ARLINGTON COUNTY, VIRGINIA

Broadband Strategic Recommendations

February 2024

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1   Executive Summary

As more tools and resources become available online, and our digital marketplace and economy continues to evolve, access to reliable and affordable high-speed Internet services have become an essential public utility. Whether for education, employment, commerce, healthcare, or engagement with government services, the ability to successfully utilize the Internet may not only be a convenience—it can be a necessity. For those with reliable, quality broadband access and sufficient technical skills, utilizing these resources online can be simple, straightforward, and even preferable. However, despite Arlington County's extensive broadband infrastructure and high-quality, competitive marketplace,[1] there are small pockets within the county without that same level of access. Importantly, the availability of adequate infrastructure cannot be conflated with a residents' ability to access the services it provides. There are a sizeable number of Arlington households with digital equity challenges—affordability of broadband service and devices, and a lack of the basic computing skills can all impede their ability to benefit from the Internet.

> Broadband infrastructure quality and provider competition in Arlington County are generally good, but many households experience affordability challenges.

Lack of Infrastructure Quality	Lack of Computer	Lack of Choice/Competition	Lack of Affordability
159 units	**2,104 households**	**4,858 units**	**21,495 households**

With both infrastructure and digital equity in mind, the goal of Arlington County's Broadband Study was to document the available broadband resources and appropriate solutions to ensure that all Arlington residents and businesses have affordable, reliable access to high-speed broadband Internet and the necessary devices and technology skills to fully participate in the community and economy. Following the identification of current gaps in infrastructure quality, choice/competition, and affordability, a comparative Internet service model evaluation analyzed multiple infrastructure and subsidy models (see model definitions in Figure 1) for their ability to improve broadband Internet service access for underserved areas and cost-burdened households. Overall, the evaluation found that none of the models addressed the County's objectives to expand broadband accessibility to more Arlington residents. The infrastructure models (the wireless service authority, third party operator and ISP models) would either be costly and fail to generate

Wireless Service Authority (WSA): Arlington creates a separate organization with full access to ConnectArlington infrastructure. The Authority delivers service and operates the network.

Third Party Operator (TPO): Arlington owns and funds the construction of a network that expands ConnectArlington and delivers dark fiber to underserved locations. Internet providers use an updated ConnectArlington license agreement and fee schedule to light the dark fiber with their own electronics to provide service.

Internet Service Provider (ISP): A third party expands service into the underserved areas under an agreement with the County.

Financial Subsidies for Internet Service: Evaluates a financial subsidy as an Internet delivery model that considers federal benefit and bandwidth options.

Figure 1: Internet Delivery Models

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[1] The first element of the Arlington County Broadband Study included a *Broadband Resource Evaluation and Needs Assessment* assessing the current state of broadband and digital inclusion throughout the County found that fewer than 50 locations in Arlington lacked access to infrastructure that would allow them to achieve broadband speeds.

revenue, or would fail to increase affordability, which is the most substantial of the studied gaps. The subsidy model on the other hand would address affordability but none of the important compounding challenges such as language barriers, digital literacy, limited awareness of existing subsidies, and value of the benefits. As a result, this *Strategic Recommendations* report will not recommend any of these models but will instead focus on addressing the real-world gaps specific to Arlington County that were identified during the needs assessment phase of this project. The best use of Arlington's financial resources is to implement targeted digital inclusion programs through local organizations and to collaborate with Internet Service Providers (ISPs) to expand and upgrade their service.

1.1 Recommendations Summary

This *Broadband Strategic Recommendations Report* includes a set of recommendations designed to address current and future broadband and digital needs in Arlington County. No single focus can resolve all of the gaps, however, a range of tools that are adequately resourced is needed. The following nine recommendations focus on targeted digital inclusion programs through local organizations, collaboration with Internet Service Providers (ISPs) to expand and upgrade their service, and more intentional governance.

1. Foster a network of multilingual digital navigators to raise awareness of resources and increase skill-building
2. Increase participation in subsidy programs through outreach and enrollment assistance and advocate for affordable Internet options
3. Foster a local network of device recycling, refurbishment, and distribution
4. Scale existing County programming to meet demand
5. Build a database on service gaps and their causes
6. Work with property owners and ISPs to encourage competition and reduce economic challenges preventing service
7. Create a Broadband and Digital Equity Policy Framework that Provides Strategic Direction
8. Use a Coalition of Stakeholders to Inform Policy, Manage Programs, and Leverage Resources
9. Expand Resources to Advance Broadband and Digital Equity Policies and Programs

This report also shares budgetary considerations, including some rough order of magnitude costs based upon the current market and best practices. While they are not program estimates, the considerations could be helpful in budgeting for implementing these recommendations as Arlington further fleshes out the concepts proposed in this report.

1.1.1 Digital Equity

The challenges in connecting households and individuals vary, but research has identified Seniors, racial and ethnic minority groups, households with low income, and those with low levels of English literacy as more affected by digital inequity, including lower rates of broadband subscriptions, lower availability of computers in the home, and more likely to need technical assistance.

The proposed strategic actions presented in this report build upon existing County efforts and propose expanding County offerings, engaging with ISPs and partner organizations to provide a range of digital inclusion services, and prioritizing targeted populations most in need. This includes working to increase the participation among eligible households for the Affordable Connectivity

Figure 2: Eligible, Unenrolled Residents by Zip Code

Program (ACP) (see Figure 2) via outreach and enrollment assistance for households to take advantage of available subsidy programs should be a priority of the County. The impact of these programs and the overall affordability issue should be assessed on an ongoing basis by the County.
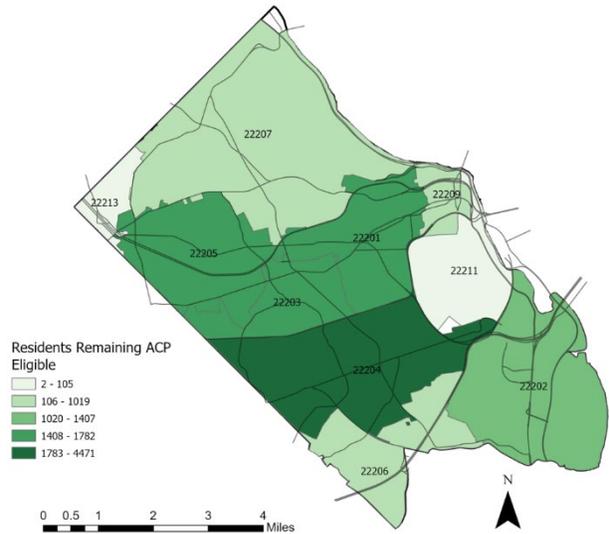
The establishment of a Digital Navigator program to connect households with services and tools needed to achieve digital equity should be undertaken. Our proposed program will provide a foundation to serve all community members with a focus on reaching targeted populations through multilingual and other culturally responsive programming. A recommended framework for this program includes training and providing the necessary resources (e.g., facilities, computers, staffing) for Digital Navigators to serve the community. Local organizations should be considered for partnership opportunities to expand the reach of digital navigation services, especially those engaging with seniors and minority groups. Our recommendations include a strategy to pilot this concept with an evaluation to increase program scale.

Arlington County's ongoing digital inclusion efforts focused on addressing digital equity issues should continue to be supported and expanded in scale where needed to reach targeted populations. This includes training county staff members on best practices for digital inclusion and working to integrate resources and program support from County organizations.

Similar to the recommendation of building on the existing network of technical support throughout the County, the County should foster a network of Internet access device recycling, refurbishment, and distribution within Arlington to meet the needs of households lacking appropriate computer devices. This program includes device donation and implementing a process to intake, refurbish, and distribute usable devices. The County should consider the many active nonprofit organizations operating in this space as partners to contribute to or oversee these operations.

Through these strategic recommendations the County will foster a digital inclusion ecosystem that works to provide needed services and allocates resources according to determined needs. Arlington's diverse community requires a focus to provide multilingual access and outreach to the many ethnic and racial minority groups in the County. Through feedback provided from participating stakeholder organizations and from staff, volunteers, and digital navigators working directly with individuals, the County should seek to better understand digital equity issues and coordinate community engagement to address challenges.

These programs should be developed as a County digital ecosystem, that is accessible, multilingual and culturally appropriate, and works for all residents of the County.

1.1.2 Broadband Infrastructure

The predominant broadband infrastructure problem in Arlington is the lack of competition, although its impact remains relatively small. We believe that there are providers who will make the investments to serve locations that are currently not competitive with limited encouragement from Arlington. Our recommendations are focused on collaborations with third-party Internet Service Providers (ISPs), not with building broadband infrastructure to provide a County led broadband service.

To achieve broadband infrastructure that delivers high-quality and low-cost broadband service begins with building a better understanding of broadband service availability countywide. This starts with understanding where service is available from all providers and ensuring that the Federal Communications Commission's national broadband map accurately depicts service in Arlington. An accurate view of where service exists and the type of services available will enable Arlington to better understand the true scale and scope of broadband infrastructure gaps, and their associated gaps in broadband service. From there, our recommendation is to fully engage with the cable franchisees, Comcast, and Verizon, to understand the reasons why they do not service certain locations. While both providers serve the vast majority of locations in the county, understanding why they do not serve individual locations will assist Arlington in determining the appropriate interventions to achieve high-quality broadband service to all locations that require it.
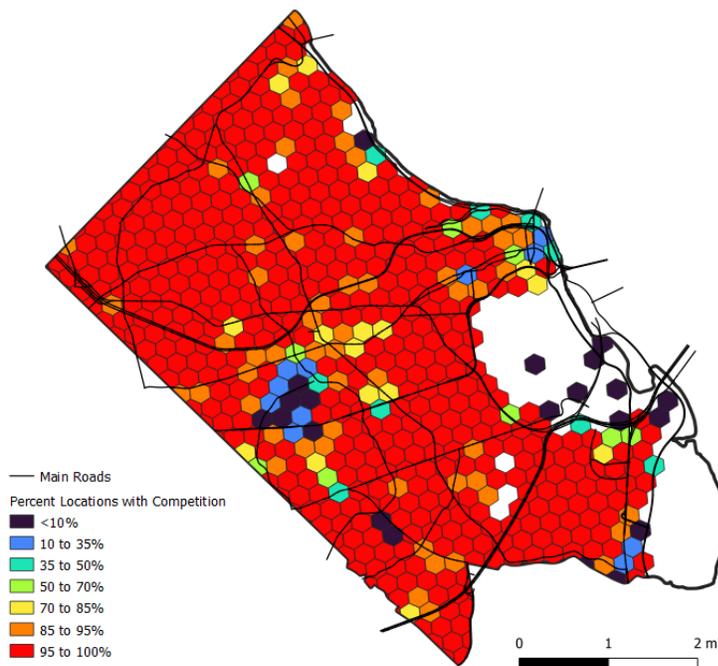
Figure 3: Percent of Locations with Competition at 100/20 or Higher by Grid

Fewer than one hundred (100) locations have no high-quality broadband access in Arlington, while nearly one thousand (1,000) locations lack competition at a high-quality level. Both Verizon and Comcast use a technology approach whereby they use the same physical infrastructure to deliver broadband and cable television service. Therefore, where they provide cable television service, they are highly likely to offer broadband service. Our primary infrastructure recommendation is for the County to audit their compliance and record keeping review the agreement with these two cable Franchisees to determine if it can encourage them to expand service in the County. More than 50% of the underserved and non-competitive locations are residential locations where the cable franchisees are required to serve. Importantly, while Arlington does have a role in regulating cable television service, there are no provisions in State or Federal law that enable regulation of broadband service. However, due to the nature of the cable television service, where Verizon and Comcast build the infrastructure to offer cable television service, the incremental cost to provide broadband service is small. In other words, where these companies offer cable television service, logic suggests they will also offer broadband service,

especially considering the many households that are "cutting the cord" and moving exclusively to streaming services.

However, the franchise agreements acknowledge situations where the franchisees cannot serve specific locations due to lack of access to private property (necessary to deliver wired broadband services to homes and businesses). In fact, we suspect the primary reason a provider does not serve a location is the lack of access. During interviews with the service providers, they noted access was the primary, if not the sole, reason that they do not serve locations. . There are many reasons a property owner may not allow the providers access to their premises including revenue sharing agreements with a provider. There may be other technical reasons why an additional provider's equipment may present a problem, but in situations where property owners are preventing tenants from having broadband choice due to their own benefits, as described in the Needs Assessment report, the monopoly can lead to higher costs and lower quality of service. This is not always the case – in some properties, the property owner might engage in bulk agreements that provide substantial discounts to tenants and may deliver acceptable service quality making the business prospects for a competitor dim.

An assessment of the causes of lack of service and competition for all residents and businesses should be undertaken. The assessment will highlight a variety of solutions that could be pursued to address the cause for lack of service at each location. For example, in the event that property owners are preventing competition, Arlington could decide to pursue a path similar to that of San Francisco, which in 2016 enacted code that required property owners to allow Internet service providers onto their property where reasonable. However, Arlington County does not have the authority to enact such a code from the Commonwealth of Virginia. As a result, should the County deem that the harm caused by property owner interference in broadband choice warrants a similar code, pursuing such a policy option would require a major effort to enact enabling legislation in Virginia. The timeline for such action is unknown, however, other jurisdictions with substantial multi-tenant buildings may also help support an initiative.

If technical or structural issues prevent physical access, Arlington should work to expand high-speed fixed wireless service leveraging ConnectArlington, Arlington County's broadband infrastructure, and the 5G master license agreement to install wireless broadband infrastructure on poles to help firms such as Verizon and T-Mobile expand high-speed 5G services. The approach may not deliver the gigabit broadband speeds to homes needed in the future, or today for many businesses, however, it will provide a good foundation and deliver a competitive environment for roughly 1,000 locations predominately served only by Comcast at high speeds.

While the providers did not state that economics may be the cause of lack of service, we note that some locations may not be served due to high construction costs that may be unprofitable for the providers. We are skeptical that cost is truly a barrier in densely populated Arlington County, however, to the extent that it occurs, Arlington should leverage its infrastructure, especially the ConnectArlington fiber and conduit to help providers add service to underserved and non-competitive locations. Many of the non-competitive locations are in close proximity to ConnectArlington's conduit that may be available to help reduce construction costs and provide an incentive for both incumbent and new entrants to provide service in these locations. However, bulk agreements may simply be too much of competitive hindrance for wired providers to invest in serving such locations and the focus there may be wireless and include Arlington poles. The County should collaborate with the ISPs whereby the County would share locations that lack high-quality competition with the ISPs (wireless and wired) and share relevant infrastructure utilizing the existing non-disclosure process to address specific locations to be a more direct participant in addressing service gaps.

1.1.3   Broadband and Digital Equity Governance

The prevailing governance structure lacks a formal plan, sufficient coordination, dedicated staff, and adequate resources for effective digital equity initiatives. While positive programming exists, it is limited in scale and falls short in meeting the demand, with pilot efforts often lacking strategic direction and sustainability.

To address these challenges comprehensively, Arlington County must adopt a multifaceted approach that encompasses strategic planning, dedicated resources, and formal coordination. The absence of clear government direction impedes collaboration with local partners and restricts the ability to leverage federal and state funding opportunities.

A pivotal strategy involves the establishment of a policy framework that provides commitment towards digital equity and strategic direction to achieve it. The first actionable step is to adopt a Digital Equity Resolution, affirming the county's commitment to equitable digital access. Subsequently, the development of a Digital Equity Action Plan serves as a roadmap outlining guiding principles, goals, metrics, and actionable steps to realize digital equity.

An important focus of governance strategies is the utilization of a coalition of stakeholders to inform policy, manage programs, and leverage available resources. This involves forming a Digital Equity Alliance to champion issues and to engage with local organizations to implement programming. This alliance, comprising diverse stakeholders, will play a pivotal role in shaping policies, managing programs effectively, and harnessing resources collaboratively.

The County should appoint dedicated staff to lead broadband and digital equity initiatives, especially in the ongoing coordination with County and outside stakeholders. Key positions such as a Digital Equity Director, Digital Inclusion Manager, and Broadband Infrastructure Manager would provide the necessary energy needed to ensure the variety of partners are collaborating and coordinated, efforts are actively monitored, and the County is directed towards a common goal with clear broadband and digital equity objectives.

two   Project Background

2   Project Background

Historical Perspective

Arlington County's digital inclusion efforts began in 2017 with a three-year pilot program that provided free wireless Internet to low-income households in the Arlington Mill community. The County provided funds and access to ConnectArlington dark fiber assets to support the initiative. Since that program, Arlington has consistently strived to advance digital equity for all residents. In the following years, the County convened a Broadband Advisory Committee, a Digital Equity staff working group, and an external-facing Digital Inclusion Network, each of which evaluated different solutions to improve Internet connectivity and access.

The COVID-19 pandemic paused the strategic planning work but, with the sudden increased need to conduct many activities remotely, it also highlighted the importance of broadband in the home. In 2020, Arlington took steps to increase broadband access, including providing outdoor Wi-Fi access at 28 locations for the public, and subsiding Comcast Internet Essentials for public school students. With an objective to further expand broadband accessibility, in 2022, Arlington County solicited bids from consulting firms to provide an independent assessment of available broadband infrastructure and digital resources, the nature and extent of Internet service challenges and gaps, and strategic programming or policies the County could deploy towards strengthening or adding tools to ensure quality, affordable broadband Internet, and digital equity across Arlington.

Broadband Study Process

The Broadband Study began with data analysis, market research, and discussions with approximately 70 stakeholders from a range of perspectives from the broadband industry, resident and business advocates, and community-based organizations. The **Broadband Resource Evaluation and Needs Assessment** addressed the current state of broadband and digital inclusion in Arlington County. It also assessed the federal, state, and local tactics and tools currently available and their ability to eliminate any gaps. The **Comparative Internet Service Model Evaluation** analyzed four different approaches, including both infrastructure-based and household subsidy-based models for their ability to improve broadband Internet service access for underserved areas and cost-burdened households. This report is the final phase of the study, which includes strategic recommendations and proposed actions to ensure affordable, high-quality broadband for the community's needs and to further the County's digital equity goals.
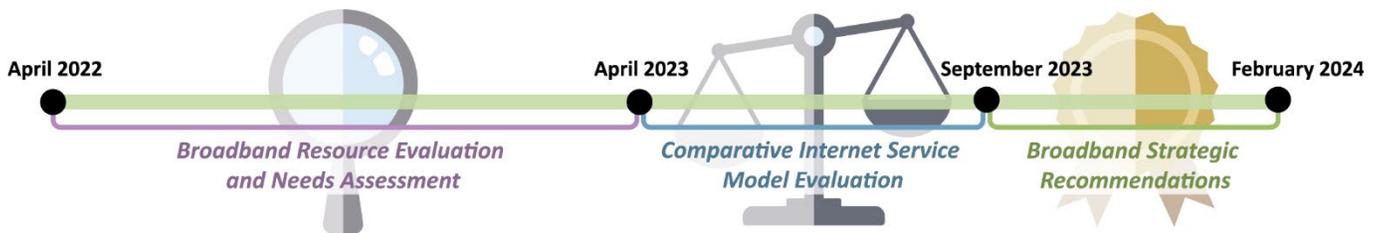
Figure 4: High-Level Broadband Study Timeline

Overview of the Current State of Broadband and Digital Equity

Data collection and analyses conducted in earlier phases of the project found that only a limited number of households experienced a lack of quality broadband infrastructure or a lack of choice/competition, and that instead, affordability is the primary barrier for most households lacking broadband access (see Figure 5). However, affordability affects not only Internet subscriptions, it also includes devices needed to access

the Internet. In Arlington, over 6% of households do not have an Internet subscription and over 3% of households do not own a computer (including desktops, laptops, smartphones, tablets, or other portable wireless devices)[2]. Approximately 6.7% of households have a cellular data plan with no other type of Internet subscription, which may be insufficient for remote work, remote learning, or other video streaming functions. Furthermore, analyses showed that households with lower incomes are also less likely to be digitally literate and possess the technical skills that would enable them to effectively use computers and the Internet. The *Resource Evaluation and Needs Assessment* revealed that additional needs beyond affordability include language support for

	Lack of Infrastructure Quality *<100/100 Mbps broadband access*	**159 units**
	Lack of Computer *Includes desktops, laptops, smartphones, tablets, or other wireless computers*	**2,104 households**
	Lack of Choice/Competition *Only one Internet service provider at 100/100+*	**4,858 units**
	Lack of Affordability *1.5%+ of income spent on Internet service/equipment*	**21,495 households**

Figure 5: Scale of the Underserved Population

residents whose primary language is not English, technical assistance to increase digital literacy, and outreach to eligible households to ensure awareness of existing broadband access subsidy programs.
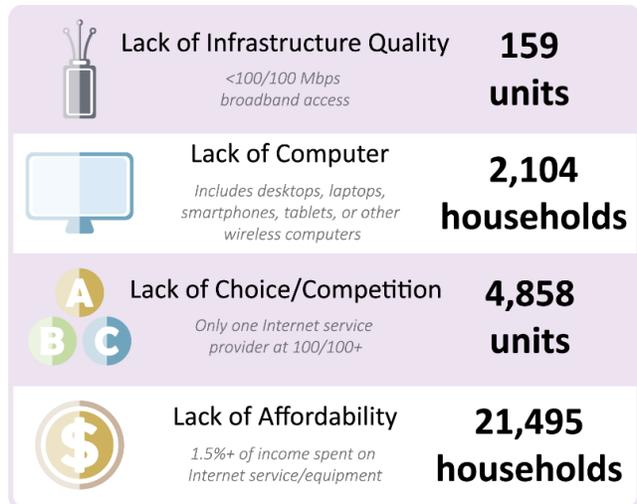
The *Comparative Internet Service Model Evaluation* report did not find that the models analyzed—a Wireless Service Authority (WSA) model, a Third-Party Operator (TPO) model, an Internet Service Provider (ISP) model, and a Financial Subsidy model—would sufficiently address the specific gaps for the demographics most in need. The following table provides a rating for each model. The ratings factor in the cost to Arlington County, planning and implementation risks, and the likelihood that the model would address Arlington's needs.

Table 1: Internet Service Model Evaluation Summary

Model	Lack of Affordability (21,495 Households)	Lack of Choice/Competition (4,858 Units)	Lack of Infrastructure Quality (159 Units)
WSA	F	D-	D-
TPO	F	D	D
ISP	F	C-	C-
Subsidy	B	N/A	N/A

The *Model Evaluation* found that the WSA and TPO models would fail to generate sufficient revenue to cover their costs or subsidize service prices for cost-burdened members of the community. The ISP model, on the other hand, would generate money that could be utilized to subsidize the cost burdened, but its effectiveness in addressing Arlington's gaps would be highly dependent on whether the ISP offered low-cost services to the cost-burdened community. Furthermore, an ISP model does not necessarily allow for County input, and it is unlikely that a new ISP would enter an already-competitive Arlington marketplace. A subsidy model can help solve affordability challenges but would not address other digital equity challenges (e.g., language barriers, digital literacy).

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[2] See U.S. Census Bureau QuickFacts: Arlington County, Virginia from the American Census Survey data.

Recommended Strategies + Actions

three

3 Recommended Strategies + Actions

This section lays out recommended strategies intended to set clear objectives and effectively engage with available government, community, and commercial resources to perform outreach and intervention actions. Because the comparative Internet models (WSA, TPO, ISP and financial subsidy models) assessed during an earlier phase of the project do not sufficiently meet Arlington's needs, these models will not directly be among the recommendations in this report. Instead, this report will focus on an equity-centered governance approach to address existing broadband gaps and support digital inclusion interventions.

Discussions surrounding the recommendations will include any necessary policy changes, and staffing and funding considerations needed to implement them, along with a phased timeline identifying steps to take following the County's decision to launch the program and move forward.

Important digital inclusion terms are included in a glossary prior to the next section. These terms aid in the understanding and comprehension of related recommendation strategies and actions within this report. Many of the terms referenced are included in National Digital Inclusion Alliance (NDIA) guidelines,[3] noting that "covered populations," "digital equity" and "digital inclusion" have been codified into law in the Infrastructure Investment and Jobs Acts and the Digital Equity Act, passed in 2021.

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[3] https://www.digitalinclusion.org/definitions/

IMPORTANT DIGITAL INCLUSION TERMS TO KNOW IN THIS REPORT

Covered Populations	Includes historically disadvantaged populations, as defined in the Digital Equity Act of 2021, that are more likely to experience significant barriers related to Internet connectivity and utilization.
Digital Divide	The gap between those who have affordable access, skills, and support to effectively engage online and those who do not. As technology constantly evolves, the digital divide prevents equal participation and opportunity in all parts of life, disproportionately affecting people of color, Indigenous peoples, households with low incomes, people with disabilities, people in rural areas, and older adults.
Digital Equity	A condition in which all individuals and communities have the information technology capacity needed for full participation in our society, democracy, and economy. Digital equity is necessary for civic and cultural participation, employment, lifelong learning, and access to essential services.
Digital Inclusion	Refers to the activities necessary to ensure that all individuals, including the most disadvantaged, have access to and use of Information and Communication Technologies. This includes five fundamental elements: 1) affordable broadband service, 2) Internet enabled devices that meet user's needs, 3) access to digital literacy training, 4) quality technical support, 5) applications and online content designed to enable and encourage self-sufficiency, participation and collaboration.
Digital Literacy	The ability to use information and communication technologies to find, evaluate, create, and communicate information.
Digital Innovation Hub	A location that is convenient for residents and businesses to: - Learn about and access new online practices for showcasing broadband speeds, new technologies, telehealth services, smart community services, online business practices, etc. - Access trusted advice from vendor-neutral and technology-agnostic technical support accompanied by resources and support to successfully implement and use new online practices - Become a community focal point for digital inclusion and transformation
Digital Navigator	Trusted guides who assist community members in Internet adoption and the use of computing devices — including home connectivity, access to broadband subsidies, acquiring devices, and digital skills. Navigators can be volunteers or cross-trained staff who already work in social service agencies, libraries, health, and more and who can offer both remote and in-person guidance.

Recommendations and Actions

1 **Foster a Network of Multilingual Digital Navigators to Raise Awareness of Resources and Increase Skill-building**

- Develop and maintain an asset inventory of resources available for digital inclusion programming.
- Reach targeted populations through a multilingual digital navigator framework, including training existing County staff and volunteers and supporting digital navigation services in culturally responsive organizations.

2 **Increase Participation in Subsidy Programs through Outreach and Enrollment Assistance and Advocate for Affordable Internet Service Availability**

- Create a plan to expand outreach and engagement aimed at increasing subsidy participation among eligible households.
- Monitor existing subsidy availability and evaluate the ongoing impact of Internet affordability issues.
- Pursue strategic partnerships and opportunities that promote Internet affordability.

3 **Foster a Local Network of Device Recycling, Refurbishment, and Distribution**

- Establish an application process for accepting donated computer devices from local businesses and County organizations.
- Provide a mechanism to assist in the collection and refurbishment of computers, with pickup and computer training available to residents and businesses in need.

4 **Scale Existing County Digital Equity Programming to Meet Demand**

- Enhance the libraries' technical support and digital literacy services and scale the Teleconnect pilot program to include more County locations.
- Expand Arlington Economic Development's ReLaunch program for small businesses to meet the increasing demand.
- Expand the quantity and scope of County and APS Digital Literacy Training

5 **Build a Database of Service Gaps and their Causes**

- Conduct a thorough assessment of FCC service information accuracy, (including missing addresses, miscategorized serviceability, locations, unit counts, and others) and work with the FCC to correct inaccuracies.
- Understand the causes of service gaps from cable franchisees by requesting location-by-location information for locations not served by the cable franchisees regarding the cause of their lack of service.

6 **Work with Property Owners and ISPs to Encourage Competition and Reduce Economic Challenges Preventing Service**

- Review franchise agreements to see if they can address service gaps.
- Educate property owners and developers on the benefits of competition in their properties.
- Work with ISPs and property owners to help reduce capital costs that are preventing competitive service.

7 **Create a Policy Framework that Provides Strategic Direction**

- Adopt a vision and a set of principles that guide a common broadband policy framework throughout the County.
- Create a Digital Equity Action Plan that identifies program priorities, goals, objectives, and outcome tracking aligned with the established vision and principles.
- Operationalize broadband and digital equity across the County.

8 **Use a Coalition of Stakeholders to Inform Policy, Manage Programs, and Leverage Resources**

- Coordinate efforts between the County, advocates, and stakeholders to guide the direction for digital inclusion initiatives.
- Recommend strategies for digital equity programming.
- Coordinate interventions, advocate for resources, coordinate funding efforts, and evaluate program implementation.

9 **Expand Resources to Advance Broadband and Digital Equity Policies and Programs**

- Appoint dedicated staff resources to lead and oversee digital inclusion initiatives, coordinate the Digital Equity Alliance, and develop policy.
- Appoint dedicated staff resources to work collaboratively with telecommunications companies and oversee the cable franchise agreements.
- Explore and dedicate available resources to support digital equity initiatives.

3.1 Strategy 1: Promote Digital Inclusion through Targeted Programming and Expanded Available County Offerings

Arlington County does not have significant broadband infrastructure issues, but rather contends with notable digital divide challenges across the County. This divide is characterized by gaps in essential online skills training and inadequate access to devices and affordable high-speed Internet.

In recent years the County has undertaken a number of strategic initiatives intended to address and mitigate digital equity issues, many of which are successful and ongoing.[4] However, these have not coalesced into a coordinated approach to digital equity programming across the County.

Findings from the *Resource Evaluation and Needs Assessment* show that seniors and individuals from low-income households report lower levels of computer skills (see Figure 6). Arlington residents reported that they are unsure of the quality of online services[5] and also need assistance in adopting online practices.

In addition to gaps in individual levels of basic skills and computer understanding, low-income households are also disproportionately cost-burdened by existing high-speed Internet prices. Failure to address these challenges hinders segments of the community from fully participating in online opportunities due to a lack of requisite resources and opportunities.

Figure 6: Computer Skills by Age Group and Household Income

Digital inclusion requires a comprehensive and dedicated effort to bridge identified gaps and deliver programming to those in need. We recommend taking steps to organize and deploy County resources to strategically promote digital inclusion through targeted programming efforts. This is substantiated by the number of residents lacking Internet adoption, essential resources, understanding, financial means, or technical support to fully leverage the benefits of broadband.

Noteworthy target groups, recognized by NTIA as "covered populations," are individuals experiencing lower rates of computer and Internet use, including:[6]

- Individuals in households with incomes less than 150% of the poverty level

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[4] Needs Assessment (Element 1) Historical Overview reviewed digital equity programs in Arlington dating back to 2017 including, Arlington Mill Pilot, Broadband Advisory Committee, Libraries and Public Schools, Affordable Housing programs and other efforts from County and outside organizations.

[5] Fifty-five percent (55%) of seniors identified "Unsure of quality of service" as a barrier to telehealth utilization in the eCheckup assessment.

[6] https://www.census.gov/programs-surveys/community-resilience-estimates/partnerships/ntia/digital-equity.html; NTIA covered population groups includes residents residing in a rural area, which is not relevant for Arlington County

- Aging individuals (60 and above)
- Incarcerated individuals
- Veterans
- Individuals with disabilities
- Individuals with a language barrier, including English learners with low literacy levels
- Individuals who are members of a racial and ethnic minority group

According to the Digital Equity Act Population Viewer,[7] 145,300 (61%) Arlington County residents are included covered population estimates. Those most identified are racial or ethnic minorities (39%), individuals aged 60 or over (15%), and individuals with a language barrier (15%). These groups should be recognized as facing significant challenges leading to lower rates of broadband adoption and utilization and indicating a more intensive need for strategic interventions. In addition to providing an opportunity to have a greater impact serving these individuals and households, focusing digital inclusion programming on the identified covered populations could enable the County to access Federal and State funds to support related program activities.[8]

Arlington County should adopt a collaborative approach that brings together County leadership and resources, local non-profit organizations, and community stakeholders, working to engage those populations identified with digital divide challenges. This will ensure a variety of community engagement and programming is delivered cost-effectively to address gaps. Moreover, the implementation process needs to be flexible and adaptive, recognizing the dynamic nature of technology and the evolving needs of the community. Regular assessments and feedback loops should be integrated to gauge the efficacy of the programs and make necessary adjustments. Resources, both financial and human, must be allocated efficiently to ensure the longevity and scalability of the initiatives.

These recommendations draw upon best practices for digital equity programming, intending to effectively coordinate County and local resources and expand community outreach and digital inclusion efforts where digital equity gaps are most prevalent in Arlington County.

Digital Inclusion Gaps		Remedy
Internet Affordability: 21,495 households are cost burdened by high-speed Internet.[9] 48% of households assessed in eCheckup are paying $80 or more per month for Internet access (above the national average).[10]		Engage with ISPs to promote low-cost Internet service plans and advocate for more affordable Internet in Arlington. Pursue opportunities to partner with ISPs to expand free or low-cost packages, where possible.

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[7] https://www.census.gov/programs-surveys/community-resilience-estimates/partnerships/ntia/digital-equity.html

[8] https://dhcd.virginia.gov/digital-opportunity

[9] Paying more than 1.5% of their income towards Internet services, as defined in the *Cost Model Evaluation*

[10] Based on eCheckup data collected in 2022, responses from 766 Arlington County households. National cost of Internet average is between $65 and $75 per month: https://www.forbes.com/home-improvement/internet/internet-cost-per-month/

Digital Inclusion Gaps		Remedy
Subsidy Participation: Eligible participation rates (31%) in the ACP program are lower when compared to the Commonwealth of Virginia (41%) and Nationwide (42%).[11]		Increase outreach and enrollment assistance support through Digital Navigator program and County and community organizations.
Device Availability: 2,104 households are reported by Census to not have access to a **personal** computer.[12]		Work with local businesses and organizations to foster a network of device donation, refurbishment, and distribution to those in need.
Digital Skills: Seniors, low-income, and multilingual households[13] have a greater need for awareness and digital skills training.		Increase the promotion and availability of digital inclusion and skills training at County locations. Ensure that programs and resources are available in multilingual and culturally appropriate formats.
Internet Adoption: 3.3% of population in Arlington lack a computer or broadband Internet subscription in their household, with lower rates of Internet and computer availability among seniors and minority populations.[14]		Utilize Digital Navigators to provide culturally responsive and individual level assistance to targeted populations and facilitate the adoption of affordable Internet service and device options.

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[11] As of October 2023: https://www.educationsuperhighway.org/no-home-left-offline/acp-data/
[12] Census 2021 1-year estimate B28010
[13] More than 115 languages are spoken in Arlington households and schools.
[14] Includes 7,360 (out of a total 211,223) individuals without Internet subscription or computer in their household. Census, B28008 2021 5 year ACS Estimates (Tables A-I) (1-year estimate tables not available). Senior adoption rates: S2802 Census 2021 1-year estimates

Phase 1:

Advance Existing Digital Equity Programs

- Develop an asset inventory of available resources to contribute to digital equity planning

- Provide training to existing County staff and volunteers to certify as Digital Navigators

- Partner with local organizations to expand the scope and reach of Digital Navigator services to include culturally responsive, multilingual program support

- Increase outreach and enrollment assistance to those eligible for Internet subsidy programs

Phase 2:

Enhance Services and Track Impacts

- Coordinate a network of local businesses and organizations to support a device donation and refurbishment program

- Enhance the digital literacy and skill building offerings at libraries, community centers, DHS and economic development locations

- Track impacts and program evaluations to demonstrate community returns from digital inclusion investments

- Evaluate affordable Internet service availability among cost-burdened households

Phase 3:

Pursue Partnerships to Provide Program Sustainability

- Develop strategic partnerships and secure funding to support ongoing programming

- Advocate for and promote the availability of affordable Internet service options from ISPs

- Provide needed devices for organizations to expand outreach and digital inclusion programming

- Gain insights from local activities to meet evolving needs and scale of digital inclusion services
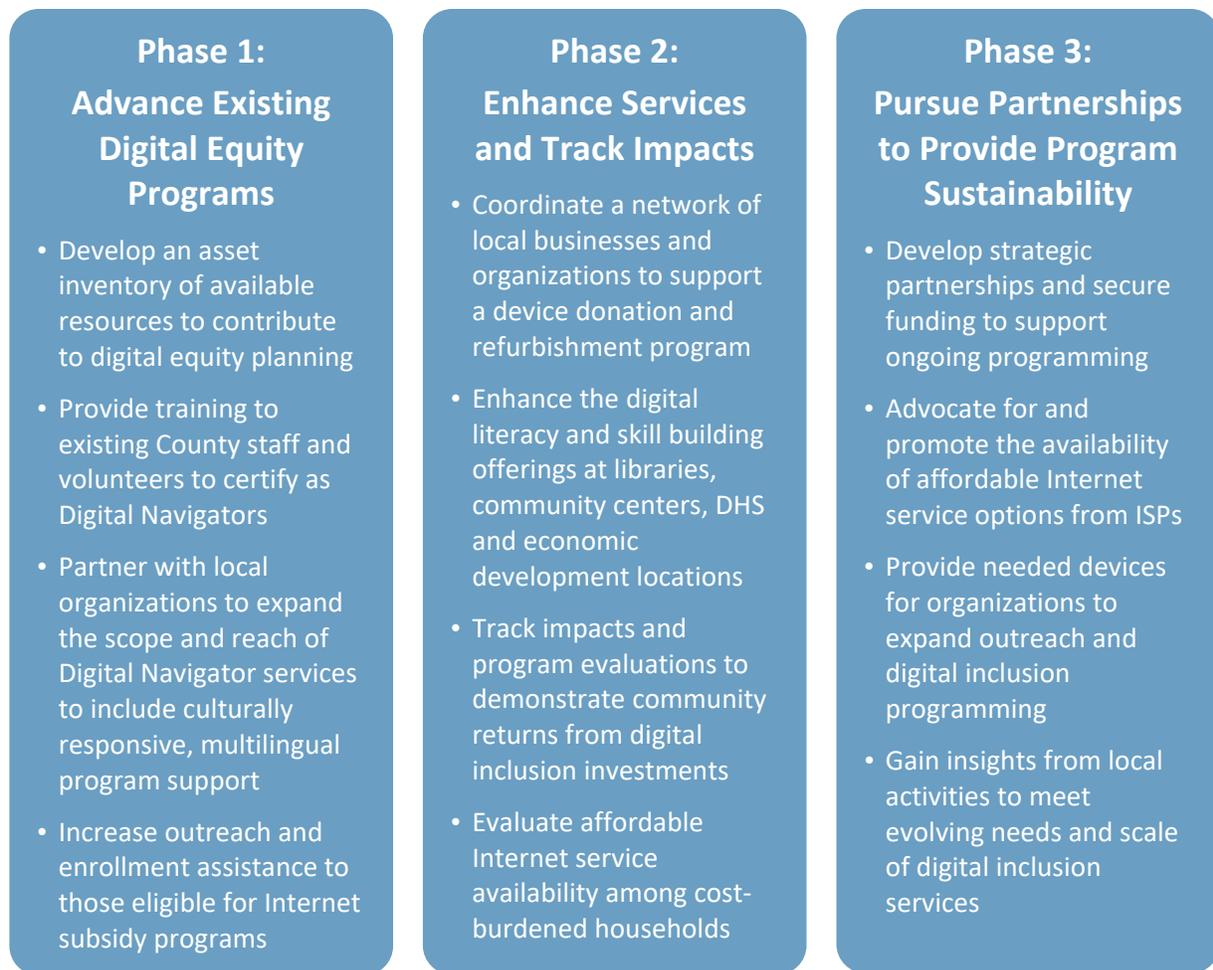
Figure 7: Digital Inclusion Phasing

3.1.1 Foster a Network of Multilingual Digital Navigators to Raise Awareness of Resources and Increase Skill-Building

Arlington County offers many of the key elements needed for a successful digital equity program – technical support provided by County Departments and County-funded nonprofits, public access through several County Departments and computer labs and wi-fi at some affordable housing properties, support providing Internet service and devices for students and families, and community outreach initiatives that could support programs like ACP enrollment and computer skills trainings.

However, comments from stakeholder partners and County Departments during data collection suggest the need for more on-the-ground coordination to promote digital inclusion opportunities in the County. This includes ensuring residents, businesses, staff, and organizations are aware of the available resources, feel secure asking for and receiving assistance, and are provided additional opportunities for digital skill-building. While this is occurring on some level in the County, the program could be more widely scaled and the diverse needs of the community could be better considered.

A Digital Navigator Program is recommended to serve as a foundation for effectively providing comprehensive digital inclusion services to the community. This program should have a focus on

multilingual and culturally appropriate support, especially at locations and in communities identified as covered or targeted populations. In Arlington County, 5% of households are limited English speaking households which indicates that digital inclusion resources made available to the public must be accessible in languages other than English. Furthermore, programming intended to reach racial and ethnic minority populations should include culturally responsive initiatives that enables greater understanding of the digital equity challenges faced by specific groups and implement data driven approaches to close existing gaps.

Trusted community organizations provide the best opportunity to reach and engage with populations most in need of digital inclusion interventions. Many individuals can only be reached through these means, and therefore this represents a critical component in working towards digital equity. Additionally, these organizations bring expertise and insights of working with their member populations, which can greatly assist the County in developing and implementing digital equity programs.

Digital Navigators may be a volunteer, a partner, or County staff, but in all cases a trusted human touchpoint at the forefront of the County's digital inclusion efforts. They ensure the community is aware of digital resources, and they promote skill-building through trainings in digital tools and safe online practices. To maximize the impact of a Digital Navigators program, it is recommended that the County collaborate closely with community organizations and leverage available resources. Working in collaboration with community organizations vested in addressing digital inclusion gaps, the County can foster additional resources and coordinate activities resulting in more effective programs and benefit to county residents.

Action 1: Develop an Asset Inventory of Resources

A core component to digital equity initiatives is developing an asset inventory that includes all resources available within the County that are engaged in related programming. This is a required element in digital equity planning to provide reference for both the public and County official planning efforts. The County currently has a landing page for digital equity that includes publicly available resources and information,[15] but it is not comprehensive and could be more exhaustive and widely shared. Additionally, the My Arlington – Digital Resources webpage[16] includes public computer and other available resources but also is not comprehensive and reflective of current offerings.

The County should work to document all available resources that could advance digital equity initiatives. This inventory should include available resources through County organizations, such as Arlington Public Schools, Housing, Neighborhood Services, Human Services, Economic Development, and Libraries, as well as serve as a comprehensive database of organizations involved in skill-building training or device refurbishment, organizations serving targeted populations, Internet provider programs/services, available Wi-Fi locations. (See Appendix A for a directory of local stakeholder organizations identified in this Broadband Study. This list could serve as a starting place to build an asset inventory.)

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[15] https://www.arlingtonva.us/Government/Departments/Community-Planning-Housing-Development/Digital-Equity
[16] https://my.arlingtonva.us/digitalresources

With a directory of organizations, including contact information, focus area (e.g., workforce development, seniors, multilingual programs) and resource availability (e.g., facilities to host in-person classes, dedicated staff availability), the County can catalog existing and potential local partnerships, which will enable better planning and strategic management in the overall digital inclusion strategy. Digital Navigators are most effective when deployed at a location or within an organization actively servicing digital equity covered populations. An asset inventory will enable County planning to maximize the benefit of this program. Furthermore, this asset inventory will be an important component in the development of grant applications to identify available contributions.

Portland, Oregon's Digital Inclusion Network Directory[17] can serve as a model for implementing this action. The website provides a map and user-friendly accessibility and includes information about technology classes, public computers, devices, and Wi-Fi access alongside a directory of all organizations involved in digital inclusion programming. The County's website has the capability to translate any webpage into several languages, but it should ensure that documents, audio information, and other materials are also available in multiple languages. A streamlined information database would greatly assist in planning operations and encourage organizations to be a part of the County's digital equity programming. Community partners should be engaged early in this process to share available resources, and the County should provide a platform with regular updates to ensure up-to-date and accurate content.

Action 2: Develop a Digital Navigator's Program Framework

While many County staff and local organizations regularly engage with the public and are actively working to overcome digital equity challenges, there lacks a coordinated and countywide effort that seeks to reach those individuals across the digital divide.

A Digital Navigator program framework would establish program goals, key roles of the County and each Partner, and baseline standards for Navigators to follow. The framework should give Digital Navigators the tools they need to succeed and integrate them with organizations and in locations where they can most effectively work with targeted groups. As a facilitator and administrator, the County should provide training to existing staff and volunteers and work to certify those individuals as Digital Navigators. The goal of the "train-the-trainer" model is to take advantage of existing assets within County organizations that are currently engaged with community members, with the aim to make digital inclusion programming available to all Arlington residents. The County could explore available options with Byte Back[18] and Community Tech Network,[19] that offer online training for Digital Navigators free of charge.

The County should also consider outsourcing operations through recognized local organizations or experts that provide either in-person or online training services, as does Philadelphia, PA (see the associated Case Study in *Section 4.1*). This approach can be utilized to reach groups that may not regularly interact with or

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[17] https://digitalinclusionnetwork.net/directory
[18] https://byteback.org/360digitalnavigators/
[19] https://communitytechnetwork.org/digitallift/

be aware of services available from the County, which includes many minority populations.[20] Providing a range of programming that can be catered to an individual or specific groups is useful in developing a culturally responsive approach. A Digital Navigator serves as a personalized guide to raise awareness of available resources and skill-building needs in a community. These include outreach and community engagement, basic and specialized skill training and technical assistance, and multilingual and culturally responsive programming. They do this by serving as:

- **Front line staff for outreach, assessing needs, and engagement** – by actively engaging with community members, Digital Navigators act as front-line observers, gaining insights into the evolving needs of the community and become a crucial channel for understanding the needs of targeted groups.
- **Educators and guides** – by playing a crucial role in raising awareness and offering personalized, one-on-one guidance on connectivity, devices, and digital skills.
- **Facilitators and coordinators with providers of resources** – by coordinating with organizations to connect resources directly with individual needs (e.g. connecting with organizations that provide technical training and support, providing refurbished devices and computers).
- **Dynamic feedback loops to the digital inclusion process** – by providing valuable information on the effectiveness of interventions, outcomes achieved, and emerging needs within the community. This could inform program offerings and County interventions to better meet the community's needs.

As a Digital Navigator program is new to Arlington, piloting the program with a select focus or through specific organizations will allow for the County to determine the best strategic and tactical implementation of this program to meet the scale of County demand. At the County's discretion, Digital Navigators could be involved with digital inclusion programming at libraries, APS facilities and REEP programming, Department of Human Services locations, Employment Centers, Parks and Recreation 55+ programs, as well as local nonprofit organizations supporting digital inclusion strategic initiatives.

In addition to considerations related to program management, guidelines will need to be adopted to provide standards for participating organizations and navigators. Arlington should reference the National Digital Inclusion Alliance (NDIA), who created the Digital Navigator term, and also provide technical assistance to several organizations to stand up their own programs. The Digital Navigator's Playbook is another resource.[21] At a minimum, program guidelines should include:

- Digital Navigators should facilitate digital literacy and skills training.
- Digital Navigators are trained to address digital literacy, along with specializations related to telehealth, online personal financial management, workforce development, language, or other skills needed for digital inclusion.
- Digital Navigators have a working knowledge of available digital resources and services in Arlington County so they can assist residents in accessing those tools.
- Digital Navigators should complete the Northstar Basic Literacy assessment[22] before training others.

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[20] eCheckup assessment: 95% of white respondents utilize the Internet to access government info, compared to 79% of non-white respondents.

[21] https://digitalus.org/digital-navigator-playbook/

[22] https://www.digitalliteracyassessment.org/

The scope and reach of the Digital Navigator programming should be assessed on an ongoing basis, with metrics tracking quantity and level of services provided and a consideration for available resources. Over time, the goal of a Digital Navigators program can transform a collective of digital resources and support into a robust and scalable network of digital inclusion providers that share best practices and collaborate in delivering technical assistance and other critical components of digital equity.

Communities across the country approach digital navigator programs in different ways, varying in type and scope, and that may provide guidance and implementation considerations for developing a program framework in Arlington.

- **Albemarle County, VA:** The County Office of Broadband[23] in Human Services, along with community partner organizations, is piloted a Digital Navigators program in December 2023. According to the County program and information request, Digital Navigators will be heavily used to assist in ACP outreach and enrollment assistance through staffing of engagement events, managing marketing efforts, and the preparation of a website and Customer Relationship Management (CRM) program to track residents contact efforts and outcomes.[24]
- **Brooklyn, NY:** Digital Navigators are placed throughout the city at identified library locations, with regularly scheduled workshops and outreach events with dedicated support for ACP signup and enrollment assistance.[25]
- **San Diego, CA:** In coordination with the San Diego Futures Foundation (SDFF), the City provides digital literacy training classes daily at Libraries, Rec Centers, and other available community facilities and campuses. Digital Navigators provide basic tech support, information about free and low-cost Internet subscriptions, access to low-cost computers, and additional programs related to education, work, telehealth, government, and other available online services. A toll-free helpline is provided for information and to schedule an individual session. Digital Navigation services and information are available in nine different languages.[26]
- **Sarasota, FL:** Organized by the Patterson Foundation,[27] Digital Navigators are situated in community organizations such as Goodwill, Women's Resource Center, UnidosNOW, CareerSource, Multicultural Health Institute, and others that are identified through collaborative efforts that incorporate proven practices, data, and wide participation.

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[23] https://www.albemarle.org/government/human-services/broadband-office
[24] https://www.albemarle.org/Home/Components/RFP/RFP/715/
[25] https://www.bklynlibrary.org/use-the-library/home-internet-access
[26] https://www.sandiego.gov/digital-navigator-program
[27] https://www.thepattersonfoundation.org/digital-navigator-program.html

HOW STRATEGICALLY LOCATED DIGITAL INCLUSION "HUBS" CAN AUGMENT DIGITAL NAVIGATORS PROGRAMMING

Arlington County currently offers public locations for computer and Internet access such as employment center locations, Department of Human Services locations, community centers, as well as public libraries. There are also several business centers and computer labs in affordable housing facilities and other nonprofit partner locations.

While these locations provide a needed and valuable community service, there is an opportunity to enhance the experience and increase participation by incorporating Digital Navigation services alongside more diverse program offerings targeted towards localized digital equity programs.

Digital Inclusion Hubs should be easily accessible and marketed to the targeted groups and the public, providing digital and technical support resources to the community. This may be promoted in alignment with or in similar fashion to Arlington Parks & Recreation's Indoor Facilities programs and website.[*] Digital Inclusion Hubs should focus on providing essential digital skills training alongside other more advanced topics and utilizations. These locations can provide opportunities for County digital inclusion partner organizations to showcase technologies such as telehealth, smart community services, financial management, and other online services and platforms.

In addition to publicly available space and computer desktops, each hub should have a Digital Navigator or similarly trained professional available to provide assistance to all digital skill levels.[†] The County locations should provide scheduled, consistent availability, with the option to cater specialized programs offered to the needs of the surrounding community. Digital Inclusion Hubs can promote relevant topics such as:

- Assistance filing taxes with a trained instructor offering free online service
- Adult education in-person classes
- Creativity classes help with production software to make music, produce videos, and edit photos
- Explore STEM opportunities through youth development outreach
- Assistance looking for a new job
- Other examples that promote digital inclusion and innovation in the community[‡]

Digital Navigators and other trained staff or volunteers can enhance existing technology support provided by the County. Priority should be given to locations regularly staffed with individuals who can offer the type of digital inclusion support needed.

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[*] https://www.arlingtonva.us/Government/Departments/Parks-Recreation/Locations/Indoor-Facilities

[†] Philadelphia's Digital Equity program (see Case Study #1) includes over 20 public computing centers across the city open for at least 15 hours per week. Each center has an instructor who can assist people of all digital skill levels.

[‡] Local organizations involved with digital equity or technology programs should have an active role in developing programming.

3.1.2 Increase Participation in Subsidy Programs through Outreach and Enrollment Assistance and Advocate for Affordable Internet Service Availability

Internet affordability challenges persist in Arlington County, despite the availability of subsidies for eligible households and County programs that assist families in adopting home Internet service. There remains households and individuals that are disproportionally cost-burdened by the current Internet service options as well as a significant number of residents not enrolled in cost-saving programs.[28]

Among one of the most readily available tools for low-income households to alleviate affordability challenges are the federal **Affordable Connectivity Program (ACP)** and the **Lifeline** subsidy programs. As of November 2023, there are currently 6,573 Arlington households enrolled in ACP. The County's adoption rate is 31% of eligible households, 10% lower than the adoption rates throughout Virginia and nationally.

Eligible households that are not taking advantage of available ACP and other subsidy benefits have the option to lower or eliminate their monthly Internet service payments, which is especially critical for households which are not connected to the Internet due to affordability issues. Those households that do not have an Internet subscription due to cost should be identified through Digital Navigators and other inclusion programming and made aware of the available subsidy benefits and enrollment support to encourage their participation and help households address their Internet affordability issues.

This Broadband Study does not include a recommendation for the County to implement a local Internet subsidy program. This is due to the current availability of federal subsidy programs, the existing subsidy offerings of Arlington Public Schools, high costs associated with implementing a countywide program, and the fact that digital equity challenges in Arlington range beyond issues related to household income and affordability. However, as a component of this strategy, the County should continuously monitor availability of subsidy programs and the ability of cost-burdened households to obtain affordable Internet service.

To overcome the challenges due to 'lack of awareness' and other factors[29] that limit subsidy program uptake, we recommend the County continue to promote ACP and available Internet subsidy sign-up through available channels including social media, community events, and expand efforts to include outreach through the Digital Navigator program. Another common reason cited for failure to enroll in subsidy programs was difficulty
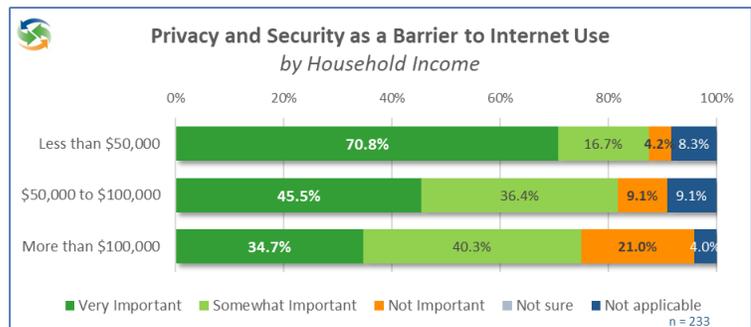
Figure 8: Privacy and Security as a Barrier to Internet Use

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[28] The Internet Cost Model Evaluation identified 18,755 cost burdened households at 100/100 Mbps Internet speed and accounting for full subsidy uptake. Definition of cost burdened households and Internet service speed recommendations are discussed in this section.

[29] While lack of awareness is the most cited reason individuals have not enrolled in ACP benefits, other reasons include time-constraints in completing the sign-up process or not understanding what the benefit can be used for. Language barriers is also cited as a major barrier to enrollment. https://www.benton.org/blog/half-acp-eligible-households-still-unaware-program

completing online registrations,[30] pointing to the need for enrollment assistance. There are special considerations for segments of the community who may be skeptical of using the Internet (see Figure 8), or who do not fully understand or appreciate the benefits that are available. Offering privacy and security and other similar programming,[31] alongside enrollment assistance, will assist eligible residents in understanding how to access and utilize the Internet and help to alleviate those concerns among residents.

The implementation of this strategy also includes pursuing partnership with local ISPs in an effort to increase engagement with ongoing County programs and advocate for affordable Internet service options. Partnerships with these organizations represent an opportunity to secure investments to fund digital inclusion programs and can lead to agreements that facilitate lower cost options available to more County residents.

Action 1: Develop an Outreach and Engagement Plan to Increase Available Subsidy Participation

Arlington County has promoted ACP in a variety of ways – invited ISPs to share about sign up to community-based nonprofits, offered facility space for nonprofits to host sign up events, engaged with affordable housing providers to conduct program outreach, shared the information widely across social media outlets, websites, and other online platforms, and sharing information at facilities. Despite these efforts, participation rates remain low. Arlington County should build on existing efforts to increase ACP participation and develop an outreach and engagement plan, leveraging Digital Navigators (proposed above) and other ongoing County digital inclusion efforts, and planning for regular outreach (as opposed to one and done methods).

Utilizing data, research, and resources in coordination with partner organizations, the County should develop a plan that engages targeted, eligible populations most in need of Internet affordability assistance and ensures the enrollment process is accessible, user friendly, and tailored to meet the diverse needs of the community. An approach to outreach and engagement strategy may include but is not limited to:

- Leverage social media, community events, websites and other communications platforms
- Promote sign-up information and assistance as a part of other digital inclusion programming such as with multilingual programs or alongside device distribution events
- In the instance that a participant is not eligible for subsidy programs, develop a plan to guide residents to other low-cost available Internet options
- Opportunities to provide specific outreach grants for nonprofits to contribute to the promotion of ACP
- Virtual support options, such as hotline services and online chat support, made available to cater to residents who prefer remote assistance

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[30] https://www.pewtrusts.org/en/research-and-analysis/articles/2023/02/28/enrollment-hurdles-limit-uptake-for-fccs-affordable-connectivity-program
[31] https://digitalskillslibrary.org/privacy-and-security

- Partner with ISPs to support the County's efforts to promote sign-up of the ACP subsidy at community events and other outreach activities and should be further utilized in County outreach efforts.

Trusted community partners, including Digital Navigators, should be a critical element of the outreach strategy to communicate the tangible benefits of Internet subsidy programs and provide regular and tailored engagement to individuals who may require additional attention, such as a walkthrough of the enrollment process, language support, or disability assistance. Confidentiality should also be emphasized to address concerns of residents who may be skeptical or hesitant to apply for government assistance.

The County should leverage available outreach materials provided on the FCC website, designed to promote local ACP outreach efforts. All content is available in English and Spanish. Consumer handouts and Fact Sheets are also available in several other languages.[32] The strategy should assess the availability of multilingual materials and determine whether the County should supplement resources to support any gaps in language support.

Action 2: Monitor Existing Internet Subsidy Programs and Evaluate Affordable Internet Availability for Cost-Burdened Households

No widely accepted standard exists that defines affordable Internet services, what price households should pay for service, and when households are considered "cost-burdened" by their Internet expenses. The Internet is also not considered an essential utility under key federal housing programs such as the Low-Income Housing Tax Credit Program or the Housing Choice Voucher Program. Therefore, it is excluded from utility allowances when determining household rents.[33] The lack of an accepted standard has made policy making about Internet affordability challenging. Though, defining Internet affordability is difficult due to several dynamic factors. Households experience dozens of factors that can affect broadband speed needed and the variable Internet costs and plans available make this topic particularly challenging to set affordability benchmarks.

Some national associations are looking at this topic and have identified a threshold of affordable broadband as costing 2% of monthly income, while other organizations have stated that 1% of monthly income should not be exceeded by Internet costs.[34] To assess Internet affordability, the average Internet affordability threshold – 1.5% was applied to Arlington County's household income and compared to the average cost of service.[35]

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[32] https://www.fcc.gov/acp; FCC materials are available in multiple languages.

[33] In affordable housing programs, rents are calculated based upon a household spending no more than 30% of their income towards rent and utilities. In properties where utilities are not included in rent, a standard utility deduction (e.g., water, electric, gas, trash) is applied.

[34] NGA-Broadband-Affordability.pdf

[35] Average cost of service was determined through (1) interviews with Arlington County Internet service providers and (2) from survey response provided by Arlington County residents as part of information gathered for this report.

The *Cost Model Evaluation contemplated* a County-administered household financial subsidy where households did not spend more than 1.5% of their income towards Internet costs.[36] The analysis considered the **American Connectivity Program (ACP)** and the **Lifeline** subsidy programs and analyzed scenarios that fully leveraged the benefits (i.e., all households who are eligible for the Program are signed up and receiving benefits) and where these programs were not used (or available). Even if all eligible households received ACP benefits, approximately 8,541 households would still need support given that their incomes exceed ACP program requirements. If Arlington County desired to subsidize higher Internet speeds (e.g., 100/100 instead of 100/20 offered by the ACP), then thousands more households would need a subsidy to meet the 1.5% threshold. Nationwide, ACP income requirements accommodate most households. However, in areas where cost of living and median incomes area higher, like in Arlington County, the ACP only supports extremely low-income households and does not cover all households who spend more than 1.5% of their income on the average Internet package (i.e., households earning between 30-50% of the area median income). Filling this gap is significant and would require nearly $2 million annually, not including administrative expenses incurred to manage a local subsidy.

Should Arlington County Implement a Local Internet Subsidy?

Arlington County should not implement a countywide local subsidy given:

- The significant funding required to subsidize the average monthly Internet cost,
- significant administrative costs to developing and managing a new program,
- available federal programs that subsidize households most cost-burdened by Internet expenses,
- existing subsidy support offered by Arlington Public Schools to all students,
- and the requisite digital education needed for certain households to make meaningful use of Internet access.

Furthermore, Census data suggests that household income is not the only indicator of connectivity in Arlington. Approximately 32% of households without an Internet subscription have an annual income of $75,000 or more.[37] Additionally, seniors make up nearly two-thirds of the Arlington population who lack a computer or an Internet subscription (despite making up only 12% of the population). For example, seniors are nearly 10 times more likely to lack an Internet subscription and a computer and nearly five times more likely to lack an Internet subscription (but have a computer) than someone between 18 and 64.

Through feedback from Digital Navigators (referenced in *Section 3.1.1*) and other digital inclusion programs, the County should further research reasons for lack of connectivity to better understand why households are not connected when Internet service is widely available (i.e. over 99% coverage across Arlington County).

While the ACP provides substantial assistance to those eligible households, the FCC will stop accepting new applications and enrollments in February 2024 and current funding is expected to last through April 2024. Unless new funding is approved by Congress, the ACP program will be discontinued. Despite the risks to the ACP program, Lifeline service will continue to be administered through the FCC and Universal Services Administrative Company (USAC), though fewer households are eligible for this program and the individual benefit amount is significantly less than ACP.

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[36] Households generally became cost-burdened, spending more than 1.5% of income towards Internet costs, at 50% of the area median income.

[37] Census 2021 ACS 1 Year Estimate S2801; 3.3% (3,564) of households in Arlington County are without an Internet subscription.

If existing federal ACP and/or Lifeline programs are discontinued, we recommend that Arlington County revisit this recommendation and consider a local subsidy option to address the most cost-burdened supported by the ACP. The County could also consider subsidizing 50/10 Mbps speeds or considering flat rate subsidies (e.g., $30/month) as opposed to a tiered approach assessed in the Cost Model Evaluation (e.g., based upon a percentage of income).

The County should monitor the availability of Internet subsidy benefits such as ACP and Lifeline, and their impact towards mitigating Internet affordability challenges in households. This includes an assessment of subsidy eligibility and households that are cost-burdened by Internet service costs.

Arlington Public Schools' Multi-Pronged Approach to Connectivity

In response to the COVID-19 pandemic, Arlington Public Schools (APS) started a subsidy program to ensure all APS students had adequate Internet connectivity to support virtual learning. Any student who reports issues with Internet affordability or connectivity receives APS assistance. To date, APS has developed a tailored solution for every student who has requested it.

APS partnered with Comcast who created a special code for APS to distribute to students at their discretion. The household then presents the code to Comcast and registers for the appropriate Internet plan. Comcast then bills APS.

APS assesses household connectivity needs to develop a tailored plan for the family. The Comcast Internet Essentials plan provides a service of 50 Mbps download and 10 Mbps upload. This supports many households in need; however, if households have multiple children or if there are also several remote workers in the home, APS may subsidize up to the Comcast Internet Essentials Plus Plan that offers 100/20. For very large households with several APS children and/or remote workers, APS may then provide a Kajeet device that allows for greater speeds. Arlington has smaller household sizes on average; the number of households in need of the Kajeet supplement represents a small subset of the students.

While any student, regardless of income, may request assistance, the majority have extremely low incomes that would qualify for other federal benefits. Therefore, the students receiving APS support would also qualify for the Affordable Connectivity Program. While APS could direct students in need to the Affordable Connectivity Program, the ultimate goal is to address the Internet issue for the student as quickly as possible, minimizing disruptions to their education. The ACP application has eligibility processes that may be burdensome, take time for residents to get approved, and presents less opportunity for trusted local partners to provide needed sign-up assistance. The Comcast partnership has allowed APS significant flexibility through the use of a special code to document eligibility. APS regularly communicates with Comcast and can work directly with families and the ISP to troubleshoot special cases quickly and efficiently, streamline the sign-up process, and ensure high delivery of service. This has been particularly true for households where English is a second language and needs additional support.

APS's sponsorship partnership with Comcast serves as a potential model should the County decide to expand local subsidy support.

A DISCUSSION REGARDING MINIMUM SERVICE LEVELS FOR ARLINGTON COUNTY

The Televate-SNG Team recommends that Arlington **not establish a 100/100 Mbps minimum service level** for the cost-burdened community. While we believe the infrastructure capabilities to address the future needs of residents and businesses are either currently in place or soon will be available, and there are many businesses and select households that need gigabit speeds, most households require far less. In other words, while the network should support these speeds for the future, and for the many businesses and select households that need this service level now, most households require far lower speeds in our opinion.

In fact, the Comcast Internet Essentials service offering at 50/10 Mbps should suffice for many or most eligible households. An important element regarding the need for higher speeds is having the hardware, software, and services needed to consume higher data speeds. A household where the family is simply doing homework, e-commerce, and watching YouTube videos[*] is unlikely to need speeds in excess of 50/10 Mbps, especially if they have a limited number or type of devices in the home.[**] A household with several smart televisions and subscriptions to streaming services that are simultaneously streaming 4K quality video may require 100 Mbps downloads, but that is not the typical family. The need for higher data speeds requires that the family also have the disposable income for such equipment and services. In fact, even the families with capable equipment and streaming services are unlikely to require 100/100 Mbps service. Only a family with substantial needs to send data to the Internet will require 100 Mbps upload speeds. For example, sending email messages with large attachments may take longer with slower speeds, but it may not matter to many users if a 10-megabyte email attachment takes 4 seconds versus 0.8 seconds (with a 100 Mbps upload service). Most households will not notice this delay. Instead, it is likely to be the families with multiple remote workers who are working on very large data files or video content that will require 100 Mbps in a household.

Similarly, many businesses do not require substantial data speeds. They may only have a few employees with light email and web research needs where 100/20 service is sufficient. Most businesses outsource web housing and email hosting to cloud service providers, limiting the data needs they have to their respective offices. For larger businesses, or those involved in heavy data or online services use, a service plan far in excess of 100/100 Mbps may be required. But the minimum threshold, should the County require one, could be established at 100/20 Mbps.

As a result, we recommend that Arlington use 50/10 Mbps as the baseline speed requirement for cost-burdened households. This may change over time and Arlington should continue to monitor the data needs for "staple" Internet uses for households, but at present, we see no need to establish a Countywide requirement of 100/100 Mbps for all households and businesses. Likewise, the County can set the minimum target for businesses at 100/20, and the service providers should be able to deliver multiple gigabit services to businesses districts.

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[*] YouTube automatically scales the stream quality based on the available bandwidth, and therefore, if there are temporary situations where the subscribed data speed is insufficient, YouTube and many other services will automatically scale to a lower video quality. See Google Video Quality Report for more information.

[**] We note that not all households are alike. Arlington Public Schools (APS) assumes each student requires 5 Mbps down and 2.5 Mbps up. In some cases, for example, a household of more than three virtual learners streaming two-way video are likely exhaust the 10 Mbps upload limit. Or, virtual learners combined with remote workers could also exceed 50/10 Mbps. In those scenarios, households may require Internet Essentials <u>Plus</u> offering speeds of 100/20 Mbps for $20 more per month.

Action 3: Pursue Strategic Partnerships and Opportunities that Promote Internet Affordability

The following items are important considerations when pursuing strategic partnerships—especially engaging with ISPs—to address affordability challenges in digital equity program planning:

- Promote and assist with marketing and enrollment of existing programs (See Action 1 above)
- Engage with ISPs to promote low-cost Internet service plans and advocate for more affordable Internet in Arlington.
- Pursue opportunities to partner with ISPs to expand free or low-cost packages, where possible, to households that have income constraints and do not qualify for existing ACP benefits or Internet service plans such as Comcast Internet Essentials, Comcast Internet Essentials Plus, or Verizon Forward.
- Document Internet affordability challenges and policy goals in key planning documents, including those related to human and neighborhood services, affordable housing, and in a Digital Equity Action Plan (proposed to be developed in Strategy 3 of this report).
- If federal programs are discontinued, consider implementing a Countywide subsidy option.
- Incentivize free or low-cost in-unit Internet as part of the local housing trust fund that funds affordable housing projects (See additional detail in *Section 3.3.3*, Action 2).
- More fully review the treatment of Internet in affordable housing and advocate for broadband to be considered as an essential utility in federal and state housing programs (See Action 2 above)

3.1.3 Foster a Local Network of Device Recycling, Refurbishment, and Distribution

While most households in Arlington have a computer device available to access and Internet, there are segments of the population that do not have a personal computer to access at home and consequently face significant barriers in having consistent access to online services. Approximately 2,104 households in Arlington County do not have a computer[38] with another 3,000 households relying on a smartphone, which is not suitable to fully utilize Internet services. Rates of using mobile wireless as the primary form of connectivity are higher among minority and low-income groups.[39] The lower rates could be due to affordability or other access issues or a perception that a smartphone provides adequate Internet access.

Local non-profit organizations providing vital community services rely on Internet-enabled devices to perform their day-to-day operations as well as utilize tablets or smartphones to coordinate operations in the field with 1:1 interaction with clients. A person attempting to take a digital literacy training course could have issues when not accessing training on a computer or laptop device. During informational interviews, resident-serving organizations expressed issues in client experience and program implementation when home computers were not present in the home. Some programs provide personal computer devices to program participants. This includes non-profits supporting seniors in-house with

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[38]Census 2021 1-year estimate data: B28010. Also, according to eCheckup in Arlington County households use a Smartphone for Internet access with no desktop or laptop available (Fall 2022 - 4.8% reported their mobile wireless as their primary source of Internet connectivity and utilization).

[39] eCheckup respondents primarily using mobile wireless connectivity (13.9% of Black or African American, 9.4% of Asian) and low-income groups (22% of households making less than $50,000 annually).

telehealth assistance, as well as multi-language community organizations working to provide workforce training. These programs actively engaging with community members to promote digital inclusion should be viewed as priorities to receive appropriate computing devices.

Exclusively using a smartphone is becoming easier as more platforms have mobile interfaces, and the increasing presence and proximity of a cell phone increases the convenience. However, smartphones as the primary device for Internet access can inhibit an individual's ability to take full advantage of online services and platforms. For example, it is challenging to conduct remote learning, or to complete and sign a job application on a smartphone. In addition, some online interfaces have not been enabled for mobile devices and are difficult to use in such a small form factor. Desktop and laptop computers, tablets, and Chromebooks will provide a better user experience whether used at home or at work to conduct a variety of fundamental and advanced online practices. In addition, telehealth medicine is more practical for patients to use web-based or remote monitoring services, which are more accessible on a computer.[40]

Arlington Public Schools ensures that every student (K-12) receives a device.[41,42] This ensures that all households with an APS student has some device in their homes beyond a mobile device. This program allows parents to stay informed with their student's school communications, provides access to educations records and resources, and helps families to receive general APS information. While the intended purpose is to promote the student experience and promote virtual learning, families are able to use the devices for other functions. APS also encourages students to keep their device over summer months to ensure connectivity due to lack of a device is not an issue. This device program extends to include mobile hotspots provided to families that do not have accessible, affordable Internet service. Due to their commitment to this issue and experience in delivering at capacity, APS should be considered a valued partner in developing strategies related to device recycling and distribution.

To support countywide digital inclusion, Arlington should coordinate resources with APS and community-based organizations to develop a device supply and distribution network, working to provide the appropriate computer devices to the individuals and households who are in need. In particular, it will be vital to engage with organizations focused on serving older adults. According to Census data, seniors are much more likely to lack a home computer, representing approximately 80% of households without any device.[43]

The County's existing programs for device recycling, including Curbside Electronics pick-up and E-Care,[44] should be active partners in this effort. Other external organizations that have expertise in this arena include Computer Core,[45] Human IT,[46] and PCs for People.[47] These organizations may have to capacity to oversee many components related to this strategy and should be strongly considered as working partners.

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[40] Additionally, certain telemedicine services require special devices (e.g. remote ECG monitoring systems) and reliable, robust connectivity through a computer.

[41] Laptop for grades 9-12 and a tablet for K-8 (with appropriate keyboard accessories for middle-school).

[42] As of December 2023, K-12 enrollment was 26,679. This is the number of APS devices currently in the community.

[43] Census 2021 1-year estimate data S2802 : 2,201 population aged 65 and older have no computer in household, 2,725 with no computer in household among all Arlington residents.

[44]https://www.arlingtonva.us/Government/Programs/Recycling-and-Trash/Residential/Curbside-Recycling-Trash/Electronics-Metal#section-2; https://www.arlingtonva.us/Government/Programs/Recycling-and-Trash/Household-Hazardous-Materials-HHM/E-CARE

[45] https://www.computercore.org/

[46] https://www.human-i-t.org/low-cost-devices/

[47] https://www.pcsforpeople.org/

Making devices available to all households in need to support digital inclusion initiatives will require participation from both private and non-profit organizations in the County to contribute to this network.

The need for more devices in the community is not uncommon and represents an opportunity to engage with local and regional organizations that can assist in furnishing supply and distribution management. The following communities are examples of programs implementing device recycling, refurbishment, and/or distribution initiatives as a part of digital equity initiatives:

- **Austin, TX:** The Community PC Program[48] was established in 2016 and has provided thousands of devices to local nonprofits. The Information Technology office provides interns with the opportunity to gain experience refurbishing the devices. Organizations in need of devices may submit a request through an online portal.
- **Cook County, IL:** Technology and Innovation Committee approved a resolution[49] in 2021 to donate all information technology salvage to PCs for People.
- **Louisville, KY:** As part of digital inclusion programming through the Metro Technology Services office, a computer donation and refurbishment program[50] was established in 2017 with a partnership between the Louisville Metro Housing Authority and Jefferson County Public Schools. Local high school students are involved in the refurbishment process, and devices are distributed to fellow students in need, HUD-assisted housing residents, and other digital inclusion partner members.
- **Salt Lake City, UT:** The Upcycling[51] program was created to deal with the 300-500 surplus devices available each year. The Digital Equipment Donation Program has reduced waste and promoted digital equity. An apprentice program employs students to refurbish devices through UT Dept. of Workforce Services, reducing work for City IT staff and creating upskill opportunities for residents. Community organizations distribute the devices according to their own need-based policies, streamlining involvement for the City.

Action 1: Establish an application process for accepting donated devices

In order to manage and enhance the efficiency of device donations, the County should establish a process to facilitate contact and follow-up with local businesses and organizations willing to donate devices. This can be administered by providing access to a user-friendly online portal used to gather related information such as organization contact information, type of devices and quantity that is available for donation.

A coordinated application process will not only simplify inventory tracking and availability but can also play a role in delivering ongoing communication with participating entities. Information updates can be

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[48] https://www.austintexas.gov/department/community-pc-program
[49] https://cook-county.legistar.com/LegislationDetail.aspx?ID=5140307&GUID=02BED293-05BE-47C5-9D42-FA304BDEFACB&FullText=1
[50] https://louisvilleky.gov/government/metro-technology-services/digital-inclusion
[51] https://the-atlas.com/projects/digital-donation-program-salt-lake-city-digital-divide?utm_source=app&utm_medium=copy_link&utm_campaign=project_share

sent to member organizations that includes details about the refurbishment program or inquiries about future donation requests. As organizations indicate they have available devices to donate, a follow-up effort to assist in the donation process, such as helping to back up data or coordination of a scheduled pickup, can help local businesses and organizations participate in this program.

The County's device donation program should also include a dedicated facility (such as a Digital Inclusion Hub) to gather and disseminate program information. During the device intake process, a comprehensive assessment should be conducted to categorize devices as recyclable or able to be refurbished. Salvageable devices will undergo refurbishment and local distribution that will contribute to the digital inclusion cause. Devices deemed unsuitable for use should be directed to the County's established recycling program. The regular availability of in-person collection hours, to be promoted in coordination with other digital inclusion offerings, will assist in driving participation and raising awareness of the program.

Action 2: Establish a mechanism to collect/refurbish computers

The County could identify and contract a local nonprofit partner organization (e.g., through an RFP process or through a grant) to collect and refurbish computers using their staff and local individuals who wish to be trained and gain hands-on technical experience with technology (i.e., students, individuals who wish to start new careers in technology, etc.). Refurbishment of computers requires skills and familiarity with computer hardware, as well completing the installation of operating systems and other software programs before they are able to be distributed.[52] The County could provide financial and other support to facilitate this process, plus coordination and oversight to the contracted partner.

A metric of success for this action can include the number of devices serviced, as well as how many of the trained individuals are hired by organizations or firms that offer jobs based on their experience with devices and software. This can attract local education institutions to contribute volunteer staff to provide ongoing program support. The County should maintain consistent training of individuals to meet growing program needs and attrition.

Action 3: Establish device pick-up and training for residents and businesses in need

Local and non-profit organizations who are recognized as working with digital inclusion target populations in Arlington County should be considered a priority to receive needed devices. The County can make this determination either by establishing a request portal or other mechanism for organizations to indicate the amount and type of devices necessary to conduct their operations.

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[52] Computer Core and PCs for People offer discounted Microsoft licenses as part of a Third Party Refurbishment programs.

In order to deliver computer devices to the individuals and households in need, rather than incurring the time and cost to directly distributing needed devices to the community, designated location(s) should be selected for device pick-up where:

- Devices are being refurbished so that if there are any technical problems, they can be resolved immediately onsite
- Training (group or individual) in the use of the devices and the programs on the devices to ensure users have the knowledge and capabilities to effectively use the devices at the time of pick-up
- Using the same portal for donating and distributing devices, residents and businesses can:
  - schedule their pick-up times and receive their devices and training
  - schedule times for them to bring their device for troubleshooting when they have technical problems

Existing County facilities for electronics and device recycling could be leveraged to potentially service one or more of these locations. Digital Navigators and local stakeholder partners organizations will be key in helping coordinate connecting user needs with appropriate devices and training resources. Coupling device distribution with digital inclusion activities (such as basic skills training or ACP enrollment) not only increases the level of participation from the community but will also ensure that residents can successfully utilize computing devices they receive.

3.1.4   Scale Existing County Programming to Meet Demand

Action 1: Expand Libraries' Technical Support and Teleconnect Pilot

The Arlington Public Library has played an important role in the County's digital equity efforts by facilitating public access points and administering the deployment of digital literacy services and devices. Libraries are essential to implementing many aspects of digital inclusion and serve as local institutions for community members to learn about other available resources. The Arlington Public Library should enhance their technical support and other digital inclusion program offerings and support the expansion of Teleconnect to additional library locations.

While technology accessibility and technical help is available at all Arlington Public Library locations, staff availability and time constraints limit the access and continuity of programming for digital literacy and skills training. Technology training that is currently offered in this environment may be fairly limited to setting up email or very basic online activities.

Recommendations include:

- Providing Digital Navigation services at library locations throughout Arlington County along with other publicly available computer facilities and resident-serving County locations, such as community centers and human services facilities.
- Providing additional training to staff so they can showcase available services (County services, telemedicine, etc.) and guide individuals to Digital Navigators and stakeholder partner

> organizations as needed. Exploring national training programs would be beneficial to minimize effort required to create training programs from scratch.

- Providing special device and technology setups as needed based on priorities for targeted groups (for showcasing telemedicine, enabling video conferencing, etc.)

There are many resources available that can provide guidance for training staff to address digital equity challenges on an individual basis. NDIA has organized a database[53] of these resources and includes information providing for instructor materials, curriculum, and self-guided resources that can be used utilized by the County to provide training to existing staff and volunteers.

In addition to providing technical assistance, a FY2023 Arlington library pilot program named Teleconnect[54] allowed residents to reserve the space for up to two-hour windows during library hours. The private room equipped with web access, video conferencing software, and staff assistance is a valuable asset for individuals to perform a variety of essential online functions. With a weekly occupancy rate of 25% at the piloted Columbia Pike Branch, this program allowed residents to conduct job interviews, health and medical appointments, complete school or other applications, and other use cases.[55] Considering expenses involved in outfitting a Teleconnect space,[56] every effort should be made to utilize existing facilities and resources to accomplish this objective.

Arlington libraries also offer wireless hotpot lending program,[57] through a partnership with ISPs, to serve residents with wireless connectivity. There are currently 19 of these devices available, and a considerable administrative burden required to operate this program at a larger scale. Recorded trends in utilization of the hotspot program[58] indicate that return customers are using the program as a long-term solution, as opposed to its intent as a temporary fix. In these cases, the resident user should be referred to a Digital Navigator or other digital inclusion resources to allow them to get appropriate equipment that meets their needs.

Action 2: Expand Arlington Economic Development's ReLaunch Program for Small Businesses

Supporting entrepreneurship and small business initiatives drives the local economy and helps to realize many of the financial and work-life benefits that broadband can help achieve. Small businesses require the adoption of online skills and practices to stay competitive in today's changing digital economy. The

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[53] https://startup.digitalinclusion.org/ch4.html
[54] https://library.arlingtonva.us/services/meeting-rooms/teleconnect-space/
[55] Forty-seven percent (47%) for job interviews, 25% for health/medical appointments, 7% for college or scholarship applications/interviews, 4% for Social Services/DHS meetings, 17% other uses.
[56] It cost $6,500 to outfit an existing room with the technology and furniture at Columbia Pike. To duplicate the space without an existing room, the cost would be $40,000 or more depending on the space. Purchasing pods could be a cheaper solution to building out space, but that still runs ~$20,000.
[57] https://library.arlingtonva.us/collection/library-of-things/wireless-hotspots/
[58] Hotspot patrons use the program regularly, keep the devices beyond the 1 week loan period, and place holds on the next available hotspots. Holds on the hot spots are stable at about 8 to 10 at a given time, and are distributed quickly due to the short loan period.

Needs Assessment reported that a significant number of local businesses[59] are planning to use online practices, including social media, staff training and skills development, and accessing collaborative tools. A large majority of businesses who participated in the County's needs assessment reported using a website for their organization.[60] Supporting the development of these skills through resources and direct training provides a necessary and needed service in Arlington County.

An ongoing program that is currently administered in Arlington County is the ReLaunch program.[61] Arlington Economic Development's BizLaunch team created ReLaunch in 2021 to provide resources and focused training to small businesses within Arlington County. Diverse legacy businesses and micro entrepreneurs impacted by the digital divide are provided technical assistance, underwritten by Arlington County, in addition to tools to help design and develop websites with eCommerce. Through a partnership with AWS, website development, training and hosting for microbusinesses is provided, with opportunities to offer additional services through AWS as well as Amazon.

Now an internationally recognized program, ReLaunch has served over 340 local Arlington businesses, including 60% that are women-owned or minority-owned. The successful program has a waitlist of 14-20 businesses each month and has stopped formally advertising the program until they are able to meet the existing demand. In the current capacity, ReLaunch can serve six businesses per month while maintaining quality of service and dedication towards participants. The widespread interest in this program from the community shows the demand for these services, and it is recommended that BizLaunch receive the necessary additional funding and resources to increase the scale of their ReLaunch program operations.[62]

Action 3: Expand the Quantity and Scope of County and APS Digital Literacy Training

Arlington Public Schools (APS) has a vested interest in families having Internet access to promote remote learning and homework. APS follows state-mandated standards that emphasize the essential role of technologies to deepen the learning experiences of students given the ever-increasing need for digital skills to participate and succeed in the community and economy.[63] APS provides a range of services for digital literacy and support:

- Students receive training/presentations on digital citizenship before receiving a device.
- Parents are provided with assistance to complete online activities such as setting up online accounts to access student information and troubleshooting basic device and application issues.

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[59] eCheckup findings of three highest rated online practices "Plan to use" among businesses: 31% Accessing collaborative tools, 27% Increase social networking, 20% Staff training and skills development.

[60] Ninety-three percent (93%) of businesses from eCheckup reported currently using a website. Forbes reports that nationwide 71% of businesses have a website: https://www.forbes.com/advisor/business/software/website-statistics/

[61] https://www.arlingtoneconomicdevelopment.com/Small-Business/Small-Business-Programs/ReLaunch

[62] Currently BizLaunch budget is funded at $250,000 annually- assisting approximately 6 businesses a month or 72 businesses a year. Initially budgeted with $500,000 each year to help 12 businesses a month or 144 businesses a year. The original funding amount would allow the program to meet existing demand.

[63] Digital Learning Integration Standards of Learning | Virginia Department of Education

- Because there are multiple offices and staff that deal with families, we try to ensure that contact staff is aware of available resources so that families' technology needs can be met.
- Provides support on a 1:1 basis ensuring the parent/child is comfortable using the device.

In addition to working to achieve student family's Internet access, APS also provides digital literacy training through adult education programming. Serving approximately 2,000 Arlington residents a year, the Arlington Education and Employment Program (REEP) provides English as a second language, workforce development, and digital literacy instruction to adult English language learners. While the adult ESOL curriculum is broad and focuses on life skills, digital literacy is integrated throughout. The program works to educate participants about foundational skills including Internet connectivity, setup, and troubleshooting, as well as raise awareness to how the Internet can be used to navigate everyday life. Based on program experience, this type of instruction is most effective when conducted in-person as opposed to a webinar or online approach. Recent surveys show that over 80% of REEP learners prefer in-person instruction. Participants in the REEP programs come from throughout the County, but it is important to note that a significant amount of participation among intensive ESL classes comes from individuals within the 22204 Zip code,[64] demonstrating a need for ongoing support and demand for digital literacy training in this area.

The County should coordinate with APS to identify strategies and resources (e.g., recycled devices, delivering affordable Internet service) to strengthen and expand digital inclusion and skill-building programming. With the existing educational foundation and ongoing program participation rates, REEP classes provide an opportunity to enhance the level of digital literacy training to a substantial and underserved segment of the community. The County could explore expanding offerings to other populations in need. While there were members of the County's population identified that require basic level technical support, there are also many additional components to Internet use that could be developed and taught, such as privacy and security issues, cloud computing, or specific software platforms.

3.1.5 Digital Inclusion Resources Needed

The following resources needed reflect the recommendations described above. Budget considerations represent a rough order of magnitude costs based upon the current market and research of best practices. These examples could be used as a starting place for Arlington to consider implementation of recommended strategies and actions.

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[64] As of December 2022, 41% of enrollment (344 of 833 total) of ESL students in REEP intensive classes report living in the 22204 zip code.

Table 2: Budgetary Considerations for Digital Equity Related Strategic Recommendations

Item	Description	Budget Considerations
Arlington Budgetary Considerations for Digital Inclusion Programming		
Digital Navigators Program Pilot	Services provided (e.g., resource referral, volunteer training, skill-building)	$25/hour for 1 navigator per site at approximately 15 hours per week. ~20,000/site annually
	Augment technologies and equipment needs at designated Digital Inclusion Hubs	Assessed on a case-by-case basis based upon site and program specifics
	Device Needs	Assessed on a case-by-case basis based upon site and program specifics
Increase Outreach Promotion and Enrollment Assistance of Affordable Subsidy Programs	Includes program marketing and outreach campaign as well as funding for sign up events	Budget determined after County confirms certain implementation approaches such as providing grants to nonprofits vs. County-sponsored sign-up events. Enrollment assistance is weaved into the Digital Navigators Program
Device Refurbishment Network	• Setup Online portal for device donation tracking • Resource and material support of device refurbishment activities • Dedicated staff resources to assist in device donation and distribution operations	Administrative expenses to be determined after identifying certain implementation approaches – whether County manages, an organization manages on the County's behalf, or whether the County provides grants to several nonprofits. A local organization estimates device refurbishment at $300/device

Item	Description	Budget Considerations
Expand Existing County Digital Equity Programs	• Library Teleconnect Program Expansion (technology, equipment, and devices)	Outfitting existing pilot space cost approximately $6,500. Without an existing room, costs could be ~$40k+ depending upon the space. Purchasing pods could be a cheaper solution to building out space, running ~$20,000.[65]
	• Expand BizLaunch small business programming	Approximately $160,000 for technical assistance and website development.[66]
	• Increase digital skill-building in the County	Approximately $60,000 for class offerings, assuming four multi-week courses per year.[67]

3.2 Strategy 2: Address Broadband Internet Service Gaps

Arlington County is well-served by broadband infrastructure. High-quality service of at least 100/20 Mbps is near ubiquitous (99%), ten (10) Internet providers are present in the County, most properties (95%) have choice of at least two Internet providers providing 100/100 or better service, and nearly half (44%) have choice of three or more providers. Despite the strong broadband marketplace, four (4) locations (buildings) serving 159 units do not have 100/100 broadband access[68]; and 1,020 locations (buildings) representing 4,858 residential and business units have only one Internet service provider at 100/100 or better. There are gaps in knowledge that limit Arlington from implementing solutions to achieve ubiquitous 100/100 service and competition. These gaps include:

- Limited understanding of why Internet providers are not currently serving properties. Informational interviews with Internet providers pointed to property access as a primary cause, though it is likely one of several causes. Documented evidence has been historically difficult to obtain, though Arlington could more proactively pursue additional avenues for data collection.

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[65] Based off of research from Arlington Public Libraries.
[66] Approximately $8,000 per additional business on average to serve the 14-20 businesses in a given month. Based off the existing program's average costs per business for technical assistance and website development. Currently BizLaunch budget is funded at $250,000. Assisting approximately 6 businesses a month or 72 businesses a year.
[67] Based off a local organization cost for 8-week digital literacy courses. Assumes the County may implement an additional class series per quarter.
[68] Excludes locations where Televate conducted an analysis of 83 locations from the FCC data, finding only four locations that are both serviceable and not served at 100/100+.

- Limited available tools to address connectivity issues. The Cable Franchise Agreement is one potential, albeit limited, tool.
- Nascent national data in need of further analysis to ensure accuracy. Many of the locations that initially appeared to be "underserved" were actually served by Comcast Xfinity or they were listed as serviceable while clearly not requiring broadband service, yet the Federal Communications Commission (FCC) Broadband Data Collection (BDC) database did not reflect it.

A thorough and accurate understanding of the extent and causes of these service gaps will enable Arlington to take appropriate next steps—in collaboration with the correct set of third-party entities—toward addressing the problems faced in these specific locations.
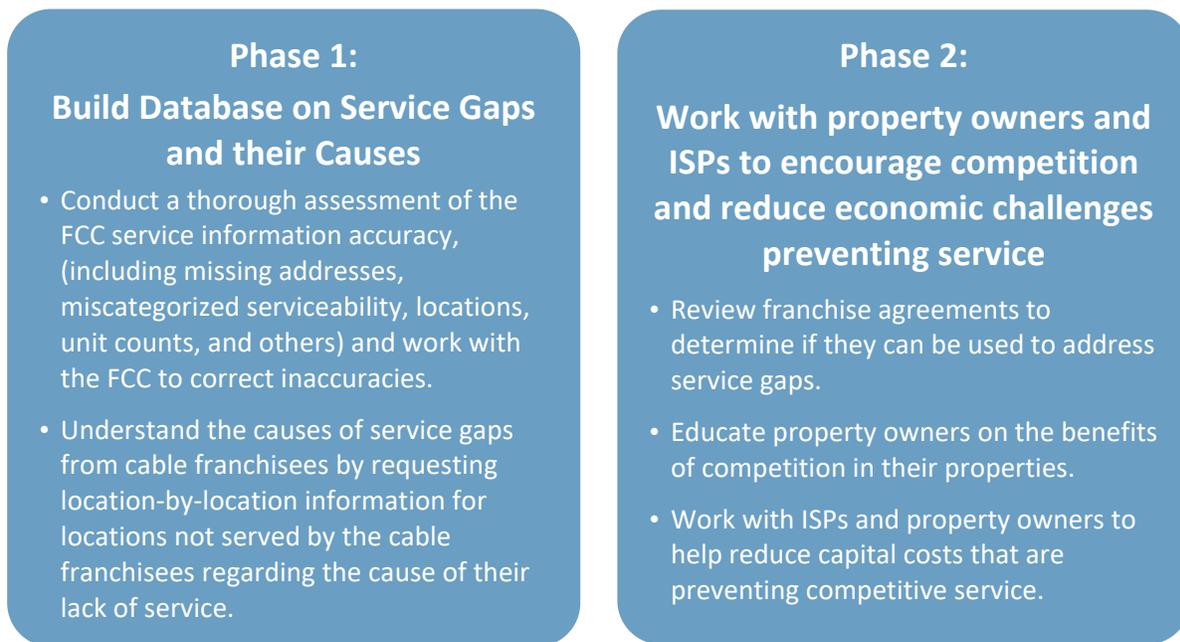
Phase 1: Build Database on Service Gaps and their Causes	Phase 2: Work with property owners and ISPs to encourage competition and reduce economic challenges preventing service
• Conduct a thorough assessment of the FCC service information accuracy, (including missing addresses, miscategorized serviceability, locations, unit counts, and others) and work with the FCC to correct inaccuracies. • Understand the causes of service gaps from cable franchisees by requesting location-by-location information for locations not served by the cable franchisees regarding the cause of their lack of service.	• Review franchise agreements to determine if they can be used to address service gaps. • Educate property owners on the benefits of competition in their properties. • Work with ISPs and property owners to help reduce capital costs that are preventing competitive service.

Figure 9: Phased Approach for Addressing Broadband Internet Service Gaps

3.2.1   Build a Database of Service Gaps and Their Causes

Action 1: Conduct a thorough assessment of FCC service information accuracy, (including missing addresses, miscategorized serviceability, locations, unit counts, and others) and work with the FCC to correct inaccuracies

The FCC National Broadband Map displays the number of Internet service providers, Internet speed, and available technology (e.g., fiber, cable, fixed wireless) across the country as reported by Internet providers. Internet providers only began reporting property-level service data since 2022 when the first iteration of the map was shared. Prior to this, information was limited and only shared at the census block level. Having more granular data vastly improved awareness of the broadband landscape, particularly when compared to socio-demographic and locally available data.

While this is the best available broadband data, it is not without errors. In the initial iteration, the FCC Broadband Data Collection (BDC) incorrectly showed a large residential area between Route 50 and N. George Mason Drive—approximately 950 homes and some businesses—as lacking Xfinity service. That Xfinity error in the North Carlin Springs area, which was identified in the *Needs Assessment*, has been corrected, but other issues identified have not yet been corrected. While we expect that the number of the remaining errors have been reduced since the initial publication of the BDC, we suspect there are still dozens and perhaps hundreds of errors in the BDC in Arlington. For example, the BDC indicates that the Pentagon is serviceable (the Department of Defense is unlikely to subscribe to retail Internet service at a facility so critical to our national security). The BDC also shows 2800 S. Randolph Street as not serviceable despite being in Shirlington with retail shopping and dining on the first floor. The office space above appears to be rented by the United States General Services Administration and Patent & Trademark Office who may not today subscribe to retail Internet service.[69] In other instances, the FCC BDC may have miscategorized locations as residential or business, further underscoring the need to analyze all locations. These and other issues should be identified and corrected.

The FCC has developed a process for the public to dispute, or challenge, information on the map that may be inaccurate and for local jurisdictions to submit bulk challenges. Over time, the challenges to the data are likely to make the dataset more reliable and accurate for future broadband planning.

As part of this Broadband Study, Televate analyzed approximately 83 locations that lacked 100/100 service, but did not fully analyze locations that lacked competition[70] or verified that the locations that appeared served were actually served at the service levels described. The County should conduct a more comprehensive analysis of all 36,000 locations in the BDC and correct any errors uncovered. Having a more accurate dataset will help the County paint a better picture of broadband connectivity needs for local planning and for capitalizing on potential funding opportunities presented by the federal government, who will likely use this map as the basis for future grant decisions.

Concurrent with this study, the Commonwealth of Virginia provided its Broadband, Equity, Access and Deployment (BEAD) program Initial Proposal and will continue to move forward with the grant program. The Virginia portal shows a number of unserved and underserved locations that would be used to identify the fundable locations. BEAD grants support funding for Community Anchor Institutions (CAI) locations that do not achieve gigabit symmetric speeds. Because Verizon advertises slightly under gigabit speeds,[71] these CAIs are depicted as unserved. This designation does not account for the planned Verizon upgrade that would deliver multi-gigabit service. While there still remains relatively few fundable (unserved and underserved) locations in Arlington, Arlington should keep tabs on the Virginia program to determine if and how it can support interested BEAD applicants. However, we suspect that the small number of truly serviceable locations, combined with Verizon's presence at most of the Community Anchor Institutions suggest that there will be limited interest in Arlington applicants for BEAD funding.

Televate recommends the following activities:

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[69] In this particular case, the lease expires in 2035 (see link). However, in general, the Commission should not presume a tenant who does not subscribe to retail Internet service will always be present in the building. All rental commercial rental properties should always be equipped to provide retail service so that the space is marketable by the owners.

[70] Approximately 5,000 residential and business units exist across roughly 1,000 non-competitive locations.

[71] Verizon advertises 980 Mbps download and 880 Mbps upload.

As Soon As Possible:

1. **Conduct an analysis of the FCC's location database against Arlington County's address databases** to identify missing or miscategorized locations (not serviceable, type of structure [business, residence, both]), incorrect locations, or incorrect addresses. Submit a bulk challenge to the FCC.
2. **Solicit help from Arlington County businesses and residents to either directly challenge the BDC on the FCC BDC website or collect the appropriate information from the public to challenge service details at each address and submit bulk challenges.** This could include conducting surveys to determine the extent to which the BDC is correct and any corrections the public suggests.[72]
3. **Conduct independent research to determine, or verify, service availability** at various locations using the ISP websites.

Ongoing Activities

4. **Continue to monitor the FCC BDC data** to ensure that errors are corrected, and to identify and correct new errors that may be introduced into the database.
5. **Continue to monitor the BDC database to ensure that it reflects the actual state of broadband service in Arlington**, especially focusing on locations that are suspected to be underserved (or perhaps not served) and those that are thought to lack competition.

Action 2: Understand the causes of service gaps from cable franchisees by requesting location-by-location information for locations not served by the cable franchisees regarding the cause of their lack of service

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Arlington's broadband marketplace is highly competitive and nearly ubiquitous. It is unclear why approximately 1,000 locations do not have competition and why a handful remain without adequate service. One Internet provider shared that blocked access by the property owner is the sole cause for lack of service, though the reasons may be more complex, and blocked access is likely only one of many possible causes, including:

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[72] Arlington should make any request to correct the database very clear to ensure that residents only respond to what they know. Consumers often do not know that other providers (e.g., satellite and fixed wireless) are offering service to their home or business.

1. The cost of constructing would not allow the ISP to achieve a return on their investment.

2. Installation of equipment on private property needed to provide wired Internet service in multi-tenant buildings would present technical issues or non-standard issues, impair the use of the property for the continued provision of existing essential services, or cause undue damage preventing the ISP's access to private property.

3. The property owner is interfering with access to their private property preventing competitive service in a multi-tenant building due to economic interests, existing agreements between an ISP and property owners, unreasonable fees demanded by the ISP, or other reasons not associated with item 2 above.

> **BUILDING ACCESS FOR FIXED WIRELESS SERVICE**
>
> Fixed wireless services are not susceptible to many of these causes, and therefore, have fewer impediments to serve individual locations. For example, a T-Mobile fixed wireless customer can self-install the customer equipment associated with the service in their apartment or home, and the property owner need not provide permission to do so. And, because wireless signals broadcast over a wide area, it is likely that some level of service is available to locations that were not known to the wireless provider. However, for the fixed services associated with the long-term goal of symmetric gigabit speeds, coaxial cable or fiber is needed.

Since the specific remedy depends on the cause, Arlington should better understand the causes of Internet service gaps. Arlington County should resolve service gaps in collaboration with Internet service providers as we believe that direct Internet service delivery by Arlington County is not the best solution to address infrastructure service gaps. Federal and state law currently prevents Arlington County from regulating broadband Internet service but better understanding gaps capitalizing on information available through the County's cable franchise agreements will help the County have a more detailed picture of its service gaps and the reasons the gaps exist. Verizon uses its fiber network to deliver its television services under the County's franchise agreement, and Comcast uses its hybrid fiber-coax network to deliver television services under its franchise. Once the coaxial cable and fiber are delivered to a home or business, both television and Internet service delivery can be offered. As a result, the two providers will likely offer television and Internet service wherever they provide television service.

The initial step in our strategy is to first understand where and why high-quality, broadband competition does not exist in Arlington County. Our proposed strategy considers that provisions of the cable franchise agreement might facilitate the determination of which Arlington locations do not have cable television access and help Arlington to understand the reason for the lack of broadband service at each location. This information can then be used to help formulate a solution to deliver Internet service. The County should audit its compliance and record keeping of the cable franchise agreements to determine what locations are not served by cable television. If gaps in cable television service are identified, then working with ISPs to close cable service gaps may also help close broadband service gaps. The County should review the current agreements and engage with Comcast and Verizon to determine if there are opportunities to encourage the providers to identify the individual locations and reasons for service gaps.

Presently, the agreements state that both providers must serve residential locations but are less concrete in terms of units within those locations and business (this is discussed further in *A Deeper Dive into Certificates of Public Convenience and Necessity*). Additionally, both Comcast and Verizon's Certificates contain language that excuses lack of service in particular scenarios. Section 3.2.4 of both agreements specifies that the Certificate Holder (the cable franchisee) is not required to serve customers where a) they cannot obtain physical access, b) there are exclusive agreements with the property owner, or c) there

are technical or "non-standard" reasons on a "commercially reasonable basis." One important distinction between the two agreements is that the Comcast agreement requires that the "Certificate Holder shall submit to the Administrator written notice of such negotiations upon request" for situations in which the Certificate holder cannot obtain physical access or where there is not a technical or commercially reasonable basis for an inability to provide service. As a result, Comcast is required to provide the rationale for lack of service (to at least the residential or mixed locations), but Verizon too may be required to demonstrate why access to private property prevents service.

Televate recommends that the County review its existing agreement with its Franchisees to see if it can receive the documentation required for locations where property owners prevent access and follow-on with the provider and the property owner/manager to try and negotiate a solution.

The County could start with the existing FCC data that identifies locations the providers do not serve. **The providers would be responsible for providing, per requested location, whether they serve the location, and if not, the reason** (of the available exclusion reasons from Section 3.2.4 of the agreements). Televate recommends the County conduct this effort for the residential and mixed locations, and additionally request that the

A DEEPER DIVE INTO CERTIFICATES OF PUBLIC CONVENIENCE AND NECESSITY

It is not certain the extent to which the Certificates of Public Convenience and Necessity[*] (the agreements between the parties that establish the franchises) with Comcast and Verizon establish a clear mandate for the providers to serve all locations. Regarding Verizon, we note that Section 3.2 of its Certificate specifies that the Certificate Holder *must* provide service to residential locations but *may* provide service to business locations.[†] In other words, service to business locations is not mandatory under the Certificate. Additionally, it may not be the case that Verizon is responsible for serving all residential units. Section 3.1.1.1 of the Certificate specifies that Verizon must serve locations where there are "30 occupied residential dwelling units per mile."[‡] While we have not conducted a study to determine if there are locations that do not meet this threshold, we doubt that such locations exist, or would amount to a substantial number of locations.

The current Certificate of Public Convenience and Necessity for Comcast of Potomac, LLC (which provides the Xfinity Internet service) establishes the same (or similar) language as the Verizon agreement. Section 3.2 also establishes that Comcast (Xfinity) "*shall* make Cable Service available to all residential dwelling units and *may* make Cable Service available to businesses within each service area in conformance with Section 3.1" (emphasis added). However, no density requirement exists that might limit the requirement as in the Verizon agreement. For its part, the list of locations where Comcast does not offer Xfinity broadband service is small (under 100 locations countywide).

The scope of business locations becomes relevant given the ability of the franchisees to serve businesses at their discretion. Using the building types represented in the FCC data, we estimated that one-third of the locations that are underserved and non-competitive (using 100/20 Mbps service as the benchmark) are businesses, leaving the remaining two-thirds of the locations residential and mandated under the franchise agreements.

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[*] The Certificate of Public Convenience and Necessity for Cable Television with Verizon Virginia Inc. is available here: verizoncableagreement.pdf (arlingtonva.us)

[†] Section 3.2 states "The Certificate Holder **shall** make Cable Service available to all residential dwelling units and **may** make Cable Service available to businesses within each service area in conformance with Section 3.1." (emphasis added)

[‡] Section 3.1.1.1 states "The Certificate Holder shall make Cable Services available to residential dwelling units in all areas of the Service Area where the average density is equal to or greater than 30 occupied residential dwelling units per mile as measured in strand footage from the nearest technically feasible point on the active FTTP Network trunk or feeder line."

franchisees conduct a similar analysis for the business locations. The County might add additional non-service options for business locations, including those locations that have been determined to have prohibitively high capital construction costs.

The County should review the agreement with its Franchisees to determine if it can encourage them to provide the required information and demonstrate compliance with their agreement. If the two cable franchisees do not cooperate with requests for information, the County could conduct public surveys to obtain the required insight into the service gaps.

Future amendments to the franchise agreement could include requiring service to businesses and requiring that the franchisees inform the County of locations they are not serving (without the County needing to request that information first).

3.2.2 Work with Property Owners and ISPs to Encourage Competition and Reduce Economic Challenges Preventing Service

Using the service availability database identifying locations that are underserved (4 locations representing 159 units) and lacking competition (1,020 locations representing 4,858 units), the County should use all resources at its disposal to remedy the gaps. By leveraging the cable franchise agreements, the County will be affecting the expansion or implementation of infrastructure that can accommodate gigabit symmetric broadband service in the near future. However, we recommend prioritizing locations that currently lack 100/20 service from one or multiple providers. And, to the extent that affordable housing locations lack competition (all are deemed to have 100/20 or better service from at least one provider), those locations should also be a priority to ensure the availability of a competitive environment delivering high-quality service. Below are the core reasons why a particular serviceable location may lack service and the recommended remedy to rectify the lack of service.[73]

Lack of Service Cause		Remedy
The cost to construct is such that the ISP cannot achieve a return on their investment.		Residential: Leverage Franchise Agreement where possible to expand cable service (which may expand broadband service) Businesses: Explore leveraging ConnectArlington to assist ISPs where possible
There are reasonable issues that prevent access to private property, including technical, potential damage, and impact to essential services.		Explore leveraging ConnectArlington to assist fixed wireless providers where possible

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[73] We note that some single-family property owners or single owner business locations may independently choose not to allow access to their property because they are satisfied with their existing service provider. Given the preference of the property owner, there is little reason for the County to interfere with service at these locations.

Lack of Service Cause		Remedy
Property owner has an exclusive agreement with an ISP that prevents access to other ISPs to the property.		This violates FCC rules; report the incident to the FCC
The property owner prevents access to the property for any other reason.		Educate property owners on the benefits of competition, consider Resident's Right to Broadband Choice Law

The following sections present the specific recommendations associated with these remedy options.

Action 1: Review franchise agreements to see if they can address service gaps

Our fundamental recommendation is to first leverage the existing cable franchise agreements to the extent possible. If both Verizon and Comcast served all serviceable locations in Arlington, all serviceable locations would have competitive, symmetric gigabit service. As discussed above, the franchise agreements may mandate service to all residences, with the exception of those with property access issues, and locations that do not meet the density requirement for Verizon. As a result, we recommend that **the County use the franchise agreements and encourage the cable franchisees to serve all applicable locations**. In total, Comcast does not serve roughly 90 locations in Arlington while Verizon does not provide Fios service (necessary to deliver cable television service) to roughly 1,500 locations. Residential locations make up roughly two-thirds of those locations that are underserved and lack competition.

Other service providers such as T-Mobile *do* offer service at many of these locations not served by Verizon and Xfinity. In fact, T-Mobile serves over one-third of the locations currently covered by only a single 100/100 Mbps service provider. This means that only one of the two cable franchisees offers service at those locations; however, T-Mobile does provide competitive service without the ability for property managers to interfere with their service. We note that T-Mobile intends to expand its service in the County. However, based on the current limitations on its fixed wireless Internet service offering, T-Mobile has an unclear path towards the gigabit speeds needed by some residents and many businesses now and into the near future. Ideally, the cable franchisees would expand cable and fiber service to cover all serviceable locations to address the long-term needs of most, if not all, residents and households.

Now that the FCC BDC provides a countywide starting point for broadband service in Arlington County, the County can leverage this resource to **build a database and begin tracking locations not served by each franchisee and secure a better understanding of why certain residents and businesses are not served**.

Action 2: Educate property owners and developers on the benefits of competition in their properties

Internet service providers indicated that access to property was their primary (or only) reason for not serving many locations. The recommendation to identify the causes of broadband gaps will result in a much better understanding of the extent to which property owners are excluding service providers from accessing their property. While the FCC prohibits ISPs from engaging in exclusive agreements (which should be reported to the FCC if it is occurring in Arlington County), property owners may prevent ISP access to their property on their own volition. They may have legal non-exclusive agreements with one provider for which they have incentives to maximize the percentage of residents/tenants who subscribe to that one provider's service. As a result, they may restrict or impede access to other providers to prevent a reduction in their revenue. Or they may require excessive compensation for access to the facility. To address this, Arlington County should **provide resources to the property owners of multi-tenant buildings to understand the benefits of competition in their properties.**
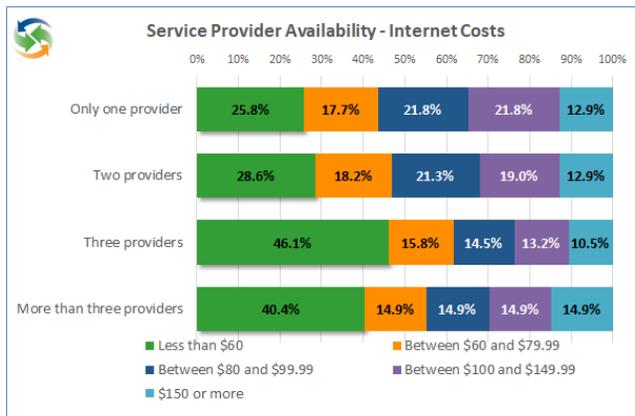

Figure 10: Internet Costs vs. Level of Competition (from eCheckup Assessment)

As identified during the needs assessment effort, property managers proport that bulk agreements with ISPs reduce the cost of service to the residents. This may be true; however, the eCheckup Assessment found that respondents residing in locations where there were competitive service offerings paid less for Internet access than those without competition, and the more competition, the less the respondents paid (see Figure 10). In addition, the eCheckup Assessment discovered that customer satisfaction with data speed, customer service, and reliability was higher when more providers were available at the home or business. In addition to the eCheckup Assessment findings, other studies have shown that the introduction of multiple gigabit providers to a market will result in substantial decreases to service prices.[74] It may increase the likelihood that providers offer special sign-up incentives, which can be good for consumers.

However, it is also important to note that for some multi-tenant buildings, other factors may contribute to a new competitor having little to no impact on a particular building. For example, bulk service discounts could run upwards of 50%[75] for service and may be automatically incorporated into the tenants' rent. These deals could be good for tenants in the building. Prospective new ISPs will become aware of these agreements and may decline to serve the new building due to a perceived very low take rate for their

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[74] See, for example, Broadband Competition Helps to Drive Lower Prices and Faster Download Speeds for U.S. Residential Consumers, Mahoney and Rafert, 2016, which found that a single additional gigabit competitor reduced prices by 34 to 37 percent.

[75] See this online article suggesting bulk discounts of at least 50% are common. Note that this article also details regarding some of the disadvantages presented regarding the phasing out of cable television.

service. This investment to offer competitive service within a bulk service discount building would be the ISP's to make, and the competing ISP would be taking a calculated business risk to serve that building and incur the associated construction costs (including reasonable fees paid to the property owner for access). There would certainly be no harm to the tenants having another provider available in this building. However, it is an important scenario for Arlington to be aware of that if property managers are required to allow additional providers, new ISPs may not enter because of these existing agreements or, if a new competitor does offer service, it does not guarantee that the competitor will dramatically change the Internet access dynamics in the building.

To educate property owners on the benefits of competition at their properties, the County might provide resources on its website, webinars, FAQs, and other resources. This outreach strategy might cause some property owners to reconsider their current approach. We envision multiple high-quality broadband choices as being a marketable asset to tenants. Select studies have highlighted that fiber optic broadband could result in higher tenant satisfaction and marketability, and as one study suggested, that many renters would be willing to pay more for fiber service.[76]

Arlington should also share policy goals about broadband with the development community. While it is likely that all developers will factor broadband service into their projects, some may not recognize the value of ensuring multiple Internet providers serving the building. Furthermore, they may not understand what kind of infrastructure is required and how much is needed. We recommend that the County consider broadband guidelines for new or rehabbed buildings to have the needed infrastructure for multiple ISPs to serve the building tenants. This should minimally include conduit to the building (including redundant egress points), and conduit and risers within the building. This infrastructure should be owned by the property owner to ensure that it can be used on a non-discriminatory basis moving forward to address the future broadband communications need of the tenants. Arlington County should have discussions with the developers and property owners about broadband development, challenges to infrastructure development or ensuring increased competition, and ways in which the County could encourage competition and other policy goals.

If a substantial number of locations remain without competition due to property owners unreasonably excluding additional providers, the County may opt to pursue a more policy-based approach but would face significant hurdles based on the Dillon rule in Virginia. The City and County of San Francisco (San Francisco) in 2016 enacted Article 52[77] that requires property owners to provide access to their facility under reasonable commercial terms (see detailed case study below for more details on the program). A case study regarding San Francisco's Article 52 can be found in *Section 4.3* below that highlights service provider testimonials regarding substantial improvements to access to properties.[78] However, Commonwealth of Virginia laws do not permit Arlington County to enact local laws to require property managers to provide competitive access. **Should Arlington County deem that the impact of property owner exclusion of broadband competition is sufficiently compelling, an associated policy program may be required to ensure that property owners do not unreasonably exclude competitors**. In that case, the County should approach the Commonwealth to create legislation that enables local communities to address this broadband marketplace challenge. Given that this issue is likely a problem for additional jurisdictions in the Commonwealth, Arlington should collaborate with other jurisdictions to raise

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[76] See Study: Fiber internet and apartment pricing - BroadbandNow.com
[77] See ARTICLE 52: OCCUPANT'S RIGHT TO CHOOSE A COMMUNICATIONS SERVICES PROVIDER (amlegal.com).
[78] No detailed independent research study has been conducted regarding the net effect of competition in the San Francisco marketplace, but as highlighted in the case study, multiple ISPs reported obtaining access to substantially more multi-tenant buildings once Article 52 was enacted.

awareness of the importance of this type of legislation as a statewide issue. There may also be other legal impediments to executing such a program which would need to be resolved.

Action 3: Work with ISPs and property owners to help reduce capital costs that are preventing competitive service

Having already addressed locations where the property owner is preventing access to a multi-tenant building via the recommended approach presented above, the two remaining potential barriers are economic and technical considerations that may prevent an ISP from making the investment to serve a location. Ideally, the service gap data collected, along with the reasons stated by the cable franchisees on why they were denied access, will allow the County to fully understand the scale and impact of the economic and technical challenges. If the scale and the impact of the issue (i.e., the degree to which the lack of the infrastructure is harming Arlington residents or businesses) is associated with economic or technical barriers, a structured mitigation effort may be required by Arlington.

It may be the case that ISPs are choosing not to serve locations because the construction cost would not produce a sufficient return on their investment. While the ISPs did not make a claim during the needs assessment process that cost was a barrier to serving locations within Arlington County, other claims made to Arlington County staff by at least one ISP counters that assertion.

In these cases where economics are preventing an ISP from delivering service to particular locations, Arlington should try to discover the source of the high cost. Depending on the rationale, Arlington may be able to assist in reducing the service delivery cost. Arlington should share information about its broadband assets (conduit, fiber, poles) with both the incumbent cable franchisees and other providers currently offering service in the region to determine if these assets could help reduce the cost to service the remaining underserved or non-competitive locations. Arlington should conduct outreach with all Internet service providers expressing an interest in serving Arlington and share details on the availability of their conduit network to help them service as much of Arlington as possible, but especially those locations that lack competition, or that do not have access to high-quality broadband service. Interested Internet providers would need to execute a non-disclosure agreement with the Department of Technology Services as a prerequisite to receive Arlington's broadband asset data.

Arlington already has pricing and standard terms for the use of its dark fiber in its master license agreement that would be associated with any recommendations regarding ConnectArlington fiber use. However, we recommend that Arlington modify the ConnectArlington master license agreement to include conduit use terms and pricing based on a cost per linear foot per year consistent with the market rate in Arlington County (i.e., not inflated to represent the actual cost of what might be higher cost to construct routes).[79] This approach is not likely to return the full extent of Arlington's net investment but will ensure that the County is compensated for providing access to this asset.

Remaining locations not served due to technical limitations could result from various issues associated with select private properties. For example, an ISP, or even the County, may not receive permission to

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[79] The JBG Smith agreement does include conduit, and the price for the conduit was not generalized to accommodate any use of the County's conduit under future considerations.

install conduit and fiber optic cable on the only viable route to service a neighborhood. Alternatively, an older historic building may have no physical means to support the additional broadband infrastructure. It could also be the case that the installation of broadband infrastructure could damage a building or could interfere with essential services for the building. In places where this occurs, wireless may be the only viable medium to deliver broadband service to these locations.

As represented in the December 2022 FCC broadband service data, both T-Mobile and Verizon provide fixed licensed broadband service in Arlington.[80] These providers may be interested in offering a high-speed wireless alternative to the remaining underserved and non-competitive locations where wired coaxial cable or fiber deployment is not feasible. **Arlington County should work with these providers to investigate how Arlington's broadband resources could be leveraged to deliver fixed wireless broadband service**. For example, Arlington's traffic lights can provide vertical small cell assets for radio frequency equipment as well access to the ConnectArlington network via a dark fiber agreement. Arlington may have dark fiber available to these locations, or perhaps conduit access for a third party to enable fiber connectivity to the small cell. There are hundreds of locations not served by Verizon Fios in close proximity to traffic lights if the cellular carriers need to enhance small cell coverage needed to deliver 100/20 Mbps service.

Modification of the ConnectArlington license agreement to cover generic conduit cost where applicable.

3.2.3   Infrastructure Resources Needed

The following resources needed reflect the recommendations described above.

Table 3: Budgetary Considerations for Infrastructure Related Strategic Recommendations

Item	Description	Budget Considerations
Arlington Budgetary Considerations for Infrastructure		
GIS, Communications, IT support	Initial GIS, communications, and IT support may be absorbed by existing staff, or covered by an estimated third-party investment.	$25,000 or less if outsourced over the first year

3.3   Strategy 3: Establish Broadband and Digital Equity Governance

Arlington County's focus towards digital equity is not targeted, is limited in scale, and lacks the required coordination to be effective. The County's current governing characteristics include:

- No plan or policy offering strategic direction.
- No dedicated staff coordinating the County's efforts related to digital equity or broadband management, though certain staff do promote/implement digital inclusion activities as part of their roles.
- Some positive programming related to small business and residential technical assistance, but the scale is not meeting the demand. One exception is the device and connectivity assistance provided by Arlington Public Schools that has served all students who had expressed a need.

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[80] The FCC's broadband data illustrates that T-Mobile offers a combination of 25/3 Mbps and 100/20 Mbps service, however, Verizon offers only 50/4 Mbps service.

- Modest funding spent on pilot efforts that in many cases did not address the most important need and closed after the pilot period.

Strategic direction backed with adequate resources and formal coordination are essential elements to effectively address identified gaps and challenges, seek partnerships and external funding needed, implement solutions, and sustain the energy needed to evolve the programming in a complex landscape.

In the absence of County government direction and resources, opportunities are being missed to coordinate and collaborate with local partners on initiatives to achieve digital equity. This is particularly critical given the near-term federal and state digital equity funding opportunities that could provide valuable resources to Arlington County and community-based organizations needed to catalyze programs and attract private investment.

There are measurable socio-economic benefits when local governments take a proactive leadership role supporting clear vision in addressing equity challenges and establishing an institutional platform to support local partners. Additionally, regional collaboration with adjacent jurisdictions could attract more funding resources, leverage needed economies of scale for some activities (e.g., device refurbishment, digital literacy, and training programs), and expand lobbying power to promote state and federal policy change. The County should provide the necessary leadership through program coordination and administrative management.

Stronger County governance is needed to effectively guide, implement, and oversee a broadband and digital equity program. Immediate and decisive short-term action will ensure Arlington County is poised to take advantage of competitive funding opportunities when they become available.

NDIA TRAILBLAZER GUIDELINES FOR DIGITAL INCLUSION PROGRAMS

The National Digital Inclusion Alliance (NDIA) has a structured process[*] for evaluating communities on the comprehensiveness of their efforts to address digital gaps and inequities. The places selected as Trailblazers provide models to aspire to, demonstrating how local governments can support their own digital inclusion ecosystems. Philadelphia, where the digital inclusion ecosystem is described in Case Study #1, is a recognized NDIA Trailblazer. Exemplifying many of the policies, initiatives and partnerships recognized as best practices of working towards digital equity, are communities with the longest standing as Trailblazers including Austin,[†] Boston,[‡] San Francisco,[§] Portland,[‖] and Charlotte.[¶] While these communities vary in the particulars, they and Philadelphia have implemented the following best practices for digital inclusion:

1. **Dedicate Resources** by allocating resources to digital inclusion in the form of full-time equivalent staff and/or local (non-federal) funding dedicated to digital inclusion. Arlington needs to operationalize its commitment to digital inclusion. Most frequently, the digital inclusion effort is established as a separate program within the unit of government responsible for technology and telecommunications.

2. **Fund or Aid Digital Inclusion Programs** either by administering programs directly and/or financially supporting programs by other organizations that address digital skills, device access, broadband adoption and affordability, or digital navigators that can work holistically to resolve these challenges and bridge gaps.

3. **Participate in Digital Inclusion Ecosystem** by funding FTE staff of community partner organizations, active participation in a local digital coalition, and in formalized digital inclusion groups beyond the local community.

4. **Create Opportunities for Meaningful Engagement** and dialog about digital inclusion with lived experts and communities impacted by the digital divide and hosting a public digital inclusion website or webpage

5. **Advance Digital Inclusion Through Policy** enacted at the local level, participation in state and federal legislative and rulemaking processes to promote digital inclusion and officially declaring support for digital inclusion.

6. **Use Data to Inform Digital Inclusion** through data collection on local digital inclusion (e.g., surveys), benchmarking, asset mapping, speed tests, and from secondary data sets (American Community Survey, FCC Mapping, Affordable Connectivity Program Enrollments, etc.) to guide decision-making.

7. **Create a Local Digital Inclusion Plan** that is a living document with regular updates.

As of 2022, there were a record number of submissions from programs across the country to be scored based on NDIA criteria. The highest number of applicants yet received six-stars for meeting 100% of the criteria, resulting in 32 communities[#] that are recognized as NDIA Trailblazers. By pursuing the recommended actions outlined in this report, Arlington County could qualify as a NDIA Trailblazer Community.

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[*] https://www.digitalinclusion.org/digital-inclusion-trailblazers/

[†] https://www.austintexas.gov/page/digital-empowerment-community-austin

[‡] https://www.boston.gov/departments/broadband-and-cable/broadband-and-digital-equity

[§] https://sf.gov/san-francisco-digital-equity

[‖] https://www.portland.gov/bps/com-tech/digital-equity

[¶] https://thecenterfordigitalequity.org/

[#] https://www.digitalinclusion.org/blog/2022/08/22/ndia-names-a-record-32-digital-inclusion-trailblazer-local-governments-regions/
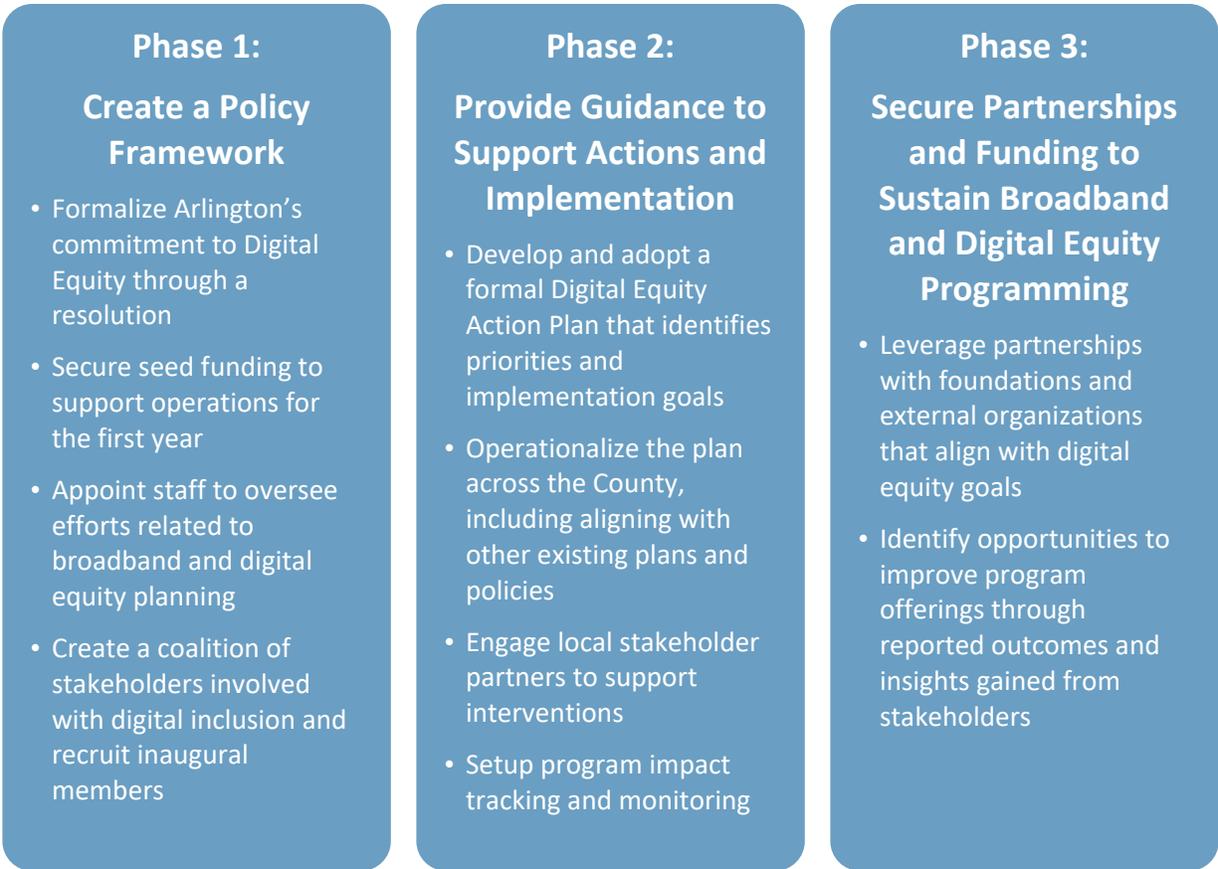
Phase 1:

Create a Policy Framework

- Formalize Arlington's commitment to Digital Equity through a resolution

- Secure seed funding to support operations for the first year

- Appoint staff to oversee efforts related to broadband and digital equity planning

- Create a coalition of stakeholders involved with digital inclusion and recruit inaugural members

Phase 2:

Provide Guidance to Support Actions and Implementation

- Develop and adopt a formal Digital Equity Action Plan that identifies priorities and implementation goals

- Operationalize the plan across the County, including aligning with other existing plans and policies

- Engage local stakeholder partners to support interventions

- Setup program impact tracking and monitoring

Phase 3:

Secure Partnerships and Funding to Sustain Broadband and Digital Equity Programming

- Leverage partnerships with foundations and external organizations that align with digital equity goals

- Identify opportunities to improve program offerings through reported outcomes and insights gained from stakeholders

Figure 11: Anchoring Digital Equity in Arlington County

3.3.1 Create a Policy Framework that Provides Strategic Direction

Arlington County lacks a formal structure for digital equity as a body of work and a policy framework that establishes a vision with guiding principles, program goals, and targeted outcomes.[81] Without a formal recognition of a digital equity office, staff responsibilities are unclear and needed coordination across the entire enterprise is missing. As a result, many staff and departments involved in this work are not coordinated and left implementing in silos, important plans and policies lack digital equity considerations, and certain approaches have not been targeted to addressing the greatest needs.

Arlington County should formalize its commitment to broadband and digital equity by establishing guiding principles and governance through a resolution and laying out goals, metrics of success, and implementation steps in an Action Plan. The adoption of a Digital Equity Resolution and corresponding Action Plan would raise the visibility of Arlington's digital equity vision (and the County's plans to support it) and could spark collaborative partnerships in response to the commitment and focus. Declaring the County's intention to address digital inequity through comprehensive and strategic programming establishes a viable foundation to sustain activities and advocate for outside funding. A Digital Equity Action Plan, or comparable planning and implementation document, is a required component for states

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[81] The Digital Equity Group has a vision and guiding principles listed on the webpage, but this is considered a "working vision" as it has never been formally adopted by the County Board. This vision and principles were created prior to this Broadband Study and should be revisited.

to receive Digital Equity Act and BEAD funding,[82] and is also an important consideration for more localized, County-based strategic planning.

County staff should seek broad stakeholder input on both the Resolution and Action Plan. Including those stakeholders involved in the creation of the *Resource Evaluation and Needs Assessment* for this Broadband Study will ensure a wide range of industry practitioners, advocates, and culturally responsive organizations to weigh into the development of policy and administrative structures.

Action 1: Adopt a Digital Equity Resolution

At a minimum, the Resolution should include the following:

- Formalize digital equity as a County priority and tie to Arlington's broader equity work.
- Adopt the Digital Equity Group's working vision: "All Arlington residents have affordable, reliable access to high-speed broadband Internet and the necessary devices and technology skills to fully participate in the community and economy."
- Identify principles to guide digital equity strategies and actions related to broadband planning, access, provider choice, quality, affordability, and digital literacy skills. Examples of principles might include: "Cost should not be a barrier to Internet access," "Supporting collaboration and strategic partnerships with organizations across Arlington to achieve digital inclusion goals," and "All residents and businesses should have a choice of more than one provider."
- Identify the department and/or office that will lead and coordinate all digital equity activities across the County.
- Develop a Digital Equity Action Plan with program targets. The Resolution should require that the tenets are incorporated in all major planning and policy documents. All County departments should make Digital Equity an integral part of their planning and programming wherever practical.
- Continually collect disaggregated data to identify where disparities and gaps in service exist and incorporate findings into existing and/or future public data dashboards and reports.
- Regularly collect data gleaned from stakeholders about digital access and literacy topics difficult to get from secondary data sources (e.g., consumer preferences, digital literacy, and education programming attendance rates).

The 2019 Equity Resolution adopted in Arlington County[83] serves as a model for adopting a resolution to advance equity goals in Arlington County. In addition, there are several other executive resolutions/orders

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[82] https://broadbandusa.ntia.doc.gov/funding-programs/broadband-equity-access-and-deployment-bead-program

[83] https://arlingtonva.s3.amazonaws.com/wp-content/uploads/sites/21/2020/02/Equity-Resolution-FINAL-09-21-19.pdf

across the country specifically related to Digital Equity and Inclusion that may serve as references when pursuing this action, including, Maui County, HI,[84] Philadelphia, PA,[85] and San Diego, CA.[86]

Action 2: Develop a Digital Equity Action Plan

After guiding principles and policy direction have been established under a formal resolution, Arlington County should create a County Board-adopted Digital Equity Action Plan that identifies inequities and highlights resources and specific programming to address them. This would serve as a road map for meaningful and sustained programming that:

- Identifies inequities and gaps using robust, disaggregated data, including metrics and indicators of access and utilization at an individual or household level, along with available data guided by findings of the *Broadband Resource Evaluation and Needs Assessment* report and refined through updated FCC data, local data, and surveys.
- Documents objectives and goals supporting the resolution. Objectives should be related to Internet connectivity, subscriptions, affordability, and adoption, including device access, and literacy.
- States the necessary steps to realize actions described in Strategy 1 and 2 (Digital Inclusion and Broadband Infrastructure). These include specific tasks and staff responsibilities, funding, and identifying partners and other outside organizations involved with programming, along with their roles.
- Sets targeted outcomes towards achieving goals within a specific timeframe (5 years is recommended). Some of those targeted outcomes may include: increased participation in digital literacy or other more specialized interventions such as telehealth or workforce development, number of computer devices donated and distributed to residents and organizations in need, or households that have lowered their Internet service price by enrolling in available subsidy programs.

The following examples identify a few of those places that have a Digital Equity Action Plan in place that actively informs broadband and digital equity programming:

- **Alexandria, VA:** The Alexandria Digital Equity Plan[87] provides research and strategic guidance for the funding of programming to bridge the digital divide. The plan includes supporting access and device loaning programs through city libraries and the workforce development center, partnering with affordable housing and community-based organizations, utilizing ISP franchise agreements

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[84] https://www.mauicounty.gov/DocumentCenter/View/125902/Reso-21-024
[85] https://www.phila.gov/media/20220210104852/executive-order-2022-01.pdf
[86] https://www.sandag.org/-/media/SANDAG/Documents/PDF/projects-and-programs/regional-initiatives/digital-equity/resolution-to-increase-broadband-access-to-bridge-the-digital-divide-2021-01-22.pdf
[87] https://www.alexandriava.gov/Broadband

to increase competition and affordability, and working with partners such as Computer Core to enhance digital literacy training.

- **Cook County, IL**: Recently developed and adopted in 2023, the Digital Equity Action Plan[88] offers a strategic framework to ensure that all residents have equitable access to infrastructure, devices, and tools to participate in the digital society and economy and invites community organizations and businesses to collaborate to build impactful solutions. Coordinated with the rollout of a Digital Equity Map[89] as a companion tool, this includes localized metrics specifically related to digital equity and Internet access. This highlights the need to ensure that program activities are focused on the areas and populations that are most in need of digital inclusion interventions.
- **Kansas City Region, KS**: Their Digital Equity Action Plan,[90] adopted in 2023, provides an extensive list of advisors that contribute to digital equity planning, as well as a detailed focus on the needs of various demographic groups including low-income, older adults, Black and Hispanic populations, Veterans, school-aged children, and people with disabilities. Due to the wide scale and geographic distribution that this plan encompasses, recommendations are presented both regionally and locally, with focuses on schools, businesses, community organizations, and local governments.
- **Portland, OR**: Adopted in 2016, the Portland Digital Equity Action Plan[91] formalized the mission and vision to bridge the digital divide, implementation plan, and identifies the need for progress reports on an ongoing, interval basis. The DEAP serves as a framework for community groups and public agencies to collaborate on actions and projects that specifically address inequities in access to high-speed Internet, affordable devices, and relevant, culturally specific training for the plan's target populations.

3.3.2 Use a Coalition of Stakeholders to Inform Policy, Manage Programs, and Leverage Resources

While Arlington County currently has a number of organizations involved in broadband and digital equity, these groups have not had the ability to work cohesively to develop and implement strategies that address digital divides. This lack of coordination has resulted in efforts that do not fully address digital equity challenges and gaps, are limited in scale and outreach, and lack the ability to pool and coordinate resources/knowledge between groups. Also, there are third party and non-profit organizations identified in the *Resource Evaluation and Needs Assessment* that are engaged in digital inclusion initiatives but are operating outside of the County's guidance or ability to contribute to best practices.

The County needs a coordinated effort between Arlington Public Schools, County Departments, advocates, and community-based organizations to guide direction for digital equity initiatives. A shared interest group serves as a platform to build relationships among key stakeholders, share on the ground, tactical perspectives, and best practice approaches, as well as pool and coordinate resources to achieve common objectives. Pooling and coordinating resources would improve Arlington's competitiveness for

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[88] https://www.cookcountyil.gov/service/digital-equity
[89] https://maps.cookcountyil.gov/digital-equity-map/
[90] https://www.marc.org/document/kansas-city-regional-digital-equity-plan
[91] https://www.portland.gov/bps/com-tech/digital-equity/deap/digital-equity-action-plan

funding opportunities by expanding in-kind and matching contributions, which is often a requirement or tiebreaker in state or federal grants.[92]

Action 1: Form a Digital Equity Alliance

Arlington County should create a Digital Equity Alliance to:

- Recommend strategic direction for digital equity goals and digital inclusion programming/ activities.
- Advocate for and secure outside funding to support programming, such as available grant funding, foundational partners, or contributions from ISPs.
- Administer funds via requested proposals or by financing program activities in the community.[93]
- Monitor the implementation of, and amend or otherwise modify, the Digital Equity Action Plan.
- Coordinate Digital Inclusion programs vis-à-vis Digital Navigators and Digital Inclusion Manager.

The Philadelphia Digital Literacy Alliance (DLA) could serve as a model for both the purpose and general makeup of the group. The DLA was formed in 2009 as a mechanism to provide external support and guidance to the City's fledgling digital equity efforts. Since it was set up as a nonprofit, it also receives grants and can leverage other resources that the City government may not. Growing from a small core group of thought leaders, it now operates as an independent coalition of 35 digital inclusion partners that includes members drawn from city government leadership, nonprofits, local companies, universities, and others, including the banks, the United Way of Philadelphia and New Jersey, the Philadelphia Federal Reserve, and ISPs. Further research is needed to ensure this governance structure is allowable in the Commonwealth of Virginia.

Locally in Arlington, the Department of Human Services has established several groups with public and private partners who assess needs, develop or advocate for policy changes, coordinate implementation actions, and generally streamline activities across the wide range of participating stakeholders. The following groups have similarities to the proposed Alliance in form and function: Arlington's Food Security Coalition,[94] the Safety Net Group,[95] and Project PEACE.[96]

Other examples outside of Arlington County to look to for guidance in setting up a coalition for Digital Equity Alliance, includes:

- **Alamance County, NC**: A Digital Inclusion Plan[97] was developed to include an existing asset analysis including the County's ongoing efforts related to digital inclusion. A priority of needs is established by the creation of four committees related to telehealth, business and workforce

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[92] For example, no less than 25% of project cost match is required for federal BEAD funding.
[93] The County should further explore this function to determine whether it is legally allowable and whether this function presents a conflict of interest from membership.
[94] https://www.arlingtonva.us/Government/Departments/DHS/Public-Assistance/Food-Security-Task-Force
[95] https://www.arlcf.org/safetynet/
[96] https://www.arlingtonva.us/Government/Programs/Health/Project-PEACE/About-Project-PEACE
[97] https://www.alamancechamber.com/community-overview/alamance-digital-inclusion-alliance-plan-final/

development, digital literacy education, and the improvement of delivery of digital literacy services. Digital Navigators support the County's digital inclusion programs aimed at increasing Internet adoption.

- **Chester County, PA:** The Digital Alliance[98] was set up in 2021 and includes representative leaders from County organizations focused on digital access and literacy among the most vulnerable members of the community (low income, non-English speakers, seniors). Actions have included a Digital Literacy Pilot Project, raising program funding support from local organizations, and coordinating broadband and digital planning.
- **Kansas City, KS:** Coalition for Digital Inclusion[99]: Based on collaboration between local nonprofits, government entities and businesses, this group facilitates initiatives working to bridge the digital divide to maximize the resources for the greatest impact. The group is governed by a steering council comprised of KC Libraries, Digital Drive, PCs for People Kansas City, and Urban TEC, and provides guidance to over 200 members across dozens of entities. This coalition is a regional initiative that also represents nearby Counties in Missouri.
- **San Antonio, TX**: SA Digital Connects[100] is a broad coalition of public, private and community partners that work together to reduce the digital divide. Members include local businesses and economic development foundations, as well as representatives from the City of San Antonio and Bexar County. The group has developed a Digital Equity Plan[101] to provide a roadmap, focusing on near-term priorities.

Pre-pandemic, the Department of Technology Services in collaboration with Community Planning Housing and Development, Human Services, and Libraries initiated a Digital Inclusion Network (DIN) made up of residents, organizations, and staff interested in digital equity topics. The purpose was to foster broader policy discussions and solicit feedback about needs. The DIN was open to any and all who were interested in participating. The County should draw from the range of organizations involved – from Internet service providers and industry practitioners to community-based organizations and advocates but should be more selective about who serves on the Alliance. At 70+ stakeholders, the DIN was too large to be effective and should be scaled down to a smaller group to better foster discussion and productivity. Arlington should look to other models, including Philadelphia, to expand the perspectives included at the table.

3.3.3 Expand Resources to Advance Broadband and Digital Equity Policies and Programs

Arlington County does not currently have any dedicated staff or ability to allocate resources towards digital inclusion initiatives, and instead relies on a piecemeal approach from various departments within the County. Not only does this mean that digital equity becomes a secondary priority for administrative considerations, but also that programs are not operating proactively, which leaves behind many households and businesses not actively engaged or demonstrating interest in participating. Without devoted staffing and funding resources, an effort to address the challenges related to broadband and digital equity will not be effective nor sustained.

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[98] https://www.scccc.com/chester-county-digital-alliance.html
[99] https://digitalinclusionkc.org/
[100] https://www.sadigitalconnects.com/
[101] https://www.sadigitalconnects.com/roadmap

Action 1: Appoint Staff to Lead Digital Equity and Broadband Initiatives

Effective management needs to include coordinating with dozens of staff and partner organizations, relationship-building, negotiating and monitoring agreements, general program oversight and evaluation, and a clear point of contact for staff and the community. The scope of strategies and actions to address Arlington's gaps and the crosscutting nature of the topic requires a driving force to create a framework for the County and ensure all activities are progressing towards the County's vision and goals. Three dedicated positions are recommended to fully realize the actions proposed in this report:

- A **Digital Equity Director**: A senior staff member that oversees digital equity programming with a focus on strategizing and coordinating broadband and digital equity issues and fostering relationship with County departments, Internet providers, foundations, and community-based organizations.[102] This position would direct the Digital Equity Alliance (See *Section 3.3.2*), oversee planning efforts, coordinate funding grant submissions and other opportunities, and oversee digital inclusion outcomes and impact.
- A **Digital Inclusion Manager**: An on-the-ground position that coordinates activities across partner organizations and other stakeholders, conducts data collection and analysis of activities and outcomes, and assists with implementation of actions and interventions included in this report, such as planning ACP outreach and enrollment assistance, coordinating the training of digital navigators within County organizations, and assisting in the collection of program impact tracking data. The Manager will report to the Director.
- A **Broadband Infrastructure Manager**: Works collaboratively with service providers to improve access to high-quality, affordable broadband and cable television service. Oversees the cable franchise agreements[103] (including maintenance of a database of locations that are not served by the cable franchisees and reasons why they are not served), FCC broadband service information accuracy (including overseeing GIS analyses of location fabric[104] and working with Arlington County's communications department to conduct outreach to the community to seek help in crowdsourcing service availability information), and works to overcome barriers to expansion of service by all interested ISPs. Liaises with the ISPs to ensure they are fully aware of ConnectArlington and other resources that could be leveraged to reduce the capital cost to serve more locations throughout Arlington County. Provides information to property owners to educate them on the benefits of ISP competition. Engage with the Commonwealth of Virginia regarding

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[102] https://www.civisanalytics.com/blog/how-digital-inclusion-officials-are-closing-the-digital-divide-in-americas-biggest-cities/

[103] This is currently a part-time position, and the existing manager is the Chief Information Security Officer for the County, a very important task that will undoubtedly take continued priority over this particular issue. Therefore, a dedicated new staff member would be responsible for ensuring high-quality and competitive broadband and cable service throughout Arlington County.

[104] Part-time GIS resources may be required to conduct this work if the County's GIS staff cannot support the effort. Additional IT support such as database maintenance may also be required.

appropriate policy programs to empower local communities with the ability to ensure property owners do not unreasonably exclude competitors.[105]

While all three full-time positions are recommended, the decision will ultimately be a question of priority across the many different goals in the County and the willingness to dedicate funding to support these positions. The County could consider alternatives. For example, the Digital Equity Director would certainly have a heavy workload in the program's beginnings with key startup activities, relationship-building, and strategic planning to build a digital equity program. Longer-term responsibilities could level off and may only represent a part-time position. Arlington County could begin with a Digital Equity Director and assess the need for a Digital Inclusion Manager as the program evolves. In addition, the Digital Inclusion Manager does not necessarily have to be a direct County employee; rather, they could be a third-party consultant or could sit within a community partner organization.

Currently, the cable franchise management position is part-time, but a full-time resource is recommended to not only monitor and hold the cable franchisees accountable for their commitments, but also to work to resolve any service gaps with all interested parties and implement the recommended action in Strategy 2: Address Broadband Internet Service Gaps. The County could expand the third party's scope to account for these recommendations or move the position by reprioritizing the work of existing staff or hiring a new staff member.
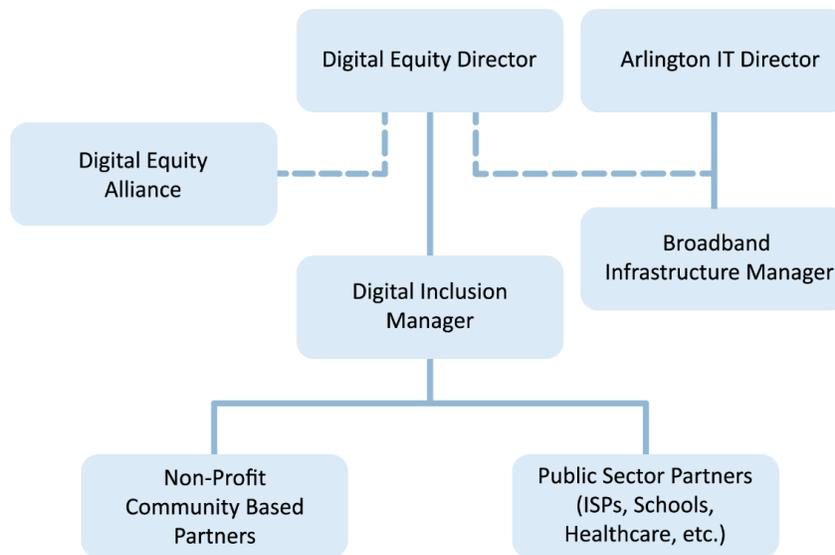
Figure 12: Sample Digital Inclusion Organizational Structure

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[105] The effort to engage the Commonwealth to modify State law enabling the Arlington County code could vary considerably depending on the appetite of the Virginia legislature on this issue. The bulk of the code implementation protecting resident and business broadband choice would likely fall on the County Attorney's office, with support from other experts and the infrastructure manager. The overall legislative effort could take several years to accomplish and require a time investment of a few hundred hours depending on the level of support encountered by the Virginia legislature.

Action 2: Explore and dedicate available resources to support Broadband and Digital Equity Initiatives

The County's approach to resources should be as flexible as possible, exploring every opportunity. This action item identifies several funding sources and requirements the County could consider for broadband and digital inclusion activities. Building strong relationships with third parties who can contribute funding, personnel, and other resources might dramatically reduce the net impact on existing Arlington County funding sources. Detailed planning regarding a digital inclusion program will determine the specific amounts of funding and funding sources needed to execute the final program.

Cable Franchise Agreement Proceeds

Regarding the funding of the infrastructure portion of the broadband program, the cable franchise agreement could fund some or all the proposed infrastructure manager position. In our view, as a matter of policy, this fee and other communications taxes should first be used for communications initiatives, such as overseeing the County's interests in expanding broadband access and helping residents and businesses make use of their broadband access. These funds could be applied to the broadband infrastructure manager as the first priority, and to other digital inclusion initiatives as the second priority. Other communications taxes may be prioritized for digital inclusion programs. [106]

Federal Entitlement Grants from HUD

Arlington County should consider other funding sources for use for the overall program. For example, the U.S. Department of Housing and Urban Development's (HUD) Community Development Block Grant (CDBG) program is expected to provide $1,200,000 in fiscal year 2024 and see another $400,000 in other revenues. Twenty percent of the funds can be applied to "public service" work, which could include digital literacy projects, while all the funds could be applied to facilities projects. Arlington County has a defined Community Development Fund funding process and digital equity has been identified as a priority through that process. The HUD HOME Investment Partnership (HOME) program is expected to receive over $800,000 in the next fiscal year from HUD and generate another $200,000 in additional income. HOME funds can be used to assist with certain broadband-related activities at affordable housing construction projects that will have HOME-assisted units, although certain restrictions apply.

Affordable Housing Investment Fund (AHIF)

The County's local housing fund already incentivizes digital inclusion activities through specialized offerings such as computer rooms and skills training. There is an opportunity to engage with affordable housing groups to continue providing these services and to expand the availability of resources.

Within the County's scoring criteria for broadband within affordable housing projects,[107] the requirements do not mandate that a particular number of competitors be present. The Needs Assessment identified substantial value in terms of cost and customer satisfaction at competitive locations. In fact, the current requirements could serve to encourage a single provider environment. The text of the current scoring

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[106] We note that E911 taxes are required to be expended to support E911 systems, but other communications taxes could be applied.

[107] Scoring guidance is available at the following location: https://arlingtonva.s3.amazonaws.com/wp-content/uploads/sites/15/2021/04/Final-Guidelines_FY22.pdf

guide states "[p]provision of high-speed broadband Internet to each unit free of charge with a managed support plan" is required for a higher score. This requirement would necessitate the property owner to establish a bulk agreement for service. And, in the interest of minimizing costs as well as the amount of County gap financing needed for the project, they would likely establish an agreement with only one provider (due to simplified contracting and possibly from improved pricing from one provider). We understand the desire for Internet services to be offered at no direct charge to tenants of affordable housing; Given cost caps for projects seeking Low Income Housing Tax Credits and other state financing (most affordable housing projects) and the desire to spread AHIF resources to as many projects as possible, Arlington will need to consider the fiscal impact and development concerns. However, it is important to consider the benefits provider choice offers to residents and recommend that additional points be awarded to applicants who offer at least two options available to the tenants to service competition at the property. Prior to implementing such a policy, the County should query the developers to ensure that such an option is possible. Additionally, it is important that all of the customer service and support access available to the standard customer be fully available to the tenants of the affordable housing community. Perhaps this is the intention of the last phrase in the requirement ("with a managed support plan"), nevertheless, it should be clarified.

The Needs Assessment also points out that the current scoring criteria require only 30 Mbps symmetric service (30 Mbps up and 30 Mbps down). This is an outdated requirement. As noted in the Needs Assessment report, all committed affordable housing locations have at least 100/20 Mbps (100 Mbps down and 20 Mbps up) service. While many households do not need 100/20 service today, Arlington County should require a minimum data speed that can accommodate affordable housing households that work from home, operate home businesses, and generally need more data. As a result, the minimum speeds for this underlined new infrastructure should minimally adhere to the federal grant guidelines of 100/100 Mbps[108]. We also note that if the developers secure the cooperation from providers such as Comcast and Verizon, they should be able to accommodate symmetric gigabit service. These speeds should accommodate all households for years to come. As such, we recommend that more points be assigned to developers willing to commit to gigabit service as well.

The scoring should also address a requirement consistent with the broadband infrastructure deployment mentioned above for site plans. The current scoring guidelines do state "[t]he telecommunications infrastructure will include wiring infrastructure owned by the building owner to support the provision of current or future broadband services or other future technology needs," however, only for the top tier of points. It is essential that the developers deploy broadband infrastructure early on and sufficient to support multiple providers to attract the providers to the facility. Installation of a shared broadband infrastructure, to be used in a non-discriminatory manner by the ISPs, will dramatically lower the cost to serve the building and will make it more likely that multiple ISPs will serve it.

Additionally, all three tiers of scoring require the applicant to "agree to providing digital literacy programming." First, we recommend that the digital inclusion requirements be separated from the broadband service requirements above. Second, we recommend that the County be explicit in its requirements, and that the County should address digital inclusion more broadly (i.e., not just digital literacy) to address the gaps identified in the *Needs Assessment* that include raising awareness and skills training in digital media platforms that are relevant to the individual users needs/goals. As a standard, there should be a facility onsite that can provide residents with private space to conduct online interviews

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[108]The Broadband, Equity, Access and Deployment (BEAD) program, with the exception of community anchor institutions, will only fund locations that have speeds less than 100/20 Mbps. The new infrastructure must be able to accommodate those speeds and be upgradeable to 100/100 Mbps.

and telehealth sessions, include printers and computers, and provide sufficient space and equipment to conduct digital inclusion programming. While many residents would use only their residential unit for calls, some may be in need of space outside of their unit, particularly larger and multigenerational households. At a minimum, the County should incentivize this type of community space. Requiring or incentivizing private space or space dedicated for residents services would help project scoring for state financing applications that already awards points for community space, telehealth services space, and resident services.[109] The developers should provide a minimum amount of awareness raising, training, and one-on-one support per week, or contribute to a fund that will enable this level of service for residents of the building. The County might also consider requiring that the facility be made available to County residents who are not tenants of the building. The County might structure this separate requirement in tiers that define minimum, intermediate, and advanced levels of digital inclusion contributions.

Federal Grants Stemming from the Infrastructure Act

Finally, a number of federal grants targeted for digital equity goals were created as part of the Infrastructure Act. The Broadband Equity, Access and Deployment (BEAD) grant fund is focused on infrastructure grants to address unserved and underserved locations. Funding of equity projects is at the discretion of the states. Virginia's Initial Proposal states that they may allocate funds to non-deployment projects (including digital inclusion).[110] We do not know if these funds will be made available, or how much would be available to be applied to digital inclusion activities. However, the $2 billion Digital Equity Competitive Grant program represents a definitive offering solely for digital equity projects across the nation. Virginia may make other funding available via the Digital Equity State Planning and Digital Equity State Capacity grants (or perhaps other state grant programs). We recommend that Arlington County aggressively target these funding sources for digital inclusion projects when they become available, including monitoring the potential availability of BEAD funding for digital inclusion projects. Arlington should closely monitor the timetables of these grant programs and be ready with specific plans to increase the likelihood of receiving this funding when the Commonwealth is ready to receive applications. These activities should be incorporated into the Digital Equity Action Plan, unless the timetable for the plan falls outside of the timeframe for these grant funding programs, in which case plans associated with grant applications should be expedited.

Strategic Partnerships with Internet Service Providers

Across the country, ISPs have shown their interest and capacity to invest in digital inclusion programs. For example, Philadelphia's Digital Literacy Alliance was funded with start-up funds with contributions from Comcast, Verizon, and AT&T. Comcast sponsors an initiative called Project UP,[111] which works to advance digital equity through small business and digital navigation services. Verizon offers investments in skill building programs aimed at youth and small businesses.[112] T-Mobile also funds and promotes programs

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[109] See Incentives in the Virginia Low Income Tax Credit Manual accessed here: Rental Housing Tax Credits - Virginia Housing

[110] The Virginia Initial Proposal Volume 2 Section 2.4.4 states that the Commonwealth will not prioritize "non-deployment" projects prior to or in lieu of deployment to Community Anchor Institutions (CAI). Section 2.5.1 of Volume II states that the Office of Broadband's priority is to use its BEAD funding for broadband infrastructure. Therefore, funding non-deployment activities is a function of the cost to serve all currently un-served and underserved locations, including CAIs. See Virginia BEAD Initial Proposal Volume 2.

[111] https://corporate.comcast.com/impact/project-up

[112] https://www.verizon.com/about/responsibility/digital-inclusion

that focus on digital inclusion implemented through libraries.[113] AT&T is involved with digital inclusion programs that support non-profits with computer devices.[114]

The County has had some limited partnerships with Internet providers that could be strengthened (and expanded) to better support ACP enrollment support, provide training space, computers, digital navigators, addressing infrastructure goals, promoting digital literacy, enabling expansion of low-cost options to more residents,[115] and other services that might become part of the overall digital equity action plan. Engaging with service providers to address digital equity challenges, particularly those related to broadband affordability, is critical to the overall success of broadband and digital equity planning. Additionally, the County can market service areas to new and prospective Internet providers who have the potential to improve service availability in the community.

Other Third-Party Resources

Third-party resources may come in the form of volunteer labor, volunteer resources (e.g., training space, computers, digital navigators), or third-party funding. A digital inclusion partner might contribute a full-time resource as the Digital Inclusion Manager, provide digital navigator resources that target a specific population, and provide digital literacy training at its location. Arlington County should seek out partnerships with organizations who want to help and who have the capacity to recruit volunteers and assign them to support this vital community work. The extent to which third parties, including volunteers, might contribute resources and staff to the overall program is unknown, and therefore, those elements should be woven into the overall funding plan. If the County were to establish a Digital Equity Alliance that could receive funding from third parties, these funds could be allocated towards the overall digital inclusion initiative.

Business Improvement Districts (BIDs) within Arlington County, and other similar organizations, serve a critical role in the business community by identifying opportunities and coordinating with local businesses through established communication channels. They have the potential to further enhance digital inclusion activities. For example, during stakeholder interviews for this Broadband Study, a BID shared that they regularly donate refurbished computers to a program in the Caribbean rather than locally given the lack of available donation opportunities (or awareness of them). The participation from local businesses can be a driving force for device donation and other initiatives that contribute to the County's digital inclusion ecosystem.

With a well-established entity and a network of local small business connections, there is also an opportunity to pursue strategic business partnerships with large enterprise organizations to advance digital equity and encourage investment from investors and philanthropists. For example, Amazon Web Services is partnering with Arlington's Economic Development's BizLaunch on a ReLaunch program to further improve the program offerings and competitiveness of participating small businesses.

Virginia Hospital Center could be leveraged to further telehealth, particularly where local healthcare clinics may be in need of connectivity or technical assistance training assistance. Along with local health insurance companies, these organization's resources should be leveraged to support County strategies through digital inclusion programs.

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[113] https://www.t-mobile.com/business/industry-solutions/libraries
[114] https://about.att.com/pages/digital-divide
[115] As detailed in the *Internet Cost Model Analysis*, there are many households above low-income (30-50% AMI range) are also cost burdened by high-speed Internet costs and do not qualify for existing ACP benefits or Internet service plans such as Comcast Internet Essentials or Verizon Forward.

Capital One's Digital Access Program[116] partnered with AHC, Inc. and Comcast to support a holistic digital inclusion approach to The Spire, an affordable housing property in Alexandria, VA. The project included free in-unit high-speed Internet and building wide access, Chromebook computers to each household, and $25,000 towards technical support and assistance for residents.[117]

3.3.4   Governance Resources Needed

The following resources needed reflect the recommendations described above.

Table 4: Budgetary Considerations for Governance Related Strategic Recommendations

Item	Description	Estimated Budget
Arlington Budgetary Considerations for Governance		
Digital Equity Director	Full-time position to oversee strategic planning, program oversight, and building and maintaining digital inclusion partnerships.	$160,000[118] annually
Digital Inclusion Manager	Full-time position that engages with County and outside organizations to implement digital inclusion strategies and actions. Reports to the Digital Equity Director.	$120,000[119] annually
Broadband Infrastructure Manager	Full-time position to oversee community broadband infrastructure.	$200,000[120] annually

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[116] https://www.capitalone.com/about/our-commitments/closing-the-digital-divide-in-communities-across-the-us/
[117] DIGITAL EQUITY | AHC (ahcinc.org)
[118] This represents a <u>rough order of magnitude</u> budgetary cost based on an assumed $120,000 annual salary and 33% total additional employer costs (taxes and benefits). This is a budgetary number and is not based on an analysis of Arlington County's professional labor pay scales. It is based on the experience level that includes crafting policy and managing multifaceted projects with a diverse group of government and local stakeholders.
[119] This represents a <u>rough order of magnitude</u> budgetary cost based on an assumed $90,000 annual salary and 33% total additional employer costs (taxes and benefits). This is a budgetary number and is not based on an analysis of Arlington County's professional labor pay scales. It is based on the experience and skill set to work directly with local organizations to implement and support program operations.
[120] This represents a <u>rough order of magnitude</u> budgetary cost based an assumed $150,000 annual salary and 33% total additional employer costs (taxes and benefits). This is a budgetary number and is not based on an analysis of Arlington County pay. It is based the required experience level managing the cable franchise agreements, collaborating with the ISPs, and helping to deliver high-quality and affordable service throughout Arlington.

four Sample Cases

4 Sample Cases

The following case studies provide successful examples of efforts other jurisdictions around the country have made to improve access to broadband in their communities, along with how each strategy could be applicable to Arlington County.

4.1 Case 1: Digital Equity in Philadelphia

4.1.1 Background

Philadelphia has been actively pursuing solutions to its digital equity challenges for more than 15 years, realizing significant progress and deploying a spectrum of innovation initiatives that taken together make Philadelphia an informative model of deliberate civic attention to digital equity challenges in urban communities. The City of Philadelphia developed a plan to achieve digital equity, established a team to create and pursue strategies to support those goals, and fostered an expansive and continually expanding network of public, private, and community-based partners working collaboratively to bring high-speed, affordable, broadband and the skills and equipment to use it to everyone in the City. Philadelphia's collective of integrated, creative, and synergistic efforts comprises an evolving best practice model for digital inclusion with relevance to Arlington. While Arlington overall presents as a more prosperous jurisdiction with a much higher median income, higher educational attainment and households that are better provisioned with broadband and access devices, both regions have in common the same groups with the lowest broadband adoption rates – older adults, Hispanic households, and low-income individuals. Both have higher populations of residents English is a second language and must manage diverse outreach, engagement, and programming tactics to ensure inclusivity.

4.1.2 Governance and Digital Equity

The path to Philadelphia's model program has been long and evolutionary, stretching back to 2009 when a coalition of external organizations encouraged Philadelphia to be the lead applicant for funding through the federal stimulus Broadband Technology Opportunities Program.[121] Early efforts were staffed with part-time resources in the Office of innovation and Technology (OIT), and OIT remains the nexus of digital equity efforts for the City.[122] Under the Public Technology and Innovation Team, the Digital Equity Team collaborates across city agencies and initiatives and with a broad network of external supporters and partners to effect digital inclusion in Philadelphia through initiatives that focus on one or more of the challenges defining digital inequities. The Digital Equity Team includes two full-time digital equity managers who meet regularly with key staff working on digital inclusion from the Office of Child and Families Adult Education team, the Free Library of Philadelphia, and the Parks and Recreation Department. The Digital Equity team is responsible for overseeing grant funded programs. Each grant cycle has a different focus area that is informed by the community's needs. The length of the grant term and funding amounts also vary but are typically 1- or 2-year grants and are between $10k-25K/year.

OIT, with input from the Digital Literacy Alliance (DLA),[123] provides guidance, secures funding, coordinates, and in some cases manages the multi-faceted digital equity efforts underway in Philadelphia; however, it is not involved in the day-to-day program operations. DLA was formed in 2016 as a mechanism to provide

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[121] https://www.ntia.gov/category/broadband-technology-opportunities-program
[122] https://www.phila.gov/departments/office-of-innovation-and-technology/
[123] https://www.phila.gov/programs/digital-literacy-alliance/

external support and guidance to the city's digital inclusion efforts. When BTOP funding ended after 3 years, Philadelphia was able to leverage additional digital equity resources from its cable franchise agreement with Comcast, who donated $500,000 to the DLA. This grant was a catalyst for other providers. Verizon and AT&T each subsequently donated $200,000 to the fund. This initial seed money helped establish Philadelphia's digital equity resources as part of the Philadelphia City Fund and served as a vehicle to support projects outside of the regular City budget. Additional contributions, including major donations from Independent Public Media Foundation enables annual grant rounds of $100,000-$200,000 to community partners whose efforts collectively underpin the long runway taken in Philadelphia to confront digital inequities.[124] Sustainability is not assured as the funds remaining in the Philadelphia Fund earmarked for digital equity efforts are only sufficient for 1-2 more rounds of grants. Efforts are in play to secure a small amount (approximately $50,000) in the general budget to enable the DLA to continue the grant program.

The DLA is coordinated through the Office of Information and Technology. From an originally small group of thought leaders the DLA now operates as a coalition of 35 digital inclusion thought leaders. Members are drawn from city government leadership, nonprofits, local companies, universities, and others, including the banks, the United Way of Philadelphia and New Jersey, the Philadelphia Federal Reserve and Internet Service Providers. Appointments to the DLA are annual and cannot be transferred to other individuals to serve in place of the appointed person. The DLA informs policy and strategy related to digital literacy and inclusion from identified best practices and played key roles in drafting the City's 5-Year Digital Equity Plan. DLA is responsible for managing the digital equity seed fund that is fiscally sponsored by the Philadelphia City Fund and raising additional funding.[125]

Digital Equity Executive Order (2022-01),[126] issued just prior to the launch of the Five-Year Philadelphia Digital Equity Plan, formalizes the City's commitment to advancing digital equity. Responsibility is assigned to the Office of Innovation and Technology through its Digital Equity Team to encourage, support, and coordinate internal and collaborative implementation of strategies and initiatives to close the digital divide in Philadelphia. The Order grew out of the Mayor's long-standing support for digital equity and the opportunity to make known that the city had a formal team and devoted resources to do this work. This Order directs all City departments and agencies to make digital equity policies an integral part of their planning and programming wherever practical and support existing and nascent digital equity initiatives with other public, private, and nonprofit members of the Philadelphia digital equity support ecosystem. The Order makes explicit the linkage between digital equity and racial equity. Having the Order in place did not formally alter existing efforts, but it was used as a tool to recognize digital equity as a mayoral priority and cross-cutting issue, identify staff responsibilities, and provide guidance in implementing the work, and it enables the digital equity priority and functions to extend beyond changes in City leadership. Implementing this order was not a major undertaking and took minimal staff effort and coordination to document.

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[124] The Philadelphia City Fund (PCF) is an independent non-profit organization that provides the City the ability to apply for and accept charitable funds and competitive grants and to make those funds available to non-profits for projects that benefit the community and to City agencies for innovation projects. PCF is guided by a Board of Directors comprised of both City designees and independent Philadelphia leaders. For more information, see https://philacityfund.org/about/

[125] The DLA has raised $2 million as of January 2024

[126] https://www.phila.gov/media/20220210104852/executive-order-2022-01.pdf

Five-Year Digital Equity Plan:[127] An important outcome of the investments, experiments, emergency responses, situation assessments and technical support and trainings is that Philadelphia had the knowledge, partnerships, resources and political will needed to develop a comprehensive Five-Year Digital Equity Plan. This plan, released February 2023, provides a thoughtful, prioritized roadmap to addressing the City's digital equity challenges and positions Philadelphia to mount timely, competitive responses to forthcoming federal digital equity funding opportunities. Specific strategies and goals comprising the Five-Year Philadelphia Digital Equity Plan are summarized in Figure 13.

4.1.3 A Governance Framework Where Solutions Embrace Collaboration

Key elements of Philadelphia's digital inclusion efforts to provide access, devices, training, and customized support strategy follow, in the approximate order in which they were established.

Figure 13: The Four Main Goals and Key Initiatives of Philadelphia's Five-Year Digital Equity Plan (Image Source: A Digital Equity Plan for the City of Philadelphia*)*

- **Free Public Access**: In 2011, with funding from the federal BTOP,[128] Philadelphia leveraged federal grants to launch a network of 77 public computing centers called Keyspots in recreation centers, community-based organizations, and Free Library locations. A bootcamp was provided to prepare partners to deliver service. Each site committed to being open 15 hours a week with staff to provide computer support, and digital literacy programs that were offered by some participating centers and dozens of local providers. During the Pandemic, lockdown centers at libraries and community organizations were not available but those in recreation centers continued to provide access. As federal recovery funding declined the City decided to reduce the number of centers to locations in recreation centers, senior centers, and libraries, all of which are under the management of the Philadelphia Office of Children and Families (OCF).[129] The Digital Equity Plan includes investments in these locations as Digital Anchor Institutions, with high-speed fiber and Wi-Fi. As the program is being revamped the Keyspot name has been dropped and digital literacy training at the Centers is being promoted as the "Next Level Learning" program.[130] Learnings from this effort include (1) the need for more allowable time at each computer. The 30-minute limit placed on computer use in libraries was too little to address the needs of individuals using the computers for employment searches, resume building, and other valuable purposes; and (2) websites are not a sufficient outreach tool without additional engagement strategies directing individuals to them or offering technical assistance for navigating resources, especially for those with limited or no computer skills or awareness of digital resources. This led OCF to drop the Keyspot website in favor of a Hotline communication model.

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[127] https://www.phila.gov/documents/digital-equity-plan/
[128] https://www.ntia.gov/category/broadband-technology-opportunities-program
[129] https://www.phila.gov/departments/office-of-children-and-families/
[130] https://www.phila.gov/programs/adult-education/

- **PHLConnected:** Launched in 2020 during the pandemic as a 2-year effort to provide K-12 families with free Internet services. This initiative was managed by the City with strong partner support from United Way and public and charter schools that paid into the program and from Internet providers. Subsidies covering the $9.95 fee for Comcast Internet Essentials low-cost service was provided to households in the Comcast service area; T-Mobile Hotspots (10,000) were provided to households where Comcast was unavailable and to students who were insecurely housed. To date, PHLConnected has enabled Internet connectivity to more than 22,000 families. PHLConnected also provided grants based on the DLA grant model to schools and CBOs to provide the training and tools to help K–12 caregivers support their students, communicate with schools, and actively engage in their children's education. Funding for Internet Essentials subsidies was extended to July 2023, after which concerted efforts are being made through Digital Navigators and other public and community-based partners to transition households receiving this assistance to the ACP subsidy program. Should ACP expire, the City is considering alternative plans to provide the subsidies needed to maintain home Internet access for K-12 students. Should ACP be defunded options for non-student households will be limited. Funding is provided in the Mayor's 5-year budget to continue providing hotspots to qualifying low-income households that could not be served by Comcast.

- **Philadelphia Digital Navigator Network:**[131] In early 2020 DLA launched a fast-track grant cycle to fund Digital Navigator roles in community organizations to help residents access affordable Internet and technology (including ACP registration), Hotspots, digital literacy training, and technical assistance. With additional community and foundation support, the Philadelphia Digital Navigator Network now includes four community partners that help residents resolve their digital equity challenges. The program is managed by the City of Philadelphia and United Way of Philadelphia and New Jersey. Active outreach efforts include promotional fliers available in 16 languages and focused efforts towards the City's Hispanic and Asian populations and residents with disabilities. Residents can access information online and make appointments for in-person or remote (telephone) assistance with digital navigators on an established helpline. The Philadelphia Digital Navigator Network published metrics documenting the tangible impacts and a guide to model programs in other cities.[132] To illustrate impact, over the one-year period of 2021-May 2022, the 211 Helpline fielded 2073 calls from 727 unique callers, successfully resolved 452 cases and provided 200 devices to individuals. Approximately 30% of calls were from low-income households and/or households with K-12 students, and 18% that requested language support.

- **PHLDonateTech:** Established to secure new, donated, and refurbished computers and tablets for residents who lacked them.[133] Multiple small donation and refurbishment efforts, some of which received support from the DLA grant program, are active but the scale of the problem pointed to the need for a different approach. To illustrate: at the height of the Covid-19 Pandemic, the Philadelphia Childrens Foundation donated more than 600 laptops to students, but the City has over 44,000 students living in poverty. Independent Public Media provided a major seed grant that was leveraged with a DLA award from the Philadelphia City Fund and an allocation from the Mayor's budget into $500,000 to underwrite a competitive grant that was awarded to PCs for People.[134] This national computer refurbishment and distribution nonprofit is in the process of

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[131] https://www.phila.gov/2021-02-10-the-city-of-philadelphia-announces-new-digital-navigator-organizations-and-highlights-the-programs-digital-support-services/

[132] https://www.phila.gov/documents/philadelphias-digital-navigator-report-and-factsheet/

[133] https://philacityfund.org/programs/phldonatetech

[134] PCs for People HOME - PCs for People

establishing a physical storefront space for eligible customers, office space for staff, and an intake, data destruction, and refurbishing center for PCs for People's zero-landfill certified e-recycling services.

- **DigitalEquityPHL:** The City's online portal created in March 2022 by OIT's Digital Services Team[135] to link residents to digital literacy classes, free/low-cost devices and Internet, public computer technical assistance. It provides an entry point to both those in need and to the individuals and organizations that want to be part of the solution through volunteer services, computer donations and funding. The PHLConnectED and Digital Navigator's information line, Dial 211, offers an alternative path to information and resources for digital inclusion to those without access or digital skills to take advantage of the online portal. Arlington has an available online resource page that provides viewers links to the County's digital inclusion resources and to other relevant information sources[136] that would become more accessible if promoted through a general assistance number, like the approach taken in Philadelphia.

- **ProgressPHL:** A new (March 2023) Social Equity Dashboard that provides each census tract a social program index score. Feeding into this overall score are dozens of variables divided into three main categories (basic human needs, foundations of well-being, and opportunity). Digital equity-focused variables are disaggregated in the foundations of well-being, including home broadband access, broadband and cellular subscription rates, and median speeds. This level of detailed information allows Philadelphia to track progress transparently across key variables important to digital equity (and other social indicators) and provides substantive primary data on which to base policies and programs. The value of a local dashboard is recognized in Arlington, where the Race and Ethnicity Dashboard serves to inform policies and programs across county government. Arlington's dashboard could become a powerful resource for guiding and monitoring digital equity in Arlington.

- The **Philadelphia Technology Learning Collaborative** (TLC):[137] An independent collection of nonprofit organizations that was borne after the BTOP funded ended to help ensure ongoing collaboration and practitioner support for digital literacy and inclusion work. It has evolved from core membership into professional development association dedicated to digital inclusion providers and advocates. With more than 500 members, TLC is an important element of the Philadelphia digital inclusion ecosystem, providing regular opportunities through meetings and quarterly trainings to share resources, program information and best practices. The Executive Director of TLC is a member of the DLA.

4.1.4   Applicability to Arlington

An important lesson from the Philadelphia study is that while digital inclusion on any significant scale requires collaboration and active involvement from both the public and private sectors, government has a vital leadership role. Philadelphia's constructive and mutually-supportive relationship with external partners leverages their respective strengths – the public sector's policy-making and regulatory role, the private sector's innovation, resources, and expertise, and community-based organization's credibility as trusted local resources, to drive tangible impact. A summary of the key elements contributing to the development of Philadelphia's comprehensive focus on digital inclusion includes:

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[135] https://www.phila.gov/2022-03-14-introducing-the-digital-services-team/
[136] https://www.arlingtonva.us/Government/Departments/Community-Planning-Housing-Development/Digital-Equity
[137] http://www.tlcphilly.org/

- the mayoral priority and a clear roadmap: the Mayor's Executive Order formalized the City's commitment to digital equity and established the goals set forth as a roadmap in the Philadelphia Digital Equity Plan as policy;
- at least one single dedicated person in leadership: the Digital Inclusion Manager provides coordination and continuity between the different public, private and governmental units that collectively comprise Philadelphia's digital equity ecosystem;
- support from the digital navigators in multiple community-based organizations: a wide variety of public, private and non-profit organizations are engaged in providing digital inclusion services to their patrons, clients, and stakeholders. Some have received digital inclusion funding from the City through DLA grants, other City government units (i.e., libraries and community centers) allocate portions of their budgets to digital inclusion efforts, while others (including the 500 members of the Technology Learning Collaboratory seek grants and/or other sources to support digital inclusion;
- acknowledgement that other City departments need to play an involved role: the value and need for cross-organizational focus among the City's government units is recognized in Philadelphia's Executive Order on Digital Equity, and effected through the OIT's Digital Management Team that collaborates across city agencies and initiatives and with a broad network of external supporters and partners on matters related to digital inclusion; and
- access to external funding and partnerships: the structure of the DLA, with regular meetings of public and private organizations united in purpose, is conducive to the development of collaborative efforts. Paired with the Philadelphia City Fund, a government-adjacent vehicle for accepting donations and obtaining grants for public purposes, the City can respond to opportunities and challenges in ways that allow flexibility and focus.

Arlington is well positioned to capitalize on a similarly advantageous situation in that the county has many community-based organizations that are already engaged in addressing digital equity gaps; ISPs and other private stakeholder organizations with an interest in making Arlington a more digitally inclusive community, and staff that are committed to addressing the challenge. While the pieces necessary for a strong digital equity effort already exist in Arlington County, they have yet to coalesce into an integrated force for change. Commitment at the highest levels of county government to the five best practice elements listed above can provide the focused energy Arlington needs to digitally empower all segments of Arlington's population. The findings from this case study directly support the recommendations presented in this Broadband Strategy report.

4.2   Case 2: Ammon Fiber

4.2.1   Background

Ammon Fiber is a municipality-led broadband service that provides a point of reference for assessing whether Arlington could participate as a new provider for service to address its broadband gaps. As presented in the Model Evaluation report, most municipal projects become a financial liability for the governments; however, Ammon Fiber is an example of a municipality that does not lose money and has incurred no long-term debt to construct the network.

In 2010, the City of Ammon, Idaho began construction on a municipal fiber optic system known as Ammon Fiber. Following initial investments for supervisory control and data acquisition (SCADA) systems, the City

realized that it might leverage its fiber investment to address what it viewed as a substantial retail Internet service gap in the City as there were no fiber optic based broadband providers at the time.

The City of Ammon developed a solution that enabled the ability to build out the broadband infrastructure without adding debt to the City government. Starting in 2018, the City created Local Improvement Districts (LID) as a "financial tool to assist residents with their fiber investment" to construct a fiber-to-the-premises (FTTP) broadband network. The model is unique in that it requires the customers, City residents, to separately fund the construction of the network elements (fiber and electronics) through the LIDs. The residents can pay off the construction of the network up front or over time (annually or monthly) over a 15-to-20-year period. Residents also pay a City maintenance fee to cover the network operating expenses and technology upgrades. Leveraging the Ammon fiber network, local retail Internet service providers deliver service directly to residents and offer customer service, billing, sales, marketing, and connectivity of the Ammon broadband infrastructure to the Internet.

In the Ammon model, the City builds out a neighborhood (a LID) and performs outreach during the construction process to sign up households in the LID. Once construction is complete, the total cost to connect the households in the LID is then divided by the households that sign up, and those households are obligated to cover the construction costs. This means that the more households that sign-up, the lower the cost per household. Regardless of the number of subscribers, the maximum cost will not exceed $3,600 per household. Providing service to rental units is complicated by the fact that only the property owner(s) can sign up for a LID. As a result, renters need landlord approval to become customers on the Ammon Fiber network.

The Ammon model partially removes financial risk to the City as the residents make the investment in the network up-front. And, because the residents are invested in the network at the outset, they have an incentive to remain customers on the network. However, if the LID sign-up rate is too low, the City might not recoup the capital cost to construct the network with a respective LID. Fortunately, the City has experienced sign-up rates in all LIDs of more than 47%, resulting in LID assessments that are all below $3,500 per home. The City started with the more affluent parts of the city and achieved higher sign-up rates that resulted in lower fiber assessments per home. Homeowners who sign up after the initial construction period pay $3,600, and because the City has already recovered the costs to build out in the LID, the City can use these funds to help cover the costs in future LIDs or to cover operational costs.

The Ammon Fiber approach enables the City to focus on the infrastructure construction and operation, while private retail companies market, sell, and service the customers. Customers can select their ISP from an interface provided within their homes and can change their providers at any time. The system is currently self-sustainable, and all of the City's investments in broadband have been recouped. The future LIDs are areas with a greater percentage of rental units, and that are less affluent, and therefore, it may be more difficult to sustain the historical high sign-up rate. Ultimately, lower LID sign-up rates, or degradation in service quality could result in churning off the network, further increasing the cost per customer to maintain the network. It is also possible that the profit margins for the retail providers could result in increases in their costs as well. However, it does appear that between Ammon Fiber and other infrastructure providers, Ammon Fiber will have limited competition. The most substantial competition appears to be at the retail level, which is predominantly focused on price, not customer service (quality of service, speed, and service offerings should be identical between service providers).

4.2.2   Outcomes

Today, Ammon Fiber service is available at more than two thousand homes in the City. The City has plans to serve all households and businesses. Four of seven LIDs have been constructed and closed out, a fifth

LID has been constructed and is being closed out, and the last two remaining LIDs are under construction. The City has been able to accomplish these results with no additional City debt.[138] The City has achieved an aggregate sign-up rate (also known as a "take rate") of 55%. A total of nine retail Internet service providers are providing service in Ammon at typical rates totaling between $49 and $80 per month. The cost is made up of three components: 1) the Initial Construction Cost of around $24 per month (that can be paid off in full up-front), 2) a $20 per month Infrastructure Maintenance charge, and 3) a monthly charge of $5 to $109 for the retail Internet service depending on the provider, speed, and whether the customer is residential or business. Customers can find the pricing structure confusing. However, the ease with which customers can select a provider helps to drive the cost down and the net cost is considered affordable.

One aspect of the Ammon model that is likely to eliminate (or drastically reduce) churn is the way the customer base becomes locked into using the City's infrastructure. If Arlington were able to implement a LID like Ammon,[139] it creates a financial barrier for customers to leave the service even when a more capable competitor enters the market. Within 15 to 20 years, with the infrastructure paid off, the Ammon Fiber solution is $24 per month cheaper, making it far more difficult for another provider to compete. Even after five years, customers have paid into the infrastructure substantially such that it will take a more personalized rationale to leave the service. This dramatically reduces the financial risk to the City immediately after the LID opt-in period assuming the take rate results in net per household costs of $3,600 or less. Any competitor can join the Ammon network to provide service.

However, despite the successes, the City has nonetheless encountered some challenges, including:

- It is difficult for Ammon Fiber to hire experienced and qualified technical, network operations, and system management professionals
- Troubleshooting between the retail ISP selling the service over the Ammon Fiber network and providing customer service, and the Ammon operator organization can be confusing to the resident
- The pricing structure can be confusing to residents (discussed above)
- Infrastructure is built out in a geographically designated Local Improvement District (LID) and is cumbersome.

4.2.3   Adding a New Internet Provider: Arlington County vs. Ammon

There are two primary differentiators between the Arlington and Ammon scenarios:

- the level of competition, and
- the high proportion of renters in Arlington.[140]

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[138] The City does take on debt to fund the initial construction of each LID. When the LID is completed a close-out process transfers that debt to the households that participate in the LID.

[139] We have not conducted a review of Virginia law to determine if Arlington could create the Local Improvement Districts (LIDs) that require those households that sign-in to repay the cost and places a lien on their properties in the process.

[140] Among the differences in demographics between Arlington County, VA and Ammon, ID are a lower percentage of owner-occupied housing (42.3% in Arlington versus 73.2% in Ammon) and a higher median household income ($128,145 in Arlington versus $68,131 in Ammon). Source: United States Census Bureau QuickFacts, captured on 10/19/2023 (here).

Level of Competition is a Major Determinant of Successful Investment

In Ammon, the local telephone company, Lumen, operates on Digital Subscriber Line (DSL) technology at much lower data throughout speeds than the Ammon Fiber network delivers. CableOne, the local cable company, offers service under the brand Sparklight and offers data speeds up to 940/50 Mbps at rates starting at $65 per month and with gigabit service at a regular price of $85 per month.[141]

As discussed in this document, only a handful of locations have no high-quality broadband service. The key opportunity for a new entrant in Arlington are the non-competitive locations, and Comcast's Xfinity Internet offering is the primary high-speed service provider at those locations today. Xfinity offers Internet Essentials for only $10 per month for eligible households while CableOne in Ammon does not. Attracting low-income households away from this offering is likely to be a major deterrent from switching to a municipal network. Additionally, the CableOne plans have data caps that may result in speeds of 10/1 Mbps during periods of network congestion, whereas Xfinity plans are unlimited. And finally, we note that Comcast in Arlington has 32 times more customers than CableOne, and therefore, may have more resources to compete with a new entrant.[142] These natural competitive factors could substantially reduce sign-ups in comparison with AmmonFiber and cause Arlington County to miss financial targets for a new network.

If Arlington focused on properties that lacked 100/100 service from two or more providers, the service locations would be scattered across Arlington, not clustered in a neighborhood like in Ammon. In Arlington, non-competitive locations are clustered in communities of perhaps 20 homes, not 500 to 1,200 homes as in Ammon. This would result in substantially higher construction costs to deliver fiber to each of these individual clusters of homes. While we expect higher overall take rates for non-competitive locations, serving only those locations would be offset by substantially higher construction costs per unit.

While adding in cost burdened households for a new entrant might help create more density in the construction of the new network and serve to lower the construction costs per unit, the competition at those locations is generally very robust. In nearly all affordable housing locations, there are two competitors (generally Comcast's Xfinity and Verizon Fios or Starry), and most of the locations have three competitors (Xfinity, Verizon, and Starry). A new entrant would then be the third or fourth entrant to provide service to these cost burdened households. As a result, and as identified in the Model Evaluation report, service at these competitive cost burdened locations is likely to result in substantial financial loss, especially if the revenues are reduced due to ACP plans or competition with Internet Essentials. For example, the Model Evaluation estimated the sign-up rate to be 10% of cost-burdened households whereas AmmonFiber has achieved roughly 50% overall.

Housing Tenure Impacts

The approach employed by Ammon can work well in owner occupied structures but is complicated in situations with renters. Ammon has a high owner-occupied housing market while nearly half of Arlingtonians are renting. The LID process requires that the property owner agree to repay the construction costs, not the tenant. A renter cannot request service on their own, which presents greater risks to securing high take rates. We estimate that more than two-thirds of the non-competitive units in Arlington are listed as rental units based on the Arlington Master Housing Unit Database (MHUD). Therefore, the vast majority of non-competitive housing units would be a significant challenge to

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[141] See https://www.sparklight.com/internet. Pricing captured on 11/27/2023 for an address on Circle S Drive, Ammon ID, 83406. Introductory pricing (for the first 18 months) from $34.95 to $64.95 per month.
[142] CableOne reported $1.7 billion in revenues.

participate in the type of financing model leveraged by Ammon – requiring property owners who rent to agree to the long-term financing of the fiber optic network deployment.

Is the Ammon Model Worth Pursuing in Arlington County?

Televate does not recommend this model to Arlington due to the high risk associated with securing enough business to maintain positive cash flow. Instead, private sector competition should provide what is needed in the Arlington broadband marketplace. However, should Arlington County find that continued lack of high-quality and appropriately affordable service, Televate believes that offloading the debt service to the residents and businesses that are eager to have better service and locks them in to long-term service (and minimizes churn) certainly helps the business case for a municipal network, but does not entirely eliminate the risk. Given the high percentage of rental properties and the complexities that the financing model creates, we doubt that it could be employed with much success in Arlington. Furthermore, as identified in our broadband operator model evaluation, a business model that conducts market research up front and does not blindly build in all underserved/non-competitive areas would be more likely to uncover portions of Arlington with unhappy residents ready to migrate to a service offering. If Arlington were able to lock-in property owners in advance of the construction process in a LID-like mechanism, and the cost to deliver service is profitable, Arlington would essentially eliminate the most impactful market risks. Ultimately, Arlington would likely still have substantial financial risk especially given the likely much higher cost for construction per unit that would result from a more refined customer base. And, because the economies of scale would be reduced, there is a challenging ability to achieve a cashflow neutral business case.

It is important to consider that the problems associated with competitive service in Arlington could be due to property access or due to other economic factors. For example, if many of the locations that are not competitive are served by an ISP that has a bulk agreement with the property owner, the take rate might be excessively small. If many or most of the multi-tenant buildings are in this category, then the entire business model may be unsustainable. In other words, if the County were to conduct a market survey about interest in a county-led broadband service (an open access dark fiber model, or an open access lit fiber model like Ammon's operated under a Wireless Service Authority), that survey would not factor in whether the households with an *interest in the service* would actually receive broadband service. This would ultimately result in even lower levels of take rate (or, if included in the market research, the total number of constructed passings), and further erode the already tenuous business case. It is for these reasons that Televate does not recommend that Arlington either create a Wireless Service Authority to provide broadband service to these locations, nor build out the dark fiber infrastructure to enable a third party operator and retailer to provide the service.

These factors suggest that the probability of a successful Arlington-led investment in a new broadband service is very small. The cause of lack of competition must be based solely on those locations where private investment will not return a sufficient return. If the problem is property manager protection, a customer base locked in to an incumbent provider, or there is no technical solution to serve the location, Arlington, like a private provider, would also encounter the obstacle. Therefore, the only problem that an Arlington led service would solve is one where a private provider's estimated revenues will not produce sufficient return given the cost to serve. Given the economies of scale of the private providers and their substantial existing infrastructure, we doubt an Arlington-funded solution would solve this gap and enable a new competitive provider to achieve a cashflow neutral solution. However, if Arlington does decide that the societal impacts of lack of competition are worthy of investment, we recommend a model similar to that of Ammon in that a third-party provider markets and sells the service. And, further, to avoid the additional burden of creating and staffing an independent Wireless Service Authority, we recommend Arlington partner with ISPs to operate the network over Arlington provided dark fiber.

4.3   Case 3: San Francisco's Article 52

4.3.1   Background

The City and County of San Francisco enacted Article 52 to address situations where property managers were excluding new competitive broadband service providers from their multi-tenant buildings. Given that ISPs in Arlington have indicated that building access was their primary reason for not serving many locations, San Francisco provides one example of how legal action has been utilized to increase broadband choice for residents.

In the mid-2010s San Francisco was contemplating providing FTTP service to address affordable housing. The City recognized that there might be a challenge in gaining access to buildings to install the needed fiber infrastructure to facilitate their FTTP objectives. According to estimates from communication service providers (CSPs),[143] there were as many as 500 buildings in San Francisco representing 50,000 total units where property managers were denying them access.[144]

As a result, in December of 2016, San Francisco enacted Article 52 of the San Francisco Police Code requires that "[n]o property owner shall interfere with the right of an occupant to obtain communications services from the communications services provider of the occupant's choice."[145] The Article allows for exclusions where: 1) it is not reasonable for the property owner to allow an additional broadband provider into the facility where an occupant has not requested service from the provider, 2) there are physical limitations at the property, 3) there are adverse effects on other communications service providers (CSP), 4) it will cause undue damage to the property, 5) it will "impair the use of the property for the continued provision of existing essential services," 6) the property owner and the provider have not reached an agreement on "just and reasonable compensation to the property owner," and various other limitations. The Article creates a mechanism for service providers and building occupants as well as the City Attorney to enforce the requirements in San Francisco Superior Court against property owners.

The process created by the City in the code enables the parties to independently resolve access issues. The code requires that the communications service provider and property owner follow a specific process to resolve property access on their own. There must be a tenant that requests service from a particular ISP in order for the ISP to request access to the building. The CSP must agree to the property manager's reasonable conditions, reasonable compensation for access, and other requirements in the initial request. The property owner can then decline service on the grounds listed above as well as others (e.g., the communications provider cannot provide evidence that tenant(s) have made a request for service). If, after this exchange, a CSP believes the property owner has failed to comply with the requirements of Article 52, the CSP notifies the property owner who then has 10 days to resolve the matter. After this period, the CSP notifies the City Attorney and the City Attorney who may choose to institute a civil proceeding within 30 days, after which the CSP can file its own civil proceeding. In other words, the City's Attorney does not have to engage in the process and can allow the courts to resolve the matter between the parties.

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[143] San Francisco's initiative addresses communications providers broadly, including telecommunications and cable television providers.

[144] See Ars Technica article here (June 20, 2019)

[145] See ARTICLE 52: OCCUPANT'S RIGHT TO CHOOSE A COMMUNICATIONS SERVICES PROVIDER (amlegal.com)

4.3.2 Outcomes

San Francisco does not maintain records regarding the final results of the initiative (i.e., how many buildings or units now have competition after the new law was effective), including how many structures added competitors because of the new Code. Nor are there any publicly available studies regarding the pricing, customer service, or other benefits that are expected to come with the enhanced competition enabled by Article 52. However, MonkeyBrains, a local Internet service provider, claims that in 2020 alone, the company gained access to 1,800 total units due to Article 52.[146]

The City does track the extent to which it is notified of disputes between property owners and service providers. Within four years after the implementation of the Article 52 legislation, several CSPs were reporting access to hundreds of new buildings, and thousands of new households served.[147] The process that allows the CSP and property owners to resolve access matters has not required additional San Francisco efforts. Per the San Francisco staff interviewed, there have been only six notices received to date from one of the regional CSPs and the City has declined to intervene. Further, the CSP did not pursue a civil proceeding in over seven years since implementation; the CSP and property owners have been able to independently resolve all matters without the intervention of the City or the courts.

4.3.3 Could a Right to Choose Policy Help Arlington County?

This right to choose issue may represent the primary reason for the lack of competition at many multi-tenant locations in Arlington, which likely represents the vast majority of non-competitive businesses and households. However, the full extent of the issue is not fully understood and should be further investigated. If property owner obstruction is a major cause, a similar Article 52 provision is likely to facilitate competition at most of these locations (a similar Arlington County code might uncover other legitimate reasons for new entrants to be excluded, such as those listed above in the Article 52 exclusion language).

Demographically, Arlington County has some similarities with San Francisco. Though it is roughly four times the size of Arlington in population and roughly double in land mass, San Francisco and Arlington have comparable owner-occupied housing unit rates (38.6% versus 42.2%, respectively) suggesting they have similar rates of an intermediary property owner/manager.

Virginia Law Does Not Have Enabling Legislation for its Jurisdictions to Enact an Article 52 Policy

Virginia law currently prevents any County from enacting laws or codes other than those specifically permitted under the Commonwealth's legislative guidelines. In this case, Virginia law does not permit the County to enact Article 52 like code, and therefore, would be prohibited by Virginia law. As a result, a substantial barrier exists that requires Virginia legislative approval to pursue this approach. If Arlington receives information regarding a substantial property owner barrier issues exists in the County today, it will certainly add credibility with the Virginia Legislature and provide more motivation to Arlington to pursue similar regulatory code.

We also note that property manager obstructions may be a minor reason for a lack of competition in Arlington. If instead most of the non-competitive locations have a technical impediment (e.g., the building lacks the capacity to support the equipment needed by another provider) or bulk agreements prevent a business case for service, an Article 52 equivalent solution would not fix competition in these locations. to the extent that bulk agreements are in place. In these instances, an Article 52-like implementation will

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[146] See San Francisco's communications choice ordinance is working | Forum | sfexaminer.com
[147] See San Francisco Examiner (Feb 2020) and Electronic Frontier Foundation (June 2019)

not correct the issue regardless of the operational model – be it a new or existing ISP, or a County-led service provider. Therefore, Televate only recommends this approach if there would be a substantial number of affected housing and business units that would secure high-quality broadband competition.
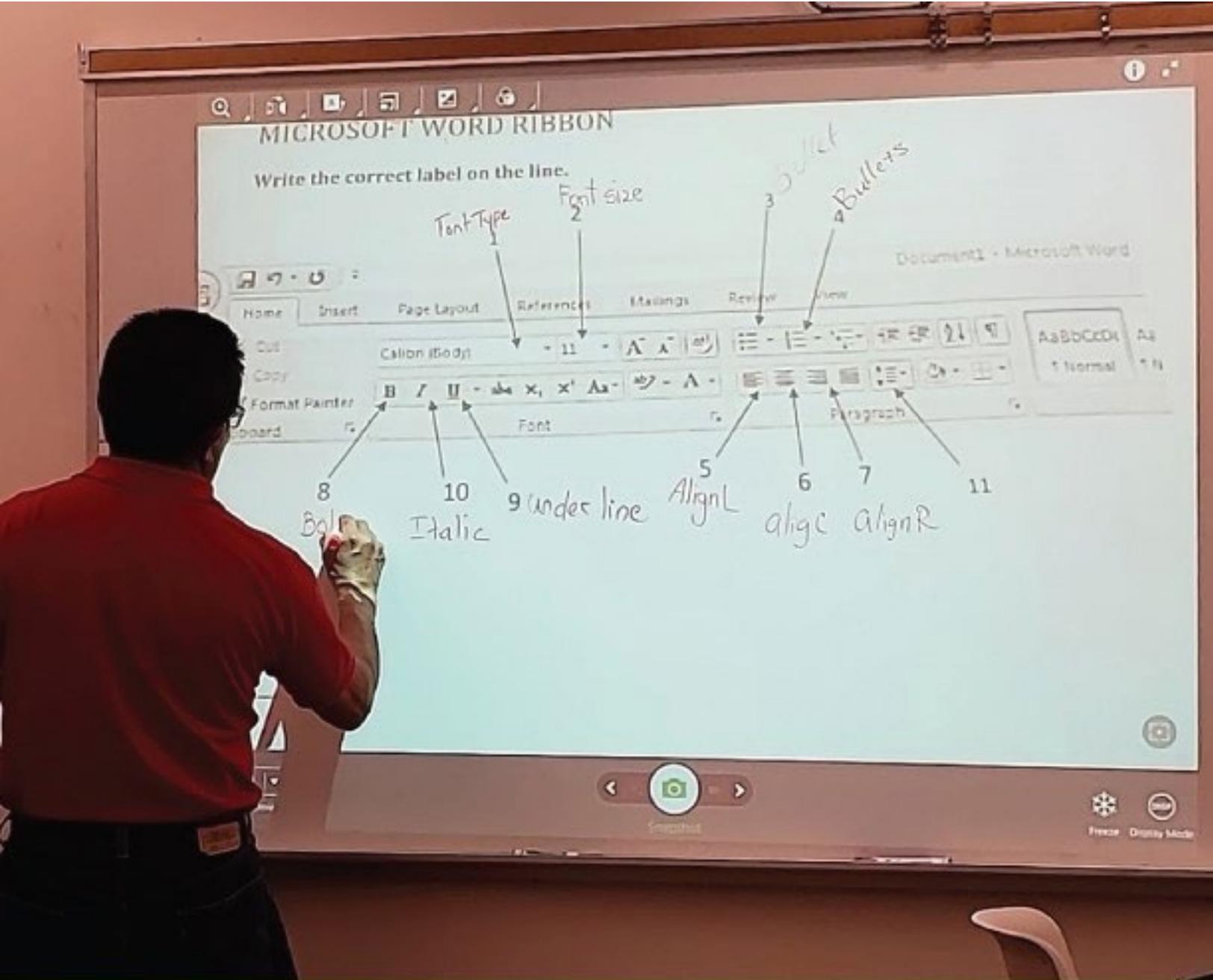
5 Appendix A: Broadband Study Local Stakeholder Organizations

The following local, community-based organizations were identified during stakeholder interviews as part of the research and discovery phase of this study. Each currently provide digital inclusion-related offerings.

AHC, Inc.: Non-profit affordable housing developer. Offers digital literacy programming to residents of their affordable housing properties. Provides free in-unit Wi-Fi at some properties an in others, free Wi-Fi is provided in community rooms. Has partnered with Capitol One and Comcast on pilot projects in Alexandria encompassing free in unit Internet, Chromebooks, and digital literacy training. Working on a Digital Equity Handbook to include a comprehensive needs assessment of AHC's 50+ properties, including detailed strategies for implementing equitable Internet options for residents.

Alliance for Arlington Senior Programs: Provides qualified low-income seniors with free Internet access, free computer training and, in some cases, free use of a laptop. Coordinates sign up events for older adults to enroll in federal low-income Internet benefit programs.

Arlington Commission on Aging: Increasing seniors' Internet skills and using it to support their engagement in Internet-based programs and service opportunities.

Arlington Free Clinic: Non-profit that works to advance health and digital equity by directly supporting community members with access and hands-on guidance. Using a network of medical professionals and volunteers, the organization serves many low-income and immigrant populations usually with limited English fluency along with low digital literacy. Providing guidance and community support on health a wide range of services including, mental health services, physical therapy, pharmaceuticals, health education and oral health care, the organization relies on Internet options, stating that approximately 80% of its care and community support is conducted via telehealth.

Arlington Partnership for Affordable Housing: Non-profit affordable housing developer. Provides technology literacy workshops and classes to enable low-income residents to strengthen their technology skills that promote increased ability and comfort with technology—from the use of smartphone apps to Internet research to keyboarding and software skills. Provides STEM programming to children, computer science and tech skills programming for high school students, bilingual computer classes to adults, and a pilot Teladoc for residents.

Arlington Retirement Housing Corporation: Provides technological instruction and training for residents to access the Internet and improve their ability to connect with the outside world. Currently encouraging companies and entrepreneurs to develop and produce technology innovations that enhance the health, independence and engagement for lower income older persons in independent and assisted living at Culpepper Garden.

Arlington Thrive: Provides digital training and devices as an incentive to participate in the training offered, especially for older adults. Helps with re-establishing Internet service. BU-GATA: Supports digital equity initiatives primarily in the Buckingham neighborhood, where they began supporting Latino apartment tenants in 1992. Among their many tenant services, BU-GATA provides digital connectivity training in the community center.

Community Residences: Provides technology supports to individuals with intellectual disabilities who reside at The Springs in order to increase their independence and enable them to integrate with the community.

Computer Core: Non-profit that provides foundational digital and professional skill-building, including Microsoft Office 365, Google Workspace, keyboarding and computer skills. They also learn effective

resume and cover letter writing and complete professional development classes. Their Digital Access Help Desk provides needed assistance to set up computers and answer questions about hardware, software, and Internet questions. Computer CORE's training model employs volunteers and paid interns. Computer CORE provides free devices to residents and has a page setup on their website for organizations to donate computer equipment. Computer CORE then uses a Third-Party Refurbisher to extend the useful life of the computer.

Edu-Futuro: Non-profit that focuses on empowering immigrant and underserved youth and family members in all aspects related to education, leadership, and workforce development. During 2021- 2022, Edu-Futuro delivered job training programming to 341 members through online teaching platforms and individualized work sessions. Curriculum includes assistance in resume building, familiarity with google docs and other jobs skills, and financial planning. Additionally, a case study of the Tech for Parents program [148] has been recognized as a part of state digital equity planning programs.

Wesley Housing: Non-profit affordable housing developer. Offers free in unit Wi-Fi to five existing affordable housing properties. Offers community space at many of the properties with full access to a business center/community room providing Internet access. In addition, provides digital education programs through a "digital library" that includes one-on-one and group workshops focusing on strategic areas of interest to the residents. These areas include communication, device ownership, information skills, workplace, gateway skills, lifelong learning, troubleshooting, mobile, online life, and privacy and security.

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[148] https://dhcd.virginia.gov/sites/default/files/Docx/vati/dop-appendix-files/digital-opportunity-case-studies/edufuturo_case_study.pdf