural Fiber Association – The Virginia, Maryland, and Delaware Association of Broadband Cooperatives (VMDABC) was launched to address the need for a singular, unifying voice for cooperative broadband interests. They are committed to fostering ongoing collaboration between industry partners while serving as the preeminent voice on rural broadband policy before policymakers at all levels of government.

The Virginia Community Action Partnership (VACAP): Developed as Virginia's CAAs were being established, VACAP is a formal organizing body for all CAAs. VACAP's mission is to help build the capacity and competencies of Virginia's CAAs to achieve their mission of creating economic opportunities and facilitating mobility from poverty for the people of Virginia. VACAP plays a key role in distributing information up from CAAs, down from the Commonwealth of Virginia, and across the CAA network.

Planning District Commissions (PDCs): Virginia's PDCs are often the recipients of Virginia Telecommunication Initiative (VATI) funds and sponsor regional broadband accessibility initiatives. PDCs often liaise directly with ISPs to deliver broadband access to hard-to-reach, underserved areas.

Area Agencies on Aging (AAAs): Similar to CAAs, Area Agencies on Aging provide a comprehensive array of services responding to the particular needs of their aging communities. There are 25 Planning & Service Areas throughout the Commonwealth of Virginia.

Department of Social Services: DSS' local office network works closely with the Commonwealth's most vulnerable populations. Local offices narrow the gap in digital access and affordability by referring eligible households to the broadband programs they qualify for. As a mainstay of local communities, local DSS offices offer unparalleled access to covered populations and their preferred communication channels and an intimate knowledge of populations' needs and barriers to connectivity.

Library of Virginia (LVA): The Library of Virginia oversees the network of public libraries throughout the Commonwealth that host digital skills classes and digital device loan programs. Publicly available internet access is provided at the majority of Virginia's library branches and many systems offer digital collections of resources and books to their visitors. The Library of Virginia hosts the statewide database of library resources called FindItVA and is responsible for distributing statewide funding to libraries in underserved areas. The Library of Virginia also funds the Educational Databases made available to all public libraries. LVA functions as a consultant for other libraries throughout the Commonwealth, frequently providing knowledge around capacity building and program development.

Public Schools, Universities, and Community Colleges: Many of Virginia's Educational institutions offer their students some form of access to digital devices (e.g., laptops, hotspots, tablets) as well as digital skills courses, for a wide variety of experience levels. In particular, the Virginia Department of Education oversees several programs and initiatives across its many school districts to connect their students and families to the internet. Virginia public schools provide age-appropriate instruction in internet safety and requires all the Commonwealth's school divisions to develop acceptable internet use policies. The Virginia Department of Education assists by developing guidelines for instructional programs related to internet safety and providing technical assistance to school divisions in the development of policies to protect children from cyber bullying, online abuse and cybersecurity dangers.

Tribal Governments: The Upper Mattaponi Indian Tribe received a federal grant from NTIA under the Tribal Broadband Connectivity Program for a Broadband Use and Adoption project. This project will provide affordable broadband services through payment assistance programming as well as provide citizens in need with laptops. These services will be provided to improve tribal citizens' access to telehealth, tele-education, and other modern economic development activities that promote job growth and household connectivity for the Upper Mattaponi community.

3.1.4 Broadband Affordability

Affordable Connectivity Program

The Office of Broadband estimates that 1.047 million households are eligible for the Affordable Connectivity Program – as of the end of September, 422,195 Virginians were enrolled in the program, more than 40% of eligible households. However, this leaves more than 620,000 households without the subsidy they are entitled to, constituting $18 million monthly in unclaimed subsidies.

The Department of Housing and Community Development successfully applied for an Outreach Grant from the Federal Communications Commission to increase awareness of and enrollment in the federal Affordable Connectivity Program. The Office is conducting outreach to likely-eligible households across the Commonwealth, with an emphasis on student households and those in LIHTC and Public Housing Authority properties.

3.2 Needs Assessment

The needs assessment provides a baseline for: 1) understanding the state of covered populations in the Commonwealth today; and 2) the digital opportunity barriers they face. This section was developed using findings gathered through research, stakeholder engagement, and the statewide digital opportunity survey. These findings are categorized by adoption needs, affordability needs, and cross-cutting needs that affect all covered populations. These needs are then further broken down in detail by covered population.

3.2.1 Virginia Digital Opportunity Survey

Digital Opportunity Survey

To fully assess the needs and barriers of the community, the Commonwealth distributed the statewide Digital Opportunity Survey to collect valuable quantitative data that helped paint the picture of the current state of Digital Opportunity in Virginia. The survey was active from May through August 2023, and collected more than 7,000 respondents from every locality in Virginia. The purpose of this survey was to inform the State Digital Opportunity Plan and identify the gaps and barriers of broadband resources and services around access, affordability, and digital literacy.

The insight gathered from the survey aided the community action agencies in their development of each Regional Digital Opportunity Plan. The survey was distributed through digital distribution on DHCD's Digital Opportunity webpage and physical distribution. There were marketing materials offered in both digital and print form to help promote the survey to the

residents of Virginia. The Department of Housing and Community Development released the survey in English, Spanish, Arabic, Russian and Ukrainian; these languages were chosen as they are the most spoken languages statistically across the Commonwealth. Barriers were expressed from the communities on the accessibility of the survey; the Commonwealth in return addressed the immediate concerns and collected the following data from the survey. Key findings from the survey data are:

- Most respondents (79%) have both a home internet subscription and a wireless plan.
- 2 out of 5 respondents access the internet using their cellular data plan. Roughly one-third (31%) of respondents use cable modem.
- Of the people who cannot access the internet, 45% do not because it is not available in their area. Another 29% say it's too expensive.
- Nearly half of respondents (46%) spend between $50 and $100 each month on their internet service (not as a part of a cellular plan).
- 51% of respondents are unwilling to pay more for better internet service. One-quarter of respondents (26%) are unsure.
- The devices respondents most often use to access the internet are a smart phone (84%) or laptop (75%).
- Respondents are comfortable doing most tasks on the internet, but less so attending doctor's appointments.
- Most respondents (81%) have not applied to a program for internet accessibility, and only one-third (30%) are aware of these programs.
- The most common problems among respondents are their subscribed speeds not being achievable (20%) and a lack of access to technology (19%).

Timeline of survey data pulls

Date	Purpose	No. of survey responses	Notes
7/14/2023	To inform the Community Action Agency (CAA) regional plans	5,092	This data informed 10 regional reports to help CAA's understand trends specific to their geographies
7/31/2023	To underpin the Guidehouse and SIR final reports	6,346*	Survey was left open for an additional month (from 07/03 to 07/31) to maximize responses
9/12/2023	To provide a final record of all state-wide survey responses for DHCD's records	7,427	DHCD requested that the survey be left open after the completion of GH and SIR final reports to maximize potential survey returns and for further DHCD analysis

The Digital Opportunity Survey results were pulled at three dates to provide a data analysis to Community Action Partners, DHCD from our consultants and a final pull that is represented in this report (please see the figure above for reference). To review the full Digital Opportunity survey report, please refer to the plan's appendix.

3.2.2 Regional Digital Opportunity Plans

The Regional Digital Opportunity Program aimed to ensure that the unique needs of different regions and populations across the Commonwealth were considered as a part of this plan. This program provided sub-grants to eight (8) community action agencies to research and develop a plan to address the needs and barriers of their communities in terms of broadband access, affordability, and adoption. As part of this initiative, Virginia was organized into nine (9) regions and eight (8) Community Action Agency partners were contracted to develop their Regional Digital Opportunity Plans (RDOPs). These plans are based on their current state of digital needs, and recommendations to the state on how to address affordability and adoption in their region. CAAs also received and considered survey data from the statewide survey within their region in this process. While counties and cities with ongoing digital opportunity plans and programs were not included in these identified regions, the Office of Broadband directly consulted with these leaders in digital opportunity and their stakeholders to ensure their existing plans and programs influenced the development of this plan. Additional information is included under Section 4 concerning stakeholder engagement.

Bay Aging/Eastern Shore

The counties of the Bay Aging Region strives to expand Digital Opportunity, through the installation of new infrastructure, the improvement of existing infrastructure; and by working to mitigate economic and technological access barriers; in order to achieve a condition where all individuals and communities have the information capacity needed to fully participate in our society, democracy, and economy. Bay Aging and Eastern Shore have identified primary goals of this plan as identifying ways to advance the opportunity for digital access, affordability and utilization for all citizens in the region; and identifying barriers to Digital Opportunity among the covered populations. Bay Aging and its sub-regions, Eastern Shore, Northern Neck and the Middle Peninsula, currently houses VATI grants from DHCD and expects there will still be gaps in infrastructure and access to reliable broadband service by the completion of these VATI projects. The region hosted one (1) virtual community input session to receive feedback on the needs the community experiences and an implementation plan to address the gaps. The region identified the following priorities in the implementation of their plan:

1. Building out broadband infrastructure to the remaining unserved locations;
2. Increase efforts to market affordability programs such as the Affordability Connectivity Program (ACP), the Installation Cost Assistance Program, the Line Extension Customer Assistance Program (LECAP), and the Accomack Residents Assistance Program;
3. Pursue the development of Line Extension Assistance Programs to assist middle-income customers with extensive connectivity costs;
4. explore new programs to assist LMI and middle-income customers to make monthly cost for service affordable,
5. Continue efforts to upgrade and enhance existing infrastructure;
6. Explore utilizing existing regional non-profit organizations and community partners to increase digital literacy efforts for the covered populations, emphasizing aging individuals; and
7. Explore utilizing existing regional non-profit organizations and community partners to assist in obtaining technology devices necessary to access the internet.

Community Action Partnership of Staunton, Augusta, and Waynesboro (CAPSAW)

Community Action Partnership of Staunton, Augusta, and Waynesboro (CAPSAW) along with New River Community Action and Total Action for Progress developed a regional coalition to establish the region's vision for Digital Opportunity. CAPSAW's Regional Coalition Vision is "Digital equity will be achieved when everyone in the region has the opportunity to safely access the full benefits of technology to live, learn, work, and thrive." CAPSAW states that the community needs digital safety, citizenship and literacy trainings as well as technical support and user-friendly, mobile accessible websites to support their regional needs. CAPSAW developed a community engagement plan that resulted in 73 sessions conducting outreach to their community. The region conducted four (4) community outreach sessions, nine (9) listening sessions, fifteen (15) focus groups and over forty (40) key informant interviews with a wide variety of representatives of multiple covered populations and subject matter experts. Households in the region have reported difficulty in successfully navigating online content including applications for employment, benefits, housing, government support, and local services. The key elements of CAPSAW's implementation plan include affordability, devices, digital skills, technical support, and digital navigation. Core activities will focus on including:

1. affordable, robust broadband internet services;
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 are designed to enable and encourage self-sufficiency, participation, and collaboration.

CAPSAW's proposes the following strategies as the elements of the implementation plan; create a coalition of stakeholders, including Community Action Agencies, to guide implementation strategies, develop leadership and enhance coordination of regional services, develop Navigation Services, ongoing and continued investment in both means tested and non-means tested services to support adoption of broadband through technical support, digital literacy services, and improvements to online content, develop and fund a staffed support line or service to provide ongoing/on demand mobile tech support and develop accessible, mobile friendly websites across the spectrum of businesses and services.

Community Action Partnership Uplifting the People

Capital Area Partnership Uplifting People, Incorporated (CAPUP) envisions a region where every resident, regardless of their background or circumstance, has equal access to the digital tools, resources, and knowledge needed to thrive in the 21st century. Success Looks Like, in the context of our Regional Digital Opportunity Plan, means universal access for every resident and business in our region, educational excellence in our schools and institutions to ensure our students and community members have the digital skills necessary for success, economic prosperity for the region meaning attracting investments, job opportunities, tech innovation and entrepreneurship opportunities, and prioritizing digital inclusion for the marginalized communities to have access to digital resources.

The regional priorities for the region include expanding broadband infrastructure to underserved areas, promoting digital literacy programs to ensure access to technology in schools, fostering an innovation-friendly environment to attract tech businesses and start-ups, and establishing community centers and libraries as digital literacy hubs. CAPUP has also identified the digital opportunity barriers their region faces as the affordability of broadband services, device accessibility, digital skills gaps, the lack of technical support and the lack of available digital navigation services. CAPUP has identified the following goals in their

implementation plan; bridge the affordability gap for community members, provide individuals with access to devices, enhance digital literacy skills of the community, and offer technical support and digital navigation to assist residents. In addition to distributing the statewide survey across their region, CAPUP coordinated and hosted two (2) community input sessions which provided a platform for the community to have in-depth conversations and qualitative insights into the digital needs and gaps of the region. The region has developed an implementation plan that will address gaps in our strategy and existing efforts by:

1. Expanding device distribution and access programs;
2. Enhancing the scale and reach of digital skills training programs, with a particular focus on senior citizens and marginalized communities;
3. Establishing a comprehensive technical support system and digital navigator network to bridge the support gap; and

Developing affordability programs to make broadband services affordable for low-income households.

Hampton Roads Community Action Partnership

Hampton Roads Community Action Partnership's (HRCAP) goal of the region's digital opportunity plan is to ensure that all their populations and residents of the region have access to safe, reliable, and affordable internet. The primary barriers identified by the region are the lack of knowledge and skill, lack of awareness regarding available broadband resources, lack of affordability resources and cost of service. The regional plan is primarily focused on the following:

1. Affordability
2. Education Awareness
3. Wireless Connectivity

HRCAP has coordinated and hosted three (3) community input sessions while also incorporating digital opportunity conversations in regularly scheduled Whole Family Approach Community Coalition meetings. HRCAP proposed recommendations to address the barriers identified from their needs assessment of their region. These recommendations are as follows:

1. Coordinating an outreach effort to inform residents of resources available to them.
2. Conducting digital literacy education activities that will teach participants how to use connected devices along with browsing the internet safely and effectively.
3. Ensuring sustainable funding to ensure residents have access to long-term resources and opportunities.
4. Conducting Cybersecurity and Online Safety Trainings related to both the protection of personal data and protection of minors exposed to the internet.
5. Coordinating with an IT assistance firm to provide residents with technical support and digital navigation services.
6. Establish a Coalition of digital equity stakeholders, agency partners and additional identified organizations and businesses to conduct regular assessments of broadband adoption in the region.

Improvement Association

Improvement Association's regional vision for digital opportunity and priority would be one-hundred percent broadband and cellular coverage for the entire region. For this vision to be

achieved, the counties and cities would benefit from forming broadband committees. These committees would be responsible for keeping the community informed of programs, classes, and new regulations from the state and federal levels, as well as acquiring funding for schools, churches, community organizations and nonprofits to open resource centers for digital literacy or assistance in applying for programs suitable for their current needs. Improvement Associated identified the needs for their community as:

1. Affordable device loaner programs
2. Access to devices
3. Awareness on digital education opportunities
4. Technical Assistance and Digital Navigator services for parents of students and other targeted populations
5. Strategic partnerships with organizations supporting digital opportunity efforts

The Improvement Association coordinated and hosted four (4) community input sessions/focus groups and seven (7) key stakeholder interviews to offer a platform for the community to share insight for a comprehensive regional plan. Improvement Association also participated in community events such as *National Night Out* to boost awareness and engagement of their digital opportunity work. Based on feedback and insight from these sessions, Improvement Association proposed the following recommendations for addressing the digital divide in their region:

1. Forming Broadband Committees or a Broadband office at the city and county levels
2. Running advertisements in local papers, radio, social media, community organizations, local Social Services Departments, schools, and churches to inform community about broadband access locations, affordability programs, device programs, and digital literacy classes.
3. Offering free computer classes monthly for the elderly populations and other targeted populations.
4. Establishing programs with schools to offer parent workrooms where a staff members will be available to assist parents with learning basic computer skills, communication portals or platforms associated with children's learning.
5. Implement a curriculum and funding for organizations to provide digital education trainings for community members and target populations to learn to use a computer.
6. Collecting data on internet access and lack thereof in the region.

People Incorporated – North Central

The vision for the Northern Shenandoah Valley region of the Commonwealth is "the digital world will provide equal access for residents to the same opportunities for employment and services, including telehealth. Residents will not be restrained by a lack of transportation, a disability, or income when engaging in the economy or society at large." People Incorporated conducted six (6) community input sessions/focus groups and thirteen (13) key stakeholder interviews to provide community insight on the effects of the digital divide in their region and an implementation plan to address these concerns. The region identified the barriers to the digital opportunity in their region as the lack of broadband/internet access, digital literacy, privacy and cybersecurity, device access and affordability, and online accessibility. People Incorporated also identified geography as a barrier due to the mountainous terrain and rural nature of the region. The region also identified the following priorities for addressing the digital divide:

1. Conducting computer classes to accommodate all levels of knowledge from the most basic to more advanced classes,
2. Utilizing a multi-generational approach where youth are trained to teach older adults,
3. Developing a list of available computer resource centers in the community,
4. Expanding the number of devices available for Workforce Agencies to loan or give to clients,
5. Establishing a digital literacy and cybersecurity training program where participants may purchase their computer for a small fee,
6. Implementing a regional marketing campaign to inform children and parents of the effects of social media,
7. Conducting outreach to promote the Affordable Connectivity Program (ACP),
8. Creating a Digital Opportunity Network and selecting a lead agency to manage the responsibilities of the network, and
9. Implementing a marketing campaign around educating individuals on cybersecurity and privacy online, along with news distribution of scams.

Access and affordability measures were identified as lower priorities for the initial phase of the plan while the region waits for existing VATI projects to be completed, and impact assessed. Implementation of the Northern Shenandoah Valley regional plan will occur in a multi-stage process:

1. Phase 1: Selection of a Lead agency that will coordinate work between stakeholders, monitor progress, and assume responsibility for maintaining and updating the plan.
2. Phase 2: Implementation of a Digital Navigator Network that can work one-on-one with residents to help them meet their specific needs from accessing the Affordable Connectivity Plan, identifying the type of device they need, to learning how to use their specific device, or referring them to resources available in the community.
3. Phase 3: Additional resources will be directed towards specific needs-based solutions for target populations to create more Digital Opportunities.

People Incorporated – Southwest

The Southwestern region of Virginia formed a Regional Community Action Coalition with partners from the Appalachian Community Action and Development Agency, Inc. (APPCAA), Clinch Valley Community Action Agency (CVCAA), Mountain Community Action Program, Inc. (MCAP), People Incorporated of Virginia, Inc. (PINC), and Rooftop of Virginia Community Action Program, Inc. (Rooftop). The Regional Community Action Coalition has developed a vision for Digital Opportunity stating, “Individuals and households within Southwest Virginia have the access, devices, and knowledge they desire to safely access online resources including employment, education, and essential services.” People Incorporated coordinated and conducted a series of twenty-five (25) community input sessions throughout the project period to offer their community a chance to give feedback and suggestions on addressing the digital divide. People Incorporated also conducted research in the community to identify the barriers of Southwest region of Virginia. These barriers identified are:

1. Lack of access due to the mountainous terrain and low-density development and digital literacy
2. Affordability of internet services,
3. Access to devices and
4. Digital literacy

5. Online accessibility
6. Cybersecurity and privacy concerns

People Incorporated has identified four (4) key responsibilities the lead agency will oversee to support implementation: develop a cohesive, coordinated regional approach to promoting digital opportunities, establish a digital navigator program to provide comprehensive technical support and trainings to meet the specific needs of the population, promote digital opportunities in a way that creates meaningful impact, and addressing the long-term needs of the community. Implementation of the Southwest regional plan will occur in a multi-stage process:

1. Phase 1: Selection of a Lead agency that will coordinate work between stakeholders, monitor progress, and assume responsibility for maintaining and updating the plan.
2. Phase 2: Implementation of a Digital Navigator Network that can work one-on-one with residents to help them meet their specific needs from accessing the Affordable Connectivity Plan, identifying the type of device they need, to learning how to use their specific device, or referring them to resources available in the community.
3. Phase 3: Additional resources will be directed towards specific needs-based solutions for target populations to create more Digital Opportunities.

Southeast Region Community Action Partnership

SERCAP's and partner CAA STEP, Inc.'s vision for Digital Opportunity for South Central and Southside Virginia is to make affordable access to broadband, tools, and resources available to all residents, while preserving personal privacy/online security and individual choice as key values and an essential component of this Digital Opportunity Plan for the region and the Commonwealth of Virginia at-large. SERCAP and STEPS, Inc. identified four (4) key areas of focus for their project that will help bring broadband access to the individuals and families throughout their communities.

1. Infrastructure
2. Affordability
3. Public Connectivity
4. Training and Resources

The region also identified the region's primary barriers as the cost of broadband and the lack of competition of Internet Service Providers (ISPs) for their community. The region conducted ten (10) in-person community input sessions, two (2) online focus groups, and twelve (12) community listening sessions where they were able to gather feedback from their community to determine if these barriers were aligned with what the members of the community are experiencing. SERCAP developed their implementation recommendations for addressing the digital divide in their regions. These recommendations are:

1. Establishing Safety and Security Protocols for Public Wi-Fi
2. Expanding affordable hot-spot lending programs
3. Increasing the Availability of Public Connectivity
4. Offering refurbished device programs to Low- and Moderate-Income Individuals
5. Establishing Public Help Desk/IT Support for the community and general public
6. Offer one or two digital literacy clinics per month to help with healthcare enrollment, online forms, online safety, and security protocols.

SERCAP and STEPS, Inc. identified infrastructure as their top priority along with supporting recommendations that will benefit the community. Virginia will address the infrastructure and

access barrier to VATI and forthcoming BEAD investments but overall, the region recommends programs and resources that will support the affordability barrier, the needs for access to public connectivity, and the need for training and resources for the community to succeed.

Williamsburg James City County

Williamsburg James City County's Regional Digital Opportunity Plan aims to bridge the digital divide by providing equitable access to digital resources, enhancing digital skills, ensuring affordable connectivity and devices, offering technical support, and promoting online safety awareness. Williamsburg-James City County (WJCC) plan's purpose is clear- to provide every individual, regardless of their background or circumstances, with the tools, skills, and opportunities needed to thrive in the digital age. The region's vision of digital equity is to bridge the digital divide, foster innovation, and create an environment where technology benefits all segments of society. WJCC identified the following key components in their plan's success:

1. universal connectivity,
2. digital literacy and education,
3. innovative inclusion,
4. cybersecurity and data privacy,
5. healthcare and education technology,
6. sustainable development,
7. ethical responsibility,
8. collaboration and partnerships

These goals include to ensure equitable access to digital resources and opportunities for all populations, enhance digital literacy and skills across communities, provide affordable access to devices and connectivity, establish robust technical support for users and foster effective digital navigation and online safety awareness. Williamsburg-James City County conducted community outreach through multiple avenues and coordinated two (2) community input sessions, one (1) community round table/listening session and attended two (2) community events to promote digital opportunity and distribute the statewide survey. The region has identified their strategic goals and objectives to address their region's barriers as ensuring equitable access to digital resources and opportunities for all populations, enhancing digital literacy and skills across communities, providing affordable access to devices and connectivity, establishing robust technical support for users and fostering effective digital navigation and online safety awareness. Williamsburg-James City County plans for core activities centered around digital infrastructure enhancement, digital literacy programs, affordability initiative, device provision, technical support and digital navigation resources.

Solutions to the barriers for the region have sustainability and effectiveness that have been identified as:

1. collaborating to develop public-private partnerships to share resources, knowledge, and funding for sustainable implementation;
2. involving local community leaders and organizations in community engagement efforts;
3. advocating for dedicated funding and support; and
4. training educators who can continue to teach digital literacy skills after the initial implementation phase.

Conclusion

Each of these plans presents comprehensive report that includes an overview of their region, details of previous stakeholder engagement for community input, an asset inventory of digital opportunity services and resources, a list of organizations and partners, and results from our statewide digital opportunity survey (*for more information, refer to the links under "resources" at https://www.dhcd.virginia.gov/digital-opportunity*). Each plan includes a needs assessment, findings from stakeholder engagement, assets in the region, research and data to support their analysis, and an implementation strategy for recommendations on how the state should invest federal funding in their communities. These Regional Digital Opportunity Plans can be found on DHCD's Digital Opportunity website under the "resources" tab and in the appendix of this document.

3.2.3 Case Study Program

The Office of Broadband created the Digital Opportunity Case Study Program to bring organizations involved in digital opportunity work or with innovative ideas to address an element of the digital divide into the planning process. The Office of Broadband made five subgrants through this Program, to a diverse set of subrecipients conducting innovative work. These five organizations developed case studies detailing a novel approach to addressing the digital divide. In addition, through the leveraging of our stakeholder engagement process in the development of this plan, we are including an additional case study from the e Virginia Department of Education's Adult Education Program leveraging their Workforce Innovation and Opportunity Act of 2014 (WOIA) Title II, Adult Education and Family Literacy Act (AEFLA) funding. *Literacy for Life*

Literacy for Life, an adult literacy nonprofit based in Williamsburg, Virginia, developed a program to assess the digital literacy skills of individuals with a language barrier and determine effective strategies to improve these skills. Literacy for Life's mission is to empower adults by building foundational skills for success in life and work – as an essential skill for participating in today's society, economy, and workforce, digital literacy has become a focal point of the organization's work.

Through their case study, Literacy for Life followed a five-step process to assess the digital literacy skills of individuals with a language barrier, and to identify effective approaches to improve these skills:

1. Survey 100 adult immigrant learners to evaluate their need for and access to digital literacy instruction, broadband, and consumer devices.
2. Assist 10 learners who do not have access to affordable broadband in applying for Affordable Connectivity Program to identify and document challenges.
3. Administer the NorthStar Digital Literacy assessment for basic computing, internet, email and Microsoft Word to 25 learners to identify areas of greatest need and develop an instructional model.
4. Select 10 learners with similar instructional needs and availability to attend a digital literacy class.
5. Develop and deliver an 8-session digital literacy class and evaluate the most effective strategies for addressing the digital skills gaps for individuals who are English language learners and/or have low levels of literacy.

Literacy for Life found that while initially participants tended to self-report confidence in handling digital tasks, this was largely not supported by the results of the assessment: "For

example, of the 19 learners who participated in the class and answered the survey question 'Do you feel confident using email,' 15 (79%) responded 'yes'. However, the results of the (NorthStar) showed that of only 2 (11%) had a passing score on the Email unit of the NorthStar Assessment."

Ultimately, Literacy for Life found success in improving digital literacy skills amongst individuals with a language barrier. Overall, 95% of participants improved digital literacy skills in two areas of the NorthStar Assessment, internet basics and email use.

Edu-Futuro

Edu-Futuro was established in 1998 by Latino immigrants in partnership with Arlington Public Schools (APS), specifically to serve Northern Virginia's fast-growing immigrant community. The organization developed a case study to demonstrate the success of its Tech for Parents program in improving the digital literacy skills of vulnerable populations, including English learners, individuals with a language barrier, and members of a racial or ethnic minority group.

Tech for Parents is Edu-Futuro's primary digital literacy curriculum, skilling individuals in the basics of computer use and general digital tasks: "Participants learn the basics of computer hardware and operating systems, how to use input devices like the keyboard and mouse, how to create and manage files using apps like Google Docs, and how to use web browsers to navigate the internet, conduct online research, and communicate via email."

Edu-Futuro's case study presents participant aptitude scores prior to participating in the program and after, which demonstrate consistent improvement in participants' ability to handle basic digital tasks.

Smyth County Public Library

The Smyth County Public Library developed a case study for the organization's digital navigator program, through which the library sought to offer 1 on 1 technical assistance to Smyth County residents to assist with identifying affordable internet plans, mitigate digital literacy burdens, and address other elements of the digital divide. Smyth County is part of a regional broadband expansion funded through VATI.

To assist county residents, Smyth County Public Library used the National Digital Inclusion Alliance's Digital Navigator model. The library recruited volunteers from library aides and began taking appointments from local residents.

Smyth County Public Library found the program to be successful, particularly due to its ability to address resident needs on an individual basis: "Many clients expressed embarrassment about their lack of proficiency or specialized knowledge. The private discussions enabled the Digital Navigators to allay those concerns, to understand each client's learning style, to reinforce and practice new techniques as often as needed, and to establish relationships of trust with clients. Knowing that they could return as often as needed and would receive immediate practical assistance empowered clients to expand their technological horizons. Clients started arriving

with lists of questions or apps they wanted assistance or advice to explore. We saw embarrassment and reluctance turn into curiosity and a sense of adventure."

Smyth County Public Library's program is an exemplary model for how digital navigator programs can be structured through public libraries across the Commonwealth.

Tri-Area Community Health

Tri-Area Community Health (TACH) is a federally qualified Community Health Center headquartered in Carroll County, Virginia, with operations across rural Southwest Virginia. Tri-Area Community Health received a grant to develop a case study regarding the organization's virtual care optimization initiative developed following the COVID-19 pandemic.

In its case study, Tri-Area presents a framework for delivering virtual care, developed following a major transition to reliance on virtual visits in the midst of the COVID-19 pandemic. As residents in the region are connected to high-speed internet through the VATI and the forthcoming BEAD program, rural residents for whom travel to a health care center is cost or time-prohibitive or simply inconvenient will be able to avail themselves of virtual options. Tri-Area Community Health's framework ensures that this transition occurs smoothly and prioritizes the client.

Virginia Community Action Partnership

The Virginia Community Action Partnership (VACAP) is a statewide membership association that represents thirty-one Community Action Agencies across the Commonwealth. VACAP received a Case Study grant to conduct its Broadband Peer Group. The VACAP Broadband Peer Group brought together members of Community Action Agencies to discuss regional progress on assessing the digital divide and ideate on programs to address regional and statewide gaps in digital opportunity.

Community Action Agencies and other community-based organizations are critical to closing the digital divide - these organizations are often intimately familiar with the needs of their communities, and well-placed to take action to address those needs.

Virginia Department of Education

The Virginia Department of Education (VADOE) administers the Workforce Innovation and Opportunity Act of 2014 (WIOA) Title II, Adult Education and Family Literacy Act (AEFLA), which is a funded program providing adult basic and secondary education, English language acquisition, workforce preparation, integrated education and training, and integrated English literacy and civics education through grants and local providers. The VADOE organized providers into 22 regions across the commonwealth and aligned their services with workforce development stakeholders in their region. The key purposes of the AEFLA-funded program are to prepare adults for further education, training, employment and assisting with their children's education. Over the previous program year from 2022-2023, Virginia has served over 18,000 adult students under their adult education program and will continue to develop strong digital skills and resilience will be critical to students' success.

Adult education programs are embedded within their communities and are prime resources to reach and support the covered populations who need digital skill building and assistance with internet service and internet-connected devices. VADOE emphasizes that "adult education programs support a strategy of strengthening the entire ecosystem of service support for the covered populations to build digital skills, educational attainment, family economic stability, and community connectivity". Virginia serves its covered populations through adult education by:

1. Serving more than 75 percent of students who identify as a race or ethnicity other than white.
2. Over 50 percent of students report being employed while being enrolled in adult education programs.
3. The largest age groups enrolled as students are 25-44 years old and 65+; most being women.
4. About 60 percent of students enrolled to improve their English language proficiency.
5. One third of foreign-educated students are intentionally trained professionals with a post-secondary degree or credential; most earn a secondary credential to advance in their education, training, and employment.
6. Over one third of students in 2022-2023 logged attendance hours in online classes, showing how online learning and distance education.
7. Adult education is a career pathway program, with 10 percent of students being enrolled in integrated education and training cohorts to earn industry-recognized credentials.
8. By offering education and training in correctional facilities across the commonwealth, adult education has become a critical lifeline for incarcerated individuals and those reentering society; 23 percent of correctional students were in an industry-recognized credential pathway program.
9. Students face multiple barriers to employment such as having a low-income, having a disability, having low educational attainment, being an English language learner, being homeless, and even being formerly incarcerated.
10. Over 2,000 adults over the age of 60 were enrolled in adult education classes over the past three years.

The Virginia Adult Learning Resource Center (VALRC) at Virginia Commonwealth University conducted a survey of adult education practitioners in Virginia. The VALRC asked respondents to reflect on their experiences with the barriers, opportunities, and needs of adult learners related to digital skills and findings of this survey show:

- Affordable personal devices, consistent internet coverage, and technical support are not consistently available for adult learners, their families, or the adult education program facilities.
- The necessary provision of technical support and hardware and software updates are not costs that are sustainable in annual budgets.
- Digital skill building takes time and should be contextualized into meaningful instruction and experiences. Adults need time to build their confidence with using technology and seeking assistance.
- Digital skill building should be available to all adults in a community, not only those enrolled in an education or training course. Practitioners suggested available informal learning opportunities where adults could receive just-in-time technical support and

mini-workshops for immediate concerns. Native language service providers could be beneficial to communities who would benefit from learning digital skills in their native language.

- Instructors need professional development to be effective in integrating technology and teaching digital skills. Programs recommended supporting a cohort of digital navigators to assist adult learners and instructors.

As the adult education programs are administered, providers are tasked with demonstrating effectiveness, maintain well-trained staff, and monitored by VADOE. The accountability within these programs present VADOE as a key partner for federal and state initiatives surrounding education and the advancement of technology in adult education.

3.2.4 Covered Population Needs Assessment

Overview of Covered Populations in the Commonwealth

In Section I.C. of the DEA – State Planning Grant Program NOFO, NTIA defined Covered Populations as the following identified groups: Individuals who live in covered households (defined in Section I.C. of the NOFO and means a household, the income of which for the most recently completed year is not more than 150 percent of an amount equal to the poverty level, as determined by using criteria of poverty established by the Bureau of the Census), Aging individuals (60 and above), Incarcerated individuals (other than individuals who are incarcerated in a Federal correctional facility), Veterans, Individuals with disabilities, Individuals with a language barrier, including individuals who are English learners; and have low levels of literacy, Individuals who are members of a racial or ethnic minority group, and Individuals who primarily reside in a rural area.

Within Virginia, covered populations comprise over 81 percent of the Commonwealth's total population.[12] With such a sizable portion of the Virginians falling into one or more covered populations, understanding where needs intersect and where they are unique is crucial to developing an effective Digital Opportunity Plan with actionable strategies. The following tables below provide insight into the makeup of Virginia's covered populations. Please note that these totals exceed 100 percent when combined as an individual may fall into multiple covered categories.

Category	Population (millions)	Percent
Population of Virginia	*8.5*	*100%*
Covered Households	1.4	16.5%
Aging Individuals (60+)	1.9	22.3%
Incarcerated Individuals	0.1	0.7%
Veterans	0.7	7.7%
Individuals with Disabilities	2.1	12.5%
Individuals with a Language Barriers / Low Literacy	1.5	17.8%
Individuals of a Racial or Ethnic Minority	3.3	38.9%

[15] NTIA DEA Covered Population Viewer | Census Bureau, ACS 1-Year Data (2019)

Rural Inhabitants	2.8	32.8%

Table 2: Covered Populations in Virginia[13]

It is important to note that this table does not capture the intersectional nature of covered populations. For example, aging individuals and veterans tend to comprise a larger percentage of the population in rural regions, and carceral populations in the Commonwealth tend to be members of racial or ethnic minority groups. [14][15] Further, shared challenges – such as affordability needs – are not restricted to just one covered population. By understanding where needs intersect and where they diverge, the Commonwealth will be better positioned to develop and provide the proper digital opportunities that will help close the digital divide for all.

Overview of Cross-Cutting Digital Needs and Barriers

Several key themes around needs and barriers emerged from our research, stakeholder engagement, and survey findings that were present across all Virginians:

Table 1 Cross-Cutting Needs and Barriers

Need Type	Barriers, Challenges, and Considerations
Available/affordable broadband access	**Living in locations where reliable broadband is not present still poses a significant availability barrier for many Virginians** | Stakeholder engagement identified that rural, remote, and coastal regions where wired (e.g., fiber, cable) or reliable fixed wireless broadband does not exist. For many rural residents whose internet lines are not yet laid, the cost to pay a provider to install them is often too high. For others, what is provided is slow (e.g., DSL) or the only option is satellite which can be costly and – for older satellite technologies – is unreliable in inclement weather. **Outdated or an outright lack of broadband infrastructure in government properties creates challenges in serving Virginians** | Commonwealth government stakeholders described the challenge with outdated broadband infrastructure within agency offices and headquarters as limiting the ability to services to be deployed (e.g., telehealth, social benefits); notably, slow connectivity also impacts the ability to upload data, forms, and more. **Broadband options remain too expensive for Virginians most in need** | Plans that offer 25/3 Mbps are unable to meet the modern bandwidth demands for most Virginians, particularly families. The cost for higher-speed plans is a particularly significant barrier experienced by all covered populations, in varying degrees.
Access to digital resources and technologies	**There is presently no centralized physical or digital space for Virginians to access a single list of available digital resources** | Covered populations and stakeholders identified the need for improved centralized hubs to educate the communities about existing resources such as navigator programs, how-to guides, and reference materials on how to access digital resources. **Connected devices that are distributed for free or at a reduced cost to Virginians are unable to handle modern user demands** | While putting connected devices such as laptops into the hands of both covered and

[13] NTIA DEA Covered Population Viewer | Census Bureau, ACS 1-Year Data (2019)
[14] NTIA DEA Covered Population Viewer | Census Bureau, ACS 1-Year Data (2019)
[15] NTIA DEA Covered Population Viewer | Census Bureau, ACS 1-Year Data (2019)

	non-covered populations is better than providing them with nothing at all, stakeholders identified that many of these devices (e.g., Chromebooks distributed to students) lack the processing power and capacity to handle their intended use for work or school environments. **There is not enough capacity at CAIs, nonprofits, government agencies, and other entities that interface with covered populations to develop and scale digital opportunity programs to meet the level of demand** | Stakeholders shared that many existing programs are struggling to deliver services to Virginians given their limited capacity. Most of these discussions called out additional staffing resources as a requirement to develop and launch new digital opportunity programming. **Robust telehealth infrastructure is critical for covered populations yet remains out of reach for most of them** | Whether aging, incarcerated, disabled, low-income, rural, etc., all covered populations in the Commonwealth benefit from the ability to access healthcare remotely. Barriers to this include a lack of access, low digital literacy, fear, and more.
Adoption	**Suspicion, fear, or a lack of interest in using the internet and digital technologies were present in all covered populations** | Amidst certain pockets of Virginians, stakeholders have found resistance or hesitancy towards internet adoption. While reasons varied from group to group, even those who were aware of programs or resources indicated that for many, the process for using support programs was daunting, confusing, or too time intensive. For others, a suspicion of what information would be used for, concerns around the technology itself, or simply a desire for a non-digital existence resulted in resistance to adoption. **A persistent lack of awareness around digital opportunities, resources, and support programs was a notable barrier to adoption** | More often than not, most residents of the Commonwealth were unaware of the resources available to them. A unifying theme was a lack of communication regarding what is available and the benefits of such programs. Stakeholders expressed the need for further outreach and awareness campaigns to inform people about these resources to build digital skill sets needed to navigate the technological landscape.
Digital Skills	**Digital literacy programs and resources in the Commonwealth are not universally available, standardized, or able to address the spectrum of digital literacy needs** | The need for digital literacy and navigation support is significant — specifically in relation to telehealth and accessing medical records, prescriptions, etc. However, few programs exist today that are accessible to those who need support the most; of the programs that do exist, many are unable to provide skills above the foundational level, leaving Virginians who wish to build more complex digital fluency and skills have no immediate method to do so.
Cybersecurity	**For all covered populations with access to the internet and a connected device, they experience both a heighted vulnerability to cybercrime as well as a general lack of fundamental cybersecurity knowledge** | Stakeholders identified the importance of education relative to online safety, including protecting personal information and guarding against cyberbullying and fraud. Concerns related to safety, devices being compromised, leaks and data breaches were also shared.

While these overarching barriers provide helpful context as to the "what" and the "why" behind some Virginians' lack of adoption that are crucial to understand if the Commonwealth is to properly address and overcome barriers to digital opportunity. Ultimately, each covered population has unique adoption needs and barriers. Multiple strategies will be required to meet these unique needs and address their underlying barriers.

> *"We are finding that – even though we have made these resources available, affordable, and well-messaged – adoption of broadband and devices continues to be a challenge."*
>
> **– County Stakeholder**

Aging Individuals

Aging Individuals

Total Population: 1.9 Million | Total Lacking Broadband: 620,000

"What Are The Biggest Needs Facing Aging Virginians Today?"

Affordability – Managing the rising costs of subscriptions and services on a fixed income: Subscriptions and devices are expensive, particularly for a group that will already face rising medical and living costs while on a fixed income. Ensuring that these cost considerations are addressed and mitigated are key to ensuring this group is not left behind.

Awareness – Lack of clear narrative around compelling benefits of technology and broadband: The greatest, non-financial hurdle to adoption for this group is articulating the "why?" behind digital opportunity. Clearly messaging both the available resources and their tangible benefits is necessary to help increase adoption and use amongst aging Virginians.

Skill-Building – Aging individuals with digital fluency have different needs than those without: Aging populations are not a monolith – providing only foundational knowledge of devices, rather than developing practical skillsets (e.g., using MyChart or paying bills online), will fail to provide necessary skills that enable this group to thrive, not just survive.

Demand – As the number of aging Virginians rise, so will the need for social and healthcare services. As these services continue to digitize, their accessibility will become even more challenging for aging populations with low digital literacy, distrust of technology, or a lack of access to reliable internet / connected devices.

"What Are Main Digital Opportunity Design Considerations?"

Enough existing institutions and channels exist to reach this group: Long-standing institutions and community anchors such as Area Agencies on Aging, Faith-based Institutions, Libraries, and local leaders are the most direct way to engage this covered population.

The importance of the human factor and in-person interaction is key: While virtual communication channels allow for quickly getting information across distances, aging populations in the Commonwealth regularly turn to live support for their digital challenges. Adequate staffing, funding, and training will be key considerations for digital opportunity programs that may require, more than anything, a person to directly talk to.

Providing digital opportunity to those around aging Virginians: Aging individuals occupy a unique role in society as far as those they immediately impact. Caregivers need access to digital opportunity to perform many necessary health functions today. Aging Virginians raising grandchildren will need access to resources to support digitally literate child-rearing. Digital Opportunity programs should factor in these nuances.

Aging Individuals in Virginia

The Commonwealth of Virginia is home to 1.9 million "aging individuals" (60 years of age or older) – roughly 22 percent of the total population.[16] Of these, nearly 620,000 lack broadband access.[17] Population growth projections indicate that there will be over 2.2 million Aging Virginians by 2030.[18] To address these anticipated demographic shifts, systems and resources that are used by the aging community today will require more than a digital overhaul – they will require significant scaling to address needs and barriers as demand for services by this covered population increase.

> *"Half of our digital literacy classes are 80–90-year-olds who need to use telehealth for their conditions but don't know how. The other half of our participants are trying to learn Microsoft Office to get a job but, because they don't have reliable internet connection at home, they don't end up getting the roles anyway."* – **Library Stakeholder**

Limited digital proficiency in an ever-evolving technology landscape presents a direct digital opportunity barrier for those 60+. Critical programs such as Medicare and Social Security have primarily shifted towards online platforms for enrollment and benefit use.[19] While digital advancements such as these can be transformative for the aging population in theory, if in practice they are not developed in a manner that addresses digital literacy gaps for aging populations they risk further expanding the digital divide.[20]

Adverse physical conditions and ambulatory limitations naturally increase with age, creating a clear indirect limit to aging individuals' ability to access and use digital resources. Research indicates that two in five seniors across the U.S. have a physical or health condition prevents them from participating in common activities.[21] These conditions can have a direct and tangible impact on using devices and reading online.

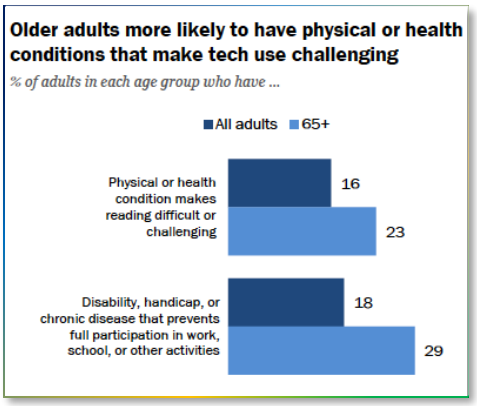


Figure 1: Impact of Health on Aging Individuals' Digital Access

For others, growing up without a prevalence of digital technology in daily life has led to skepticism and – in some cases – fear of the internet, leading to lower rates of internet adoption.[22] This caution surrounding internet use and technological devices may be due in part to the higher-than-average targeting of seniors by cybercriminals. Nationally, one in five aging individuals are affected, representing over $2.56B total annual losses by older adults.[23]

[16] VDA 10-Year Blueprint To Serve Virginia's Area Agencies on Aging (2022)
[17] American Immigration Council, Examining Gaps In Digital Inclusion […] | Census Bureau, ACS 1-Year Data (2019)
[18] Virginia Population Predictions | University of Virginia, Demographics Research Group (2022)
[19] How can closing the digital divide improve older people's lives? | University of Plymouth
[20] Ensuring AI Technologies for Health Benefit Older People | World Health Organization (2022)
[21] Older Adults and Technology Use Report | Pew Research Center (2014)
[22] Older Adults and Technology Use Report | Pew Research Center (2014)

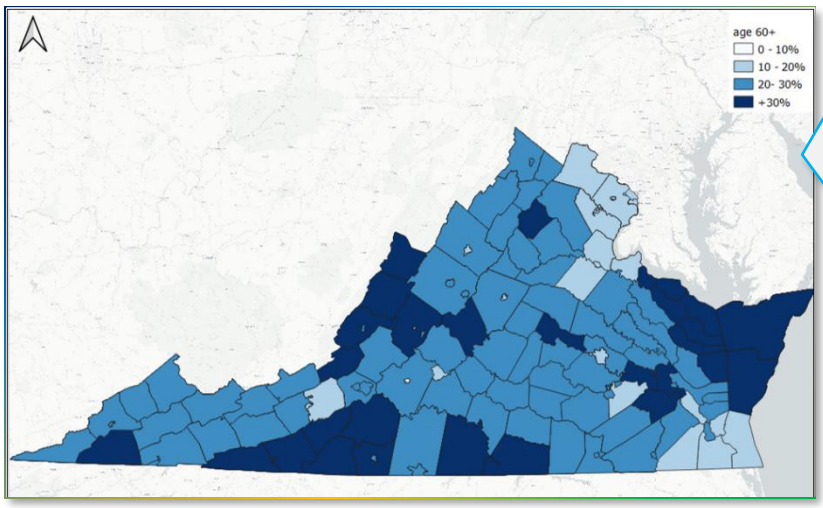
[23] An Empirical Assessment of Senior Citizens' Cybersecurity Awareness... | Nova Southeastern University (2018)

Even for those who are willing to embrace broadband and learn digital tools, developing digital proficiency is challenging for those that did not grow up in a digitally saturated world. In a study conducted by Pew Research, only 18 percent of older adults would feel comfortable learning to use a new technology device (e.g., smartphone/tablet) on their own. This same study revealed that 77 percent of aging adults reported needing someone to help them through the process.[24]

> *"Our local and retail drug stores are closing on certain days of the week and increasingly moving their prescription services to online order and direct mail. Older adults now need to learn how to use the internet to access telehealth resources because they can no longer go to a nearby pharmacy just to fill a prescription."* – **Community Action Agency**

Considerations such as these are helpful for not only addressing the digital divide today but also for preparing for the projected growth in the number of aging Virginians. With such a considerable proportion of the Commonwealth's current and future population considered aging, addressing their digital needs will enable Virginia to proactively reduce the digital divide experienced by this population in the future. To achieve this, understanding the intersection of identity for aging Virginians and their digital opportunity needs is key.

Aging individuals are firmly present in every other covered population. From disabled veterans to incarcerated individuals with a language barrier, aging individuals exist amongst all groups. Exploring these overlaps provides nuanced approach to better understanding needs.



Aging Virginians comprise over a third of the population for counties located in the Southside / South West, West Central, and Eastern demographic regions of Virginia.

Notably, the CAAs developing Regional Digital Opportunity Plans most impacted by this are CAPSAW, Bay Aging, SERCAP, and People Inc.

Figure 2: Percent Population Aged 60+ Years | ACS 2019 1-Year Data

One such overlap is the demographic region an aging individual resides in.[25] While aging individuals in rural and metro areas may experience the digital divide similarly in some ways, differing regional experiences involve complex demographic, social, economic, and geographic variances. Additionally, another significant overlap is seen with aging individuals residing in covered households. Today, there are around 160,000 aging Virginians that experience poverty,

[24] Older Adults and Technology Use Report | Pew Research Center (2014)
[25] Virginia's Demographic Regions | University of Virginia

many of whom are aging individuals. [26] Of these, the 2022-2026 Virginia Rural Health Plan indicates that Aging Individuals experiencing poverty are also located in more rural regions.[27] Survey data further supports this linkage; just under half of all respondents for in Bay Aging (46 percent), People Inc. NOVA (41 percent) and SERCAP (46 percent) identified as aging.

The compounding effects of these interlaced vulnerabilities and their associated digital needs underscore the necessity of targeted broadband investment for Virginia's elderly. Despite their overlap with other covered populations', digital opportunity resources for these other groups are not necessarily tailored with the lens of an older individual in mind. When creating digital opportunities for other covered populations, including the needs of aging members of those groups in the conversation will help address the divide across generations.

"Feelings of isolation and loneliness are common among the aging and disabled populations we serve, creating a significant impact on their well-being." – **Commonwealth Agency Stakeholder**

Finally, understanding the digital opportunity needs and associated barriers for Aging Virginians also means taking a step back from questions of infrastructure and device access and seeking to understand what the aging experience in Virginia entails. A 2023 report by the Community Foundation for Northern Virginians identified 3 priorities for aging adults.[28] Specifically, these priorities are:

1) **Family** – While aging Virginians may wish to live close to family and friends for practical and social reasons, many older Virginians do not have these informal supports in place.

2) **Home** – Unfortunately, homes are rarely built to "fit" residents of different abilities. Despite strong consumer preferences for certain features that allow aging-in-place—namely, one level living—most new and existing single-family homes are multi-level; and

3) **Budget** – In Northern Virginia, substantial costs associated with medical expenses, housing, and care can quickly add up to a larger share of one's overall budget.

"One of the populations that we serve most often are aging individuals. However, the lack of a reliable connection on many of our own premises means that even uploading data necessary to help these individuals can be a lengthy process." – **Commonwealth Agency Stakeholder**

[26] Aging Population Data | Census Bureau, ACS 5-Year Estimate (2021)
[27] VDH Virginia Rural Health Plan | Virginia Department of Aging and Rehabilitative Services (2022)
[28] Growing Old Together in Northern Virginia Report | The Community Foundation for Northern Virginia (2023)

Needs and Barriers for Aging Adults in Virginia

Table 2: Needs and Barriers for Aging Individuals

Need Type	Barriers, Challenges, and Considerations
Available/affordable broadband access	**Location** | Stakeholder engagement identified that older Virginians largely live in remote rural or coastal / rural regions where wired (e.g., fiber, cable) or reliable fixed wireless broadband does not exist. **Aging Facilities** | Stakeholders indicated that older buildings – such as retirement facilities and group communities – built before widespread use of internet often lack any wired internet connection, creating a barrier for these institutions to providing digital services, technology, and opportunity. **Outdated Broadband Infrastructure** | Commonwealth stakeholders described the challenge with outdated broadband infrastructure within agency offices and headquarters as limiting the ability to services to be deployed (e.g., telehealth, social benefits, etc.) to aging populations. **Metro / Non-Metro Divide** | Only 7 percent of seniors in non-rural areas experience poverty compared to 11 percent of those who live in rural regions, impacting their ability to afford high-speed internet or purchase reliable connected devices.[29] **Inability to Access Programs** | Approximately 40 percent of older US adults are not able to access needed online services from their homes because they lacked home internet.[30]
Access to digital resources and technologies	**Lack of Targeted Programs** | Stakeholder conversations indicated a lack of programs specifically aimed at helping aging Virginians access and navigate digital resources and technologies (e.g., in-person MyChart tutorials for healthcare offered through a local library) **Child-Rearing Support** | Nearly 45 percent of rural grandparents and over 35 percent of urban grandparents in the Commonwealth are raising children alone – for those with limited or no access to broadband or digital technologies, their grandchildren will start their lives with a significant digital divide.[31] **Physical Limitations** | Compared to peers, aging individuals with physical limitations are significantly less likely to go online (49 percent vs. 66 percent), to have broadband at home (38 percent vs. 53 percent), and to own most major digital devices.[32]
Adoption and Awareness	**Cost** | Stakeholders indicated that, for aging individuals living on a fixed income, price sensitivity to the cost of technology, security software, and digital subscriptions were barriers to adopting internet and digital tools. **Awareness** | Conversations with stakeholders and communities identified a limited understanding of the internet and its potential benefits were reasons why aging individuals felt no need to adopt technologies. **Skepticism and Hesitancy** | Stakeholder engagement underscored that for many, a lack of awareness around the benefits or relevance of digital opportunity and resources fed into a hesitancy to adopt, even where affordable, reliable broadband was easily accessible.

[29] VDH Virginia Rural Health Plan | Virginia Department of Aging and Rehabilitative Services (2022)
[30] It's Time to Address Broadband Connectivity Issues for Older Adults | National Council on Aging (2021)
[31] Virginia Rural Health Plan 2022-2026
[32] Older Adults and Technology Use Report | Pew Research Center (2014)

Digital Skills	**Organizational Capacity** | Organizational stakeholders identified a lack of funding and staffing capacity necessary to develop and run digital skill-building programs for aging populations.
Cybersecurity	**Cybercrime Vulnerability** | The FBI *2021 Elder Fraud Report* found that ~3,000 aging individuals across the Commonwealth suffered over $60M in cybercrime financial losses, ranking 7th in the United States.[33]
Other	**Social Isolation** | In a recent report, the Virginia Department of Aging Services identified the need to invest in technological solutions (i.e., digital infrastructure expansion and programming) to improve health outcomes, address mobility limits, enhance emergency preparedness, and raise the social connectedness for aging Virginians overall.[34]

[33] Elder Fraud Report | Federal Bureau of Investigation (2021)
[34] Growing Old Together in Northern Virginia Report | The Community Foundation for Northern Virginia (2023)

Covered Households

Covered Households

Total Population: 1.4M | Total Lacking Broadband: 669,200

"What Are The Biggest Needs Facing This Group Today?"

Affordability – Reducing the financial burden of broadband service and related devices: For low-income individuals, accessing broadband and digital devices can be cost-prohibitive, with expensive rates and lack of competition between internet service providers and device manufacturers. Addressing cost considerations is paramount to ensuring this group may participate fully in the digital landscape.

Access – Low-income housing lacks broadband infrastructure: Many covered households lack basic broadband service that made available in their homes and workplaces. Considering these discrepancies in access and prioritizing broadband delivery to multi-unit buildings is necessary to help increase access amongst low-income Virginians.

Funding Sustainability – Low-income individuals are heavily reliant on existing affordability programs: Both low-income individuals and internet service providers alike rely on the Affordable Connectivity Program (ACP) to make high-speed internet connections financially feasible. The development of contingency plans and program infrastructure to bridge the affordability gap would prepare the Commonwealth should affordability programs lose or decrease their funding allocations.

"What Are Some Key Digital Opportunity Design Considerations?"

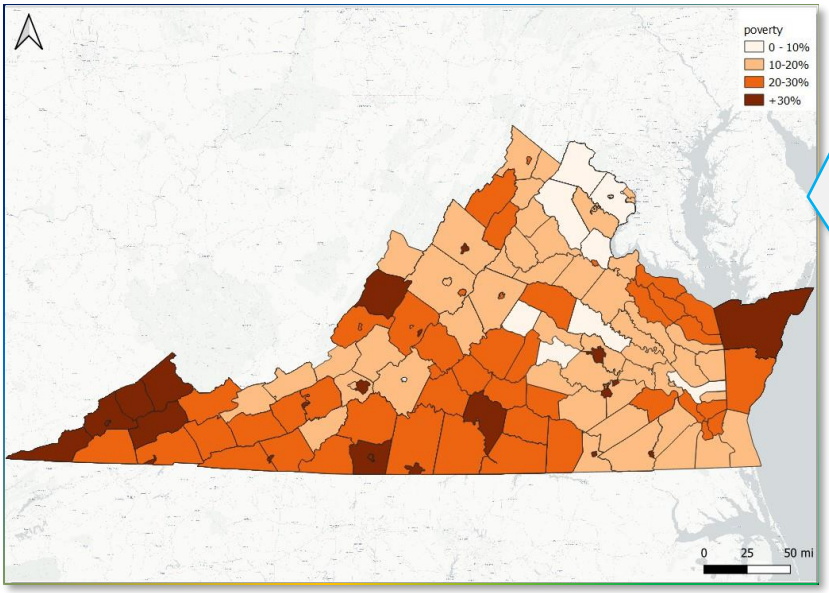
Existing benefit programs can be leveraged to steer this population towards digital opportunity resources: Eligibility for programs such as the ACP is determined through factors such as income, Supplemental Nutritional Assistance Program (SNAP) use, and Medicaid use. For covered households currently using federal / state social services and benefit program such as these, opportunities for messaging and auto-enrollment for digital opportunity benefits can create a one-stop experience for covered households.

Affordable, accessible high-speed internet in low-income housing (e.g., subsidized, section 8, public) can close a significant adoption gap facing this group: The positive socioeconomic impact of broadband and digital technology access is considerable. Providing a least 100/20 Mbps access at low/no cost to covered households living in state operated or supported housing can reduce the cost consideration that serves as a major barrier to adoption for this group.

Digital opportunities for this group must account for common time constraints that impact covered households: Low-income households are not necessarily households with underemployed members. For low-income individuals who work multiple jobs, night shifts, or experience other demands on their time, programs aimed at this group should factor in the limited availability covered households may have to even access digital opportunity tools.

Covered Households in Virginia

The Commonwealth of Virginia is home to approximately 1.4 million "covered households" – which are defined by the NTIA as households a household with an income less than 150 percent of the federal poverty level, as established by the Bureau of the Census.[35]



Covered Households make up 20+ percent of the population for nearly all counties in Southern and western Virginia, with parts of the Eastern Shore as well.

Notably, counties where covered households comprise over 30 percent of the population have high overlap with counties that have an aging population of 30 percent

Figure 3: Percent population at or below 150% of federal poverty level by county | Source – ACS 2019

The average Virginian household is home to 2.57 individuals.[36] 2021 ACS data from the same year indicates that at least 483,000 households made less than $25,000 per year, thereby qualifying as covered households.[37] On the basis of income, covered households are eligible for the Affordable Connectivity Program (ACP) as it uses a limit of 200 percent above the Federal Poverty Line (FPL) to determine income eligibility. However, ACP enrollment data showcases a stark gap between those who are eligible and those enrolled.

To ground the discussion of this population in real terms, **Table 3** outlines the 2021 FPL and associated cutoff for "Covered Household" status.[38]

Family Size	2021 Income Numbers	150 Percent of FPL Income
For individuals	$12,880	$19,320
For a family of 2	$17,420	$26,130
For a family of 3	$21,960	$32,940

Table 3: Department of Health and Human Services, Federal Poverty Line Requirements

[35] DE Planning Grant Notice of Funding Opportunity | NTIA (2022)
[36] Virginia Household Size Data | US Census Bureau
[37] Virginia Income Data | US Census Bureau
[38] Federal Poverty Levels | Healthcare.gov (2023)

According to enrollment data gathered by the Universal Service Administration Company (USAC), the number of households currently enrolled in the Commonwealth is 396,700. [39] This means that in 2021, less than a third of covered households were using ACP benefits to access broadband. Even when expanding that group to include current households at or below 200 percent of the FPL, less than 45 percent of all ACP-eligible households in Virginia are using the program.[40] Large gaps between availability and adoption such as these indicate underlying barriers. Understanding the drivers of this gap for this covered population will aid in identifying the underlying digital opportunity needs and barriers they face.

"Individuals with lower incomes are no less deserving of high quality, affordable broadband that meets their needs." – **Municipal Association**

Those who have been digitally left behind frequently discuss the adverse socioeconomic effects of the digital divide. Covered households experience the digital divide from the perspective of having already been left behind economically. Put plainly, the lack of existing economic opportunity for this covered population creates a lack of digital opportunity in many ways.

This is a clear example of how covered households experience a negative feedback loop. A lack of socioeconomic opportunity begets a lack of digital opportunity, further reducing opportunities to improve their economic situation. Data published by the U.S. Department of Housing and Urban Development (HUD) supports this, indicating that HUD-supported covered households have lower connectivity rates even when compared to other low-income households.[41]

The devices through which covered households access the internet also reflect a reinforcing system that maintains covered households' financial insecurity. Low-income households, particularly those served by HUD, are more likely to depend exclusively on smartphones and handheld devices to access the internet.[42] While mobile devices can offer expanded digital capabilities over cellular network, access to devices such as laptops and a reliable, fast internet connection are still required for more advanced digital tasks that promote socioeconomic stability.[43] Compared to home-internet access, mobile-only internet access is underutilized for a number of internet features that impact the financial health of a family (i.e., getting news, online banking, shopping, applying for jobs, and children using the internet).[44]

While broadband accessibility and digital underutilization challenges are both compounding, interwoven factors that limit digital engagement for covered households, one limitation touches all forms of digital opportunity: time. Put simply, covered households lack the time to engage online and develop new digital skills. The Census Bureau reports that those who identify as members of a covered household are more likely to hold multiple jobs, accounting for additional hours added to the workweek.[45] In addition to traditional employment, members of covered households – particularly women – spend over four hours a day on unpaid household and care

[39] Virginia ACP Enrollment Figures | Universal Service Administrative Company (2023)
[40] Virginia ACP Eligibility and Enrollment Figures | Tech Policy Institute
[41] Digital Inequality and Low-Income Households | Department of Housing and Urban Development (2016)
[42] Digital Inequality and Low-Income Households | Department of Housing and Urban Development (2016)
[43] Opportunity for all? Digital equity in the lives of lower-income U.S. families | London School of Economics (2016)
[44] Opportunity for all? Digital equity in the lives of lower-income U.S. families | London School of Economics (2016)
[45] Census Bureau Can Now Track the Rise in Multiple Jobholders | US Census Bureau (2021)

work. This limit on physical, economic, and overall wellbeing for covered households is known as "time poverty", limiting the ability of this group to pursue opportunities for development.[46]

With these larger considerations in mind, we will now explore specific digital needs and barriers impacting covered households in the Commonwealth.

Needs and Barriers for Covered Households in Virginia

Need Type	Barriers, Challenges, and Considerations
Available/affordable broadband access	**Lack of Broadband Infrastructure in Pubic / Low-Income Housing** | Stakeholders indicated that many housing facilities for covered households often lack any wired internet connection, creating a barrier for these institutions to providing digital services, technology, and opportunity. **Geography** | While they exist throughout the Commonwealth, covered household are generally concentrated in remote or rural regions already known to experience lower levels of broadband availability and affordability. **Underserved Populations** | Stakeholders highlighted that, while some low-income families might have a basic broadband connection, they may lack high-speed internet that supports advanced digital tasks, like data analysis. **Credit Barriers to Broadband Service** | Survey findings indicated that covered households in the Commonwealth are eight times more likely to report credit challenges as a barrier to acquiring a broadband connection.
Access to digital resources and technologies	**Reliance on Mobile Devices** | Stakeholders reported that, for many covered households, handheld devices (i.e., smartphones) are most often the only form of connection covered households have to the internet. Handheld devices present a limitation to the full array of digital resources / technologies.
Adoption and Awareness	**Increased Outreach** | Participants in community focus groups expressed the need for further outreach and awareness campaigns to inform people about digital opportunity resources and affordability programming. **Lower Confidence in Using Digital Resources** | Survey results indicate that covered households were not comfortable navigating the internet. In particular, covered households were 20 percent less likely to report feeling confident in navigating and completing a telehealth appointment when compared to other respondents.
Digital Skills	**Limited Range of Device Use** | Research indicates that as covered households are more likely to rely on mobile devices to access the internet, they lack the necessary digital skills and means to access resources which may require additional processing power or a larger screen.[47]
Cybersecurity	**Affordability of Cybersecurity Software** | For covered households where fixed monthly expenses are financially burdensome, stakeholders shared that the subscription fees to basic digital security software limit their use, putting families' digital safety at risk.

[46] Why time poverty matters for individuals, organizations and nations | Nature (2020)
[47] Digital divide persists even as Americans with lower incomes make gains […] | Pew Research Center (2011)

Veterans

Veterans
Total Population: 660,000 | Total Lacking Broadband: 173,580

"What Are The Biggest Needs Facing This Group Today?"

Telehealth – Rural veterans and those who want in-home care rely on telehealth technology: While the Veterans Administration has a robust network of medical care centers available to veterans, many individuals experience barriers to in-person care. Telehealth, when patients and medical professionals alike are educated in how to appropriately utilize the technology, has the power to transform the veterans' healthcare landscape.

Cybersecurity– Veterans are targeted more for cybercrime and misinformation: Veterans experience a risk compared to their non-veteran peers. Digital literacy programming that is responsive to this vulnerability and dedicates efforts to cybersecurity skill-building has the power to improve veterans' attitude towards the internet and prevent financial losses.

Adoption – Veterans are overwhelmed by the amount of information and requirements placed on them to access benefits: While using digital tools and the internet can streamline this for digitally literate veterans, it leaves those with digital opportunity needs and barriers behind. To increase likelihood of adoption, resources must be easily accessible and avoid creating additional time or paperwork burdens for veterans.

"What Are Some Key Digital Opportunity Design Considerations?"

Leverage the same one-stop-shop principles used to create the Gold Standard Digital Hub for Veterans: Where possible, digital opportunity programs can be integrated into existing resources for veterans. This may look like increased digital literacy training at community anchor institutions frequented by veterans or improved internet access at Commonwealth facilities supporting veterans.

Meeting veterans where they are in their journey rather than treating them as a monolith: Veterans have a diverse range of experiences, in life, in their ability to access the internet, and in their capacity for leveraging digital tools / devices. Tailoring digital opportunity offerings to address veterans needs relative to where they are in life can drive greater adoption and use for this covered population.

Partnering with the Department of Veterans Affairs to deliver sustained digital opportunity and support to veterans: Virginia does not have to go it alone. The significant presence of service members, veterans, and national defense agencies in the Commonwealth creates a unique opportunity to work directly with a federal agency that is already seeking to actively address the digital divide facing veterans.

Veterans in Virginia

The Commonwealth is home to over 660,000 veterans and has the second-highest concentration of veterans out of any state according to 2021 ACS 5-year data.[48] Virginia also has the third highest number of active-duty servicemembers out of any state.[49] With such a significant number of the nation's veterans concentrated in the Commonwealth, addressing the needs and barriers of this covered population is of the utmost importance for Virginia.

In serving its veterans, Virginia has consistently risen to the challenge. In May 2023, Governor Youngkin launched the Gold Standard Digital Hub for veterans, which gathers and shares information on all earned benefits and resources tailored to veteran needs. Veterans' organizations, resources, and programs are plentiful throughout the Commonwealth of Virginia.

Did You Know…

Like aging individuals, veterans are present in multiple covered categories

- **61%** of rural Veterans are enrolled in the VA health care system.
- **58%** of rural enrolled Veterans have at least one service-connected condition.
- **8%** of enrolled rural Veterans are women.
- **10%** of enrolled rural Veterans are members of racial or ethnic minorities.
- **44%** earn less than $35,000.
- **27%** lack home internet.

However as with many modern resources, broadband access is often required to access these services. The Digital Hub can only be accessed online, limiting its ability to help connect resources to veterans without access to a reliable internet connection. While some veterans may be able to easily access resources and benefits in-person at a nearby Department of Veterans Affairs (VA) location, there are only five VA Vet Centers located in Virginia: Alexandria, Chesapeake, Richmond, Roanoke, and Virginia Beach. These are out of reach for those located in the Southern, Western, and Central regions of Virginia.[50] In the case of major healthcare needs, VA Medical Centers are not evenly distributed throughout the Commonwealth, placing greater strain on rural VA healthcare systems such as Community-Based Outpatient Clinics (CBOCs) that are not equipped to handle in-patient care.[51]

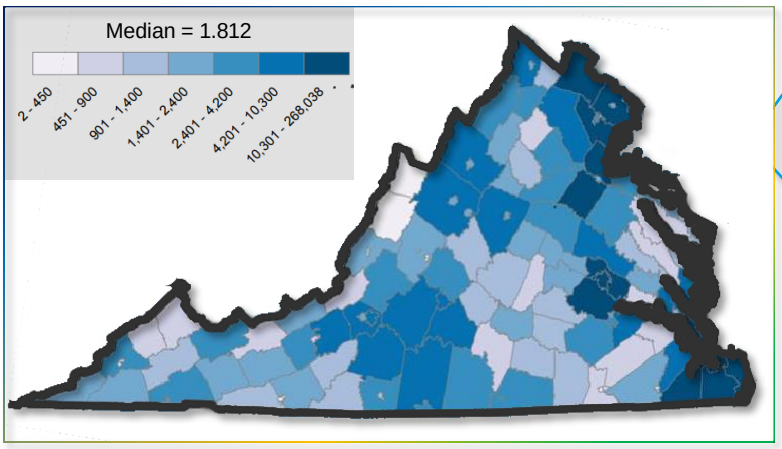
"The entire American healthcare system faces challenges with shortages of healthcare providers in rural communities. So, one way we address that is by dramatically expanding – since the start of the pandemic – telehealth." – **VA Secretary Denis McDonough**

This consideration of in-person versus virtual accessibility of benefits is notable particularly regarding veterans' telehealth.[52] Telehealth can touch the lives of veterans anywhere from during active service to decades following their discharge, and its influence is growing in the veteran community. While telehealth resources such as My HealtheVet, which offers online health and prescriptions services to its 2.3M users, help close the healthcare divide for veterans who would otherwise avoid in-person care, those who lack access to internet and necessary

[48] Veterans Population Data | Census Bureau, ACS 5-Year Estimate (2021)
[49] Active Servicemembers in Virginia | Defense Manpower Data Center
[50] Virginia - Locations | Veterans Administration
[51] Veterans and the Digital Divide | The Washington Post (2021)
[52] Veterans and the Digital Divide | The Washington Post (2021)

supporting devices are unable to make the most of these tools.[53] As with the increasing digitization of other benefits, veterans face an urgent digital literacy and internet access need.

A lack of easy access to reliable broadband and digital tools is often frustrating for veterans when seeking employment or services.[54] For example, one of the first stages of reentry into civilian life for many veterans is finding and maintaining employment. As nearly a quarter of Virginia's veterans lack access to broadband, this creates a challenging dilemma for the Commonwealth.[55] For current servicemembers, digital literacy is an increasingly critical part of the strengthening U.S. national defense posture – as such, military and intelligence branches emphasize teaching and honing digital literacy and advanced technology skills.[56] For recent veterans who have had access to this skill building in-service, they are well-positioned for opportunities in digital and technology fields that also their leverage attention-to-detail, logistical knowledge, and leadership expertise.[57] However, despite an intentional shift to focus on a digitally-literate force, for many agencies and branches it has only recently been formally recognized as a core competency.[58] Veterans who transitioned well before this or who are older have not benefitted from this formal shift, putting high-paying roles which require digital fluency out of reach for many former servicemembers.



The Department of Veterans Affairs Veteran Population Projection Model provides a clear distribution of where this covered population resides.

The counties of Fairfax, Prince William, Chesterfield, Loudoun, and Stafford had the highest number of veterans according to ACS 2019 1-Year Data.

Figure 4: Veteran Population by County (2019)

In ever-shifting cyber landscape, veterans who have not benefited from digital literacy and skill

> *"Veterans are seen as a respected authority by both sides of the aisle, making their voice a valued amplifier for disinformation and conspiracy theories."* – **Veteran Voices Foundation**

training may face a higher risk of being victimized by cybercrime attacks. Cybercrime and identity theft affect 71 percent of veterans and service members across the nation, compared to 60 percent of the general population. Between 2015 and 2019, the median personal loss from

[53] MyHealtheVet and Telehealth Reach Veterans Where They Are | Department of Veterans Affairs
[54] Veterans Transition to Technology | Carroll Tech Council
[55] American Immigration Council, Examining Gaps In Digital Inclusion in Virginia | Census Bureau, ACS 1-Year Data (2019)
[56] Cultivating a Defense Department Workforce for the Digital Era
[57] Best Jobs for Veterans | Recruit Military
[58] Air Education and Training Command Public Affairs | Foundational Competencies: Digital Literacy

fraud for veterans was ~30 percent higher than losses by civilians. This is a significant digital opportunity challenge with real financial implications that affect the veteran community. These losses affect veterans' perceptions of their digital self-efficacy. The impact of this is a decrease in participation in other realms of the online landscape, thus widening the digital gap and further disadvantaging a population which already faces many challenges during and post service.

Finally, understanding the broader journey veterans in society today is an important part of designing appropriate, impactful digital opportunities for this covered population. There are six

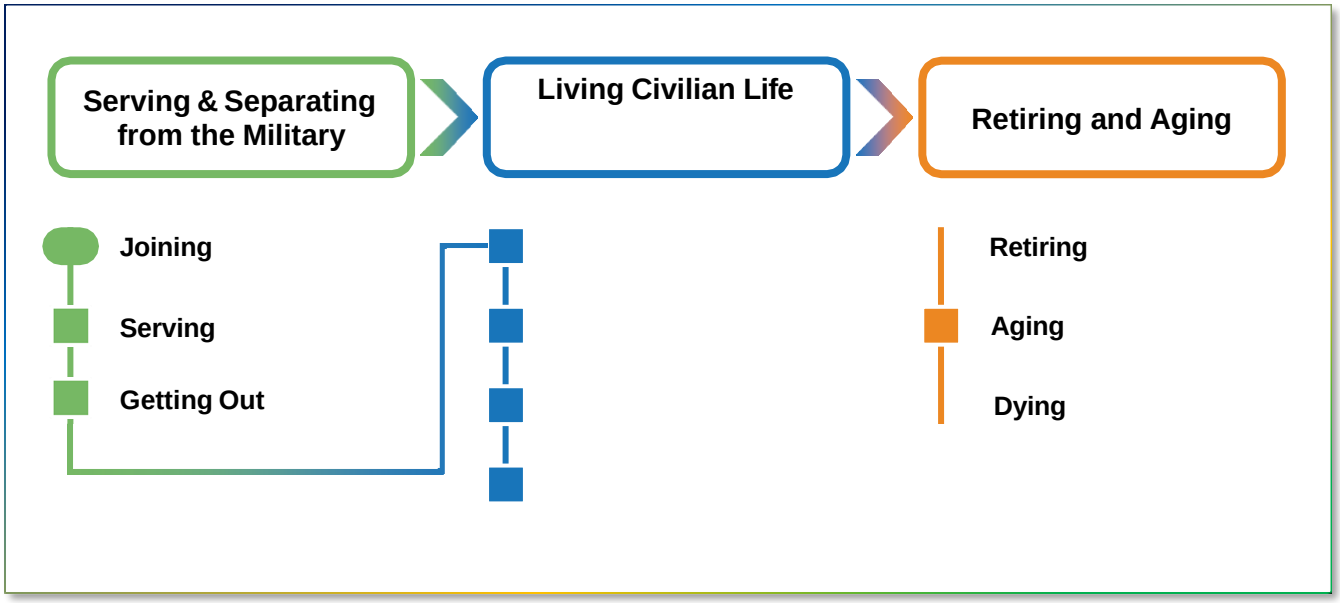


Figure 5: Journey of Veterans Map | Derived from Graphic Developed by VA Veterans Experience Team

major life milestones for veterans following their exit, each with key steps and stages that can be directly enhanced or inhibited by their level of digital access and opportunity (**Figure 5**).[59] One of the clearest examples of this is the sheer inundation of forms and paperwork Veterans must complete.[60] These administrative duties are often completed online, and the amount of documentation required increases significantly if the veteran has suffered an injury or developed a disability during their service.[61] When veterans lack broadband connection, the appropriate devices, or the digital know-how to file these claims, they are limited in what federal, Commonwealth, and local resources they are able to access and benefit from.

This is a key point for this covered populations: new or expanded programs and benefits that place additional paperwork burdens on veterans will risk low or no adoption. Streamlining digital opportunities and enrollment through technology is helpful but leaves out those with limited access to internet and connected devices. Lastly, creating digital opportunities that meet veterans where they are in their journey will help identify needs and target barriers effectively.

Needs and Barriers for Veterans in Virginia

[59] Department of Veterans Affairs
[60] Veterans Transition to Technology | Carroll Tech Council
[61] Additional Disability Forms | VA

Need Type	Barriers, Challenges, and Considerations
Available/affordable broadband access	**Broadband Deployment for Rural Veterans** | Stakeholder discussions highlighted that many veterans reside in rural communities following their service. This leads to many compounding challenges surrounding broadband deployment and availability, similar to rural covered populations. Survey findings support this – 57 percent of veteran respondents identified that a lack of availability of internet in their area as a barrier to adoption and use.
Access to digital resources and technologies	**Limited Access to Online Resource** | Virginia's Department of Veterans Services has launched an online Gold Standard Resource hub for veterans that requires a robust internet connection to access its benefits.
Adoption and Awareness	**Digital Risk Mitigation** | Veterans who have had negative experiences with the internet or digital resources, from being affected by cybercrime to frustrations with online benefit portals, may elect to limit their exposure to the internet and digital resources.[62] **Lower Use of Federal Subsidies** | Survey indicate that veterans were less likely (~5 percent) than other covered populations to be aware of federal subsidy programs such as the ACP and were also half as likely to have applied to such programs when compared to non-veterans.
Digital Skills	**Combatting Social Isolation and Loneliness** | Stakeholder conversations revealed that many veterans lack the necessary digital skills to engage in video chats and messaging with family and loved ones. **Increased Misinformation Targeting** | Veterans are intentionally targeted by malicious state and non-state actors for misinformation given their military experience and the elevated role veteran's voices play in the U.S.[63]
Cybersecurity	**Heightened Vulnerability to Cybercrime** | Veterans that are cybercrime victims experience 44 percent more in losses compared to non-veterans.[64] According to survey results, 4 percent of veterans indicated that concerns around online privacy and security as barriers to internet adoption and use.
Other	**Telehealth Access** | As generations of veterans age, demand for telehealth access increases, especially in partnership with healthcare systems like the Veterans Administration, stakeholders shared.

[62] JMIR Mhealth Uhealth | Veterans' Attitudes Toward Smartphone App Use for Mental Health Care
[63] Vet Voices Foundation - Disinformation
[64] Veterans, Servicemembers, and Fraud Numbers | FTC (2019)

Incarcerated Individuals

Incarcerated Individuals

Total Population: 60,000 | Total Lacking Broadband: ~100 Percent*

"What Are The Biggest Needs Facing This Group Today?"

Access – the digital divide within the Commonwealth's correctional system is a significant barrier to successful reentry: For incarcerated populations, the digital divide is more than an inconvenience – it can exacerbate conditions that lead to recidivism. Secured internet or device usage for incarcerated individuals.

Skill Building – Incarcerated individuals have varied degrees of digital literacy: Depending on the length of their sentence, incarcerated individuals have been exposed to dated technological devices and software systems. Digital skill-building programs must account for potentially significant gaps in exit of the correctional system to best support all incarcerated individuals.

Affordability – The cost of broadband and device access poses a major limit upon ability to smoothly re-enter society: Many incarcerated individuals do not have employment immediately secured upon release. With other major costs to be urgently accounted for in their first few weeks after completing their sentence, the price of broadband and internet-enabled devices poses a serious affordability barrier to connectivity.

"What Are Some Key Digital Opportunity Design Considerations?"

Conveying the benefits that digital educational and skill building programs have on recidivism reduction: Incarcerated individuals with access to relevant, high-quality skill-building resources experience a dramatic reduction in likelihood of recidivism. Highlighting this opportunity can provide a clear rationale of what digital literacy and the internet have to offer for those currently incarcerated and why providing these tools is a worthwhile endeavor.

Leveraging time spent serving to develop an effective future member of Virginia's society and workforce: Taking advantage of state correctional institution' ability to function as educational institutions for its population can enable the development of digital competencies that are transferrable to future workplaces and home environments.

Formalized transition pipelines can create an unbroken stream of support for incarcerated individuals as they serve their sentence and transition back into society: Just as correctional institutions can be used to provide digital opportunity to those serving time, the Commonwealth's network of community action agencies are well-established to equip recently incarcerated individuals with the digital skills needed to reintegrate and thrive in their communities.

**Figure based on FCC definition of broadband and Virginia Department of Corrections-provided speed data for facilities.*

Incarcerated Individuals in Virginia

The Commonwealth of Virginia's correctional facilities house over 60,000 incarcerated individuals, or just under 1 percent of the Commonwealth's total population.[65] Incarcerated individuals are unique in that there are two layers to how they experience the digital divide: 1) the intentional divide created in a secured environment; and 2) the digital divide experienced during reentry following their time served while trying to successfully reintegrate into a society that has technologically progressed during their incarceration. Properly exploring the needs and barriers for this covered population means addressing both dimensions while also understanding the role time plays for incarcerated individuals.

In Virginia, most correctional facilities are located in remote areas away from major population centers. While intentional for security purposes, this means that the facilities themselves experience the same challenge that rural residents and inhabitants experience when it comes to digital opportunity: lack of access to reliable, affordable, and robust broadband infrastructure. In most correctional facilities countrywide, internet access is severely restricted / fully prohibited.[66]

Discussions with correctional stakeholders indicated that most of the Commonwealth's correctional facilities do not have access to even 25/3 Mbps speeds, with many instead only having access to 1.5 Mbps speeds – well below the cutoff to be considered unserved. This limits the Commonwealth's ability to provide digital learning, integrate technology into its correctional systems. Further, it imposes costs on the Commonwealth that could potentially be reduced through technologies (e.g., the total costs of arranging a medical transport for an inmate versus the cost of a robust telehealth service). Limitations such as these impact incarcerated individuals' exposure to technology and ability to increase their digital literacy.

> *"What many people may not realize is that someone who began serving a 30-year sentence in the late 90's will have entered society today and have never interacted with a grocery store self-checkout, let alone a smart phone"* – **Correctional Stakeholder**

Regarding their time served, the year they began serving their sentence and its length influences how large of a digital opportunity gap they will experience after completing their time served. Those with longer sentences and who were incarcerated in the mid-2000's for example have missed out on major technological paradigm shifts, while those with shorter sentences and were recently incarcerated may have entered the correctional system with already-high levels of digital literacy. This is relevant to the Commonwealth, as Virginia has one of the highest incarceration rates in the nation, 749 individuals per 100,000 – markedly higher than the US average of 664 individuals per 100,000.[67]

[65] NTIA DEA Covered Population Viewer | Census Bureau, ACS 1-Year Data (2019)
[66] Why Prisoners Like Me Need Internet Access | MIT Technology Review (2021)
[67] Virginia Profile | Prison Policy Initiative

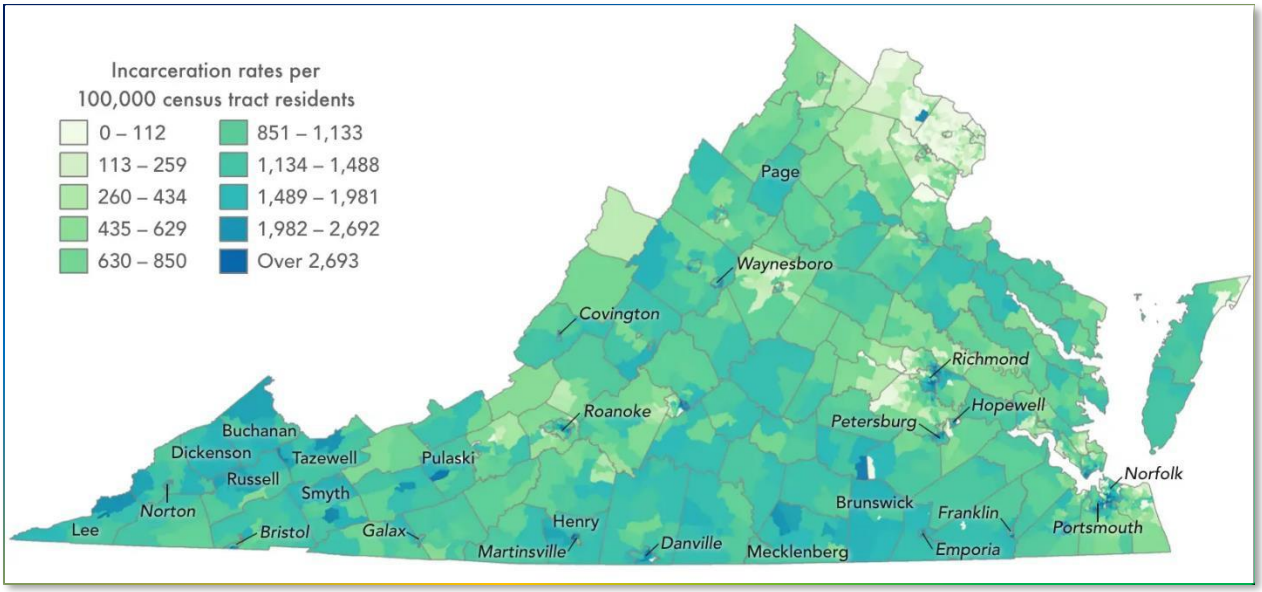


Figure 6 Incarceration Rates per 100K residents | Source – Prison Policy Initiative, 2020 ACS Data

As shown by **Figure 6**, rates of incarceration are high in both dense population centers as well as more remote and rural regions. Like aging and veteran populations, this data underscores the fact that incarcerated individuals can fall into multiple covered population categories. For example, they are more likely to identify as members of covered households.[68] This is notable as correctional facilities across the U.S. frequently impose user fees on inmates for accessing devices. Specifically, jails in Virginia can charge up to $3.15 for a 15-minute phone call and e-messages can cost up to $0.39, well above the national average.[69] These expenses place financial strain on low-income individuals and families that may bear these costs.[70]

> *"The two biggest needs of the incarcerated population upon release are securing housing and employment. If they do not secure housing within 24 hours, they run the risk of being qualified as unhoused."* – **Reentry Organization**

The second consideration around time is the urgency to secure housing and employment in the days immediately following release. The research is clear: stable employment and housing are two of the largest drivers for reducing recidivism risk.[71] While the internet provides access to support networks, housing resources, and job opportunities, a lack of access and low digital literacy puts these resources ever further out of reach – as basic services increasingly digitize, the amount of "catching up" incarcerated individuals face grows exponentially.

These limitations are important to consider when understanding the relationship between education, resources, and recidivism. The internet is the most effective means of educating current and recently released incarcerated individuals, with a 2016 research report linked

[68] Where people in prison came from: the geography of mass incarceration in Virginia | Prison Policy Initiative (2022)
[69] Virginia Profile | Prison Policy Initiative
[70] Prisons of Poverty | Prison Policy Initiative
[71] Reentry and the Ties that Bind | Justice Quarterly (2011)

participation in correctional education programs an over 40 percent reduction in recidivism risk.[72] Put plainly: a lack of digital opportunity, literacy, and internet access are both indicators of and contributors to the likelihood of an incarcerated individual re-offending after their release.

Needs and Barriers for Incarcerated Individuals in Virginia

Need Type	Barriers, Challenges, and Considerations
Available/affordable broadband access	**Limited Internet Connection** | Where access to electronic devices is allowed, internet access is often limited or entirely unavailable, state correctional agencies reported. **Cost of Technology Use** | When digital devices or tools (e.g., e-messaging) are available to inmates, stakeholders identified that there is often a cost associated with their use. **Location** | Service organization stakeholders identified that many of formerly incarcerated individuals they serve live in rural areas, compounding digital challenges in accessing resources and benefits to aid their transition. **Compounding Digital Divide** | Incarcerated individuals from low-income communities are typically more likely to experience the digital divide as a member of a covered household before serving time in a correctional facility, a disadvantage which is further exacerbated by their time cut off from technology and digital resources while serving their sentence.[73]
Access to digital resources and technologies	**Lack of Devices / Technologies in Correctional Facilities** | Discussions with stakeholders indicated that inmates generally are not able to use tablets or other technologies, thus limiting their ability to develop digital skills. **Fast Access to Services** | Carceral stakeholders identified the first 24 hours immediately post-release as the most urgent for securing housing and employment opportunities. **Online / Digitally Enhanced Resources** | Stakeholders identified that accessing critical post-carceral transition resources (e.g., health services, employment resources, education tools, healthcare) is difficult for those without requisite internet connections to support this.
Adoption and Awareness	**Facility access determines adoption** | Incarcerated individuals being held in correctional facilities that lack access to broadband or digital tools have no means of adopting the internet or using connected devices. **Existing views on education resources** | Stakeholders identified that if an incarcerated individual was not already inclined to view educational resources in a positive light, they were unlikely to see inherent value in pursuing a specific topic such as digital literacy and skill building.
Digital Skills	**Tailored Educational Programming** | Stakeholders highlighted the fact that skill-building programs will need to address the fact that Virginians are entering the state correctional system with increasingly diverse levels of digital literacy and technological fluency, creating a broad spectrum of varying skill-building needs. **Confidence in Using Digital Resources** | Survey findings indicate that incarcerated individuals were less likely to feel comfortable completing most

[72] Give Prisoners Internet Access for a Safer and More Human Community
[73] Re-Entry Barriers for Formerly Incarcerated Individuals in a Digitally Driven World | MHS Assessments

	tasks online when compared to non-incarcerated individuals. Notably, incarcerated respondents were ~20 percent less likely to feel comfortable using telehealth resources compared to non-incarcerated respondents.
Cybersecurity	**Barriers Created for Risk Mitigation** | Discussions with stakeholders identified a more nuanced consideration for incarcerated populations – the cybersecurity risk they themselves pose should they have unfettered access to internet and devices to commit crimes, contact victims, etc.
Other	**Policy and Security Concerns** | Correctional facilities must restrict technology access for security reasons, as devices and internet access could potentially be used for illicit activities or to breach security protocols. Balancing these security concerns with the potential benefits of digital access is a complex challenge identified by correctional stakeholders.

Individuals With Disabilities

Individuals With Disabilities
Total Population: 2.1M | Total Lacking Broadband: 76,200

"What Are The Biggest Needs Facing This Group Today?"

Device Usage – Physical accommodations are necessary to engage in the digital world: Individualized accommodations for technological devices vary tremendously across the disabled community, ranging from font size adjustments to tactile supports. Virginians living with disabilities might not be equipped to leverage the existing digital device provision network. Addressing these needs and examining what pieces of hardware best support the end users of device provision programs will promote a digital landscape that provides opportunity for all.

Skill Development – Technology can address the social connection limits experienced by many disabled individuals: This covered population is more likely to experience loneliness and isolation than the average individual and digital technologies offer the opportunity to facilitate interpersonal connection from afar. It is prudent to keep this at the forefront of digital literacy programming to equip individuals with disabilities with the tools they

Adoption – Access and availability alone do not increase the use of the internet and digital tools by disabled Virginians: Compared to non-disabled peers, disabled Virginians consistently use the internet and digital tools less, even when available. While this may be due in part to physical limitations and strain, considerations such as that are important to note when developing programs to provide digital opportunity to this covered population.

"What Are Some Key Digital Opportunity Design Considerations?"

A thorough audit of Virginia's online and digital resources will identify where quick-win accessibility efforts can be immediately focused: Virginia has worked to bring many of its core services and social programs into online platforms. However, the pages and portals housing these resources should be rigorously reviewed to ensure that they are accessible to all individuals with disabilities and compliant with the Americans with Disabilities Act (ADA).

Overlapping identities require tailored methods on how to best reach disabled Virginians that belong to one or more additional covered populations: In addition to the limitations and barriers to digital opportunity experienced because of their condition, these limitations are further compounded by the needs associated with other covered populations they belong to. Digital opportunity programs and outreach must identify and overcome these compounded barriers.

Creating digital opportunities for this group with empathy and dignity in mind will improve odds of success for a population that is often viewed as burdensome: While not always the case, accommodating the needs of disabled individuals is often indirectly implied as a burden. Digital opportunity efforts that acknowledge this reality and seek to mitigate its effects can be deeply impactful for this covered group's societal interactions.

Individuals with Disabilities in Virginia

There are over 2.1 million disabled individuals residing in Virginia today – just over 12 percent of the Commonwealth's total population.[74][75] With such a significant proportion of Virginia's total population falling under this covered category, adequately addressing their diverse needs will require both broader digital opportunity programs that are inclusive of disability needs, and targeted supports that directly address this covered population.

It is important to understand that not all disabled individuals experience the digital divide in the same way or will equally benefit from any particular digital opportunity offering. The DE Planning Grant NOFO defines a "disabled individual" as any individual with: a physical or mental impairment that substantially limits one or more major life activities of such individual; a record of such an impairment; or being regarded as having such an impairment.[76] Specifically, NTIA analysis of disabled individuals included six specific CDC-defined categories, which include disabilities related to hearing, vision, cognitive, mobility, self-care, and independent living.[77]

For this population, their experience with **the digital divide and needs will look different based on their disability**.

For example, an individual with limited mobility but otherwise digitally fluent may desire robust telehealth options, whereas one who is hard of hearing may desire a digital navigator program with American Sign Language interpreters.

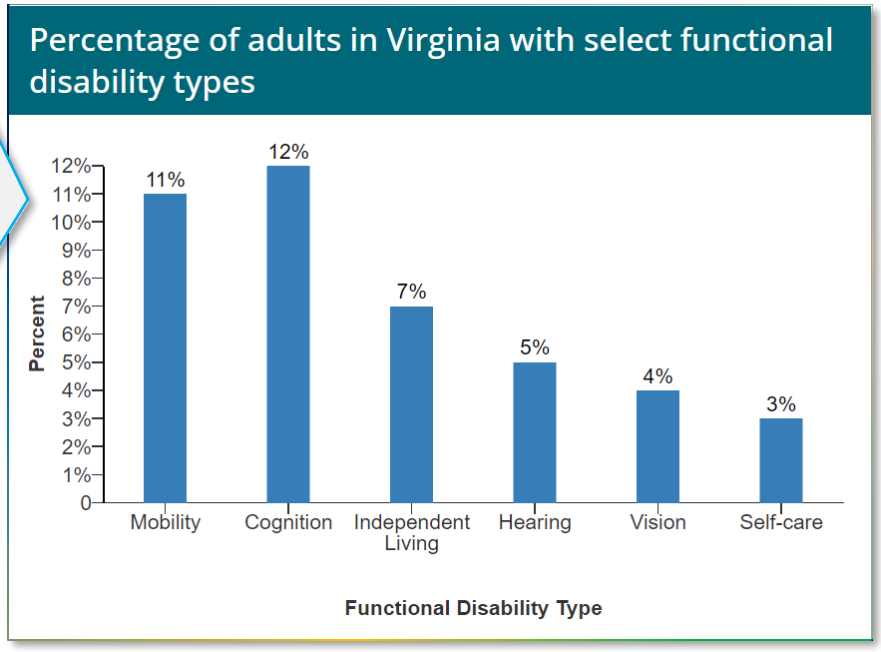


Figure 7: CDC Analysis of Disabled Groups in Virginia

Compared to other covered populations, in Virginia today, 36.2 percent of disabled individuals – over 760 thousand residents – lack access to reliable broadband. Between late 2019 and late 2020, workers with disabilities transitioned from being employed to unemployed or out of the labor force at higher rates than workers without disabilities, even when accounting for age, race and ethnicity, sex, marital status, education, industry, and occupation. The fact that over one-third of disabled Virginians are unable to participate in the digital economy, let alone access to

[74] NTIA DEA Covered Population Viewer | Census Bureau, ACS 1-Year Data (2019)
[75] Disability & Health U.S. State Profile Data: Virginia | CDC
[76] DE Planning Grant Notice of Funding Opportunity | NTIA (2022)
[77] NTIA DEA Covered Population Viewer | Census Bureau, ACS 1-Year Data (2019)

basic digital / technology-enhanced services, underscores the importance of closing the digital divide for this group.

When addressing the nuanced needs of this covered population, location is a key consideration. In Virginia, the overlap between disabled populations and other covered groups, specifically aging and rural populations, is high. By simply observing where higher percentages of disabled populations are concentrated in Virginia, there is clear overlap with this group in rural regions that also have high concentrations of aging individuals.

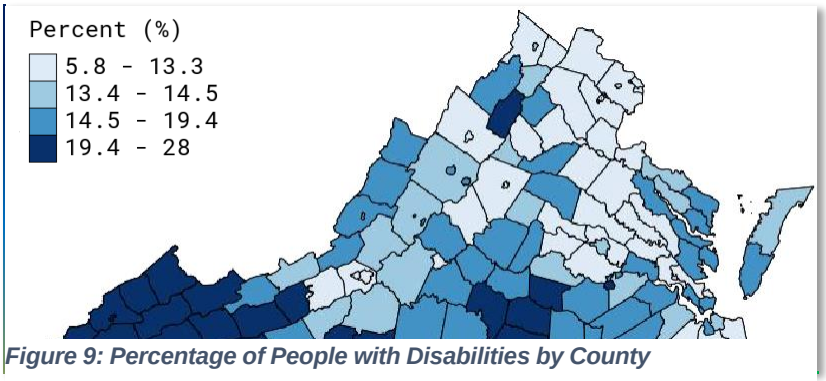
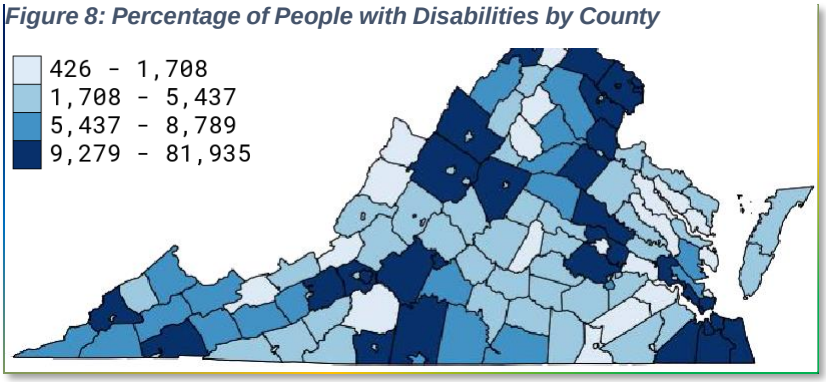


Figure 9: Percentage of People with Disabilities by County

Figure 8: Percentage of People with Disabilities by County



Population vs. Concentration

2019 ACS 1-year estimates tell two key stories around where disabled populations are in the Commonwealth.

The counties with the highest concentration of disabled individuals are in the Southwest and Southside, along with portions of West Central.

The counties with the highest totals however were more spread out throughout the Commonwealth, with greater numbers located in Northern Virginia, Central, and Hampton-Roads regions along with portions of the Valley region.

Figure 10: Count of People with Disabilities by County

For this group, location matters when discussing digital opportunity for two key reasons: 1) where to focus initial efforts for greatest impact; and 2) designing and deploying opportunities that can reach disabled populations in remote areas or those with mobility-related disabilities. With this in mind, understanding the story behind where disabled populations are concentrated and where they are numerous is key. There are six counties where over 25 percent of their total population is comprised of individuals with disabilities – specifically Dickenson, Scott, Wise, Buchanan, Russell, and Lee Counties.[78] Counties with the highest total count of disabled individuals include Fairfax, Virginia Beach, Chesterfield, Henrico, and Prince William County.

These findings tell two clear stories: first, as with most covered populations, counties with major population centers will have the greatest number of individuals with disability-related digital opportunity needs. The second story, and perhaps the most nuanced, is that the areas with high relative concentrations of people with disabilities likely have the highest intersectionality of covered population status (e.g., an aging, disabled veteran living in a rural community).

[78] ACS Data | Disability Compendium (2019)

Digital opportunities and technologies can serve as the single greatest means to level the playing field for people with disabilities.[79] Assistive technologies, the ability to remote work, and services such as virtual education or telehealth close the physical and economic divide for disabled individuals. However, technologies and digital advancements today frequently leave the needs of disabled populations out of the discussion, putting this group – which already experiences lower employment, lower pay, and lower opportunity overall when compared to those without a disability – further behind.[80]

Concerns surrounding broadband affordability disproportionately affect people with disabilities. The Department of Labor identified that working-age adults with disabilities (ages 25 to 64) reported that cost or affordability was their household's primary barrier to home internet use at higher rates than working-age adults without disabilities (22.3 percent vs. 18.9 percent).[81] These regular monthly expenses are particularly palpable for the community of individuals with disabilities who live on fixed incomes or are unable to work.

In addition to fixed expenses, the initial buy-in to the digital landscape is burdensome to many individuals living with disabilities. To harness the opportunities that the internet provides, many members of this covered population require assistive technology, which can come in the form of assistive software, augmentative and alternative communication (AAC) devices, and physical assistive devices. These devices, which sometimes are customized to each user, can be expensive and hard to come by, limiting people with disabilities' participation with the digital landscape. For example, screen readers, text-to-speech software and Augmentative and Alternative Communication (AAC) devices can all cost more than $1,000 each.

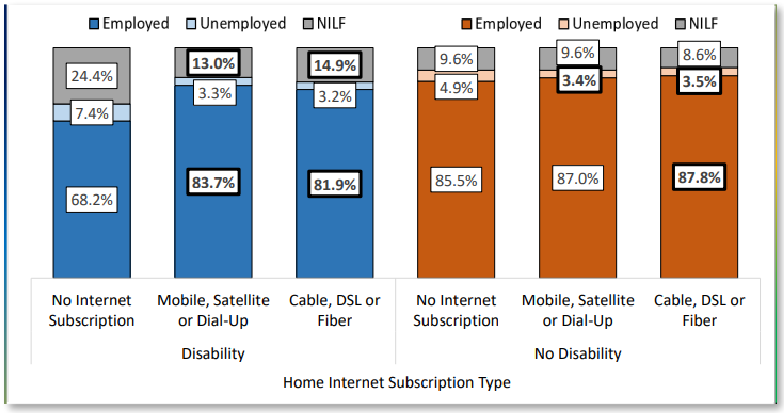


Figure 11: Employment Retention and Transitions by Disability Status and Home Internet Subscription Type | Dept. of Labor

For those that can work, studies show that broadband access protects those with disabilities during periods of economic downturn and supports a remote working ecosystem. Labor statistics show that employment retention in the first year of the pandemic was highest among those who had home internet subscriptions: 83.7 percent of workers with disabilities who had a mobile satellite or dial-up internet subscription and 81.9 percent of workers with disabilities who had a cable, digital subscriber line (DSL) or fiber internet subscription at home remained employed, while only 68.2 percent of workers with disabilities who did not have internet subscriptions at home remained employed. The possibility of online work not only makes daily work tasks more flexible for an individual with disabilities, but it also provides the opportunity for the employee to remain connected to their network of care providers and support system throughout the day.

[79] How does rehabilitative technology benefit people with disabilities? | NIH
[80] Futures of Disabilities: Is Technology Failing Us? | Journal on Technology and Persons with Disabilities (2017)
[81] Disability and the Digital Divide | Department of Labor (2022)

As with other covered populations, the data reveals important considerations for internet access for those living with a disability. Even among disabled individuals with access to wired home internet, they used the internet for all types of work-related activities at lower rates compared to adults without disabilities.[82] Discrepancies such as this show that even when access barriers are addressed, adoption and use limitations persist for this covered population.

With these larger considerations in mind, we now explore specific digital needs and barriers impacting disabled individuals in Virginia.

Needs and Barriers for Individuals with Disabilities in Virginia

Need Type	Barriers, Challenges, and Considerations
Available/affordable broadband access	**Affordability of Broadband** | Stakeholder conversations reinforced the finding from a Department of Labor study that indicated affordability as the primary barrier to home internet use for individuals with disabilities.
Access to digital resources and technologies	**Cost of Assistive Devices** | Stakeholder engagement highlighted that the price of assistive devices required for digital engagement can be cost prohibitive, with many devices priced at more than $1,000. **Availability of Assistive Devices** | Some of these assistive devices also are custom-made or otherwise have limited stock, thus restricting their accessibility to customers, as noted by stakeholders.
Adoption and Awareness	**Lower Home Internet Subscriptions** | Between 2015 and 2019, 91 percent of people without disabilities lived in a household with any kind of internet subscription, whereas only 78 percent of people with disabilities did.[83] **Demographically Linked Limits** | Fewer than 7 in 10 disabled Black, American Indian/Alaska Native, or Latino youth had high-speed internet and a computer at home, while more than 8 in 10 white youth without disabilities and Asian youth with and without disabilities did.
Digital Skills	**Digital Skill Accommodations** | Stakeholders shared that many individuals with disabilities need to learn not only the standard digital skills, but also the accommodating behaviors or steps, such as launching and navigating assistive software, to enable their digital participation.
Cybersecurity	**Inaccessible Cyber Practices** | Studies show that many cybersecurity behaviors, such as setting up and engaging in multi-factor authentication and backing up data, can be inaccessible to individuals who have disabilities.[84]
Other	**Accessibility of Online Resources** | Some stakeholders highlighted their concerns with the present state of online resource sharing for individuals with disabilities, citing accessibility challenges. **Reliability of Broadband Connection** | Due to the remote nature of rural populations and their broadband infrastructure, the maintenance of reliable, high-quality broadband speeds is a challenge. Even for those who have an internet connection, over one third of survey respondents who live with disabilities regularly experience disruptions in their internet service and over a quarter of them report that their subscribed speeds are not being achieved.

[82] Disability and the Digital Divide | Department of Labor (2022)
[83] Disability and the Digital Divide | US Department of Labor (2022)
[84] Accessible and Inclusive Cyber Security [...] | Springer Nature Computer Science Journal (2022)

Individuals With a Language Barrier

Individuals with a Language Barrier
Total Population: 1.5M | Total Lacking Broadband: 54,000

"What Are The Biggest Needs Facing This Group Today?"

Funding – Broadband and digital skill-building grants are not prioritized in language-learning grants: Educating ESL and other language-focused funding sources on the benefits of digital education creates and opportunity for increased funding for existing language learning organizations to expand their digital offerings.

Affordability – Device and broadband costs is a barrier to digital opportunity for many individuals who have limited literacy: Depending on the software or program, digital translation services also pose an additional cost to the language learning community. Ensuring that these cost considerations are addressed and mitigated is paramount to the success of digital offerings for this population.

Skill Development – Self-efficacy and confidence drive skill-building: Individuals with limited literacy or a language barrier struggle with basic digital skill development and lag peers without a language barrier. Programming developed for this covered population requires digital skill-building to equip participants with the ability and confidence to navigate English-dominant digital spaces.

"What Are Some Key Digital Opportunity Design Considerations?"

Multilingual Digital Opportunity Programming: A key concern raised by stakeholders was the limited accessibility of existing broadband programming and communications materials. Consulting with experts in this field, as well as liaising with limited literacy individuals, can provide the insight needed to develop advertising campaigns, programming curriculum, departmental surveys, and enrollment materials that best serve this covered population.

Leveraging existing networks and community partners who interface with this population today to push out digital opportunities: Refugee and resettlement organizations work closely with English Learners as part of their services and can benefit from state support in developing and sustaining relevant digital opportunity programs.

Streamline Enrollment Requirements and Simplify Broadband Language: Individuals feel best equipped to engage in the digital space when the vocabulary they encounter is known to them. When developing program enrollment criteria and training materials, the often-technical broadband lingo should be distilled into its simplest terms and translations. Additionally, unnecessary forms or steps should be removed from the enrollment process to encourage and maximize adoption by this covered population.

Individuals with Language Barriers in Virginia

Today, over 1.5 million Virginia residents have some form of language barrier. In addressing their digital opportunity needs, "language barriers" are not limited just a lack of English language comprehension. The NTIA defines an individual with a language barrier as anyone who "is an English Learner and/or who has low levels of literacy".[85] This broader definition is important as it is inclusive of individuals who may be fluent English speakers but have limited reading comprehension or – more simply – have not had a need for regular reading and writing as part of their day-to-day life.

To define this covered population, the NTIA used both 2019 American Community Survey to determine English Learner status and National Center for Educational Statistics (NCES) Program for the International assessment of Adult Competencies (PIAAC) estimates on adult literacy to determine literacy levels.[86] The NTIA determined English Learner status was using two data points as proxies; 1) respondents that both speak a language other than English at home and; 2) who also indicated that they speak English less than "very well". In determining adult literacy levels, PIAAC levelling scores on educational attainment were used – specifically, respondents that were classified at or below Level 1.[87]

While comprehending the technical analyses used to determine this covered population is helpful in understanding the NTIA's perspective, it is important to ground these classifications in practical terms:[88]

- **English Language learners:** A Ukrainian refugee who recently moved to Virginia and is enrolled in an English as a Second Language course.
- **Level 1 Adult Literacy:** An adult who can read a simple job board (digital or print) to identify a company that is looking to hire an employee to work at night.
- **Below Level 1 Adult Literacy:** An adult who can look at a basic voting results graphic (e.g., bar chart with names and votes) and identify the candidate who received the least.

"Many of our learners have low levels of confidence and perceived self-efficacy when it comes to digital skills." – **Literacy Nonprofit**

With this covered population, there are three different lenses with which to comprehend the nature of their digital divide literacy barrier – low English comprehension, low literacy, or a combination of both. Website and software navigation, as well as physical command of a digital device, is not their primary hindrance. Instead, it is the language constraints that limit the quality of search inquiries and the type of information available to low English proficiency users.[89] Those with low levels of literacy may be able to intuitively operate basic technologies but lack the ability to take advantage of online resources, such as telehealth tools or job sites. Finally, the third group within this covered population lack both English comprehension and

[85] DE Planning Grant NOFO
[86] Total Covered Populations Under the Digital Equity Act | US Census Bureau (2019)
[87] Total Covered Populations Under the Digital Equity Act | US Census Bureau (2019)
[88] PIAAC Measures | National Center for Education Statistics
[89] The Digital Language Divide | The Guardian

have literacy levels at or below a Level 1. These individuals experience challenges both navigating technology and in furthering their language skills.

With this framing in mind, we can better explore the specific needs and hurdles for those with language barriers in the Commonwealth. In many of the Commonwealth's rural regions, particularly Southwest and Southside, we see concentrations of adults with low literacy levels. In major, diverse population centers such as Northern Virginia, we see significant concentrations of those who do not speak English very well. Finally, we see regions where both English Learning and Low-Literacy populations overlap.

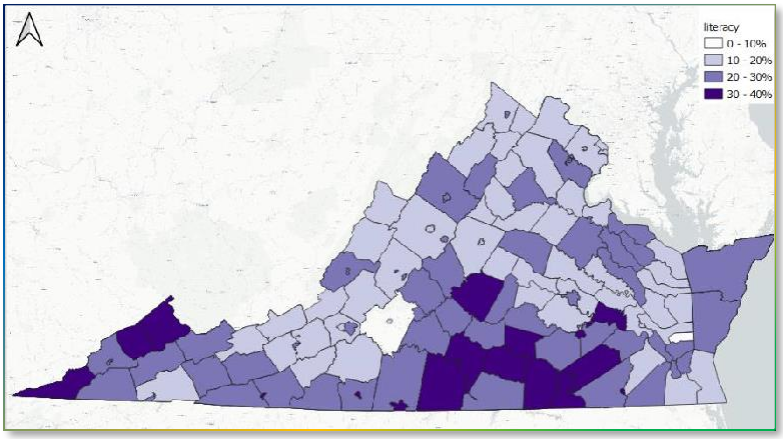


Figure 12: Percentage of adults (16-74) by county at or below Level 1 Literacy

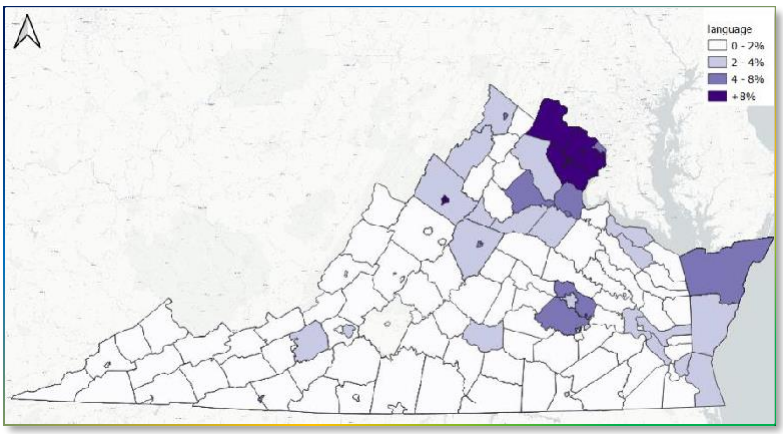


Figure 13: Percent population aged 5+ by county speaking English less than "very well"

Literacy vs. Fluency

There are two components to addressing the language barriers Virginians experience around digital opportunity. The first is overall literacy – i.e., can the individual read, write, and comprehend information at the level required to navigate digital tools and technologies. We see this barrier spread around Virginia, particularly in its rural regions.

The second is English comprehension – while an individual may have a level of digital literacy in their native language, a lack of English language comprehension can create a barrier to accessing digital opportunity resources only available in English. We see individuals with limited language comprehension overlapping with areas that are home to large racial / ethnic minorities, particularly in more urban areas.

Knowing where these groups reside is important for informing how digital opportunity can be best delivered to those with Language Barriers. As we begin to explore the different digital needs and barriers impacting this covered population, understanding where their needs overlap with other groups and where they diverge will help contextualize the considerations for this covered population. For example, a rural community with low literacy rates may not be responsive to a paper-based marketing campaign for digital opportunity; but may be interested in announcements made by a local community leader or institution. Alternatively, population centers with abundant digital resources may not need new programs but may instead need translations or interpreters ensure these resources reach those with limited English proficiency.

Out of an estimated 6,000 languages in use today across the globe, Google searches are only available in 149 different languages and the vast majority of search engines and websites are available in far fewer languages.[90] These challenges manifest in a multigenerational way, as many school age English-learners lack the necessary technology and internet access at home.[91] In response to this disparity, many teachers do not deploy digital learning resources outside of the classroom. A notable 92 percent of high-English Learner school districts cited lack of home access to technological devices as a barrier to instructing English learners and thematically identified lack of language support for English Learners and low levels of technological skills as major barriers for this community of students. While national trends prioritize device provision in public school systems, language learner students are susceptible to falling behind from their peers when they are unable to use technology to access homework.[92]

Different language learning populations also demonstrate varied digital literacy attitudes, competencies, and outcomes. Particularly, a study conducted by the NTIA that leveraged the US Census Bureau's Current Population Survey data demonstrated that people living in households where Spanish is the only language were far less likely to use the internet.[93] They also found that citizenship factored into internet use, with foreign-born, non-citizens being 10 percent less likely to use the internet than their US-born peers.[94] These findings have direct implications for the promotion of digital opportunity programming to low-literacy populations.

With these larger considerations in mind, the Commonwealth of Virginia will not only address the obstacles presented to this specific covered population, but also support communities with low-literacy or language barriers across the state with specific needs-based programs determined by the needs of the community. The Commonwealth will also develop and leverage partnerships with local community leaders, community action agencies (CAAs) and community anchor institutions (CAIs), which are imperative to encourage engagement from those struggling with a language barrier or low literacy. To boost adoption within this covered population, enrollment processes must be streamlined by eliminating administrative burden or simplifying steps for this covered population. When developing criteria for program enrollment and curating training materials, it will be essential to simplify complex broadband terminology into clear language. However, to sufficiently address language barriers for covered populations in Virginia, it is necessary to consider all the concerns identified above. Below we now explore specific digital needs and barriers impacting English Learners and individuals at or below Level 1 Literacy in Virginia to further understand strategies needed to achieve digital opportunity for this covered population.

[90] The Digital Language Divide | The Guardian
[91] Supporting English Learners Through Technology | Department of Education (2019)
[92] Schools Let Students Take Laptops Home in Hopes of Curbing Summer Slide | NPR (2017)
[93] Language and Citizenship May Contribute to Low Internet Use Among Hispanics | NTIA
[94] Language and Citizenship May Contribute to Low Internet Use Among Hispanics | NTIA

Needs and Barriers for People Experiencing Language Barriers in Virginia

Need Type	Barriers, Challenges, and Considerations
Available/affordable broadband access	**Language and Literacy Limitations** | While this group experiences the same general barriers as all covered populations around availability and affordability, stakeholders report that their limited language skills mean a general lack of awareness around programs and resources that can help address availability and access needs for this covered population. Survey results support this input, as respondents with a language barrier were 14 percent less likely to have applied for federal internet subsidy programs compared to others without a language barrier.
Access to digital resources and technologies	**Cost of Translation Services and Software** | Stakeholders shared in their conversations that, while some translation features are provided at no cost to the user, other more advanced services incur costs that could be prohibitive to their use. **Limited Online Translation Features** | Stakeholders shared that all online features, including Google searches, have a limit to the number of languages that the software understands and how many languages are supported.
Adoption and Awareness	**Advertising in Native Languages** | As many digital opportunity programs are only promoted in English and a handful of other common languages, the low-literacy individuals who do not fluently speak the language may not learn about the program's existence, some stakeholders shared. **Advertising on Popular Platforms** | Stakeholders also reported that common advertising and news distribution platforms, including print and mainstream television stations only broadcast in English, may not reach the target language-learning population.
Digital Skills	**Online Language-Learning Skills** | Stakeholders shared that while many language-learners possess basic internet and digital device skills, they require additional skill-building to leverage online language-learning tools. **Online Healthcare** | Studies demonstrate that those with language barriers have trouble accessing online healthcare materials and portals.[95]
Cybersecurity	**Connectivity Risks for English Learners** | Research indicates that refugee populations are at heightened risk of cyber vulnerability due to a lack of awareness of cybersecurity measures, or are using the internet to stay in touch with family and friends who may be in regions with limited data privacy and protection; these same vulnerabilities can be understood as true for English-learning refugee populations in Virginia, as well as further extrapolated to the broader English learning community as well who already experience heightened vulnerability to scams posing as resources.[96,97]
Other	**Accessibility of Online Platforms in Multiple Languages** | While some websites have online, automatic translation features enabled, stakeholders representing this group identified that many have hard-coded features that do not easily translate, such as on-screen buttons, which can limit low-literacy individuals' navigation of sites and resources.

[95] How Health Systems Can Help Address Language Barriers [...] | University of Pennsylvania (2021)
[96] Connecting with Confidence | United Nations High Commissioner for Refugees Innovation Service
[97] Scams targeting international students are on the rise | U.S. Department of Homeland Security

Racial or Ethnic Individuals

Racial or Ethnic Individuals

Total Population: 3.3 M | Total Lacking Broadband: 153,000

"What Are The Biggest Needs Facing This Group Today?"

Adoption – Broadband adoption rates vary across racial minorities: Households for this covered population are less likely to use the internet, even if a high-speed internet connection is available to them. The Hispanic/Latino population lags the most, relative to other demographic groups. Targeted promotion of broadband accessibility and digital programming to these specific groups has the potential to drive increased adoption.

Skill Building – A multigenerational approach is a strong avenue to reach racial minorities: Many existing digital literacy programs remove an individual from their daily routine and ask them to dedicate time specifically to digital skill-building. This can pose a challenge for individuals who are caregivers and may result in feelings of isolation or discouragement while completing the programming. A whole community-centered approach is needed to most effectively reach members of racial minorities.

Overlapping Identity – Members of racial minorities are more likely to identify under more than one covered population: At present, members of racial minorities experience compounding vulnerabilities that make digital opportunity and freedom a challenge. As the Commonwealth develops digital programming, these overlapping identities should inform the cross-cutting nature of the resources and offerings made available to covered populations.

"What Are Some Key Digital Opportunity Design Considerations?"

Reaching this population through strategic partnerships with existing, trusted organizations that directly interface with this covered population: Virginia is home to many nonprofits, programs, and community organizations centered around addressing the needs of various racial and ethnic minorities. Leveraging these groups as the primary point of contact and distribution for digital opportunity programs and messages can increase trust, adoption, and use of resources by this covered population.

Building the capacity of trusted spaces that this covered population already frequents can build community buy in: Like using trusted institutions as partners, helping improve access to the internet, connected devices, and educational resources within these spaces are investments the Commonwealth may wish to consider.

Understanding that programs cannot be generally targeted at "racial or ethnic individuals" will improve the odds of success digital opportunity programs: While all covered populations are nuanced, there are significant variations between each racial and ethnic demographic group in the commonwealth. A one-size-fits-all approach that misses key cultural considerations will ultimately fail to gain traction among any group.

Racial and Ethnic Minorities in Virginia

According to 2019 ACS data, about 40 percent of Virginia's total population fall under one or more racial / ethnic minority groups. Of these, ACS data indicates that just over 45 percent of all households that lack a broadband subscription in the Commonwealth are comprised of members of a racial or ethnic minority group.[98]

The white population is widely distributed throughout the Commonwealth, particularly in the Southwest, West Central, and Valley regions.

This baseline helps frame where there is a greater concentration of racial / ethnic minorities in Virginia.

Figure 14: Percent White Population, Virginia[99]

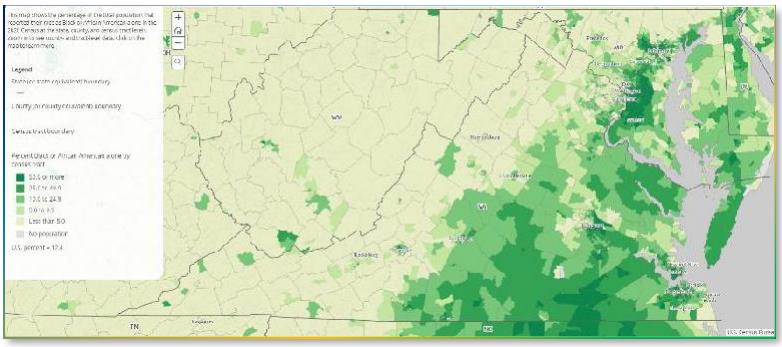
Racial and ethnic minorities often experience the effects of the digital divide as a byproduct of historical socioeconomic disenfranchisement, similar to covered households and those with a language barrier. Converging, intersectional identities for many individuals who are members of racial or ethnic minorities makes all previous digital opportunity barriers especially prevalent for this covered population. Individuals of color are more likely to be incarcerated than white peers and experience higher rates of poverty.[100][101] Health systems and the CDC also report that individuals of color experience poor health outcomes and are more likely to have a disability.[102]

Specifically related to digital opportunity, minority individuals are far more likely to be targeted by digital redlining, a phenomenon where internet service providers, both historically and in the present-day, underinvest in low-income or minority communities assuming that they will earn larger profits in wealthier, whiter neighborhoods. In such cases, this results in low-income and minority areas having less physical digital infrastructure and slower internet speeds where a basic connection is available.[103] The use of credit checks by internet service providers disadvantage those who have historically lacked access to credit-building opportunities.[104]

With limited access to a robust broadband network, racial minority individuals are further discouraged from entering the remote workplace and developing flexible financial freedom. Free Press found that white individuals are more likely to report going to work online, relative to their Black and Latino peers.[105] The luxury-turned-necessity for many during the pandemic of remote work relies on consistent access to fast internet processing speeds and digital knowledge to interact with common workplace software. Gaps in broadband access, awareness, and

[98] ACS 2019 1-Year Data
[99] Census Bureau | 2020 Census Population Viewer
[100] Racial Disparities Persist in Many U.S. Jails | Pew Trust (2023)
[101] Inequalities Persist Despite Decline in Poverty For All Major Racial Groups | US Census Bureau (2020)
[102] Health and Health Care Disparities Among People With Disabilities | Disability Rights Education & Defense Fund
[103] What is Digital Redlining and How Does It Perpetuate Poverty? | Community Tech Network
[104] The Racial Digital Divide Persists | Free Press (2018)
[105] The Racial Digital Divide Persists | Free Press (2018)

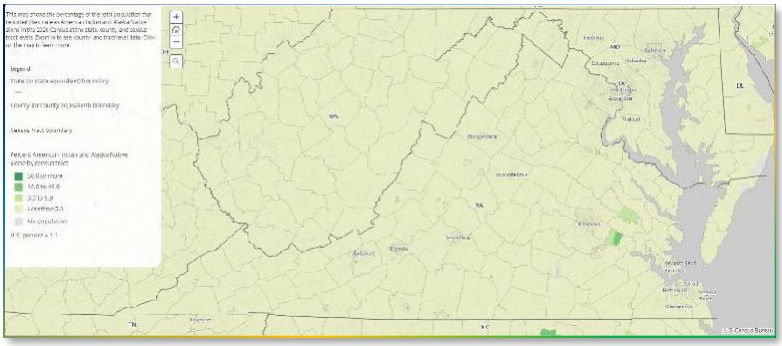
adoption limit this community's ability to access the economic stability that many remote jobs offer.[106]



African American / Black Virginians are largely concentrated in the eastern half of the Commonwealth, specifically the Northern, Eastern, and Southside regions.

Within these areas, concentrations are higher in metropolitan centers of the Commonwealth.

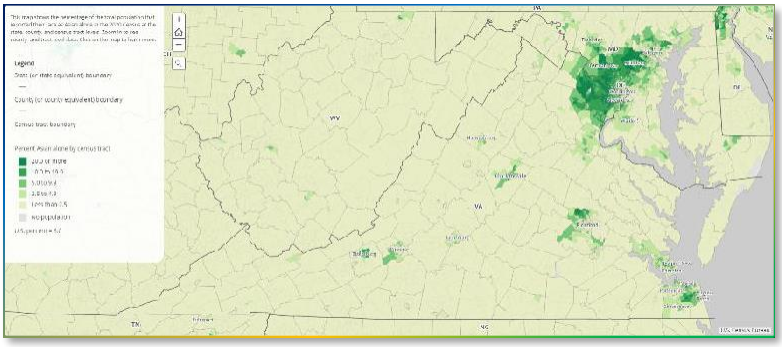
Figure 15: Percent Black or African American Population, Virginia[107]



For the most part, Indigenous populations are concentrated on both Mattaponi and Pamunkey reservation lands.

King William County and Stafford County have notable Indigenous populations as well. Overall, Central Virginia is where this population is largely located.

Figure 16: Percent American Indian / Alaska Native Population, Virginia[108]



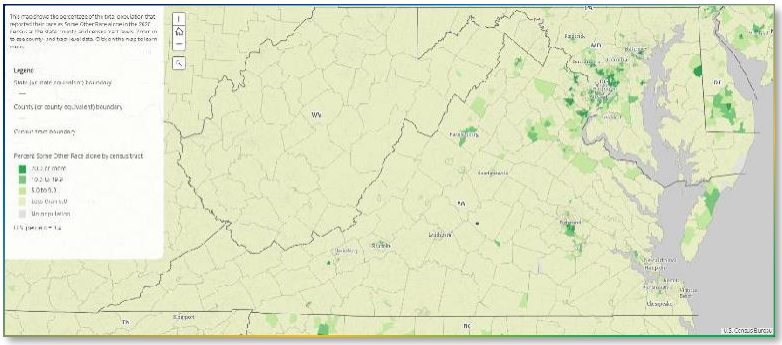
Most of Virginia's Asian population resides in Northern Virginia, particularly in the NOVA / Annandale areas.

There are other smaller pockets of this group across other metro areas, but in general this group is present in some capacity within each broader region of Virginia.

Figure 17: Percent Asian Population, Virginia[109]

[106] Home Broadband Adoption Varies by Race and Ethnicity in the US | Pew Research Center (2021)
[107] Census Bureau | 2020 Census Population Viewer
[108] Census Bureau | 2020 Census Population Viewer

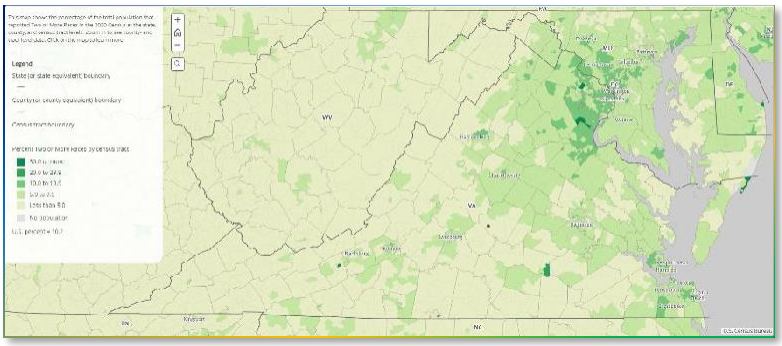
[109] Census Bureau | 2020 Census Population Viewer



Individuals that identified as another race are located in Northern Virginia, the City of Richmond, and Accomack.

Outside of these areas and small pockets of ethnic enclaves with higher concentrations, this group is generally present in Central and Eastern Virginia.

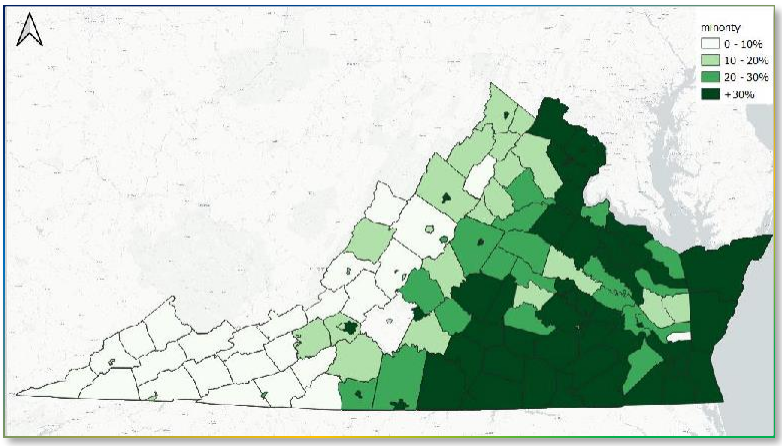
Figure 18: Percent Some Other Race Population, Virginia[110]



Those who identify as members of two or more races are most likely to reside in the Northern, Valley, and Central regions.

In particular, Prince William, Loudoun, Fairfax, and Stafford County are where most members of this group are located.

Figure 19: Percent Two or More Races Population, Virginia[111]



Hispanic and Latino individuals are likely to reside in the Hampton Roads, Southside, Northern, and Eastern.

This group comprises a sizable portion (30%+) of the population for over a third of the counties in the Commonwealth, and exceeding 10%+ of the population for over half of Virginia counties.

Figure 20: Percent Hispanic or Latino Population (non-white), Virginia[112]

This geographic analysis of Virginia's racial and ethnic minority populations indicates that much of this covered population reside on the Eastern half of the Commonwealth. The highest pockets of concentration, especially for less common minorities, exist in metropolitan centers and in the Northern region of the Commonwealth. African American / Black and Hispanic / Latino individuals also show strong living trends in the Southside region. To best tailor digital opportunity efforts across the Commonwealth, programs should identify which populations are

[110] Census Bureau | 2020 Census Population Viewer
[111] Census Bureau | 2020 Census Population Viewer
[112] Census Bureau | 2020 Census Population Viewer

being targeted and focus their advertising and promotion in the counties and regions where prospective participants reside.

> *"A multigenerational approach to digital skills training is needed to best reach the Latino and language-learning communities."* – **Hispanic Federation**

The digital divide also contributes to the overall health and thriving of the racial and ethnic minority communities. Especially with the rise of telehealth, many individuals choose to seek out health information online, prior to seeing a healthcare provider in person. Researchers at the Ohio State University found that older racial and ethnic minorities tended to access the internet on home and public computers less frequently to seek online health information.[113] Affirming the finding that minority individuals are often accessing the internet from their phones, the researchers reported that mobile access was a stronger predictor of health information gathering for non-white individuals. To address in the layers of historic disenfranchisement of this covered population, digital opportunity programming must account for these barriers.

Needs and Barriers for Racial and Ethnic Minorities in Virginia

Need Type	Barriers, Challenges, and Considerations
Available/affordable broadband access	**Digital Redlining** | Stakeholders noted that many individuals who are members of racial or ethnic minorities reside in areas that have been historically underserved by broadband providers, resulting in delayed deployment, and limited digital opportunities. **Cost of Broadband** | Over 36 percent of survey respondents who identified as either a racial or ethnic minority indicated that the cost of internet plans was the main barrier to adoption and use.
Access to digital resources and technologies	**Reliance on Mobile-Only Internet** | Stakeholder conversations acknowledged that many minority individuals primarily access the internet through their mobile device, thus limiting the types of digital tasks they can participate in. Survey data validates this finding as 46 percent of respondents who identify racial or ethnic minorities reported relying on cellular data as the primary means of accessing the internet at home.
Adoption and Awareness	**Skepticism of the Internet** | Survey findings indicate that individuals who identify as members of racial or ethnic minorities are ~3 percent less comfortable using the internet (e.g., paying bills online, communicating with others, reading the news) when compared to peers. Conversations with stakeholders representing Hispanic and Latino populations suggested that this may be partially due to skepticism around using the internet stemming from either a fear of government or unfamiliarity with technology. **Variable Rates of Adoption** | Discussions with stakeholders revealed that internet adoption rates vary significantly between different minority

[113] The Digital Divide for Intersectional Groups Seeking Health Information| JMIR Publications (2022)

	groups, signaling a need for targeted messaging and initiatives to encourage digital connection.
Digital Skills	**Multigenerational Approach** | Stakeholder conversations discussed the need for multigenerational digital skill-building to occur in tandem with several other supportive, wraparound services to best reach this group.
Cybersecurity	**Heightened Targeting by Disinformation Campaigns** | Research indicates that racial and ethnic minorities increasingly find themselves the subject of misinformation campaigns designed to incite negative feelings towards members of a minority group, or to breed broader divisiveness by creating mistrust by minority groups of larger societal institutions.[114]
Other	**The Persisting Effects of Racism** | This is a covered population that experiences disadvantages through racism, both on the subject of digital opportunity and broader socioeconomic opportunity. The disenfranchising effects of racism play both a direct and indirect role in inhibiting this group's ability to overcome the digital divide.[115]

[114] Systemic Racism Is a Cybersecurity Threat | Council on Foreign Relations
[115] The Impact of Systemic Racial Discrimination on Home-Internet Adoption

Rural Individuals

Rural Individuals
Total Population: 2.8M | Total Lacking Broadband: 203,000

"What Are The Biggest Needs Facing This Group Today?"

Access – Virginia's most remote areas lack basic broadband connection: Despite the Commonwealth's significant investments in broadband infrastructure through programs like the VATI, there are many rural regions that lack access to broadband. The Commonwealth's BEAD Five-Year Plan outlines extensive planned efforts with federal and VATI funds to address the accessibility challenges facing rural communities.

Adoption – Conceptual benefits alone will not convince a community that has managed to get by without the internet as a part of their daily life: Rural communities lag behind in adoption as there is no inherent reliance on broadband, as well as a suspicion of overreliance on technology. Establishing trust through known community voices can help with overcoming adoption barriers based in skepticism and distrust of the internet and modern digital tools.

Sustainable Funding – Some programs that serve broadband deployment efforts in rural communities are at risk: Presently, the expansion of broadband access to Virginia's most remote populations is made financially viable through Federal programs like the ACP that have uncertain funding futures. The Commonwealth has an opportunity to a nurture a lasting sense of stability for both internet service providers and broadband customers by investing in sustainable, long-term affordability programs.

Digital Skills – A drain of talent and youth in rural areas due to a lack of digital and economic opportunity creates a vicious cycle: The lack of digital tools and reliable internet in rural communities leads to an exodus of those who seek opportunities elsewhere. Those left behind experience an even greater digital divide, continuing the cycle of socioeconomic stagnancy and a drain of youth and talent.

"What Are Some Key Digital Opportunity Design Considerations?"

Articulating benefits in terms of major needs relevant to rural individuals will improve the odds of success for enthusiastic adoption: Rural communities that have existed without expansive internet and digital technology access will see no reason to suddenly prioritize it without clear lines being drawn between the benefits it can convey and how it will positively impact their lives in practical example that solve challenges they face today.

Bringing ambitious, expansive digital opportunities to rural regions can incentivize those who would otherwise leave to stay, improve overall digital literacy and skills for the region, and attract new residents: Rather than provide the minimum skills and knowledge required to navigate a digital world, there is a unique chance to use digital opportunities and programs to revitalize rural communities in a way that centers on and celebrates their identity, creating new prospects for driving socioeconomic improvement.

Rural Individuals in Virginia

Rural individuals experience the digital divide in a much more physical manner than most. While many other covered populations experience challenges accessing the digital landscape that could be remedied through increased awareness or the development of digital skillsets, many rural individuals still require the preliminary, foundational step towards digital opportunity: broadband deployment. Historic and present-day limitations to broadband access underpin all other barriers faced by rural individuals.

A report in 2021 by the U.S. Department of Agriculture detailed that rural census tracts are historically underserved with broadband access. While more than 90 percent of people living in the United States have access to moderate-speed or high-speed internet service, only between 30 and 40 percent of rural residents fully lacked access to broadband. [116] There are two main rationales behind this discrepancy: 1) geographic limitations (i.e., mountains, existing infrastructure, water sources) that limit the capacity for broadband providers to lay high-speed fiber and other internet products; and 2) the high financial cost of deploying broadband to remote, low-density areas.[117]

> *"Rural digital opportunity isn't just about health and education resources – there needs to be a clear conversation on how it can enhance fun, provide benefits to the family, and foster a stronger community. It's about overall quality of life."* – **Energy Provider Stakeholder**

Without readily available broadband, rural communities suffer. Residents with limited broadband access are restricted from various online tasks, such as engaging in distance learning, scheduling vaccinations, or accessing support resources for farming technologies.[118] These limitations contribute to a diminished sense of opportunity available in rural communities, particularly for children and young adults, and may influence an individual's decision to seek experiences and employment in larger, more metropolitan centers. The resulting exodus of talent deeply affects rural communities by reducing overall population size, threatening rural economies, and reinforcing the harmful cycle of underinvestment.[119]

In the case of the Commonwealth however, there has been a long-standing and concerted effort to close the digital access divide for Virginia's rural communities. Many of Virginia's broadband initiatives today were born out of a need to connect rural communities, such as the Virginia Tobacco Region Revitalization Commission's focus on deployments.[120] The successes achieved in bringing high-speed internet Virginia's rural communities through programs such as VATI, LEAP, and the Utility Leverage Program is notable. In many ways, the Commonwealth of Virginia is the leading national example of how to address the availability aspects of the rural digital divide. With that said, there remains more work to be done to fully address the non-deployment needs and barriers facing rural individuals.

[116] Rural America At A Glance | USDA (2021)
[117] State of US Broadband in 2022 | Information Technology and Innovation Foundation (2022)
[118] Why the federal government needs to step up efforts to close the rural broadband divide | Brookings (2022)
[119] Losing Our Minds: Brain Drain Across the United States | US Congress, Joint Economic Committee (2019)
[120] Virginia Rural Health Plan 2022-2026

There are 2.8 million rural inhabitants in Virginia today, of which over 7 percent lack access to broadband internet.[121] For these individuals, their experience with the digital divide is tied to factors that cut across multiple covered population identities. While deployment and infrastructure barriers to continue to create challenges for some rural regions, for many it is tied to larger socioeconomic barriers common to these communities.

One such barrier is the relationship between covered households and rural regions of Virginia. In the Commonwealth, the poverty rate in rural areas is twice that of the urban areas.[122] For these communities, the cost of internet subscriptions and digital technologies present an affordability barrier. Many internet service providers cite that Federal funding programs, such as the Affordable Connectivity Program, are the only way to make the deployment and provision of high-quality broadband to rural communities a financially viable option. With the future of programs such as the ACP in question, the ability of rural residents to access and afford modern broadband and digital tools is put at risk.

Did You Know…

Of all Rural Virginia Households

- **64%** have a desktop computer or laptop, vs. 83.2% of non-rural peers.
- **22%** have no computer or mobile device, vs 8.3% of non-rural peers.
- **66%** have wired broadband (fiber, DSL, Cable) vs. 84% of non-rural peers.
- **3%** use satellite vs 1% of non-rural peers.
- **29%** are entirely without internet service vs 12% of non-rural peers.

Source: 2022 Virginia Rural Health Plan

Similar to racial and ethnic minority communities, rural regions are susceptible to digital redlining.[123] Communities that are not projected to provide a reliable return on investment are passed over.[124] This phenomenon is not restricted to digital opportunity either – many of the socioeconomic hurdles these regions face are a result of historic underinvestment in rural regions.[125] These financial and opportunity costs then trickle down and fall upon the rural consumers to bear.[126]

With these considerations in mind, we now explore specific digital needs and barriers impacting rural communities in the Commonwealth.

Respondent CAA Region	Respondents Identifying as Rural
CAPSAW	42%
SERCAP	63%
People, Inc. NOVA	45%
WJCC Region	40%
People, Inc. SWVA	57%
Bay Aging	61%

Table 4: Self-Reported Rurality | Commonwealth Digital Opportunity Survey

[121] Virginia Rural Health Plan 2022-2026
[122] Virginia Rural Health Plan 2022-2026
[123] Will Partnerships Bring Digital Equity to Rural America? | Government Technology (2022)
[124] Will Partnerships Bring Digital Equity to Rural America? | Government Technology (2022)
[125] Why the federal government needs to step up efforts to close the rural broadband divide | Brookings (2022)

[126] Economics of Broadband Networks | NTIA (2022)

Needs and Barriers for Rural Individuals in Virginia

Need Type	Barriers, Challenges, and Considerations
Available/affordable broadband access	**Cost of Broadband Deployment** | Conversations with stakeholders underscored the prohibitive cost of broadband deployment for internet service providers in last-mile projects and other rural connection efforts. **Geographic Limitations of Broadband Deployment** | Most stakeholders that raised broadband deployment concerns highlighted that topography, including mountain ranges and water systems, affect broadband deployment and can limit connectivity to Virginia's most remote regions. Survey results showed 64 percent of rural respondents reported that home internet access was not available in their area, compared to 25 percent of their non-rural peers. Even when connected, these rural populations are nearly twice as likely to report that their subscribed speed as not achievable.
Access to digital resources and technologies	**Telehealth Access** | Conversations with stakeholders stressed the importance of expanding telehealth access and skills to best reach rural individuals and combat their physical proximity to healthcare providers.
Adoption and Awareness	**Perceived Relevance of Broadband** | Stakeholders discussed the fact that adoption rates lag in many rural communities because there has not been sufficient education surrounding the applicability of internet to many facets of rural living, including employment-seeking, education, and healthcare. Many rural individuals simply believe they don't need the internet.
Digital Skills	**Smart Farming Technologies** | In conversations, stakeholders shared the power of many advanced agricultural technologies and noted that appropriate education on these devices could fundamentally transform rural economies. **Basic Digital Training** | Since broadband access has been limited for many rural residents, preliminary digital skill-building will require beginning with the most basic, rudimentary lessons, stakeholders reported.
Cybersecurity	**Risk of Data Breach** | Energy and internet providers report that rural communities tend to not have the same level of security measures in place as their urban counterparts, making it easier for cybercriminals to access sensitive information.[127]
Other	**Lack of Emergency Notification Infrastructure** | One stakeholder highlighted their concern that a lack of broadband infrastructure affects rural communities' abilities to extend emergency notifications to service crews and the general public.

[127] Cybersecurity: A Crucial Need in Rural Communities

3.2.5 Broadband Adoption

"Closing the digital divide is paramount to growing Virginia's economy, supporting businesses and ensuring that all Virginians have the resources they need to thrive […] These investments [are] critical strides toward achieving universal broadband in Virginia."

– **Caren Merrick, Virginia Secretary of Commerce and Trade**

County / City	Households Without a Broadband Subscription	County / City	Households Without a Broadband Subscription
Rockingham County	16%	Hanover County	7%
Richmond City	15%	Fauquier County	7%
Roanoke City	14%	York County	7%
Augusta County	14%	Lynchburg city	6%
Portsmouth City	13%	Chesterfield County	6%
Norfolk City	10%	Chesapeake city	6%
Roanoke County	10%	Alexandria city	6%
Henrico County	10%	Virginia Beach city	5%
Bedford County	9%	James City County	5%
Hampton City	9%	Fairfax County	4%
Montgomery County	9%	Prince William County	4%
Frederick County	9%	Arlington County	3%
Newport News City	8%	Spotsylvania County	3%
Suffolk City	8%	Stafford County	3%
Albemarle County	8%	Loudoun County	3%

Virginia has explicitly articulated its goal of achieving universal broadband access for all residents as a key driver behind its efforts to increase the availability of broadband and improve adoption rate.[128] The Virginia Telecommunications Initiative (VATI) program is a linchpin program that has provided essential funding for broadband expansions and buildouts since 2017. Administered through DHCD, VATI has awarded nearly $900 Million dollars to make broadband available to over 358,000 households in the Commonwealth.[129] Additional expansion and last-mile programs offered in the Commonwealth include the Community Development Block Grant (CDBG) last-mile program, and expansion assistance via the Appalachian Regional Commissions (ARC), Utility Leverage Program, and Line Extension Customer Assistance Program (LECAP).

The success of these initiatives is apparent. Regions that previously lacked coverage of any kind, such as remote coastal residences within Mathews County, are now connected to modern, high-speed fiber. Adoption, for the most part, has largely matched the rate of expansion within the Commonwealth.[131] Analysis by Virginia through its Commonwealth Connection mapping initiative demonstrates that few counties today experience speeds of 100/20 Mbps for 95 percent or more of their population.[132,133] ACS 2021 1-year data shows a similar story, identifying that subscriptions to speeds of at least 25/3 Mbps are available in Cities and Counties as captured in Census data. Overall, Virginia's initiatives have brought connectivity to residents that have been eager to adopt.[134]

To achieve universal broadband coverage, the Commonwealth of Virginia will allocate funding through broadband deployment grants to reach all unserved areas of the Commonwealth. Under Virginia's BEAD Five-Year plan, unserved areas are defined as those with connectivity speeds at

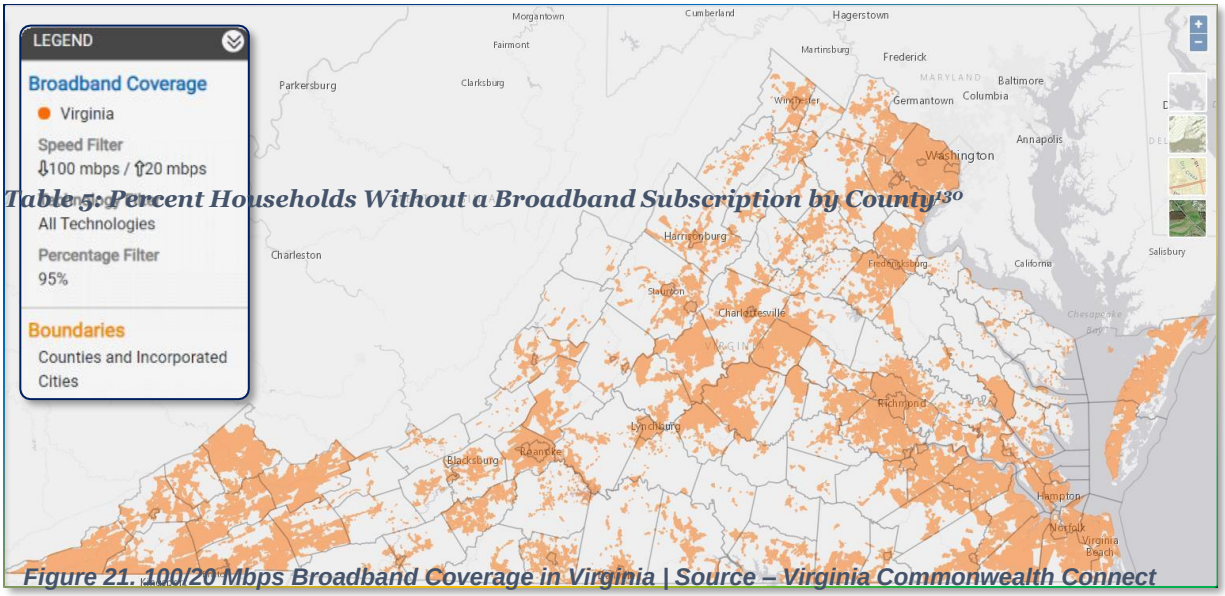


Figure 21. 100/20 Mbps Broadband Coverage in Virginia | Source – Virginia Commonwealth Connect

Table 5: Percent Households Without a Broadband Subscription by County[130]

[128] Commonwealth Connect | Virginia DHCD
[129] Virginia Telecommunication Initiative Award Data (2023)
[130] Census Bureau | 2021 ACS 1-Year Estimates
[131] Virginia DHCD | Commonwealth Connection
[132] Virginia DHCD | Commonwealth Connection
[133] Census Bureau | 2021 ACS 1-Year Estimates
[134] ISP Wins $15.2 million in Grants for Broadband Expansion in Virginia

or below 25/3 Mbps; underserved areas are those where connectivity is at or under 100/20 Mbps.[135]

The existing body of research clear: speeds of 25/3 are outmoded, unable to support the modern needs of households and business, in both metro and rural regions.[136] Instead, speeds of 100/20 Mbps are increasingly being recognized as the minimum broadband capacity required to function in today's digital landscape.[137] This consideration is important as the Commonwealth pursues its goal of universal broadband coverage for all residents. According to FCC Data, Virginia's broadband coverage sits at 88 percent availability at advertised speeds of 100/20 Mbps.[138] **Figure 21**above shows that several counties lack the ability to provide those speeds.

While availability of broadband is not the only barrier to adoption, it is a significant one. Response data from the Commonwealth Digital Opportunity Survey highlights the largest reason respondents had not adopted broadband was a lack of availability, followed by cost. The figure below outlines response data from both covered and non-covered Virginians when asked "What is the main reason why you do not have internet access at home?".

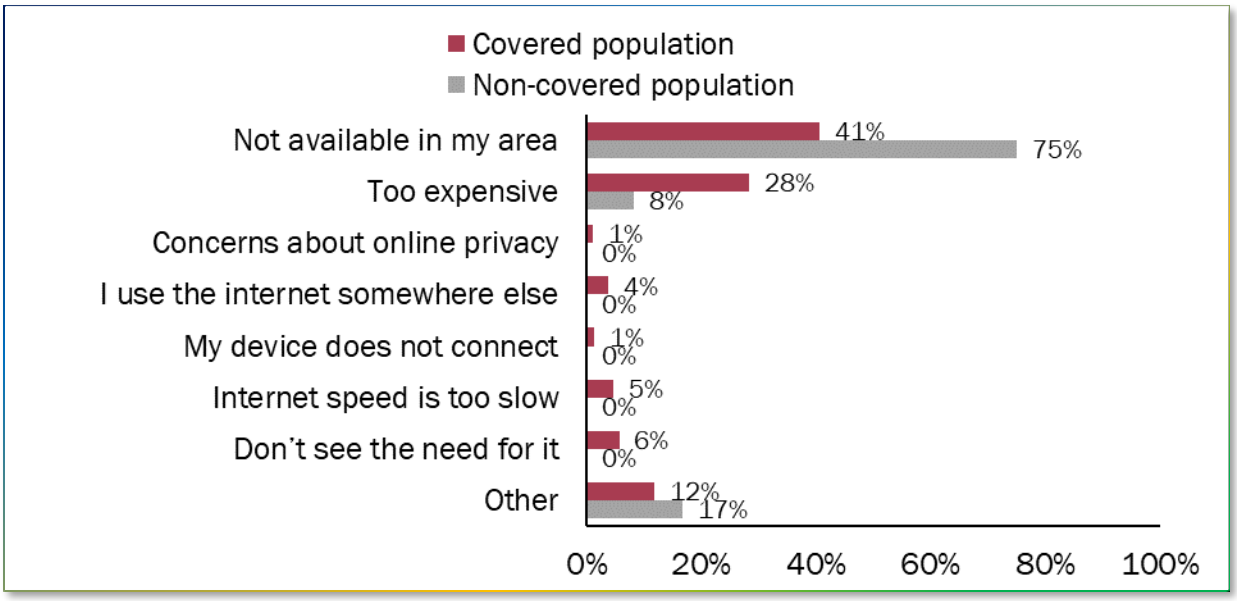


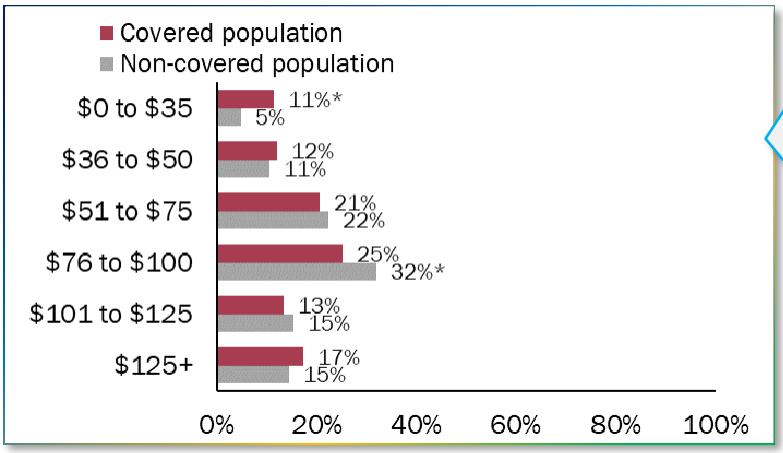
Figure 22: Reasoning Behind Lack of Internet Adoption | Commonwealth Digital Opportunity Survey

To address availability concerns, the Commonwealth's BEAD Five-Year Plan outlines extensive initiatives to bring connectivity to unserved and underserved regions of Virginia. With the goal of Universal Coverage set to be achieved by 2024, it is more important than ever to identify and address needs outside of availability. In the following sections, we further explore the key barriers facing each covered population.

[135] Commonwealth of Virginia BEAD Five-Year Plan
[136] Needs of Rural Small Businesses and Federal Programs to Support Them | Government Accountability Office (2022)
[137] FCC Notice of Inquiry | Proposed Benchmarks Aimed at Giving Public Faster Broadband Service
[138] FCC National Broadband Data | Broadband Map

3.2.6 Broadband Affordability

Affordability is a challenge experienced by many Virginians regardless of their covered population status populations. Survey responses from the Commonwealth Digital Opportunity indicated that, while covered and non-covered populations do not significantly differ in their reasoning behind lack of adoption, covered populations were more likely to cite cost as their primary barrier. **Figure 23**below outlines the monthly cost of internet paid by covered and non-covered populations in the Commonwealth.



When asked **"How much do you pay each month for internet service"** respondents reported relatively high internet costs, with the majority paying over $50 a month.

Covered populations are more likely to pay less for internet, which may indicate slower plan speeds or use of programs like the ACP.

Figure 23: Monthly Internet Cost | Commonwealth Digital Opportunity Survey

Not all Virginians agree on what they consider to be "affordable" broadband. The price paid for internet services varies across the Commonwealth and between covered populations. Survey results indicate that covered populations (11 percent) are more likely than non-covered populations (5 percent) to spend less than $36 on internet service while non-covered populations are more likely to spend $76 to $100 (32 percent versus 25 percent).

For many of those facing affordability barriers, lack of awareness of assistance programs is a major barrier inhibiting factor. Although over half of respondents were unwilling to pay more for better internet service, available subsidy funds are going unused. While subsidies such as the ACP and Lifeline Program exist, over 60% of both covered and non-covered survey respondents indicated that they had not heard of either. As of today, over 700,000 eligible households are not presently enrolled in the ACP – leaving nearly $21 million per month in direct federal aid on the table.[139] As the Commonwealth weighs opportunities to close the affordability barrier for internet and devices, ensuring that those who would stand to benefit the most are also the most aware of subsidy or support programs is crucial.

While they tend to spend less on broadband than their non-covered population peers, those who are members of covered populations do see the value in having high quality internet service. They are more willing than non-covered populations to spend more for better internet service, offering internet service providers financial incentive to support these communities in connecting them to the digital landscape. At a regional level, more specific sentiments around affordability and cost-related barriers to adoption emerge (**Table 6**).

[139] Commonwealth of Virginia | BEAD Five-Year Plan

Respondent CAA Region	Respondent Affordability Considerations
CAPSAW	40% identify cost as the greatest barrier to an internet subscription
SERCAP	45% spend between $50 and $100 each month on internet alone
People, Inc. NOVA	38% spend between $50 and $100 each month on their internet service; however, 24% spend over $125 per month
HRCAP	While respondents overwhelmingly expressed interest in the ability to access low-cost or free internet services / digital devices, over 81% have not applied to a subsidy program such as the ACP
WJCC Region	48% spend between $50 and $100 each month on internet service
People, Inc. SWVA	37% identify cost as the greatest barrier to an internet subscription
Bay Aging	Over 70% of respondents are either unwilling or unsure about pay more for better internet service
CAPUP	56% would not be willing to pay more for better internet service
Improvement Association	While 38% were unwilling to pay more for improved service, 63% of all respondents were unaware of existing subsidy programs
Other (Non-CAA Region)	41% spend between $50 and $100 each month on internet service

Table 6: Regional Responses to Affordability | Commonwealth Digital Opportunity Survey

In 2022, the Commonwealth developed and published the Commonwealth Digital Affordability and Cost Effectiveness Plan to help identify and prioritize funding opportunities for broadband access, affordability, and adoption. The strategies and programs identified in the plan serve as an excellent starting point to continue addressing affordability challenges throughout Virginia. Research conducted under this prior plan may also help shed light on promoting affordability programs. At the time of this analysis, the City of Franklin had the highest ACP enrollment of estimated eligible households of 73.1%. While no direct promotional programs were identified by city staff, this high level of enrollment should be further studied to understand best practices in promoting ACP. Other localities of high ACP enrollment included Petersburg (60.1%), Suffolk (54.7%), Portsmouth (54.5%), Emporia (47.7%), and Norfolk (46.5%). At the time of drafting the Commonwealth Digital Affordability and Cost Effectiveness Plan, the statewide enrollment of eligible populations was 27%). More recent enrollment data for the Affordable Connectivity Program estimates 43% of eligible Virginia residents are participating in the program.

Understanding both the direct barriers (money) and indirect barriers (lack of awareness) facing Virginians help to properly frame challenges around affordability. In the following sections, we explore in greater depth the specific affordability challenges experienced by covered populations, both collectively and as individual groups.

4 Collaboration and Stakeholder Engagement

4.1 Coordination and Outreach Strategy

Recognizing the importance of ensuring adequate access to digital technologies, the state has undertaken extensive collaboration and community engagement efforts to gather valuable insights from our stakeholders in which we serve. To accurately assess the digital needs and barriers faced by the different regions, Virginia conducted a community engagement and outreach strategy comprised of five key components: including,

1. Community input sessions;
2. Conducting 1:1 stakeholder interviews;
3. Conducting broadband centric focus groups;
4. Counties and Cities with Existing Digital Opportunity Efforts; and,
5. Forthcoming Public Comment on this Plan.

By engaging a diverse range of stakeholders, including individuals, various organizations, community action agencies and community leaders, the state has been able to collect comprehensive data that will inform its strategies and initiatives to close the digital divide, especially for the communities in need. This commitment to collaboration, coordination and community engagement not only ensure the plan's effectiveness for various populations across the state, but it also empowers communities to participate in shaping their futures in the digital society.

Community Input Sessions

Virginia, along with its community action partners, conducted numerous community input sessions in each of the nine regions to bring stakeholders and community members together and capture their prospectives, experiences and genuine commentary on their existing assets and barriers to broadband resources and reliable services. The purpose of these community input sessions was to gather feedback and insights from stakeholders and community members to shape the needs and barriers of each respective region, consequently informing and shaping the state's digital opportunity efforts. The community input sessions were organized at the regional level, with the partnership of our community action agencies who took on the responsibilities of planning, coordinating, and marketing these sessions. The community action agencies were valuable partners by assisting facilitation and encouraging participation from the diverse community members in attendance.

Through these sessions, Virginia aimed to understand the specific needs, challenges and aspirations of the different regions and covered populations within the state. The involvement of the community and community action partners added value by leveraging established networks and deep understanding of the local dynamics, ensuring that voices from stakeholders in all walks of life are heard. By operating these sessions at a regional level, Virginia was able to identify common faced challenges by the covered populations, nuance regional perspectives and insights, and barriers that affect all residents in certain geographical locations, such as rural and remote areas. The insights and stakeholder engagement from these input sessions were critical in shaping the understanding of the barriers, challenges, needs and desires from the regional perspective. This approach allowed for the state to receive a bottom-up point of view of digital opportunity, rather than a one-sized-fits-all perspective.

Conducting 1:1 Stakeholder Interviews

Virginia recognized the importance of outreach and community engagement using one-on-one key stakeholder interviews with a wide range of government agencies, nonprofit and community-based organizations, tribal sovereignties, and community anchor institutions that know and serve the covered populations. These interviews provided an intimate setting for key stakeholders to share barriers, needs, concerns, and suggestions to group dedicated group of active listeners. By conducting personalized interviews, a comprehensive understanding of the specific challenges and opportunities faced by various stakeholders in their efforts to address the digital divide was established. This approach ensured that the voices and experiences of numerous stakeholders were incorporated into the development and execution of the Digital Opportunity Plan.

These interviews each gave the unique perspective of each key stakeholder and offered a platform to convey their concerns and personalized recommendations for the populations they serve. The key findings in identifying specific needs across these interview range in priority but have been identified as follows:

- Local DSS offices highlighted that stable internet access for their clients and the need to deliver existing or consider expanding programs as the biggest challenges.
- Public libraries require sustainable funding for staff capacity to deliver digital tools and programs or hire a Digital Navigator.
- The Nottoway Tribe expressed the need for funding to offer reliable high-speed internet access and access to digital devices as primary needs for their community.
- Majority of correctional facilities only have access to speeds far below rates considered "served broadband" speeds by current FCC definitions which creates significant limitations on what basic digital services correctional facilities can offer for its inmates.
- The VDOE highlighted Virginia's varied topography as a major challenge to universal broadband connection and opportunity.
- VA CARES highlighted that housing and employment are the two most pressing needs of recently incarcerated individuals and many resources to secure these things are available online.
- The V4A highlighted digital literacy, skill development, telehealth access and adoption as critical needs for the aging population.
- The Virginia, Maryland, and Delaware Association of Electric Cooperatives (VMDAEC) highlighted the cost of last-mile construction, low rates of digital literacy and the concern of funding instability once the ACP window expires as the key barriers for rural populations.
- Literacy for Life highlighted the need for sustainable funding sources to support language learners and their digital literacy instruction.
- The primary need highlighted by the VBIA is that there isn't sufficient incentive for internet services providers to advertise their existing affordability/access initiatives to customers.
- The Virginia Municipal League (VML) has found that some counties lack cybersecurity knowledge and the resources to have a robust online presence.
- The Virginia Community Action Partners network (VACAP) underscored that local agencies require additional funding to support a designated Digital Navigator as part of their staff leadership.

- The Virginia Cable Telecommunications Association (VCTA) perceived relevance of connectivity and readiness to adopt new technologies are the two primary barriers that were raised.

These sessions were able to capture clear perspectives on digital opportunity through the lenses of Broadband access, affordability, and digital literacy. Through small group interaction, Virginia was able to create a platform for stakeholders where their contributions would be valued, and their expertise recognized. The information gathered serves as a foundation in the development of targeted initiatives and strategies identified to address the barriers of the state. In particular, the Office of Broadband engaged with the seven federally state-recognized tribes located in the Commonwealth of Virginia, as well as the four state recognized tribes to ensure that the planning efforts under this program considered and addressed tribal-specific needs as well. This was accomplished by having a joint BEAD-Digital Opportunity Plan Listening Session, as well as through one-on-one interviews and focus groups to understand and develop solutions for the unique needs of Tribal communities. The stakeholder and community engagement efforts conducted through key stakeholder interviews demonstrates Virginia's commitment to inclusivity and collaboration, ultimately increasing the effectiveness and impact of the program. To review the summaries of these 1 on 1 stakeholder interviews, please refer to the appendix of this document.

Conducting broadband centric focus groups

Focus groups conducted by the Commonwealth incorporated the extensive expertise of stakeholders and agencies focused on the overarching end goal- universal broadband. These focus groups of industry experts included representatives from various state departments and agencies committed to the advancement of broadband, the vast network of community action agencies, and elected officials who are committed to bridging the digital divide through broadband planning. These focus groups included: Community Action Agencies (not identified as lead agencies for RDOP subgrants), Community Anchor Institutions (CAIs), the Broadband Advisory Council, and the Virginia Department of Health and Human Services Agency Partners. The involvement of these diverse groups of experts ensured the planning process incorporated a wide range of perspectives and insights from key stakeholders that understand the importance of digital opportunity.

These focus groups served as a platform for in-depth discussion, allowing the exchange of ideas, experiences, and knowledge among the diverse participants. By involving government departments and agencies, Virginia ensured that the program aligns with existing policies and regulations, leveraging their expertise in implementing initiatives effectively. The inclusion of community action agencies further enhanced the identification of community-specific challenges and needs, as they hold an intimate understanding of local dynamics and community-level barriers to digital opportunity. The participation of elected officials, through the Broadband Advisory Council, demonstrated a commitment to broadband planning and emphasized the importance of digital opportunity in legislative agendas to come. For the findings and outcomes of these focus groups convenings, refer to the appendix of this document.

Counties, Cities and Tribal Governments with Existing Digital Opportunity Efforts

A handful of counties, cities and tribal governments across the Commonwealth are already undertaking digital opportunity plans and programs in their jurisdictions. While these efforts were not included in the regional digital opportunity plan regions, the Office of Broadband

consulted these entities to understand their planning efforts, best practices, lessons learned, and services provided to inform development of this statewide plan. Three specific examples of this outreach are Albemarle, Fairfax Counties and the Upper Mattaponi Indian Tribe.

Albemarle County

The Albemarle County Broadband Office engages multiple community organizations to develop a digital equity plan for the area, and to lay the groundwork for programs and initiatives that will directly address barriers to digital access. Recognizing the high cost of broadband in many of our low-income neighborhoods, the County of Albemarle has created a supplemental benefit to ACP recipients, adding up to $20 per month to the federal program. This ensures that even our most vulnerable households can afford the access they need.

Fairfax County

Fairfax County, through its planning efforts and One Fairfax policy, defines digital equity as ensuring opportunities for Fairfax County residents to participate and engage in a connected community. The ability to access, understand and use digital tools is essential for many tasks in modern life, including applying for jobs, paying bills, enjoying recreational activities, completing homework, staying informed and connecting with government/community services. Through online resources, the County provides residents the opportunity to find free Wi-Fi, borrow a computer, access Fairfax locations, and take tech classes.

Upper Mattaponi Indian Tribe

The Upper Mattaponi Indian Tribe received a federal grant from NTIA under the Tribal Broadband Connectivity Program for a Broadband Use and Adoption project. This project will provide affordable broadband services through payment assistance programming as well as provide citizens in need with laptops. These services will be provided to improve tribal citizens' access to telehealth, tele-education, and other modern economic development activities that promote job growth and household connectivity for the Upper Mattaponi community.

Continued engagement with these and other digital opportunity leaders will be critical in effectively designing state programs to close the digital divide. These local plans and programs must be analyzed for their effectiveness on a local level, as well as their potential to be replicated on a statewide scale.

Public Comment

The public comment period is crucial in ensuring the voices of all Virginians are heard in the development and refinement of the state's digital opportunity plan. It provides a valuable opportunity for the community to express their thoughts, concerns, and suggestions regarding the plan's content and implementation strategy. These comments are taken into careful consideration by leadership before the final draft is published. This ensures that the state's digital opportunity plan incorporates a diverse range of perspectives and experiences, making it more comprehensive, inclusive, and responsive to the needs and aspirations of the stakeholders.

The comments submitted during public comment were y considered during the creation of the final draft and will also be considered as we development future digital opportunity programs , .

Comments from stakeholders provide extremely valuable feedback that helps identify areas for improvement or adjustment in strategies, programs, and initiatives. By incorporating public comments, Virginia ensuring that the digital opportunity plan remains dynamic and responsive to the evolving needs of the community. This process of public input and plan refinement allows the digital opportunity plan to remain relevant and effective in addressing the digital inconsistencies and promoting access to digital resources and opportunities throughout the Commonwealth.

Implementation

The Digital Opportunity Plan serves as a roadmap for ending the digital divide in the Commonwealth. Doing so requires an implementation strategy that holistically and sustainably addresses critical digital opportunity needs identified in this planning effort.

The following implementation strategy is meant to navigate multiple sources of funding related to addressing the digital divide, and to remain viable beyond the expenditure of funds from the federal Infrastructure Investment and Jobs Act. In addition to utilizing DEA Capacity funding, Virginia will plan to utilize the remaining available non-deployment funds under the BEAD program, which align with the state's DEA activities to advance these objectives. In doing so, these efforts will build upon prior investments of state general funds, Coronavirus State Fiscal Recovery Funds, and Coronavirus Capital Projects Funds all aligned with closing the digital divide in the Commonwealth. Please see Section 2.2 Alignment with Existing Efforts to Improve Outcomes for more information on alignment with BEAD non-deployment funding.

5.1 Implementation Strategy & Key Activities

Key Priorities for the Commonwealth

The Office of Broadband identified in its key priorities for how Virginia will approach the design of Digital Opportunity programs using DEA funds. These priorities hold constant for how Virginia will approach designing programs for utilizing the remaining BEAD funding, contingent upon the amount of available funding for non-deployment activities. The approach intends to avoid duplication of funding by utilizing DEA funding to begin capacity building programs and sustainable solutions to the digital gaps prevalent in Virginia's covered populations, and then to invest the remaining BEAD funding in alignment with the activities conducted under DEA program, contingent upon NTIA approval of eligible uses of non-deployment funds. The following considerations are of the utmost importance for Virginia as the Commonwealth works to end the digital divide:

Return on investment for the Commonwealth and its residents: The initiative must have a generational impact on residents of the Commonwealth and address the digital divide in a sustainable manner. Sustainable program models are paramount to addressing broadband affordability and adoption in the long term beyond federal funding availability.

Addresses identified component of the digital divide: The initiative should address a component of the digital divide beyond access to broadband infrastructure that is supported by data from the Virginia Digital Opportunity Survey and consistent with the findings of the Virginia Digital Opportunity Plan and/or locality and Tribal digital opportunity plans.

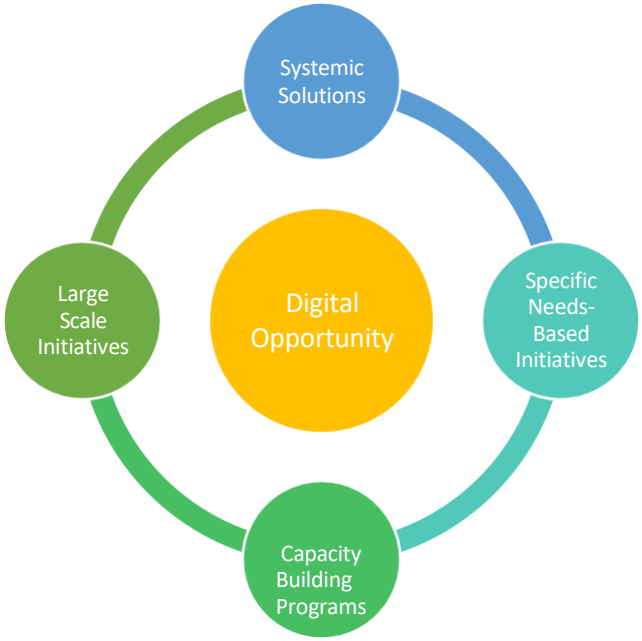
Innovative solutions: The initiative should address an aspect of the digital divide without a current solution or supplements an existing solution in an innovative manner.

Capacity and experience: Organizations in the prospective pool of applicants must generally have the experience and organizational capacity necessary to administer a potentially significant program.

Virginia's Digital Opportunity Strategy

The development of the Virginia Digital Opportunity Plan represents the first comprehensive analysis of the digital divide beyond access to broadband infrastructure in the Commonwealth's history. The disparate elements of the planning process, including extensive stakeholder and community engagement, development, distribution of a statewide survey, and two subgrant programs, have revealed critical digital opportunity needs that necessitate an implementation strategy.

The Office of Broadband proposes an implementation strategy structured around four categories of targeted initiatives which, in concert, will close the digital divide in the Commonwealth and make Virginia a Commonwealth of Digital Opportunity – where residents have access to affordable, reliable high-speed internet, device access and the digital skills necessary to use the internet to pursue their passion.



Collectively, four categories of support form an implementation strategy that addresses the digital barriers identified in the planning process.

Systemic solutions are needed to address barriers that are experienced by all Virginians, such as a lack of awareness of digital opportunity resources and unequal access to devices and affordable service options. The planning process revealed covered populations with specific needs that require tailored solutions, such as for incarcerated individuals and individuals with disabilities. A key takeaway from the assessment process has been the need for capacity building programs that support organizations doing diverse digital opportunity work at a more granular scale than is possible with statewide or regional subgrant programs. Finally, large scale non-deployment broadband initiatives are needed to support Virginia industries as they transition to the digital era by incorporating broadband into traditionally manual practices.

Goal 1: ACCESS and AFFORDABILITY: Virginians will have access to affordable, reliable, high-speed internet.

Recommendation: Large Scale Initiatives

Core Activity: Support large-scale digital transition in Virginia.

Need: With ongoing broadband deployment efforts through VATI and utilizing BEAD for the remaining , unfunded unserved and underserved locations the Commonwealth will be well-positioned in to, achieving functionally universal connectivity across the state by 2028. Connectivity comes first, and as we work towards his milestone enabling industries, units of local governments, and organizations of all types to integrate technology into traditionally non-digital practices. The digital opportunity planning process revealed that state support is needed to address structural gaps in digital skills and literacy, cybersecurity training, and the adoption of broadband services generally. DEA State funding will enable the Commonwealth to address these structural gaps.

Solution: Utilize remaining BEAD funds following full allocation of funds necessary to reach universal connectivity to support non-deployment programs that address structural digital gaps in the Commonwealth.

Strategies & Corresponding Measurable Objectives: *Support Virginia's transition to a fully connected Commonwealth with a modern, digitized economy , and a digitally literate workforce.*

i. Complete broadband deployment as indicated as part of the Commonwealth's BEAD 5-Year Action Plan. Initial estimates for a baseline of unserved and underserved locations, based on December 30, 2022, coverage data from the Federal Communication Commission's Broadband Availability Map, identify 162,107 locations without qualifying broadband access and outside a funded project area. Awards for these funds are targeted to be made in Fall 2024,contingent on the final proposed timeline from NTIA, with projects reaching substantial completion within 4 years of contract execution. All covered populations, especially individuals living in rural areas, will be impacted by this objective, except for incarcerated individuals.

ii. Increase enrollment of eligible households in the Affordable Connectivity Program (ACP) by more than 5% within 12 months after beginning promotional efforts, through existing and future efforts, contingent on continued funding for the program. Baseline data indicates that currently 1,088,427 households in Virginia are eligible for ACP, approximately 43% (446,900) Virginians are enrolled in ACP according to Federal Communications Commission enrollment data. All covered populations will be impacted by this objective, except for incarcerated individuals.

iii. Design and support sustainable digital opportunity program(s) utilizing DEA State Capacity grant funding and remaining BEAD funding for initiatives related to digital literacy, telehealth, activities related to the incorporation of "smart" technologies and capabilities into farming practices, cybersecurity training and education, and other activities, related to broadband adoption. The Commonwealth will assess utilization of these digital practices and resources to establish baselines and progress measures for each new non-deployment program.

Recommendation: Capacity Building Programs

Core Activity: Administer a Digital Opportunity Capacity Subgrant Program.

Need: The Office of Broadband worked with community action agencies through the Regional Digital Opportunity Planning subgrant program and with organizations engaged in digital opportunity work through the Case Study Program to develop the Digital Opportunity Plan. These entities have a strong local footprint and can address a wide variety of digital opportunity needs at a granular, community level. However, they often lack the capacity or funding necessary to administer a new program, or to scale up an existing one to meet demand.

Solution: The Office of Broadband proposes utilizing funds from Virginia's DEA Capacity Grant allocation to administer a Digital Opportunity Capacity Subgrant Program that will continue the work started during Virginia's subgrant programs under the Planning Grant. This program can support organizations of all types, including libraries, community-based organizations, non-profits, local governments, and other organizations doing diverse work across the digital opportunity spectrum and across all covered populations, putting community-based organizations in a position to address the digital divide in their backyard.

Strategies & Corresponding Measurable Objectives: *Strengthen organizational capacity to enhance community efforts to address the barriers and needs of digital opportunity*:

i. Increase the number of Virginians impacted by DEA-funded digital opportunity programming year-over-year through the life of the capacity grant program.
ii. Identify organizations engaged in digital opportunity work to support.
iii. Bring new organizations not traditionally involved in digital opportunity work into the field by building capacity with planning and implementation support.

Recommendation: Specific Needs-Based Initiatives

Core Activity: Assist communities to develop and expand large-scale efforts for the utilization of broadband among incarcerated individuals and individuals with disabilities.

Need: The planning process revealed two covered populations with specific needs related to digital opportunity that require customized solutions. The Office of Broadband has identified incarcerated individuals and individuals with disabilities as covered populations with specific digital opportunity needs.

Solution: Partner with state or local government agencies, as well as community organizations to develop and implement identified solutions and targeted programs for incarcerated individuals and individuals with disabilities.

Strategies & Corresponding Measurable Objectives: *Support the development of digital opportunity programming for all covered populations as well as support targeted efforts for incarcerated individuals and individuals with disabilities.*

i. Increase the percentage of covered populations who have access to a computing device that can connect to the internet by 5% and 10% using laptop or tablet, respectively, within 24 months after contract execution. Baseline data of incarcerated individuals and individuals with disabilities who have access to an internet-connected computing device will be established in partnership with Virginia

Department of Corrections and Virginia Board for People with Disabilities within 12 months of contract execution. Baselines will be used to help guide future development and planning of specific needs-based initiatives for these covered populations. Collaborate with organizations working regionally and serving incarcerated individuals and individuals with disabilities to understand what specific program designs are needed to address the digital needs of these covered populations at a local level.

Goal 2: DIGITAL SKILLS and LITERACY: Virginians will have access to digital learning resources and sustainable devices

Recommendation: Systemic Solutions

Core Activity: Create a centralized digital opportunity resource tool.

Need: A key finding of the digital opportunity assessment is a consistent lack of awareness of local, regional, state, and national resources to address critical digital needs, such as device access, affordable broadband service options, or digital literacy support.

Solution: The Office of Broadband proposes creating a centralized Commonwealth of Virginia Digital Resources Tool, "digitalvirginia.com". Using the information in the Office of Broadband's asset inventory as a baseline, Virginia can create a tool that allows end users to search for digital resources that meet their need, whether that is an affordable service plan, a device refurbishment program, local libraries, or online tools that offer digital literacy classes, or a local clinic that offers telehealth services. Developing a centralized repository for Virginia's digital assets will meet a critical need for all covered and non-covered populations and will drive adoption of available services. Additionally, focus on promoting existing, and supporting new device refurbishment programs, including investing in planning specific training and support provided to entities that providing devices to Covered Populations, as deployment of computers to Covered Populations as it is a complex, multi-step, multifaceted process.

Strategies & Corresponding Measurable Objectives: *Develop a state-wide digital resource hub to provide communities with a central location for existing available resources and programs.*

i. Reduce the broadband adoption gap by more than 5% between covered and non-covered populations by supporting digital literacy training available to all Virginians, including efforts targeting all covered populations within 24 months after beginning efforts to address these needs. All covered populations will be impacted by this objective and population-specific data will be collected to measure the reduction of this gap for specific populations.
    i. Baseline data from our statewide survey indicates there is between a 10% to 14% gap between noncovered and covered populations of being comfortable using devices to do most tasks, but less so for virtual doctor's appointments.
    ii. Literary for Life Case study finding indicated that 75% of participants self-reported confidence in their digital literacy skills using email, their NorthStar Assessment results indicated less than 10% of them had a passing score on the email unit.

ii. Design and implement awareness campaigns to inform communities about existing broadband services and resources; and Leverage partnerships to utilize various

communication channels, including print, digital, and social media platforms to reach a wide audience across the Commonwealth.

iii. Increase the number of community-based organizations offering digital navigator and technical assistance programs. The Commonwealth of Virginia will assess the identified community-based organizations, including community anchor institutions (CAIs) to establish a baseline of digital navigator programs across the state. All covered populations will be impacted by this objective. The timeline of this effort will be 24 months after establishing the baseline for the number of such organizations.

iv. Increase investment in sustainable, community-level device refurbishing and distribution programs providing , quality devices, including those with large screen and accessories available for ownership, including the development of the ecosystem and supporting capacity building for organizations conducting these activities.

v. Increase individual comfort and understanding of online privacy and cybersecurity. The Commonwealth will assess individual comfortability and understanding with online privacy and cybersecurity to establish a baseline of this metric. All covered populations will be impacted by this objective. The timeline of this effort will be 24 months after establishing the baseline for comfortability and understanding of online privacy and cybersecurity.

Goal 3: ADOPTION: Virginians will be equipped with the knowledge and skills to fully utilize broadband services, whether it be at their home or business.

Measurable Objective 3.1: Increase the applications of internet-enable technologies/devices in precision farming, telehealth, distance learning and online small business development. The Commonwealth will assess the utilization of the internet-enabled technologies/devices to establish a baseline. All covered populations will be impacted by this objective. The timeline of this effort will be 24 months after establishing the baseline for utilization of existing technology.

Note on Strategies & Measurable Objectives of Broadband Adoption: Broadband adoption is reflected across each of the prior goals, as well as in their respective measurable objectives and strategies. Because of this integral nature of broadband adoption across these other goals, no additional measurable objectives and strategies are identified specifically under this category.

As evidenced in this implementation plan, the Commonwealth of Virginia will need to partner multiple organizations to achieve these goals and measurable objectives. These partners include, but are not limited to workforce agencies such as the Virginia Department of Workforce Development and Advancement and regional workforce investment boards (WIBs) and local workforce organizations, labor organizations and community-based organizations;, and Institutions of higher learning, including but not limited to four-year colleges and universities, community colleges, education and training providers, and educational service agencies This document discusses planning and best practices of partnerships with many of these organizations, as identified through the efforts underlying this document. In addition to these discussed partnerships, the Commonwealth of Virginia will work with labor and workforce development organizations to ensure that any digital skill advancement programs are in alignment with nationally recognized and in-need digital literacy needs of workforce development organizations.

5.2 Timeline

The timeline presented in this Digital Opportunity Plan serves as an initial roadmap, guiding our efforts towards achieving Virginia's digital opportunity goals. It's important to acknowledge that this timeline is an estimate and is subject to potential adjustments as we navigate the complexities accessing forthcoming State Digital Capacity program for implementation. Unforeseen circumstances, resource availability, and evolving community needs may require modifications to the outlined timeframe. However, we remain committed to transparency and will communicate any adjustments promptly and effectively. Our continued focus is on delivering progress towards a Commonwealth of digital opportunity for all Virginians, and we will adapt our approach as needed to ensure we stay on track to achieving this critical objective of universal broadband.

2023: Key Activities and Milestones

- The Commonwealth will issue the draft submit the Virginia Digital Opportunity Plan for public comment in December 2023.
- The Office of Broadband will maintain the relationships formed during the planning process and begin to message to stakeholders Virginia's digital opportunity strategy throughout 2023.
- The Office of Broadband will work to build the digital opportunity network to prepare eligible entities for the release of funds from the NTIA's DEA Capacity and Competitive Grant programs throughout 2023.

2024: Key Activities and Milestones

- The Commonwealth will submit the Virginia Digital Opportunity Plan to NTIA in January 2024.
- The Office of Broadband will identify partners for the Specific Needs-Based Initiatives program, to begin the process of identifying how to structure programs to meet the specified covered populations' needs between April - July 2024.
- The Office of Broadband will prepare for the release of the DEA Capacity Grant Notice of Funding Opportunity by NTIA in April - July 2024.
- The Office of Broadband will develop and apply for Virginia's allocation from the DEA Capacity Grant program between August-November 2024, contingent upon NTIA's release of the Notice of Funding Opportunity (NOFO).
- Following allocation of Capacity Grant funds, the Office of Broadband will work to begin development of the Digital Virginia centralized resource tool by October - December 2024.
- The Office of Broadband will begin program design and implementation of the Digital Opportunity Capacity Subgrant Program. Anticipated July – September 2024, Please note this task is dependent on the approval of the state's submitted plan, NTIA's issuing of the NOFO and allocation and releasing of funding.
- The Office of Broadband will complete program design for non-deployment programs under the BEAD program, identify subgrantees for such funds, and submit Virginia's BEAD Final Proposal to NTIA targeted for July – December 2024. Please note this task is dependent on the approval of our V2 of the BEAD Initial Proposal and subsequent approval by NTIA of Virginia's final proposal.

2025-2026: Key Activities and Milestones

- The Office of Broadband will manage Digital Opportunity subgrant programs targeted for January - March2025 and continuing through2026.

- The Office of Broadband will manage non-deployment sub-grant programs housed within the Department of Housing and Community Development beginning in January – March 2025 and continuing through 2026.

2027: Key Activities and Milestones

- The Office of Broadband will re-issue the Virginia Digital Opportunity Survey to determine the effectiveness of the Commonwealth's Digital Opportunity strategy on closing the digital divide during the months of a traditional school year (e.g., March – June 2027, October – January 2027).
- The Office of Broadband will re-assess the Virginia Digital Opportunity Plan by October – December 2027 following results from the updated survey, taking into consideration how the digital divide has changed since the implementation of strategies discussed in the plan.

2028: Key Activities and Milestones

- Virginia will develop and release a Virginia Digital Opportunity Plan 5-Year Report by October – December 2028, detailing the progress made in closing the digital divide in the Commonwealth with DEA and BEAD funds, and providing a plan to address any remaining digital divide issues present in 2028.

Conclusion

The Commonwealth's work towards universal broadband access, and now full digital opportunity is imperative for all Virginians to fully participate in the 21st century workplace, economy, and digital world. This plan and the next steps it proposes, outlines an opportunity for the Commonwealth, for the first time, to tackle all three components of the digital divide: access, affordability, and adoption.

By closing all facets of the digital divide, Virginians are empowered to connect, learn, work, and thrive in the digital age, regardless of location or socio-economic status. With over 81% of Virginia's population falling into one or more covered populations, this plan and strategies moving forward makes a noticeable impact across the Commonwealth.

In doing this work, Virginia is committed to the ongoing involvement and collaboration with stakeholders and communities. Through collaboration and the development of strategic partnerships with community action agencies, community anchor institutions, faith and community-based organizations, and government agencies, implementing this plan this plan will further progress the state's economy through our efforts to bridge the digital divide.

Ensuring broadband affordability and full broadband adoption will make Virginia a Commonwealth of digital opportunity – one whose residents have affordable, reliable, and high-speed internet access, and the skills necessary to use it to its full potential. By acting on this plan, Commonwealth of Virginia will be positioned to be one of the first states to achieve its goal of universal broadband and make Virginia a Commonwealth of Digital Opportunity – where residents have access to affordable, reliable high-speed internet, device access and the digital skills required to fully participate in the modern world.

Appendix

Digital Opportunity Needs Assessment
Digital Opportunity Statewide Survey Report
Regional Digital Opportunity Plans
Bay Aging Regional Digital Opportunity Plan
CAPSAW Regional Digital Opportunity Plan
CAPUP Regional Digital Opportunity Plan
HRCAP Regional Digital Opportunity Plan
Improvement Association Regional Digital Opportunity Plan
People Incorporated – North Central Regional Digital Opportunity Plan
People Incorporated – Southwestern Regional Digital Opportunity Plan
SERCAP Regional Digital Opportunity Plan
WJCCCAA Regional Digital Opportunity Plan
Digital Opportunity Case Studies
Edu-Futuro Case Study
Literacy for Life Case Study
Smyth County Public Library Case Study
Tri-Area Community Health Case Study
Virginia Community Action Partnership Case Study
Regional/Locality Plans (Not included in RDOPs)
Albemarle Community Health Improvement Plan
Alexandria Community Health Improvement Plan
Alexandria Digital Equity Plan

Arlington Digital Equity Access Project
Fairfax – One Fairfax Policy
Virginia State Plan for Aging and Services

8 Stakeholder Engagement Tracker

Community Action Agencies
Bay Aging / Eastern Shore
CAPSAW
CAPUP
HRCAP
Improvement Association
People Inc.
SERCAP
Williamsburg / James City County
CAAs not developing regional plans
Clinch Valley Community Action Inc.
Goochland County Department of Social Services
Lynch Community Action Group
Mountain Community Action Program
New River Community Action
Pittsylvania County Community Action Agency
Health and Human Services Departments
Department for Aging and Rehabilitative Services
Board of for People with Disabilities
Assistive Technology Loan Fund Authority
Department of Social Services
No Wrong Door
Department for the Deaf and Hard of Hearing

Department for the Blind and Vision Impaired
Board for People with Disabilities
Virginia Broadband Advisory Council
Key Stakeholder Interviews
Albemarle County
Broadband Association of Virginia
Department of Social Services, State Office
Department of Social Services, Local Offices
Library of Virginia
Literacy for Life
The Hispanic Federation
The Virginia, Maryland, and Delaware Association of Electric Cooperatives
Virginia Association of Area Agencies on Aging
Virginia Association of Counties
Virginia Broadband Industry Association
Virginia Community Action Partnership
Virginia Community Action Reentry System
Virginia Department of Corrections
Virginia Department of Education
Virginia Municipal League
Virginia Poverty Law Center