

Regional Digital Opportunity Plan

Created by a Regional Community Action Coalition including:

- **Community Action Partnership of Staunton, Augusta, and Waynesboro:** Cities of Harrisonburg, Staunton, and Waynesboro, Counties of Augusta, Highland, and Rockingham
- **New River Community Action:** City of Radford, Counties of Floyd, Giles, Montgomery, Pulaski, Franklin, and Patrick
- **Total Action for Progress:** Cities of Covington, Lexington, Roanoke, and Salem. Counties of Alleghany, Bath, Botetourt, Craig, Roanoke, and Rockbridge

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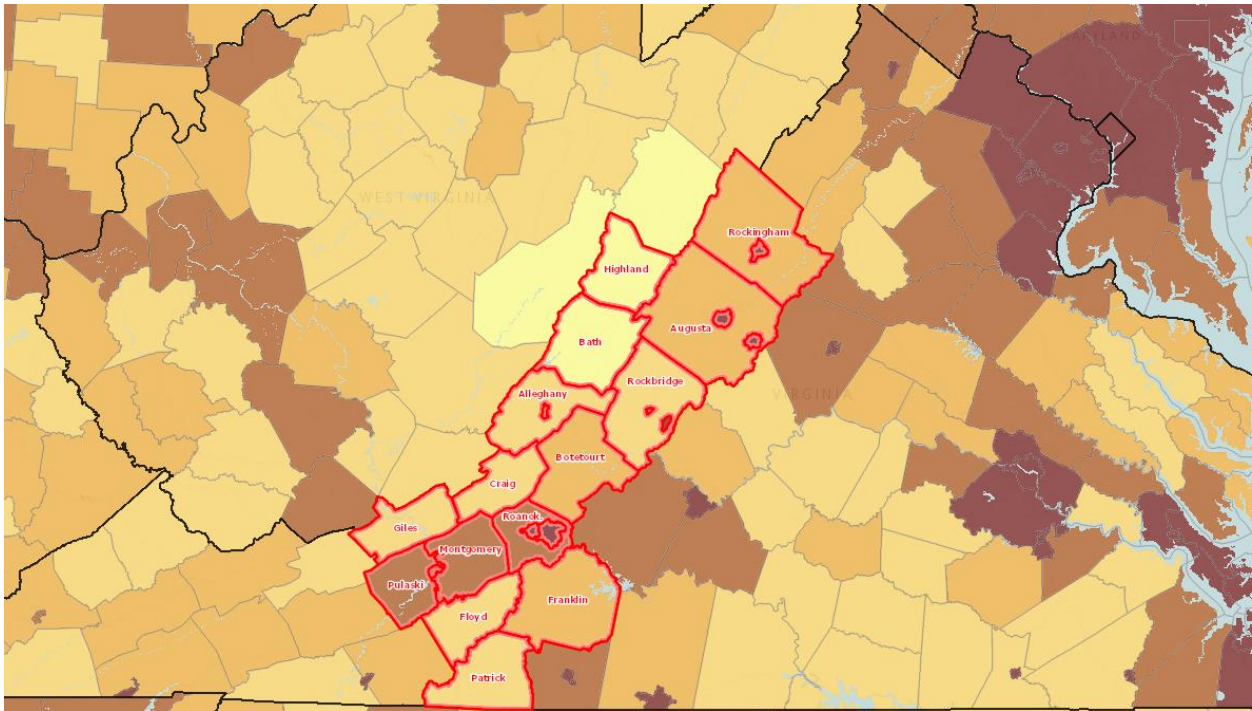
1 Executive Summary

In 2022, the Community Action Partnership of Staunton, Augusta, and Waynesboro (CAPSAW), New River Community Action (NRCA), and Total Action for Progress (TAP) formed a Regional Community Action Coalition and began an extensive data collection effort with community input in order to create a Regional Digital Opportunity Plan as part of a statewide effort overseen by the Virginia Department of Housing and Community Development (DHCD). This project would identify the barriers to effective and meaningful use of broadband for selected populations, identify key factors in the service area that define unique service challenges, and develop a preliminary plan to address them for implementation by both public and private sectors.

The region includes 17 counties and 8 cities spanning 7,660 miles and home to over 830,000 Virginians. Counties in the region include Alleghany, Augusta, Bath, Botetourt, Craig, Floyd, Franklin, Giles, Highland, Montgomery, Patrick, Pulaski, Roanoke, Rockbridge, and Rockingham. The cities are Staunton, Waynesboro, Salem, Roanoke, Radford, Lexington, Harrisonburg, and Covington.

The Regional Coalition adopted as a working definition of digital equity, “the condition in which everyone has the opportunity to safely access the full benefits of technology to live, learn, work, and thrive.” Safe and informed access is an indispensable part of achieving digital equity. Prioritizing low-barrier and non-means-tested resources for digital literacy and technical support will create a safe and stable environment encouraging informed adoption of broadband technology throughout the region.

Extensive regional community input occurred through surveying, asset inventory, interviewing key informants, and holding community input sessions. The coalition came to conclude that digital equity is achieved when the infrastructure exists to provide internet connection and community resources exist to allow residents to afford that connection, purchase devices, and acquire the skills to use them. A regional approach to this process allows us to identify digital equity barriers across locality boundaries, localities where the demographic and geographic conditions were similar, and effective solutions requiring collaboration and coordination between municipalities.



Data Source: US Census Bureau, American Community Survey, 2017-21. Source geography: Tract

Framework of assessment:

The National Digital Equity Alliance states the “Digital Divide is the issue, Digital Equity is the goal, and Digital Inclusion is the work.” The framework for this report supports this belief by first defining the specific obstacles creating the digital divide, developing a plan to achieve digital equity, and recommending implementation methods with inclusivity as a guiding principle.

A comprehensive assessment process, including evaluation of existing data, facilitation of focus groups and community listening sessions, coordination of key informant interviews, cataloguing existing resources, and distribution of a statewide digital survey provided the CAA Regional Coalition with a broad data set, from which to draw its conclusions and recommendations. Participants in this process included schools and educational services; municipal representatives from departments such as management, library services, social services, corrections, and economic development, employment services; Community Action Agency program participants; nonprofit staff; government programs; community members; internet service providers; regional thought leaders and subject matter experts. The resulting plan identifies both the barriers to digital equity and an implementation plan to eliminate them.

Barriers exist throughout the region, along with inequities mirroring those found in society at large. Those digital-equity-barriers magnify social inequalities which further highlight the disproportionate impact on those with low incomes, persons with disabilities, the incarcerated, aging individuals, veterans, those with language barriers, members of racial or ethnic minority groups, and those who live in rural locations. Many

of the recommendations included can be implemented across the entire region with modifications reflecting local conditions. Population-specific challenges faced across the region are also included.

Despite the large and diverse area included in this assessment, there are overarching commonalities in the obstacles faced. Proposed solutions will provide realistic goals that address the needs of communities within the coalition service area, and for those subsets that have distinctly unique concerns. Consequently, funding to implement regional Digital Opportunity Plan activities will have the highest impact where it is attuned to the shifting dynamics within the region. This funding will need to be extremely flexible and responsive to the particular obstacles of numerous target populations across the region to best overcome the barriers to digital equity faced by those living and working there.

The planning team assessed our region on the activities needed to ensure digital inclusion as identified by the National Digital Inclusion Alliance which include (<https://www.digitalinclusion.org/definitions/>):

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

What we learned:

Summary of statewide survey results. 1,107 surveys were submitted by residents of the region. Key findings provided by DHCD included:

- Most respondents (71%) have both a home internet subscription and a wireless cellular plan.
- Almost half of respondents (45%) connect to the internet using their cellular data plan. Some (29%) use a cable modem.
- Of those who CANNOT access the internet, (40%) do not because it is too expensive.
- The devices most often used to access the internet are a smart phone (87%) or laptop (74%).
- Respondents are comfortable doing most tasks on the internet, except attending doctors' appointments.
- Most respondents (79%) have not applied to a program for internet accessibility, and only one-third (30%) are aware of these programs.

Summary of regional assessment process. From May through July 2023, 73 community engagement activities took place. 353 individuals participated in 4 Community

Meetings, 15 Focus Groups, 9 listening sessions and 45 key informant interviews. Analysis of these activities indicated the following:

Affordable, robust broadband internet services:

1. Many households face few choices in service providers resulting in unaffordable, unrobust service options.
 - a. **Rural areas or smaller population centers** are more likely to have limited choices in service providers. Barriers to connection are often geographic vs economic.
 - b. **Rural Households** face limited infrastructure resulting in a lack of access.
 - c. **Low-Income Households** and **Rural Households** are more likely to lack internet service, have the ability to connect, but cannot afford to bring the connection from the street to their home, or have interruptions in service.
 - d. **Low-Income, Rural, and Aging Households** are more likely to lack transportation to publicly available Wi-Fi.

Internet-enabled devices that meet the needs of the user:

2. **Many** households lack the devices, training, and technical support necessary for full participation in digital opportunity.
 - a. **Many** households lack the capacity to maintain their devices.
 - b. **Many** households report concerns related to the safety of their personal and financial information online.
 - c. **Many** households report concerns related to the risks faced by minor children online.

Access to digital safety/citizenship/literacy training, technical support, and accessible user-friendly sites:

3. **Many households** report difficulty in successfully navigating online content including applications for employment, benefits, housing, government support, and local services.
 - a. **Low-Income Households** are more likely to rely on smartphones for Internet access-even in communities with inconsistent/incomplete cell phone coverage.
 - b. **Applications and other online content** are often not optimized for smart phone usage.
 - c. **Aging, Low-Income, Incarcerated, and Low English Literacy Households** are more likely to lack computing skills and access.

Next steps:

These following recommendations reflect the commonalities found in the region. Merely increasing the capacity of broadband networks alone is not likely to have a significant impact on the target populations. While increasing capacity and reducing the costs will

improve access over the long term, there are a number of other factors that will continue to hinder efforts to reduce the digital divide. A coordinated and multi-faceted approach is required to achieve a timely and measurable impact on digital equity in the region.

The CAA Regional Coalition who developed this plan recommends the formation and support of a planning team to design and implement the strategies and activities outlined in this plan. A detailed methodology is outlined in the implementation plan beginning on page 18.

Strategies:

1. Create a coalition of stakeholders, including Community Action Agencies, to guide implementation strategies, develop leadership within each locality and enhance coordination of regional services.
2. Develop Navigation Services meeting the National Digital Inclusion Alliance definition, “Digital navigators are trusted guides who assist community members in internet adoption and the use of computing devices. Digital navigation services include ongoing assistance with affordable internet access, device acquisition, technical skills, and application support.”
3. Ongoing and continued investments in both means tested and non-means tested services to support adoption of broadband through technical support, digital literacy services, and improvements to online content to encourage and enhance participation.

2 Introduction and Vision for Digital Opportunity

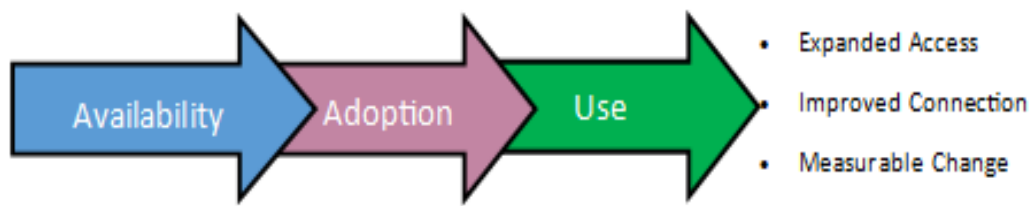
Regional Coalition Vision: Digital equity will be achieved when everyone in the region has the opportunity to safely access the full benefits of technology to live, learn, work, and thrive.

Representatives from the CAA Regional Coalition developed their vision for digital equity based upon the belief that access to the digital world is essential for residents to achieve goals related to employment, learning, social connection, and full participation in the fabric of society. For this vision to come to fruition, improvements to infrastructure and community resources, engagement with emergency services, and public/corporate/government awareness relating to key barriers will be required. Residents must be able to access internet connections at affordable rates, purchase or obtain (through benefit programs) devices, and acquire the skills to use them safely and effectively before digital opportunities can be realized. Combining efforts to improve service delivery and access from many sectors including opportunity for remote work, emergency services, telehealth services, interpersonal communication, and employment outcomes will maximize potential impact.

Prioritizing low-barrier and non-means-tested resources for internet access, digital literacy and technical support will create a safe and stable environment encouraging adoption of broadband technology throughout the region. Community engagement

plans included efforts to identify specific barriers related to access through the lens of availability, adoption, and use for the region at large and for the identified populations as defined by Commonwealth’s Digital Opportunity Plan guidance. The resulting plan provides a roadmap with an intentional focus on building coalitions and leveraging regional relationships and expertise to reduce the digital divide. The diversity of the region requires the use of various methods to ensure access in the manner best suited to specific populations and municipalities.

Accountability will lead to success with impacts on workforce development, educational attainment, improved health, and housing outcomes. If broadband and strong cellular service are not available, they cannot be adopted, nor can they be used to strengthen our communities. Infrastructure improvements, including last-mile identification, emergency services communication barriers, and continuity of service from one house to the next will require awareness and ongoing support to reach the growing number of those in the region who are being left behind by the ever-widening digital divide.



3 Current State of Digital Opportunity: Barriers and Assets

The region includes 17 counties and 8 cities spanning 7,660 miles and is home to over 830,000 Virginians, 10% of the 2020 Census population for the Commonwealth. Looking at the demographics of the region as a whole can provide information on a large swath of the state, however, it is important to look at the data for individual municipalities and specific populations to identify unique barriers and opportunities. These counties also have a common topography and geography that impact delivery of services creating pockets of communities that have no access opportunities available or houses that have access next door to houses that do not.

Industry in this region is highly agriculturally based and brings in immigrants to work on farms, in processing facilities, and in transportation. This creates centers of multiple languages with few interpretative services across all sectors.

Highland and Augusta Counties are impacted by Greenbank Observatory which is surrounded by a National Radio Quiet Zone. The National Radio Quiet Zone (NRQZ) was set aside by the federal government to provide a geographical region to protect sensitive instrumentation from Radio Frequency Interference (RFI).

The NRQZ was established by the Federal Communications Commission (FCC) in [Docket No. 11745](#) (November 19, 1958) and by the Interdepartment Radio Advisory Committee (IRAC) in Document 3867/2 (March 26, 1958) to minimize possible harmful interference to the National Radio Astronomy Observatory (NRAO) in Green Bank, WV and the radio receiving facilities for the United States Navy in Sugar Grove, WV. The NRQZ is bounded by NAD-83 meridians of longitude at 78d 29m 59.0s W and 80d 29m 59.2s W and latitudes of 37d 30m 0.4s N and 39d 15m 0.4s N and encloses a land area of approximately 13,000 square miles near the state border between Virginia and West Virginia.

The definition of a rural community is currently just based on population.

1. U.S. Census Bureau: The Census does not define “rural.” They consider “rural” to include all people, housing, and territory that are not within an urban area. Any area that is not urban is rural. The Census defines urban as: Urbanized Areas (UAs) of 50,000 or more people.
2. To be eligible for a USDA Reconnect Rural Broadband grant: **Be in a Rural Area:** A rural area is any area that is not located in a city, town, or incorporated area that has a population of greater than 20,000 inhabitants or an urbanized area contiguous and adjacent to a city or town that has a population of greater than 50,000 inhabitants.

This definition creates funding obstacles for agricultural communities that are rural in nature, but due to the municipal centers do not meet population requirements.

Existing Resources

After a preliminary review of known access points, CAPSAW and NRCA designed and distributed a survey tool to capture information included on the Simplified Asset Inventory submitted with this report. Follow-up questions were asked when needed to acquire more detail and an explanation for the services described. TAP gathered similar information through their community assessment process with key informants, stakeholders, and focus groups.

Follow-up questions were asked to organizations that provided any type of access to the public. Topics covered included:

1. Digital Access Type
 - a. Number of units available
 - b. Reliability of internet connection
 - c. Costs and Time restrictions

2. Organizational Entity
3. Description of Services Offered
 - a. Can users bring their own device?
 - b. Is there a help desk?
 - c. Are there digital literacy classes?
4. Covered Populations Served

The strength of this region is the public library system, which has worked to develop access to internet, equipment, and knowledge. 52 library branch locations span the region providing a range of services including free Wi-Fi access, printing services, computer labs, reference librarian assistance, digital literacy skills classes, and free device loaning programs. Participants in our engagement process noted that libraries are a trusted and accessible partner. No other nonprofit, business, or service matches the footprint of the public library system for internet service delivery.

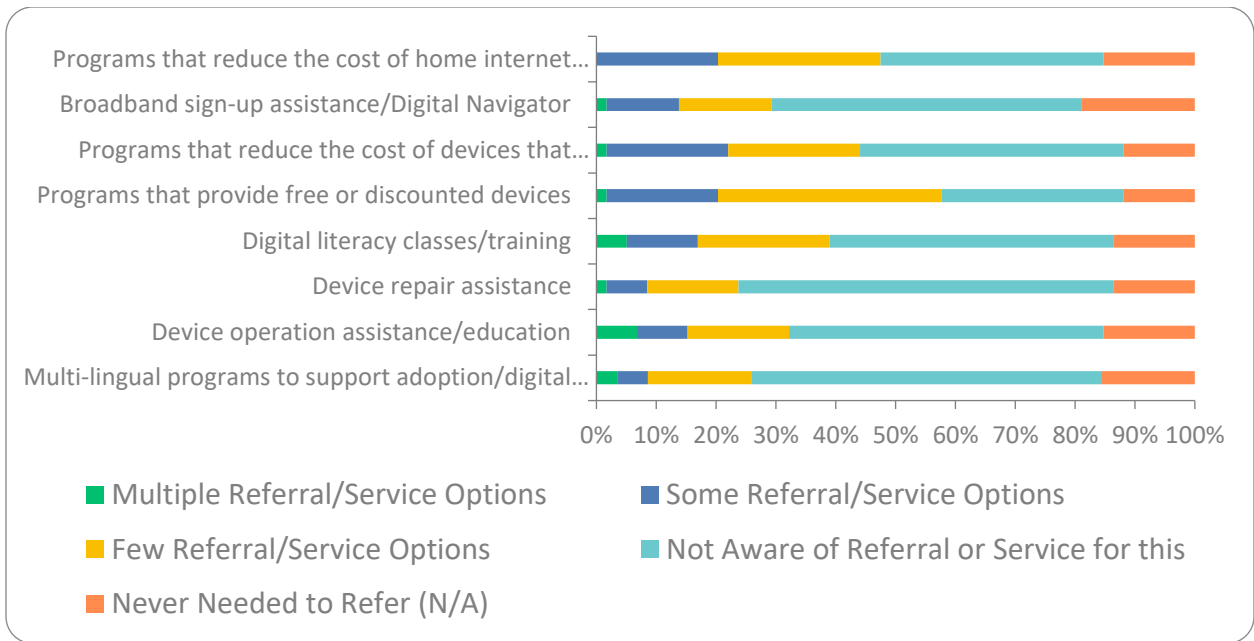
The public school system is another notable asset providing free devices including laptops, hot spots when possible, and skills training throughout the region. Public schools also issue Chromebooks to students at different grade levels. Internet safety and digital citizenship could be addressed through this Google/school system partnership.

Free Wi-Fi connections are available throughout the region at nonprofit locations and municipal properties. Due to the multiple interstate intersections across the region, there are also a large number of commercial businesses that have access to free Wi-Fi for travelers and residents.

Access to free or reduced cost devices is not as widespread and is primarily available at libraries and public schools. Many nonprofits work with their clientele to connect them with programs including the FCC Affordable Connectivity Program, FCC Lifeline Program, and others that can help meet that need.

Digital Literacy/Skills Classes are available, but only schools offer them on a regular basis. Programs are often developed in response to a particular need or change in circumstances for the clients served and are reliant upon available and updated devices.

When asked about specific resources to address the digital divide in the region the most selected options were “not aware of referral or service for this” followed by “few referral/service options.”

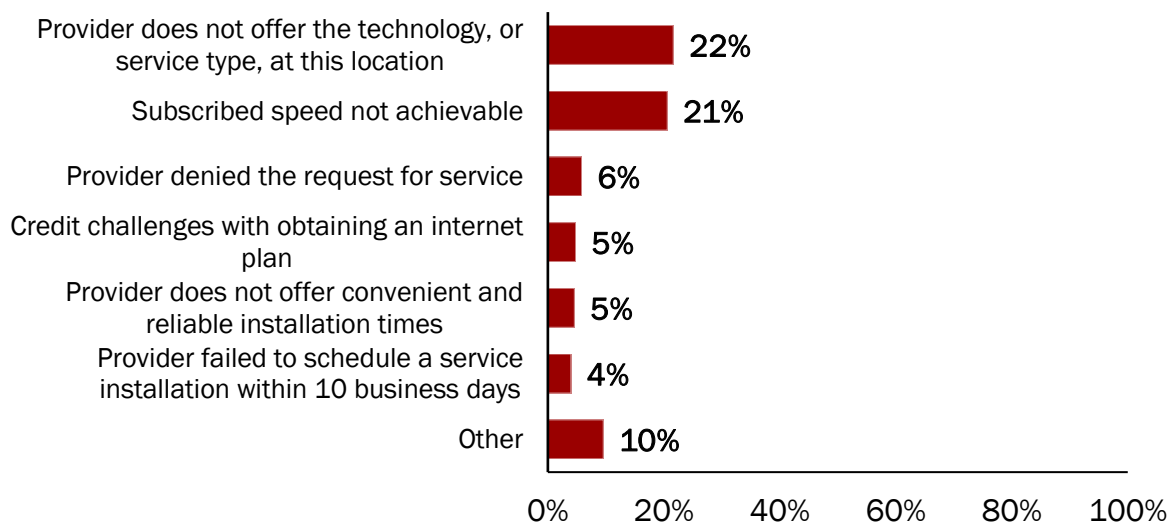


The Asset Inventory included as an appendix provides more detailed information on the types of resources already available in the region.

Availability to Access

Broadband Access: Survey Responses

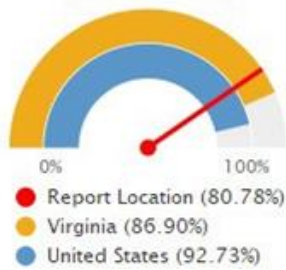
Survey participants were asked about their experience with accessing the internet. The most common problem reported was that the technology was not available at their location, followed by having the subscribed speed not be achievable at their location.



Of those who responded to “What is the main reason why you do not have internet access at home?” 32% stated that service was not available in their area.

Broadband Access: Demographic Data

Percentage of Population with Access to Broadband Internet (DL Speeds > 25MBPS)



Data Source: FCC FABRIC Data. Additional data analysis by CARES, December 2022. Source geography: Tract

The region lags behind state and national averages for access to high-speed internet. The data is based on the reported service area providers offering download speeds of 25MBPS or more and upload speeds of 3 MBPS or more for both fixed/terrestrial wireless internet providers. Cellular providers are not included.

Report Area	Access to DL Speeds >= 25MBPS and UL Speeds >= 3 MBPS	Population Density (Per square mile)
Report Location	80.78%	108
Alleghany County, VA	81.56%	34
Augusta County, VA	70.62%	80
Bath County, VA	65.63%	8
Botetourt County, VA	77.04%	62
Craig County, VA	73.36%	15
Floyd County, VA	46.80%	41
Franklin County, VA	69.19%	79
Giles County, VA	81.50%	47
Highland County, VA	63.81%	5
Montgomery County, VA	83.90%	257
Patrick County, VA	26.77%	37
Pulaski County, VA	77.07%	106
Roanoke County, VA	95.19%	384
Rockbridge County, VA	73.86%	38
Rockingham County, VA	72.40%	98
Covington City, VA	99.39%	1,045
Harrisonburg City, VA	98.30%	3,003
Lexington City, VA	99.86%	2,916
Radford City, VA	98.41%	1,675
Roanoke City, VA	99.91%	2,342
Salem City, VA	99.90%	1,745
Staunton City, VA	98.95%	1,273
Waynesboro City, VA	98.90%	1,480
Virginia	86.90%	217
United States	92.73%	93

Broadband access by locality compared with population density figures show that the more rural a location, the less likely they are to have access to broadband.

The localities with the highest population density (in green) are very likely to have a higher percentage of households with access to broadband than the state average.

Localities with the lowest population density have far less broadband access than the state average. Highland County has both the lowest population density (5 per square mile) AND the lowest percentage of households (63.8%) with broadband access.

Data Source: FCC FABRIC Data. Additional data analysis by CARES. December 2022. Source geography: Tract

Broadband Access: Community Engagement Results

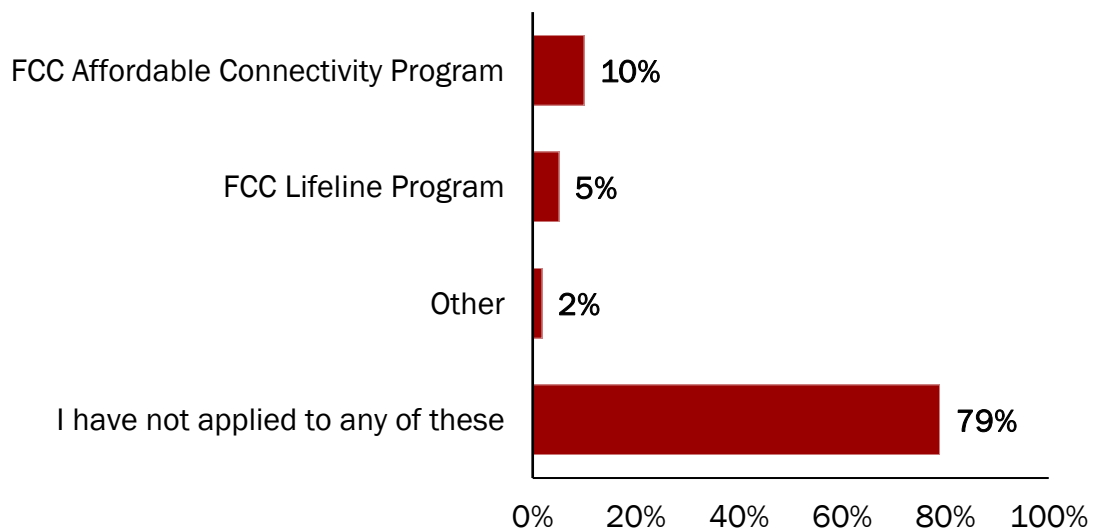
Rural residents in the region reported a lack of access to broadband. Additional barriers to access discussed in the community engagement events include:

- High cost of connecting to broadband
- Lack of providers
- Limited infrastructure leading to poor connections and interruptions in service
- High cost of devices
- Lack of cell towers to assist in types of internet delivery
- Lack of knowledge about resources to address these issues
- Large number of people access the internet via cell phones exclusively
- The lack of cell phone towers/service and the introduction of fiber-based internet access in some communities has removed landline availability and required users to convert to VOIP services. In power outages this creates a vacuum of access to emergency services, life-alerting systems, and 9-1-1.
- Topography
- National Radio Quiet Zone

Availability: Affordability

Broadband Affordability: Survey Responses

When asked about the main reason they did not have internet access at home, 40% of respondents said it was too expensive. 70% of all respondents were not aware of existing programs to help address this barrier. Similarly, 79% of respondents have NOT applied for those programs.



Broadband Affordability: Demographic Data

Population in Poverty, Percent



Note: This indicator is compared to the state average.

Data Source: US Census Bureau, American Community Survey, 2017-21. Source geography: Tract

Within the region, 14.02% of households have income at or below 100% of the Federal Poverty Line. Montgomery County (24.7%) and the Cities of Harrisonburg (25.8%), Lexington (22.8%), and Radford (35.3%) all report poverty rates more than double the state average. An additional 13 localities report rates higher than the state average ranging from Rockbridge County at 10.3% to Bath County at 19.4%.

Additionally, the 2021 median annual household income for every locality in the region is below that of the state of Virginia.

Cost-Burdened Households are those whose housing costs are 30% or more than the total household income.

The region has a lower percentage (24.41%) than the state (28.17%), however 7 localities are HIGHER than the state average.

Roughly 79,000 households in the region are considered cost burdened.

Note: This indicator is compared to the state average.

Data Source: US Census Bureau, American Community Survey, 2017-21. Source geography: Tract

Report Area	Cost-Burdened Households, Percent
Report Location	24.41%
Alleghany County, VA	18.41%
Augusta County, VA	20.95%
Bath County, VA	20.41%
Botetourt County, VA	18.04%
Craig County, VA	15.66%
Floyd County, VA	21.87%
Franklin County, VA	19.82%
Giles County, VA	15.31%
Highland County, VA	13.68%
Montgomery County, VA	27.64%
Patrick County, VA	15.56%
Pulaski County, VA	21.93%
Roanoke County, VA	22.26%
Rockbridge County, VA	19.00%
Rockingham County, VA	19.90%
Covington City, VA	17.98%
Harrisonburg City, VA	32.86%
Lexington City, VA	29.88%
Radford City, VA	34.01%
Roanoke City, VA	32.88%
Salem City, VA	25.02%
Staunton City, VA	28.94%
Waynesboro City, VA	34.12%
Virginia	28.17%
United States	30.34%

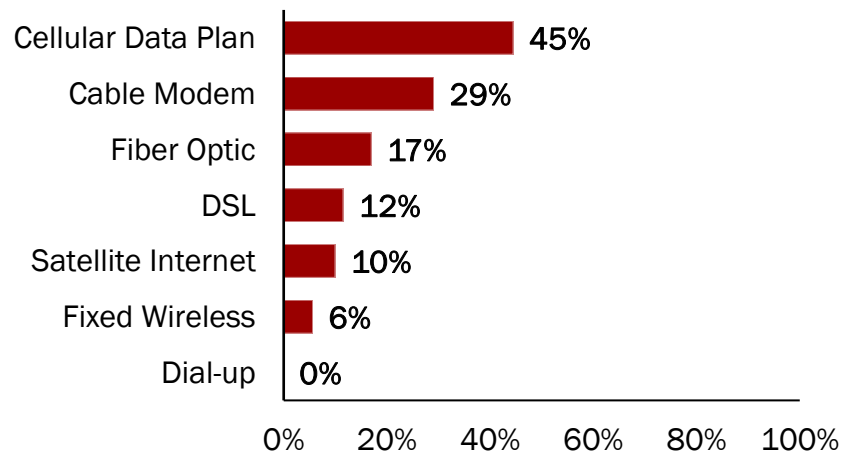
Broadband Affordability: Community Engagement Results:

Low-income families in rural and urban locations report that both broadband services and the devices to use it are often out of their price range. Street-to-home connection fees are prohibitive for many users. Access to free mobile phones requires a physical street address with only one device available per address (especially among vulnerable populations-such as the homeless, domestic violence survivors, and others whose devices are exposed to higher instances of theft and damage.) This means individuals who are homeless/transitory have difficulty obtaining and maintaining access to a mobile device, thereby removing internet access. Low-income residents report a heavy reliance upon smart phones and free Wi-Fi connections to operate those devices.

Adoption

Broadband Adoption: Survey Responses

Almost half of respondents access the internet through a cellular data plan and just under a third use a cable modem.



The vast majority of respondents use a smartphone (87%) to access the internet or a laptop (74%) with 63% using a smart TV or connectors.

Broadband Adoption: Demographic Data

This indicator reports the percentage of households who don't own or use any type of computer, smartphone, tablet, or other type of device. The region (10.38%) as a whole is higher than the state (6.64%). Only Craig County, Montgomery County, and the City of Lexington are lower than the state average. The remaining 20 localities range from a high or 18.15% (Patrick County) to 8.13% (Roanoke County).

Note: This indicator is compared to the state average.

Data Source: US Census Bureau, American Community Survey, 2017-21. Source geography: Tract

Percentage of Households with No Computer



Report Area	Median Age
Report Location	No data
Alleghany County, VA	48.0
Augusta County, VA	45.1
Bath County, VA	50.9
Botetourt County, VA	47.1
Craig County, VA	49.2
Floyd County, VA	48.0
Franklin County, VA	48.1
Giles County, VA	45.1
Highland County, VA	56.5
Montgomery County, VA	30.1
Patrick County, VA	50.4
Pulaski County, VA	47.2
Roanoke County, VA	43.6
Rockbridge County, VA	49.2
Rockingham County, VA	40.3
Covington City, VA	42.2
Harrisonburg City, VA	25.5
Lexington City, VA	22.4
Radford City, VA	23.6
Roanoke City, VA	38.0
Salem City, VA	40.8
Staunton City, VA	40.9
Waynesboro City, VA	39.1
Virginia	38.5
United States	38.4

The **median age** for the state and the country is 38. The localities in our region include a few with a lower median range including the Cities of Harrisonburg, Lexington, and Radford. The remaining municipalities have a higher median age with the rural counties of Highland (56.5), Bath (50.9), and Patrick (50.4) as the oldest. Additional study is needed to confirm a correlation between age, low population density, and income for adoption of broadband.

Data Source: US Census Bureau, American Community Survey, 2017-21. Source geography: Tract

Additional demographics which may impact adoption practices:



Incarceration rates appear to mirror that of the state and national averages. Additional demographic data is not available for all of the localities in the region.

Note: This indicator is compared to the state average.

Data Source: US Census Bureau, American Community Survey, 2017-21. Source geography: Tract

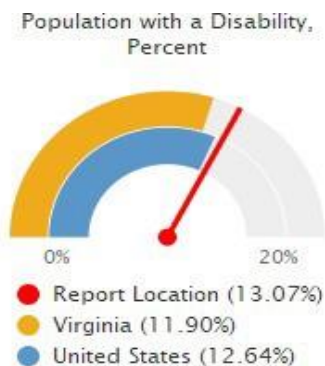
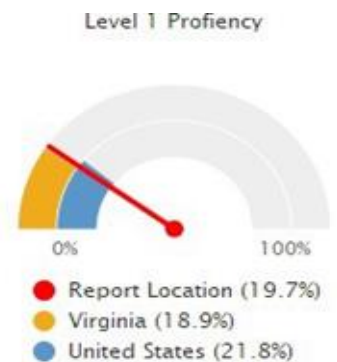
Literacy data breaks adult literacy into three different "Levels". Those reported as Level 1 are at risk of being able to understand printed material.

“Those at the upper end of Level 1 can read and understand the text well enough to be able to perform small tasks but might have difficulty understanding or drawing inferences from multiple forms of text. Those at the lower end may struggle with basic vocabulary or even be functionally illiterate.

The percentage at or below Level 1 for literacy in the report area is estimated at 19.7%, with a 95% probability that the actual (true, unknown) percentage is between 15.7% and 23.9%.”

Note: This indicator is compared to the state average.

Data Source: National Center for Education Statistics, NCES - Program for the International Assessment of Adult Competencies, 2017.



The percentage of civilian non-institutionalized population with a disability also trends higher than that of the state. This potentially plays a role in adoption of broadband. Just over 13%, or 106,885, of residents have a disability. Highland County is the highest with 22.75% followed by Pulaski County at 20.81%.

Note: This indicator is compared to the state average.

Data Source: Opportunity Insights, 2018. Source geography: Tract

The region as a whole has a lower percentage (3.73%) of residents with a Hearing related disability compared to the state (3.29%). Closer examination shows that Highland County at 12.2%, Alleghany County at 6.9%, and Patrick County at 5.53% have more residents impacted by hearing difficulty. Highland County has a higher percentage (6.64%) of residents with vision difficulties than the state (2.34%) and the remaining

localities. Pulaski County (12.4%) and Patrick County (10.99%) have higher rates of residents with ambulatory concerns than the state and the remaining municipalities in the region.

The chart below reports the percentage of population by race alone in each locality included in the region. The City of Roanoke (60.08%) is the only municipality with a lower percentage of “white” population than the state (64.95%). The Cities of Waynesboro (77.63%), and Harrisonburg (73.17%) are the next lowest. Over 90% of the population is “white” in twelve counties.

Report Area	White	Black	Asian	Native American or Alaska Native	Native Hawaiian or Pacific Islander	Some other Race	Multiple
Report Location	84.26%	8.25%	2.28%	0.24%	0.08%	1.00%	3.88%
Alleghany County, VA	92.75%	5.55%	0.03%	0.00%	0.00%	0.28%	1.40%
Augusta County, VA	91.59%	4.35%	0.61%	0.19%	0.10%	0.84%	2.32%
Bath County, VA	95.64%	3.65%	0.28%	0.42%	0.00%	0.00%	0.00%
Botetourt County, VA	93.03%	2.58%	0.54%	0.21%	0.22%	0.31%	3.11%
Craig County, VA	96.15%	0.04%	0.00%	0.00%	0.00%	0.00%	3.81%
Floyd County, VA	94.28%	2.80%	0.47%	0.28%	0.00%	0.44%	1.72%
Franklin County, VA	88.28%	7.73%	0.66%	0.38%	0.01%	0.43%	2.50%
Giles County, VA	95.72%	1.88%	0.02%	0.00%	0.35%	0.00%	2.03%
Highland County, VA	92.33%	0.00%	3.10%	0.00%	0.00%	0.00%	4.58%
Montgomery County, VA	84.90%	4.26%	6.46%	0.41%	0.17%	1.09%	2.72%
Patrick County, VA	91.45%	5.70%	0.43%	0.25%	0.00%	0.95%	1.22%
Pulaski County, VA	91.76%	4.97%	0.65%	0.04%	0.16%	0.39%	2.04%
Roanoke County, VA	86.84%	5.81%	3.60%	0.16%	0.04%	0.70%	2.86%
Rockbridge County, VA	92.38%	4.02%	0.91%	0.49%	0.00%	0.34%	1.86%
Rockingham County, VA	91.46%	2.63%	0.87%	0.07%	0.06%	1.07%	3.84%
Covington City, VA	81.75%	12.14%	1.21%	0.00%	0.00%	0.00%	4.90%
Harrisonburg City, VA	73.17%	7.23%	3.12%	0.42%	0.00%	4.14%	11.92%
Lexington City, VA	82.71%	5.52%	4.01%	0.29%	0.00%	1.36%	6.12%
Radford City, VA	84.60%	9.15%	1.87%	0.03%	0.06%	0.73%	3.57%
Roanoke City, VA	60.08%	29.35%	3.21%	0.19%	0.07%	1.11%	5.98%
Salem City, VA	86.00%	7.17%	1.85%	0.11%	0.08%	1.24%	3.54%
Staunton City, VA	82.36%	11.22%	1.34%	0.43%	0.27%	0.65%	3.72%
Waynesboro City, VA	77.63%	11.48%	1.55%	0.58%	0.00%	1.23%	7.54%
Virginia	64.95%	19.01%	6.74%	0.28%	0.06%	3.09%	5.86%
United States	68.17%	12.55%	5.70%	0.83%	0.19%	5.58%	6.99%

Data Source: US Census Bureau, American Community Survey, 2017-21.

Adoption: Community Engagement Results:

The reasons for not adopting broadband are as varied as the localities in the region, however, overarching themes included:

- Lack of broadband infrastructure.
- Affordability of services and devices.
- Lack of transportation to public Wi-Fi.
- Lack of knowledge about existing supports.
- Lack of skills needed to safely access broadband.
- Lack of accessible websites.
- Immediate technical assistance/help line when an issue arises.

4 Collaboration and Stakeholder Engagement

Statewide Survey Distribution Plan:

Each Community Action Agency working in the region is in a unique position within their perspective service areas to distribute the statewide survey and coordinate focus groups, community meetings, and key informant interviews. The demographics of those served by CAA's include the populations defined in the Digital Opportunity Grant. CAAs leveraged their existing coalitions and relationships with community service providers and municipalities to conduct this regional needs assessment.

Each CAA distributed the statewide survey through its network of nonprofit and human service agencies. Additional partners in survey distribution included the municipalities served by each CAA as well as those included in this assessment process.

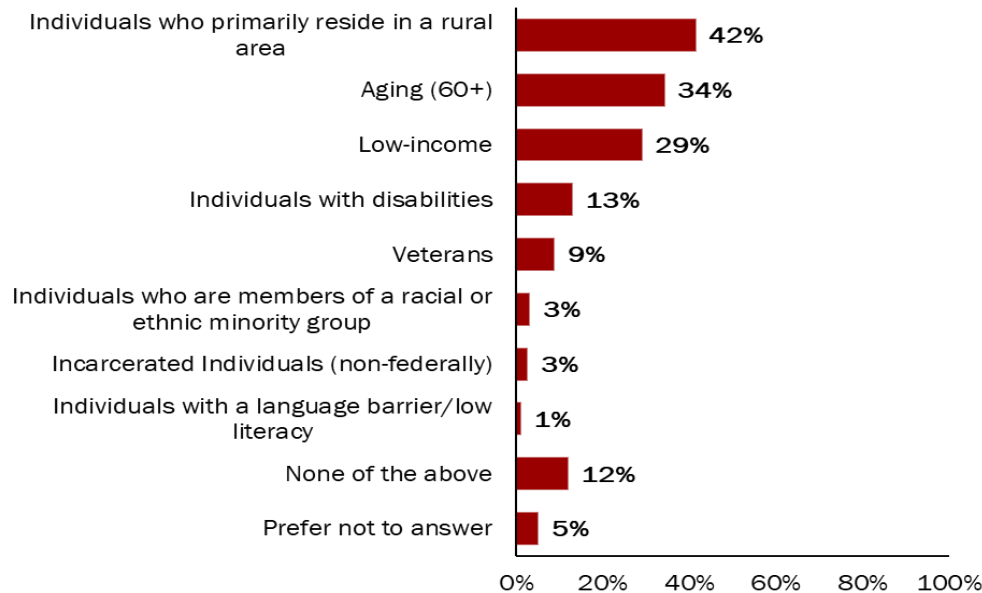
Paper copies were placed in locations including the Department of Social Services, Redevelopment and Housing Authority offices, public libraries and other locations as determined by each CAA.

Key findings provided by DHCD after analysis of over 1,000 responses from the region include:

- Most respondents (71%) have both a home internet subscription and a wireless cellular plan.
- Almost half of respondents (45%) connect to the internet using their cellular data plan. Some (29%) use a cable modem.
- Of those who CANNOT access the internet, 40% do not because it is too expensive.
- The devices most often used to access the internet are a smart phone (87%) or laptop (74%).

- Respondents are comfortable doing most tasks on the internet, except attending doctors' appointments.
- Most respondents (79%) have not applied to a program for internet accessibility, and only one-third (30%) are aware of these programs.

The highest percentage of responses came from those who live in a rural area followed by the aging (60+) and those with low incomes.



Community Meetings, Focus Groups, and Key Informant Interviews:

The Community Engagement plan resulted in 73 sessions reaching 353 representatives of the counties and cities included in the region.

Four Community Outreach Sessions were held with participation from rural residents, veterans, low-income families, and nonprofit leaders.

Nine listening sessions occurred with participants from a youth leadership summit, residents of a low-income community, those with low English literacy, adult education students, literacy program participants, job skills training program participants, teachers/school administrators, parents of students enrolled in after school programming, health care providers, and community organizations supporting relocation services.

Fifteen focus groups were held with Aging Services staff, Youth Program Staff, Veterans, Housing Support Program Staff, Nonprofit staff, Library Directors, Planning District Staff, Justice Involved Service Providers, Nonprofit Executive Directors, Homeless Shelter residents, Homeless Services Case Managers, DSS Staff, and low-English literacy support program staff.

Finally, over 40 Key Informant interviews were held with a wide variety of individuals representing subject matter experts from Chambers of Commerce, Libraries, Broadband Service Providers, Medical Centers, Schools, Community Colleges, Adult Education Providers, Planning District Staff, Local Government Representatives, Religious Institutions, Food Bank Staff, Housing Directors, and others.

An outline of the obstacles and potential solutions was shared with the local planning district staff as well as local government representatives for comment and input before this report was completed. Communication with many participants in this process is ongoing and will be instrumental as we move forward toward implementation. Driving the suggested next steps is the creation of formal coalitions at the locality level to include Community Action Agencies, other stakeholders, and service providers.

Among **internet service providers**, the overarching barrier to digital equity is getting it built out. The topography in the region is difficult, crossing railroads, going through rock and mountain ranges. There is also a shortage of labor to build out, a shortage of fiber and people to splice the fiber and get it into the ground. Providers share a common concern that the public is not well informed about discounts and ways to make the internet more affordable for low-income families. There is a high demand for internet accessibility, but the above issues do not allow many homes the accessibility they desire.

Municipalities see the main barriers to digital access as running the middle mile past the house, the cost to connect from middle mile to home, and citizens having enough money to sign up. Local governments are being creative by expanding Wi-Fi in parks, outside libraries and in community outreach centers. Overall, there was unanimity among governments that citizens do not know what resources exist to assist them with devices and internet access.

All the school systems in the covered areas provide a device for children Pre-K- 12. The devices vary, from Chromebooks to iPads to laptops. Some school divisions allow students to take them home, but the division with the most rural topography does not allow homework to be required over the internet since there is such a wide swath of terrain without broadband access. Most schools have hotspots available for checkout through their libraries. All school systems felt a need for more tech support staffing to address cyber-criminal activity as well as the digital literacy needs of staff and students. IT Directors and guidance staff are concerned for students' safety (particularly on mobile devices which are not monitored by the school system) and mental health as increased exposure to the internet and social media seems to exacerbate bullying and other social pressures leading to depression, anxiety, and a variety of other related issues among the students they are serving.

Within the **nonprofit segment**, it was notable that individuals with a language barrier who are English learners and/or have low levels of literacy and individuals with disabilities seem to have the least access to both devices and internet. Websites are not particularly user friendly for these populations, and there is a lack of knowledge and

resources to assist these individuals. All organizations serving these marginalized populations expressed a desire to expand digital literacy classes, provide more laptops and offer more tech support to families, but lack the funding to expand in these areas.

All nonprofits agreed that **affordability** is one of the biggest factors in preventing families seeking internet service. Many expressed frustration that the internet has not been price regulated and as such, low-income families end up dropping it as the prices continue to increase. Overwhelmingly, nonprofit staff felt that low-income families need a one-stop shop to know where to go for digital literacy skills, discounts on internet and devices and tech support. Several agencies suggested a mobile tech unit to offer support. This may be something that could be achieved through partnerships with existing mobile services already offered by libraries, food banks, and other human service agencies.

Among the groups of individuals interviewed, there was a desire for more classes within the community around digital literacy. This includes classes related to cyber safety for all target populations included in this assessment.

The Engagement Tracker and List of Organizations is included in this report.

5 Implementation

The primary goal for the region is to increase access to, and full participation in, the digital community across all areas of social engagement. Target populations include individuals over 65, rural residents, incarcerated individuals, those with disabilities, individuals with a language barrier, veterans, low-income households, and those who are members of racial or ethnic minority groups.

To accomplish the goal of expanded access and to reduce the physical, economic, skills-based, and adoption barriers, the region seeks to create municipally centered planning teams to oversee implementation of the suggested strategies. Success will be achieved through a focus on the activities identified by the National Digital Inclusion Alliance, or NDIA, as essential to ensure digital equity is achieved.

The key elements of the implementation plan include affordability, devices, digital skills, technical support, and digital navigation. Core activities will focus on those identified by the NDIA upon which our assessment process was based including:

1. Affordable, robust broadband internet services;
2. Internet-enabled devices that meet the needs of the user;
3. Access to digital literacy training;
4. Quality technical support; and

5. Applications and online content are designed to enable and encourage self-sufficiency, participation, and collaboration.

Essential to the success of statewide efforts is the selection and financial support of lead agencies for regional commissions/planning teams comprised of existing community stakeholders, Community Action Agencies, and service providers. Regional team leads would participate in the state group providing opportunities to share successes, create standardized curricula, and advocate for statewide change on issues that require attention beyond the regional level. The regional commission/planning team would implement the activities described below.

The CAA Regional Coalition suggests that these teams be developed based on established regional borders such as Community Action Agency service areas, Regional Digital Opportunity Planning Grant sub-regions, public library footprints, Continuum of Care catchment areas, or planning districts for example. The municipal governments, Community Action Agencies, nonprofit organizations, schools, and other groups within these defined areas are already familiar with the region, connected with resources, and have established relationships with residents and local funding streams.

These regional teams would support the following activities and outcomes initially responsive to the information contained in this report with ongoing assessment and planning efforts. Planning efforts would include identifying funding sources and partner agencies to ensure sustainability moving forward.

The timeline for implementation is ultimately dependent upon the amount of funding available and associated performance contracts. This plan assumes that a period of time will be devoted to planning in Phase 1 followed by implementation in Phase 2. The lead agency selected to coordinate regional implementation efforts will have primary responsibility for updating the plan on an annual basis. The regional planning group should monitor the progress of the plan bi-annually at a minimum and participate in the annual update. Regional Planning teams should assess the state of digital equity and issue updated Digital Opportunity Plans on a cycle determined by the statewide work group.

The first strategy that is central to successful implementation is the creation of a statewide work group including the Virginia Community Action Partnership to coordinate and support the efforts of regional commissions/planning teams. This statewide work group would provide technical support and guidance to implement programming that crosses regional borders and/or requires a higher level of authority than municipal regulations allow. Suggested activities would include:

- Development of a statewide broadband asset inventory that is updated regularly
- Creation of a statewide marketing plan to support the efforts of regional implementation teams

- Development of standardized products for digital equity and literacy among internet service providers
- Incentivize internet service providers to serve rural, low-income, and low population density areas
- Incentivize internet service providers to fund “train-the-trainer” programs to link nonprofits and other services with access to the latest in technical expertise creating a bridge to broader adoption practices
- Advocate for increased funding opportunities for Community Action Agencies, libraries, and nonprofits to increase their digital literacy and technical support programming
- Incentivize internet service providers to establish communication offices to respond to inquiries from residents, municipalities, and local planning teams
- Develop innovative solutions to solve allocation of free mobile phones by address
- Advocate for mandated social media and internet etiquette education courses in public schools
- Advocate for sustained funding to support IT needs in public schools, libraries, Community Action Agencies, and nonprofits including tech support and access to continually updated technology
- Develop a digital equity lens for public officials to use when updating or creating public policy
- Develop tools to encourage internet providers and government leaders to act on digital opportunity plan implementation

Phase 1 includes the activities and outcomes for the immediate future expected within six months to a year. Phase 2 includes those for the short-term (two to five years) and long-term (five to ten years). The Asset Inventory included with this report documents that every locality has existing programming that could be expanded or built upon as part of the digital opportunity plan implementation. The timeline for implementing Phase 2 will likely vary based on the existing local conditions and existing programming. Regional planning groups will be best positioned to develop the partnerships and collaborations required to bring more resources to bear upon the identified barriers.

The overarching outcome of the plan is improvement in the Digital Divide Index or DDI. This DDI is comprised of both an infrastructure/adoption score and a socioeconomic score (<https://storymaps.arcgis.com/stories/8ad45c48ba5c43d8ad36240ff0ea0dc7>). The DDI ranges from 0 – 100 with the higher score representing the most severe digital divide. DDI scores are available by census tract, Congressional District, and individual county. The planning groups can use this information to determine where the highest level of need exists and plan implementation efforts accordingly.

Affordable, Robust Broadband Internet Service		
Goal 1: Create and support a regional commission/planning team comprised of existing community stakeholders, Community Action Agencies, and service providers to guide implementation of activities.		
Phase 1		
Activities	Outcomes	Partners
Establish lead agency	Meeting Minutes	State Level Team
Develop team of stakeholders	Attendance Records	Lead Agency
Develop specific contacts within municipal government and internet service providers for planning team participation	Mission Statement	Community Action
Develop Strategic Plan with timelines for implementation	Strategic Plan	Planning District
Create sustainability plan	Survey Tool	Local Government
Develop survey or other tool to measure impact on Digital Divide Index Score		Public Libraries
Develop statewide broadband asset inventory		Schools
Develop a digital equity lens for public officials to use when updating or creating public policy		Nonprofits
		Internet providers
		(others as determined by locality conditions)
Phase 2		
Activities	Outcomes	Partners
Implement Strategic Plan	Navigation Services <i>(outcomes determined by planning teams)</i>	Lead Agency
Identify Funding Sources		Community Action
Staff and Launch Programs	# individuals served	Planning District
Expand free wi-Fi in public spaces (fiber rings installed in public spaces)	Improved Digital Divide Index Score	Local Government
Expand access to hot-spots through libraries, schools, community agencies, etc.		Public Libraries
Develop centralized data base for public to learn where to get wi-fi, low-cost devices, affordable internet plans, tech support		Schools
Distribute survey or other tool to measure impact		Nonprofits
		Internet providers
		(others as determined by local conditions)

Internet-enabled Devices that Meet the Needs of the User		
Goal: Develop Digital Navigation Services to serve as "trusted guides who assist community members in internet adoption and use of computing devices. Digital Navigation includes ongoing assistance with affordable internet access, device acquisition, technical skills, and application support."		
Phase 2		
Activities	Outcomes	Partners
Hire digital navigator(s)	Navigation Services (outcomes determined by planning teams)	Lead Agency
Coordinate training programs in the community		Community Action
Coordinate a marketing campaign	# individuals served	Planning District
Regular update of Asset Inventory	updated Asset Inventory	Local Government
Assist in enrollment for Affordable Connectivity Program or other programs available to assist with increasing affordability	# individuals enrolled	Public Libraries
Develop innovative solutions to allocate free mobile phones by address	Improved Digital Divide Index Score	Schools
		Nonprofits
		Internet providers
		(others as determined by local conditions)

Access to Digital Literacy Training		
Goal: Ongoing and continued investments in both means tested and non-means tested services to support adoption of broadband and improve digital literacy		
Phase 2		
Activities	Outcomes	Partners
<p>Develop standard product for digital literacy</p> <p>Develop curriculums for multiple age ranges/languages addressing digital literacy and safety</p> <p>Develop curriculums for digital literacy upskilling (from beginner level to advanced) including peer training and train-the-trainer models</p> <p>Develop better ways to limit access to restricted sites while allowing access to beneficial ones</p> <p>Advocate for increased funding opportunities for schools, libraries, and nonprofits to increase their digital literacy and technical support programming</p> <p>Advocate for mandated social media and internet etiquette education courses for public schools</p>	<p>Navigation Services (outcomes determined by planning teams)</p> <p>Digital literacy products launched</p> <p># and type of curriculums developed</p> <p># individuals served</p> <p>Improved Digital Divide Index Score</p>	<p>State Level Team</p> <p>Lead Agency</p> <p>Community Action</p> <p>Planning District</p> <p>Local Government</p> <p>Public Libraries</p> <p>Schools</p> <p>Nonprofits</p> <p>Internet providers</p> <p>(others as determined by local conditions)</p>

Quality Technical Support		
Goal: Develop and fund a staffed support line or services to provide ongoing, on demand and/or mobile tech support.		
<i>Phase 2</i>		
Activities	Outcomes	Partners
<p>Coordinate with Digital Navigator program to identify priority community needs</p> <p>Provide one-on-one technical assistance related to: Selection of technology and internet services</p> <p>Instruction on how to use individual devices</p> <p>Provide min-grants to non-profits / community partners to upgrade devices, internet, and provide hot spots as needed.</p> <p>Create coordinated marketing campaign on privacy and cyber security issues</p> <p>Develop a staffed support line to provide technical support on demand</p> <p>Advocate for sustained funding to support IT needs in public schools, libraries, and nonprofits including technical support and access to continually update technology as needed.</p>	<p>Navigation Services (outcomes determined by planning teams)</p> <p># of individuals served</p> <p># assistance tickets closed successfully</p> <p>Improved Digital Divide Index Score</p>	<p>State Level Team</p> <p>Lead Agency</p> <p>Community Action</p> <p>Planning District</p> <p>Local Government</p> <p>Public Libraries</p> <p>Schools</p> <p>Nonprofits</p> <p>Internet providers</p> <p>(others as determined by local conditions)</p>

Applications and online content designed to enable and encourage self-sufficiency, participation, and collaboration.		
Goal: Develop accessible, mobile friendly websites across the spectrum of businesses and services		
Phase 2		
Activities	Outcomes	Partners
Identify accessibility audit process	# of accessibility audits conducted	Lead Agency
Promote accessibility audit program	# sites with improved accessibility	Community Action
Develop a template or guide for improvements to sites based on the accessibility audit results		Planning District
Identify solutions for translation needs including devices and other tools for programs serving those with low English literacy	Improved Digital Divide Index Score	Local Government
	# assistance tickets closed successfully	Public Libraries
		Schools
	Improved Digital Divide Index Score	Nonprofits
		Internet providers
		(others as determined by local conditions)

6 Conclusion

Achieving Maximum Impact: Addressing Infrastructure Barriers and Social Barriers

Merely increasing the capacity of fiber-based broadband networks alone is not likely to have a significant impact on the target populations—especially in the near-term. In many of the localities studied, expanding, and improving reliable coverage areas for wireless communications—including wireless internet providers and traditional cellular service—is an essential intervention that should be rolled out alongside investments in fiber internet service and the digital opportunity activities included here.

Social supports are especially important to consider in reaching the covered populations assessed. In conducting the numerous interviews and input sessions throughout the service area, a common refrain was that both low-income people *and the programs serving them* were unaware of existing services to connect with low or reduced cost

internet access. Those who were aware often indicated they had difficulty in accessing information, completing applications, and connecting with subject matter experts on internet subsidies. Where programs exist to provide free and low-cost cell phones, logistical barriers and programmatic restrictions often prevent the programs from being as impactful as they might be. Examples include restrictions such as one phone per physical address of particular impact on the homeless population and the volume of documentation requested to complete application processes for subsidies.

A digital navigation program combined with other coordinated efforts will reduce the barriers covered populations face when seeking access to the free and low-cost devices that are often their only form of access for digital services. The expansion of existing free and subsidized services and devices for covered populations is a key step to reducing the digital divide—however, it must incorporate digital navigators, centralized/standardized platforms, and information-sharing practices, along with other forms of outreach to covered populations in order to be fully effective.

Further social supports, such as public resources for technical support, increasing digital competency through targeted sessions on key issues (such as digital safety for parents and kids, information security, accessing telehealth resources) and improving website accessibility (especially mobile-friendly website improvements) in key social / public institutions is strongly recommended. Additionally, increased funding for key community institutions (Community Action Agencies, municipal governments, school systems, libraries, literacy nonprofits, etc.) to increase their staff capacity and undergo tech support training will ensure that digital opportunities also address accessibility barriers and benefit the provision of the mainstream services from which the covered populations might otherwise be excluded.

Taken together, these social supports can transform infrastructure improvements in the actual digital divide, which are far more pronounced in the covered populations due to *both* infrastructure and social conditions.

Across the many localities included in this assessment, the best means by which to pair both infrastructure and social support improvements vary widely. Recognizing the scope of challenges different localities face, it is worth acknowledging that institutions best positioned to implement social supports are not likely to be those best able to address infrastructure improvements.

This divide in the nature of the work and those competent to carry out the necessary improvements suggests that a strong governance structure focused on increasing access through a combination of supportive e services and infrastructure upgrades will be a critical component of successful efforts to eliminate the digital divide.

Where legally allowable, infrastructure funding should also include guidance designed to incentivize Internet Service Provider (and others doing infrastructure-only work) participation with the governance structures developed through the suggested statewide and locality specific planning teams. If infrastructure funding allows such ISPs to

ignore or fully opt-out of engaging with social support efforts, it will present a barrier to achieving maximum impact among the covered populations.

It is imperative that devices get into the hands of those who need them, and that broadband service be expanded to allow for easy access in both public and private spaces. The costs associated with these steps is prohibitive making it essential that broadband services and community-based social support programming providing training, education, and technical support be expanded simultaneously. A coordinated and multi-faceted approach is required to achieve a timely and measurable impact on digital equity in the region.

Despite the large and diverse area included in this assessment there are overarching commonalities in the obstacles faced. Proposed solutions provide realistic goals that address the needs of communities within the regional community action coalition service area, and for those subsets that have distinctly unique concerns. Consequently, funding to implement regional Digital Opportunity Plan activities will have the highest impact where it is attuned to the shifting dynamics within the region. This funding will need to be extremely flexible and responsive to the particular obstacles of numerous covered populations across the region to best overcome the barriers to digital equity faced by those living and working there.

7 Appendices

The following documents or information was referenced in this report.

- Stakeholder Engagement Tracker CAPSAW Region
- List of Organizations CAPSAW Region
- Digital Inclusion Asset Inventory CAPSAW Region
- Digital Equity Community Needs Assessment Survey-Service Providers
- Community Action Partnership Report-Demographics (engagementnetwork.org)
- Digital Opportunity Plan Survey Results CAPSAW Region
- 2021 Digital Divide Index:
<https://storymaps.arcgis.com/stories/8ad45c48ba5c43d8ad36240ff0ea0dc7>
- National Digital Inclusion Alliance: <https://www.digitalinclusion.org/>

Digital Equity Community Needs Assessment Survey-Service Providers

SUMMARY → DESIGN SURVEY → PREVIEW & SCORE → COLLECT RESPONSES → ANALYZE RESULTS → **PRESENT RESULTS**

[Back to dashboards](#)

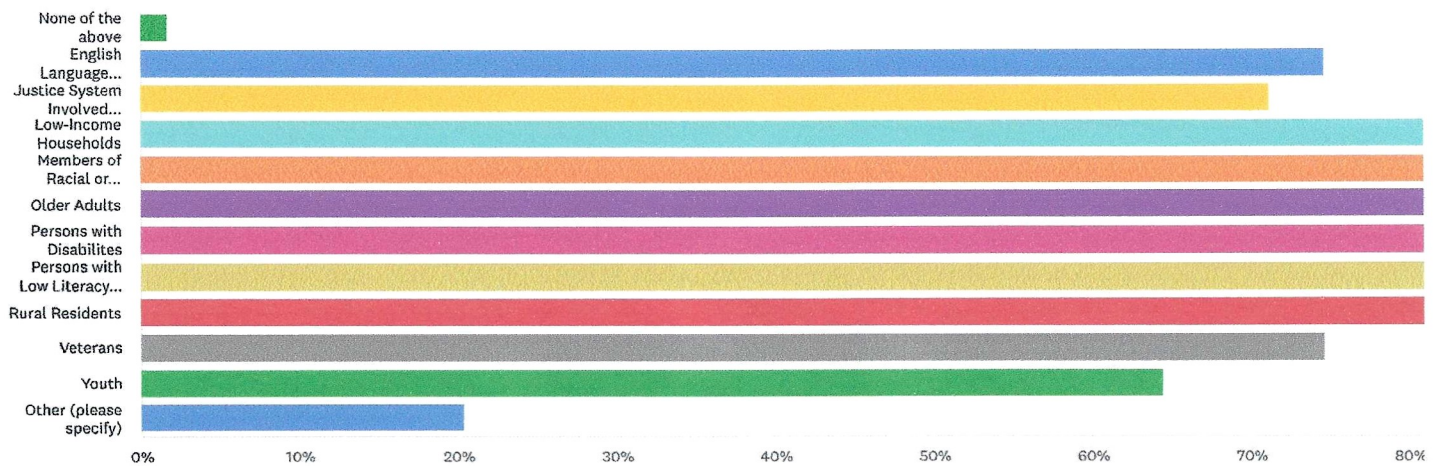
PUBLISH View

Digital Equity Community Needs Assessment Survey-Service Providers

⊕ SUBTITLE

Do you serve individuals in any of the following demographics? Check all that apply. ...

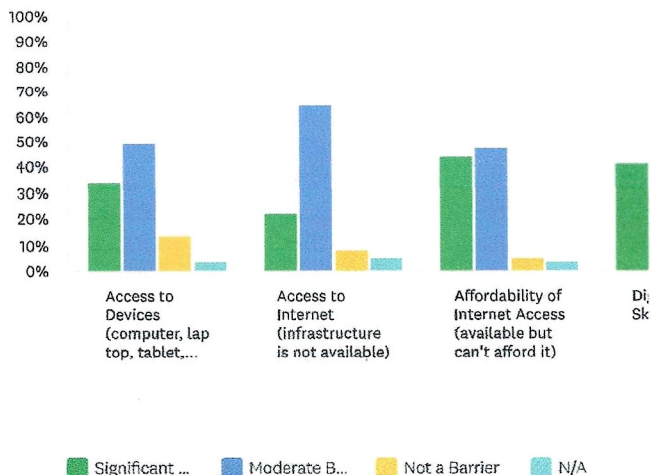
Answered: 59 Skipped: 0



Digital Equity Community Needs Assessment Survey-Service Providers (0)

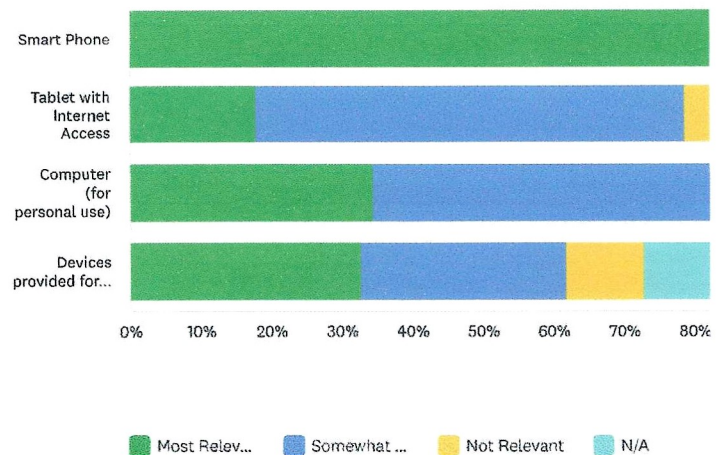
How significant are the following barriers for your customers? ...

Answered: 59 Skipped: 0



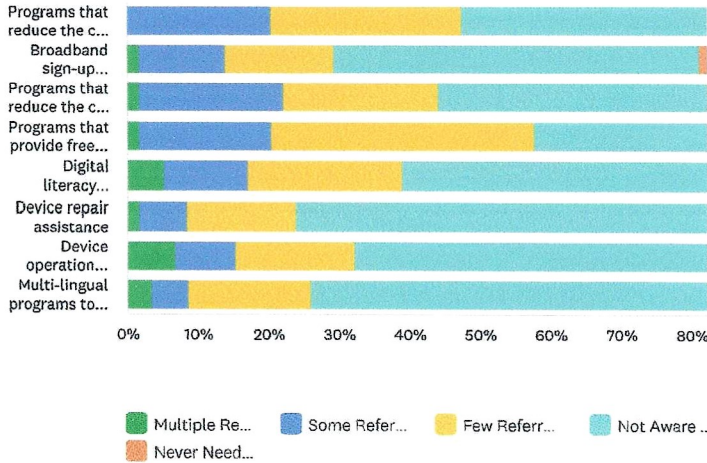
What kinds of devices are most relevant to those you serve? ...

Answered: 59 Skipped: 0



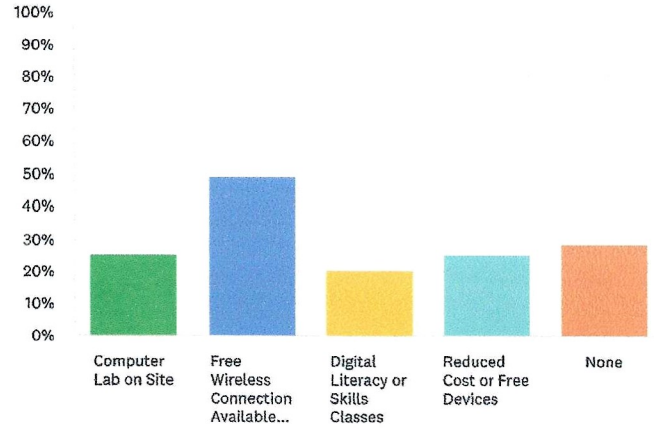
Are there resources to address the digital divide for th...

Answered: 59 Skipped: 0



What resources does your program offer to address th...

Answered: 59 Skipped: 0



Digital Equity Community Needs Assessment Survey-Service Providers

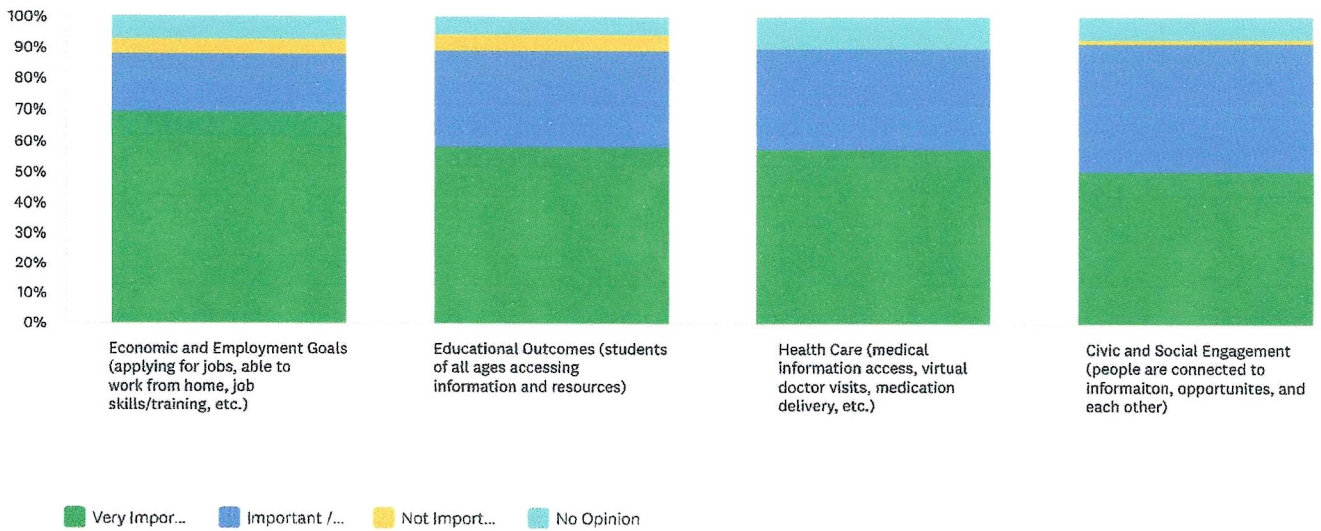
0

Digital Equity Community Needs Assessment Survey-Service Providers

0

How important is access to the internet for your clients in the following areas?

Answered: 59 Skipped: 0



Digital Equity Community Needs Assessment Survey-Service Providers

0



Community Action Partnership Report-Demographic Information

[Assessment Tool – Community Action Partnership](#)

[\(engagementnetwork.org\)](#)

Location

- Alleghany County, VA
- Augusta County, VA
- Bath County, VA
- Botetourt County, VA
- Craig County, VA
- Floyd County, VA
- Franklin County, VA
- Giles County, VA
- Highland County, VA
- Montgomery County, VA
- Patrick County, VA
- Pulaski County, VA
- Roanoke County, VA
- Rockbridge County, VA
- Rockingham County, VA
- Staunton City, VA
- Waynesboro City, VA
- Salem City, VA
- Roanoke City, VA
- Radford City, VA
- Lexington City, VA
- Harrisonburg City, VA
- Covington City, VA

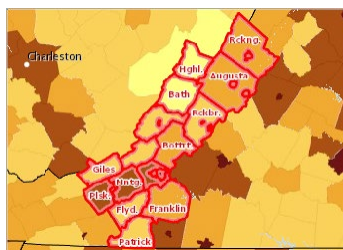
Population Profile

Total Population

A total of 830,865 people live in the 7,669.58 square mile report area defined for this assessment according to the U.S. Census Bureau American Community Survey 2017-21 5-year estimates. The population density for this area, estimated at 108 persons per square mile, is greater than the national average population density of 93 persons per square mile.

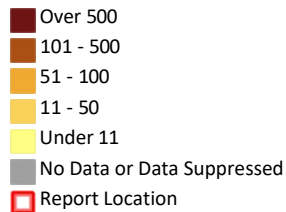
Report Area	Total Population	Total Land Area (Square Miles)	Population Density (Per Square Mile)
Report Location	830,865	7,669.58	108
Alleghany County, VA	15,266	446.57	34
Augusta County, VA	76,948	967.07	80
Bath County, VA	4,243	529.20	8
Botetourt County, VA	33,542	541.28	62
Craig County, VA	4,914	328.10	15
Floyd County, VA	15,536	380.92	41
Franklin County, VA	54,829	690.61	79
Giles County, VA	16,764	357.22	47
Highland County, VA	2,229	415.16	5
Montgomery County, VA	99,294	386.85	257
Patrick County, VA	17,661	482.95	37
Pulaski County, VA	33,893	319.84	106
Roanoke County, VA	96,303	250.55	384
Rockbridge County, VA	22,663	596.55	38
Rockingham County, VA	83,090	849.79	98
Covington City, VA	5,716	5.47	1,045
Harrisonburg City, VA	52,062	17.34	3,003
Lexington City, VA	7,287	2.50	2,916
Radford City, VA	16,205	9.68	1,675
Roanoke City, VA	99,578	42.52	2,342
Salem City, VA	25,335	14.52	1,745
Staunton City, VA	25,358	19.92	1,273
Waynesboro City, VA	22,149	14.97	1,480
Virginia	8,582,479	39,482.12	217
United States	329,725,481	3,533,041.03	93

Data Source: US Census Bureau, American Community Survey, 2017-21. Source geography: Tract



[View larger map](#)

Population, Density (Persons per Sq Mile) by County, ACS 2017-21



Median Age

This indicator reports population median age based on the latest 5-year American Community Survey estimate.

Note: Median age is not re-calculated for report areas consisting of more than one census-designated geography.

Report Area	Total Population	Median Age
Report Location	830,865	No data
Alleghany County, VA	15,266	48.0
Augusta County, VA	76,948	45.1
Bath County, VA	4,243	50.9
Botetourt County, VA	33,542	47.1
Craig County, VA	4,914	49.2
Floyd County, VA	15,536	48.0
Franklin County, VA	54,829	48.1
Giles County, VA	16,764	45.1
Highland County, VA	2,229	56.5
Montgomery County, VA	99,294	30.1
Patrick County, VA	17,661	50.4
Pulaski County, VA	33,893	47.2
Roanoke County, VA	96,303	43.6
Rockbridge County, VA	22,663	49.2
Rockingham County, VA	83,090	40.3
Covington City, VA	5,716	42.2
Harrisonburg City, VA	52,062	25.5
Lexington City, VA	7,287	22.4
Radford City, VA	16,205	23.6
Roanoke City, VA	99,578	38.0
Salem City, VA	25,335	40.8
Staunton City, VA	25,358	40.9
Waynesboro City, VA	22,149	39.1
Virginia	8,582,479	38.5
United States	329,725,481	38.4

Data Source: US Census Bureau, American Community Survey, 2017-21. Source geography: Tract

Total Population by Race Alone, Percent

This indicator reports the percentage of population by race alone in the report area.

The percentage values could be interpreted as, for example, "Of all the population in the report area, the percentage of population who are white is (value)."

Report Area	White	Black	Asian	Native American or Alaska Native	Native Hawaiian or Pacific Islander	Some Other Race	Multiple Race
Report Location	84.26%	8.25%	2.28%	0.24%	0.08%	1.00%	3.88%
Alleghany County, VA	92.75%	5.55%	0.03%	0.00%	0.00%	0.28%	1.40%
Augusta County, VA	91.59%	4.35%	0.61%	0.19%	0.10%	0.84%	2.32%
Bath County, VA	95.64%	3.65%	0.28%	0.42%	0.00%	0.00%	0.00%
Botetourt County, VA	93.03%	2.58%	0.54%	0.21%	0.22%	0.31%	3.11%
Craig County, VA	96.15%	0.04%	0.00%	0.00%	0.00%	0.00%	3.81%
Floyd County, VA	94.28%	2.80%	0.47%	0.28%	0.00%	0.44%	1.72%
Franklin County, VA	88.28%	7.73%	0.66%	0.38%	0.01%	0.43%	2.50%
Giles County, VA	95.72%	1.88%	0.02%	0.00%	0.35%	0.00%	2.03%
Highland County, VA	92.33%	0.00%	3.10%	0.00%	0.00%	0.00%	4.58%
Montgomery County, VA	84.90%	4.26%	6.46%	0.41%	0.17%	1.09%	2.72%
Patrick County, VA	91.45%	5.70%	0.43%	0.25%	0.00%	0.95%	1.22%
Pulaski County, VA	91.76%	4.97%	0.65%	0.04%	0.16%	0.39%	2.04%
Roanoke County, VA	86.84%	5.81%	3.60%	0.16%	0.04%	0.70%	2.86%
Rockbridge County, VA	92.38%	4.02%	0.91%	0.49%	0.00%	0.34%	1.86%
Rockingham County, VA	91.46%	2.63%	0.87%	0.07%	0.06%	1.07%	3.84%
Covington City, VA	81.75%	12.14%	1.21%	0.00%	0.00%	0.00%	4.90%
Harrisonburg City, VA	73.17%	7.23%	3.12%	0.42%	0.00%	4.14%	11.92%
Lexington City, VA	82.71%	5.52%	4.01%	0.29%	0.00%	1.36%	6.12%
Radford City, VA	84.60%	9.15%	1.87%	0.03%	0.06%	0.73%	3.57%
Roanoke City, VA	60.08%	29.35%	3.21%	0.19%	0.07%	1.11%	5.98%
Salem City, VA	86.00%	7.17%	1.85%	0.11%	0.08%	1.24%	3.54%
Staunton City, VA	82.36%	11.22%	1.34%	0.43%	0.27%	0.65%	3.72%
Waynesboro City, VA	77.63%	11.48%	1.55%	0.58%	0.00%	1.23%	7.54%
Virginia	64.95%	19.01%	6.74%	0.28%	0.06%	3.09%	5.86%
United States	68.17%	12.55%	5.70%	0.83%	0.19%	5.58%	6.99%

Data Source: US Census Bureau, American Community Survey, 2017-21.

Population with Any Disability

This indicator reports the percentage of the total civilian non-institutionalized population with a disability. The report area has a total population of 817,520 for whom disability status has been determined, of which 106,885 or 13.07% have any disability. This indicator is relevant because disabled individuals comprise a vulnerable population that requires targeted services and outreach by providers.

Report Area	Total Population (For Whom Disability Status Is Determined)	Population with a Disability	Population with a Disability, Percent
Report Location	817,520	106,885	13.07%
Alleghany County, VA	15,025	2,713	18.06%
Augusta County, VA	73,029	9,774	13.38%
Bath County, VA	4,163	577	13.86%
Botetourt County, VA	33,189	3,937	11.86%
Craig County, VA	4,906	732	14.92%
Floyd County, VA	15,434	1,842	11.93%

Franklin County, VA	54,508	8,066	14.80%
Giles County, VA	16,659	2,191	13.15%
Highland County, VA	2,229	507	22.75%
Montgomery County, VA	98,755	11,091	11.23%
Patrick County, VA	17,282	3,222	18.64%
Pulaski County, VA	32,733	6,811	20.81%
Roanoke County, VA	94,444	11,153	11.81%
Rockbridge County, VA	22,405	3,903	17.42%
Rockingham County, VA	82,761	9,929	12.00%
Covington City, VA	5,619	726	12.92%
Harrisonburg City, VA	51,482	5,485	10.65%
Lexington City, VA	7,240	831	11.48%
Radford City, VA	16,070	1,887	11.74%
Roanoke City, VA	98,346	11,397	11.59%
Salem City, VA	24,479	2,534	10.35%
Staunton City, VA	24,812	3,787	15.26%
Waynesboro City, VA	21,950	3,790	17.27%
Virginia	8,357,984	994,331	11.90%
United States	324,818,565	41,055,492	12.64%

Note: This indicator is compared to the state average.

Data Source: US Census Bureau, [American Community Survey](#), 2017-21. Source geography: Tract

Population with Any Disability by Disability Status

This indicator reports the percentage of the total civilian non-institutionalized population with a disability by disability status. Note that ACS measures disability status within different age groups: hearing and vision difficulty for all the people; cognitive, ambulatory, and self-care for people 5 years and older; and independent living for people 15 years and older (reported for people 18 years and older in ACS2017-21 data).

The percentage values could be interpreted as, within the report area, people with hearing difficulty is 3.73% of all the population; people with vision difficulty is 2.38% of all the population; people with cognitive difficulty is 5.02% of all the population age 5+; people with ambulatory difficulty is 6.78% of all the population age 5+; people with self-care difficulty is 2.55% of all the population age 5+; people with independent living difficulty is 5.52% of all the population age 18+.

Report Area	Hearing	Vision	Cognitive	Ambulatory	Self-care	Independent Living
Report Location	3.73%	2.38%	5.02%	6.78%	2.55%	5.52%
Alleghany County, VA	6.94%	3.19%	7.29%	9.24%	3.18%	7.74%
Augusta County, VA	4.53%	2.07%	4.76%	6.95%	2.73%	5.17%
Bath County, VA	3.92%	3.34%	8.99%	8.74%	4.60%	7.97%
Botetourt County, VA	3.53%	2.11%	3.89%	6.82%	2.32%	4.44%
Craig County, VA	5.28%	0.75%	6.91%	6.88%	2.90%	4.00%
Floyd County, VA	3.74%	3.16%	3.34%	6.60%	1.89%	4.35%
Franklin County, VA	4.91%	2.30%	5.28%	7.67%	2.83%	5.89%
Giles County, VA	3.76%	2.06%	4.76%	7.72%	3.57%	5.40%
Highland County, VA	12.20%	6.64%	8.88%	9.35%	2.65%	5.45%
Montgomery County, VA	2.86%	2.31%	4.11%	5.42%	1.88%	4.32%
Patrick County, VA	6.00%	4.11%	4.74%	10.99%	4.27%	8.55%
Pulaski County, VA	5.53%	4.06%	6.30%	12.40%	4.23%	8.35%
Roanoke County, VA	3.61%	1.97%	4.39%	5.67%	2.20%	5.78%
Rockbridge County, VA	4.37%	3.72%	6.88%	7.71%	3.91%	4.72%
Rockingham County, VA	3.85%	2.25%	5.04%	5.93%	1.98%	5.85%
Covington City, VA	5.05%	4.29%	4.05%	7.22%	2.58%	5.57%
Harrisonburg City, VA	3.07%	1.86%	5.27%	5.10%	1.95%	4.62%
Lexington City, VA	2.91%	2.02%	4.84%	5.88%	2.11%	3.81%
Radford City, VA	1.97%	1.25%	6.52%	5.29%	1.62%	3.86%
Roanoke City, VA	2.55%	2.23%	4.45%	6.77%	2.71%	5.54%
Salem City, VA	2.43%	1.54%	4.03%	5.27%	1.77%	4.85%
Staunton City, VA	3.46%	3.15%	6.87%	8.29%	3.59%	7.15%
Waynesboro City, VA	3.73%	2.46%	8.46%	7.92%	3.26%	7.08%
Virginia	3.29%	2.23%	4.68%	6.21%	2.40%	5.32%
United States	3.51%	2.34%	5.15%	6.68%	2.56%	5.73%

Data Source: US Census Bureau, American Community Survey, 2017-21.

Incarceration Rate

The Opportunity Atlas estimates the percentage of individuals born in each census tract who were incarcerated at the time of the 2010 Census. According to the Atlas data, 1.7% of the report area population were incarcerated. The incarceration rate in the report area is lower than the state average of 1.7%.

Report Area	Total Population (2010)	Incarceration Rate
Report Location	807,776	1.7%
Alleghany County, VA	16,250	1.4%
Augusta County, VA	73,750	1.6%
Bath County, VA	4,731	0.2%
Botetourt County, VA	33,148	0.9%
Craig County, VA	5,190	2.3%
Floyd County, VA	15,279	0.9%
Franklin County, VA	56,159	1.9%
Giles County, VA	17,286	2.6%
Highland County, VA	2,321	1.0%
Montgomery County, VA	94,392	1.1%
Patrick County, VA	18,490	1.3%
Pulaski County, VA	34,872	2.5%
Roanoke County, VA	92,376	1.1%
Rockbridge County, VA	22,307	1.3%
Rockingham County, VA	76,314	1.1%
Covington City, VA	5,961	2.4%
Harrisonburg City, VA	48,914	1.4%
Lexington City, VA	7,042	2.1%
Radford City, VA	16,408	1.8%
Roanoke City, VA	97,032	3.3%
Salem City, VA	24,802	1.0%
Staunton City, VA	23,746	2.0%
Waynesboro City, VA	21,006	2.3%
Virginia	7,994,802	1.7%
United States	312,444,060	1.3%

Note: This indicator is compared to the state average.
 Data Source: Opportunity Insights, 2018. Source geography: Tract

Income

Income Levels

Two common measures of income are Median Household Income and Per Capita Income based on American Community Survey 5-year estimates. Both measures are shown for the report area below.

Report Area	Median Household Income	Per Capita Income
Report Location	No data	\$32,142
Alleghany County, VA	\$49,705	\$28,423
Augusta County, VA	\$69,082	\$32,461
Bath County, VA	\$55,807	\$31,431
Botetourt County, VA	\$72,941	\$37,525
Craig County, VA	\$60,283	\$28,973
Floyd County, VA	\$51,612	\$28,832
Franklin County, VA	\$59,667	\$33,739
Giles County, VA	\$57,911	\$28,945
Highland County, VA	\$52,901	\$28,793
Montgomery County, VA	\$60,666	\$30,469
Patrick County, VA	\$47,215	\$29,049
Pulaski County, VA	\$55,446	\$31,071
Roanoke County, VA	\$74,622	\$39,999
Rockbridge County, VA	\$57,828	\$34,342
Rockingham County, VA	\$67,484	\$34,094
Covington City, VA	\$41,242	\$23,589
Harrisonburg City, VA	\$51,055	\$24,388
Lexington City, VA	\$66,114	\$23,763
Radford City, VA	\$44,360	\$23,229
Roanoke City, VA	\$48,476	\$30,379
Salem City, VA	\$66,472	\$36,244
Staunton City, VA	\$53,041	\$31,275
Waynesboro City, VA	\$47,238	\$29,222
Virginia	\$80,615	\$43,267
United States	\$69,021	\$37,638

Data Source: US Census Bureau, American Community Survey, 2017-2021. Source geography: County

Household Income

Median annual household incomes in the report area for 2021 are shown in the table below. Since this reports a median amount, a "Report Area" value is not able to be calculated.

Report Area	Estimated Population	Median Household Income
Alleghany County, VA	14,789	\$49,197
Augusta County, VA	74,282	\$69,243
Bath County, VA	4,045	\$56,200
Botetourt County, VA	33,357	\$74,081
Craig County, VA	4,843	\$57,299
Floyd County, VA	15,537	\$54,765
Franklin County, VA	54,036	\$60,062
Giles County, VA	16,390	\$55,018
Highland County, VA	2,214	\$48,972
Montgomery County, VA	88,464	\$57,752
Patrick County, VA	17,350	\$46,963
Pulaski County, VA	32,741	\$53,111
Roanoke County, VA	93,790	\$73,438
Rockbridge County, VA	22,098	\$59,252
Rockingham County, VA	82,506	\$72,392
Covington City, VA	5,626	\$43,075
Harrisonburg City, VA	44,024	\$50,250
Lexington City, VA	4,705	\$53,400
Radford City, VA	13,500	\$48,898
Roanoke City, VA	97,369	\$47,545
Salem City, VA	23,514	\$60,740
Staunton City, VA	24,825	\$54,508
Waynesboro City, VA	22,341	\$54,106
Virginia	8,376,621	\$80,926
United States	323,384,188	\$69,717

Data Source: US Census Bureau, *Small Area Income and Poverty Estimates*. 2021. Source geography: County

Income - Median Household Income

This indicator reports median household income based on the latest 5-year American Community Survey estimates. This includes the income of the householder and all other individuals 15 years old and over in the household, whether they are related to the householder or not. Because many households consist of only one-person, average household income is usually less than average family income.

Report Area	Total Households	Average Household Income	Median Household Income
Report Location	327,264	\$78,455	No data
Alleghany County, VA	6,405	\$64,494	\$49,705
Augusta County, VA	29,880	\$82,373	\$69,082
Bath County, VA	1,823	\$70,728	\$55,807
Botetourt County, VA	13,076	\$91,937	\$72,941
Craig County, VA	1,941	\$71,043	\$60,283
Floyd County, VA	6,695	\$64,290	\$51,612
Franklin County, VA	22,033	\$80,744	\$59,667
Giles County, VA	6,824	\$67,057	\$57,911
Highland County, VA	987	\$62,330	\$52,901
Montgomery County, VA	35,533	\$79,801	\$60,666
Patrick County, VA	7,732	\$64,785	\$47,215
Pulaski County, VA	14,534	\$70,306	\$55,446
Roanoke County, VA	39,087	\$96,056	\$74,622
Rockbridge County, VA	9,045	\$80,781	\$57,828
Rockingham County, VA	31,189	\$87,327	\$67,484
Covington City, VA	2,547	\$52,783	\$41,242
Harrisonburg City, VA	17,102	\$69,164	\$51,055
Lexington City, VA	2,005	\$72,448	\$66,114
Radford City, VA	5,545	\$60,628	\$44,360
Roanoke City, VA	42,766	\$67,598	\$48,476
Salem City, VA	9,971	\$90,891	\$66,472
Staunton City, VA	11,125	\$72,285	\$53,041
Waynesboro City, VA	9,419	\$67,560	\$47,238
Virginia	3,248,528	\$111,013	\$80,615
United States	124,010,992	\$97,196	\$69,021

Note: This indicator is compared to the state average.

Data Source: US Census Bureau, [American Community Survey](#). 2017-21. Source geography: Tract

Poverty - Population Below 100% FPL

Poverty is considered a *key driver* of health status.

Within the report area 14.02% or 110,730 individuals for whom poverty status is determined are living in households with income below the Federal Poverty Level (FPL). This indicator is relevant because poverty creates barriers to access including health services, healthy food, and other necessities that contribute to poor health status.

Note: The total population measurements for poverty reports are lower, as poverty data collection does not include people in group quarters. See Methodology for more details.

Report Area	Total Population	Population in Poverty	Population in Poverty, Percent
Report Location	789,584	110,730	14.02%
Alleghany County, VA	15,032	2,099	13.96%
Augusta County, VA	72,925	6,101	8.37%
Bath County, VA	4,177	801	19.18%
Botetourt County, VA	33,189	2,231	6.72%
Craig County, VA	4,782	680	14.22%
Floyd County, VA	15,453	1,433	9.27%
Franklin County, VA	53,134	7,072	13.31%
Giles County, VA	16,582	1,701	10.26%
Highland County, VA	2,210	279	12.62%
Montgomery County, VA	89,669	22,212	24.77%
Patrick County, VA	17,255	1,861	10.79%
Pulaski County, VA	32,633	4,190	12.84%
Roanoke County, VA	93,939	6,504	6.92%
Rockbridge County, VA	22,369	2,304	10.30%
Rockingham County, VA	81,134	6,167	7.60%
Covington City, VA	5,608	888	15.83%
Harrisonburg City, VA	44,982	11,608	25.81%
Lexington City, VA	4,315	984	22.80%
Radford City, VA	13,340	4,721	35.39%
Roanoke City, VA	98,079	18,045	18.40%
Salem City, VA	22,834	2,273	9.95%
Staunton City, VA	24,080	2,957	12.28%
Waynesboro City, VA	21,863	3,619	16.55%
Virginia	8,337,068	828,664	9.94%
United States	321,897,703	40,661,636	12.63%

Note: This indicator is compared to the state average.

Data Source: US Census Bureau, American Community Survey, 2017-21. Source geography: Tract

Adult Literacy

Literacy data published by the Program for the International Assessment of Adult Competencies (PIACC) breaks adult literacy into three different "Levels". Those reported as Level 1 are at risk of being able to understand printed material. Those at the upper end of Level 1 can read and understand the text well enough to be able to perform small tasks but might have difficulty understanding or drawing inferences from multiple forms of text. Those at the lower end may struggle with basic vocabulary or even be functionally illiterate.

The percentage at or below Level 1 for literacy in the report area is estimated at 19.7%, with a 95% probability that the actual (true, unknown) percentage is between 15.7% and 23.9%.

Report Area	Population Ages 16-74	Total At or Below Level 1	At or Below Level 1	Total Lower Credible Interval	Lower Credible Interval	Total Upper Credible Interval	Upper Credible Interval
Report Location	620,330	122,128	19.7%	97,429	15.7%	148,116	23.9%
Alleghany County, VA	11,384	2,391	21%	1,924	16.9%	2,869	25.2%
Augusta County, VA	55,682	10,190	18.3%	8,185	14.7%	12,417	22.3%
Bath County, VA	3,253	644	19.8%	455	14%	839	25.8%
Botetourt County, VA	24,779	3,147	12.7%	2,280	9.2%	4,064	16.4%
Craig County, VA	3,860	575	14.9%	425	11%	737	19.1%
Floyd County, VA	11,539	2,342	20.3%	1,915	16.6%	2,781	24.1%
Franklin County, VA	42,124	8,341	19.8%	6,908	16.4%	9,899	23.5%
Giles County, VA	12,450	2,316	18.6%	1,855	14.9%	2,801	22.5%
Highland County, VA	1,620	306	18.9%	246	15.2%	373	23%
Montgomery County, VA	79,331	12,614	15.9%	8,488	10.7%	16,818	21.2%
Patrick County, VA	13,288	3,535	26.6%	2,977	22.4%	4,119	31%
Pulaski County, VA	25,908	5,156	19.9%	4,249	16.4%	6,088	23.5%
Roanoke County, VA	68,433	8,828	12.9%	6,570	9.6%	11,223	16.4%
Rockbridge County, VA	16,492	3,265	19.8%	2,688	16.3%	3,876	23.5%
Rockingham County, VA	56,714	12,364	21.8%	10,209	18%	14,575	25.7%
Covington City, VA	4,124	1,031	25%	883	21.4%	1,204	29.2%
Harrisonburg City, VA	42,978	11,561	26.9%	9,369	21.8%	13,839	32.2%
Lexington City, VA	6,135	1,399	22.8%	1,110	18.1%	1,687	27.5%
Radford City, VA	15,041	3,444	22.9%	2,286	15.2%	4,633	30.8%
Roanoke City, VA	73,050	19,139	26.2%	16,582	22.7%	21,842	29.9%
Salem City, VA	19,005	3,041	16%	2,414	12.7%	3,725	19.6%
Staunton City, VA	18,030	3,101	17.2%	2,524	14%	3,732	20.7%
Waynesboro City, VA	15,110	3,400	22.5%	2,886	19.1%	3,974	26.3%
Virginia	6,228,058	1,174,280	18.9%	943,566	15.2%	1,418,231	22.8%
United States	235,567,157	51,401,095	21.8%	42,569,858	18.1%	60,378,678	25.6%

Note: This indicator is compared to the state average.

Data Source: National Center for Education Statistics, *NCES - Program for the International Assessment of Adult Competencies*. 2017.

Adult Literacy Level 2

Those reported at Level 2 still struggle to perform text based informational tasks but are considered to be nearing reading proficiency. People at this literacy level can usually be able to read printed words and digital print, as well as being able to relate and make inferences from multiple pieces of information that can be pulled from more than one document. Complex evaluation and inferencing may still be too difficult.

The percentage at or below Level 2 for literacy in the report area is estimated at 35.3%, with a 95% probability that the actual (true, unknown) percentage is between 29.9% and 40.6%.

Report Area	Population Ages 16-74	Total At or Below Level 2	At or Below Level 2	Total Lower Credible Interval	Lower Credible Interval	Total Upper Credible Interval	Upper Credible Interval
Report Location	620,330	218,959	35.3%	185,431	29.9%	251,572	40.6%
Alleghany County, VA	11,384	4,599	40.4%	3,973	34.9%	5,214	45.8%
Augusta County, VA	55,682	22,607	40.6%	19,878	35.7%	25,280	45.4%
Bath County, VA	3,253	1,457	44.8%	1,200	36.9%	1,705	52.4%
Botetourt County, VA	24,779	8,821	35.6%	7,657	30.9%	9,961	40.2%
Craig County, VA	3,860	1,637	42.4%	1,432	37.1%	1,834	47.5%
Floyd County, VA	11,539	4,212	36.5%	3,658	31.7%	4,789	41.5%
Franklin County, VA	42,124	15,586	37%	13,606	32.3%	17,439	41.4%
Giles County, VA	12,450	5,080	40.8%	4,457	35.8%	5,702	45.8%
Highland County, VA	1,620	627	38.7%	548	33.8%	706	43.6%
Montgomery County, VA	79,331	22,689	28.6%	17,056	21.5%	28,321	35.7%
Patrick County, VA	13,288	5,076	38.2%	4,345	32.7%	5,807	43.7%
Pulaski County, VA	25,908	9,560	36.9%	8,368	32.3%	10,726	41.4%
Roanoke County, VA	68,433	21,351	31.2%	18,408	26.9%	24,225	35.4%
Rockbridge County, VA	16,492	6,349	38.5%	5,558	33.7%	7,108	43.1%
Rockingham County, VA	56,714	21,892	38.6%	18,942	33.4%	24,727	43.6%
Covington City, VA	4,124	1,798	43.6%	1,588	38.5%	1,992	48.3%
Harrisonburg City, VA	42,978	13,839	32.2%	10,787	25.1%	16,804	39.1%
Lexington City, VA	6,135	1,730	28.2%	1,344	21.9%	2,117	34.5%
Radford City, VA	15,041	4,377	29.1%	2,798	18.6%	5,971	39.7%
Roanoke City, VA	73,050	26,955	36.9%	23,522	32.2%	30,097	41.2%
Salem City, VA	19,005	6,804	35.8%	5,892	31%	7,678	40.4%
Staunton City, VA	18,030	6,202	34.4%	5,427	30.1%	6,978	38.7%
Waynesboro City, VA	15,110	5,712	37.8%	4,986	33%	6,392	42.3%
Virginia	6,228,058	1,913,276	30.7%	1,603,588	25.7%	2,217,077	35.6%
United States	235,567,157	76,178,529	32.3%	64,300,451	27.3%	88,084,541	37.4%

Adult Literacy Level 3

Those reported at Level 3 still are proficient in reading. This includes being able to understand and work with multiple complex texts, while still being able to evaluate the reliability of sources. People in this level can infer complex ideas and sophisticated meanings from written documents and texts.

The percentage at or below Level 3 for literacy in the report area is estimated at 45%, with a 95% probability that the actual (true, unknown) percentage is between 39.9% and 50%.

Report Area	Population Ages 16-74	Total At or Below Level 3	At or Below Level 3	Total Lower Credible Interval	Lower Credible Interval	Total Upper Credible Interval	Upper Credible Interval
Report Location	620,330	279,251	45%	247,612	39.9%	310,334	50%
Alleghany County, VA	11,384	4,406	38.7%	3,825	33.6%	4,975	43.7%
Augusta County, VA	55,682	22,885	41.1%	20,213	36.3%	25,447	45.7%
Bath County, VA	3,253	1,152	35.4%	927	28.5%	1,389	42.7%
Botetourt County, VA	24,779	12,811	51.7%	11,646	47%	13,926	56.2%
Craig County, VA	3,860	1,652	42.8%	1,451	37.6%	1,845	47.8%
Floyd County, VA	11,539	4,985	43.2%	4,443	38.5%	5,516	47.8%
Franklin County, VA	42,124	18,198	43.2%	16,344	38.8%	20,051	47.6%
Giles County, VA	12,450	5,055	40.6%	4,445	35.7%	5,640	45.3%
Highland County, VA	1,620	687	42.4%	609	37.6%	761	47%
Montgomery County, VA	79,331	44,029	55.5%	38,793	48.9%	49,106	61.9%
Patrick County, VA	13,288	4,677	35.2%	3,973	29.9%	5,328	40.1%
Pulaski County, VA	25,908	11,218	43.3%	10,078	38.9%	12,332	47.6%
Roanoke County, VA	68,433	38,254	55.9%	35,311	51.6%	41,197	60.2%
Rockbridge County, VA	16,492	6,894	41.8%	6,152	37.3%	7,636	46.3%
Rockingham County, VA	56,714	22,459	39.6%	19,680	34.7%	25,238	44.5%
Covington City, VA	4,124	1,295	31.4%	1,105	26.8%	1,485	36%
Harrisonburg City, VA	42,978	17,535	40.8%	14,784	34.4%	20,200	47%
Lexington City, VA	6,135	3,000	48.9%	2,656	43.3%	3,356	54.7%
Radford City, VA	15,041	7,220	48%	5,776	38.4%	8,649	57.5%
Roanoke City, VA	73,050	26,955	36.9%	23,814	32.6%	30,097	41.2%
Salem City, VA	19,005	9,160	48.2%	8,286	43.6%	10,016	52.7%
Staunton City, VA	18,030	8,727	48.4%	7,951	44.1%	9,484	52.6%
Waynesboro City, VA	15,110	5,999	39.7%	5,349	35.4%	6,664	44.1%
Virginia	6,228,058	3,141,033	50.4%	2,841,838	45.6%	3,436,413	55.2%
United States	235,567,157	107,981,194	45.8%	96,513,724	41%	119,346,496	50.7%

Housing Costs - Cost Burden (30%)

This indicator reports the percentage of the households where housing costs are 30% or more of total household income. This indicator provides information on the cost of monthly housing expenses for owners and renters. The information offers a measure of housing affordability and excessive shelter costs. The data also serve to aid in the development of housing programs to meet the needs of people at different economic levels. Of the 327,264 total households in the report area, 79,875 or 24.41% of the population live in cost burdened households.

Report Area	Total Households	Cost-Burdened Households	Cost-Burdened Households, Percent
Report Location	327,264	79,875	24.41%
Alleghany County, VA	6,405	1,179	18.41%
Augusta County, VA	29,880	6,261	20.95%
Bath County, VA	1,823	372	20.41%
Botetourt County, VA	13,076	2,359	18.04%
Craig County, VA	1,941	304	15.66%
Floyd County, VA	6,695	1,464	21.87%
Franklin County, VA	22,033	4,366	19.82%
Giles County, VA	6,824	1,045	15.31%
Highland County, VA	987	135	13.68%
Montgomery County, VA	35,533	9,820	27.64%
Patrick County, VA	7,732	1,203	15.56%
Pulaski County, VA	14,534	3,188	21.93%
Roanoke County, VA	39,087	8,700	22.26%
Rockbridge County, VA	9,045	1,719	19.00%
Rockingham County, VA	31,189	6,208	19.90%
Covington City, VA	2,547	458	17.98%
Harrisonburg City, VA	17,102	5,619	32.86%
Lexington City, VA	2,005	599	29.88%
Radford City, VA	5,545	1,886	34.01%
Roanoke City, VA	42,766	14,061	32.88%
Salem City, VA	9,971	2,495	25.02%
Staunton City, VA	11,125	3,220	28.94%
Waynesboro City, VA	9,419	3,214	34.12%
Virginia	3,248,528	915,143	28.17%
United States	124,010,992	37,625,113	30.34%

Note: This indicator is compared to the state average.

Data Source: US Census Bureau, American Community Survey, 2017-21. Source geography: Tract

Cost-Burdened Households by Tenure, Percent

These data show the percentage of households by tenure that are cost burdened. Cost burdened rental households (those that spent more than 30% of the household income on rental costs) represented 40.57% of all of the rental households in the report area, according to the U.S. Census Bureau American Community Survey (ACS) 2017-2121 5-year estimates. The data for this indicator is only reported for households where tenure, household housing costs, and income earned was identified in the American Community Survey.

Report Area	Rental Households	Rental Households Cost-Burdened, Percent	Owner-Occupied Households w/ Mortgage	Owner-Occupied Households w/ Mortgage Cost-Burdened, Percent	Owner-Occupied Households w/o Mortgage	Owner-Occupied Households w/o Mortgage Cost-Burdened, Percent
Report Location	106,049	40.57%	125,727	22.29%	95,488	9.24%
Alleghany County, VA	1,244	33.44%	2,093	21.45%	3,068	10.23%
Augusta County, VA	6,420	35.20%	13,951	23.61%	9,509	7.44%
Bath County, VA	404	23.02%	661	29.80%	758	10.82%
Botetourt County, VA	1,849	24.61%	6,557	22.86%	4,670	8.67%
Craig County, VA	432	24.54%	741	26.72%	768	0.00%
Floyd County, VA	961	36.00%	2,464	24.63%	3,270	15.63%
Franklin County, VA	4,312	36.02%	9,129	22.41%	8,592	8.93%
Giles County, VA	1,616	30.32%	2,315	15.46%	2,893	6.81%
Highland County, VA	164	29.88%	273	11.72%	550	9.82%
Montgomery County, VA	15,883	44.61%	10,521	18.95%	9,129	8.11%
Patrick County, VA	1,681	29.74%	2,598	18.13%	3,453	6.72%
Pulaski County, VA	4,469	32.60%	5,579	26.37%	4,486	5.80%
Roanoke County, VA	9,685	42.76%	18,824	19.50%	10,578	8.39%
Rockbridge County, VA	2,135	32.83%	3,442	25.48%	3,468	4.07%
Rockingham County, VA	7,501	32.24%	13,076	20.79%	10,612	10.09%
Covington City, VA	623	26.48%	775	22.97%	1,149	10.01%
Harrisonburg City, VA	10,349	43.98%	4,228	21.78%	2,525	5.82%
Lexington City, VA	926	48.49%	585	25.64%	494	0.00%
Radford City, VA	3,010	47.44%	1,381	19.48%	1,154	16.38%
Roanoke City, VA	20,551	44.22%	14,378	26.31%	7,837	15.18%
Salem City, VA	3,450	37.80%	3,961	21.61%	2,560	13.09%

Staunton City, VA	4,593	45.63%	4,304	20.98%	2,228	9.92%
Waynesboro City, VA	3,791	49.27%	3,891	27.91%	1,737	14.97%
Virginia	1,083,561	44.04%	1,477,713	24.94%	687,254	10.09%
United States	43,858,831	45.99%	49,759,315	27.08%	30,392,846	13.09%

Data Source: US Census Bureau, American Community Survey, 2017-21.

Housing Costs - Cost Burden, Severe (50%)

This indicator reports the percentage of the households where housing costs are 50% or more total household income. This indicator provides information on the cost of monthly housing expenses for owners and renters. The information offers a measure of housing affordability and excessive shelter costs. The data also serve to aid in the development of housing programs to meet the needs of people at different economic levels.

Report Area	Total Households	Severely Burdened Households	Severely Burdened Households, Percent
Report Location	327,264	37,718	11.53%
Alleghany County, VA	6,405	499	7.79%
Augusta County, VA	29,880	2,533	8.48%
Bath County, VA	1,823	187	10.26%
Botetourt County, VA	13,076	979	7.49%
Craig County, VA	1,941	140	7.21%
Floyd County, VA	6,695	690	10.31%
Franklin County, VA	22,033	2,077	9.43%
Giles County, VA	6,824	540	7.91%
Highland County, VA	987	23	2.33%
Montgomery County, VA	35,533	5,533	15.57%
Patrick County, VA	7,732	539	6.97%
Pulaski County, VA	14,534	1,604	11.04%
Roanoke County, VA	39,087	3,323	8.50%
Rockbridge County, VA	9,045	758	8.38%
Rockingham County, VA	31,189	2,254	7.23%
Covington City, VA	2,547	195	7.66%
Harrisonburg City, VA	17,102	3,057	17.88%
Lexington City, VA	2,005	376	18.75%
Radford City, VA	5,545	1,066	19.22%
Roanoke City, VA	42,766	6,928	16.20%
Salem City, VA	9,971	1,183	11.86%
Staunton City, VA	11,125	1,512	13.59%
Waynesboro City, VA	9,419	1,722	18.28%
Virginia	3,248,528	394,155	12.13%
United States	124,010,992	17,176,191	13.85%

Note: This indicator is compared to the state average.

Data Source: US Census Bureau, American Community Survey, 2017-21. Source geography: Tract

Households with No Motor Vehicle

This indicator reports the number and percentage of households with no motor vehicle based on the latest 5-year American Community Survey estimates. Of the 327,264 total households in the report area, 20,126 or 6.15% are without a motor vehicle.

Report Area	Total Occupied Households	Households with No Motor Vehicle	Households with No Motor Vehicle, Percent
Report Location	327,264	20,126	6.15%
Alleghany County, VA	6,405	443	6.92%
Augusta County, VA	29,880	1,347	4.51%
Bath County, VA	1,823	13	0.71%
Botetourt County, VA	13,076	456	3.49%
Craig County, VA	1,941	145	7.47%
Floyd County, VA	6,695	400	5.97%
Franklin County, VA	22,033	1,200	5.45%
Giles County, VA	6,824	427	6.26%
Highland County, VA	987	58	5.88%
Montgomery County, VA	35,533	1,847	5.20%
Patrick County, VA	7,732	314	4.06%
Pulaski County, VA	14,534	729	5.02%
Roanoke County, VA	39,087	1,658	4.24%
Rockbridge County, VA	9,045	449	4.96%
Rockingham County, VA	31,189	1,521	4.88%
Covington City, VA	2,547	189	7.42%
Harrisonburg City, VA	17,102	1,197	7.00%
Lexington City, VA	2,005	160	7.98%
Radford City, VA	5,545	246	4.44%
Roanoke City, VA	42,766	5,103	11.93%
Salem City, VA	9,971	632	6.34%
Staunton City, VA	11,125	943	8.48%
Waynesboro City, VA	9,419	649	6.89%
Virginia	3,248,528	196,083	6.04%
United States	124,010,992	10,349,174	8.35%

*Note: This indicator is compared to the state average.
Data Source: US Census Bureau, American Community Survey, 2017-21. Source geography: Tract*

Built Environment - Households with No Computer

This indicator reports the percentage of households who do not own or use any types of computers, including desktop or laptop, smartphone, tablet or other portable wireless computer, and some other type of computer, based on the 2017-2021 American Community Survey estimates. Of the 327,264 total households in the report area, 33,964 or 10.38% are without a computer.

Note: The ACS2017-21 questions about internet/computer usage are not asked for the group quarters population, so data do not include people living in housing such as dorms, prisons, nursing homes, etc.

Report Area	Total Households	Households with No Computer	Households with No Computer, Percent
Report Location	327,264	33,964	10.38%
Alleghany County, VA	6,405	932	14.55%
Augusta County, VA	29,880	3,047	10.20%
Bath County, VA	1,823	302	16.57%
Botetourt County, VA	13,076	1,506	11.52%
Craig County, VA	1,941	105	5.41%
Floyd County, VA	6,695	1,119	16.71%
Franklin County, VA	22,033	2,893	13.13%
Giles County, VA	6,824	1,021	14.96%
Highland County, VA	987	178	18.03%
Montgomery County, VA	35,533	1,840	5.18%
Patrick County, VA	7,732	1,403	18.15%
Pulaski County, VA	14,534	1,900	13.07%
Roanoke County, VA	39,087	3,179	8.13%
Rockbridge County, VA	9,045	1,058	11.70%
Rockingham County, VA	31,189	3,548	11.38%
Covington City, VA	2,547	297	11.66%
Harrisonburg City, VA	17,102	1,176	6.88%
Lexington City, VA	2,005	123	6.13%
Radford City, VA	5,545	447	8.06%
Roanoke City, VA	42,766	4,762	11.14%
Salem City, VA	9,971	840	8.42%
Staunton City, VA	11,125	1,414	12.71%
Waynesboro City, VA	9,419	874	9.28%
Virginia	3,248,528	215,825	6.64%
United States	124,010,992	8,613,533	6.95%

Note: This indicator is compared to the state average.

Data Source: US Census Bureau, American Community Survey, 2017-21. Source geography: Tract

Built Environment - Broadband Access

This indicator reports the percentage of population with access to high-speed internet. Data are based on the reported service area of providers offering download speeds of 25 MBPS or more and upload speeds of 3 MBPS or more. These data represent both wireline and fixed/terrestrial wireless internet providers. Cellular internet providers are not included.

Report Area	Total Number of Broadband Serviceable Locations	Access to DL Speeds >= 25MBPS and UL Speeds >= 3 MBPS	Access to DL Speeds >= 100MBPS and UL Speeds >= 20 MBPS
Report Location	349,471	80.78%	77.42%
Alleghany County, VA	9,139	81.56%	79.75%
Augusta County, VA	34,289	70.62%	67.54%
Bath County, VA	3,617	65.63%	42.30%
Botetourt County, VA	15,986	77.04%	72.51%
Craig County, VA	3,329	73.36%	23.16%
Floyd County, VA	9,077	46.80%	45.71%
Franklin County, VA	29,445	69.19%	63.75%
Giles County, VA	9,331	81.50%	65.39%
Highland County, VA	2,459	63.81%	56.69%
Montgomery County, VA	31,913	83.90%	82.14%
Patrick County, VA	11,679	26.77%	18.96%
Pulaski County, VA	17,198	77.07%	75.29%
Roanoke County, VA	37,351	95.19%	94.70%
Rockbridge County, VA	11,966	73.86%	68.12%
Rockingham County, VA	36,227	72.40%	69.55%
Covington City, VA	3,422	99.39%	98.19%
Harrisonburg City, VA	11,914	98.30%	97.70%
Lexington City, VA	2,180	99.86%	99.40%
Radford City, VA	4,214	98.41%	98.05%

Roanoke City, VA	36,014	99.91%	99.81%
Salem City, VA	9,644	99.90%	99.78%
Staunton City, VA	9,966	98.95%	98.65%
Waynesboro City, VA	9,111	98.90%	98.90%
Virginia	2,914,430	86.90%	84.79%
United States	114,537,050	92.73%	89.55%

Note: This indicator is compared to the state average.

Data Source: FCC FABRIC Data. Additional data analysis by CARES. December 2022. Source geography: Tract



Digital Opportunity Plan Survey Results

CAPSAW Region

Prepared for Department of Housing and Community Development
July 26, 2023

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Most respondents (71%) have both a home internet subscription and a wireless cellular plan.

Almost half of respondents (45%) connect to the internet using their cellular data plan. Some respondents (29%) use a cable modem.

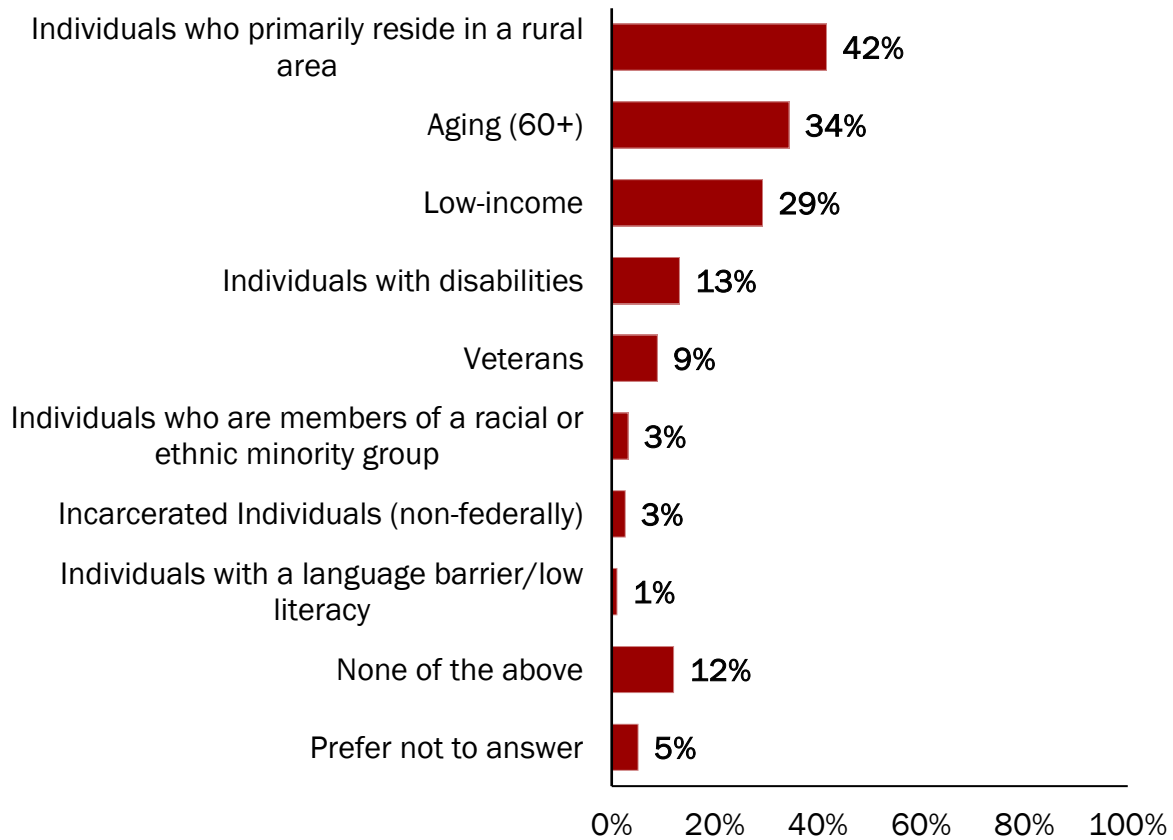
Of the people who cannot access the internet, 40% do not because it is too expensive.

The devices respondents most often use to access the internet are a smart phone (87%) or laptop (74%).

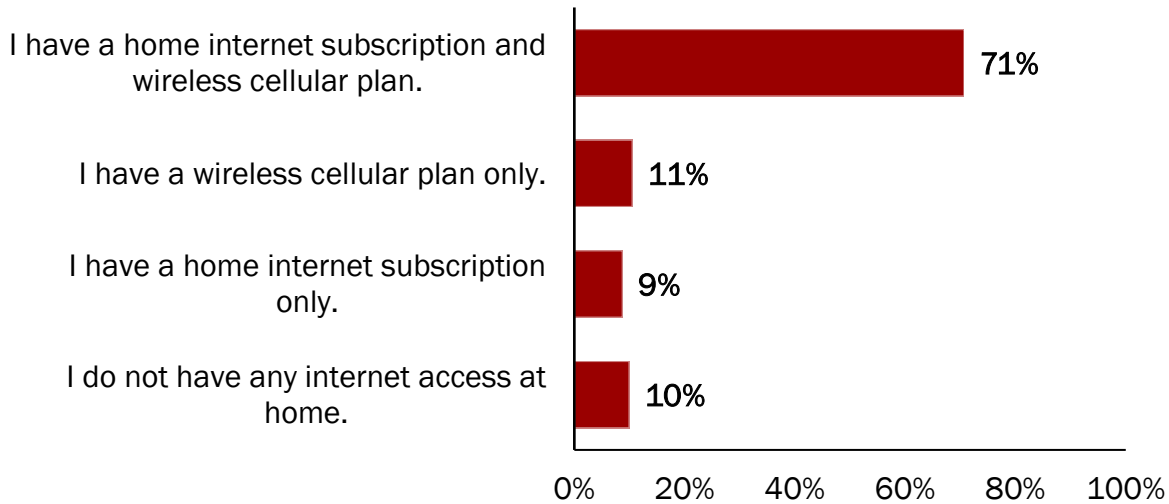
Respondents are comfortable doing most tasks on the internet, except attending doctor's appointments.

Most respondents (79%) have not applied to a program for internet accessibility, and only one-third (30%) are aware of these programs.

Almost half of respondents in the CAPSAW region (42%) primarily reside in a rural area. Approximately one-third (34%) are aging, and about one-fourth (29%) are low-income.

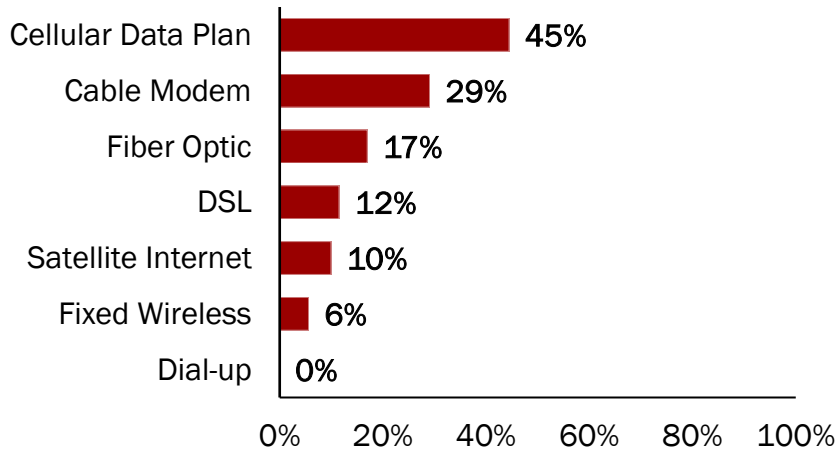


Most respondents (71%) have both a home internet subscription and a wireless cellular plan.



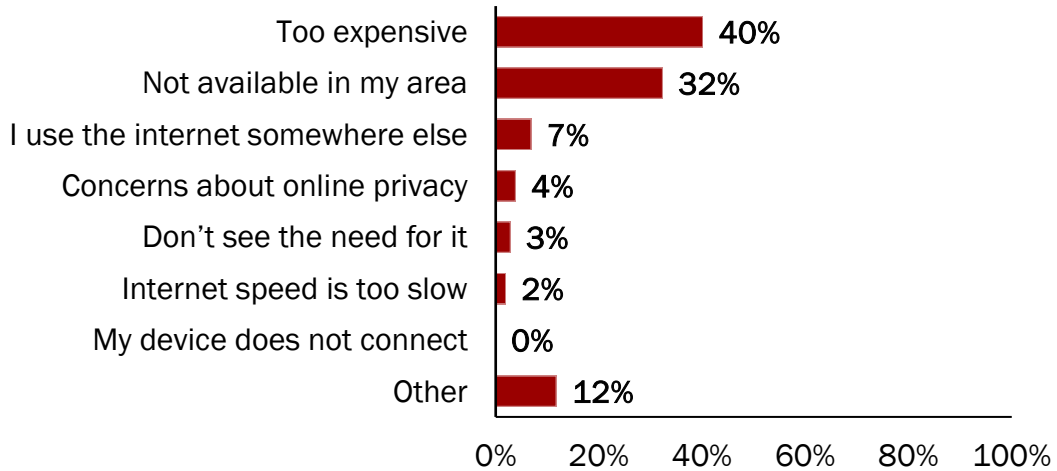
Q4: Do you have internet access (WiFi) at home? (n=1062)

Almost half of respondents (45%) access the internet using their cellular data plan. Some respondents (29%) use a cable modem.



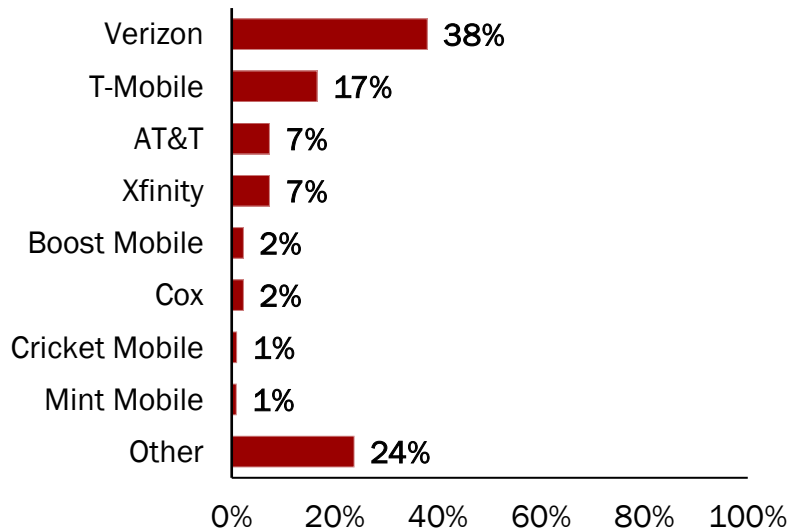
Q5: How do you access the internet at home? (n=968)

Of the people who do not have internet access at home, 40% state it is too expensive.



Q6: What is the main reason why you do not have internet access at home? (n=102)

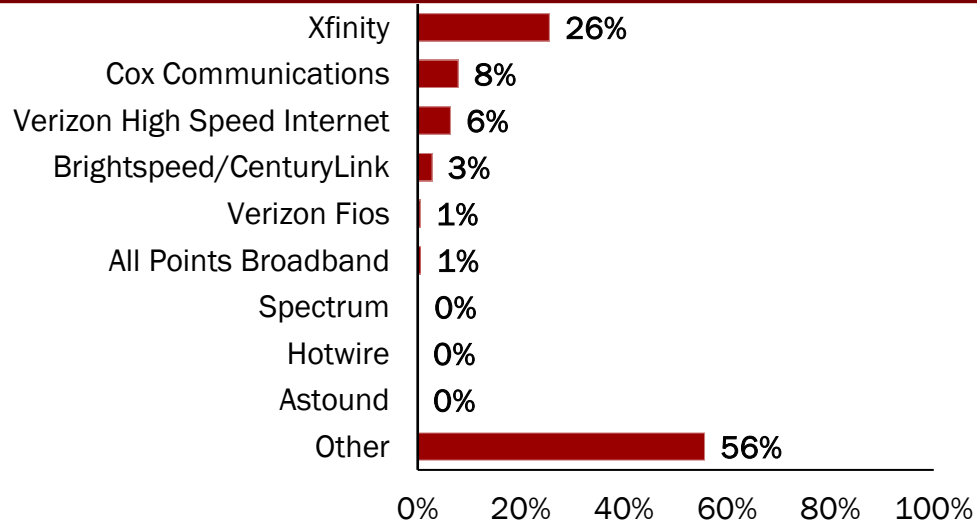
Respondents (38%) are most likely to have Verizon as their wireless provider.



Q7: What is the name of your wireless cellular plan/provider? (n=932)

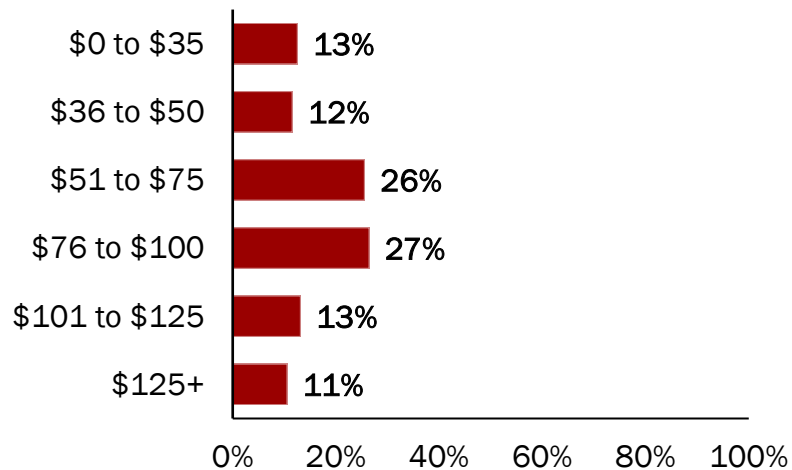
Survey Questions

Respondents use a wide variety of providers for home internet, led by Xfinity (26%).



Q8: What is the name of your home’s internet provider/plan? (n=871)

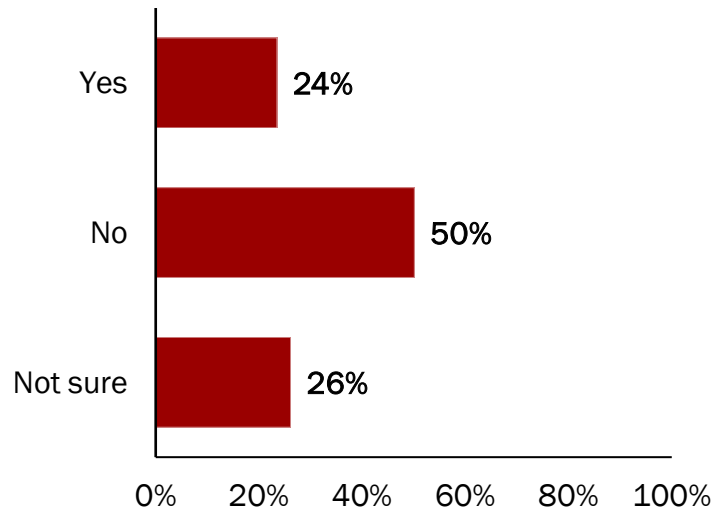
Most respondents (53%) spend between \$50 and \$100 each month on their internet service (not as a part of a cellular plan).



Q9: How much do you pay each month for internet service (NOT as part of a cellular plan)? (n=880)

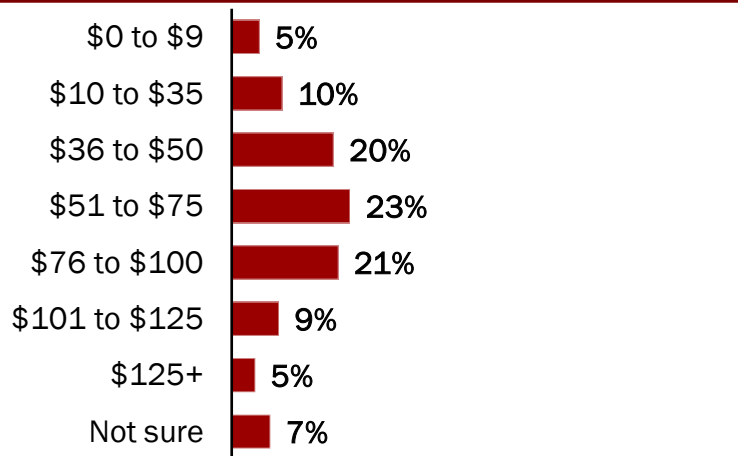
Survey Questions

Half of respondents (50%) are unwilling to pay more for better internet service. One-fourth of respondents (26%) are unsure.



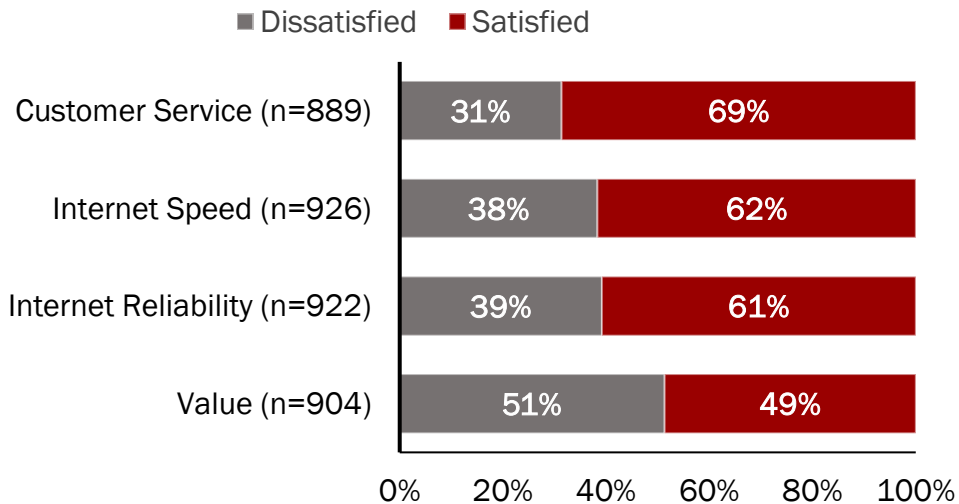
Q10: Would you be willing to pay more for better internet service? (n=942)

Roughly half of respondents (44%) are generally willing to pay between \$50 and \$100 each month on their internet service (not as a part of a cellular plan).



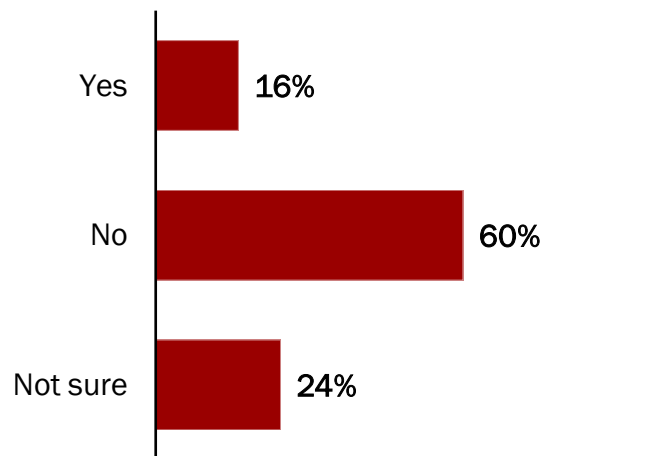
Q11: How much would you be willing to pay for internet service per month (NOT as part of a cellular plan)? (n=936)

Respondents are generally satisfied with customer service (69%), internet speed (62%), and reliability (61%), but less satisfied with value (49%).



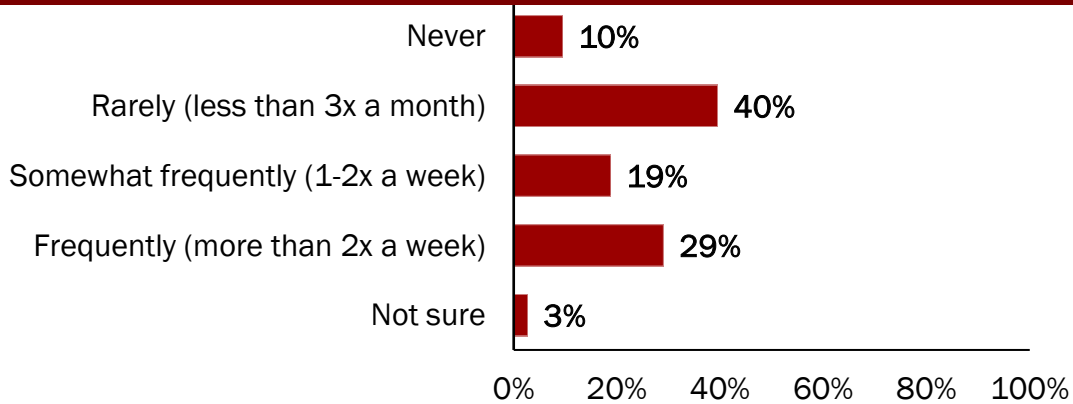
Q12: Please rate your internet service provider(s) on the following:

Most respondents (60%) do not have a cap on their monthly internet usage.



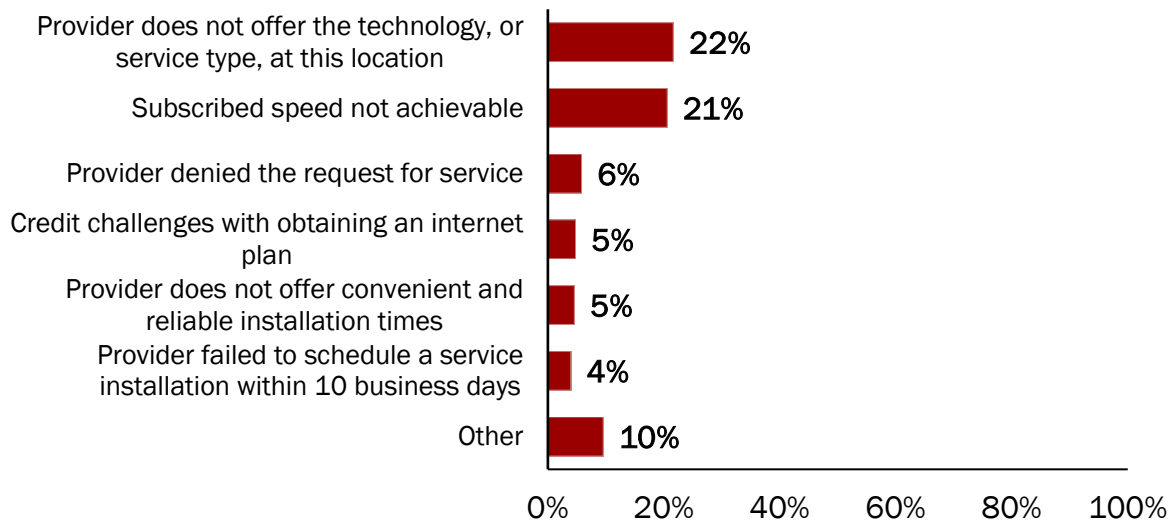
Q13: Do you have a cap on monthly internet usage? (n=968)

Respondents vary in how often they experience disruptions in download or upload speeds.



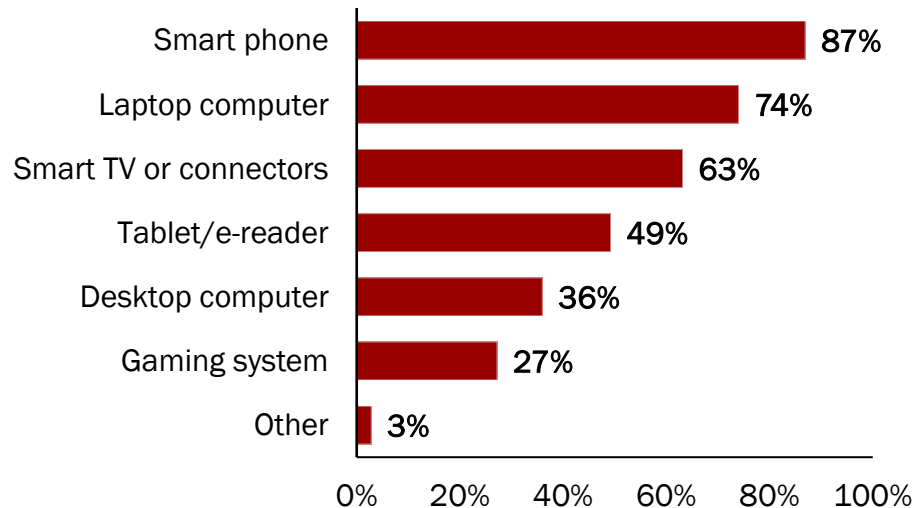
Q14: How often do you experience disruptions or download/upload speeds that are slower than expected? (n=968)

The most common problems among respondents are lack of access to technology (22%) or their subscribed speed not being achievable (21%).



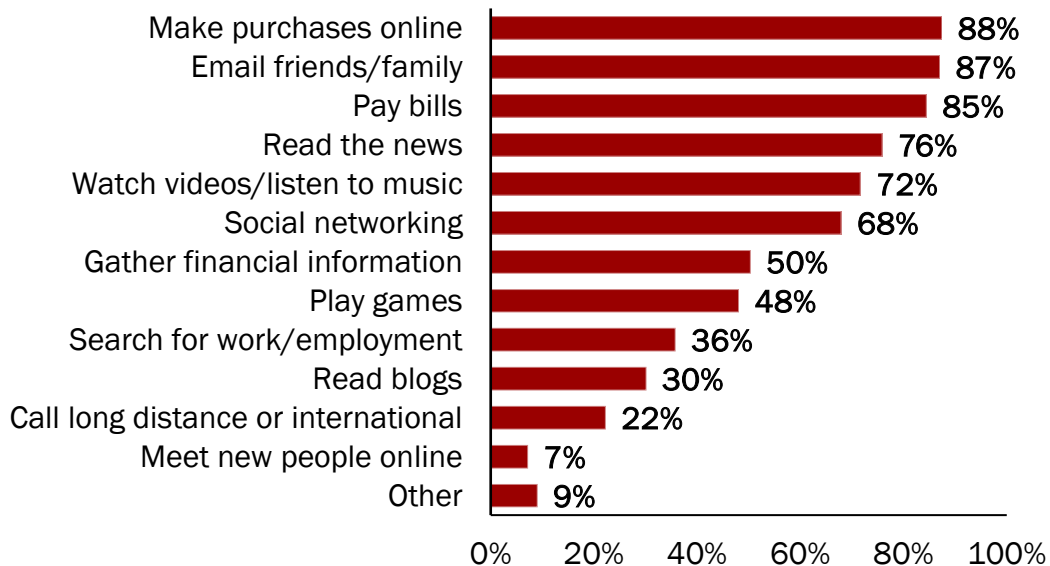
Q15: Have you experienced any of these problems trying to get internet? (n=968)

The devices respondents most often use to access the internet are a smart phone (87%) or laptop (74%).



Q16: Which of these do you use to access the internet? (n=968)

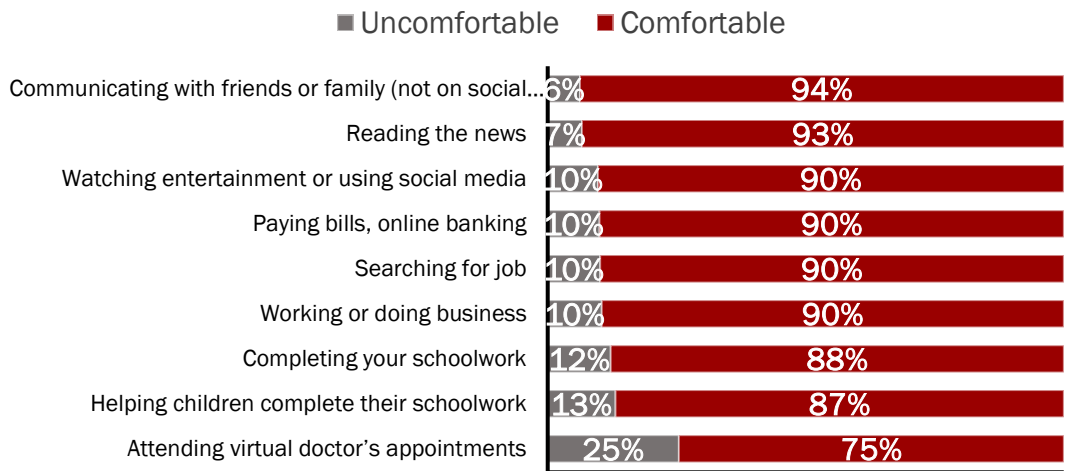
Respondents are most likely to use the internet to make purchases (88%), email friends/family (87%), and/or pay bills (85%).



Q17: When you use the Internet, what kind of activities do you do online? (n=968)

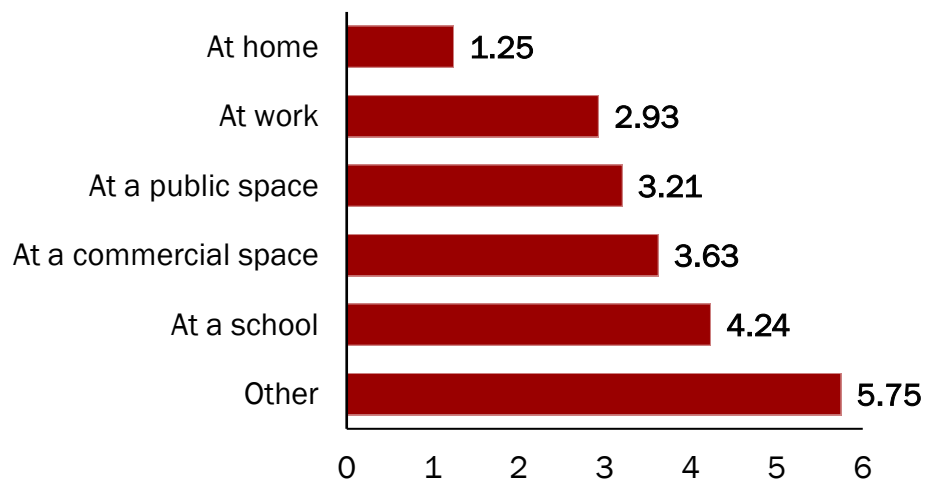
Survey Questions

Respondents are comfortable using their devices to do most tasks, except attending virtual doctor’s appointments.



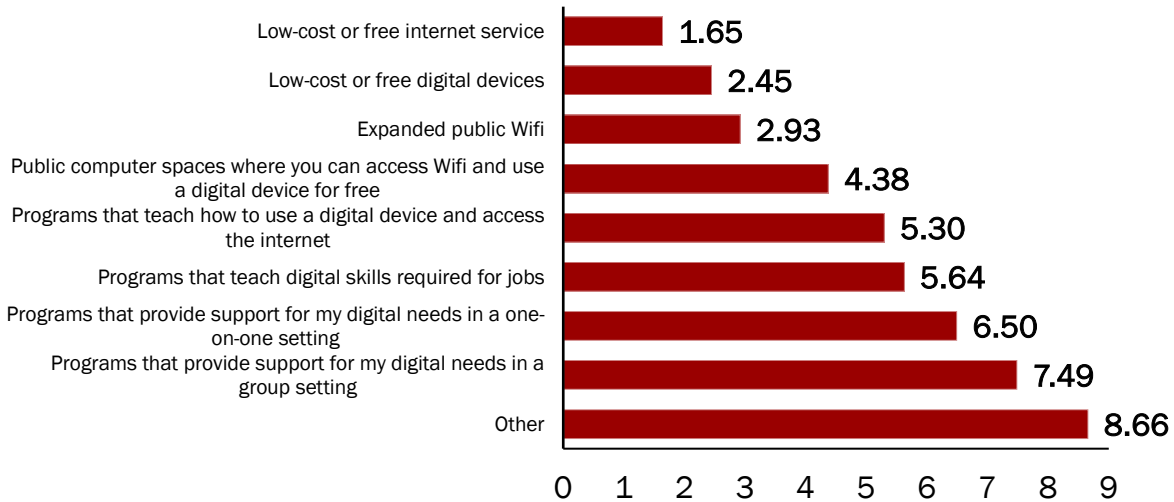
Q18: How comfortable are you using digital devices to do these tasks? (n=713-914)

Respondents are more likely to use the internet at home or work than in a public or commercial space.



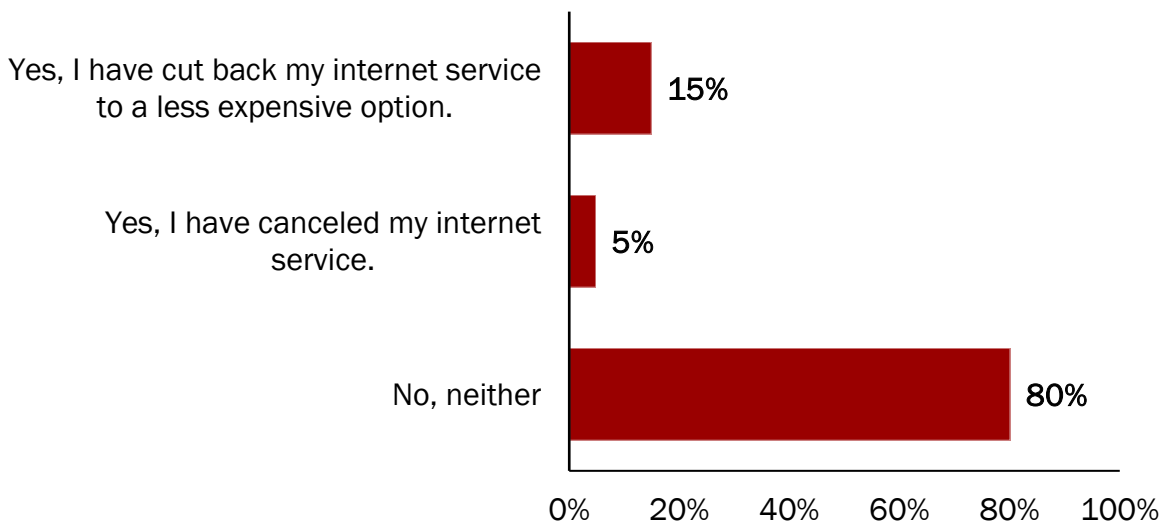
Q19: Where do you frequently access the internet? (n=817; 1=most frequent, 6=least frequent)

Respondents are most interested in low-cost or free internet services and digital devices.



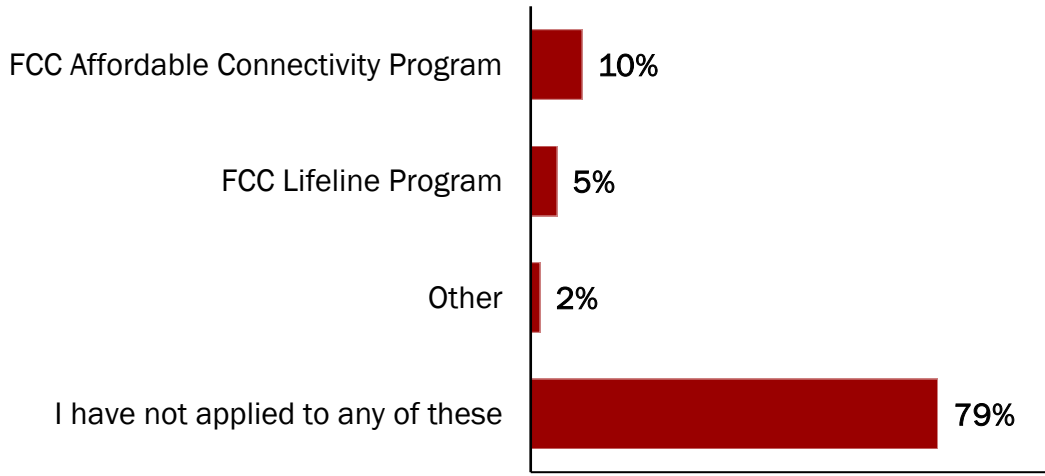
Q20: What options would you like to have available? (n=844; 1=most interested, 9=least interested)

Most respondents (80%) have not cut back or canceled their internet service.



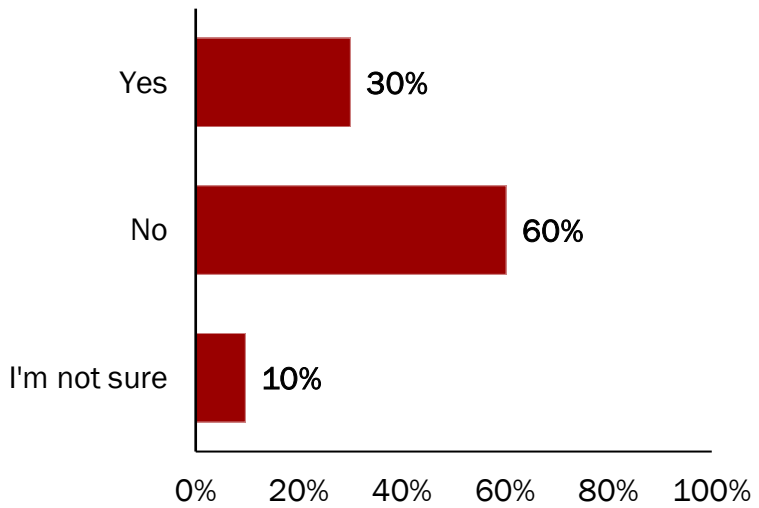
Q22: Have you canceled your internet service or cut back your internet to a less expensive service plan, within the past 12 months? (n=941)

Most respondents (79%) have not applied to a program for internet accessibility.



Q23: Have you ever applied for any of the following programs? (n=968)

Only one-third of respondents (30%) are aware of these programs.



Q24: Are you aware of these programs? (n=968)

Demographics

Gender	
Female	66%
Male	29%
Other/Non-binary	0%
Prefer not to answer	5%
Hispanic	
No	89%
Yes, Mexican, Mexican American, Chicano	1%
Yes, Puerto Rican	0%
Yes, Cuban	0%
Yes, another Hispanic, Latino, or Spanish origin	2%
Prefer not to answer	7%
Race	
White	82%
Black or African American	8%
American Indian or Alaska Native	2%
Asian	1%
Native Hawaiian or Pacific Islander	0%
Other	3%
Prefer not to answer	8%
Age	
18 to 24	2%
25 to 34	11%
35 to 44	19%
45 to 54	18%
55 to 64	18%
65 or over	29%
Prefer not to answer	4%

Employment	
Employed, working 40 or more hours per week	47%
Employed, working 1-39 hours per week	11%
Not employed, looking for work	6%
Not employed, not looking for work	3%
Student	1%
Retired	21%
Disabled, not able to work	6%
Prefer not to answer	4%
Individuals in Household (Average)	
Under Age 18	1
Age 18 to 65	2
Over Age 65	1
Income	
Less than \$25,000	16%
\$25,000 to \$49,999	19%
\$50,000 to \$99,999	27%
\$100,000 to \$149,999	14%
\$150,000 or more	8%
Prefer not to answer	16%
Education	
Less than high school	3%
High school diploma (or GED)	17%
Some college	18%
Associate's degree	10%
Bachelor's degree	24%
Master's degree	16%
Professional degree beyond a master's degree	7%
Prefer not to answer	5%