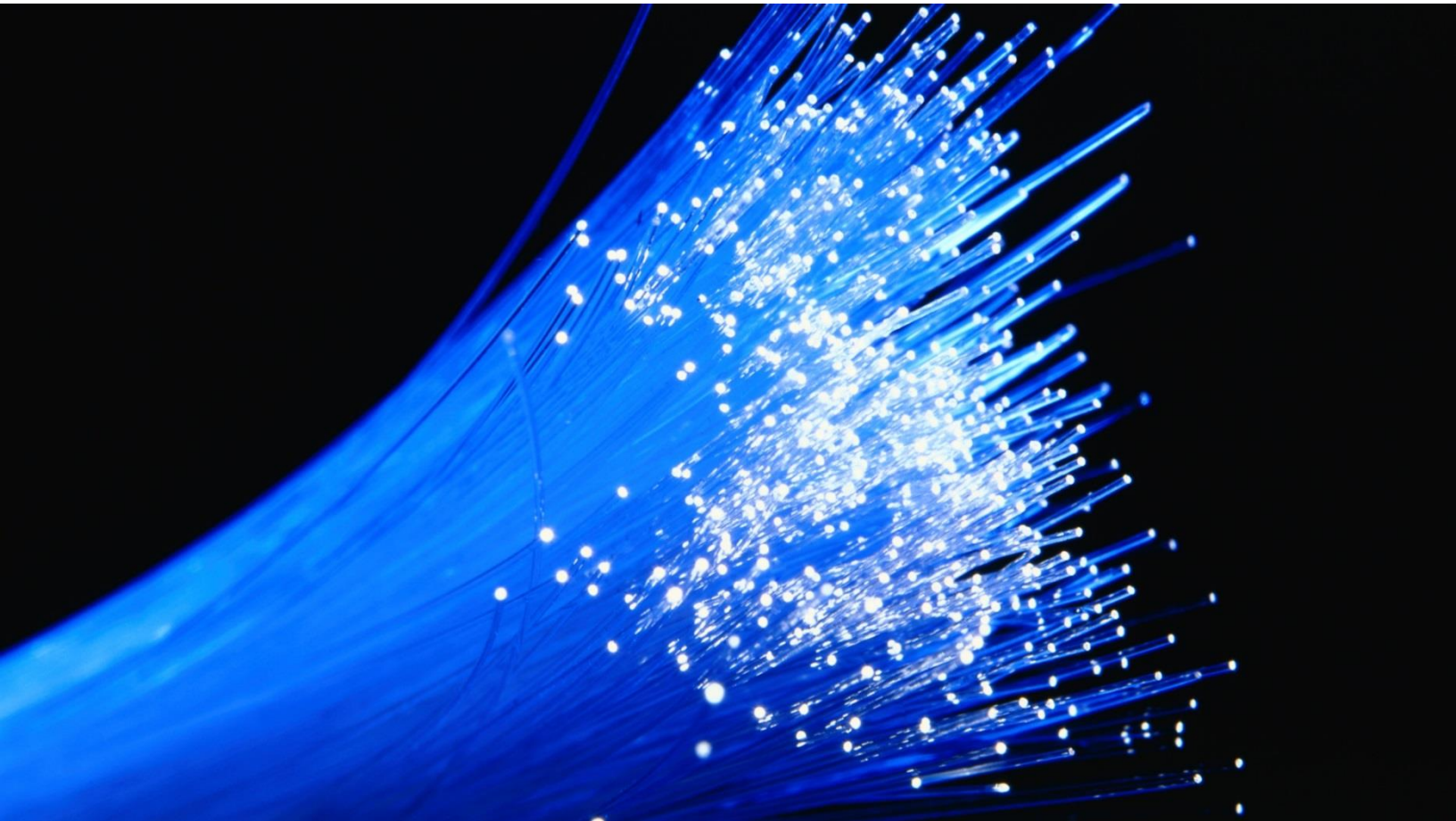


ctc technology & energy

engineering & business consulting



Municipal Digital Equity Plan

Prepared for the Town of North Andover, MA
November 2024

Columbia Telecommunications Corporation

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1 Executive summary

The Town of North Andover commissioned CTC Technology & Energy (CTC) to engage in a study to document gaps in digital equity—a condition in which all residents have access to adequate broadband service and devices and possess the skills to use these resources—and develop strategies to bridge these gaps.

This report presents findings of significant digital equity gaps in North Andover, offers recommendations for how the Town can address these gaps, and discusses how other municipalities have recently implemented state-funded programs and services. This includes initiatives launched after the end of the federal Affordable Connectivity Program (ACP), which until earlier this year had provided a \$30 monthly subsidy for broadband bills of eligible low-income families.

This study was funded by the Massachusetts Broadband Institute (MBI) at the MasTech Collaborative under its Municipal Digital Equity Planning Program. Funding came from State and Local Fiscal Recovery Funds provided under the American Rescue Plan Act (ARPA). This report may also be considered by MBI as it develops strategies for addressing digital equity gaps under the Massachusetts State Digital Equity Plan.¹

1.1 Project overview

This report presents findings (see Section 1.2) and recommendations (see Section 3) that have been informed by the following tasks CTC performed over a five-month period, including:

- Performing an analysis of the availability of broadband service, level of competition, and broadband pricing in North Andover (Section 5).
- Determining previous levels of enrollment in the now-defunct Affordable Connectivity Program (ACP), which offered a \$30 monthly subsidy toward broadband bills, and estimation of the gap in utilization by eligible households (Section 5.3).
- Conducting interviews with stakeholders from six entities over the course of several meetings to further illuminate gaps in affordability, skills, and devices; existence of local programs; and the ability of stakeholders to start or expand those programs to fill the

¹ The Digital Equity Act is a \$2.75 billion federal program that, in part, funds state planning processes to establish a vision for digital equity that will guide overarching strategies and goals. The first draft of MBI's "Massachusetts State Digital Equity Plan" (SDEP) was released for public comment on November 13, 2023, and can be viewed here: <https://broadband.masstech.org/news/mass-broadband-institute-announces-municipal-digital-equity-planning-program-participants>. The SDEP report was in the process of being finalized for submission to the NTIA at the time this report was provided to the Town.

identified gaps. See Section 6 for a report on the stakeholder meetings and Appendix B for the stakeholder questionnaire.

- Promoting MBI’s statewide residential digital equity survey (see Appendix A) and reporting on North Andover-specific findings on topics including broadband utilization, affordability, skills, device access, and related topics (Section 8).
- Development of recommendations with respect to strategies and activities designed to address gaps using potentially available funding, potentially augmented by local funds (Section 3).
- Outlining models for how, in the absence of the ACP, the Town can assist residents in connecting to broadband service with low-cost and future subsidy programs. This includes opportunities for single-payer broadband arrangements with internet service providers, and promotion of low-cost broadband programs offered by local providers (Section 6).
- Overview of MBI’s Municipal Digital Equity Implementation Program, which offers grants to which the Town of North Andover will have access after the submission of this report (Section 2.2.1).

1.2 Key findings

This report finds that the digital equity gaps in North Andover are not rooted in a lack of available infrastructure; rather, they are about the affordability of the services, uptake in use of available broadband subsidy programs, skills in using broadband, access to adequate devices, and knowledge of online privacy and security best practices.

1.2.1 North Andover has nearly ubiquitous wireline broadband coverage from Comcast, and considerable fiber coverage from Verizon Fios.

The National Broadband Map reports that Comcast offers cable broadband at served broadband speeds to nearly every address in Town (99.7 percent of all locations). While the NTIA has defined “served broadband speeds” as 100/20 Mbps, Comcast offers customers in North Andover a minimum of 300/20 Mbps, and every address can receive a maximum speed of 1200/40 Mbps. Additionally, Verizon offers its Fios fiber services to 6,589 (or 83.9 percent of all) locations in North Andover.

1.2.2 Just over half of all North Andover households have access to fixed wireless services, but only 19 percent of households can receive speeds of 100/20 Mbps or higher from these services

T-Mobile, and to a lesser extent Verizon Wireless, offer fixed wireless home services (leveraging the networks previously used only for mobile service) to approximately 50.3 percent of addresses in North Andover. These services provide a relatively affordable option, but with the significant caveat that performance is dependent on individual subscribers’ distance from wireless facilities,

and the data speeds may be cut (or “throttled”) during times of congestion. FCC data show that only half of (or 3,947) North Andover locations have access to licensed fixed wireless services, but of these only 1,501 locations can receive 100/20 Mbps or higher. These licensed fixed wireless services also require a bundled mobile plan and phone as an additional cost.

1.2.3 North Andover exceeds state and nationwide home internet subscription rates, with low-income households experiencing larger gaps

According to American Community Survey (ACS) data, 89.9 percent of households in North Andover subscribe to residential internet services via wireline technology (cable, fiber, or DSL), which is higher than the state figure of 80.4 percent and the national figure of 73.3 percent. However, among households without wired broadband services, 92.9 percent earn less than \$75,000 annually. This figure points to the need for programs to connect households with any available discounts or subsidies for broadband subscriptions.

1.2.4 Approximately 26.3 percent of households that were potentially eligible for the FCC’s Affordable Connectivity Program (ACP) were enrolled by the program’s end

The ISPs in North Andover all participated in the ACP, which paid a \$30 monthly subsidy for broadband service for eligible low-income residents. As of January 31, 2024, FCC data suggest that 699 households in North Andover were receiving the ACP subsidy—or 26.3 percent of the estimated 2,653 households eligible for the program.² This enrollment rate had steadily increased in the last year of the ACP—enrollment rates for eligible households were as low as 11.8 percent in January 2023 and had progressed to 15 percent in June 2023, and may reflect positive results of efforts by local entities to boost awareness and participation. Nevertheless, the data show that there is room for further improvement to connect residents to available current or future subsidy or low-cost subscription programs.

1.2.5 North Andover respondents to the MBI survey who had household income of less than \$60,000 reported significantly lower confidence in performing common online tasks

With respect to skills, for example, 93 percent of respondents with household income above \$60,000 reported that searching and applying for a job online was “easy,” yet only 77 percent of the respondents from lower income households said so. Similarly, 79 percent of respondents with income above \$60,000 found searching and applying for benefits or resources online to be “easy,” but only 56 percent of their counterparts felt the same.

² Estimates are based on 2022 American Community Survey reported data on household income, food stamp reciprocity, Medicaid reciprocity, supplemental security income, and public assistance income.

1.2.6 Low-income residents report significant difficulty in paying their monthly broadband bill, pointing to the need for wider enrollment in subsidy and low-cost programs

Paying monthly broadband bills is a challenge for low-income North Andover residents. The average monthly cost of home internet service for all North Andover residents who participated in the MBI survey is \$140 for bundled service, and \$90 for unbundled service. Of respondents from households with income lower than \$60,000 per year, 71 percent said it was somewhat hard or very hard to pay their internet bill each month, compared to 28 percent of respondents with household income of more than \$60,000 per year. Given that North Andover's broadband providers offer low-cost internet options like Comcast's Internet Essentials and Verizon's Forward program, this finding underscores the need for wider enrollment support in these programs.

1.2.7 Across the income spectrum, North Andover residents are very concerned about privacy and security online

North Andover residents who participated in the MBI residential survey expressed deep concerns about online safety and privacy, and these sentiments held across the income spectrum. Respondents are most concerned about their data being stolen or used without their consent—a concern cited by 82 percent of respondents. Additionally, 70 percent are most concerned that they or a loved one could get scammed or tricked, and 63 percent are most concerned about being harassed or abused online. This suggests a need for skills training and education generally in the community.

2 Digital equity funding landscape

To implement strategies recommended in this report, the Town and its stakeholders can potentially leverage certain funding sources.

2.1 American Rescue Plan Act and Digital Equity Act

This subsection provides general background on the major funding sources. The next two subsections provide detail on what is available to North Andover.

The American Rescue Plan Act (ARPA), established in 2021, gave State and Local Fiscal Recovery funds to both the State of Massachusetts and directly to local jurisdictions. Through MBI, the state has allocated \$75 million in ARPA funding to digital equity and directed \$50 million to grants through its Broadband Innovation Fund. This fund supports grants under the Digital Equity Partnerships Program³ and the Municipal Digital Equity Planning Program (which funded the development of this municipal report).⁴

Additionally, the National Telecommunications and Information Administration (NTIA) offered grant programs for promoting digital equity, supporting digital inclusion activities, and building capacity for state-led efforts to increase adoption of broadband by their residents through the Digital Equity Act of 2021.⁵ The bill has allocated \$60 million for planning grants for states, territories, and Tribal governments to develop State Digital Equity Plans. MBI is the lead agency for Massachusetts and was responsible for conducting the planning process and drafting the state Plan with a \$1 million federal grant under this program. The Plan was submitted to NTIA at the end of 2023.

The state digital equity plans set the stage for the \$1.44 billion Digital Equity Capacity Building Grant program. The Capacity Grant program opened in early 2024 and is being reviewed on a rolling basis, allocating funding over the course of several years. Under this program, states apply for funding to support the implementation of their digital equity plans. States receive funding based on a legislatively mandated allocation formula. Once received, states have five years to use this federal funding to develop their own digital inclusion projects, including competitive grant programs for activities by state agencies, local governments, non-profits, and others.

Following the Capacity Grant program, NTIA implemented the \$1.25 billion Digital Equity Competitive Grant program. This direct funding program awards individual grants to eligible entities, including local governments, nonprofits, and community anchor institutions. Funding will support programs that address the affordability of services and devices, provide education

³ "Digital Equity Partnerships Program," MassTech, www.broadband.masstech.org/partnerships.

⁴ "Municipal Digital Equity Planning Program," MassTech, www.broadband.masstech.org/municipal.

⁵ "Digital Equity Act of 2021," Congress.gov, <https://www.congress.gov/index.php/bill/117th-congress/house-bill/1841>.

and tools to increase privacy and cybersecurity while online, develop digital literacy and technical skills for personal and professional growth, and provide technical support and training for repair and updates to devices. (Applications for this program were due on September 23, 2024, and the awards are likely to be announced by NTIA in early 2025.)

2.2 MBI-funded opportunities

Two groups of MBI funded programs provide opportunities for the Town of North Andover.

2.2.1 MBI's Municipal Digital Equity Implementation Program has launched and is available to municipalities for amounts up to \$100,000

Following the Digital Equity Planning Program through ARPA, MBI launched its direct grant program—the Municipal Digital Equity Implementation Program (MDEIP)—for municipalities to access funds to implement programs proposed through this and similar reports.⁶ The Town of North Andover can start its application for these funds immediately, using this report and ongoing conversations with local organizations as a guide.

The one-time grant of up to \$100,000 is intended to help municipalities make local digital equity investments and execute projects that will increase access, adoption, and usage of the internet.⁷ Applications are reviewed by MBI on a rolling basis (see Section 4 for examples of implementation projects in other municipalities).

CTC is ready to assist the Town in the process of applying for an implementation grant at no cost to the Town; MBI has already pre-approved covering the cost of this assistance.

2.2.2 MBI's Digital Equity Partnerships Program supports nine organizations across the states, which can potentially assist the Town of North Andover

MBI's Broadband Innovation Fund addresses immediate and ongoing digital equity needs and has awarded nine organizations across the state with funding necessary to implement various initiatives. Some of these efforts can indirectly benefit the Town of North Andover, as noted below.

In September 2022, MBI issued an RFP soliciting partnerships with interested Regional Planning Agencies, Philanthropic Foundations, public and nonprofit service providers and other organizations across the state to facilitate the implementation of programs that address six key areas of digital equity:

1. digital literacy,

⁶ Municipal Digital Equity Implementation Program, MBI Massachusetts Broadband Institute, <https://broadband.masstech.org/digital-equity-implementation>

⁷ "Municipal Digital Equity Implementation Program", MBI, <https://broadband.masstech.org/digital-equity-implementation>.

2. Wi-Fi access,
3. public space modernization,
4. connectivity for economic hardship,
5. device distribution and refurbishment, and
6. education, outreach, and adoption.

In 2023, MBI announced it was awarding funds through the Broadband Innovation Fund to nine partners: AgeSpan, Baystate Health, City of Boston, Tech Goes Home, Massachusetts League of Community Health Centers, Metropolitan Area Planning Council, Metro North Workforce Investment Board, UMass Lowell, and Vinfen. Each partner has a defined scope of services, and their programs will be in operation through June 30, 2026. To varying degrees, the Town of North Andover or its residents can benefit from the eight programs offered in eastern Massachusetts, either directly or indirectly, as noted in the following subsections.

2.2.2.1 AgeSpan

AgeSpan is a statewide organization supporting more than 230 age- and dementia-friendly communities, including North Andover. (Age- and dementia friendly communities are municipalities that have infrastructure, programs, and policies geared to assist older people or people with dementia. North Andover is included on the state’s list of 230 such municipalities.⁸)

AgeSpan supports MBI as part of the Statewide Digital Equity Plan Working Group and collaborates with various partners to promote inclusion of older adults in state and local digital equity planning and programs, working to connect aging services (councils on aging, affordable senior housing, aging service access points) to other partners doing this work including colleges, libraries, and housing partners.⁹

Areas of focus for this program include providing tablets, offering training to help blind and visually impaired individuals, offering educational programs to protect against online fraud online, and helping boost enrollment in low-cost broadband programs. The eight counties involved in this program include Essex County.¹⁰

James Fuccione, the Senior Director of the Massachusetts Healthy Aging Collaborative (a co-lead to the AgeSpan Digital Equity Partnerships grant), stated that North Andover’s Elder Services is receiving digital literacy support from AgeSpan through its Digital Access Program that offers a free tablet device, training on how to operate the device, and free data plans for individuals without broadband access in their home for up to a year. North Andover Elder Services has

⁸ “Examples of age- and dementia friendly community characteristics,” Mass.gov, <https://www.mass.gov/info-details/examples-of-age-and-dementia-friendly-community-characteristics>.

⁹ “About Us,” AgeSpan, <https://agespan.org/about-us/>.

¹⁰ “Healey-Driscoll Administration Awards \$20 Million to Boost Digital Equity,” MBI, <https://broadband.masstech.org/news/healey-driscoll-administration-awards-20-million-boost-digital-equity>.

encouraged the Housing Authority to promote this program to its seniors, many of which have already obtained a device. Details on this program can be found [at this link](#). This program will be running until June 30, 2026.

2.2.2.2 UMass Lowell

A \$4 million grant was awarded to UMass Lowell to lead a digital equity initiative serving Gateway Cities on the North Shore. Partnering with other higher education and community entities, UMass Lowell is providing technical skills, support and training for student digital navigators, and project management resources. Through this grant, UMass Lowell is also improving multiple public facilities with broadband service, creating a multi-tiered digital literacy and navigation initiative that establishes a regional help desk at UMass Lowell and advances new digital literacy programs, distributing 1,200 new or refurbished devices, and expanding low-cost broadband outreach and adoption programs at six community-based organizations.¹¹

North Andover residents who are students at Northern Essex Community College, North Shore Community College, and Middlesex Community College can access this technical skills support and training through their school, and interested job seekers in Town can also receive similar training through this program at MassHire Merrimack Valley, MassHire Lowell, Coalition for a Better Acre, Make it Haverhill, and Community Teamwork.

2.2.2.3 Metropolitan Area Planning Council

MBI has partnered with the Metropolitan Area Planning Council (MAPC), to award \$5.6 million for the Apartment Wi-Fi program.

This program allows MAPC to provide procurement support, capital expense funding, and funding for the first year of operating expenses to provide free Wi-Fi internet access to residents living in roughly 2,400 public and affordable housing units in Massachusetts. The effort targets residents most likely to face barriers to connectivity—those experiencing housing insecurity who have access to broadband but cannot afford it.¹²

Through stakeholder conversations, North Andover’s Housing Authority has expressed interest in participating in this program to offer Wi-Fi in public housing buildings. The Housing Authority can begin its application for this program by expressing interest [at this link](#).

2.2.2.4 Mass League of Community Health Centers

The Mass League is a recipient of MBI’s Digital Equity Partnership grant, using its funding to help hire and staff a digital navigator at 12 community health centers across the Commonwealth. The

¹¹ “Healey-Driscoll Administration Awards \$20 Million to Boost Digital Equity,” MBI, <https://broadband.masstech.org/news/healey-driscoll-administration-awards-20-million-boost-digital-equity>.

¹² “Smart Growth and Regional Collaboration: Apartment Wi-Fi,” MAPC, <https://www.mapc.org/our-work/expertise/digital-equity/apartment-wi-fi/>.

navigators assist the health center patients with low-cost internet enrollment. Each health center also chose what digital health tools they would focus on, which could be telehealth, remote patient monitoring, or enrollment in patient portals with the goal that if patients are digitally engaged in their care, they will have healthier outcomes.

Mass League has an established digital navigation program under the FQHC (federally-qualified health center) Telehealth Consortium ([FQHC Telehealth Consortium – Bridging the Health Equity Divide](#)), which was founded during the pandemic as a partnership between C3 ACO and the Mass League. Community Health Centers serve the most underserved and diverse populations in healthcare, so the services are provided by and at the health centers for their patients in need.

Although North Andover does not have a Community Health Center, the Lowell Community Health Center participates in the FQHC Telehealth Consortium’s digital navigation program. Community health centers often serve residents beyond the municipality in which the health center is located. As such, residents of North Andover who use this health center can receive access to these digital navigation services.

2.2.2.5 Tech Goes Home

Tech Goes Home’s goal is to support residents in Massachusetts to receive access to the digital tools, skills, and connectivity they need to thrive. In April 2023 it was announced that Tech Goes Home would be receiving a grant of \$4.5 million to address four critical areas to close the digital divide:

1. Connectivity for economic hardship,
2. Digital literacy,
3. Device distribution and refurbishment, and
4. Education, outreach, and engagement.

Through MBI’s Partnership Program, local entities in Gateway Cities have partnered with Tech Goes Home to advance digital education and device gaps by providing digital tools, skills, and connectivity necessary to thrive.

Although North Andover is not a Gateway City, entities in Town that are interested in offering digital literacy education and device distribution programs can still partner with Tech Goes Home directly. To get started on this process, interested local entities can complete this [partnership inquiry form](#).¹³ Essex County Community Foundation, a philanthropic foundation based in Danvers serving the needs of all Essex County residents, has an existing relationship with Tech

¹³ “Partnerships,” Tech Goes Home, <https://www.techgoeshome.org/becoming-a-tgh-site>.

Goes Home that could be leveraged by Town entities interested in offering Tech Goes Home programming.

2.2.2.6 Vinfen

In April 2023, Vinfen—on behalf of a group of Massachusetts health and human services providers serving people with disabilities—and other entities comprising the Human Services Alliance for Digital Equity,¹⁴ received \$4.3 million to increase digital inclusion among low-income people with physical disabilities, intellectual and developmental disabilities, and serious mental health conditions. The alliance deploys 15 technology navigators to help people obtain digital devices, develop digital skills, and enroll in low-cost broadband programs. The technology navigators collaborate with people served in their homes and in service settings. Individuals are primarily served through a closed referral system. Still, the alliance can offer materials and resources to interested municipalities seeking information for digital inclusion in telehealth for individuals with disabilities. In addition, the Town of North Andover can contact the MBI Partnerships Program lead at Vinfen, Jessie Wolfe, for more information on how North Andover residents with physical, intellectual or developmental disabilities can begin receiving telehealth services from participating organizations of the Alliance.

2.2.2.7 Metro North Workforce Investment Board

The Metro North Workforce Investment Board received an award of \$4.1 million to expand its digital equity initiatives by hiring and training 32 digital navigators and provide employment and career counseling, provide 1,500 refurbished laptops, 300 hotspots, and provide internet access and IT support to recipients.¹⁵ Towns and Cities covered in this programs service area are in Gateway Cities.

2.2.2.8 City of Boston

The City of Boston was awarded \$5 million in grant funding directed to the Boston Housing Authority to support residents seeking affordable and dependable internet connectivity, and to other community organizations that support telehealth programs in Boston and establish workforce development programs through refurbishing distributed devices. A portion of this

¹⁴ Organizations that comprise the Alliance are: [Advocates](#), [Behavioral Health Network](#), [Beth Israel Deaconess Medical Center](#), [Boston Center for Independent Living](#), [Clinical Support Options](#), [Open Sky](#), [Riverside Community Care](#), and [Vinfen](#).

¹⁵ “Healey-Driscoll Administration Awards \$20 Million to Boost Digital Equity,” MBI, <https://broadband.masstech.org/news/healey-driscoll-administration-awards-20-million-boost-digital-equity>.

grant will also go toward the expansion of the City’s publicly accessible Wicked Free Wi-Fi network, and to expand the City’s Digital Equity Fund.¹⁶

2.3 Four other funding opportunities are potentially available to the Town of North Andover

2.3.1 MBI’s Residential Retrofit Program

The Residential Retrofit program deploys fiber at approximately 22,000 public and affordable housing properties to replace deficient wiring and infrastructure through grants to qualified ISPs who will install, own, and maintain equipment.¹⁷ This program is operated by MBI using Capital Projects Fund money.

Similar to MAPC’s Apartment Wi-Fi program application, North Andover’s housing authority can apply for this program online by expressing interest [at this link](#).

2.3.2 Essex County Community Foundation has launched its Digital Equity Initiative Partnership Grant

The Essex County Community Foundation (ECCF) is a community foundation based in Danvers that inspires philanthropy and works to manage charitable assets, strengthen and support nonprofits, and engage in strategic community leadership initiatives for the communities of Essex County, including North Andover. ECCF has been a leader in advancing digital equity programs in the area and continues to develop new grant programs for entities to close the digital divide across the County.

In October 2024, ECCF launched its Digital Equity Initiative Grant to provide support to nonprofit organizations that want to develop or expand programs that advance access to devices, internet, and digital literacy education.¹⁸ State and local government agencies are not eligible for this grant. Award amounts can be up to \$50,000 and are available for one year. Applications must be submitted through the organization’s application portal which can be found [at this link](#). Further detail on how to apply for a grant through ECCF’s grant application portal can be found [here](#). The deadline for applying to this grant program is December 2, 2024.

This grant requires quarterly check-in meetings and interim reports on the progress and reach of the program. Reports are due before a participant’s end-of-year check-in.

¹⁶ “\$5 Million in New Grant Funding to Expand Digital Equity,” MBI, <https://broadband.masstech.org/news/5-million-new-grant-funding-expand-digital-equity>.

¹⁷ “Residential Retrofit Program,” MBI, <https://broadband.masstech.org/retrofit>.

¹⁸ “Digital Equity Initiative Partnership Grant,” ECCF, <https://www.eccf.org/digital-equity-initiative-partnership-grant/>.

2.3.3 Municipal Fiber Grant

The MA Division of Local Services is offering municipalities with the opportunity to apply for the [Municipal Fiber Grant program](#), which offers assistance for the construction of municipally-owned fiber networks. Through this grant, the MA Division of Local Services hopes for municipalities to achieve certain goals of improving operations or improving disaster recovery and resiliency. Examples of this may include prevention of cyber security risks in local government, providing room for growth in internet bandwidth as municipalities grow, and supporting various infrastructure that rely on dependable technology for municipal needs including public safety, radio, and emergency operations centers.¹⁹

All fiber built must be owned by the municipality, and awards are up to \$250,000 per individual municipality, or \$500,000 for multi-jurisdictional municipalities. The next grant window opens on March 10, 2025, and will close on April 10, 2025.²⁰

In 2022, North Andover received \$15,561 for the expansion of the Town's existing fiber optic infrastructure through this program.

2.3.4 The Federal Communications Commission's E-Rate program can bring discounted services to schools and libraries in the area

The Federal Communications Commission's E-Rate program was created in 1996 to enhance access to advanced telecommunications and information services for all public and nonprofit elementary and secondary school classrooms and libraries.²¹ E-Rate is one of four programs comprising the Universal Service Fund (USF) and is funded by fees paid by telecommunications companies to fulfill the Congressional goals of universal service.

Currently, E-Rate is a \$4.27 billion federal funding program managed by the Universal Service Administrative Company (USAC) that approves and provides subsidy discounts for telecommunications and information services for schools and libraries. In late 2023, the FCC made the latest addition to the list of eligible services by approving subsidies for Wi-Fi services on school buses as an eligible program expense to help close the "homework gap" for students with limited broadband access at home.

Eligible schools and libraries identify goods or services they need and submit a request for competitive bids to USAC, which then posts these requests on its website for vendors to bid on. After reviewing the vendors' bids, the school or library selects the most cost-effective eligible

¹⁹ "About the Municipal Fiber Grant Program," Mass.gov, <https://www.mass.gov/info-details/about-the-municipal-fiber-grant-program>.

²⁰ "Municipal Fiber Grant Program FAQ," Mass.gov, <https://www.mass.gov/info-details/municipal-fiber-grant-program-faq#what-kind-of-projects-are-eligible?-.>

²¹ Universal Service Administrative Co., E-Rate, <https://www.usac.org/e-rate/>

products and services using price as the primary factor. It then applies to USAC for approval for the desired purchases.

Funds are awarded as discounts ranging from 20 to 90 percent of the eligible costs and discount levels are based on the poverty level of the schools. Rural schools and libraries may also receive a higher discount. Recipients must pay a portion of the service costs. Often, schools and libraries will form consortia to centralize and manage the E-Rate application, reporting, and budgeting processes within a central point of contact.²²

Eligible schools and libraries in Massachusetts received \$10.1 million in E-rate disbursements in 2023.²³ The Massachusetts Board of Library Commissioners²⁴ tracks E-Rate participation by libraries and library networks and provides information and resources about the program. The Department of Elementary and Secondary Education's Office of Digital Learning provides similar outreach and education for schools.²⁵ While Massachusetts does not manage a state-wide consortium, several of the State's library networks and school districts participate in E-Rate.

This could potentially be a resource for any network infrastructure improvements needed by the schools.

²² Universal Service Administrative Co., E-Rate, Consortia, <https://www.usac.org/e-rate/applicant-process/before-you-begin/consortia/>

²³ Universal Service Administrative Co., E-Rate FRN Status Tool FY2016+, <https://opendata.usac.org/E-Rate/E-Rate-FRN-Status-Tool-FY2016-/8xzh-ytkh>.

²⁴ E-rate in Massachusetts Libraries, <https://mblc.state.ma.us/programs-and-support/e-rate/index.php>.

²⁵ Technology Planning and Sustainability, E-Rate, <https://www.doe.mass.edu/odl/planning-funding/E-rate/>.

3 Recommendations

CTC recommends the Town and its stakeholders explore the following strategies and pursue available funding sources to help close digital equity gaps in North Andover. Most recommendations involve work that established, proven, and trusted community partners could perform.

Table 1 and the following subsections summarize the major recommendations of this report. The first recommendation—for setting up an annual or biannual Town-wide digital equity meeting—would create an entity within North Andover comprised of the Town and its departments, local stakeholders, and any other entities. Taken together they would be tasked with facilitating coordination, setting priorities, and making funding recommendations.

Table 1: Summary of recommendations

Recommendation	Access and affordability	Devices	Skills	Privacy/security	Potential annual cost
Convene annually or biannually to harmonize local digital equity efforts and support outreach to funders	X	X	X	X	N/A
Consider setting up a modest Town grant fund to fill small gaps and reduce reliance on uncertain or finite state or federal funding streams	X	X	X	X	\$25,000
Consider funding a Town-wide shared digital navigator position to serve residents at the library, schools, Senior Center, Youth Center, and Housing Authority	X		X	X	\$80,000
Purchase 20 iPads for loan at the Youth Center, and 10 Chromebooks and 10 iPads to loan at the Stevens Memorial Library	X	X			\$7,000 for Youth Center (20 iPads x \$350) \$7,500 for Library (10 Chromebooks x \$400, 10 iPads x \$350)

Recommendation	Access and affordability	Devices	Skills	Privacy/security	Potential annual cost
Consider the purchase of 100 Chromebooks for students at North Andover School District	X	X			\$40,000
Consider the purchase of 10 Chromebooks for the Andover/North Andover YMCA to have available on location for its members	X	X			\$4,000 (10 Chromebooks x \$400)
Explore a partnership between the Andover/North Andover YMCA and Tech Goes Home to ensure digital skills and device needs are being met	X	X	X	X	\$1,500 per learner
Explore MAPC program to provide Wi-Fi in North Andover Public Housing, to include community rooms. This could include the purchase of two desktop computers for each Wi-Fi-enabled community room.	X				No cost for construction and first year of Wi-Fi operations; Town must cover operating costs for subsequent years. The additional cost of \$11,000 for 12 desktop computers in Wi-Fi-enabled community rooms.
Explore cybersecurity programming/partnership opportunities				X	Pursue free state cybersecurity programs ²⁶

3.1 Convene annually or biannually to harmonize local digital equity efforts and support outreach to funders

The Town of North Andover cannot address all challenges related to digital equity alone: connecting residents with subsidy programs, providing devices, assisting with device maintenance and updates, and helping individuals develop better computer skills.

²⁶ “About the Municipal Cybersecurity Awareness Grant Program,” Mass.gov, <https://www.mass.gov/info-details/about-the-municipal-cybersecurity-awareness-grant-program#how-to-apply>.

Given these considerations, an important role the Town of North Andover could play is in organizing an annual or twice-annual meeting to convene the organizations already providing, planning to provide, or willing to contribute services in North Andover, including all stakeholders engaged in Section 6 of this report.

Entities including the Stevens Memorial Library, the Housing Authority, North Andover Department of Elder Services, North Andover Public Schools, Community Access and Media, Youth and Recreation Services, and others (some of which cover overlapping populations) should consider convening to ensure that digital equity efforts are coordinated. An annual or biannual meeting—with the structure to encourage attendees to distribute timely and relevant information and opportunities throughout the rest of the year—would help inform a holistic programmatic strategy and make recommendations to the Town, to funders, potential philanthropies including the Essex County Community Foundation (ECCF), and for future grant opportunities by the state.

Working with MBI and other larger regional entities, the Town could also expand partnerships across communities with housing authorities, regional library groups, senior groups, and other social service and public health entities to further improve coordination.

3.2 Consider funding a Town-wide shared digital navigator position to serve residents at the schools, library, Senior Center, Youth Center and Housing Authority

There is a broad need for technical and digital skills assistance for North Andover residents. To support various local entities and the residents they serve, the Town could consider establishing a Town staff position for a digital navigator. Entities that could benefit from having a digital navigator include North Andover Public Schools, the Stevens Memorial Library, North Andover Department of Elder Services, Youth Center, and the Housing Authority.

The digital navigator's core services could include helping residents learn how to access lower-cost internet services and access and enroll in government programs online, in addition to helping residents better navigate the internet and gain digital skills more generally. This individual would also participate in any annual or biannual digital equity meetings by the Town (see recommendation 3.1) to better understand the needs of residents and entities in Town.

- **Digital navigator's role at the Stevens Memorial Library:** The Library currently offers a drop-in tech support desk for the public, so long as a librarian has the bandwidth to provide this one-on-one service. Commonly, the librarian will help any individual who may have questions or needs related to a personal or library device, web browsing, and online library resources, among other internet and device-related topics. Additionally, the Library offered digital literacy and skills classes in the past but stopped during the Covid-19 pandemic. In stakeholder discussions, a representative at the library expressed the

desire to hire a staff member that could focus efforts on reviving these classes and leading the drop-in tech support desk. This part-time staff member would be hired at a salary of \$35,000. By leveraging this interest at the library—and expanding this position to be a full-time digital navigator that serves multiple entities across Town—the library could effectively assist its patrons with digital skills and literacy support and help residents enroll in low-cost broadband subscription programs as needed.

- **Digital navigator’s role at North Andover Public Schools:** The school district does not currently have a dedicated staff member supporting students and their families on digital equity-related topics, including information sharing and enrollment support for low-cost internet programs. As new students enter the North Andover school system each year, the school district could benefit from having a digital navigator available at back-to-school and other school- or district-wide events to assist students and their families with various online applications, enrollments (including enrollment in low-cost internet programs), and school registration.
- **Digital navigator’s role at North Andover Senior Center through the Department of Elder Services:** Broadband affordability appears to be a challenge for seniors in Town, having a Town digital navigator spend a few days per month at the Senior Center to assist individuals with searching for and enrolling in low-cost broadband programs, while also assisting with other digital literacy needs as well, could be beneficial.
- **Digital navigator’s role at the North Andover Housing Authority:** While a representative at the Housing Authority stated that most residents in each building have some form of internet in their units, affordability is a major challenge for this population. Knowing this, the Housing Authority could benefit from having a digital navigator available at each building once a month to provide information, assist in low-cost subscription enrollments, and provide digital assistance with navigating governmental subsidy and social service applications that are now predominantly online.
- **Digital navigator’s role at Youth and Recreation Services’ Youth Center:** A representative at the Youth Center expressed interest in offering workshops on digital citizenship, that would include topics on online privacy, cyber-bullying, and online safety for youth and teenagers. Similarly, the Center would like to offer workshops for parents on topics related to parental controls and monitoring on children’s devices. However, the Youth Center does not currently have the capacity or the expertise to offer this programming. A digital navigator could fill this role by offering periodic workshops on these and other topics of concern.

One digital navigator, potentially operating out of the Town's IT Department, could organize their efforts monthly so that each entity mentioned above receives consistent support for the populations they serve.

3.3 Consider the purchase of 20 iPads for the Youth Center, and 10 Chromebooks for the Stevens Memorial Library for individuals to loan

Representatives at the Youth Center and at the Stevens Memorial Library have explicitly stated their interest in purchasing devices for individuals to temporarily loan as needed. The Youth Center would like to purchase 20 iPads, and the library would like to purchase 10 Chromebooks (replacing five old devices) and 10 iPads; however, both entities are unable to do so due to their limited budgets. The Town of North Andover should consider the purchase of these devices.

The Youth Center is aware that most individuals that come to the Youth Center are well equipped with devices—mainly Chromebooks from the school district or a cell phone. However, some do not have access to a device at home and cannot afford to purchase one. Representatives of the Center would like to ensure that there is always an opportunity for its patrons, both children and their parents or guardians, to have access to a device when needed. The Center believes that the purchase of 20 iPads would satisfy the current demand at this location.

Additionally, the Stevens Memorial Library currently has five Chromebooks that can be loaned out to library patrons but cannot be taken outside of the building and need replacement. The library is interested in seeking funding to purchase 10 Chromebooks and 10 iPads that individuals could borrow for use outside of the library.

The purchase of 20 iPads at an approximate cost of \$7,000 (roughly \$350 per iPad) for the Youth Center, and purchase of 10 Chromebooks and 10 iPads at an approximate cost of \$7,500 (roughly \$400 per Chromebook and \$350 per iPad) would satisfy the immediate demand at both entities.

3.4 Consider the purchase of 100 Chromebooks for students at North Andover School District

The North Andover School District underwent significant budget cuts to its 1:1 Chromebook program for students. As a result, elementary school students do not have a personal device, and instead, every elementary classroom must share 30 devices with another room. In an effort to recover some of its budget, the district is considering charging students for device repairs and replacements.

North Andover should consider providing the school district with funding to allow the purchase of at least 100 Chromebooks to replenish its stock of devices necessary for elementary classrooms, and for middle and high school students that break or lose their personal devices. Although this number of devices will not provide 1:1 device access to students, the district

expressed that 100 Chromebooks would dramatically improve the state of its device access and availability for students of all ages.

The purchase of 100 Chromebooks at \$400 would cost the Town \$40,000.

3.5 Consider the purchase of 10 Chromebooks for the Andover/North Andover YMCA to have available on location for its members

A representative at the Andover/North Andover YMCA stated that one persistent digital equity gap among its location's members is the lack of access to devices. Currently, the YMCA does not have computers available for public use, although a notable number of individuals that come in each week do not have access to a computer at home.

The Andover/North Andover YMCA is interested in acquiring devices to have available on-site for anyone to use for various job searching and career development, email communication, and online application or enrollment needs.

The purchase of 10 Chromebooks at an approximate cost of \$4,000 (roughly \$400 per device) for this YMCA location would satisfy the demand among its members. The YMCA could apply for ECCF's Digital Equity Initiative Partnership Grant to fund the purchase of these devices.

3.6 Explore a partnership between the Andover/North Andover YMCA and Tech Goes Home to ensure digital skills and device needs are being met

Representatives at the Andover/North Andover YMCA highlighted digital literacy and skills gaps among youth who participate in after-school programs, and with the seniors who attend the Active Living Center. However, current staff are not proficient in digital literacy curricula.

The Andover/North Andover YMCA would be interested in finding a way to integrate digital literacy education into their locations' programming in the future, and there are organizations across Massachusetts that aim to address this gap. One is Tech Goes Home (TGH),²⁷ a nonprofit organization that partners with community organizations to provide curated technology-based support through digital literacy, education, and device distribution. Upon successful completion of a TGH course through the community partner, students are provided with a device for personal use. The cost per pupil (including the device) is \$1,500.

Through a partnership with TGH, one or multiple staff could be trained in TGH digital equity programming and device provision efforts and offer classes through the youth after-school program and at the Active Living Center for seniors who would like to learn internet skills and device basics.

²⁷ "Tech Goes Home adds 25 new community partners", *Jamaica Plain Gazette*, <https://jamaicaplainingazette.com/2024/02/05/tech-goes-home-adds-25-new-community-partners/>.

Similar to the recommendation above, the YMCA could apply for the ECCF Digital Equity Initiative Partnership Grant for the funding necessary to support this partnership program.

3.7 Explore MAPC program to provide Wi-Fi in North Andover Public Housing, to include community rooms

The North Andover Housing Authority operates 297 units across eight buildings—six of which include a community room. A representative at the Housing Authority stated that the majority of (if not all) family housing residents have service from either Comcast, or to a lesser extent Verizon, in their homes. However, public Wi-Fi is not available in any of the shared spaces in each building. The Housing Authority has expressed the desire to offer public Wi-Fi in each building’s community room but has faced roadblocks due to costs.

MBI has partnered with the Metropolitan Area Planning Council (MAPC) to provide procurement support, capital expense funding, and funding for the first year of operating expenses to provide free Wi-Fi access to residents of public and affordable housing in Massachusetts. The size of the grant program is \$5.6 million²⁸ and MAPC will initially lead all project management and procurement efforts. Operational expenses for year two and beyond are expected to be assumed by local partners, including the municipality, public housing authority, and community development corporations. Whatever the method, efforts to provide reliable connectivity at home would help bridge the digital divide for all residents.

Using this program to install Wi-Fi would be the most cost-effective way for the North Andover Housing Authority to fulfill its goal of providing reliable internet in its community rooms. The Housing Authority could also apply for ECCF’s Digital Equity Partnership grant to cover the cost of an internet subscription, including installation, for its community rooms. To start, the Housing Authority would like to pilot this effort in its largest building on Morkeski Meadows to understand the level of effort and future costs associated with this program.

In conjunction with this effort, the Housing Authority would consider the purchase of two desktop computers in all Wi-Fi-enabled community rooms. MBI has suggested the cost of one desktop and a monitor is \$926. The purchase of two desktops for six community rooms would cost approximately \$11,000.

²⁸ “Smart Growth and Regional Collaboration: Apartment Wi-Fi,” MAPC, <https://www.mapc.org/our-work/expertise/digital-equity/apartment-wi-fi/> (accessed November 17, 2023).

3.8 Consider setting up a modest Town grant fund to fill small gaps and reduce reliance on uncertain or finite state or federal funding streams

The Town of North Andover would benefit from using local resources to create a small grant fund to address specific gaps in digital equity and inclusion. The Town could consider creating a modest grant fund of perhaps \$25,000, with awards of approximately \$2,500 to \$5,000 to local nonprofits and community organizations to support existing programs and provide seed funding for new ones. The Town should reevaluate the total grant fund amount each year and consider incremental increases as additional funds become available.

A simple grant application, organized and managed by the Town, could allow local organizations serving North Andover to provide specific proposals for training, enrollment support for affordability programs, or device subsidy and assistance programs. The Town could develop metrics and reporting on timelines, financial accountability, and program results that will demonstrate the effectiveness of the use of these awarded funds and how they help meet digital equity goals and objectives created by MBI.

As an example of how this has been implemented at large scale, the City of Boston has been operating its Digital Equity Fund since 2017. Boston’s Digital Equity Fund awards grants to local organizations for various digital equity-related programming, including digital literacy and education for individuals to learn how to use the internet and develop digital tools for personal or employment-based needs, device and internet access and affordability, and digital navigation assistance to support individuals in accessing telehealth, government services, and other programs that exist online.²⁹ In its first year of operation the Digital Equity Fund had \$35,000 to offer local organizations. In 2024, this grant fund grew to \$1,418,000 to be distributed among 34 community-based organizations in early 2025.

North Andover operated its own small grant program utilizing disaster-relief money to offer grants to small businesses affected by the Columbia Gas explosion. The Town could use its experience from that grant fund as a model for future digital equity-specific grants to local nonprofits and businesses that would like to start or expand their own programs in digital literacy and education, device distribution, digital navigation services, or increased internet accessibility and affordability.

3.9 Explore cybersecurity programming/partnership opportunities

Concerns about online safety and privacy in North Andover are significant, with 86 percent of North Andover respondents to the MBI survey stating they are either somewhat concerned or very concerned about their online safety, and 92 percent of North Andover respondents saying

²⁹ “Digital Equity Fund,” City of Boston, <https://www.boston.gov/innovation-and-technology/2023-digital-equity-fund#about-the-fund>.

their main concern online is having personal data stolen or used without their consent. MBI's State Digital Equity Plan (SDEP) states that a future action to address online safety will include the development of a statewide cybersecurity curriculum. Additional actions will include training existing digital navigators so they support, protect, and inform clients about their online safety, and embedding cybersecurity awareness into youth digital literacy programming.

In the near term, North Andover stakeholders can leverage the resources of MasTech Collaborative's MassCyberSecurity online safety initiatives. As part of this, there is also a timely opportunity to apply for a state grant to enhance cybersecurity awareness for anyone using Town or other government networks.³⁰

³⁰ "About the Municipal Cybersecurity Awareness Grant Program," Mass.gov, <https://www.mass.gov/info-details/about-the-municipal-cybersecurity-awareness-grant-program#how-to-apply->.

4 Examples of MBI implementation grant projects include housing authority Wi-Fi buildouts, device provision programs, and curriculum development

MBI launched its direct grant program, the Municipal Digital Equity Implementation Program (MDEIP)—for municipalities to access implementation funds to initiate local programs. This is a \$6 million grant fund that provides participating municipalities with up to \$100,000 to make local digital equity investments and execute projects that will increase access, adoption, and usage of the internet.³¹ This funding can go toward five areas of digital equity:

1. Digital literacy
2. Devices
3. Education, outreach, and adoption
4. Public space improvements
5. Apartment Wi-Fi

Municipalities interested in applying for this digital equity implementation opportunity must complete a two-step application process after submitting a digital equity study to MBI.³² Applications will be reviewed by MBI on a rolling basis, and the final deadline for submissions is July 31, 2025.

Any municipality that has participated in the Municipal Digital Equity Planning Program or has a pre-existing local digital equity plan or related document can apply for this implementation funding. If desired, the Town of North Andover can start its application for these funds immediately, using this report and ongoing conversations with local organizations as a guide.

The total award amount in the first round of MBI's implementation grant was \$1,270,258, which was split between 18 municipalities and will be put toward the five initiative areas (digital literacy; devices; education, outreach, and adoption; public space improvements; and apartment Wi-Fi).

Examples of funded projects include the following, from CTC's experience serving these municipalities:

Watertown: The City of Watertown has put its funding toward one initiative for the Watertown Housing Authority. With its implementation funds, the City will support up to two years of

³¹ "Municipal Digital Equity Implementation Program", MBI, <https://broadband.masstech.org/digital-equity-implementation>.

³² "Municipal Digital Equity Implementation Program," MBI, <https://broadband.masstech.org/digital-equity-implementation>.

operating expenses to match against either the apartment Wi-Fi or wiring retrofit programs (see Section 2.2.2.1 for more information) in Watertown Housing Authority units.

Lynn: The City of Lynn put its funding toward three initiatives:

1. Lynn Community TV received funding for Wi-Fi support and upgrades, and digital literacy training for the community.
2. New American Association of Massachusetts (NAAM)—a nonprofit that primarily serves refugees, political asylees, and migrants—received funds to purchase devices to distribute to its NAAM community that attend its free English as a second language (ESL) class.
3. Pathways—a nonprofit organization that provides adult education, skills training, and English literacy classes—received funds to support the development of an eight-week class curriculum that will serve 15 individuals per cohort.

New Bedford: The City of New Bedford has put its funding toward two initiatives:

1. The New Bedford Council on Aging (COA) is receiving support from this grant to equip its new computer lab with the necessary devices and staffing to offer digital literacy classes. In total, this grant funds the purchase of 12 desktop computers, 12 monitors, and a smartboard; and hiring of a digital literacy and skills instructor.
2. The Global Learning Charter Public School (GLC) opened a science, technology, engineering, art, and math (STEAM) Education building for its high school students, with a Thinkabit Lab. Funding is being dedicated to the growth of the Thinkabit Lab, to support the acquisition of new equipment, software licenses, professional development for staff, and the employment of part-time trainers or stipends for existing GLC employees.

Fairhaven: The Town of Fairhaven has put its funding toward three initiatives:

1. The Millicent Library and Fairhaven Council on Aging are receiving funds to develop their partnerships with Tech Goes Home (TGH). TGH is an organization that partners with schools, healthcare providers, and community organizations to provide curated technology-based support through device distribution, internet access, digital literacy, and education. Through its “train-the-trainer” approach to digital literacy education, students are provided with a device for personal use after successful completion of their course at a community partner location.
2. Community Connections—a nonprofit community agency that offers support to adults with disabilities—is receiving funding to purchase 12 new devices to satisfy the demand by residents who participate in the organization’s Workplace Readiness Curriculum,

which teaches individuals how to write a resume, apply for a job, and learn how to be a positive and helpful employee.

3. Fairhaven TV (FHTV) is receiving funds for the purchase of audio assistant devices that can serve up to eight individuals at one time.

Other municipalities are using their round one grant funds to support various local entities and municipal projects. See Table 2 for a full list of all participating municipalities’ initiatives and program plans.

Table 2: List of all round one Implementation Grant awardees and the entities or programs receiving these funds

Initiative area	Municipality	Entities/programs receiving funds
Digital literacy programs	Charlton	Library
	Somerville	Somerville Housing Authority
	Montague	Council on Aging
	Adams	Library and Council on Aging
	Lanesborough	Library and Council on Aging
	Worcester	Library
	Peabody	Citizens Inn Shelters
	Easthampton	(E-Media, LFA)
	Fairhaven	Library and Council on Aging
	Lynn	Lynn Community TV and Pathways
New Bedford	Council on Aging and Thinkabit Lab	
Device purchasing and distribution programs	Charlton	Library
	Florida	Florida Public Schools
	Cheshire	Library and Council on Aging
	Adams	Library and Council on Aging
	Lanesborough	Library and Council on Aging
	Worcester	Library
	Greenfield	Library
	Easthampton	E-Media
	Fairhaven	Community Connections and Fairhaven TV
	Lynn	New American Association of Massachusetts
New Bedford	Council on Aging and Thinkabit Lab	
Education, outreach and adoption programs	Somerville	Somerville Housing Authority
	Pittsfield	Wayfinding and Digital Equity Ambassador
	Greenfield	Accessibility of public resources
	Peabody	Citizens Inn
	Lynn	Lynn Community TV
Public space improvement	Pittsfield	Public park
	Cheshire	Transfer station hotspot

Initiative area	Municipality	Entities/programs receiving funds
programs	North Adams	Library
	Adams	Library and outdoor center
	Lanesborough	Library and Council on Aging
	Lynn	Lynn Community TV
Apartment Wi-Fi programs	Greenfield	Greenfield Housing Authority
	Watertown	Watertown Housing Authority
	Peabody	Citizens Inn Shelters

5 Broadband availability conditions and participation in the ACP in North Andover

This section provides an analysis of current broadband conditions in the Town of North Andover related to infrastructure availability, level of competition, uptake of services (and of available subsidies) by residents, and device ownership. Data is based on publicly available information from the U.S. Census Bureau, the American Community Survey (ACS), and the Federal Communications Commission (FCC).

5.1 North Andover has ubiquitous wired broadband coverage from Comcast, and significant fiber coverage from Verizon Fios

CTC reviewed FCC data, researched websites of broadband providers operating in North Andover to collect market data on residential broadband pricing, availability, and level of competition.

Comcast provides high-speed cable internet service to nearly every address in Town. Additionally, fiber services from Verizon Fios reaches approximately 84 percent of addresses in Town. Fixed wireless services (distinct from mobile services) are available from T-Mobile and Verizon Wireless to many households (3,508 locations and 616 locations respectively).

Verizon DSL service was an option in North Andover as the only other wireline option for internet service, offered over its legacy copper network, and it is possible that some North Andover residents still use this service. However, a representative at Verizon stated that the company is no longer offering its DSL service to new customers in Massachusetts. Verizon is still self-reporting its coverage for existing DSL customers to the FCC as required; however, the FCC is not making this data publicly available at this time.

Table 3 provides an analysis of FCC data for North Andover. FCC data are based on reports of service availability from service providers and show a total of 7,852 “broadband serviceable locations” (BSL), which generally means addresses (which may contain one or more units or apartments in North Andover), and 12,700 serviceable units, which include multiple apartments at single addresses.³³ Table 4 provides an analysis of the competitive landscape in North

³³ The FCC Broadband Data Collection reporting uses the term “broadband serviceable location (BSL)” to represent address level information. A BSL is shown as a single served address for locations that may have more than one household or unit, as is the case with duplexes and multi-tenant or apartment buildings. In cases where an address or location is serviced by a single provider or technology, an assumption can be made that the same is true for all households or units at that location.

Andover. Served speed is defined as a minimum of 100/20 Mbps. Underserved is defined as reported speeds of between 25/3 Mbps and 100/20 Mbps.

Table 3: Broadband service in North Andover from FCC data as of June 2024

Tech	ISP	Number of Addresses	Number of Units
		7,852	12,700
Cable	Comcast (Xfinity)	7,830	12,623
Licensed Fixed Wireless	T-Mobile, AT&T, or Verizon “5G Home Internet”	3,947	7,013
		1,501 at or above 100/20 Mbps* 69: greater than or equal to 50/4 and 100/20 2,077: greater than or equal to 25/3 and below 50/4 ** 300: greater than or equal to 10/1 and below 25/3 0: greater than 0/0 and below 10/1 ***	2,184 at or above 100/20 Mbps* 198: greater than or equal to 50/4 and below 100/20 3,168: greater than or equal to 25/3 and below 50/4 ** 1,463: greater than or equal to 10/1 and below 25/3 0: greater than 0/0 and below 10/1 ***
DSL/Copper	-	-	-
Fiber	Comcast (Xfinity)	14	296
Fiber	Verizon	6,589	9,994

Table 4: State of high-speed broadband competition in North Andover per FCC data

Availability of wireline broadband service	Addresses	Units
Addresses where 100/ Mbps download, 20 Mbps upload (100/20) or higher is available	Competition from two or more wireline providers	9,982
	Fiber available in competition areas	6,579
	Only one wireline provider (Comcast)	1,261

Availability of wireline broadband service	Addresses	Units
Served <u>only</u> by licensed fixed wireless	3	56
Underserved addresses—no options at 100/20 Mbps but can get at least 25/3 (wireline or licensed fixed wireless)	0	0
No 25/3 or greater (wireline or licensed fixed wireless)	9	9
Total locations	7852	12,700

Figure 1: Verizon Fiber Coverage in North Andover shows Verizon Fios (fiber) service availability in North Andover, and Figure 2 shows Comcast’s service availability, showing essentially ubiquitous coverage by Comcast. There are only 22 locations without Comcast service.

Figure 1: Verizon Fiber Coverage in North Andover

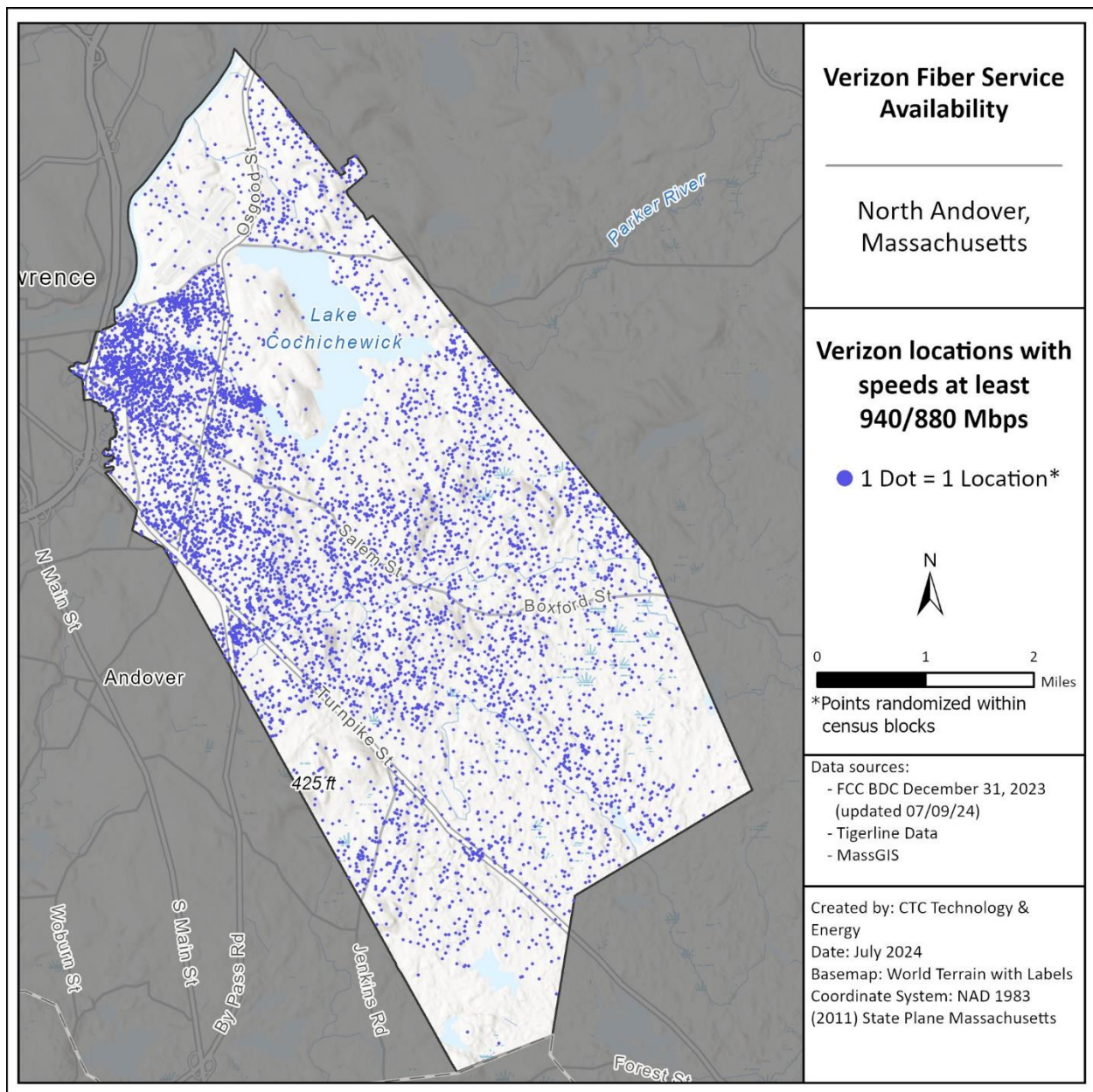


Figure 2: Comcast cable coverage in North Andover [Error! Reference source not found.](#)

Residents have the option for “5G Home Internet” services from T-Mobile and Verizon. These are known as “licensed fixed wireless” or LFW services because they use licensed spectrum under the exclusive control of the respective companies. The FCC notes that mobile wireless providers have been making these offerings an increasingly attractive alternative to services

such as Comcast, given the more competitive pricing,³⁴ yet these remain a complement of, and not a full replacement to, services such as Comcast. Providers can throttle or reduce capacity in favor of mobile voice and data traffic during times of congestion.

Figure 3: Fixed wireless coverage by speed in shows reported fixed wireless coverage levels by available speed. Although FCC data shows that approximately 3,947 locations in North Andover are served by fixed wireless, the data shows that most locations are served by the slowest speed tranche, between .2/.2 Mbps and 10/1 Mbps. Even this reported coverage may overstate what is available. The quality of the coverage will significantly vary depending on how far away the location is from the equipment or whether there are barriers that could block or weaken a signal, such as trees and buildings. Many premises may not receive the reported level of service on a consistent basis.

In these figures, the dots represent five locations and are positioned randomly within census blocks. (The dots do not represent specific addresses.)

³⁴ 2020 Broadband Deployment Report, para 11.

Figure 3: Fixed wireless coverage by speed in North Andover³⁵

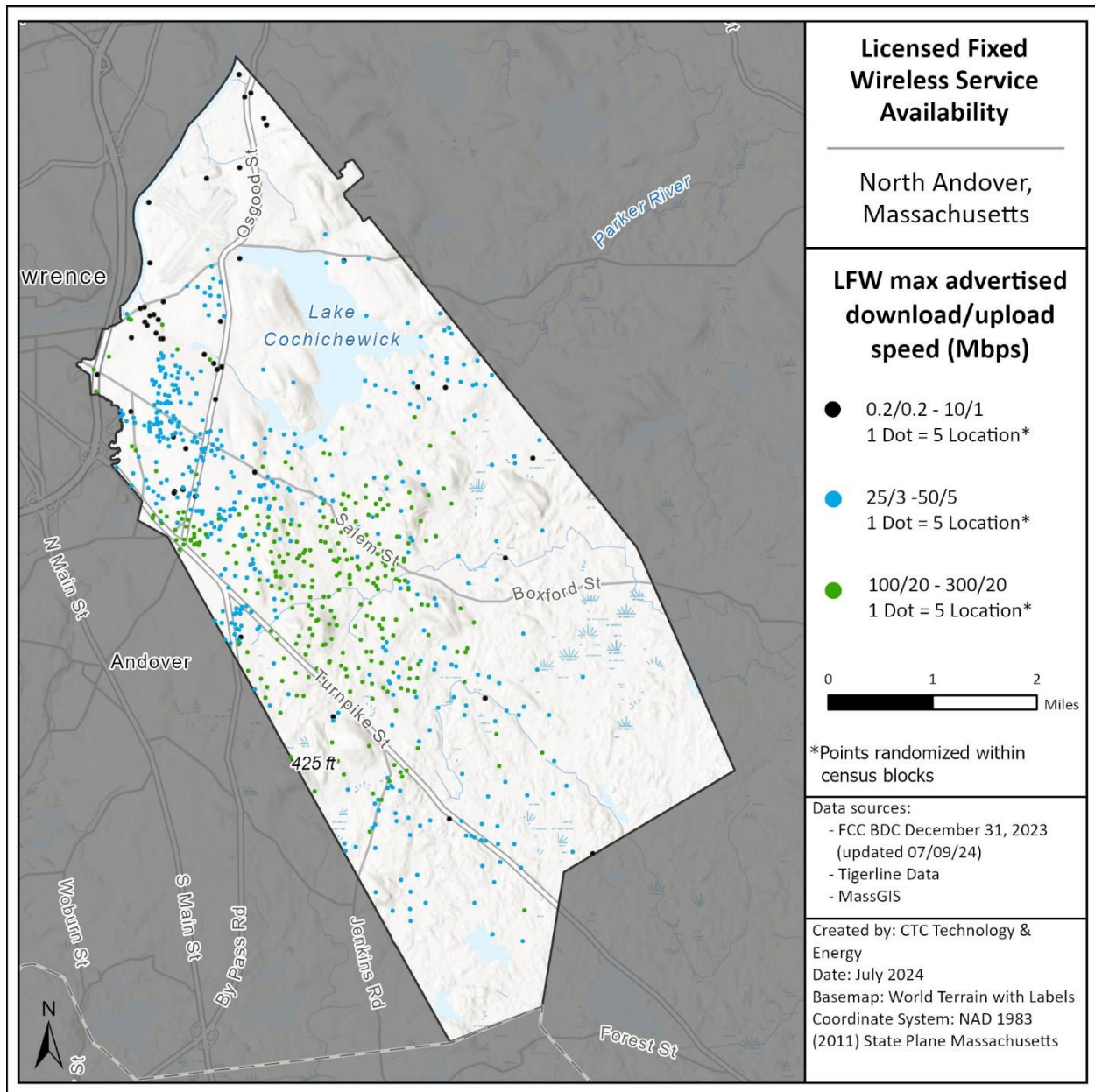
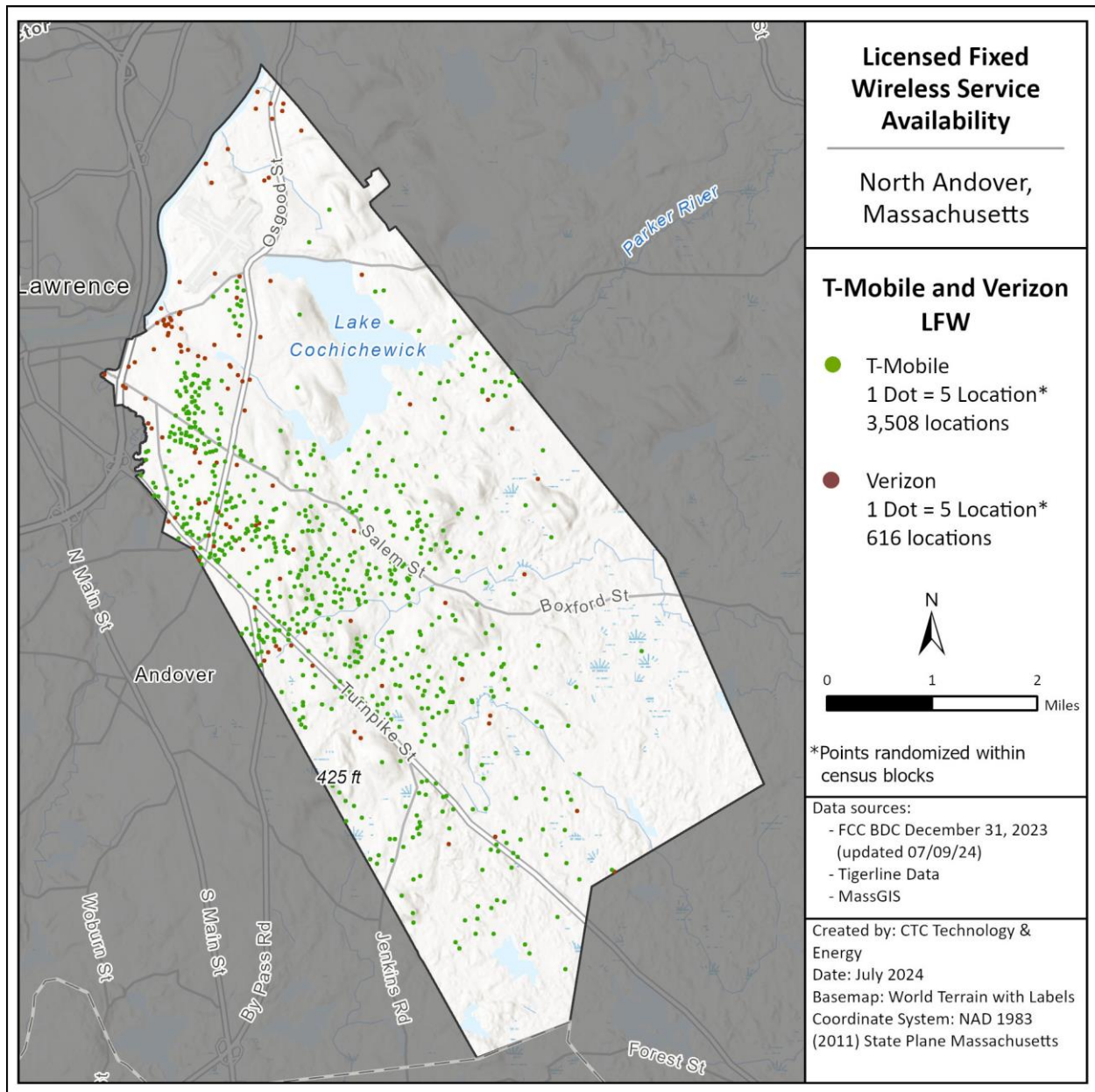


Figure 4 shows fixed wireless coverage by provider.

³⁵ As reported to the FCC using the federal Broadband Data Collection rules, gaps in speed ranges reflect no reported locations at speeds between the ranges. The slowest fixed wireless speed reported is .2/.2Mbps and the fastest is 300/10 Mbps.

Figure 4: Fixed wireless coverage by provider in North Andover



5.2 Approximately 4.9 percent North Andover households rely on mobile services alone

As noted later in Section 5.5.1, 4.9 percent North Andover households reported (in the ACS survey) that they are solely using a cellular internet service for broadband connectivity at home. Some consumers who rely on cellphone data plans can use their smartphones to connect to wireless hotspots and connect other computing devices to the internet.

The FCC has repeatedly noted that mobile service is an inadequate substitute for fixed broadband services;³⁶ however, an estimated 11.2 percent of U.S. adults continue to rely on their smartphones and mobile data plans as the only source of home broadband connectivity³⁷ – a trend that is more common among young adults and low-income households³⁸ and that is reflected in North Andover.

5.3 When the ACP was available, 26.3 percent of eligible households enrolled in the program

The Affordable Connectivity Program (ACP), which provided a monthly subsidy toward some home internet subscriptions, presented an opportunity for many low-income residents to purchase a quality broadband subscription more affordably.

As of January 31, 2024, estimates based on FCC data reported by zip code showed that 699 households in North Andover were receiving the ACP subsidy—which is 26.3 percent of the estimated 2,653 eligible households in the Town.³⁹ While the enrollment rate of eligible households was low at the end of the program, the percent of those enrolled increased by approximately 14.5 percentage points over the final year of the ACP. This may reflect the positive results of local efforts designed to increase enrollment. This data is shown in Table 5.

Lack of enrollment among eligible households might be due to a lack of awareness of the program and a challenging sign-up process; many eligible residents may need to go to a library or other location with internet access just to begin the registration process. As a result, many local governments and other digital divide stakeholders conducted active outreach to assist in the sign-up process. Additionally, with the program having expired in May 2024, residents may still need help enrolling in low-cost programs offered by the Town’s broadband providers, as described in the next subsection.

³⁶ E.g., 2020 Broadband Deployment Report, para 11.

³⁷ “American Community Survey,” US Census, https://data.census.gov/table/ACSST5Y2022.S2801?q=internet&g=010XX00US_040XX00US25_060XX00US2500562430,2500946365.

³⁸ Andrew Perrin, “Mobile Technology and Home Broadband 2021.”

³⁹ Estimates of total number of eligible households are calculated by The Benton Institute for Broadband & Society through its ACP tool, using 2021 American Community Survey reported data on household income, food stamp reciprocity, Medicaid reciprocity, supplemental security income, and public assistance income. “The Affordable Connectivity Program Enrollment Performance Tool,” Benton Institute for Broadband & Society, https://www.benton.org/acp_tool.

Table 5: ACP enrollment in North Andover⁴⁰

Date	Eligible households enrolled	Enrolled Households	Eligible Households	Unenrolled eligible households
January 2023	11.8%	315	2,653	2,338
June 2023	15.0%	399	2,653	2,254
January 2024	26.3%	699	2,653	1,954

5.4 North Andover residents can obtain service offerings that can be free with the ACP benefit, but initial prices may rise after promotional periods end

All broadband providers in North Andover participated in the now-expired ACP, either directly or through affiliates. Although the ACP is now gone, Comcast and Verizon (but not T-Mobile) still offer their own low-cost programs to eligible low-income households. People who were previously enrolled in ACP may need assistance navigating and pursuing these low-cost internet service options, which are included in the following subsections.

5.4.1 Comcast cable service offerings and prices

Table 6 shows Comcast’s service offerings in North Andover. Options that had been free to those enrolled with ACP and/or are designed for eligible low-income residents are shaded green.

Table 6: Comcast (Xfinity) advertised service plans in North Andover (low-income programs in green)

Package	Internet speed	Monthly cost	Terms
Internet Essentials	50/10 Mbps	\$9.95	Available to eligible low-income customers following an application process and subject to certain conditions. Internet Essentials also includes added benefits; customers can purchase a refurbished computer for \$149.99.
Internet Essentials Plus	100/20 Mbps	\$29.95	Available to eligible low-income customers following an application process and subject to certain conditions. Internet Essentials also includes added benefits; customers can purchase a refurbished computer for \$149.99.

⁴⁰ “ACP Enrollment and Claims Tracker,” USAC, data as of June, 2024, <https://www.usac.org/about/affordable-connectivity-program/acp-enrollment-and-claims-tracker/>.

Package	Internet speed	Monthly cost	Terms
Connect More	300/20 Mbps	\$35 for the first 12 months, then \$90 plus \$15/mo. router rental fee	Pricing guaranteed for 12 months. No term contract. Includes \$10/mo. automatic payments and paperless billing discount with a stored bank account. Discount is \$5/mo. when using a stored credit card. Professional installation fee of \$100.
Gigabit	1000/20 Mbps	\$60 for the first 12 months, then \$115 plus \$15/mo. router rental fee	Pricing guaranteed for 12 months. No term contract. Includes \$10/mo. automatic payments and paperless billing discount with a stored bank account. Discount is \$5/mo. when using a stored credit card. Professional installation fee of \$100.
Gigabit Extra	1200/35 Mbps	\$80 for the first 12 months, then \$120 plus \$15/mo. router rental fee	Pricing guaranteed for 12 months. No term contract. Includes \$10/mo. automatic payments and paperless billing discount with a stored bank account. Discount is \$5/mo. when using a stored credit card. Professional installation fee of \$100.
Gigabit X2	2,000/200 Mbps	\$100 for the first 12 months, then \$120 plus \$15/mo. router rental fee	Pricing guaranteed for 12 months. No term contract. Includes \$10/mo. automatic payments and paperless billing discount with a stored bank account. Discount is \$5/mo. when using a stored credit card. Professional installation fee of \$100.

5.4.2 Verizon fiber service offerings and prices

Table 7 details Verizon’s Fios fiber plans are generally less expensive than those offered by Comcast, for similar download speeds. Additionally, Fios offers symmetrical download/upload speeds regardless of plan.

Verizon offers a reduced cost program for any new or existing Verizon customer on any fixed wireless or fiber residential internet plan. Eligibility for Verizon Forward is limited to those that participate in Lifeline (income is 135% or less than the Federal Poverty Guidelines or uses SNAP or Medicaid), participates in Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), or who received a Federal Pell Grant within a year prior to application.⁴¹

⁴¹ “Verizon Forward”, Verizon, <https://www.verizon.com/discounts/verizon-forward/>.

Table 7: Verizon Fios advertised service plans

Package	Internet speed	Monthly cost	Notes
5G Home Internet (Verizon Forward Program) ⁴²	Can be applied to any Fios package	\$30 discount to regular price of subscriptions	Eligibility includes Federal Pell Grant recipient within the last year, qualify for Lifeline (through participation in SNAP, Medicaid, or have income be 135% below FPL), and WIC. Wireless router included; available to existing customers. Can use Lifeline discount if applicable.
Fios 300	300/300 Mbps	\$59.99	Pricing guaranteed for 24 months. No term contract. Router included. Possible \$99 set up fee, location dependent. \$10 off monthly bill with auto pay & paper-free billing.
Fios 500	500/500 Mbps	\$84.99	Pricing guaranteed for 36 months. No term contract. Router included. Possible \$99 set up fee, location dependent. \$10 off monthly bill with auto pay & paper-free billing.
Fios 1 Gig	940/880 Mbps	\$99.99	Pricing guaranteed for 48 months. No term contract. Router included. \$10 off monthly bill with auto pay & paper-free billing. Order online to waive \$99 set up charge.
Fios 2 Gig	Download and upload average wired speeds of 1.5 Gbps - 2.3 Gbps	\$119.99	Pricing guaranteed for 48 months. No term contract. Router included. \$10 off monthly bill with auto pay & paper-free billing. Order online to waive \$99 set up charge.

5.4.3 Fixed wireless service offerings and plans

Table 8 shows pricing for T-Mobile’s 5G Home Internet service plan at \$50/month for 5G Home Internet-only service. T-Mobile will provide 5G Home Internet at \$30/month if it is bundled with a cellular plan that costs between \$60 and \$100 per month for a single line.⁴³ T-Mobile prices its 5G Home Internet plans regardless of provided speeds; as noted above, Table 3 shows how these speeds vary widely.

T-Mobile did not participate in ACP directly for either its 5G Home Internet or mobile data plans.⁴⁴ Only T-Mobile affiliates – Metro by T-Mobile and Assurance Wireless – participated in ACP and

⁴² “Verizon Forward,” Verizon, <https://www.verizon.com/discounts/verizon-forward/>.

⁴³ See T-Mobile Home Internet webpage, <https://www.t-mobile.com/home-internet/plans?INTNAV=tNav%3APlans%3AHomeInternetPlan> (accessed November 19, 2023).

⁴⁴ See T-Mobile Newsroom, February 8, 2023 Press Release, “Taking part in ACP- through both Assurance Wireless and Metro by T-Mobile – is just one way that T-Mobile demonstrates its commitment to bringing wireless access to everyone.” <https://www.t-mobile.com/news/community/t-mobile-expands-acp>; See also, T-Mobile website, “T-Mobile is proud to participate in the new federal Affordable Connectivity Program, which offers internet service payment assistance to eligible households. We’re making the program available through Metro by T-Mobile and

offered discounts on mobile data plans. North Andover residents that qualified for ACP were required to sign up with prepaid provider Metro by T-Mobile for 5G Home Internet and could apply the ACP discount to the bundled 5G prepaid mobile plan. Metro by T-Mobile offers a 5G Home Internet plan and a mobile prepaid voice and data plan for \$50 a month.⁴⁵

Table 8: T-Mobile fixed wireless advertised service plans in North Andover

Package	Internet speed	Monthly Cost	
5G Home Internet	75/20 Mbps*	\$30 mo. for T-Mobile 5G Wireless customers; \$50 mo. for 5G Home Internet service only	Pricing includes a \$5/mo. autopay discount. \$30 service is only available to customers with a T-Mobile 5G phone and plan offered between \$60-100/mo., plus the cost of a handset. Gateway router provided at no charge but one-time \$35 device connection charge at sign up.

* Speeds are estimated and rounded. Quoted download speeds were 76-245 Mbps with claims that 50% of customers experience speeds in this range and the remaining customers could receive service faster or slower than this range. Upload speeds were quoted as 21-40 Mbps.

Table 9 shows Verizon Wireless’ 5G Home Internet service plans. Verizon does not require users to subscribe to Verizon Wireless mobile plans to get these home internet options, but significant discounts are only available if the fixed wireless service is bundled with a Verizon mobile plan and handset. These plans include a Verizon Forward program which can provide discounted service by up to \$30 per month to any Verizon Wireless package.

Table 9: Verizon Wireless fixed broadband service plans (low-income program in green)

Package	Internet speed	Monthly Cost	
5G Home Internet (Verizon)	Can be applied to any 5G package	\$30 discount to regular price of subscriptions	Eligibility includes Federal Pell Grant recipient within the last year, qualify for Lifeline (through participation in SNAP, Medicaid, or have income be 135% below FPL), and WIC. Wireless router included; available to existing

Assurance Wireless.” <https://www.t-mobile.com/brand/affordable-connectivity-program?INTNAV=fNav%3AAdditionalSupport%3AAffordableConnectivityProgram>.

⁴⁵ Metro by T-Mobile 5G Home Internet, <https://www.metrobyt-mobile.com/plans/home-internet> (accessed November 19, 2023). Customers that are not participating in autopay will pay \$25/month. Customers must also purchase a modem for a one-time fee of \$49.99.

Forward Program) ⁴⁶			customers. Can use Lifeline discount if applicable.
5G Home Internet	50/5 to 85/10 Mbps	Discounted price \$35/mo.; regular price \$60/mo.	\$10 discount available with Autopay and paperless billing. \$15 discount when bundled with postpaid Verizon cellular plan and 5G phone. Pricing guaranteed for 24 months. Wireless Router included. Pricing for wireless plan and phone not included here.
5G Home Internet Plus	85/10 to 250/20 Mbps	Discounted price \$45/mo.; regular price \$80/mo.	\$10 discount available with Autopay and paperless billing. \$25 discount when bundled with postpaid Verizon cellular plan and 5G phone. Pricing guaranteed for 36 mos. Wireless Router included. Pricing for wireless plan and phone not included here.

5.5 American Community Survey data reveal that low-income North Andover residents face gaps in subscriptions and device ownership

Data on internet adoption and device ownership is important to fully understanding the nature of the digital divide in North Andover. ACS survey data show that North Andover internet adoption and device ownership rates are higher than the state and nation. While high-speed broadband services are available throughout North Andover, many households do not subscribe or own devices necessary to fully use these services—and those lacking subscriptions or devices are largely lower-income households.

The ACS is conducted yearly and nationwide by the U.S. Census Bureau. However, it is important to note a five-year sampling period (2016 – 2021)⁴⁷ that may not accurately illustrate most recent trends.

A preliminary analysis of the ACS data found that in North Andover:

- 11.1 percent of households lack a wireline internet subscription.
- 87.4 percent of households that lack a wireline internet subscription also earn less than \$75,000 annually.
- 22.3 percent of households do not own a desktop or laptop computer device.

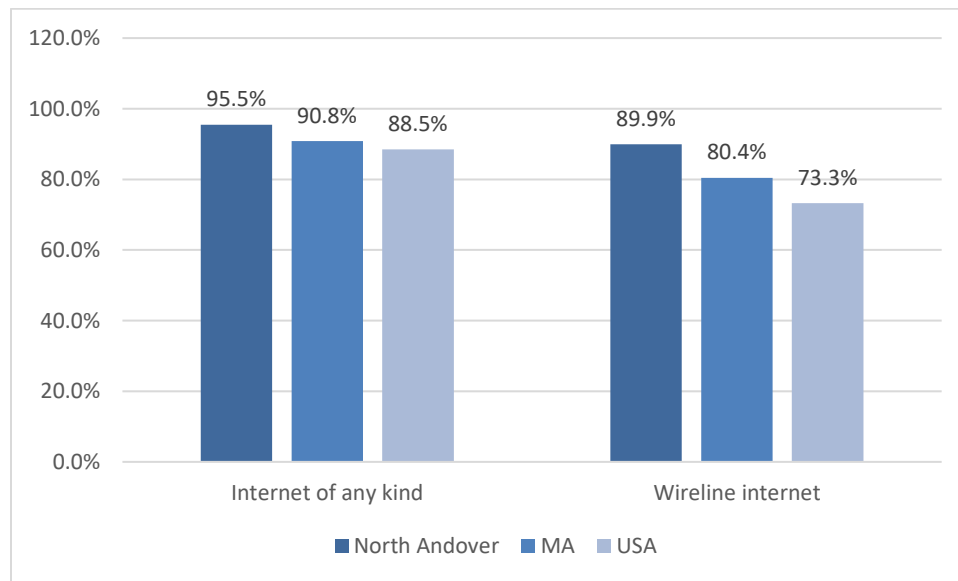
⁴⁶ “Verizon Forward,” Verizon, <https://www.verizon.com/discounts/verizon-forward/>.

⁴⁷ The U.S. Census Bureau does not release data for communities the size of North Andover for sampling periods less than five years in order to keep margins of error to a minimum.

5.5.1 North Andover leads state and national adoption rates for residential wireline internet subscriptions, but low-income residents face significant gaps

According to ACS data, 95.5 percent of North Andover households subscribe to residential internet services. Most of these subscriptions, 89.9 percent, are via wireline technology (cable or DSL). The town leads both the state and the nation in these respects, as shown in Figure 5.

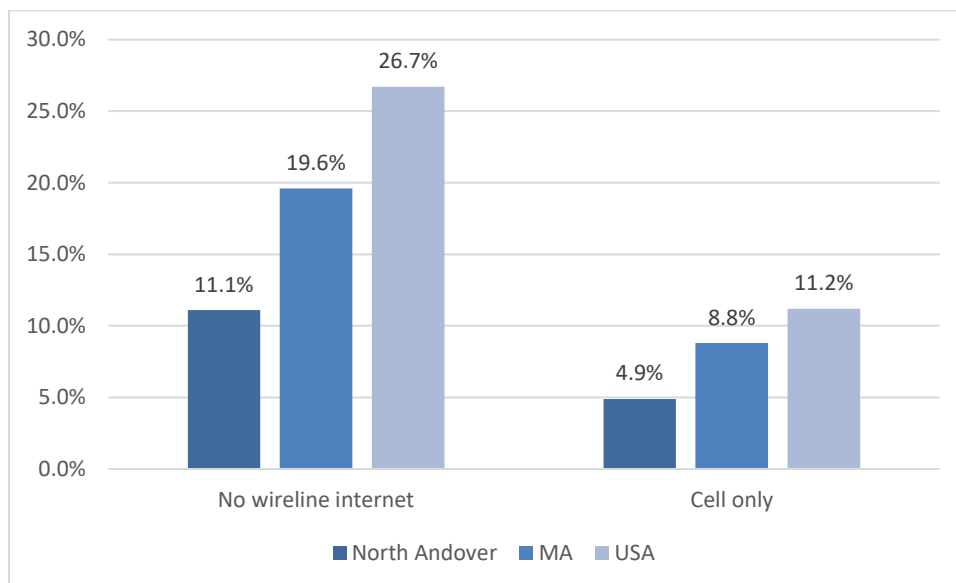
Figure 5: Internet subscription rates in North Andover compared to the state and nation



While internet adoption rates are relatively high in North Andover, an estimated 1,145 (or 11.1 percent of) households lack residential wireline internet service (Figure 6: No access to wireline internet and mobile-only subscriptions compared to the state and nation

Of those households without wireline service, roughly 551 (or 4.9 percent) are solely using a cellular internet service from their homes. Lower income households may use their cellular connection and smartphone in lieu of a more robust connection. However, reliance on cellular service will not enable all members of a household to participate in the digital economy, because of data caps and the potential for the service to be throttled in times of mobile network congestion.

Figure 6: No access to wireline internet and mobile-only subscriptions compared to the state and nation

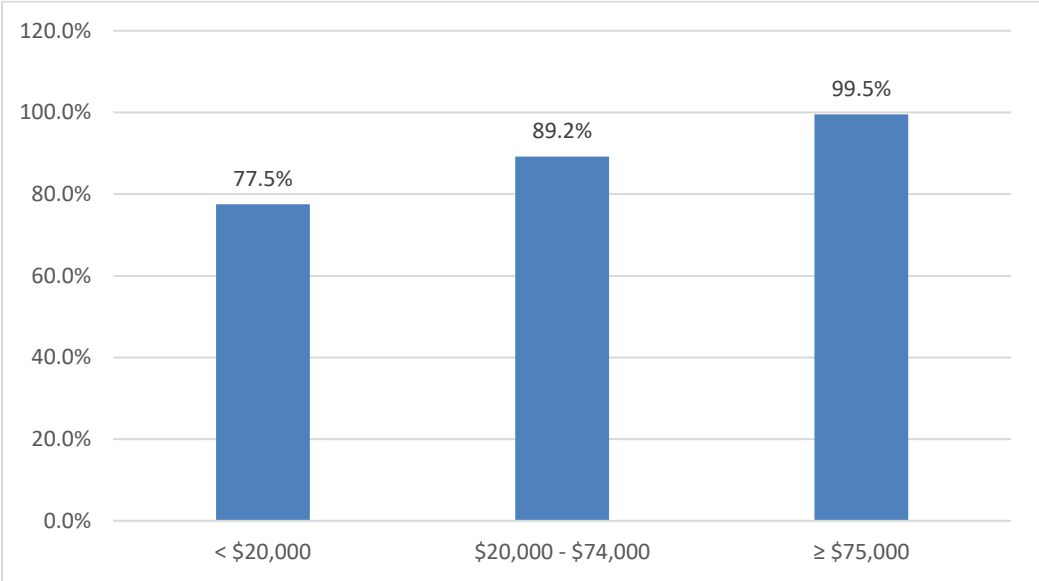


5.5.2 Most North Andover households that lack wireline internet access earn less than \$75,000 per year

In North Andover, most of the households lacking an internet subscription are lower-income households. Whereas 99.5 percent of households making more than \$75,000 subscribe to wireline internet services, only 89.2 percent of households making between \$20,000 and \$75,000, and 77.5 percent of those earning less than \$20,000 do so.⁴⁸ After accounting for the total number of households across all three income brackets, an estimated 92.9 percent of (or 478 out of 514) households without an internet subscription earn less than \$75,000 per year. Figure 8 shows subscription rates by income bracket.

⁴⁸ For both of these income brackets, some households are likely able to afford service yet choose not to purchase it because they simply are not interested. For this reason, a 100 percent subscription rate does not represent the ideal or goal rates for any given population.

Figure 7: Wireline internet subscription rates by income level



5.5.3 North Andover leads both state and national device ownership rates for laptops/desktops and tablets, with only 3.2 percent of households lacking device access

ACS data show that 96.8 percent of households in North Andover own one or more computing devices, a figure that leads both the state and national figures. Access to affordable devices that meet a household’s needs is a critical element of the effort to expand broadband access to any community. Looking across different types of devices, including desktop, laptop, smartphone, and tablet ownership, North Andover’s ownership rates show that the town is ahead of the state and nation with access to all device categories (Figure 9).

Figure 8: Device ownership rates in North Andover compared to the state and nation

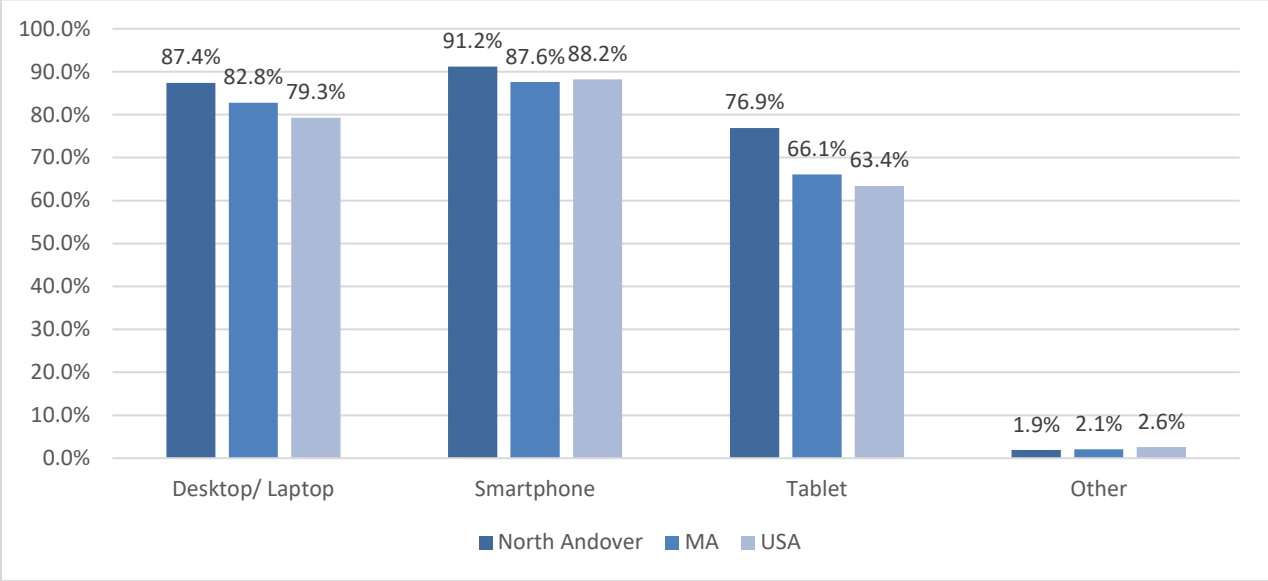
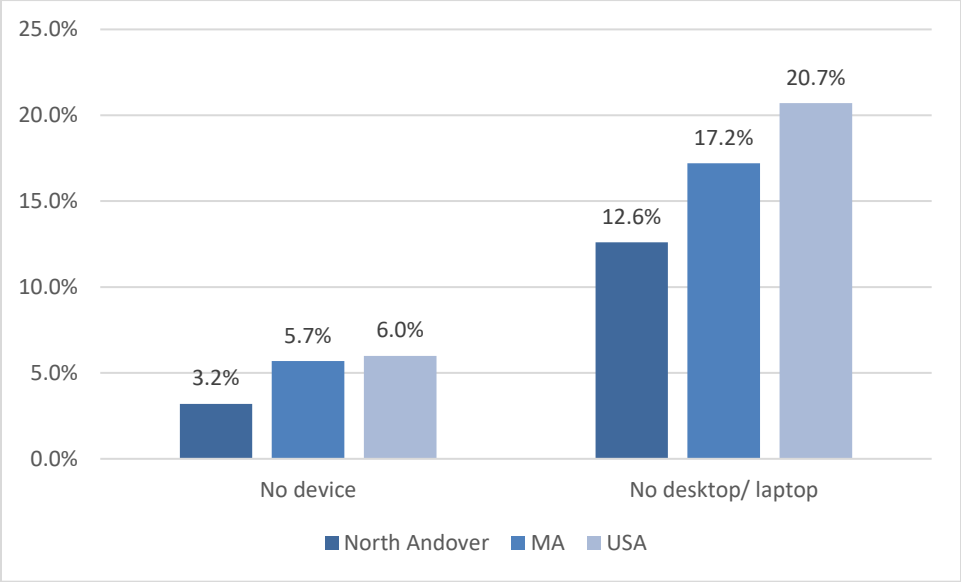


Figure 10 shows that 3.2 percent of North Andover households lack a device, which is less than both the state and national averages. Additionally, 12.6 percent of (or 1,425) households in North Andover do not have a laptop or desktop leaving these residents to rely on smartphones or tablets and making it difficult to fully engage in the digital economy or successfully learn and work from home.

Figure 9: Lack of devices in North Andover compared to state and national averages



Additional device barriers may exist even after device ownership numbers are improved. For example, for households with many individuals, a single desktop or laptop will likely not deliver

sufficient capacity for all members of the household to meaningfully use the internet. Further, ownership of a device is not sufficient to ensure full access to the benefits of broadband. Many households will require digital literacy training and access to technical support to maximize the benefits of these services.

6 North Andover stakeholders report successful programs that could be expanded if funding allowed

The Town of North Andover and CTC convened and facilitated several stakeholder meetings to gather feedback about the digital needs and challenges in North Andover. CTC also prepared and disseminated an online questionnaire to participants in these meetings. The questionnaire was designed, in part, to facilitate orderly data collection about existing programs underway, the services offered, populations served, existing capacity, remaining gaps, and the potential for expanding these programs.

The stakeholder meetings were organized around the following themes, though there was considerable overlap on these themes:

- Education and libraries
- Seniors
- Youth
- Government departments
- Private and community organizations serving vulnerable populations

The following subsections—organized by entity and theme—identify the participants and organizations in these meetings and summarize the insights provided by each stakeholder during the meetings and in questionnaire responses (if provided).

Recommendations developed from a synthesis of stakeholder data, survey data, and other research performed for this study are provided in Section 3.

6.1 Stevens Memorial Library

The Stevens Memorial Library is located on Main Street and is open to the public seven days a week for nine months of the year and five days per week during the summer. Currently, there are 23 individuals on staff. The library provides Wi-Fi and public computer access for patrons. With a valid library card, individuals also have access to all online resources purchased by the Stevens Memorial Library, purchased cooperatively by the Merrimack Valley Library Consortium (MVL), and purchased by the state of Massachusetts for libraries across the state.

Internet access: The Stevens Memorial Library is connected to the internet through the Town fiber network for staff computing and connected separately through Comcast for public computing. The library provides public computer access via the Useful System—a turnkey system that manages all software and guarantees user privacy and cybersecurity for all devices on site. In addition to the hardwired Useful PCs, the Library has a Wi-Fi access point that is available for the public only, meaning any patron can connect their personal device to the internet.

Device access: The Stevens Memorial Library currently has 12 physical PCs that are hardwired to the library’s internet and five Chromebooks that are loaned out to patrons but cannot be taken outside of the building. The Chromebooks are nearly eight years old and need to be replaced. The library does not have a program at this time to loan devices for use outside of the building but is interested in seeking funding to purchase devices to begin this effort.

During the Covid-19 pandemic, the Massachusetts Board of Library Commissioners provided funding that the library used to purchase 10 hotspot devices which the library could then loan out to patrons. However, funding has ended to support the ongoing payment of monthly hotspot data usage, so the library has not continued this effort. The library is interested in restarting its hotspot program and is seeking funding opportunities to cover the cost of monthly data usage for each hotspot device.

Tech support: The Library offers drop-in tech support to the public. A librarian will help any individual who may have questions or needs related to a personal or library device, web browsing, and online library resources, among other internet and device-related topics. If the Reference Desk Librarian is not immediately available, individuals can schedule an appointment during the specific staff hours for tech support appointments, or another time that is convenient for the individual.

Digital literacy: The Library offered weekly digital literacy classes in the past but does not do so currently. Class programming stopped due to low staffing, high staff turnover rates, and challenges with scheduling to meet both staff and public availability. As a remedy, the library began operating a program called “Girls Who Code.” During past summers, the library has offered youth coding classes, which have been successful.

6.2 North Andover Housing Authority

The North Andover Housing Authority operates eight buildings, with a total of 297 units.

Internet access: All buildings are served by Comcast, with a few also receiving service from Verizon. The majority—if not all—of family housing residents have some type of internet in their homes. Additionally, most senior residents have cell phones as their primary device.

There are six senior housing complexes that are equipped with a community room, but these rooms do not currently have internet. The Housing Authority has been hoping to offer public Wi-Fi in these spaces, but the cost has been a significant barrier. The Housing Authority is interested in offering Wi-Fi in the community room of its largest building on Morkeski Meadows as a pilot and would like assistance in seeking funding to deploy this.

Device access: The Housing Authority had a memorandum of understanding with the private, nonprofit senior services agency AgeSpan for the operation of a free tablet program, which a number of residents enrolled in.

The Housing Authority would also be interested in the purchase of two desktop computers for any community room that may receive Wi-Fi in the future.

6.3 Senior Center, North Andover Elder Services

The Senior Center has publicly accessible Wi-Fi, and 10 Chromebooks that individuals can use in the building. A representative at the Senior Center stated that the main frustration that seniors have with internet access in Town is their belief that Comcast is the only provider they have access to. This shows a lack of awareness about other internet options available from Verizon and T-Mobile.

The Senior Center has received a digital equity grant from the Massachusetts Executive Office of Elder Affairs that was used to purchase ten Chromebooks for distribution and provide education around digital literacy, as well as marketing and publicizing the project.⁴⁹ This funding runs through the end of February 2025.

- **Chromebook dissemination:** Through this grant, the Senior Center purchased 10 additional Chromebooks to be distributed to seniors that lack a device and meet certain income requirements, including receiving SNAP or living below the poverty line. Interestingly, the Senior Center has struggled to disseminate these devices and has widened its criteria. To date, six devices have been distributed.
- **Education:** This grant also supports the Senior Center’s efforts to offer classes to its population of seniors through programming called “Cyber Summer.” Classes were held every Wednesday in July and August 2024. Class topics included: ‘getting started,’ cybersecurity, technology essentials, social security enrollment, banking, general computer skills, how to use apps, health care, and how to access telehealth. As of June 13, 2024, 44 individuals have registered for at least one of these classes. With funding for these classes extending until February 2025, the Senior Center is planning to offer additional digital skills classes between November 2024 and the end of the grant period.

6.4 North Andover Community Access and Media (CAM)

North Andover Community Access and Media (CAM) is a membership-based nonprofit organization that provides training to its community on how to use and access video production

⁴⁹ “Enhancing Digital Literacy for Older Adults Grant,” Mass.gov, <https://www.mass.gov/info-details/enhancing-digital-literacy-for-older-adults-grant>.

and manages production facilities for community access programming. CAM operates three channels (Public, Education, and Government) on the Comcast and Verizon cable systems.

CAM is seeking opportunities for greater penetration in the North Andover community to increase public involvement and memberships. As stated by a CAM representative, approximately 95 percent of CAM's annual funding is provided through cable TV subscriptions. CAM is a partner to the library, Youth Center, Senior Center and Historical Society, offering services for developing promotional videos that highlight their upcoming events.

Device access: CAM has four dedicated computers for its members to use for media production and editing in its community space. These computers somewhat satisfy demand, but CAM is interested in the purchase of additional computers, which need regular replacement, so that more members can create and develop their content.

Digital literacy: CAM offers public workshops, with digital skills topics that include video production, podcasting, and graphic design tutorials, and 'tips and tricks' topics such as Smart Phone 101 and regulations and protections for children's use of devices and the internet. Each workshop has a capacity of 12 people. Outside of these workshops, CAM offers one-on-one sessions by request to help individuals with topics such as email and device use. Most workshop classes and one-on-one sessions are available to the public free of charge. To effectively expand its operations and take on new members, a representative at CAM expressed the need to hire an additional staff member that has the digital skills and knowledge to teach workshops and one-on-one sessions among other things.

6.5 North Andover Public Schools

There are eight schools in the North Andover Public School system with approximately 4,600 students who were enrolled in the 2023 to 2024 school year. Every school in the district is connected to the municipal fiber network through Town Hall.

Device distribution: Every student in a North Andover public middle and high school is assigned a Chromebook device. In previous years, every elementary school student was also provided a Chromebook device through a district wide 1:1 device distribution program; however, with recent decreases in the school district's budget, classes in the first through fifth grade must share a cart of 30 devices with one other class, and these devices must remain on campus at the end of each day. The rollback of Chromebooks for elementary school students will allow North Andover Public Schools to maintain their 1:1 device distribution to middle and high school students.

Digital literacy programming: All North Andover Public School students in kindergarten through fifth grade receive digital literacy lessons from their librarians that meet state standards.

Additionally, middle school students are required to take one digital literacy course for one trimester each year. Finally, high school students are required to choose a digital skills course as an elective. While students can pick any course, they are encouraged to explore topics on advanced digital skills training, such as coding.

Hotspot distribution and technical support: North Andover Public Schools offered hotspots to students and their families during the Covid-19 pandemic. A number of students took advantage of this program at that time, but they have since graduated. North Andover Public Schools will still provide a hotspot to students in need if requested, but there is currently no demand in the district.

Cybersecurity: North Andover Public Schools utilizes the KnowBe4 training for staff, which is offered by the state.

6.6 Youth and Recreation Services

North Andover Youth and Recreation Services is a nonprofit organization that serves approximately 3,000 youth—primarily in middle and high school—in North Andover each year. Youth and Recreation Services operates a Youth Center, which has the motto of ‘never turning away a child with an inability to pay.’ The Youth Center offers a number of programs that are related to recreation, leadership, support, and court. These programs are expanded to elementary school-aged children during summer months.⁵⁰

Device access: A representative at Youth and Recreation Services stated that most individuals that come to the Youth Center are well equipped with devices—mainly Chromebooks from the school district or a cell phone. However, there are a small number of youth who do not have access to a device at home and cannot afford to purchase one. To address this, the Youth Center is interested in purchasing 20 iPads to have available for individuals to loan as needed.

Digital education: Individuals at the Youth Center are well versed on how to access the internet; however, a representative at the Center stated that the children they work with do not necessarily have the educational awareness to participate and remain safe online. The Youth Center would like to expand its programming to include workshop classes on digital citizenship, which would include topics on cyber-bullying and online safety for middle and high school-aged youth. To complement these efforts, the Center is interested in offering workshops for parents on topics related to parental controls and monitoring children’s devices.

⁵⁰ “About Us,” Town of North Andover, MA, <https://www.northandoverma.gov/361/About-Us>.

6.7 Andover/North Andover YMCA

The Andover/North Andover YMCA offers group exercise, a gym and pool, an active living center for older adults, and youth programs.⁵¹

Digital literacy programming: A representative at the Andover/North Andover YMCA stated that nearly 50 percent of the 120 youth that attend the after-school program at this location are on state vouchers, many of which have noticeable gaps in digital literacy compared to their counterparts. However, current YMCA staff are not proficient in digital literacy curriculums to teach this topic at the after-school program. The YMCA would be interested in finding a way to integrate this into their programming in the future.

Additionally, many senior members frequently seek assistance with devices and other digital skills questions and would benefit from having access to digital literacy workshops led at this location.

Device access: The Andover/North Andover YMCA does not currently have computers for member use but would be interested in the purchase of 10 Chromebooks to support individuals in career development and job searching, to assist individuals with enrollment in various programs online, and to support other digital needs as they arise.

⁵¹ "Class Schedules," MV YMCA, <https://mvymca.org/classes-schedules/andover-ymca-pool-schedule/>.

7 The demise of the ACP was a challenge to low-income households nationally and in North Andover, but there are options for filling this gap

Many households across the country relied on the Affordable Connectivity Program (ACP) to secure and maintain an internet connection at home, and the program's end has been a significant loss for many. A recent Benton Institute for Broadband & Society survey conducted immediately after the ACP ended in April 2024 found that 13 percent of households would disconnect their service without the ACP subsidy, and 36 percent of respondents would downgrade to a cheaper or slower plan.⁵² Additionally, nearly half of respondents saw a home internet connection as an uncertainty, implying that they view their internet subscription as a service that may be canceled at any time based on the household's limited budget and varied costs each month. With over 23.2 million households enrolled in the program nationwide, and over 367,000 enrolled in Massachusetts, there are a significant number of households that are now feeling the tremendous impact of the program's end.

At the end of the ACP, North Andover had 699 households enrolled, and as many as 1,954 potentially eligible households that remained unenrolled. Some unenrolled yet eligible households may have not wished to subscribe, but accelerating enrollment efforts in low-cost programs offered by North Andover's broadband providers would help close the enrollment and affordability gap and reinforce all digital equity programmatic efforts throughout this report.

Table 10: ACP enrollment in North Andover over one year⁵³

Date	Eligible households enrolled	Enrolled Households	Eligible Households	Unenrolled eligible households
January 2023	11.8%	315	2,653	2,338
June 2023	15.0%	399	2,653	2,254
January 2024	26.3%	699	2,653	1,954

7.1 There are ways that North Andover can support residents post-ACP, primarily through increased enrollment in low-cost programs or pursuing more ambitious subsidy efforts

A variety of low-cost services do exist through existing ISPs in North Andover, which should be promoted through various channels throughout Town as described in more detail below.

⁵² "Leaving Money on the Table: The ACP's Expiration Means Billions in Lost Savings," Benton Institute for Broadband & Society, <https://www.benton.org/publications/acp-expiration-means-billions-lost-savings>.

⁵³ "ACP Enrollment and Claims Tracker," USAC, data as of June, 2024, <https://www.usac.org/about/affordable-connectivity-program/acp-enrollment-and-claims-tracker/>.

Additionally, there are examples of more ambitious models of subsidy-based programs that have been demonstrated regionally or nationally that can be adopted locally.

7.1.1 Several low-cost broadband programs are offered by ISPs in North Andover

Verizon, Comcast, and T-Mobile offer low-cost programs in North Andover. Low-cost programs can provide significant relief to the 699 households that were previously receiving the ACP, and to the additional 1,954 households that were eligible for the ACP at the time of the program's end. North Andover can utilize existing resources from local entities and organizations or consider creating a Town digital navigator position (as referenced in Section 3.2) to support residents in the process for enrolling in these low-cost programs. A navigator would potentially help residents learn how to access competitive and lower-cost internet solutions by informing consumers about switching from expensive service plans that place a strain on monthly budgets to a more cost-effective plan.

Low-cost programs offered by ISPs in North Andover are:

- **Verizon Forward**, which provides up to a \$30 monthly discount toward any internet subscription for those who are eligible, resulting in service for as low as \$20 per month.⁵⁴ Eligibility includes:
 - Federal Pell Grant recipient within the last year,
 - Qualify for WIC, or
 - Qualify for the FCC's Lifeline discount of \$9.25 per month toward wireline or wireless service (through participation in SNAP, Medicaid, or other programs; or if income is 135 percent or less than the Federal Poverty Guidelines).⁵⁵
- **Comcast Internet Essentials**, a cable internet plan that provides 50/10 Mbps service for the discounted price of \$9.95 per month for eligible households.⁵⁶ Eligibility includes:
 - Participation in assistance programs like the National School Lunch Program, public housing assistance, Medicaid, SNAP, TANF, SSI, Low Income Home Energy Assistance Program, WIC, Federal Pell Grant, Veterans pension, and Tribal assistance, or were enrolled in the Affordable Connectivity Program
 - Have not had Xfinity Internet within the last 90 days
 - Have no outstanding debt on any Comcast account that is less than one year old

⁵⁴ "Verizon Forward," Verizon, https://www.verizon.com/discounts/verizon-forward/?cmp=KNC_H_P_COE_GAW_FIOS_99_99_BP-9122&abr=CMOGBRPLUS&c=A005126&gad_source=1&gclid=EAlalQobChMIhoXk08DKiAMVpwGtBh1igA4IEAAYASABEgK8nfD_BwE&gclsrc=aw.ds.

⁵⁵ "Lifeline," FCC, <https://www.fcc.gov/lifeline-consumers>.

⁵⁶ "Internet Essentials," Comcast Xfinity, <https://www.xfinity.com/learn/internet-service/internet-essentials>.

- **Comcast Internet Essentials Plus**, a cable internet plan that provides up to 100/20 Mbps service for the discounted price of \$29.95 per month for eligible households. Eligibility requirements for Internet Essentials Plus are the same as for Internet Essentials, listed above.

7.1.2 Single-payer agreements with ISPs have proven to be successful in closing the digital divide in communities across the country

Single-payer internet arrangements—in which a jurisdictional entity partners with an internet provider to pay for a defined population’s monthly internet bill through a bulk purchase agreement—are common approaches nationally and are readily embraced by many ISPs. North Andover could consider a single-payer agreement with a local internet provider, so that a segment of the Town’s population that is struggling to pay for home internet services each month is able to receive subsidized or free service. To begin this process, the Town could issue a request for proposals (RFP) from local providers. Successful examples of this include:

- **Chicago Connected:** The National Digital Inclusion Alliance notes that through a single-payer program called Chicago Connected, more than 40,000 Chicago Public School students and their families have received broadband subscriptions since 2021.⁵⁷ Chicago Connected has become nationally recognized as a successful model for other entities nationwide.⁵⁸
- **San Francisco/Monkeybrains:** The City operates the “Fiber to Housing program,” which provides free internet to low-income San Francisco residents, through the Department of Technology and in partnership with the local internet provider Monkeybrains. Fiber to Housing began in 2018 and leverages existing municipal fiber resources and private sector partnerships to operate the program.⁵⁹
- **Cruzio Equal Access Program:** Cruzio started its Equal Access program in California at the beginning of the pandemic, and the company has raised nearly \$1 million for projects to cover both infrastructure and discounted services. The Equal Access project provides connectivity to students and their families who may not be able to afford internet service. Completed projects are located in the City of Santa Cruz, Live Oak, and Pajaro Valley (all located in Santa Cruz County).⁶⁰ These projects were completed through a partnership

⁵⁷ “Chicago Connected,” Chicago Public Schools, <https://www.cps.edu/strategic-initiatives/chicago-connected/>.

⁵⁸ “What Are Single Payer Agreements?” NDIA, <https://www.digitalinclusion.org/blog/2020/08/28/what-are-single-payer-agreements/%23~:text=Chicago's%20single%2Dpayer%20agreement%20exists,families%20receiving%20the%20in-ternet%20service.>

⁵⁹ “Monkeybrains and Fiber to Housing,” Monkeybrains, https://www.monkeybrains.net/MB_fiber_to_housing.pdf.

⁶⁰ “Previous Projects,” Equal Access Santa Cruz, <https://equalaccesssantacruz.com/previous-projects/>.

between Cruzio, the County Office of Education, and Community Foundation Santa Cruz County, as well as the Housing Authority of the County and the Central Coast Broadband Consortium.

8 Results from MBI survey completed by North Andover residents show access, device and skills gaps and major concerns about privacy and security

This report is based on data collected from North Andover residents who responded to a survey instrument created by the Massachusetts Broadband Institute (MBI) and posted online. PDFs of paper copies in nine languages were also made available to residents of the Town. Both the online and PDF versions were also distributed by other means including posting on the Town’s website, sharing at the Senior Center, and by word of mouth. More broadly, the survey was made available to anyone who wished to fill it out across the state.

The results presented in this section are based on analysis of information provided in the survey by 491 residents of North Andover. Unless otherwise indicated, the percentages reported are based on valid responses from those who provided an answer and do not reflect individuals who said “don’t know” or otherwise did not supply an answer because the question did not apply to them. Key results are noted where appropriate.

The survey sample was self-selected, and as such it is not necessarily representative of the larger population. Because lower-income residents were underrepresented, the report separately highlights answers from respondents reporting households earning less than \$60,000 (the highest income category respondents could check was “\$60,000 or above.”)

This report focuses on data collected that is unambiguous with regard to meaning or accuracy, relevant to the topic of digital equity, and provides insights that are potentially actionable. The full survey instrument is posted in Appendix A.

8.1 Residential internet service

Respondents were asked about internet connection types and providers. This information provides valuable insight into residents’ need for various internet and related communications services.

8.1.1 Internet access

Though all North Andover respondents reported having either a home internet or mobile subscription, only 71 percent said they have wireline internet service in the home. Respondents with a household income below \$60,000 (60 percent of respondents), women (61 percent of respondents), and those with children in the household (74 percent of respondents) are less likely than their counterparts to have wireline internet service. Table 11 highlights the saturation of home internet subscriptions by key demographic groups.

Table 11: Home internet subscriptions by key demographics

	Percent having	Count
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	wireline Internet	
TOTAL	71%	491
Respondent Age		
Less than 45.....	67%	109
45 to 59	78%	176
60 or older.....	88%	82
Income		
Less than \$60,000.....	60%	35
\$60,000 or more.....	77%	254
Education		
Less than a 4-year degree.....	80%	59
4-year college/university/bachelor's degree.....	76%	139
Postgraduate or professional degree	77%	162
Race/Ethnicity		
White, non-Hispanic.....	77%	292
Racial/ethnic minority	72%	50
Household Size		
One HH member	87%	31
Two HH members.....	80%	50
Three-four HH members	82%	83
Five-six HH members	77%	147
Seven + HH members	60%	58
Children in Household		
No children in HH	84%	114
Children in HH	74%	254
Gender Identity		
Man	91%	146
Woman.....	68%	212
Other gender identity.....	50%	4
Other demographics		
Identify as person with disability.....	73%	26
Member of LGBTQIA+ community	82%	11
Serve on active duty in US Armed Forces.....	92%	12
Live in affordable housing	60%	5

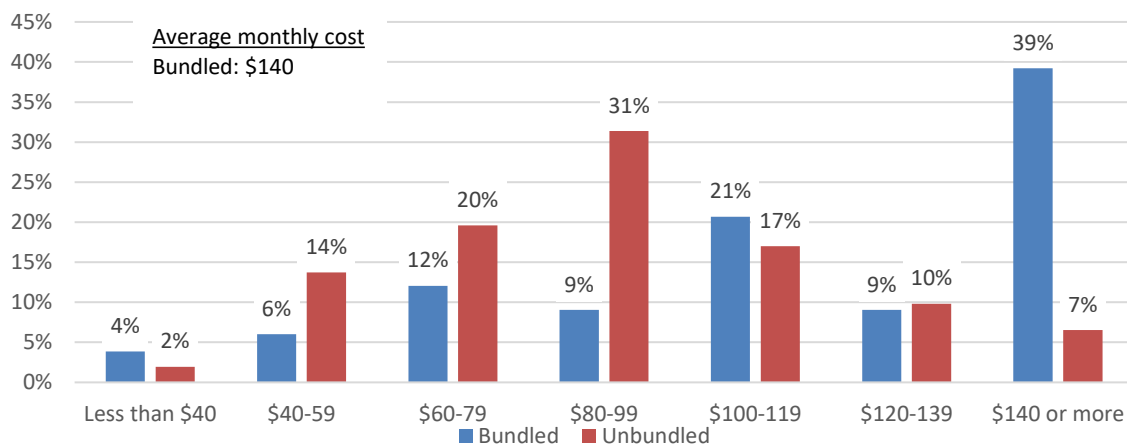
8.1.2 Questions for those with home internet service

Respondents subscribing to home internet service were asked a series of questions about their service, including provider used and price paid.

- **Home internet service provider:** Most households with wireline internet service have Verizon (56 percent) or Comcast/Xfinity (44 percent). One respondent has T-Mobile. (CTC combined answers in cases where the survey instrument listed the same provider twice, but under different brand or company names.)

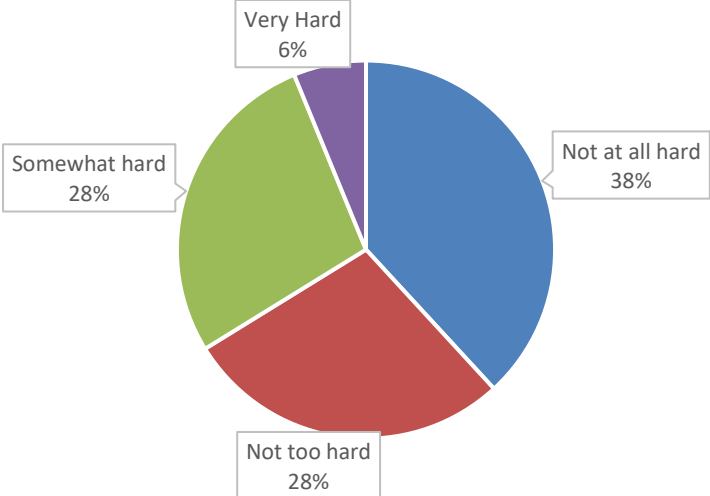
- How well home internet service works:** Most internet subscribers (87 percent) said their service is good enough to meet their household’s needs, but 12 percent said it is not good enough and one percent said they do not know.
- Internet service cost:** Respondents were asked to give the cost of their home internet service, as well as indicate whether or not they bundle internet with TV and/or phone service. Overall, 63 percent of subscribers bundle their internet service. Respondents pay an average of \$140 per month for bundled internet service and an average of \$90 per month for unbundled internet service (see Figure 10). Sixty-nine percent of those with bundled service pay at least \$100 per month, compared with 33 percent of those with internet-only service.

Figure 10: Monthly price for internet service



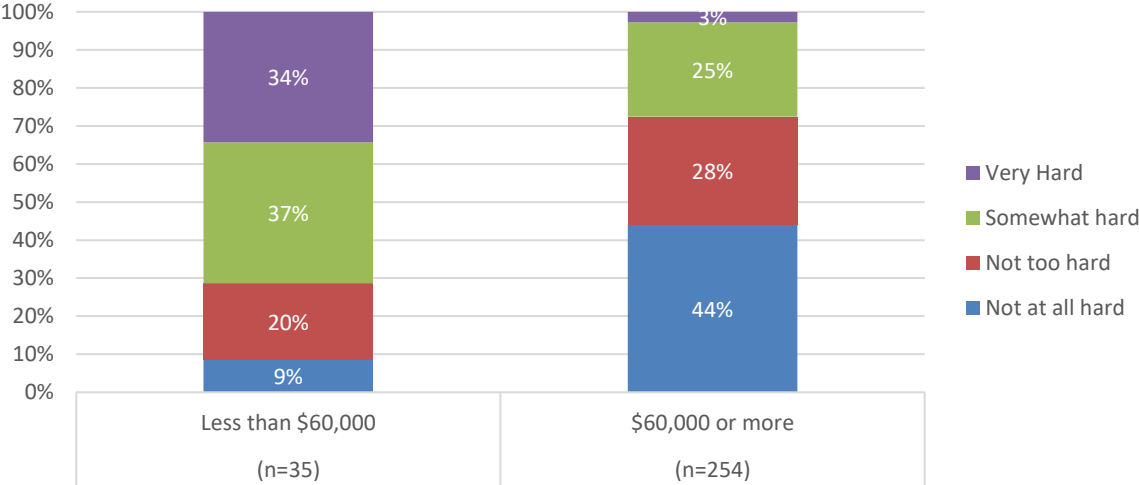
- Service affordability:** Respondents were also asked how hard it is to pay their internet bill. Many subscribers said it is not at all hard (38 percent) or not too hard (28 percent) to pay, as illustrated in Figure 11. However, about one-third of subscribers said it is somewhat hard (28 percent) or very hard (six percent) to pay their internet bill.

Figure 11: How hard is it to pay internet bill



As may be expected, respondents in lower income households were more likely than those in higher income households to say it is somewhat or very hard to pay their internet bill (see Figure 12). Specifically, 71 percent of those earning less than \$60,000 per year said paying their bill was “somewhat hard” or “very hard.” Although based on a relatively small number of respondents in the lower-income cohort, this data contributes to our finding that affordability is a significant concern for lower-income residents of North Andover.

Figure 12: How hard is it to pay internet bill by household income



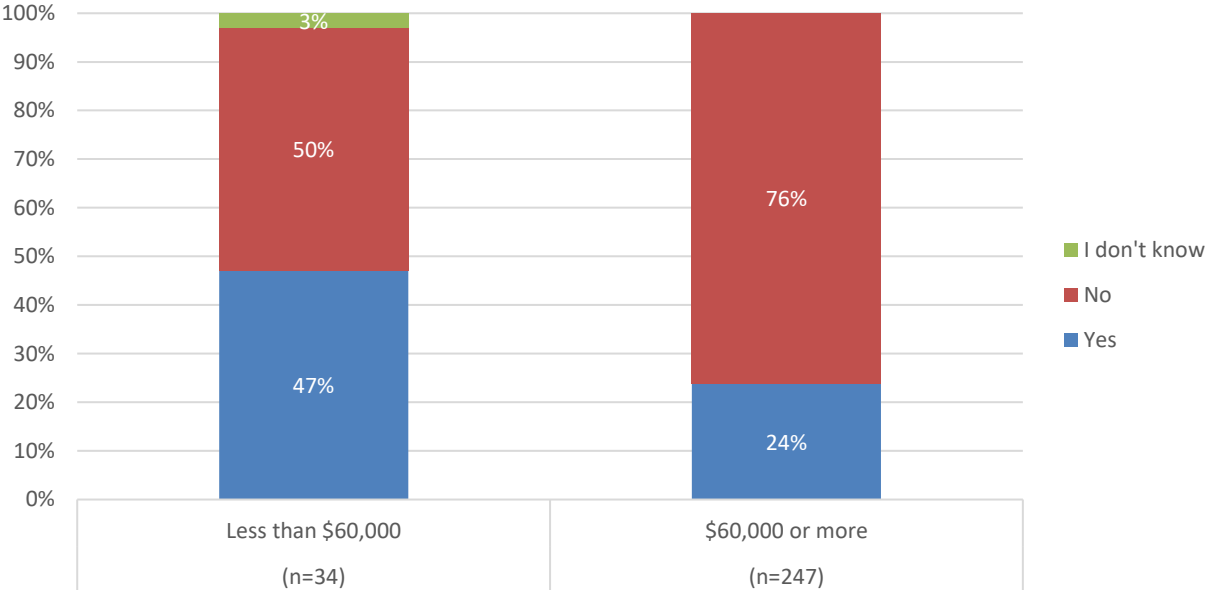
8.1.3 Questions for those without any home internet service—subscription or smartphone

All respondents in North Andover indicated having some form of internet service at home. As a result, the follow-up questions about barriers to subscribing did not apply.

8.1.4 Internet subsidy programs

All respondents were asked if they had heard of the Affordable Connectivity Program (ACP), which is available to eligible low-income households. As shown in Figure 13, only about one-half of respondents with an annual household income of less than \$60,000, and who thus might be in a position to take advantage of the ACP, are aware of this program. Although the datapoint is based on a relatively small number of respondents, this supports our recommendation that enrollment support efforts be expanded in North Andover.

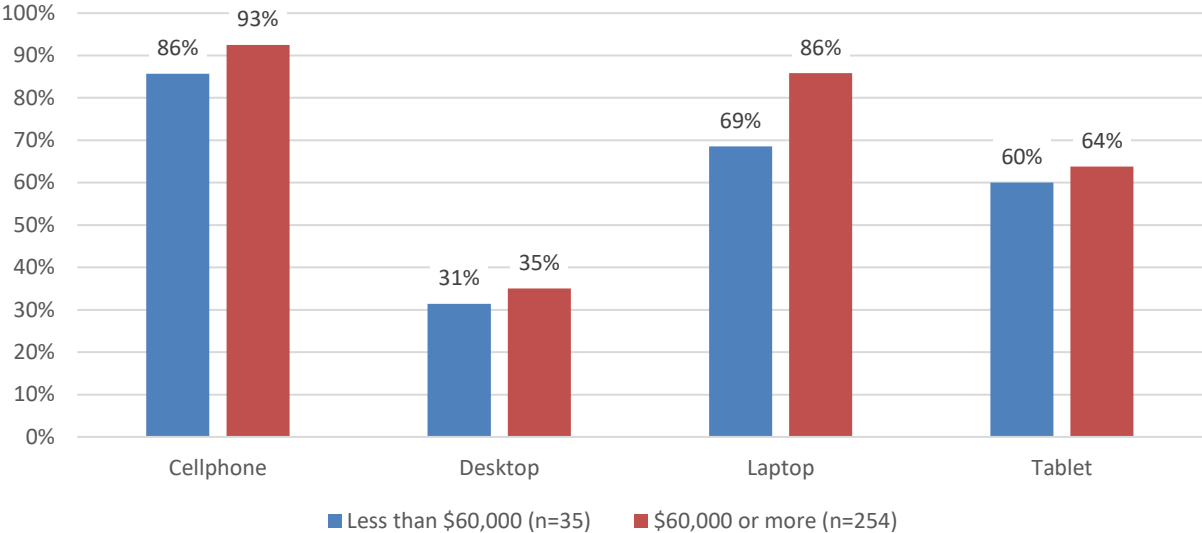
Figure 13: Aware of the Affordable Connectivity Program by household income



8.1.5 Computing devices used in household

Respondents were asked a series of questions about access to computing devices and types of devices used. Most respondents (96 percent) said everyone in their household has access to the computing devices they need to meet their everyday needs for internet use. However, those with an annual household income under \$60,000 are less likely than those in higher income households to use a laptop computer to connect to the internet (see Figure 14). This informs our recommendation that device access programs for low-income residents of North Andover be expanded.

Figure 14: Devices used most of the time to connect to the internet by household income



As shown in Figure 15, most respondents would be able to pay \$1,000 or less (68 percent) for a laptop or desktop computer. Sixty-three percent of respondents earning under \$60,000 per year could pay only \$250 or less for a computer, compared with 18 percent of those earning \$60,000 or more per year, although based on a small subset of respondents in the lower-income cohort. Again, this informs our recommendation that device access programs for low-income residents of North Andover be expanded.

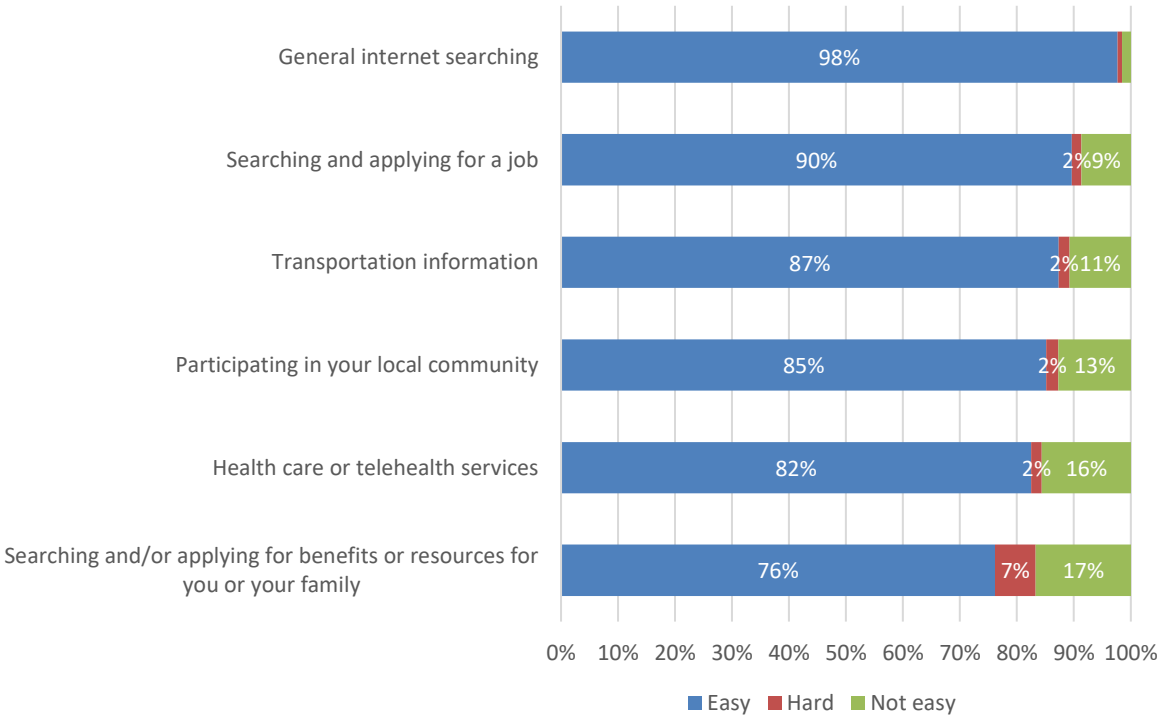
Figure 15: Amount able to pay for laptop or desktop computer



8.2 Digital skills

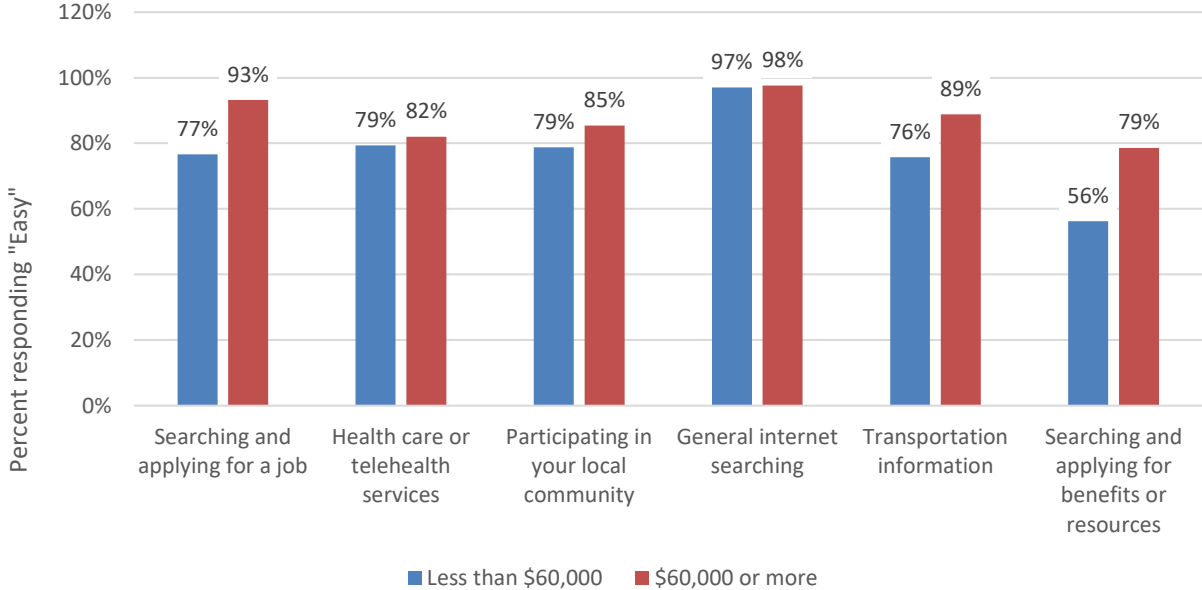
Respondents were asked a series of questions on how skilled they are using the internet in general and for specific activities. This information provides valuable insight into where there may be gaps in abilities and opportunities to educate residents. Most (98 percent) respondents said using the internet for general searching is easy, as shown in Figure 16. Nine in 10 respondents said it is easy to use the internet for searching and applying for a job, while more than eight in 10 said it is easy to use the internet for transportation information (87 percent), participating in their local community (85 percent), and health care or telehealth services (82 percent). Three-fourths of respondents said it is easy to use the internet for searching and applying for benefits or resources.

Figure 16: Difficulty in using the internet for various tasks



However, as shown in Figure 17, respondents with a household income of less than \$60,000 were less likely than those in higher-income households to say using the internet for key tasks is easy, demonstrating that lower-income residents are most in need of skills programs. Although based on a small subset of respondents in lower-income households, the data suggest that those earning less than \$60,000 per year have greater difficulty using the internet to search and apply for jobs, benefits, or resources. This informs our recommendation that skills programs for low-income residents of North Andover be expanded.

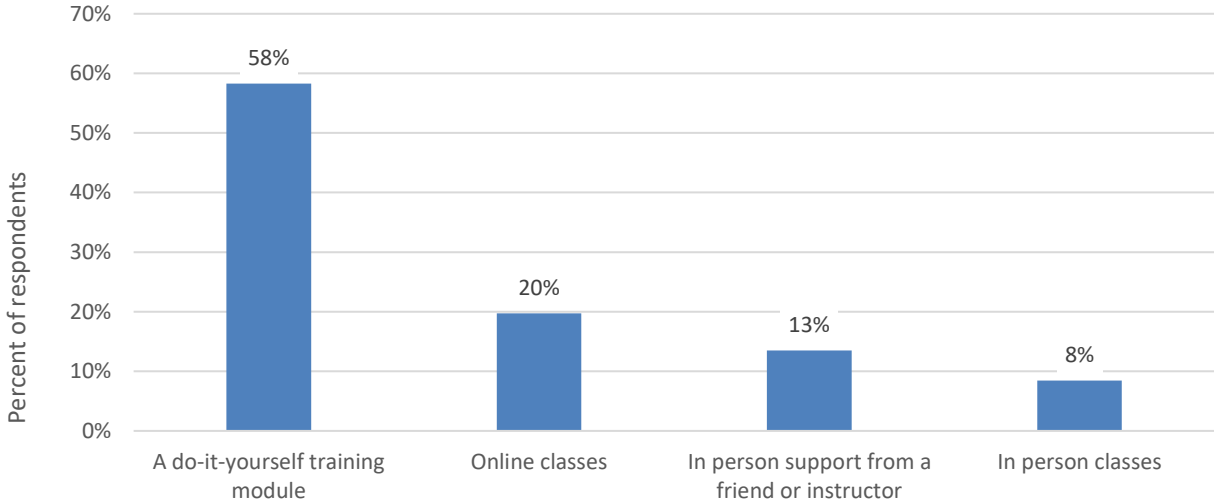
Figure 17: Ease in using the internet for various tasks by household income



Sixty-five percent of respondents were able to indicate the type of digital skills support they would be most interested in. Among this segment of respondents, 58 percent said they would be most interested in a do-it-yourself training module (see Figure 18).

The question did not provide respondents with the opportunity to say they were not interested in taking any kind of class. In other jurisdictions, CTC has found that significant numbers of people, even those lacking skills, are not interested in attending classes. As such, these results should not be taken to mean that North Andover needs to expand skills-training programs at the levels indicated here.

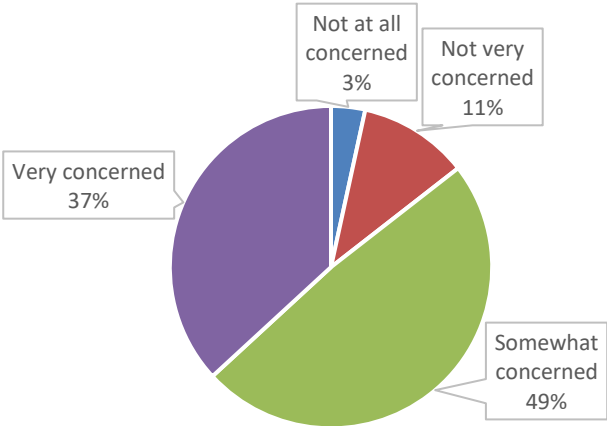
Figure 18: Digital skills support most interested in



8.3 Internet safety

North Andover residents across the income and other demographic categories have significant concerns about online safety and privacy. Respondents were asked a series of questions pertaining to individual awareness of, and the use of, measures to secure online privacy and internet safety. Most respondents are either somewhat concerned (37 percent) or very concerned (49 percent) about online safety (see Figure 19). Concern is high across all demographic groups.

Figure 19: Concern about online safety



Respondents are most concerned about their data being stolen or used without their consent, cited by 92 percent (see Figure 20). Seven in 10 respondents are most concerned that they or a loved one could get scammed or tricked, and 58 percent are most concerned they could be tracked or surveilled. Another 53 percent are most concerned about being harassed or abused online.

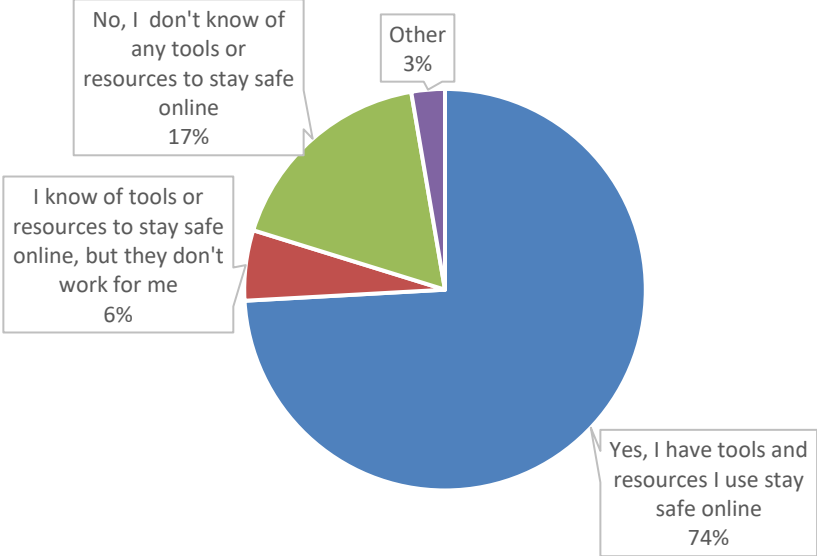
Figure 20: Most concerned about in regard to internet safety



About three-fourths of respondents who answered said they have the tools and resources they need to stay safe online (see Figure 21). (371, or 76 percent, respondents answered this

question.) Another 17 respondents said they do not know of any tools or resources to stay safe online, while six percent said they know of tools or resources but they do not work.

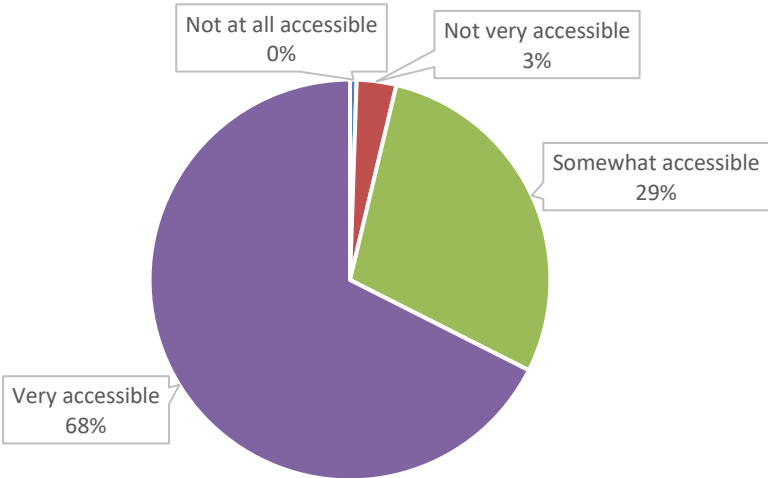
Figure 21: Aware of tools or resources respondents can use to stay safe online



8.4 Online accessibility and inclusivity

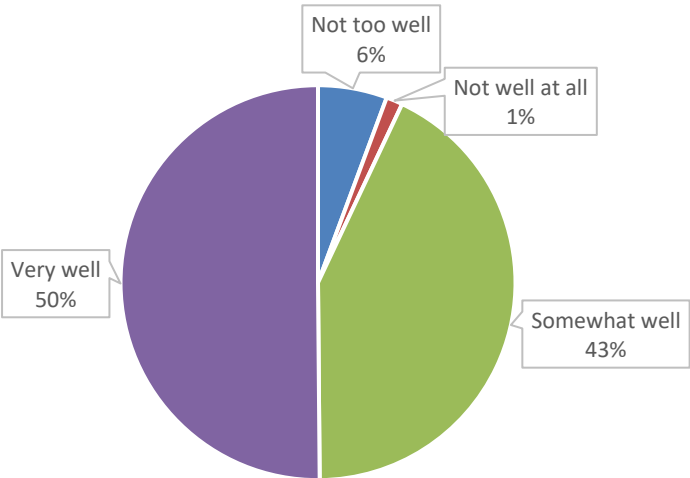
Respondents were asked questions related to online accessibility and inclusivity of public resources and services. Most respondents said online government services are somewhat accessible (29 percent) or very accessible (68 percent), as shown in Figure 22.

Figure 22: Accessibility of online government services



More than eight in 10 respondents said online government services have worked somewhat well (42 percent) or very well (41 percent), as shown in Figure 23. Online government services are assessed highly across demographic groups.

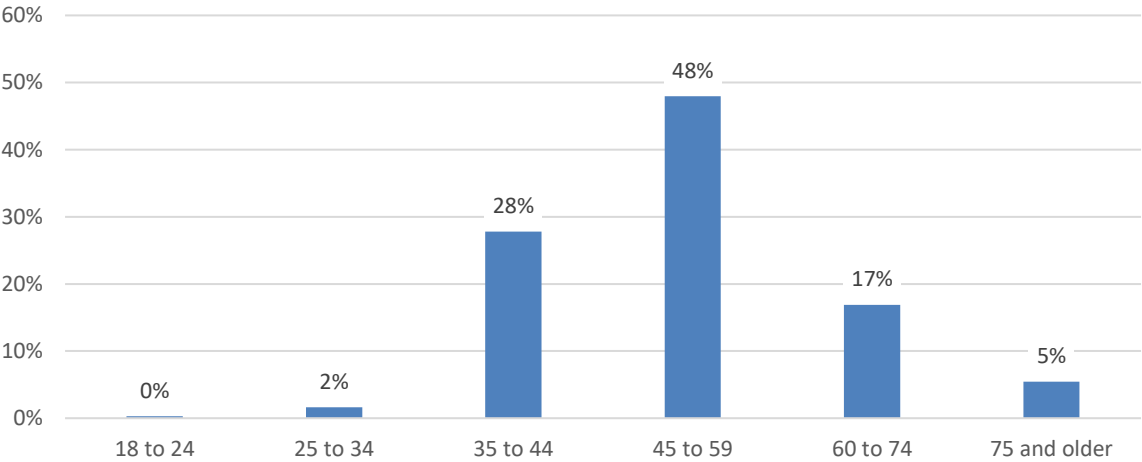
Figure 23: How well online government services have worked



8.5 Respondent information

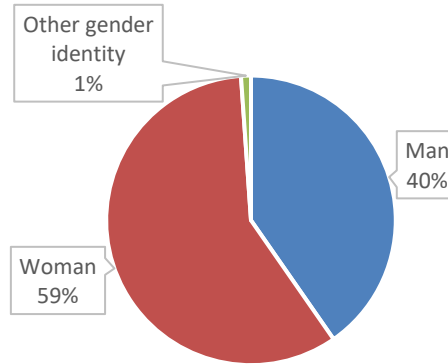
Basic demographic information was gathered from survey respondents and is summarized in this section. Several comparisons of respondent demographic information and other survey questions were provided previously in this report. As shown in Figure 24, 30 percent of respondents are under age 45, 48 percent are ages 45 to 59 years, and 22 percent are ages 60 or older.

Figure 24: Age of respondents



Nearly six in 10 respondents identify as a woman, and four in 10 identify as a man (see Figure 25). One percent of respondents have another gender identity.

Figure 25: Gender identity



Respondents were asked to indicate the number of adults and children in their household. Fourteen percent of households have two members, and more than three-fourths have three or more members. Just eight percent of respondents live alone (see Figure 26). Seven in 10 respondents have children living in the household (see Figure 27).

Figure 26: Total household size

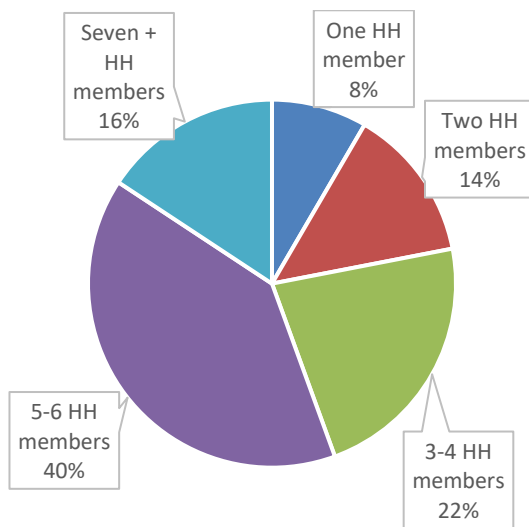
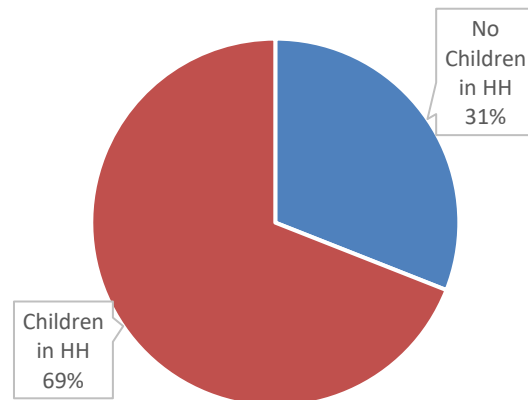
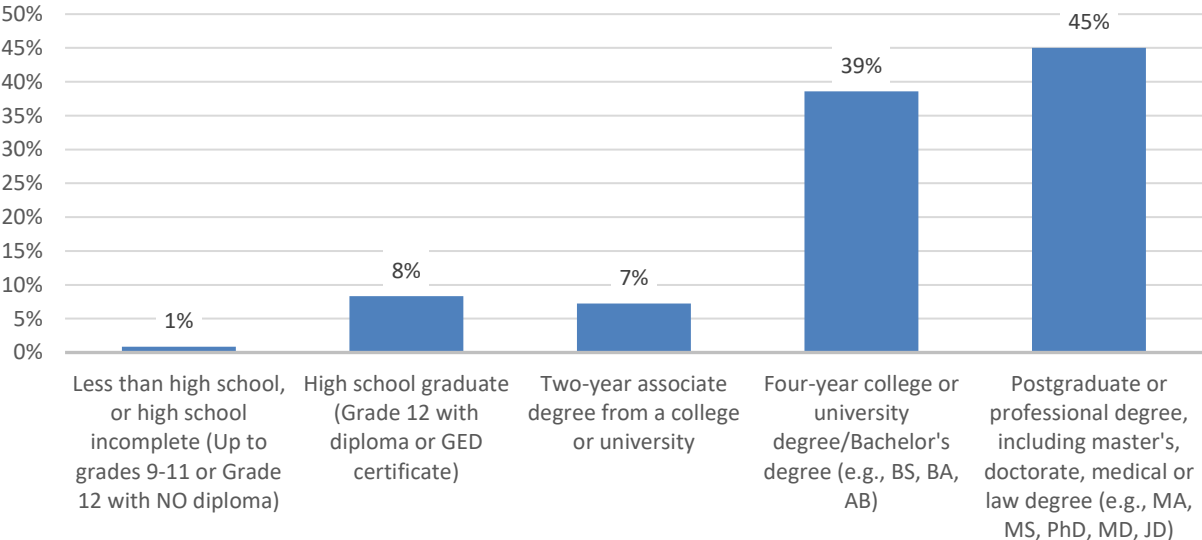


Figure 27: Number of children in household



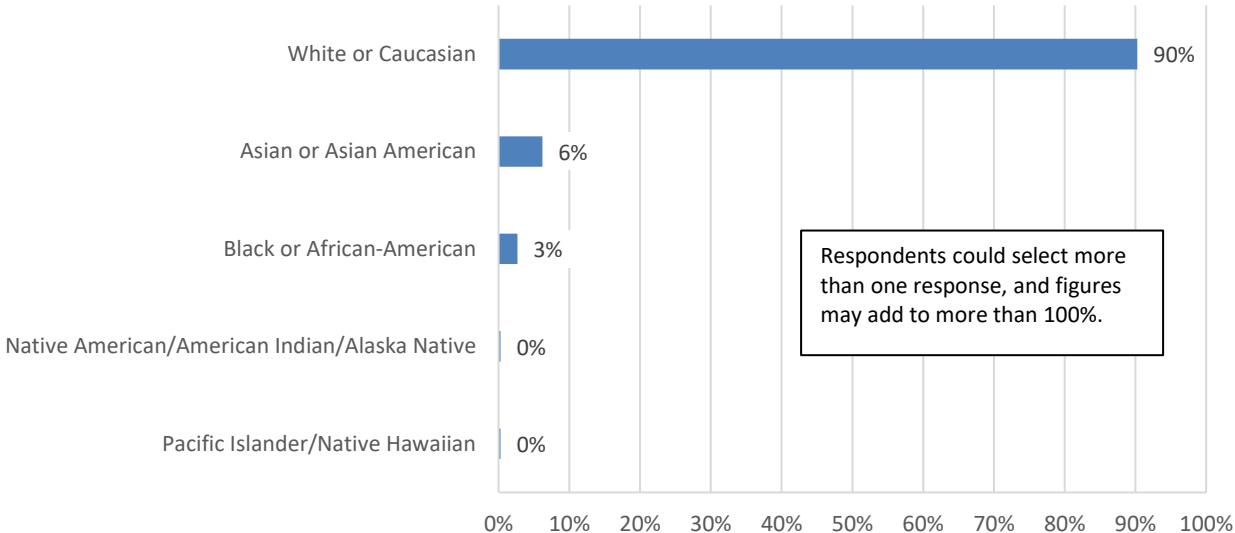
The respondents’ highest level of education attained is summarized in Figure 28. Almost one in 10 respondents have a high school education or less, and seven percent have a two-year associate degree. Another 39 percent of respondents have a four-year college degree, and 45 percent have a postgraduate or professional degree.

Figure 28: Education of respondent



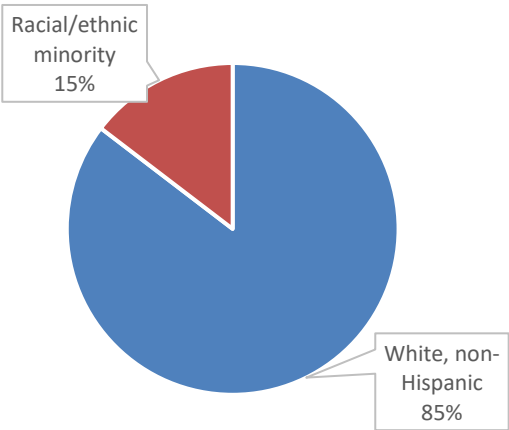
Respondents were asked to indicate what categories best describe their race (see Figure 29). Sixty-nine percent of all respondents provided this information. Among this segment, 90 percent are White or Caucasian, while six percent are Asian or Asian American and three percent are Black or African American.

Figure 29: Race/ethnicity grouped



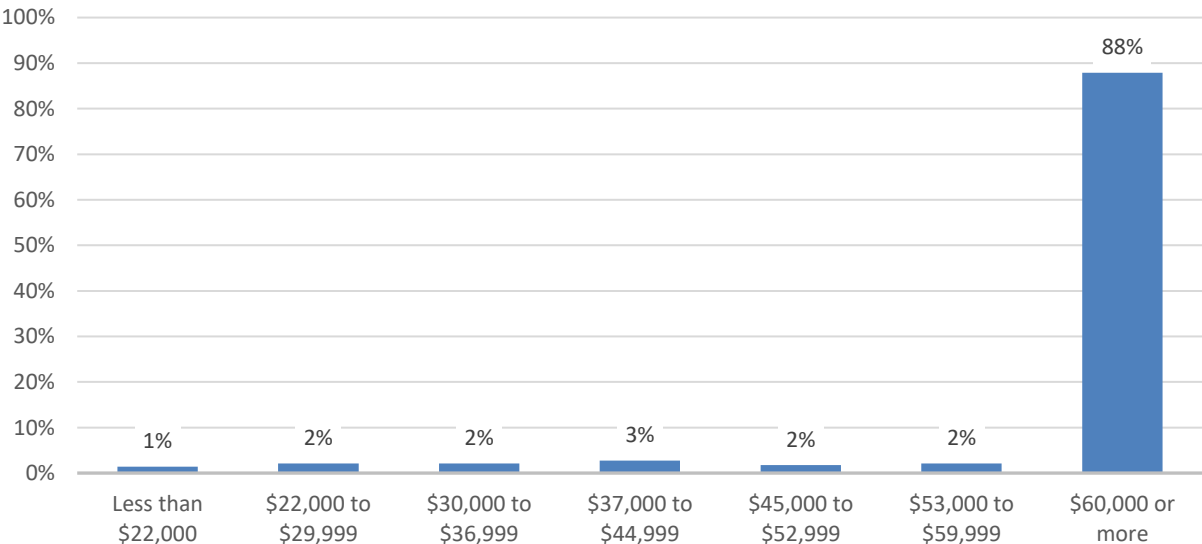
Respondents were also asked to indicate their ethnicity and if they belonged to a North American Indigenous, Native, or Tribal Group. About six percent of respondents said they are of Hispanic, Latino, or Spanish origin. Fewer than one percent of respondents belong to a North American Indigenous, Native, or Tribal Group. Among those who responded to the race and ethnicity questions, 85 percent are White, non-Hispanic, and 15 percent belong to a racial or ethnic minority group (see Figure 30). Keep in mind that 30 percent of respondents cannot be classified (i.e., did not respond to race and ethnicity questions).

Figure 30: Race and ethnicity



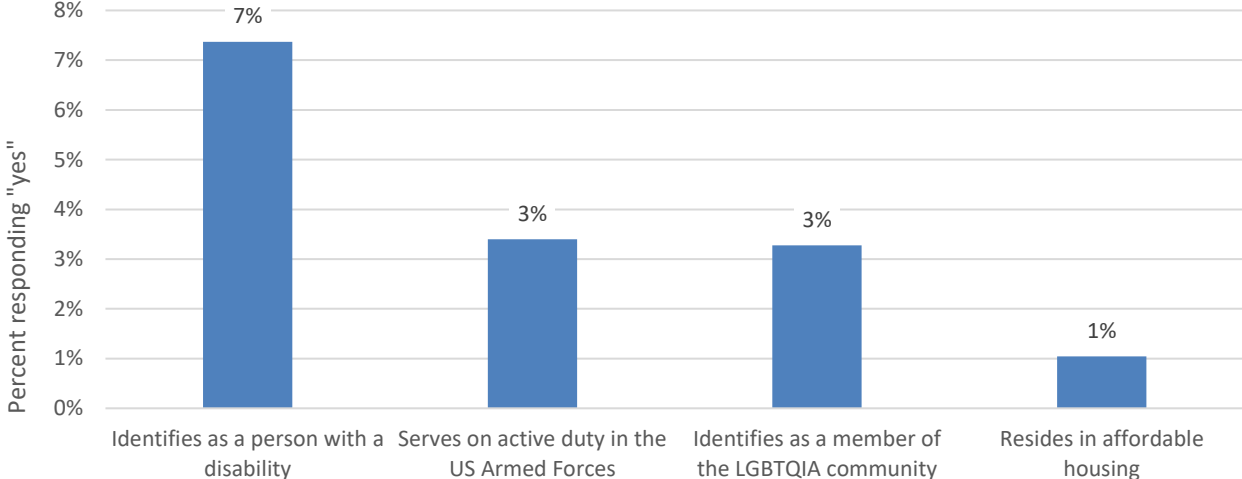
As illustrated in Figure 31, 12 percent of respondents have an annual household income of less than \$60,000, and 88 percent earn \$60,000 or more per year.

Figure 31: Annual household income



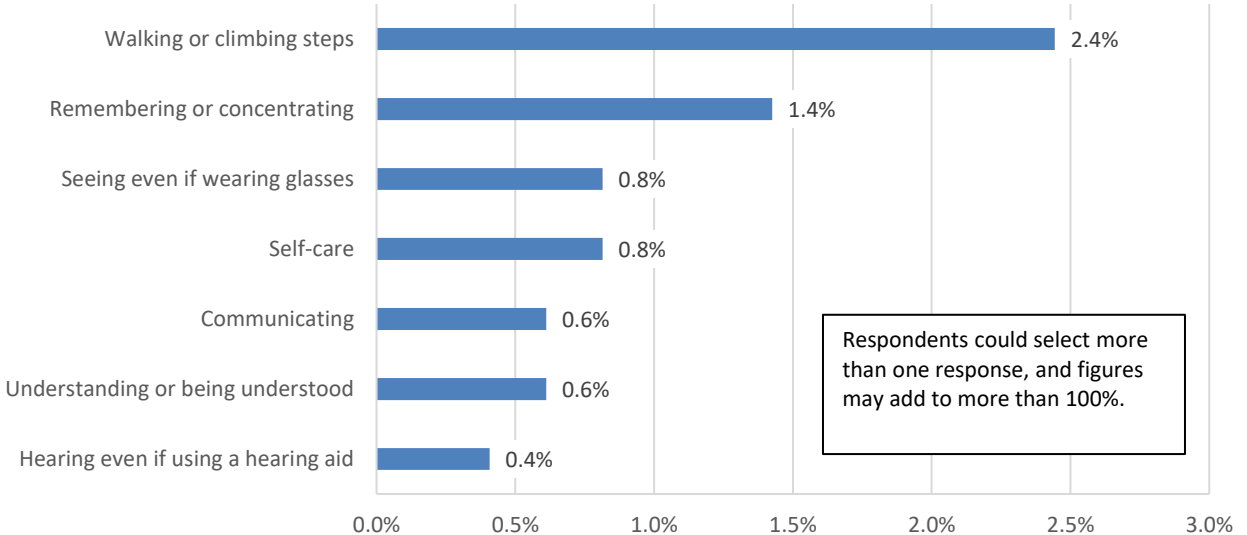
Respondents were asked if they belonged to certain other demographic groups. Seven percent of those who responded said they identify as a person with a disability (see Figure 32). Additionally, three percent serve on active duty in the US Armed Forces, and three percent identify as a member of the LGBTQIA community. Only one percent said they reside in affordable housing, but 26 percent said they do not know.

Figure 32: Respondent belongs to particular demographic groups



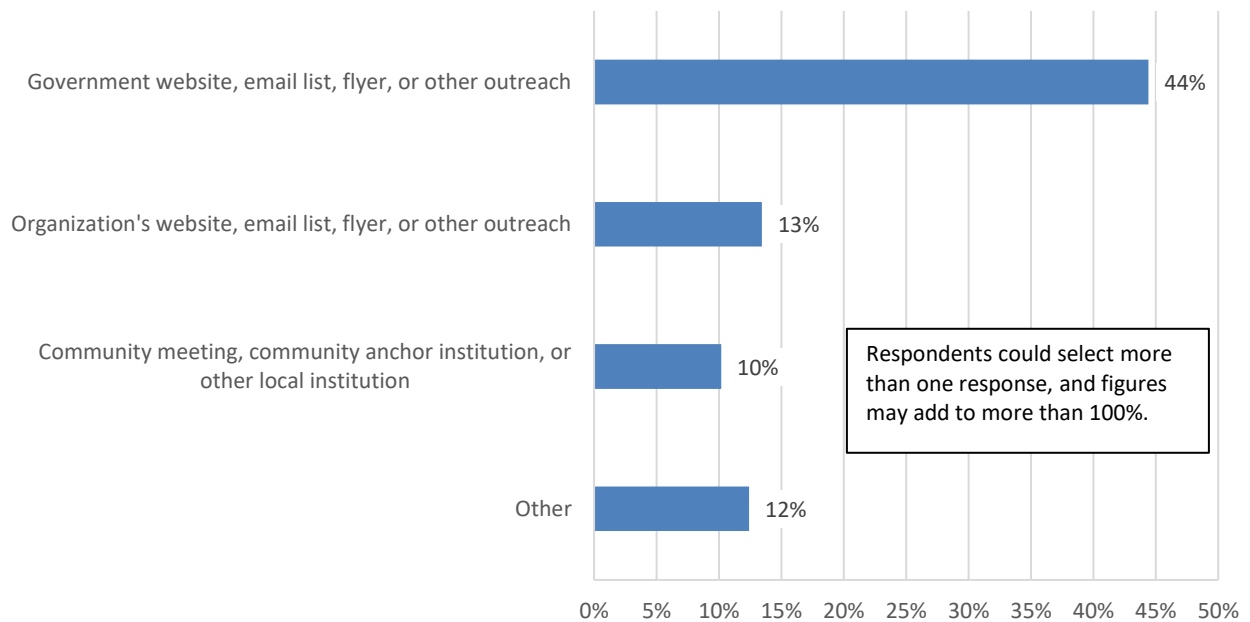
Additionally, respondents were asked if they faced difficulty in a variety of areas, as shown in Figure 33. Most respondents (96 percent) did not indicate any areas of difficulty. A small segment of respondents does face difficulties, such as with walking or climbing steps (two percent) and remembering or concentrating (one percent).

Figure 33: Respondent has difficulty in various areas



Respondents learned about the survey through a variety of sources, including 44 percent who heard about it from a government website, email list, flyer, or other outreach and 13 percent who heard about it from an organization’s website, email list, flyer, or other outreach (see Figure 34).

Figure 34: Where respondents heard about survey



Appendix A: MBI survey



Massachusetts Statewide Digital Equity Survey

The Massachusetts Broadband Institute (MBI) wants to hear from you about your experiences with getting and using internet service! This survey is completely anonymous and should be completed by one individual per household. **Your feedback is vital to understand barriers to internet access, affordability, and adoption to help close the digital divide.** Thank you for your time and participation.

Section 1: Please answer the following questions.

1. What is your zip code? _____
2. Which Massachusetts municipality do you live in? _____

Do you have internet service in your home?

- YES** – Please proceed to Section 2 below
- NO** – Please skip to Section 3 (flip this page over)

Section 2: Please answer the following questions only if you CAN connect to the internet from home.

3. Who is your internet service provider? _____
4. What kind of internet service do you have at home? Please check all that apply.
 - A data plan for a smartphone, hotspot, or tablet
 - Home wireline connection (cable, fiber, DSL, etc.)
 - Dial-up internet
 - Satellite internet
5. How well does your home internet service work?
 - Good enough to meet my household's needs
 - Not good enough to meet my household's needs
 - I don't know
6. Is your home internet service bundled with other services such as telephone or TV?
 - Yes
 - No
7. How much do you pay for the internet every month? \$ _____
8. How hard is it for you to pay your internet bill?
 - Very hard
 - Somewhat hard
 - Not too hard
 - Not at all hard
9. Have you heard about the Affordable Connectivity Program (ACP) that provides discounted internet service for low-income households?
 - Yes
 - No
 - I don't know

For more information and to find out if you qualify for ACP, call the Federal Communication Commission's ACP Support Center: 877-384-2575.

When complete, skip to section 4 below.

Section 3: Please answer the following questions only if you CANNOT connect to the internet at home.

10. If you do not have internet service in your home, what is the reason?
- Service is not available in my area
 - Service is too expensive
 - I am concerned about online privacy or safety
 - I don't feel confident navigating the internet or using online tools
 - I can't afford or access a device to use the internet
 - I don't want / don't use the internet.
 - Other (please specify): _____
11. If you do not have internet at home, where do you go to use the internet? Please check all that apply.
- A workplace
 - A friend or family member's home
 - School, college, or university
 - A library or community center
 - A business such as a restaurant, cafe, or bookstore (e.g., McDonald's, Taco Bell, Starbucks, etc.)
 - A public space such as a park or government building
 - On public transit
 - I do not regularly access internet in these or any other spaces
 - Other (please specify): _____

When complete, proceed to section 4 below.

Section 4: All respondents should answer these questions.

12. Does everyone in your household have access to the computer devices they need to meet their everyday needs for internet use? (Computers, smartphones, tablets, or other internet enabled devices)?
- Yes
 - No
13. Which of the following devices do you use most of the time to connect to the internet? (Check all that apply)
- Cellphone
 - Desktop computer
 - Laptop computer
 - Tablet (or similar device)
 - Other (please specify): _____
14. How much would you be able to pay for a laptop or desktop computer?
- \$0-50
 - \$50-100
 - \$100-150
 - \$150-250
 - \$250-500
 - More than \$1,000
15. Are you able to regularly use the internet for online activities?
- Yes
 - No
16. Please rank the level of difficulty for what you use the internet for. (Easy, Not easy, Hard)

	<i>Easy</i>	<i>Not easy</i>	<i>Hard</i>
Searching and applying for a job	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Health care or telehealth services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Participating in your local community	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
General internet searching	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Transportation information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Searching and/or applying for benefits or resources for you or your family	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

17. If you do not have regular access to the internet, what would most like to use it for if you could?
- Searching and applying for a job
 - Health care or telehealth services
 - Participating in your local community
 - General internet searching
 - Transportation information
 - Searching and/or applying for benefits or resources for you and your family
 - Something else
 - I don't want to use the internet regularly
18. What kind of digital skills support would you be most interested in?
- In person classes
 - Online classes
 - In person support from a friend or instructor
 - A do-it-yourself training module
19. How concerned are you, if at all, about internet safety?
- Very concerned
 - Somewhat concerned
 - Not very concerned
 - Not at all concerned
20. What are you most concerned about? (Select all that apply)
- That my data could get stolen or used without my consent
 - That I or a loved one could get scammed or tricked
 - That I could be tracked or surveilled
 - That I or a loved one could be harassed or abused online
21. Are you aware of tools or resources you can use to stay safe online?
- Yes, I have tools and resources I use stay safe online
 - No, I don't know of any tools or resources to stay safe online
 - I know of tools or resources to stay safe online, but they don't work for me
 - Other (please specify) : _____
22. How accessible are online government services like benefits portals, RMV services, or paying for permits or tickets to you?
- Very accessible
 - Somewhat accessible
 - Not very accessible
 - Not at all accessible
23. When you have used online government services like benefits portals, RMV services, or paying for permits or tickets, how well did they work for you?
- Very well
 - Somewhat well
 - Not too well
 - Not well at all

When complete, proceed to section 5 below.

Section 5: All respondents should answer these questions. We collect demographic information so that we can make sure we are representing all neighborhoods, towns, cities and groups across the Commonwealth.

24. What is your age?

- 18 to 24
- 25 to 34
- 35 to 44
- 45 to 59
- 60 to 74
- 75 and older
- Prefer not to answer

25. What is your gender identity?

- Woman
- Man
- Non-binary
- Gender fluid
- Other
- Prefer not to answer

26. How many people, including yourself, currently live in your household? (Note: A household is defined as all the people who currently occupy the housing unit where you live).

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8 or more
- Prefer not to answer

27. How many children under age 18, currently live in your household? (Note: A household is defined as all the people who currently occupy the housing unit where you live).

- 0
- 1
- 2
- 3
- 4
- 5 or more
- Prefer not to answer

28. What is the highest level of school you have completed or the highest degree you have received?

- Less than high school, or high school incomplete (Up to grades 9-11 or Grade 12 with NO diploma)
- High school graduate (Grade 12 with diploma or GED certificate)
- Two-year associate degree from a college or university
- Four-year college or university degree/Bachelor's degree (e.g., BS, BA, AB)
- Postgraduate or professional degree, including master's, doctorate, medical or law degree (e.g., MA, MS, PhD, MD, JD)
- Prefer not to answer

29. Are you of Hispanic, Latino, or Spanish origin, such as Mexican, Puerto Rican, or Cuban?

- Yes
- No
- Prefer not to answer

30. Which of the following best describes your race? (Select all that apply)

- White or Caucasian
- Black or African-American
- Asian or Asian-American
- Native American/American Indian/Alaska Native
- Pacific Islander/Native Hawaiian
- Some other race (please specify) _____
- Prefer not to answer

Appendix B: Stakeholder questionnaire

The Town of North Andover is undertaking a study of local broadband needs under the Massachusetts Broadband Institute's Municipal Digital Equity Program, in collaboration CTC Technology & Energy, a consulting firm with offices in Massachusetts.

Please fill out this questionnaire to the best of your ability. The goal of this questionnaire is to understand the active programs and initiatives currently facilitated by organizations located in or that serve North Andover, and to understand capacity for expanding existing efforts or starting new ones.

1. Please provide the information for a point of contact in your organization.

Name	<input type="text"/>
Organization name	<input type="text"/>
Email address	<input type="text"/>
Phone number	<input type="text"/>

2. Has your organization created a broadband and/or digital equity plan?

- Yes
- No

Digital Equity Programs Introduction

Digital equity programs aim to ensure that individuals have the skills, technology, and capacity to use broadband to its fullest extent. Examples of digital equity programs include those that promote computer skills, internet access, and computing device access.

3. What do you believe are the most pressing challenges associated with digital equity and access in North Andover, and for whom?

* 4. Does your organization offer digital equity programs?

- Yes
- No

Program Details

We want to collect data on all digital equity programs you currently provide. Please record as many details as you can about the program you offer. If your organization has more than one active digital equity program, there is an opportunity for you to answer the same questions for a second program.

5. What is the name of the project?

Project name

6. What aspects of digital equity does the program address? Check all that apply.

- Availability and affordability of internet
- Digital literacy
- Cybersecurity
- Devices and technical support
- Online accessibility and inclusivity

7. Please describe the program in a few sentences:

8. Does the program focus on certain populations? Check all that apply.

- Individuals with disabilities
- Veterans
- Aging individuals (60 and above)
- Incarcerated individuals
- Individuals with a language barrier, including individuals who are English learners; and have low levels of literacy
- Individuals who are members of a racial or ethnic minority group
- Individuals whose household income is lower than 150% of the poverty level
- No particular focus on a population
- Other (please specify)

9. What is the annual project budget?

Cost in dollars

10. How much does the program cost to each participant?

Cost in dollars

11. What is the cost per participant served?

Cost in dollars

12. Please give us a sense of the geography you serve.

- Municipal-wide
- Neighborhood-wide
- Other (please specify)

13. How long has the program been active, in months?

Program length in months

14. How many people were served by the program in the last fiscal year?

- Under 25 people
- 26 to 50 people
- 51 to 100 people
- More than 100 people
- Other (please specify)

15. How many participants do you expect to serve over the life of the program?

- 1 to 50
- 51 to 100 people
- 101 to 250 people
- 251 to 500 people
- More than 500 people

16. If you had the resources, would you want to scale the project to serve more people?

- Yes
- No

* 17. Does your organization have another digital equity program?

- Yes
- No

Digital Equity Program #2

18. What is the name of the project?

Project name

19. What aspects of digital equity does the program address? Check all that apply.

- Availability and affordability of internet
- Digital literacy
- Cybersecurity
- Devices and technical support
- Online accessibility and inclusivity

20. Please describe the program in a few sentences:

21. Does the program focus on certain populations? Check all that apply.

- Individuals with disabilities
- Veterans
- Aging individuals (60 and above)
- Incarcerated individuals
- Individuals with a language barrier, including individuals who are English learners; and have low levels of literacy
- Individuals who are members of a racial or ethnic minority group
- Individuals whose household income is lower than 150% of the poverty level
- No particular focus on a population
- Other (please specify)

22. What is the annual project budget?

Cost in dollars

23. How much does the program cost to each participant?

Cost in dollars

24. What is the cost per participant served?

Cost in dollars

25. Please give us a sense of the geography you serve.

- Municipal-wide
- Neighborhood-wide
- Other (please specify)

26. How long has the program been active, in months?

Program length in months

27. How many people were served by the program in the last fiscal year?

- Under 25 people
- 26 to 50 people
- 51 to 100 people
- More than 100 people
- Other (please specify)

28. How many participants do you expect to serve over the life of the program?

- 1 to 50
- 51 to 100 people
- 101 to 250 people
- 251 to 500 people
- More than 500 people

29. If you had the resources, would you want to scale the project to serve more people?

- Yes
- No

30. Does your organization have another digital equity program?

- Yes
- No

Planned Programs

We would like to collect information on any digital equity programs your organization is currently in the process of planning but has not yet implemented. Please record as many details about the upcoming program as possible.

* 31. Is your organization in the process of developing a digital equity program?

- Yes
- No

Planned Programs

32. What kind of digital equity program(s) is your organization developing? Please select the categories that best fit the program type.

- Digital skills and literacy
- Data privacy and cybersecurity
- Devices (Laptops, computers, tablets)
- Technical support
- Digital navigators
- Broadband access
- Creating accessible and inclusive internet content

33. What is the annual budget need?

34. What else do you need to launch the program?

35. What work (if any) has already been completed to launch the new program?