FORGING THE PATH TO DIGITAL EMPOWERMENT IN QUINCY

QUINCY DIGITAL EQUITY PLAN

February 2025

Prepared by Metropolitan Area Planning Council (MAPC) on behalf of the City of Quincy Community Technology Integration and Support (CTIS)

Image: Mayor Thomas P. Koch with CTIS Director John C. Cain, Jr

Image: Mayor Thomas P. Koch at The Great Hall, City of Quincy, City Hall Council Chambers

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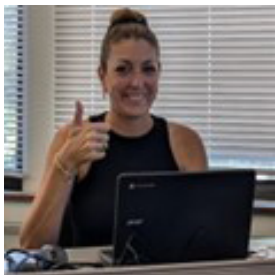
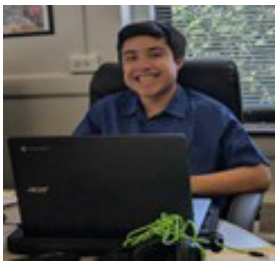
Note: All photos included in this plan courtesy John Cain/ Quincy CTIS

CTIS works with a diversity of Quincy residents of all generations on digital equity programming, including a comprehensive, 15-hour free digital literacy training initiative on essential online tools and platforms. Photo credits: John Cain / Quincy CTIS

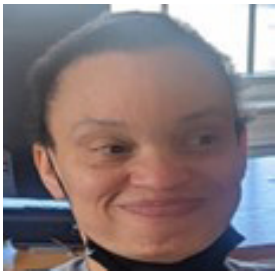






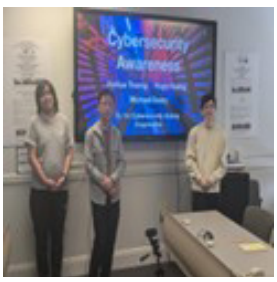











EXECUTIVE SUMMARY

Digital Equity means that everyone has access to the internet, along with the computer devices, online opportunities, and resources that they need, regardless of their socio-economic status or neighborhood. When fully realized, digital equity ensures that every member of the community can participate in society and the other essential functions.

Unfortunately, the City of Quincy, like many U.S. cities, faces stark challenges when it comes to digital equity. While the vast majority of residents possess high-speed home internet access, modern computing devices, and digital skills, too many of the city's most vulnerable still lack the resources and support needed to fully participate in modern online life, experiencing what is known as the "digital divide". To address this challenge, digital equity efforts led by Quincy Technology Integration, and Support (CTIS), in the Office of the Mayor, Thomas P. Koch, formed to close the digital divide, in Quincy, services as a focal point for a diverse set of digital equity programs, projects, and infrastructure.

In 2022, CTIS looked into, and researched to identify potential funding resources and grant opportunities, that were available to support solutions to defeat the digital divide.

CTIS was awarded funding by the Massachusetts Broadband Institute (MBI) to develop a Quincy Municipal Digital Equity Plan, and selected the Metropolitan Area Planning Council (MAPC) in the development of the city's first Digital Equity Plan.

In analyzing the digital equity needs in Quincy, this plan adopted the common framework of the "three pillars" of digital equity – internet access, device access, and digital literacy.

Digital equity is not an isolated issue but is instead interrelated to several of the core challenges that residents in Quincy face. By addressing the digital divide and its disproportionate impacts on the most vulnerable Quincy residents, there are opportunities to drive positive impact in other intersecting domains, including, but not limited to: housing; economic development; public health; education and civic participation; and language access. The COVID-19 pandemic spotlighted the internet's impact on these domains when medical appointments, school, and many jobs moved online and made digital access vital to meeting daily needs associated with health outcomes.

MAPC's planning approach for Quincy's Digital Equity Plan is grounded in taking insights from quantitative data while centering community voices through resident surveys and focus group discussions. The goal of MAPC's digital equity planning services is to set the foundation for future projects and program implementation. Tangible recommendations are outlined that connect Quincy's digital needs to actions, programs opportunities, and possible funding sources. MAPC does not approach issues in a vacuum; the planning process and recommendations are

designed for Quincy to learn from and collaborate with neighboring municipalities through regional strategies in digital equity service delivery.

Summary of Key Findings

The following represent key findings from the existing conditions analysis and community needs assessment.

Internet Access

In our focus group discussions, many Quincy residents shared that they don't have access to the internet at home. Eight percent of the survey respondents (n = 38) reported not having internet access in their home. Residents who don't have at-home internet frequently use community resources and community anchor institutions to use the internet. We heard residents share that they use the public library, YMCA, the Council of Aging, and local businesses such as restaurants, cafes, and bookstores to meet their technology and internet needs.

To enable residents to benefit from all online services, access to internet services that are stable, fast, and affordable is critical. Currently, Quincy residents who are more vulnerable to the consequences of the lack of digital access experience barriers to enjoying good quality internet service; survey respondents (28.9%) shared that their home internet services are not good enough to meet their household needs. Many residents shared that they frequently experience unstable internet service and shared frustrations with maintenance. Quincy residents often must choose a stable and fast internet service or a service that is affordable. Survey respondents (34.2%) shared that it is "somewhat hard" for them to pay their internet bill and 7.9% shared that it is "very hard" to pay their internet bills. Some residents also shared that they rely on affordable subsidy programs to meet the costs of their internet connection.

Device access

Some residents in the focus group discussions shared that they don't have access to devices. The impact of lack of devices is pronounced for homeless individuals who need additional assistance in getting connected to technology. The residents who are most impacted by digital inequity expressed unmet needs with their current devices. More than one third of survey respondents reported having access to the internet only through a data plan for their smartphone, hotspot, or tablet. Non-English-speaking residents in our focus group discussions expressed their dependence on phones for accessing various online services and information. Not having the adequate device poses a barrier for residents' access to numerous services, whether private or social services like SNAP, MEDICAID, housing and fuel assistance, etc.

Digital literacy

In our resident engagement process, we learned that residents are interested in training programs to confidently and efficiently use technology. Nearly forty-five percent of survey respondents reported being "very concerned" and 28.9% reported being "somewhat concerned" when navigating the internet for their needs. The survey data showed residents are interested in digital skill support for telehealth services and searching and applying for jobs.

> Residents in Quincy often depend on help from close family and friends to address their internet and technology-related issues. This underscores a need for a technological support system that is reliable and trusted where residents feel comfortable asking for help when needed. For many residents, the technological support need is embedded into and interconnected with a bundle of services like shelter, food access, social services, etc.
>
> Residents also raised concerns regarding safety and privacy while using the internet. Roughly forty-four percent of survey respondents reported being "very concerned" and 28.9% reported being "somewhat concerned" about internet safety. Furthermore, 65.8% of survey respondents are concerned about their data getting stolen or used, 47.4% are concerned about being tracked, and 36.8% of the survey respondents are concerned about a loved one being harassed or abused online. Focus group participants shared that they are concerned about financial safety during internet transactions and raised concerns about identity theft and their medical data compromise.

Summary of Recommendations

Building Quincy's Digital Equity Community and Network

- Improve and expand information about the City of Quincy's existing municipal digital equity programs online and in print.
- Expand CTIS administrative capacity to streamline operations and maximize impact.
- Convene a Digital Equity Advisory Council to facilitate two-way feedback and coordinate digital inclusion efforts in Quincy.
- Continue digital equity planning work to maintain an up-to-date picture of current digital equity needs in Quincy.

Amplify Existing Programs

- Continue to invest in CTIS's ongoing Technology Instruction program.
- Provide hotspot and device lending and ownership programs in partnership with Quincy Public Schools, Quincy Public Library, and the Quincy Housing Authority.
- Provide flexible device access programs to better meet diverse resident needs.
- Provide multi-lingual technology instruction and individualized device access for organizations serving unhoused individuals.

Infrastructure

- Pursue Apartment Wi-Fi and residential retrofit programs in partnership with the Quincy Housing Authority.
- Evaluate performance and impacts of the Municipal Broadband pilot.

New Initiatives

- Develop technology instruction and technology support "Train the Trainer" program.
- Provide multi-lingual resources for non-English technology instruction.
- Offer safe and secure Wi-Fi in public spaces.
- Funding and technical support for community computer labs hosted by community-based organizations and community anchor institutions, such as schools, libraries, YMCA, and the Council on Aging.
- Plan for targeted expansion of Municipal Broadband pilot, to continue serving high-need neighborhoods first.

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INTRODUCTION

Digital equity is central to helping individuals and families access adequate social, economic, and civic opportunities throughout their lives. This section provides background context on Quincy's ongoing digital inclusion work and introduces key concepts that define digital equity and its intersection with other core community values and needs.

Background

The City of Quincy, like many U.S. cities, faces stark challenges when it comes to broadband access, inequity, and digital divide. In January, of 2022, The City of Quincy, under the Office of the Mayor, appointed John C Cain, Jr, as its first Director of Community Technology, Integration, and Support (CTIS). This newly created office serves as a focal point for a diverse set of digital equity programs, projects, and infrastructure. CTIS accomplishes this goal through a range of different means: technology capacity assessment on behalf of City departments and aligned organizations; direct resident services and programming; city- and region-wide coalition building; and policy advocacy at the municipal level. In 2024, the City of Quincy, received its first national recognition, Digital Inclusion Award Trailblazer, and was honored in Philadelphia

CTIS is dedicated to providing valuable tools for residents and businesses, helping them stay informed about the ongoing challenges related to cybersecurity and AI. With the support of Commonwealth of Massachusetts resources, CTIS continues to introduce a variety of programs and resources available at the federal, state, and local levels, focusing on assessment, monitoring, solutions, and maintenance. As a result, employment opportunities in cybersecurity are in demand, beginning with individuals with high school diplomas or GED's, to participation in apprenticeship programs.

CTIS's flagship program is its free digital literacy training course, which provides Quincy residents of all ages with 15 hours of training on common online tools and platforms.

CTIS's flagship program is its free digital literacy training course, which provides Quincy residents of all ages with 15 hours of training on common online tools and platforms. Participants learn to use a Chromebook computer and access services including email, word processing, video conferencing, document management, online banking, internet search, and other fundamentals. Participants who complete the full 15-hour training receive a Chromebook or iPad and a hotspot or free/discounted home internet service. These training initiatives have been conducted with a wide variety of community stakeholders and service providers, and they serve as an on-ramp to more advanced training and job placement opportunities.

CTIS also plays an instrumental role in convening digital equity stakeholders and service providers in the city, developing and deploying resources to support residents, and pursuing funding opportunities related to digital equity. In this role, CTIS

has received multiple federal digital equity grants through the Massachusetts Broadband Institute (MBI) and has worked with the Metropolitan Area Planning Council (MAPC) to pursue an Apartment Wi-Fi project in partnership with Quincy Housing Authority.

In mid 2023, the City of Quincy (led by CTIS) joined the Massachusetts Broadband Institute's Municipal Digital Equity Planning program and engaged MAPC in the development of the city's first Digital Equity Plan. This effort served to research and

document current conditions and community needs through qualitative and quantitative data collection, ultimately resulting in a vision for digital equity, and proposed a set of actionable recommendations for achieving that vision by addressing the digital divide.

The results of this process are contained in this document, the Quincy Digital Equity Plan, representing a significant step forward for CTIS in acknowledging the realities of the digital divide, envisioning a more just community built on digital equity, and committing to the work of digital inclusion.

What is Digital Equity?

This plan will describe existing conditions, community needs, and a vision and recommendations for digital equity in Quincy. But first, what is digital equity?

> ***"Digital equity is a condition in which all individuals and communities have the information technology capacity needed for full participation in our society, democracy, and economy. Digital equity is necessary for civic and cultural participation, employments, lifelong learning, and access to essential services."***
> ***-National Digital Inclusion Alliance (NDIA)***

Digital equity means that everyone has access to the online opportunities and resources that they need, regardless of socio-economic status or location. It means that everyone has an equitable opportunity to participate in society and the economy, access education and training, and participate in civic life.

Digital Equity Framework

In analyzing the digital equity needs in Quincy, this plan adopts the common framework of the "three pillars" of digital equity - internet access, device access, and digital literacy.

DIGITAL EQUITY FRAMEWORK: THREE PILLARS

Pillar	Broadband Connection	Device Access	Digital Literacy
Overview	Having a **reliable, fast, and affordable internet connection**, ideally to the home. It must be fast enough to support the needs of all members of a family or household simultaneously. Broadband subscription services are most commonly obtained via private internet service providers (ISPs), but in some cases may be offered by a public service provider or as a shared service or building amenity. Broadband is currently defined as **100mbps / 20mbps** by the FCC but advocates also emphasize the importance of symmetrical upload speeds.	Owning or otherwise **having access to computing devices** with sufficient hardware, software, and features/ capabilities to support online needs. Different devices may be needed to support different use cases and individual users. Devices include home desktop or laptop computers, and can also include Chromebooks, tablets, mobile phones, etc., as well as auxiliary devices such as webcams, which may be needed for specific use cases, such as remote learning or telehealth.	Knowing how to **confidently navigate and utilize technology and digital environments** to fully participate in online life. This means having the individual skills needed to use hardware, software, and an internet connection across a variety of use cases, as well as having access to **educational resources or even technical support** to troubleshoot when there are issues.
Common barriers	Insufficient infrastructure; Lack of market competition and consumer choice; High cost of high-speed plans; inadequate or outdated in-building wiring or hardware;	Older/outdated devices; Inadequate devices; lack of device ownership; limited access to shared devices; device affordability Lack of access to specialty devices with features to accommodate those living with disabilities.	Lack of familiarity with devices; misinformation and scams; lack of educational materials translated into relevant languages; lack of educational/ training opportunities in relevant languages.
Quincy in context	**8.8%** of households are **without internet access** in Quincy. According to M-Lab data, **74.11%** of tests in Quincy were over 100 mbps download speed.	**7%** of Quincy residents **rely solely on cellular phone** connection to access the internet. Citywide, **6.3% of households** have **no computer devices**.	**44.7%** of survey respondents are **"very concerned" about navigating the internet**.
Support opportunities	Public broadband infrastructure or services; increased private ISP competition Affordable service or subsidy programs like ACP or Internet Essentials Hotspot lending programs; public Wi-Fi	Device refurbishment and distribution programs; device lending programs; Setting up computer labs in public spaces	Digital literacy training programs; self-service educational materials; accessible IT support; digital navigators

Digital Equity is Interconnected to Core Community Issues

Digital equity is not an isolated issue but is instead interrelated to many of the core challenges that residents in Quincy face. By addressing the digital divide and its disproportionate impacts on the most vulnerable Quincy residents, this plan presents an opportunity to drive impact in other intersecting domains.

As more and more of our world moves online, from school to socializing, to work, shopping, healthcare, government and community, and access to basic services - digital access is not just one more community issue area to be addressed. It is increasingly a prerequisite to addressing every issue area. The following sections provide an overview of how digital equity relates to various community issue areas.

Digital Equity and Housing

- High speed internet access is an increasingly vital aspect of adequate housing[1]
- A building's wiring and infrastructure can impact the internet options available to residents
- High cost of housing / cost burden can force households to have to choose between basic necessitates, sometimes sacrificing internet access
- Applications for affordable housing and other housing related services (such as rent payment portals) are increasingly online.
- Low-income residents of affordable housing experience lower levels of internet access and adoption.
- Housing authority- managed sites and other multi-dwelling unit buildings (MDUs) can provide opportunities for shared broadband amenities or services.

[1] National League of Cities (2021, December 9). Digital Equity Playbook: How City Leaders Can Bridge the Digital Divide. https://www.nlc.org/resource/digital-equity-playbook-how-city-leaders-can-bridge-the-digital-divide/

Digital Equity and Economic Development

- Research increasingly shows that digital inclusion is a prerequisite for economic inclusion and for closing generational wealth gaps[2].
- Digital access is necessary for economic activities that increasingly take place online, from working remotely, to searching for a job, upskilling through online training, to e-commerce and online entrepreneurship
- Digital skills are required for 92% of job opportunities, and jobs that require more digital skills pay more than jobs that require fewer[3].
- A community's broadband coverage and adoption is associated with the number of jobs and economic output[4], and individuals with broadband subscriptions report higher income than those without[5].
- Small businesses owners need digital skills to market and promote their business online. Tech companies and other employers require top-tier broadband speeds to locate in a community.

Digital Equity and Public Health

- Digital equity is a "super" social determinant of health, meaning it influences others, such as healthcare, education, and employment[6].
- The COVID-19 pandemic spotlighted the internet's impact on these domains, when medical appointments, school, and certain jobs moved online during lockdown and made digital access vital to meeting many daily needs associated with health outcomes
- With the rise of telehealth appointments, online patient portals, and secure messaging services for communicating with medical staff, access to healthcare is increasingly predicated on digital access

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[2] Ochillo, F. (2022). The Economic Consequences and Generational Impact of the Digital Divide. Belfer Center for Science and International Affairs. https://www.belfercenter.org/publication/economic-consequences-and-generational-impact-digital-divide

[3] Bergson-Shilcock, A., Taylor, R., & Hodge, N. (2023). Closing the Digital Skill Divide. National Skills Coalition. https://nationalskills-coalition.org/wp-content/uploads/2023/02/NSC-DigitalDivide_report_Feb2023.pdf

[4] (2021). Broadband for all: Charting a path to economic growth. Deloitte. https://www2.deloitte.com/content/dam/Deloitte/us/Documents/process-and-operations/us-charting-a-path-to-economic-growth.pdf

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[6] Turcios, Y. (2023, March 22). Digital Access: A Super Determinant of Health. https://www.samhsa.gov/blog/digital-access-super-determinant-health

Digital Equity and Education

- Remote learning allows students to attend school, complete assignments, and experience educational programs from home
- Middle and high school students without home internet access or who depend on a cell phone for internet access tend to have lower GPAs, lower homework completion rates, and lower standardized test (like SAT) scores, and are less likely to plan to attend college or pursue STEM-related careers[7].
- Education exposes students to digital skills that can expand learning and introduce future career pathways.

Digital Equity and Civic Participation

- Digital access and inclusion also enable civic participation, especially as online government services expand[8]
- Government permits and services are increasingly accessed online via program websites and online application forms.
- Many public meetings can now be accessed via online videoconferencing, allowing more flexible remote participation, but also presenting challenges for those without digital access.
- Public announcements and community alerts are shared online on websites and via online applications. Community organizing and other forms of social participation in civic life increasingly take place on social media.

Digital Equity and Language Access

- Language access is key to ensuring that digital content is accessible and usable by all and especially by individuals who are not native English speakers
- For individuals with limited English proficiency, independent Internet access can help them feel more included as they work on improving their language skills (Source: Supporting digital inclusion of adults with low English language skills)
- Digital language support includes translating online websites, tools, and services to all the languages in demand. It also provides staff support for interpretation services to promote greater participation and engagement for services of housing, healthcare, education, employment, and much more that have now moved online
- Digital literacy support that is tailored to the needs of non-English speakers to improve their proficiency in using digital tools allows closing the gap in how they access opportunities

[7] Hampton, K. N., Fernandez, L., Robertson, C. T., & Bauer, J. M. Broadband and Student Performance Gaps. James H. and Mary B. Quello Center, Michigan State University. https://doi.org/10.25335/BZGY-3V9

[8] Hovik, S., Giannoumis, G.A. (2022). Linkages Between Citizen Participation, Digital Technology, and Urban Development . In: Hovik, S., Giannoumis, G.A., Reichborn-Kjennerud, K., Ruano, J.M., McShane, I., Legard, S. (eds) Citizen Participation in the Information Society. Palgrave Macmillan, Cham. https://doi.org/10.1007/978-3-030-99940-7_1

Digital Equity in Quincy

Community Technology Integration and Support (CTIS)

The City of Quincy's Office of Community Technology, Integration, and Support (CTIS), under the leadership of Mayor Thomas P. Koch and Director John C. Cain, Jr., works to close the digital divide for all Quincy residents. CTIS provides support to overcome the digital divide through direct resident services and programming, city- and region-wide coalition building, and policy advocacy at the municipal level. CTIS works with other City departments and community organizations to support their digital needs ranging from equipment support to training programs. These technology instruction courses accommodate 10 learners per session and are conducted in collaboration with the Quincy Housing Authority, Quincy Public Schools, Quincy Council on Aging, VFW, Vinfen (a provider of behavioral and mental healthcare), Father Bill's (an organization offering homeless services), and other partnering organizations. Through this program, CTIS has already engaged over 400 learners.

CTIS provides support to overcome the digital divide through direct resident services and programming, city- and region-wide coalition building, and policy advocacy at the municipal level.

CTIS also coordinates the digital equity efforts across the city departments and community organizations to ensure tangible and targeted support where the need is the highest. The training is catered to serve low- to moderate-income families who experience affordability barriers. CTIS's primary program is its free digital literacy training initiative, offering Quincy residents of all generations a comprehensive 15-hour session on essential online tools and platforms. Participants are instructed

in using Chromebook computers and gain proficiency in email, word processing, video conferencing, document management, online banking, internet search, and other foundational skills. Completion of the full training entitles participants to receive a Chromebook or iPad, along with a hotspot or access to free/discounted home internet services.

Through hands-on technology training programs at various sites across Quincy, CTIS provides targeted training support to veterans, jobseekers, and older residents to build their digital literacy capacity. Additionally, they provide an immersion program model for non-English speakers with certified instructors. To reach these priority population groups, CTIS partners with other stakeholders with projects in pipeline to expand the model of training support. This includes supporting Quincy Housing Authority with a lab, data center, and training center at the O'Brien Towers location, as well as replicating the training model in Quincy to reach jobseekers across the region by collaborating with the South Shore Workforce Board.

Through hands-on technology training programs at various sites across Quincy, CTIS provides targeted training support to veterans, jobseekers, and older residents to build their digital literacy capacity.

Broadband Master Plan

The Quincy City Council approved a Broadband Master Plan, which was produced in 2020 by EntryPoint Networks and Tilson. The plan includes ISP market analysis, technical feasibility analysis, implementation cost estimates, and recommendations. The plan outlines the steps needed for Quincy to create a municipal broadband network, which the City intends to pilot in the Merrymount and Quincy Point neighborhoods.

In April 2023, the Quincy City Council approved the creation of a Municipal Broadband Enterprise Fund, which will support the governance of operations and maintenance of the Municipal Broadband Network pilot.

Quincy Public Schools

Quincy Public Schools (QPS) have a comprehensive technology plan to drive the district's commitment to using modern technology effectively and improve technical support and training. The emphasis is on expanded professional development and training for staff to enhance digital learning by integrating it into the curriculum.

For the year 2023-2024, QPS plans to procure 25 laptops, 102 desktops, deploy 1:1 Chromebook, and install 95 interactive projectors. QPS also plans to continue improving home-to-school communications through consistent, transparent, and

accessible digital communication channels. QPS has specific goals for technology planning and training opportunities for QPS staff, students, and parents. This includes working with the QPS digital learning teams to identify learning and technology training needs, assesses the student information system, continue offering training in Google classroom for educators, and collaborate with the Superintendent's leadership to share system-wide digital learning initiatives.

Quincy Public Library

Quincy Public Library (QPL) provides device and internet access through free Wi-Fi internet service, computers & laptops, printing, scanning, and fax. Each Quincy Library location provides computers accessible without a library card on a first-come, first-served basis. Computers designated for children up to age 12 and those in teen areas are exclusive to their respective age groups, with a limit of one hour per day. Additionally, residents can borrow Chromebooks for in-library use at the main library.

QPL also provides accessibility services and access to devices that are tailored to the needs of residents with disabilities. The main library has a dedicated desktop computer with Microsoft Narrator screen reader, magnifier, large print keyboard, 27" monitor and mouse with track ball and tilt plate to support residents with blindness and low vision. For residents with deafness and hearing loss, the library provides an assisted listening system in community meeting rooms in the main library. Additionally, the literacy programs provide one-on-one

tutoring for adults with learning disabilities and a structured, sequential multi-sensory program.

QPL is also a partner with the Massachusetts Trial Court for the Access to Justice (A2J) program. It offers access to virtual court services, helps residents find legal information and join remote court hearings, and provides a virtual help desk.

Other Key Stakeholders

Quincy Housing Authority

The Quincy Housing Authority ensures that low-income residents of Quincy have access to safe, clean, and affordable housing. In addition to housing services, they offer some digital support services such as assistance with SNAP applications, fuel and utilities programs, guidance in navigating healthcare options like MassHealth and senior care, and adult basic education training programs. QHA also partners with CTIS to make digital literacy classes available to residents.

Additionally, the Quincy Housing Authority is collaborating with the City of Quincy and MAPC to establish free public Wi-Fi at O'Brien Towers. This initiative is supported by MBI's Apartment Wi-Fi program and involves enhancing the building's infrastructure to meet federal broadband standards (100/100 mbps). The program provides Wi-Fi coverage to 274 residential units and supports an on-site adult day care facility at no cost to residents.

MassHire South Shore Workforce Board

The MassHire South Shore Workforce Board, led by the City of Quincy Mayor Thomas P. Koch, builds and maintains connections between businesses and jobseekers through a network of professionals. The MassHire South Shore Career Center provides support with aspects of career development and digital capacity building through workshops and training opportunities in Quincy facilities. The Career Center also provides focused talent support to youth and veterans to build their digital skills.

They provide computer workshops ranging from foundational digital skills to advanced training programs. These include classes like introduction to computers, operating systems, basic internet navigation, assistance with the online job search processes and building job applications, and e-learning classes. The advance workforce development skills include creating and using online professional networks like LinkedIn and tutorials on PowerPoint, MS Excel, and MS Word.

The MassHire South Shore Career Center provides support with aspects of career development and digital capacity building through workshops and training opportunities in Quincy facilities

Digital Equity Plan

This Digital Equity Plan serves as a strategic document articulating a vision and recommendations that emerged from a process of assessing the community's digital equity needs, interests, and assets. This framework will serve as a guide for future municipal decision-making, potential investments, and new programs to support digital equity. Ultimately, the goal of this plan is for its vision and recommendations to enhance internet access and usage, particularly for populations most socially and economically disadvantaged in Quincy.

Planning approach

MAPC's planning approach for Quincy's Digital Equity Plan is grounded in the following core principles:

Data Informed and Community Led

To understand residents' access to opportunities and services, the planning team takes insights from quantitative data, while also centering community voices through resident surveys and focus group discussions.

Planning for Action

The goal of MAPC's digital equity planning services is to set the foundation for future project and program implementation. The plan recommendations connect Quincy's digital needs to actions, programs opportunities, and possible funding sources.

Public, Multidisciplinary, Collaborative, and Regional

The planning process and recommendations are designed for Quincy to learn from and collaborate with neighboring municipalities through regional strategies in digital equity service delivery.

MAPC envisions that the plan will help inform the following goals:

Prioritize residents' digital equity needs as a pre-requisite to further accessing essential services like healthcare, education, job opportunities, transportation, and social services. The plan's community needs assessment identifies existing conditions, including assets, needs, and opportunities. The action plan develops an implementation strategy to address the digital divide with concrete projects, resources, and other interventions.

Identifying and advocating for policy decisions: Municipalities have some regulatory authority in permitting and licensing internet service providers. This plan guides how Quincy's regulatory authority might enhance digital access and empowers Quincy to advocate for state-level policy changes.

Future funding and capital investment: The American Rescue Plan and Infrastructure Investment and Jobs Act offer significant funds for broadband infrastructure from the federal government. This plan provides an inventory of existing available funding for near term and long-term actions specifically focused on digital equity. Additionally, it identifies funding that addresses broader community and economic development actions where digital equity fits in.

Ongoing program needs: Achieving and maintaining digital equity requires continuous effort. The City of Quincy should refer to this plan for ongoing guidance in addressing digital access challenges in the short and long term.

Prioritize the needs of socially disadvantaged population: the digital divide does not impact everyone in Quincy equally. Therefore our planning process seeks to center the voices and needs of those most impacted.

EXISTING CONDITIONS

The first step in the Quincy Digital Equity Planning process was to identify and analyze existing conditions in the city. This included research into infrastructure and ISP (Internet Service Provider) availability, analysis of American Community Survey data, and other available data such as the FCC's 477 data and openly available speed test data.

Internet Service Availability in Quincy

Like most of the Greater Boston region, nearly all addresses in Quincy (99.9%) are served by one ISP (Comcast), but very few are served by more than one. Only 3.4% of addresses have a second cable ISP option, and an additional 23.1% have fixed wireless broadband service available. Residential fiber internet service is also functionally unavailable in Quincy, with under 0.25% of addresses being served with fiber plans of any kind.

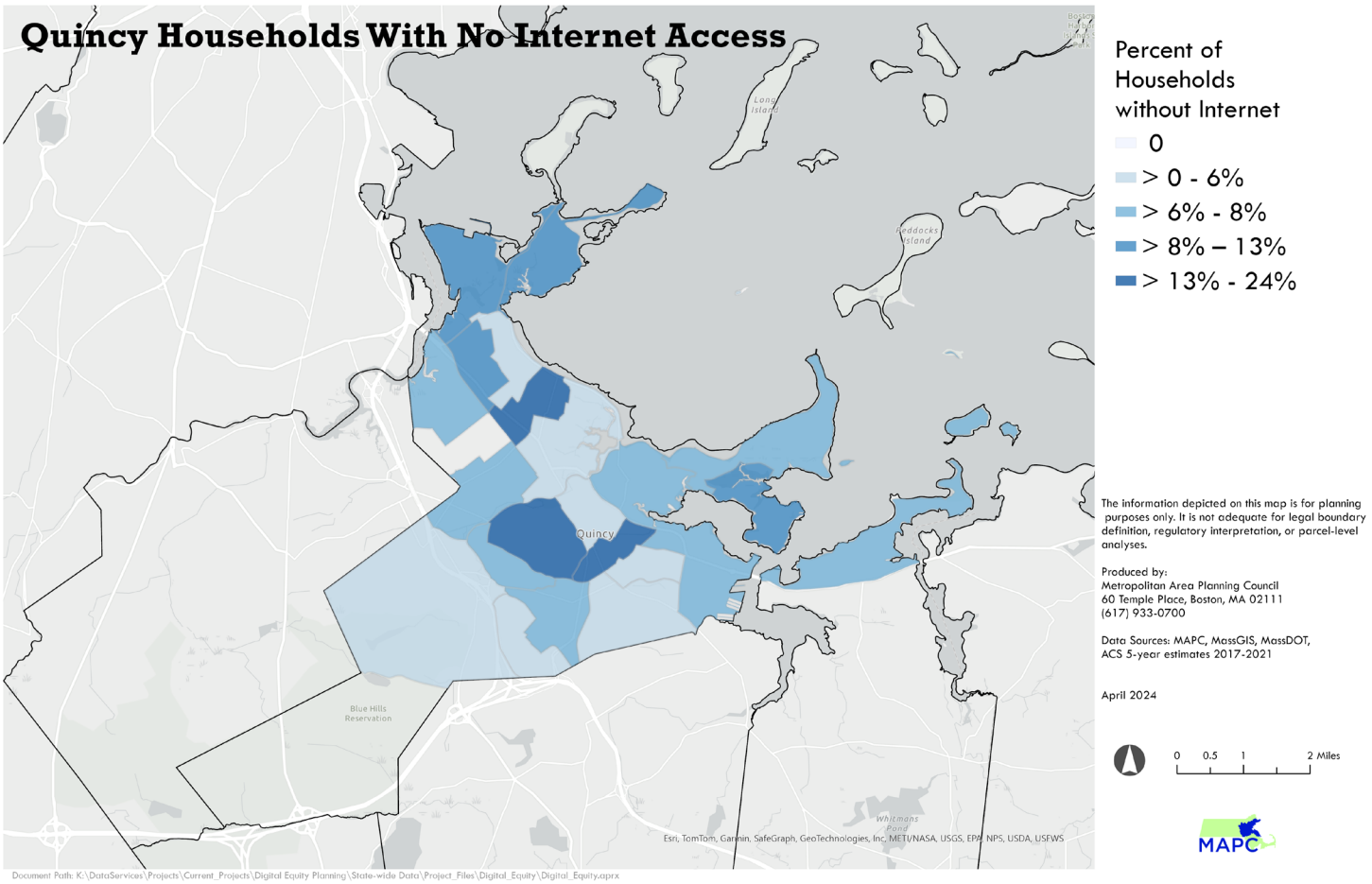
Nearly all addresses in Quincy are served by one ISP, but very few are served by more than one.

Provider	Technology	% of addresses served
Comcast	Cable	99.9%
Astound (RCN)	Cable	3.4%
Verizon	Fiber	0.25%
Starry	Fixed Wireless	14.5%
T-Mobile	Fixed Wireless	8.6%
T-Mobile	Fixed Wireless (non-broadband)	30.3%

Table 1: Proportion of addresses served by each ISP. Source: FCC Form 477

According to speed test data collected by M-Lab between January and September 2023, the median download speed in Quincy was 237 mb/s (n = 6,660), with 74.11% of tests over 100 mb/s and 97.63% over 25 mb/s. The median upload speed was 38 mb/s. These numbers represent a usable level of service for most home applications, with the median result from the M-Lab speed tests well above the FCC-defined minimum broadband speed of 100 Mbps/20 Mbps. The lack of fiber to home service is likely a limiting factor, especially to accessing higher upload speeds and will result in a speed "cap" as bandwidth needs continue to rise.

The median download speed in Quincy was 237 mb/s, with 74.11% of tests over 100 mb/s and 97.6% over 25 mb/s.



Map 1: Geographical distribution of proportion of households without internet access. Source: American Community Survey (2017-2021)

Internet Infrastructure and Market in Quincy

The vast majority of individuals who access the internet do so via an Internet Service Provider, or ISP. ISPs provide the link between a personal computing device (computer, tablet, smartphone, or any number of connected devices like televisions, gaming consoles, smart home devices, etc.) and the broader internet. In Quincy (as in most of the United States), these ISPs are all

private companies. There are several technologies used to bring internet service into peoples' homes: fiber, cable, fixed wireless, and satellite. People may also access the internet using a mobile device (a dedicated hotspot or a smart phone with "tethering" capabilities) or rely exclusively on Wi-Fi signals provided in public spaces by libraries, schools, cafes, or other establishments. Each of these different modes of connection has an impact on speed, cost, and reliability. For more information about network speed and technology, refer to the appendix.

All internet service providers must self-report information about the service they provide to the Federal Communications Commission (FCC) using Form 477. This form requires an ISP to report the fastest plan they offer within a given census block (for Cable, Fiber, or Fixed Wireless providers), or a coverage map (for Satellite and Cellular providers). Form 477 lists the number of "Broadband Serviceable Locations," or BSLs served by each technology. The FCC defines a BSL as "a business or residential location in the United States at which mass-market fixed broadband Internet access service is, or can be, installed." In Quincy, there are just over 25,000 BSLs. The form does not collect information about cost, how many people subscribe to the plan being listed, or what the other "lower" plans are; it only provides information about the fastest plan available for at least one location within a census block.

Form 477 Reported Service Availability in Quincy

Cable internet

In Quincy, as with many municipalities in Greater Boston, 99.88% of BSLs have Comcast cable internet available. Comcast's maximum advertised speed for this service is 1,200 megabits per second download and 35 megabits per second upload. Astound/ RCN also operates in Quincy, but only offers service to 844 BSLs (3.37%), offering a service plan of up to 1,000 Mbps/20 Mbps.

Provider	Technology	Covered BSLs	% coverage	Max speed
Comcast	Cable	25,050	99.88%	1.2gb/35mb
Astound	Cable	844	3.37%	1gb/20mb

Table 2: Proportion of Quincy addresses covered by cable internet for each ISP. Source: FCC Form 477

Fiber internet

Residential fiber internet service is essentially non-existent in Quincy. While two providers do show up in the FCC Form 477 data (Comcast and Astound), they collectively serve only 64 BSLs (about 0.25%). It is likely that these providers' appearance in Form 477 data is either an error in the data or service is being provided in a geographic area which falls within a neighboring municipality covered by one of these providers.

Provider	Technology	Covered BSLs	% coverage	Max speed
Comcast	Fiber	1	0%	6gb/6gb
Verizon	Fiber	63	0.25%	1gb/1gb

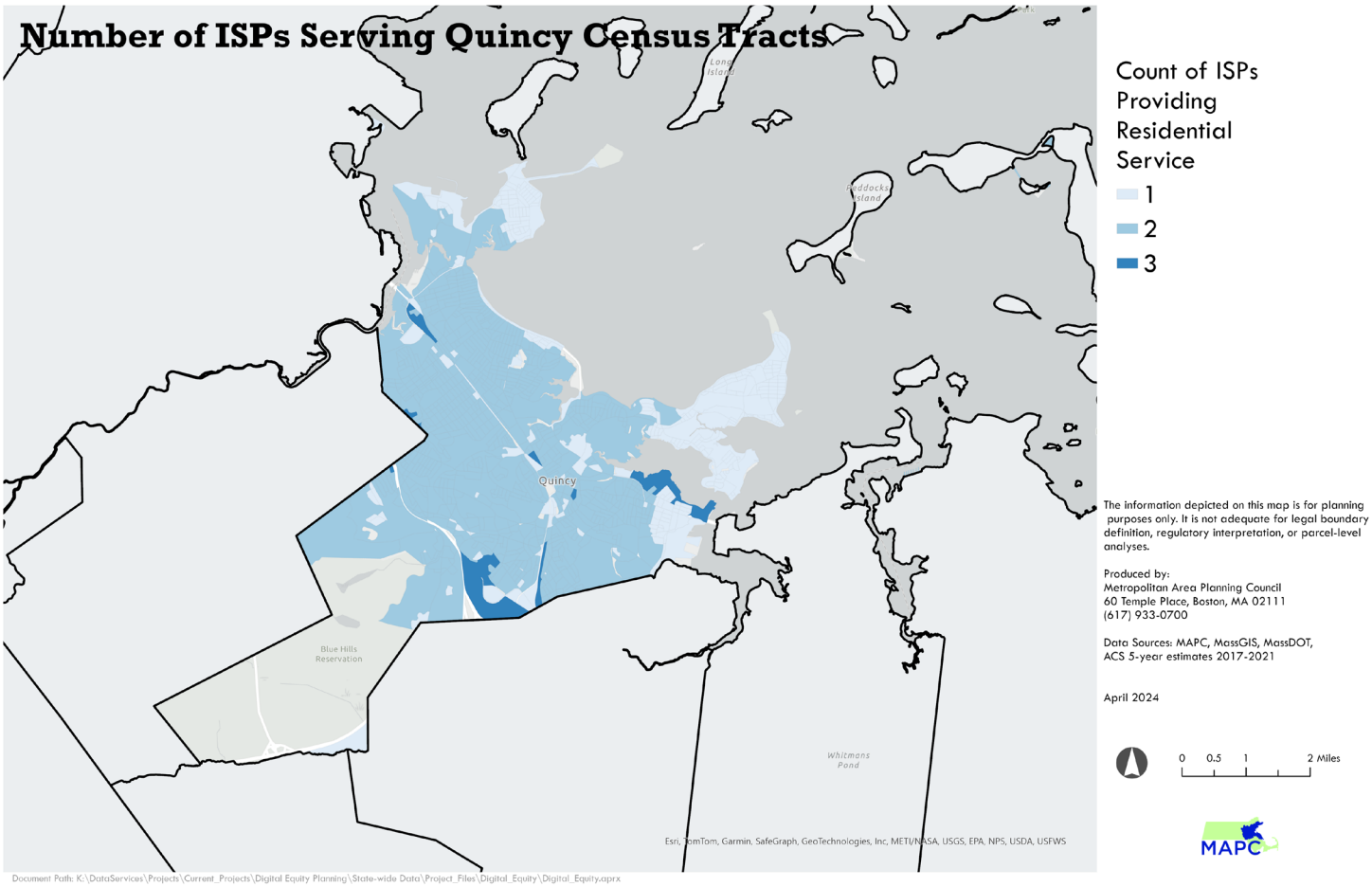
Table 3: Proportion of Quincy addresses covered by fiber internet for each ISP. Source: FCC Form 477

Fixed Wireless internet

There is limited fixed wireless service availability in Quincy, with Starry and T-Mobile providing service to some BSLs in the city.

Provider	Technology	Covered BSLs	% coverage	Max speed
Starry	Fixed wireless	3,623	14.45%	200mb/100mb
Starry	Fixed wireless	7	0%	500mb/250mb
T-Mobile	Fixed wireless	2,148	8.56%	100mb/20mb
T-Mobile	Fixed wireless (sub-broadband)	7,596	30.29%	25mb/3mb

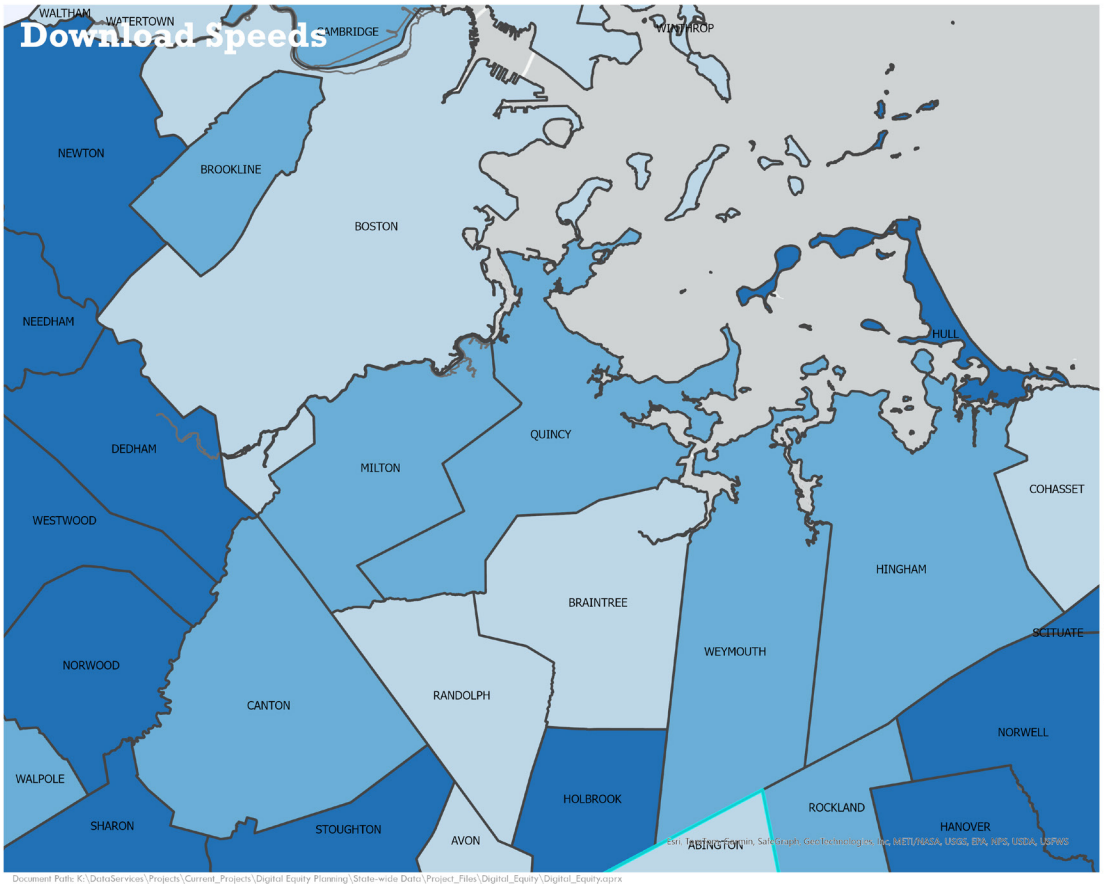
Table 4: Proportion of Quincy addresses covered by fixed wireless internet for each ISP. Source: FCC Form 477



Map 2: Count of ISPs providing non-DSL residential services with at least 100mbps down and 10mbps up by census block. Source: FCC Form 477

Connection speed

It is important to compare advertised service speeds to the lived experience of residents. Speed test data allows us to make this comparison. According to mLab (an open-source project that provides the speed test tool built into Google search) the median download speed experienced in Quincy between January and September 2023 was 237 mb/s, a speed fast enough for nearly any home use, while the median upload speed was 38 mb/s. In total, 74.11% of speed tests resulted in download speeds above 100 mb/s, while 97.63% were over 25 mb/s.



Percent of Tests With at Least 100 mbps Download Speeds

- 0 - 25%
- >25% - 50%
- >50% - 75%
- >75% - 100%

The information depicted on this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analyses.

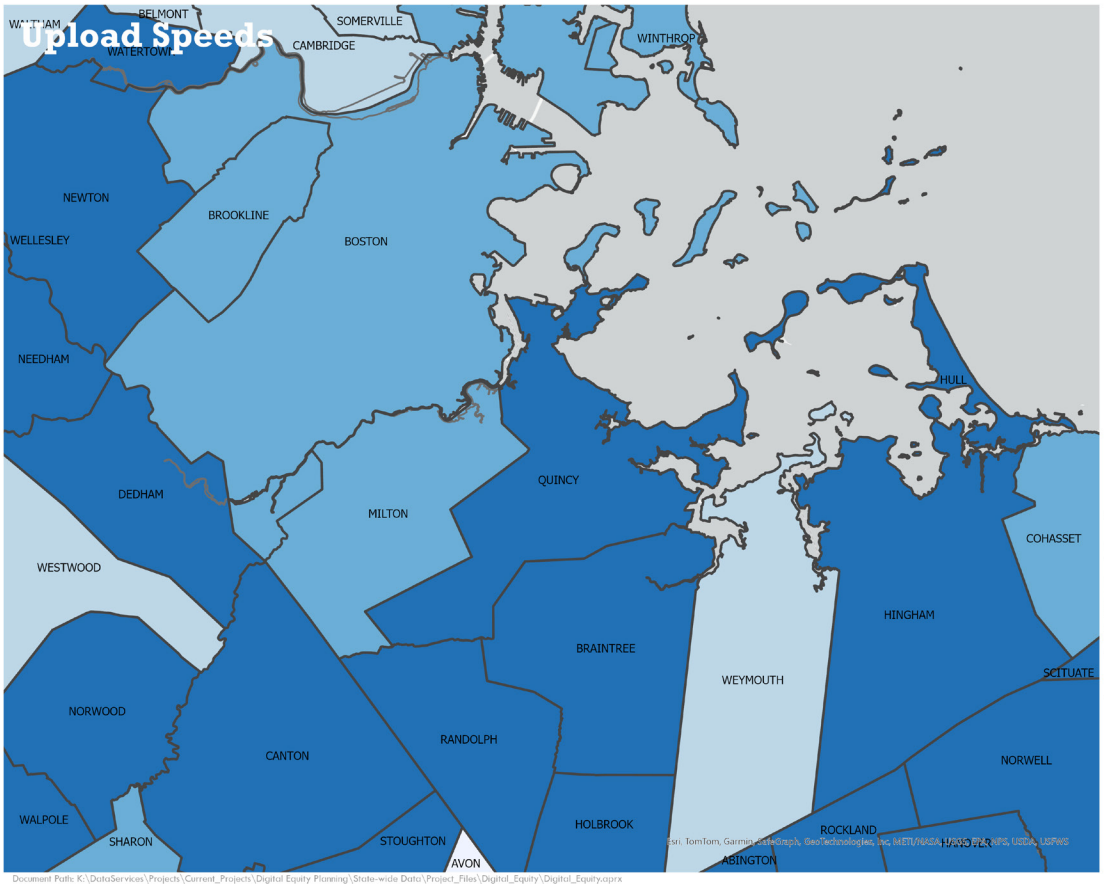
Produced by:
Metropolitan Area Planning Council
60 Temple Place, Boston, MA 02111
(617) 933-0700

Data Sources: MAPC, MassGIS, M-Lab

April 2024

0 1 2 4 Miles

MAPC



Percent of Tests With at Least 20 mbps Upload Speeds

- 0 - 50%
- 50 - 65%
- 65% - 80%
- 80% - 100%

The information depicted on this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analyses.

Produced by:
Metropolitan Area Planning Council
60 Temple Place, Boston, MA 02111
(617) 933-0700

Data Sources: MAPC, MassGIS, M-Lab

April 2024

0 1 2 4 Miles

MAPC

Affordable Connectivity Program

The Affordable Connectivity Program (ACP) was a federal subsidy program available to households living at or below 200% of the Federal Poverty Line ($60,000 for a family of 4), which provides a $30 monthly subsidy towards any qualifying internet service plan. This program was enacted in 2021 as part of the Bipartisan Infrastructure Law and originally funded with $14.2 billion. This funding was not expanded or renewed by Congress, and as of April 2024 the funding was exhausted.

According to the Institute for Local Self Reliance (ILSR), of an estimated 15,899 households in Quincy that meet this income requirement, only 4,965 were enrolled in the subsidy, or 31%. This is on par with the ACP enrollment rate for Greater Boston as a whole (28%). Greater Boston's ACP enrollment rate is the 4th lowest enrollment rate of any metro area in the country. For comparison, in the highest enrollment metro area, Detroit, 65% of eligible households were enrolled in the subsidy program.

The wind-down of the ACP means that the 4,965 enrolled households in Quincy received their final subsidized internet bill in April 2024. This represents a loss of approximately $148,950 of subsidies each month after April 2024 ($1,787,400 annually), exclusively for low-income households. While internet service providers do offer some low-cost, income qualified plans (Comcast offers "Internet Essentials" at $10/month or $30/month for faster service and Astound offers "Internet First" at similar rates), many families who relied on the ACP subsidy did so in conjunction with these plans, making their internet service free.

The wind-down of ACP represents a loss of approximately $148,950 of subsidies each month after April 2024, exclusively for low-income households.

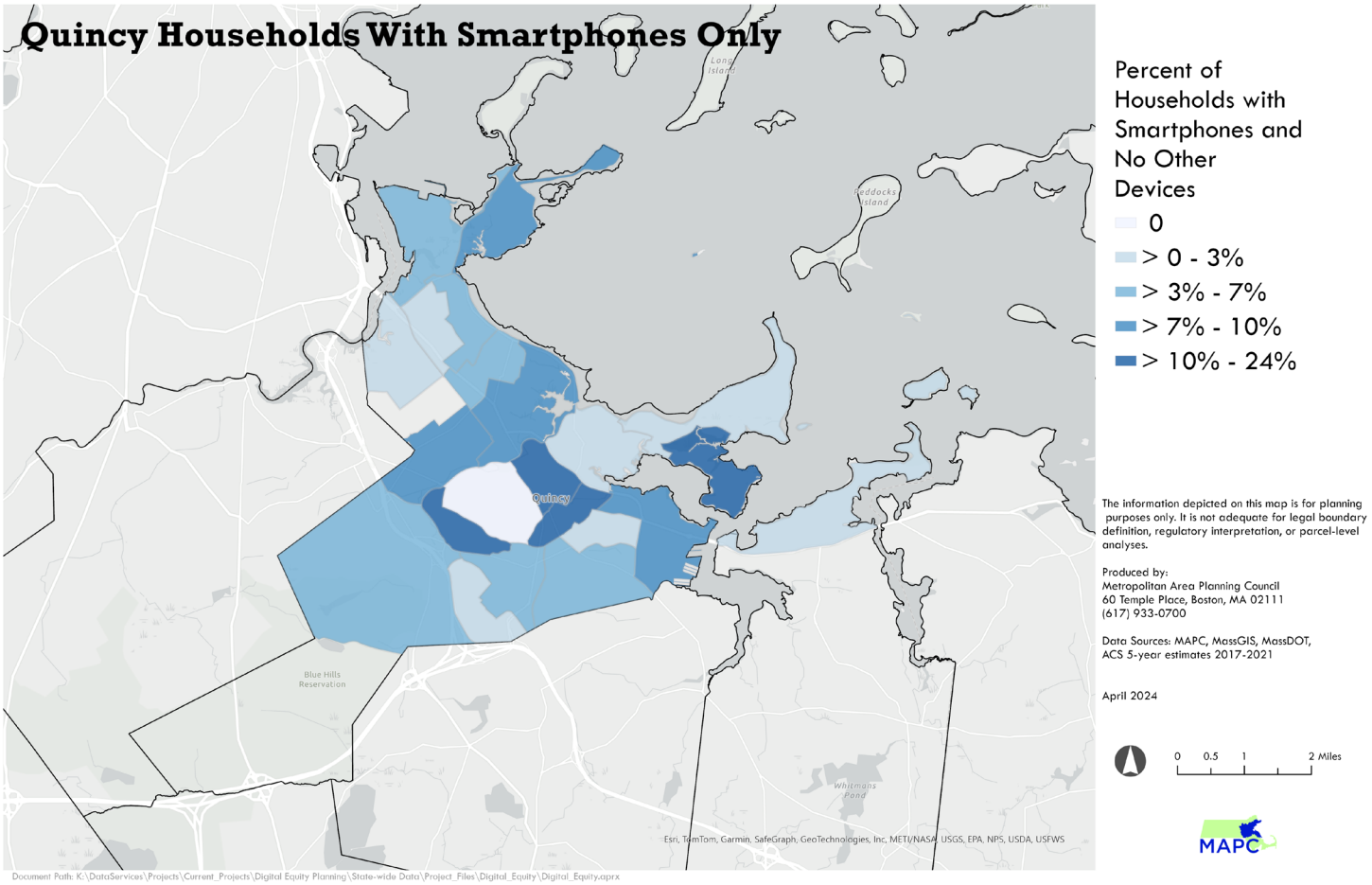
The wind-down of ACP represents a truly urgent need for Quincy's most vulnerable residents, as well as an opportunity for the city to step in to help address the digital divide at a local level in the wake of federal inaction.

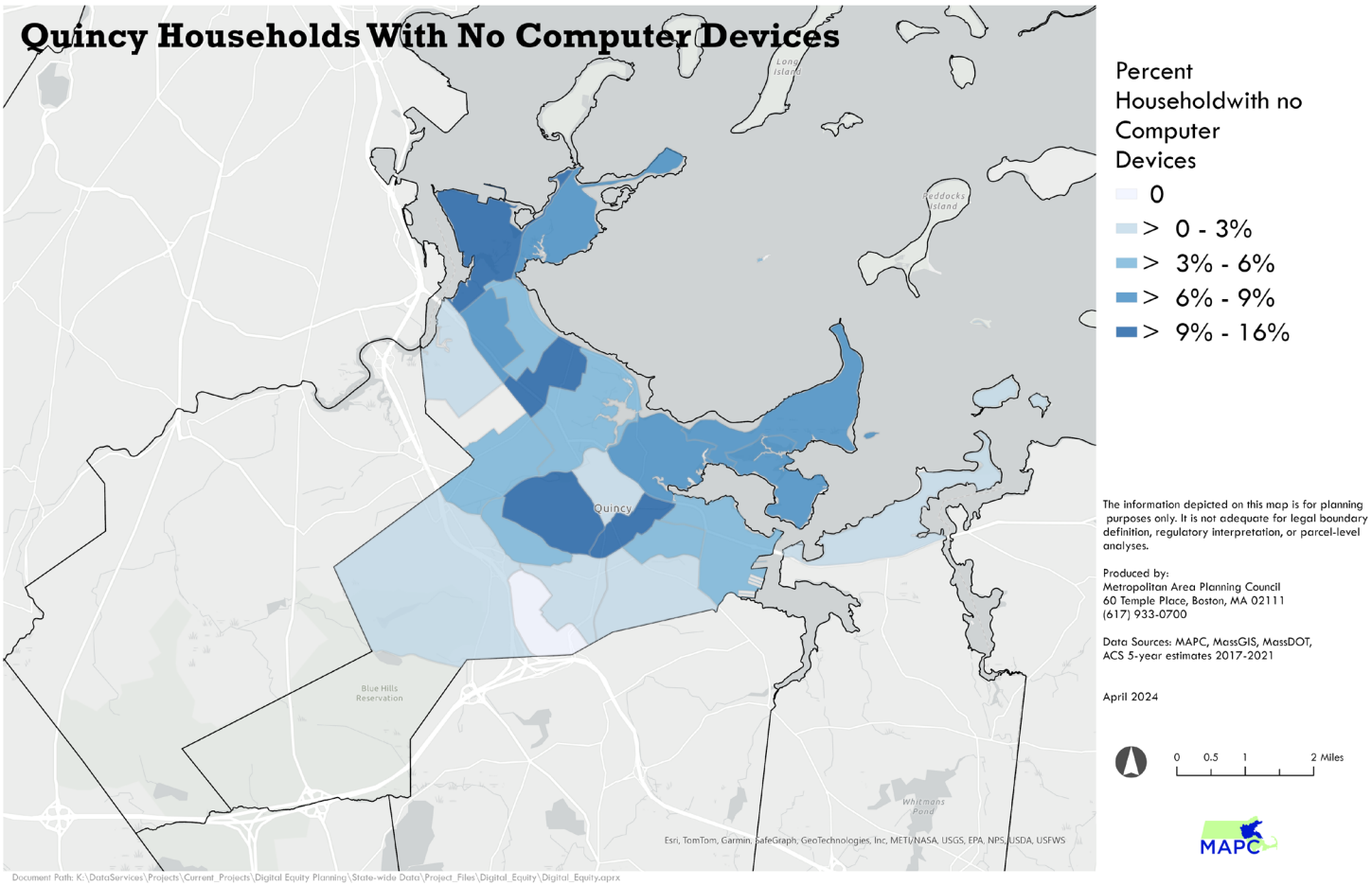
Devices Access

The American Community Survey (ACS) contains some useful questions about connection and device access, which give a broad overview of how Quincy residents access the internet. The following table contains data from the (2017-2021) ACS 5-year Estimates:

Community	% HH with no computer	% HH with no internet connection	% population with only a smartphone	Population
Quincy	6.3%	8.8%	7%	101,636
Boston	6.4%	11.5%	7.8%	675,647
Milton	2.7%	6.9%	4.6%	28,630
Braintree	5.1%	8%	4.4%	39,143
Weymouth	4.3%	11%	6.3%	57,437
Massachusetts	6.5%	10.25%	6.05%	7,029,917

Table 5: Percentage of households in Quincy without computers, without internet connection, and without smartphone, in comparison with neighboring communities. Source: American Community Survey (2017-2021)





Map 6: The geographical distribution of percentage of households with no computer devices. Source: American Community Survey (2017-2021)

The geographical distribution of Quincy households with smartphones only and no other devices (Map 5) shows that there is a higher proportion of such households in the Quincy Center and Germantown neighborhoods. Furthermore, the distribution of Quincy households with no computer devices (Map 6) shows a higher percentage of those households also in the Quincy Center neighborhood, as well as in North Quincy and Marina Bay.

The geographical distribution of Quincy households with smartphones only and no other devices shows that there is a higher proportion of such households in the Quincy Center and Germantown neighborhoods.

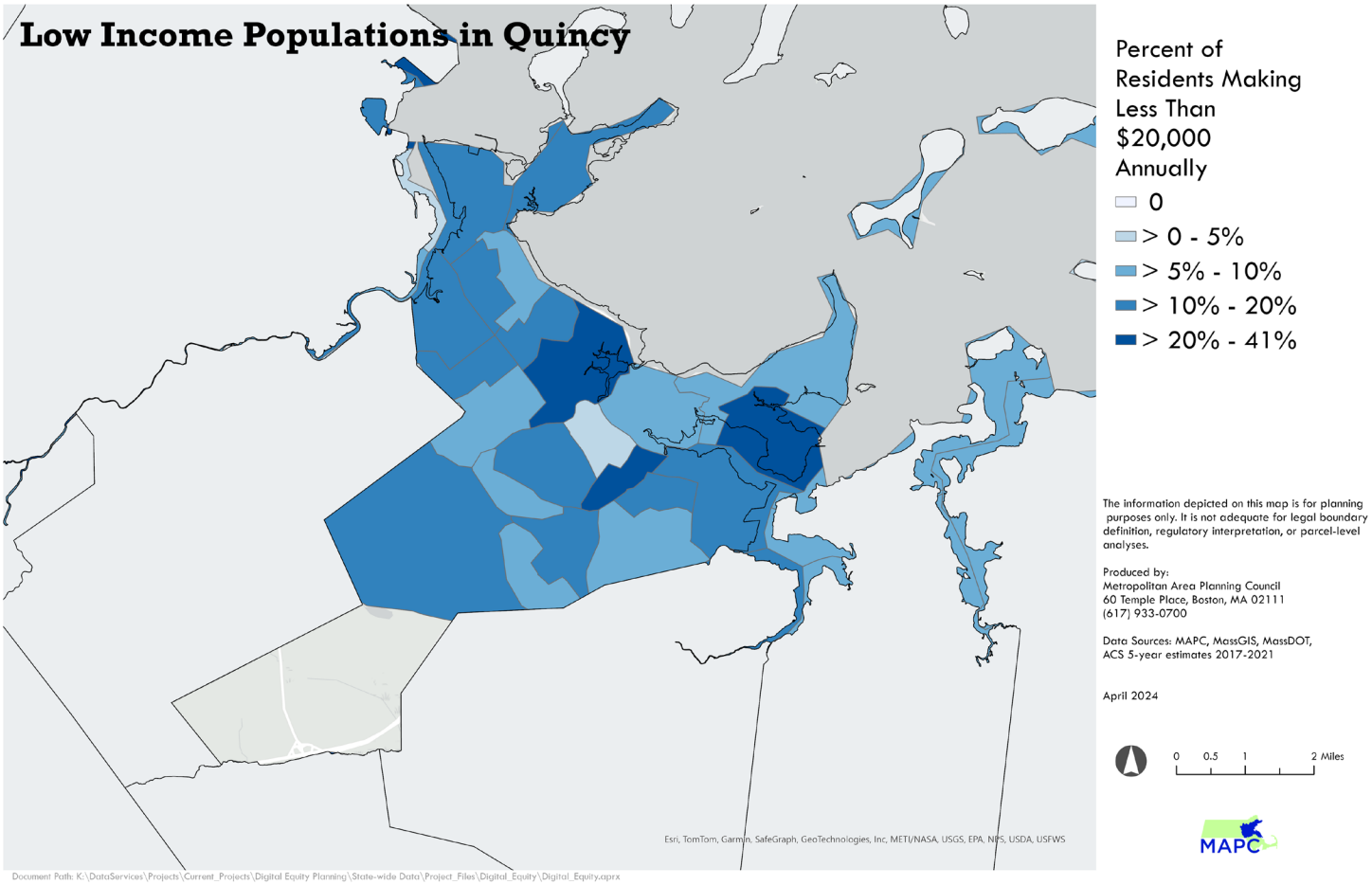
Internet Connection by Income

The ACS also provides data about internet connection by income. While over 90% of the Quincy population overall does have an internet connection at home, lower income residents are far more likely to have no internet connection:

Household income	% with no internet connection
Under $20,000	31.5%
$20,000 - $75,000	11.7%
Over $75,000	1.9%

Table 6: Proportion of households in Quincy with no internet connection per income bracket.

The map below shows the geographical distribution of low-income households (earning less than $20,000 annually).



Map 7: The geographical distribution of percentage of households with income less than $20,000 annually. Source: American Community Survey (2017-2021)

Digital Equity Assets

Beyond infrastructure, broadband connection, device access, and digital literacy, it is also important to consider digital equity "assets" that support residents' access to the internet directly or indirectly. These assets can be formal, digital equity-specific assets like computer training programs, hotspot or laptop lending programs, or public spaces with free Wi-Fi. There are also many informal digital equity assets, which might include a librarian who provides help setting up an email account, a housing authority staff member who assists a resident in filling out online benefit forms, or a financial literacy and tax assistance workshop at a senior center.

Asset mapping information below on Quincy's existing programs, organizations, plans, or involved individuals draw from statewide asset mapping activities coordinated as part of the State Digital Equity Plan (SDEP). The exercise was led by MBI, in collaboration with regional planning agencies (RPAs) to document local assets like community anchor institutions, school districts, libraries, and other entities in their regions. This process that MBI led also included public input to map community assets within the state.

Programs

CTIS's flagship program, cohort-based community technology instruction, is an important program for Quincy residents. The program has already reached over 400 residents, and CTIS has plans to significantly expand both reach and offerings in the coming year.

In 2024-25, CTIS projects that they will distribute over 1,020 Chromebooks to youth and adult learners and 120 iPads

to children who participate in the program. They will hold technology instruction sessions in partnership with more than 20 organizations, including Quincy Housing Authority, schools, community-based organizations, faith-based organizations, and many more. In addition to existing technology instruction programs, CTIS has formed partnerships with workforce and apprenticeship programs that would move beyond the basic skills being taught during technology instruction and connect learners with skills training and employment opportunities in biotech, cybersecurity, IT support, and other fields.

Outside of the CTIS technology instruction and related programming, Quincy Public Schools and the Quincy Public Library have programs that address the digital divide.

Organizations

Quincy has a network of public, community, and private stakeholders who contribute to the digital equity efforts within the city. Public sector organizations were highlighted previously in the Digital Equity section, and include CTIS, Quincy Public Schools, Quincy Public Library, Quincy Housing Authority, and the MassHire South Shore Workforce Board. Together, they cover a variety of Quincy residents' needs across all demographic characteristics.

Community organizations also form a critical portion of the community asset network and play a key role in reaching the most vulnerable residents impacted by the digital divide. Key community-based organizations directly or indirectly supporting digital equity in Quincy include:

- Quincy Community Action Project (QCAP) works with low-income communities, and has several programs related to digital equity, including programs related to housing, adult education, and job coaching.
- Father Bill's and Main Spring is a community organization that also serves the Quincy community, along with other communities on the south shore, to provide emergency and permanent housing. They also help individuals obtain skills, jobs, housing, and access other services. These resources support access to technology and the development of digital skills.
- Vinfen is a human services organization that also serves Quincy residents who experience mental health conditions, intellectual and developmental disabilities, and behavioral health challenges. Through services that promote recovery

and resiliency, they are a key digital equity asset and support system for Quincy residents experiencing developmental and behavioral health challenges.

- Quincy Asian Resources, Inc (QARI) serves immigrant families in Quincy to improve their social, cultural, economic, and civic lives. Achieving digital equity and supporting the digital needs of the immigrant families is a critical measure for them to provide culturally competent services.
- Bioversity is an 8-week workforce training program run in partnership with the Massachusetts College of Pharmacy and Health Sciences and UMass Lowell, which provides technical skills training and job placement in the biotech industry.
- South Shore YMCA is a nonprofit organization which provides programs focused on improving quality of life in Quincy and around the South Shore.

Quincy's Community Context and Vulnerable Populations

The digital equity data above demonstrates the overall digital infrastructure and access needs for Quincy. However, some population groups experience a higher level of impact due to lack of access to opportunities and resources. Quincy's community context data gives a snapshot of Quincy residents most vulnerable to experiencing the highest consequences of digital divide.

The population groups outlined below - low-income residents, residents of color, non-English speakers, immigrants, older residents, and residents with disabilities - are informed by discussions with city staff and community organizations. The Community Needs section further highlights the specific digital needs of these population groups identified through the community engagement strategies.

Low-Income Residents

Affordability of internet service is the number one barrier to closing the digital divide in Massachusetts, and this is true in Quincy as well. Essentially all homes have the underlying broadband infrastructure to connect, so those without a broadband subscription often go without high-speed internet simply because they can't afford it. Because of this, factors like income, poverty, and cost-burden are some of the most

important population characteristics to consider understanding and plan for digital equity in Quincy.

The city's median household income is $90,668. This is significantly less than the median household income in Norfolk County ($115,969), and slightly less than the median household income for the Commonwealth ($94,488). (2022 ACS 1-year estimates) The table below captures the median household income by household size, indicating that larger households may not have income proportional to the number of residents, a factor that could impact the affordability of internet service. Additionally, 12.1% of Quincy residents live below the poverty line. This is higher than the state's average, 10.4%.

Median income by household size indicates that larger households may not have income proportional to the number of residents, a factor that could impact affordability.

Household size	Median Income
1-person household	$51,814
2-person household	$107,814
3-person household	$109,648
4-person household	$152,681
5-person household	$109,710
6-person household	$156,990

Table 7: This table shows median income by household size. Income rises with larger households (4, 5, and 6 people), but the increase is marginal and not proportional. Source: American Community Survey (2018-2022)

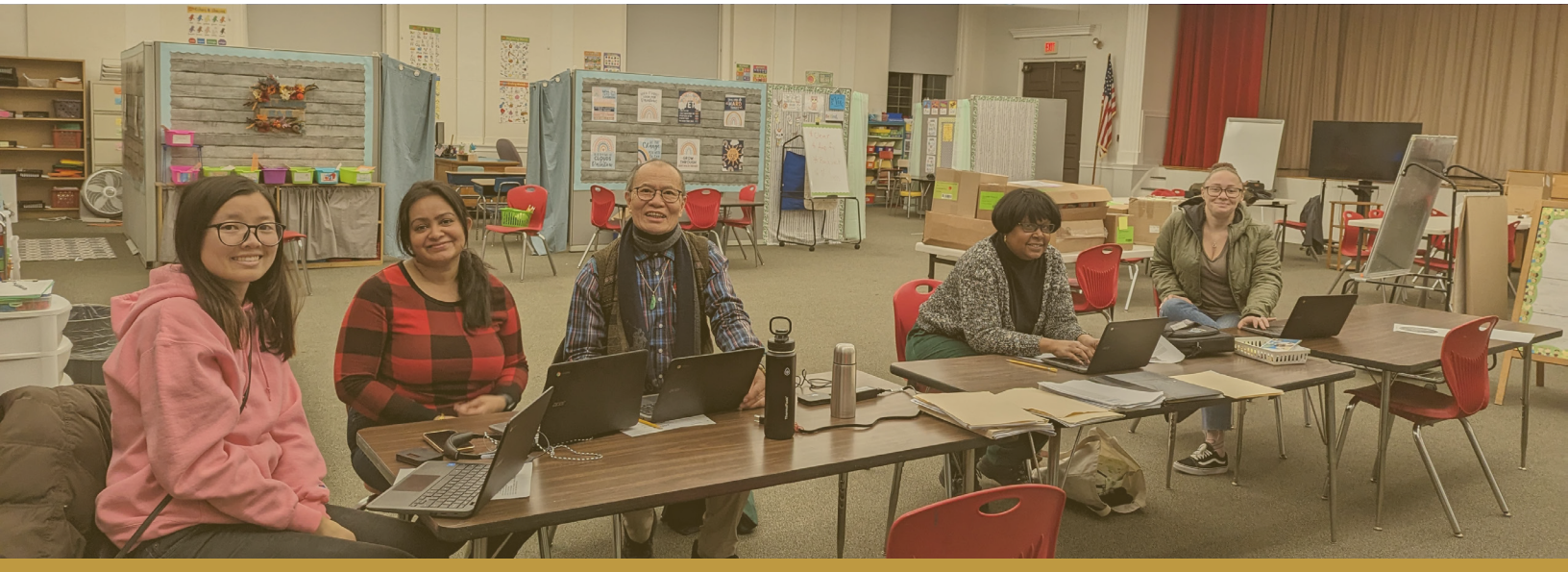
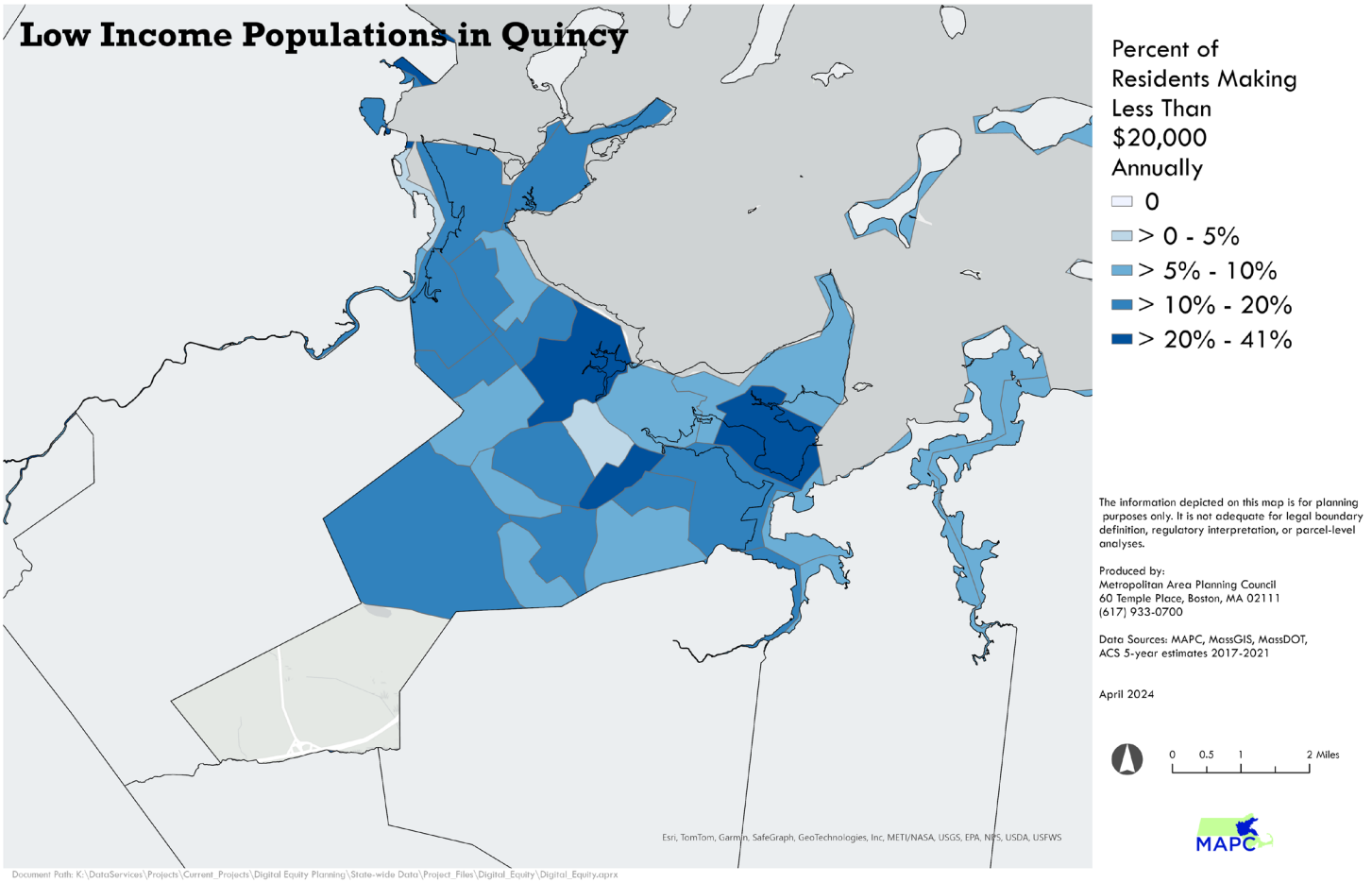


Table 8 below highlights the distribution of households across different income brackets. Approximately 11% of households earn under $20,000 per year and over 16% of households earn between $20,000 to $50,000 per year. Notably, over a quarter of households have incomes exceeding $150,000, reflecting a significant proportion of households.

Approximately 11% of households earn under $20,000 per year.

Income Level	# HH	% HH
Households with Income under $20,000	5,092	11.33%
Households with Income $20,000 to $49,999	7,389	16.44%
Households with Income $50,000 to $ 74,999	6,206	13.8%
Households with income $75,000 to $99,999	5,979	13.2%
Households with income $100,000 to $150,000	8,866	19.72%
Households with Income over $150,000	11,424	25.41%

Table 8: Proportion of households per income bracket. Source: American Community Survey (2018-2022)



Map 7: The geographical distribution of percentage of households with income less than $20,000 annually. Source: American Community Survey (2017-2021)

The map above further demonstrates the geographical distribution of households earning less than $20,000 annually. They are concentrated in Wollaston, Quincy Center, and Germantown neighborhoods, with 20-41% of households. The map also depicts 10 to 20% of low-income households in North Quincy and Quincy Point neighborhoods.

In Quincy, 17,612 households (over 40%) are cost-burdened (Table 3 below), with over 21% spending 30-50% of their income on housing and another more than 18% spending over 50%. This shows that a significant portion of households face severe housing affordability issues. This financial pressure means that necessities like groceries, health care, rent, or transportation can compete with lower income Quincy residents' ability to afford internet service subscriptions, or up-to-date computing devices (ACS).

Over 40% of households are cost-burdened, with over 21% spending 30-50% of their income on housing.

Cost Burden	# HH	% HH
Cost Burdened Households (Total)	17,612	40.33%
Cost Burdened Households paying 30-50% of Income	9,533	21.83%
Cost Burdened Households paying 50% or more of Income	8,079	18.5%

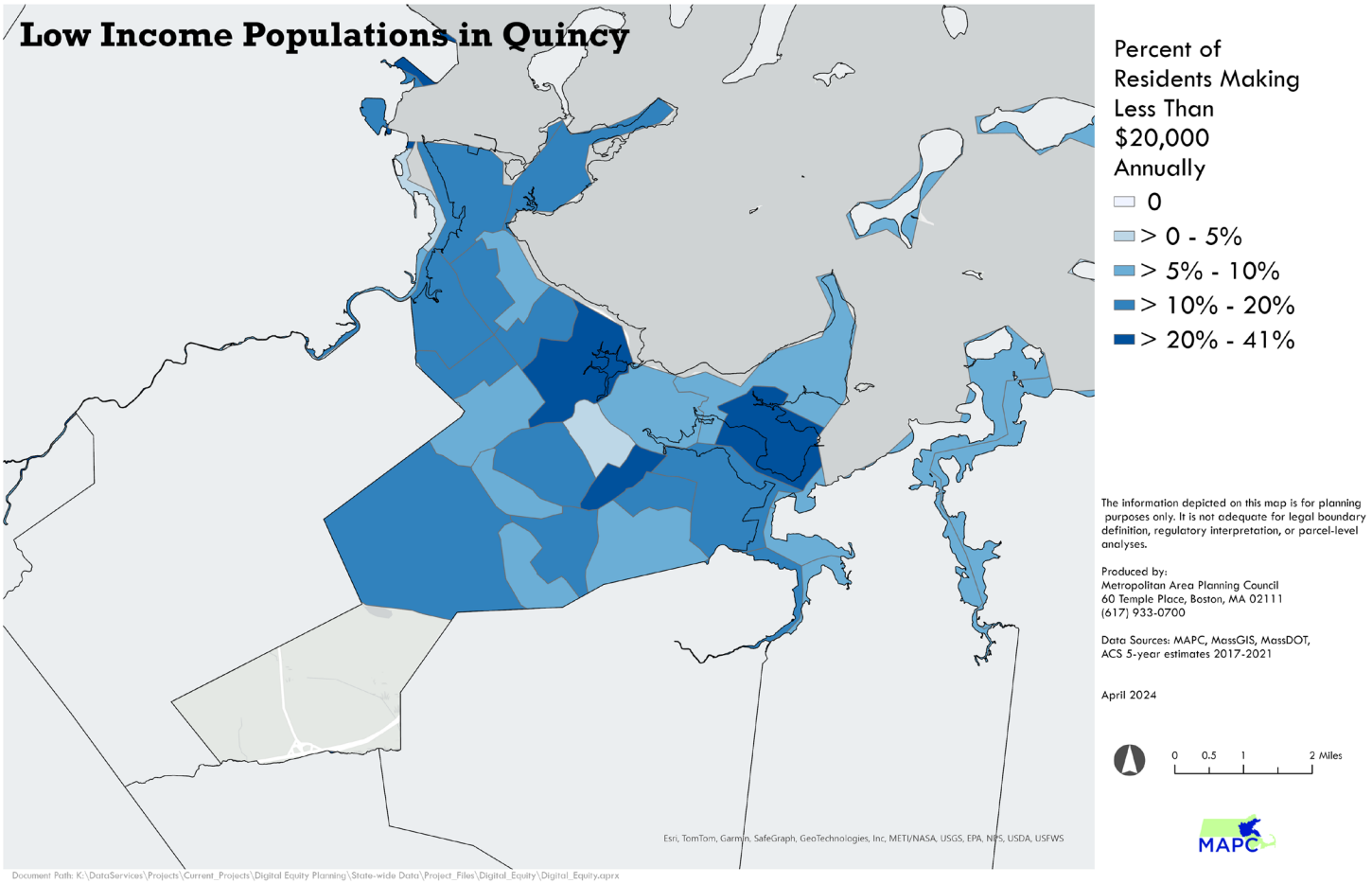
Table 9: Cost-burdened households in Quincy. Source: American Community Survey (2018-2022)

Residents of Color, Non-English Speakers, and Immigrants

The digital divide disproportionately impacts residents of color, non-English speaking residents, and immigrants. Even when accounting for income, families of color are less likely to have a broadband subscription and are more likely to depend on mobile wireless internet. Those with limited English language proficiency may face barriers to accessing the internet and needed information. Newly arrived individuals may have had less access to technology in their country of origin and may have less trust in government programs, as well as more concerns about privacy.

Approximately 56.2% of Quincy residents identify as non-Hispanic white, 28.8% of residents identify as Asian, six percent of residents identify as Black or African American, and 0.1% identify as American Indian or Alaska Native. Roughly three percent of Quincy residents identify as two or more races, and 5.4% of the population identifies as Hispanic or Latino. The map reflects a high percentage of residents of color across Quincy, in South Quincy, Quincy Point, Germantown, North Quincy, and Montclair neighborhoods.

There is a high percentage of residents of color across Quincy, in South Quincy, Quincy Point, Germentown, North Quincy, and Montclair neighbrhoods



Map 8: Geographical distribution of Populations of Color in Quincy. Source: American Community Survey (2017-2021)

Over forty percent (41.9%) of Quincy residents speak a language other than English at home and approximately one third of residents were born in a country other than the United States. 11.8% of households have limited English language proficiency and 6.9% of individual residents have limited English speaking capabilities. 3.63% of people in Quincy report not speaking English at all (ACS). Notably, nearly a quarter of Quincy residents speak Asian and Pacific Island languages, according to 2022 ACS 1-year estimates. Although the ACS does not provide further language breakdown within this language group, Quincy is home to a significant Chinese immigrant population, among whom both Mandarin and Cantonese are widely spoken.

Over 40% of Quincy residents speak a language other than English at home and approximately one-third of residents were born in country other than the United States.

Language	% people speaking the language	% people speaking the language and do not speak English at all
Asian languages	23.96%	13.53%
Spanish	3.32%	0.02%
European languages	8.88%	3.79%
Other languages	2.06%	1.21%

Table 10: Proportion of languages spoken at home by residents' ability to speak English. Source: American Community Survey (2018-2022).

The percentage distribution of Quincy residents speaking a language other than English and their ability to speak English (Table 10) shows nearly a quarter of residents who speak Asian language. Additionally, 13.53% of residents who speak Asian language do not speak English at all.

Older Adults and Residents with Disabilities

Older residents and those with disabilities also face significant barriers to digital equity, including physical limitations and inadequate access to supportive technologies and devices. A little more than 15% of the Quincy population is over 65 years old. Just over 11% of the Quincy population reports living with a disability, including 4.8% with an ambulatory disability, 5.2% with an independent living difficulty, 5% with a cognitive difficulty, 2.8% with a hearing disability, 1.6% with a visual disability, and another 2.5% with self-care difficulty (ACS).

A little more than 15% of the Quincy population is over 65 years old. Just over 11% of the Quincy population reports living with disabilities.

COMMUNITY NEEDS ASSESSMENT

MAPC talked to community partners and residents to identify the nature of internet service that residents need, to improve their access to devices, and scope the digital literacy needs. CTIS and MAPC worked to complete this assessment through targeted survey and a series of focus groups, with outreach focused on the most vulnerable population in Quincy.

Focus Group Demographics & Key Stakeholder Conversations

Over three months (October 2023 to November 2023), CTIS and MAPC engaged in focus group engagement collectively involving 52 Quincy residents. The discussions, spanning 60 to 90 minutes each, were conducted in-person with residents at the Quincy Housing Authority, Quincy Asian Resources Inc, Veterans Collaborative, and VinFen. Participants included low-income residents, older adults, individuals with disabilities, and Mandarin and Cantonese speaking residents.

The community needs findings below also include the digital and support needs of Quincy residents experiencing housing instability and those who are socio-economically disadvantaged. They are collected from MAPC's conversations with key stakeholders, including the Quincy Community Action Program (QCAP), Father Bills, and YMCA between January and May 2024.

Survey Respondent Demographics

MAPC received a total of 38 survey responses. The following details outline the population groups reached through our community outreach efforts. Our planning process centered on collecting community experiences via focus group discussions with the most affected residents and one-on-one interviews with stakeholders. Surveys were administered during these focus groups, completed by hand with support from CTIS staff. The responses were then digitally recorded by MAPC to capture it in the key findings section.

Race and Ethnicity

- 18.4% of the respondents identified as Asian or Asian-American
- 21.1% as Black or African American
- 26.3% identified as White or Caucasian

Age

18.4% of the survey respondents were between the age 45 - 59 years and 60 – 74 years respectively.

- 15.8% between 35 to 44 years
- 15.8% between 24 to 34 years
- 5.3% 75 years and older
- 2.6% between 18 to 24 years old

Household size

- 31.6% of the respondents are from 2 person households
- 13.2% are from 4-person households
- 10.5% are from 3-person households
- 10.5% are from 1-person household

Key Findings

1. Internet access

1.1 Internet is a required service for all Quincy residents

Access to internet service is a requisite for residents to have access to and make use of many essential services that have now moved online. Quincy residents shared that they use the internet for everything from community information, social service programs, public service, healthcare, searching for job opportunities, banking, reading news, entertainment, online shopping, and connecting with friends and families in other countries. Non-English-speaking residents stressed the use of internet to connect with family members outside the U.S. and reading news from their home-country.

Non-English-speaking residents stressed the use of internet to connect with friends and familiaes in other countries.

However, in our focus group discussions, many residents shared that they don't have access to the internet at home. 8% of the survey respondents reported not having internet access in their home. The need to recognize internet service as an essential one, like other home utilities, is brought to the forefront when analyzing the consequences that lack of access to internet has

8% of survey respondents reported not having internet access in their home.

on the most vulnerable. A service provider working with Quincy residents most in-need of support highlighted that the first step to closing the digital divide in Quincy entails providing internet access to those who don't have access. Another service provider working with the homeless population shared that access to technology is one of the tools that enable them to move up the ladder.

> ***"We want to move people 'up and out.' Nowadays you can't even get a job if you don't have a phone and internet."*** - Service provider

Many residents who don't have at-home internet frequently use community resources and community anchor institutions to use the internet. We heard residents share that they use the public library, the YMCA, and Council of Aging to meet their technology and internet needs. Additionally, one survey respondent mentioned using the internet at the library, another at the community center, and a third accessed it through local businesses such as restaurants, cafes, and bookstores.

Many residents who don't have at-home internet frequently use community resources and community anchor institutions to use the internet.

1.2 Residents want home internet service that is stable, fast, and affordable

Access to internet service is the initial step to ensure digital equity for Quincy residents. To enable residents to benefit from all the online services, access to internet services that are stable, fast, and affordable is critical. Currently, many Quincy residents who are more vulnerable to the consequences of the lack of digital access experience barriers to enjoying good quality internet service. 28.9% of survey respondents shared that their home internet services are not good enough to meet their household needs.

28.9% of survey respondents shared that their home internet services are not good enough to meet their household needs.

Many residents shared that they frequently experience unstable internet service and shared frustrations with maintenance. They shared experiences about their internet connections cutting out even when they have paid higher prices for a good quality connection.

> ***"Service kept going off, I thought I hadn't paid my bill. Is that the quality I'm paying for? Is that an issue with the whole neighborhood? Have to restart whatever work I'm working on."*** - Quincy Housing Authority resident

In addition to that, many residents also shared that their Wi-Fi connection is not fast enough. Many residents make a trade-off between a stable connection and affordability. One resident in our focus group discussion shared that her internet is stable and good quality, but it costs her a lot. While another resident in the same focus group discussion shared that her home internet Wi-Fi is not stable, but it is affordable. This demonstrates that Quincy

residents often must choose a stable and fast internet service or a service that is affordable. Also, over half of the veterans' focus group discussion participants shared that they struggle to pay for an internet connection at home.

> ***"Because her daughter is working at home, it is good, but it costs a lot."*** - QARI focus group participant, via an interpreter

> ***"Its' hard for me, because I'm not working because I have to take care of my daughter"*** –QHA resident

These insights illustrate that many Quincy residents who are vulnerable to the impacts of digital inequity are forced to choose between internet services that are either stable, fast, or affordable. This poses a challenge for these most impacted residents to freely and efficiently use other online services. 34.2% of the survey respondents shared that it is "somewhat hard" for them to pay their internet bill and 7.9% shared that it is "very hard" to pay their internet bills.

Many Quincy residents who are vulnerable to impacts of digital inequity are forced to choose between internet services that are either stable, fast, or affordable.

Many residents also shared that they rely on affordable subsidy programs to meet the costs of their internet connection. However, residents enrolled in subsidy programs like the Affordable Connectivity Program (ACP) also brought forth the difficulty they face with customer service for support.

> ***"Eventually signed up for ACP and got connected (100mbps plan, free after ACP). Had good experience with [service provider] since getting connected. Since I got the plan, nobody will give me answers to questions. I've been on the phone so many times, and the technical support people don't know anything (or won't tell you)."*** -QHA resident

> ***"I've applied for ACP, but it doesn't get applied to my bill."*** -QHA resident

The survey data further shows that while 52.6% of the respondents had heard about ACP, 34.2% have not heard about the ACP subsidy.

2. Device Access

2.1 Lack of devices

Some residents in the focus group discussions shared that they don't have access to devices. A participant from the veterans group discussion uses the computers in the public library. Additionally, a service provider highlighted that individuals residing in the Germantown area are isolated and face higher barriers to accessing devices.

The impact of lack of devices is pronounced for homeless individuals who need additional assistance in getting connected to technology. A service provider shared that they work closely with any homeless individual who comes to their shelter to enroll them into a cell phone program and other services.

> ***"The people who are coming in off the street to be in the shelter are often starving. They often don't have a phone, they don't have a computer—they live out of a bag. If they can be longer term (more than one night), we get them in the cell phone program and the Health Connector program for insurance. So they get a phone and insurance."*** -a service provider

2.2 Vulnerable residents' home devices don't meet their needs

Many residents who are most impacted by digital inequity expressed unmet needs with their current devices. 36.8% of survey respondents reported having access to internet only through a data plan for their smartphone, hotspot, or tablet. Non-English-speaking residents in our focus group discussions expressed their dependence on phones for accessing various online services and information. However, phones don't help achieve the wide-ranging uses that residents use the internet for. Meanwhile, many older residents voiced a desire for larger screens to better use the devices they have.

> **36.8% of survey respondents reported having access to internet only through a data plan for their smartphone, hotspot, or tablet.**

> ***"Knows only how to use phone but don't know other applications."*** - QARI focus group participant, via an interpreter

> ***"I wish I had a bigger screen, because it would be easier to see and use. I think it would help keep me sharper if I used a computer more often."*** - QHA resident older adult

A service provider highlighted that the residents in Germantown are more isolated due to the geographical setting. Access to computers is a need in those areas.

2.3 Device access as a basis to access further services

Not having the adequate device poses a barrier for residents' access to many services, whether private or social services like SNAP, MEDICAID, housing and fuel assistance, etc. A service provider shared that they often identify an individual's device needs through their case management services. For instance, the adult education program helped the service provider learn about the device access need for the residents they work with.

> ***"As a part of adult education, they get a device. Some circumstances where a client is in a housing program and they [case managers] find out they need a computer to achieve a goal. As the need arises with case management, we use flexible funds."*** - a service provider

3. Digital literacy

In our resident engagement process, we learned that residents are interested in training programs to confidently and efficiently use technology. 44.7% of survey respondents reported being "very concerned" and 28.9% reported being "somewhat concerned" when navigating the internet for their needs. Also, the survey data showed residents are interested in digital skill support for telehealth services and searching and applying for jobs.

> **44.7% of survey respondents reported being "very concerned" and 28.9% reported being "somewhat concerned" when navigating the internet for their needs.**

Many residents in the focus group discussions further shared that they would prefer an in-person training model that will provide face-to-face interaction and direct support.

> ***"I prefer a setting where someone can show me what is going on."*** -older resident from QHA

Additionally, a service provider working closely with homeless individuals stressed the need for trainers who can assist them in building comfort and knowledge to use devices and internet.

> ***"We need Trainers! We need people to either run a class or do 20-minute coaching programs. How to get an email address on the phone, how to look for a job, how to browse. We work with Lynda.com and LinkedIn for job skills training."*** - a service provider

3.1 Support needs

Residents in Quincy often depend on help from close family and friends to address their internet and technology-related issues. This underscores a need for a technological support system that is reliable and trusted where residents feel comfortable asking for help when needed. This need for digital skills and literacy support is particularly prominent among veterans, who rely on online tools to navigate the Veterans Administration.

The need for digital skills and literacy support is particularly prominent amoung veterans, who rely on online tools to navigate the Veterans Administration.

A service provider discussed the model of a community liaison for the Asian community in Quincy. The liaison helps residents who don't speak English as their first language with filling out forms for benefits and subsidies. This personalized support enables residents to access services comfortably and safely. Community organizations and social support organizations play a key role in identifying support needs among residents they work with. While they may not offer standalone computer classes, digital literacy is frequently incorporated into various programs, often supported by funding from the Massachusetts Department of Education.

> ***"As an agency, having digital navigators would be a huge benefit to us. One of the challenges we see is that folks will come to us, and they are eligible for RAFT program- it is an online form with uploading income statements, photocopy of ID- if we had somebody who could sit with clients and help them fill out the forms would be helpful."*** -a service provider

For many residents, the technological support need is embedded into and interconnected with a bundle of services like shelter, food access, social services, etc.

> ***"At our facility in Quincy, we provide internet, computers, and skills. We also have a cell phone program where we get them a phone with limited data for free. We can also get them chromebooks, we get them into job training. We also give them rides to the grocery store, to job interviews."*** - a service provider
>
> ***"Everyone is assigned a case worker, who helps them work through the system. They're assigned a case worker who speak their language. It only breaks down when we start to do groups. Each group is can be done in their language, but there aren't enough social workers."*** - a service provider

3.2 Privacy and safety concerns

Residents in our focus group discussions and survey raised concerns of safety and privacy while using the internet. 44.7% of survey respondents reported being "very concerned" and 28.9% reported being "somewhat concerned" about internet safety. Furthermore, 65.8% of survey respondents are concerned about their data getting stolen or used, 47.4% are concerned about being tracked, and 36.8% of the survey respondents are concerned about a loved one being harassed or abused online. Focus group participants shared that they are concerned about financial safety during internet transactions and shared feelings of fear when they see pop-up messages while using online banking or shopping. Additionally, many residents also raise concerns about identity theft and their medical data compromise.

> **44.7% of survey respondents reported being "very concerned" and 28.9% reported being "somewhat concerned" about internet safety.**

> ***"Someone took my sister's social security number from unemployment."*** -QHA resident
>
> ***"I don't do much online shopping because it's my daughter's account. If anything happened to her it would be my fault. So I often ask my neighbor to do it for me."*** -QHA resident

Many older residents are wary of mishaps like pressing the wrong button or unintentionally making payment. Additionally, non-English speaking residents also shared concerns that phishing and scamming attempts target their population.

> ***"There are a lot of phishing websites out there and it is targeting people who don't know English."*** -QARI focus group participant, via interpreter

Conclusion

The above findings from our community engagement efforts illustrate the needs of Quincy community residents most impacted by the digital divide. In Quincy, while there are residents who don't have at-home internet service, many residents with internet access in their homes raise the need for a service that is stable, fast, and affordable. In terms of device access, many residents who rely on phones shared the need for adequate devices to expand how they use the internet and technology. Additionally, our findings underscore that having access to adequate devices is a prerequisite for them to access services like government benefits and subsidies as well as for entertainment, education, and connecting with friends and family. Lastly, the digital literacy need showed that many residents are interested in technology training classes. At the same time, they also want personalized support in navigating the internet and developing digital skills.

RECOMMENDATIONS

The recommendations contained in this plan are based on findings from the existing conditions analysis, community engagement, and interviews with service providers and other stakeholders. They are also informed by national best practices and a review of Digital Equity plans adopted by other communities in Massachusetts and across the country. They consider both Digital Equity's place within City government and community-based organizations, and highlight specific programs, resources, and interventions that the City and community-based organizations could implement to better serve Quincy residents. While many of the recommendations will take resources to implement, the planning process included research on funding sources and other resources (Appendix 3, Potential Funding and Resources Recommendations)

Building Quincy's Digital Equity community and network

Quincy is home to a variety of organizations poised to support digital inclusion for members of the community. The City of Quincy and CTIS in particular are uniquely positioned to be the focal point of these activities. By amplifying the best resources, providing support and resources to organizations that need it, and convening a practitioner network, CTIS can continue to lead in this space.

Specific recommendations in this category include:

Improve and expand information about the City of Quincy's existing municipal digital equity programs online and in print

IMPACT
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RESOURCE
$$$$$
TIME SCALE
Short term
IMPLEMENTER
CTIS
CATEGORY
Digital Literacy
Capacity

The City of Quincy already provides a robust and well-regarded set of resources to serve residents' digital equity needs. However, those resources are not visible anywhere on the City's website. While the city has done an excellent job of making these resources available through institutional partnerships, attending community events, and word of mouth, these approaches will leave out residents who are not actively engaged with those organizations, events, and communities.

By providing comprehensive, up-to-date information about what resources are available and how to access them, the City of Quincy can improve the reach of existing programming. These resources should be provided on a City of Quincy website and as a suite of print resources that can be distributed via community-serving organizations such as libraries, schools, and community-based organizations. These resources should be written in plain language to best meet the varying literacy needs of the Quincy community. These materials should also be translated; not only by Google automated translator but by an actual person.

Expand CTIS administrative capacity to streamline operations and maximize impact

IMPACT
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RESOURCE
$$$$$
TIME SCALE
Short term
IMPLEMENTER
CTIS
CATEGORY
Capacity

The City of Quincy's CTIS was founded to evaluate need and coordinate resources to further the City's digital equity goals. CTIS has done a remarkable job in establishing itself as the center of gravity for all things digital equity in Quincy. As CTIS moves deeper into implementation and program development, adding staff capacity would allow CTIS leadership to focus on strategy, vision, and connections. An administrative hire focused on grant and contract management, financial management, and other

operational tasks could help CTIS achieve its ambitious mission at scale.

Convene a Digital Equity Advisory Council to facilitate two-way feedback and coordinate Digital Inclusion efforts in Quincy

IMPACT

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RESOURCE

$$$$$$

TIME SCALE

Short term

IMPLEMENTER

CTIS

CATEGORY

Capacity

CTIS is most impactful as a convener and organizer of digital inclusion practitioners in Quincy. By convening a formal Advisory Council made up of representatives of municipal and other public sector departments, community-based organizations and service providers, educational organizations, and private-sector employers, CTIS can more effectively achieve its mission.

The Quincy Digital Equity Advisory Council could be made up of 15-20 members representing a diverse group of organizations and sectors. It would be most effective if its membership was limited to the most active and engaged organizations, rather than attempting to be all-inclusive; each representative could be tasked with reporting back to peer organizations in their field. Representatives of nonprofit, community-based organizations could be provided with honoraria in recognition of their time and efforts.

The Quincy Digital Equity Advisory Council could be complemented by a Young Advisors group, drawing from the experiences of Quincy Public School students and other young people. This group could provide valuable insight into the experiences of a community that might be considered “digital natives” in some sense and yet is entering post-secondary education or the workforce lacking formal training on a range of digital skills. CTIS could coordinate with an organization such as Quincy Public Schools or YouthWorks to provide honoraria and access to devices for youth participants.Develop and regularly update an asset map and directory, detailing Digital Equity-related resources throughout Quincy

These resources should include place-based resources, such as computer training centers, locations of free public Wi-Fi networks, and computer lending programs, as well as information on how to access services which are not limited to a physical location such as low-cost internet subscription plans, and online training and tech support resources. By making this resource available to residents, CTIS can make sure residents know how to access services that could benefit them and incentivize community-serving organizations to provide a level of service that would merit inclusion on the asset map.

Continue Digital Equity Planning work to maintain up-to-date picture of current Digital Equity needs in Quincy

IMPACT
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RESOURCE
$$$$$
TIME SCALE
Long term
IMPLEMENTER
CTIS
CATEGORY
Digital Literacy
Device access
Broadband access
Capacity

The findings and recommendations in this Digital Equity Plan represent a "snapshot" of existing conditions in the city in late 2023 through mid 2024. To enable long-term success of Quincy's digital equity programs, a subset of these findings should be updated regularly to ensure that digital equity programs and resources are calibrated to meet evolving community needs.

By regularly updating the findings from this report (especially those in the Community Needs Assessment, which focus most closely on resident experience), CTIS can both evaluate success and impact (necessary for continued access to grant funding and other financial investment) and evaluate which specific digital equity gaps are closing and which may need additional attention.

Amplify Existing Programs

A variety of resources already exist within Quincy that actively support residents. While most are not exclusively or primarily focused on digital equity, many do provide device access, technical support, and digital literacy resources as part of their mission. CTIS should work to amplify, support, and scale this existing community work to ensure that residents are receiving high quality digital inclusion services equitably.

Initiatives within this category have been divided into two sections: programming to support residents and the CBOs that serve them with digital literacy, device access, and affordability, and infrastructure to address structural challenges in the ISP market and quality of service in Quincy.

Programming

Continue to invest in CTIS's ongoing Technology Instruction program

IMPACT
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RESOURCE
$$$$$
TIME SCALE
Medium term
IMPLEMENTER
CTIS
CATEGORY
Digital Literacy

CTIS's flagship program, Technology Instruction, is a valuable resource for Quincy residents. CTIS should continue to invest in this program to serve more participants. CTIS should also explore opportunities to expand this program with direct links to apprenticeship programs and other connections to workforce development, and as a pipeline to further training related to technology careers in fields such as IT Support.

CTIS-facilitated hotspot and device lending and ownership programs in partnership with Quincy Public Schools, Quincy Public Library, and Quincy Housing Authority

Access to reliable, use-appropriate devices is a key element of achieving digital equity. Providing multiple avenues to access devices will allow diverse resident needs to be met flexibly. A combination of hotspot lending programs, device lending programs, and device ownership programs, paired with digital literacy supports like technology instruction and digital navigation, can advance digital equity for Quincy residents. Providing these resources via trusted government services like public schools, public libraries, housing authorities, and community centers will further lower the barrier for residents to access the support they need.

IMPACT
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RESOURCE
$$$$$
TIME SCALE
Short term
IMPLEMENTER
Lead: CTIS
Partners: QPS, QPL, QHA
CATEGORY
Device access
Broadband access

Provide flexible device access programs to better meet diverse resident needs

There is no "one size fits all" computing device that would be appropriate for every use case and every individual. Larger screens are more appropriate for older adults and residents with limited vision, tablet or mobile devices with available cellular internet service are more appropriate for people experiencing housing insecurity, and different laptop operating systems (Windows, Chrome OS, etc.) are better suited for other uses. To the extent feasible, device access programs should be responsive (and deferential) to individual residents' needs.

Quincy Public Library already provides a limited number of accessible and adaptive devices to meet the needs of residents with disabilities. Investing in this program to scale it up would be a valuable asset for residents that would prefer to use non-traditional computing devices.

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RESOURCE
$$$$$
TIME SCALE
Short term
IMPLEMENTER
Lead: CTIS
Partner: QPL
CATEGORY
Device access

Provide multi-lingual technology instruction and individualized device access for organizations serving unhoused individuals

People experiencing homelessness and others who lack stable housing are among the most vulnerable and often have specific device and access needs than people in stable housing. Recognizing this diversity of need, device access and technology instruction programs (in partnership with service organizations such as Father Bill's) should provide services that are responsive to specific, individual needs of this vulnerable population. For

IMPACT
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RESOURCE
$$$$$
TIME SCALE
Short term
IMPLEMENTER
Lead: CTIS
Partners: CBOs
CATEGORY
Device access
Broadband access
Digital Literacy

example, focusing on mobile devices and cellular data access, places to charge battery-powered devices, and secure storage for devices when they are not in use may be more relevant to an unhoused individual than a subsidized home internet plan or laptop computer might be. Similarly, technology instruction focused on learning how to access social services such as transitional housing and nutrition assistance are likely more relevant to unhoused individuals than they are to those in stable housing.

Infrastructure

Pursue Apartment Wi-Fi and Residential Retrofit programs in partnership with QHA

IMPACT
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RESOURCE
$$$$$
TIME SCALE
Medium term
IMPLEMENTER
CTIS, MAPC, MBI
CATEGORY
Broadband access

Quincy Housing Authority has already partnered with the Massachusetts Broadband Institute (MBI) and Metropolitan Area Planning Council (MAPC) to provide free Wi-Fi to residents at the O'Brien Tower senior and disabled housing site. QHA and the City of Quincy should continue to work with MBI and MAPC to provide broadband connectivity, through a combination of the Residential Retrofit and Apartment Wi-Fi programs, to as many Quincy Housing Authority residents as possible.

The City should also act as a convener and advocate with developers of deed-restricted affordable housing in Quincy to encourage broad participation in the same programs.

Quincy's 2022-2027 Housing Production Plan may contain additional context that should be considered when pursuing additional housing-focused recommendations.

Evaluate performance and impacts of Municipal Broadband pilot

IMPACT
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RESOURCE
$$$$$
TIME SCALE
Medium term
IMPLEMENTER
CTIS
CATEGORY
Broadband access

The City of Quincy is moving towards a first-in-the-region municipal broadband pilot, with work expected to begin in Fall 2024 to provide greater choice and service to residents. This service is rolling out first in the Merrymount and Quincy Point neighborhoods. CTIS, in partnership with other City of Quincy stakeholders, should take steps to understand the current performance and cost of broadband in these neighborhoods before the new network is rolled out so that a comprehensive picture of cost savings and performance gains due to the municipal option can be evaluated. The results of this study may be useful in better understanding resident needs and opportunities to meet those needs, adjustments that can be

made to increase take rate for future expansion, and to generate quantitative and qualitative data to be used in seeking funding for eventual city-wide expansion.

Launch New Initiatives

In addition to convening stakeholders and amplifying existing work, there are opportunities to launch new initiatives to support residents in Quincy. These recommendations have also been divided between programming and infrastructure.

Programming

Technology Instruction and Technology Support "Train the Trainer" Program

IMPACT
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RESOURCE
$$$$$
TIME SCALE
Short term
IMPLEMENTER
Lead: CTIS
Partners: CBOs
CATEGORY
Digital Literacy
Capacity

Many community-based organizations already provide technical support to their communities, both formally and as an informal part of how they meet community members' needs. CTIS can amplify and support these existing programs by providing training resources to the staff and volunteers on the front line of these efforts. By doing this, CTIS accomplishes two goals: setting and raising the standard for technology instruction and support and multiplying the impact that the existing training can have.

For these training resources, it may be helpful to consider two separate tracks: technology instruction and "on demand" technical support. Technology instruction would involve a set curriculum (designed to mirror the existing CTIS training model) with the goal of bringing learners up to a baseline level of digital literacy, while technical support provides more flexible support designed to respond to specific needs and to help troubleshoot specific challenges.

Provide multi-lingual resources for non-English technology instruction

IMPACT
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RESOURCE
$$$$$
TIME SCALE
Short term
IMPLEMENTER
Lead: CTIS
Partners: CBOs
CATEGORY
Digital Literacy

Quincy is home to significant Mandarin and Cantonese-speaking populations, which would be better served with digital literacy programming offered in their native language. Partnerships with existing community-serving organizations such as QARI would allow digital literacy resources to be provided from a place of trust and community context. Multilingual educational materials on internet safety and privacy materials should be made available to community-based organizations. They should be refined in partnership with CBOs to ensure that they are tailored to meet residents' needs.

Infrastructure

Safe, Secure Public Space Wi-Fi

IMPACT
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RESOURCE
$$$$$
TIME SCALE
Short term
IMPLEMENTER
Lead: CTIS
Partner: IT department
CATEGORY
Broadband access

Public Wi-Fi networks in high-traffic areas such as Quincy Center, near parks and community centers, and other community gathering places can serve as a valuable back-up option for residents with unreliable (or without) home internet and can lower the burden on residents who rely exclusively on a mobile data plan on a smartphone or tablet. If public networks are configured with a "splash screen" (captive portal), they can also be a place to offer access to information about complementary resources such as device lending, technology instruction, digital navigation, and about social services that are not directly related to digital equity such as housing and nutrition assistance.

While public space Wi-Fi is no replacement for reliable, affordable home internet, it can be a welcome convenience for many residents and a crucial lifeline for those most vulnerable.

The City of Quincy's 2019-2026 Open Space and Recreation plan may also contain relevant context that should be considered when pursuing this recommendation.

Funding and technical support for CTIS managed community computer labs hosted by CBOs and community anchor institutions such as schools, libraries, YMCA, and the Council on Aging.

IMPACT
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RESOURCE
$$$$$
TIME SCALE
Long term
IMPLEMENTER
Lead: CTIS
Partners: CBOs
CATEGORY
Device access
Broadband access

Like public space Wi-Fi, computer labs that are accessible to the public are not a direct replacement for home device ownership, but they can provide a crucial resource for people who have no other access to devices. They can also be a great place to provide technology instruction, technical support, and troubleshooting. By locating computer labs with institutions which are already welcoming and accessible to communities (such as schools, libraries, the YMCA, senior centers, etc.), the burden placed on residents to access these services can be significantly reduced.

Plan for targeted expansion of Municipal Broadband pilot, to continue serving high-need neighborhoods first

While the planned pilot neighborhoods of Merrymount and Quincy Point are not among Quincy's highest need (in terms of median income and other demographic indicators), the lessons and data learned from the initial rollout of the municipal fiber

network should be used to ensure that high-need neighborhoods are also served.

This could be approached in several ways: high-need neighborhoods could be "first in line" for expansion as a method of prioritizing equitable access to those that need it most, or high-need neighborhoods could be paired with middle- and higher-income neighborhoods in a phased rollout to ensure the financial sustainability of providing low-cost service to high-need neighborhoods alongside a growing subscriber base that has the ability to subscribe at a non-discounted rate.

IMPACT

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RESOURCE

$$$$$

TIME SCALE

Long term

IMPLEMENTER

Lead: CTIS

Partners: other City departments

CATEGORY

Broadband access


FIRST COME! FIRST SERVE!
Spend 15 quality hours on Technology, and receive a Chromebook, and one year of Internet Access!
REGISTER TO BE ON THE MAILING LIST, FOR FUTURE TECHNOLOGY INSTRUCTION SESSIONS!
REGISTER TO BE ON THE WAITING LIST
Sessions During: AUGUST and DECEMBER, of 2023!
WEEK DAY OR WEEKEND SESSION TIMES: TBD
LOCATIONS: TO BE DETERMINED
And The Monroe Building (next to City Hall)
Under the Office of the Mayor
THOMAS P. KOCH
Quincy Community Technology Integration, and Support (QTIS)
1245 Hancock Street, Suite #7, Quincy, MA 02169
John C. Cain, Jr. - Director / 617 376-1036
Training/Conference Center: 617 376-5107
Email: jcain@quincyma.gov
empowering communities to access and use digital tools to overcome barriers and advance lives!
READY, SET, BANKING
ABOUT THE TECHNOLOGY INSTRUCTION SESSIONS FOR:
Community * School * Early Childhood * Small Business
REGISTER TO GET ON OUR WAITING LIST
MAXIMUM OF 10-LEARNERS PER SESSION
SPECIFIC SESSIONS FOR ALL AGES!

APPENDIX

1. Network Technology

The technology used to transmit data to and from the internet impacts how fast that data moves. Companies which provide internet service using either Cable or Fiber Optic infrastructure must hold a Cable Franchise Agreement with the municipal government in which they operate, because this kind of infrastructure must use the public right of way. These agreements originally governed the operation of Cable Television providers; they still do, but because the transmission technology used for television and internet is largely the same, the same agreements apply. Because Fixed Wireless and Satellite providers do not rely on physical infrastructure to connect a home to the internet, they don't require these same municipal agreements.

Fiber internet

Fiber optic cables are currently considered the "gold standard" of internet infrastructure. While any internet technology has a maximum transmission speed, the theoretical maximum transmission speed of fiber is so high that it is at present functionally unlimited (some experts theorize that a single strand of fiber optic cable could transmit as much as 44 terabits per second, or 44 million megabits).

Cable internet

The most widespread ISP technology used in the United States is cable—the same coaxial copper cable infrastructure that brings cable television into homes. Because these cables have been in use for so long, they're extremely widespread. However, they do have a much lower transmission capacity than fiber, topping out at about 10 gigabits per second under laboratory conditions. In practice, it is uncommon to see cable internet speeds above 1 gigabit per second.

Fixed wireless internet

Unlike cable or fiber, fixed wireless internet uses point-to-point terrestrial microwave (radio) signals to move data around. An apartment building might have a fixed wireless antenna on the roof, which sends and receives data from a central hub which is connected to the internet at an existing fiber optic node. The data is then transmitted through the building using ethernet cables connected to wireless routers or other devices. This technology has the benefit of not requiring the ISP to invest in costly buried infrastructure but can be more expensive to operate and less reliable.

Satellite and mobile (cellular) internet

While all internet connection technologies must at some point be physically connected to the broader internet, satellite and mobile internet transmit wirelessly over a much longer distance, and as such are not regulated at the municipal level. Data about coverage using these technologies is not available at a municipal level.

Satellite connections have the advantage of being usable in more remote locations, out of range of cable/fiber infrastructure and far from cellular towers. However, most satellite ISP service is both expensive and quite slow, while newer "low earth orbit" technologies which do provide faster speeds are extremely dependent on horizon sightlines, meaning that they are impacted by topography, tree cover, and the built environment. In an urban environment like Somerville, with widespread availability of cable internet service, satellite internet is not an attractive option.

Cellular internet, while nearly ubiquitous in smartphones, has disadvantages for home internet connections. Because of the high demands on the cellular network, most plans have data caps (limits on the amount of data that can be transmitted each month) and higher subscription costs. A dedicated hotspot can provide flexible internet access if traditional connections are not available, and individuals may forego home internet for financial reasons in favor of relying on the mobile hotspot already built into their smartphone. The same is often true for people without a stable home address, which would preclude them from subscribing to a traditional home internet service provider.

Digital Subscriber Link (DSL) internet

DSL internet is an outdated technology that relies on copper telephone wire infrastructure, in much the same way that cable internet relies on cable television infrastructure. It differs from "dial-up" internet in that it offers faster speeds and can be used simultaneously with a telephone call, but it does use the same physical infrastructure. While DSL was once considered "high speed" internet, the maximum transmission speeds possible using this infrastructure are well below the capacity of even cable internet. There are no DSL providers currently serving Somerville.

2. How is speed measured and reported?

Bits vs. Bytes

Internet speed is generally measured using multiples of bits: kilobits per second, megabits per second, and gigabits per second. A bit is a single character of binary code: a 0 or a 1. This differs from how file size is measured, which is generally in multiples of bytes. A byte is 8 bits, which is the maximum amount of data needed to transmit a single character of text. A text document containing 1,000 characters of text would have a file size of about 1 kilobyte and would take 8 seconds to transmit over a 1 kilobit per second connection.

Broadband speed is measured using two numbers: an upload speed and a download speed. A connection listed as 100/30 means that the download speed (the speed of receiving data from the internet) is 100 megabits per second, and the upload speed (the speed of sending data to the internet) is 30 megabits per second. Upload speeds are generally lower, because most home uses for the internet involve receiving more data than sending. However, the increased usage of video conferencing means that upload speed requirements for the average user are higher now than they have been historically. There's no technical reason uploads need to be slower than downloads, this is just one way that ISPs manage data transfers to preserve higher download speeds.

Regulation, reporting, and speed tests

The FCC updated their definitions of what speed constitutes "Broadband" internet in 2023. Speeds at or above 100/20 are considered "served" with broadband, while anything between 25/3 and 100/20 is considered "underserved." Speeds below 25/3 are considered "unserved."

While FCC Form 477 (the source of the maximum advertised speeds listed per ISP) lists the maximum advertised speed available at a given address, these numbers do not tell the full story. First and foremost, a speed listed in a Form 477 filing indicates only that the ISP is willing to sell a subscription at that speed; it does not indicate how many people (if any) purchase that service, nor does it indicate the price at which it is provided. For most home use, a 100/30 connection is sufficient, while 300mbps download speeds may be desired for heavier uses such as remote work/school when multiple connections are active simultaneously.

Internet speed tests are one source of data available to determine the real-world experience of home internet users in Somerville. However, speed test data is not without its limitations. A person is most likely to take a speed test when something is not working the way they expect it to, which may bias the data towards slower speeds. These speeds are also impacted by a large number of factors beyond the ISP service, including device condition, age, and quality, wireless router placement, condition and quality of in-building wiring, etc. For people who do take a speed test, the test results are a fairly accurate representation of their experience using their internet connection; they do not tell us why their experience is what it is, or how much of that experience is caused by their internet service provider.

3. Potential funding and resource recommendations

Funding/ resources	Description	Matching recommendation category
Workforce Innovation and Opportunity Act (WIOA)	Digital literacy- use of technology to improve teaching, learning, professional development, skill development and abilities, career guidance, supportive services, job search workshop, referral to jobs or training, workers' rights and complaint system information.	Continue investing in CTIS's digital literacy programs and for further targeted workforce training opportunities.
Mass Attorney General: Computer and Online Privacy Mass Attorney General: Cyber Crimes	Educational materials to protect personal information and mitigate safety and privacy concerns.	Continue investing in CTIS's digital literacy programs and for further targeted internet safety and privacy courses.
Older Adults Technology Services Digital Skills Library	Technology support and courses for older adults	Continue investing in CTIS's digital literacy programs and for further targeted needs of older residents

English Language Acquisition State Grant	Enhance instruction for English learners with digital resources	Providing multi-lingual technology instruction by working with the public schools
Community Development Block Grant (CDBG)	This fund can be used to conduct broadband needs assessment, install wiring and fiber optic cables, and provide digital literacy classes	Funding and providing technical support for CTIS-facilitated computer labs with community organizations and community anchor institutions.
Mass Rehabilitation Commission, Assistive Technologies	Assistive Technologies including computers, equipment, and services that help individuals living with disabilities.	To provide flexible device access programs and expand the Quincy Public Library's program on adaptive device lending
Mass Vets Advisor	A resource directory of benefits available for Veterans	Education materials that can be shared with students taking the CTIS's digital literacy classes
Digital Learn	One-stop shop for computer and technology training from the Public Library Association (PLA) for self-directed tutorials	
Computers 4 People PCs for People	Provides free or low-cost computers to income-qualifying adults, free refurbished laptops to college-bound students in financial need	Device lending programs