
Massachusetts State Digital Equity Plan

FOR PUBLIC COMMENT

Massachusetts Broadband Institute

MBI
MASSACHUSETTS
BROADBAND INSTITUTE



at the MassTech
Collaborative



Who We Are

About the Massachusetts Broadband Institute (MBI)

The Massachusetts Broadband Institute is the State Broadband Office for the Commonwealth of Massachusetts. MBI's mission is to make affordable high-speed Internet available to all homes, businesses, schools, libraries, medical facilities, government offices, and other public places across the Commonwealth.

MBI works closely with the Administration, the state legislature, municipalities, broadband service providers, and other key stakeholders to bridge the digital divide in Massachusetts. The Commonwealth created the MBI as a division of the MassTech Collaborative when signing the Broadband Act into law in August 2008.

Broadband is critical to strengthening our economy, improving educational opportunities, and enhancing the delivery of health care, public safety and other government services. MBI's investments center around the MassBroadband 123 network deployed in the western and central regions of the state, but also include support for communities, organizations, and providers statewide. MBI built the MassBroadband 123 network to connect over 120 communities and serve as a building block for the region. MBI is providing grants and technical support to design and deploy new Last Mile networks in these communities.

MBI led the development of this Plan.

About the Massachusetts Technology Collaborative

The Massachusetts Technology Collaborative is a quasi-governmental agency established by legislative statute. The mission of the Massachusetts Technology Collaborative (MassTech) is to strengthen the competitiveness of the tech and innovation economy by driving strategic investments, partnerships, and insights that harness the talent of Massachusetts.

As a unique public agency, MassTech supports business formation and growth in the state's technology sector, helping Massachusetts lead in the global digital economy. To achieve that goal, MassTech:

- Builds strategies, strengthen connections, assist companies, make investments, and lead programs;
- Develops meaningful collaborations across industry, academia, and government, turning shared challenges into economic opportunity; and
- Supports the Commonwealth's tech sector with a strategic focus on talent, ecosystems, and innovation infrastructure across key divisions and programs.

MassTech's divisions are the MassCyberCenter, Massachusetts Broadband Institute, Massachusetts eHealth Institute, the Innovation Institute, and the Massachusetts Center for Advanced Manufacturing.

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NTIA Statutory Requirements Checklist

This table indicates where in the State Digital Equity Plan MBI fulfills each of the Notice of Funding Opportunity’s statutory requirements. This list is adapted from the NTIA’s Digital Equity Model Plan Guidance, which in turn is based on NOFO Section IV.C.b.¹

Statutory Requirement	Plan Section That Fulfills Requirement
<p><u>Requirement 1:</u> Identification of barriers to digital equity faced by Covered Populations in the State:</p> <ol style="list-style-type: none"> 1. Individuals who live in covered households (i.e., low-income households); 2. Aging individuals; 3. Incarcerated individuals, other than individuals who are incarcerated in a federal correctional facility; 4. Veterans; 5. Individuals with disabilities; 6. Individuals with a language barrier, including individuals who: Are English learners; and; Have low levels of literacy; 7. Individuals who are members of a racial or ethnic minority group; and 8. Individuals who primarily reside in a rural area" 	<p>Section 3.2.4. Needs and Barriers by Covered Population</p>
<p><u>Requirement 2:</u> Measurable objectives for documenting and promoting, among each Covered Population located in that State:</p> <ol style="list-style-type: none"> a. The availability of, and affordability of access to, fixed and wireless broadband technology b. The online accessibility and inclusivity of public resources and services c. Digital literacy d. Awareness of, and the use of, measures to secure the online privacy of, and cybersecurity with respect to, an individual; and 	<p>Section 2.3. Measurable Objectives</p>

¹ See here for the NTIA’s Digital Equity Model Plan Guidance: https://broadbandusa.ntia.doc.gov/sites/default/files/2023-08/Digital_Equity_Model_Plan_Guidance.pdf.

<p>e. The availability and affordability of consumer devices and technical support for those devices</p>	
<p><u>Requirement 3:</u> An assessment of how the measurable objectives identified in Statutory Requirement 2 above will impact and interact with the State’s:</p> <ul style="list-style-type: none"> a. Economic and workforce development goals, plans, and outcomes b. Educational outcomes c. Health outcomes d. Civic and social engagement; and e. Delivery of other essential services 	<p>Section 2.2.3 Advancing Statewide Goals through Digital Equity</p> <p>Section 3.2.4. Needs and Barriers by Covered Population</p>
<p><u>Requirement 4:</u> In order to achieve the measurable objectives identified in Statutory Requirement 2, a description of how the State plans to collaborate with key stakeholders in the State.</p>	<p>Section 5.2. Strategy and Program Details</p>
<p><u>Requirement 5:</u> A list of organizations with which the Administering Entity for the State collaborated in developing the Plan.</p>	<p>Section 4. Collaboration and Stakeholder Engagement</p> <p>Appendix</p>
<p><u>Requirement 6:</u> A stated vision for digital equity.</p>	<p>Section 2.1. Unified Vision for Digital Equity in Massachusetts</p>
<p><u>Requirement 7:</u> A digital equity needs assessment, including a comprehensive assessment of the baseline from which the State is working and the State’s identification of the barriers to digital equity faced generally and by each of the Covered Populations in the State.</p>	<p>Section 3. Digital Equity in Massachusetts Today</p>
<p><u>Requirement 8:</u> An asset inventory, including current resources, programs, and strategies that promote digital equity for each of the Covered Populations, whether publicly or privately funded, as well as existing digital equity plans and programs already in place among municipal, regional, and Tribal governments.</p>	<p>Section 3.2.6 Findings from Municipal Digital Equity Planning</p> <p>Section 3.4. Assets Supporting Digital Equity in Massachusetts</p>
<p><u>Requirement 9:</u> To the extent not addressed in connection with Statutory Requirement 4 above, a coordination and outreach strategy, including opportunities for public comment by, collaboration with, and ongoing engagement with representatives of each category of Covered Populations within the State and with the full range of stakeholders within the State.</p>	<p>Section 4. Collaboration and Stakeholder Engagement</p> <p>Section 5. Implementation</p>

<p><u>Requirement 10:</u> A description of how municipal, regional, and/or Tribal digital equity plans will be incorporated into the State Digital Equity Plan</p>	<p>Section 2.2. Existing Programs Administered by MBI</p> <p>Section 3.2.6 Findings from Municipal Digital Equity Planning</p> <p>Section 4. Collaboration and Stakeholder Engagement</p>
<p><u>Requirement 11:</u> An implementation strategy that is holistic and addresses the barriers to participation in the digital world, including affordability, devices, digital skills, technical support, and digital navigation. The strategy should:</p> <ul style="list-style-type: none"> • Establish measurable goals, objectives, and proposed core activities to address the needs of Covered Populations; • Set out measures ensuring the plan’s sustainability and effectiveness across State communities, and • Adopt mechanisms to ensure that the plan is regularly evaluated and updated. 	<p>Section 2.3. Measurable Objectives</p> <p>Section 5. Implementation</p>
<p><u>Requirement 12:</u> An explanation of how the implementation strategy addresses gaps in existing state, local, and private efforts to address the barriers identified in Statutory Requirement 1 above.</p>	<p>Section 5. Implementation</p>
<p><u>Requirement 13:</u> A description of how the State intends to accomplish the implementation strategy described above by engaging or partnering with:</p> <ol style="list-style-type: none"> a. Workforce agencies such as state workforce agencies and state/local workforce boards and workforce organizations; b. Labor organizations and community-based organizations; and c. Institutions of higher learning, including but not limited to 4-year colleges and universities, community colleges, education and training providers, and educational service agencies. 	<p>Section 5. Implementation</p>
<p><u>Requirement 14:</u> A timeline for implementation of the plan.</p>	<p>Section 5. Implementation</p>
<p><u>Requirement 15:</u> A description of how the State will coordinate its use of State Digital Equity Capacity Grant funding and its use of any funds it receives in connection with the Broadband Equity, Access, and Deployment Program, or other federal or private digital equity funding.</p>	<p>Section 5. Implementation</p>
<p><u>Requirement 16:</u> A description of any changes made to the Digital Equity Plan in response to comments received and inclusion of a written response to each comment received.</p>	<p><i>Note: To be included following the public comment period.</i></p>

Glossary of Key Terms

Acronyms and Key Terms

ACC	The American Connection Corps, an initiative of Lead for America, is the nation's largest service program focused on bridging the digital divide.
ACP	The FCC's Affordable Connectivity Program, which provides subsidies for low-income and Tribal households to access home broadband subscriptions and/or internet-enabled devices.
ACS	The American Community Survey is an annual demographic survey conducted by the U.S. Census Bureau.
BEAD	NTIA's Broadband Equity, Access, and Deployment Program, which will provide \$42.45 billion nationally for broadband infrastructure planning and implementation.
CAI	Community Anchor Institution, defined by NTIA in the BEAD NOFO "an entity such as a school, library, health clinic, health center, hospital or other medical provider, public safety entity, institution of higher education, public housing organization, or community support organization that facilitates greater use of broadband service by vulnerable populations."
CBO	Community-based organization, an organization that is driven by community residents in all aspects of its existence (including governance, operations, and programming).
CDC	Community development corporation, a nonprofit organization that supports and revitalizes communities, especially those that are lower income or face other significant challenges.
CPF	The Capital Projects Fund is an initiative of the U.S. Department of the Treasury to fund critical capital projects that enable work, education, and health monitoring in states, territories, freely associated states, and Tribal governments.
DEA	The Digital Equity Act is a federal initiative established as part of 2021's Infrastructure Investment and Jobs Act (IIJA) that provides \$2.75 billion to establish grant programs that promote digital equity and inclusion nationwide.
DEAPV	Digital Equity Act Population Viewer is an interactive collection of maps that demonstrate the distribution of covered populations and broadband internet availability and adoption statistics by state and small geographies.
DEC	Digital Equity Coalitions are organizations or coalitions of organizations operating in each state region that coordinate efforts across the government, nonprofit, private, and education sectors to end the digital divide.
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, employment, lifelong learning, and access to essential services. ²
FCC	The Federal Communications Commission, administrator of the ACP and developer of the National Broadband Map.
Gaps or Barriers	Existing obstacles that prevent state residents from achieving digital equity, as evidenced through the various components of the needs assessment of chapter 3 of this Plan.
Gateway City	Gateway Cities are midsize urban centers that anchor regional economies around the state. The Massachusetts Legislature defines 26 Gateway Cities in the Commonwealth: Attleboro, Barnstable, Brockton, Chelsea, Chicopee, Everett, Fall River, Fitchburg, Haverhill, Holyoke, Lawrence, Leominster, Lowell, Lynn, Malden, Methuen, New Bedford, Peabody, Pittsfield, Quincy, Revere, Salem, Springfield, Taunton, Westfield, and Worcester. ³
Goal	A broad aspiration of a positive change that the state seeks to make.
IJA	The 2021 Infrastructure Investment and Jobs Act included the Digital Equity Act.
ISP	Internet service provider.
KPI	Key performance indicator.
LFA	Lead for America, with runs the American Connection Corps, is a national nonprofit that recruits, trains, and places young leaders back into their hometowns to tackle the challenges facing their communities.
MBI	The Massachusetts Broadband Institute, the organization that led the development of this Plan.
Measurable Objective	A future-focused target that is linked to a quantifiable result like a key performance indicator. ⁴ Goals and Measurable Objectives describe where Massachusetts wants to be; strategies and activities describe what Massachusetts will do to get there.
NOFO	Notice of Funding Opportunity; specifically, NTIA's Notices of Funding Opportunity for the BEAD and State Digital Equity Planning Grant Programs.
NTIA	The National Telecommunications and Information Administration, administrator of the BEAD Program and State Digital Equity Planning Grant Program.
Program	Specific action, initiative, or policy that takes place within each strategy.

² National Digital Inclusion Alliance, "Definitions": <https://www.digitalinclusion.org/definitions>.

³ See MassINC, "About the Gateway Cities": <https://massinc.org/our-work/policy-center/gateway-cities/about-the-gateway-cities/>.

⁴ NTIA, Digital Equity Model Plan Guidance, p. 5

SDEP	A State Digital Equity Plan must include specific elements outlined in the statute and the Notice of Funding Opportunity and be submitted to enable a state to access the State Digital Equity Capacity Grant Program.
Strategy	A broad approach to achieving goals and Measurable Objectives. A strategy could cut across multiple goals or Measurable Objectives.
Working Group	The Broadband and Digital Equity Working Group, an interagency group co-convened by the Massachusetts Broadband Institute. See Appendix for a list of members.

NTIA Covered Populations

Covered Population	Definition
Individuals who live in covered households (or, low-income household)	A household whose income in the most recent year was equal to or less than 150 percent (1.5 times) of the U.S. Census Bureau’s poverty threshold. Note that the poverty threshold depends on household size. For example, the Census Bureau’s poverty threshold for a family of 4 in 2022 was \$29,678. ⁵ In this case, families of 4 would qualify as covered households if their incomes were equal to or less than \$44,517 (\$29,678 times 1.5).
Aging individuals	Persons 60 years or older.
Incarcerated individuals, other than individuals who are incarcerated in a Federal correctional facility	An incarcerated individual is an inmate confined in a prison or a jail. This may also include halfway houses, boot camps, weekend programs, and other facilities. ⁶
Veterans	The U.S. Census Bureau defines veterans as individuals who served in the past or were on active duty in the U.S. Army, Navy, Air Force, Marine Corps, or the Coast Guard, or who served in the U.S. Merchant Marine during World War II. ⁷

⁵ See U.S. Census Bureau, Income, Poverty and Health Insurance Coverage in the United States: 2022: <https://www.census.gov/newsroom/press-releases/2023/income-poverty-health-insurance-coverage.html>.

⁶ Bureau of Justice Statistics. “Bureau of Justice Statistics (BJS) Glossary.” Accessed November 2, 2023. <https://bjs.ojp.gov/glossary>.

⁷ “American Community Survey and Puerto Rico Community Survey 2021 Subject Definitions,” n.d. https://www2.census.gov/programs-surveys/acs/tech_docs/subject_definitions/2021_ACSSubjectDefinitions.pdf.

Individuals with disabilities	The U.S. Census Bureau defines people with disabilities as those with serious difficulty with four basic areas of functioning: hearing, vision, cognition, and ambulation (movement). ⁸
Individuals with a language barrier	This includes, but is not limited to, individuals who are English learners (e.g., English is not their first language) and/or who have low levels of literacy.
Racial and ethnic minorities	People who identify as American Indian (including Alaska Native, Eskimo, and Aleut); Asian American; Native Hawaiian and other Pacific Islander; Black; and/or Hispanic. ⁹
Rural inhabitants	<p>MBI used the Massachusetts State Office of Rural Health definition, which considers a municipality to be rural if it meets one of the following criteria:</p> <ul style="list-style-type: none"> • Meets at least one of three federal rural definitions at the sub-county level (Census Bureau, Office of Management and Budget, or Rural-Urban Commuting Area Codes), and/or • Has a population less than 10,000 people and a population density below 500 people per square mile, and/or • Has an acute care hospital in the town that meets the state hospital licensure definition of a small rural hospital, or is a certified Critical Access Hospital.¹⁰
These definitions have been adapted from the NTIA’s “Frequently Asked Questions” guide for Digital Equity Act programs. ¹¹	

⁸ “American Community Survey and Puerto Rico Community Survey 2021 Subject Definitions,” n.d. https://www2.census.gov/programs-surveys/acs/tech_docs/subject_definitions/2021_ACSSubjectDefinitions.pdf.

⁹ See Cornell Law School, Legal Information Institute: https://www.law.cornell.edu/definitions/uscode.php?width=840&height=800&iframe=true&def_id=42-USC-591738112-1708089047&term_occur=4&term_src=title:42:chapter:6A:subchapter:XV:section:300u%E2%80%9336.

¹⁰ See Mass.gov, State Office of Rural Health Rural Definition: <https://www.mass.gov/info-details/state-office-of-rural-health-rural-definition>. This is consistent with the NTIA’s NOFO definition, which defines rural areas as ones other than: a city or town that has a population of greater than 50,000 inhabitants; any urbanized area contiguous and adjacent to a city or town that has a population of greater than 50,000 inhabitants; and in the case of a grant or direct loan, a city, town, or incorporated area that has a population of greater than 20,000 inhabitants.

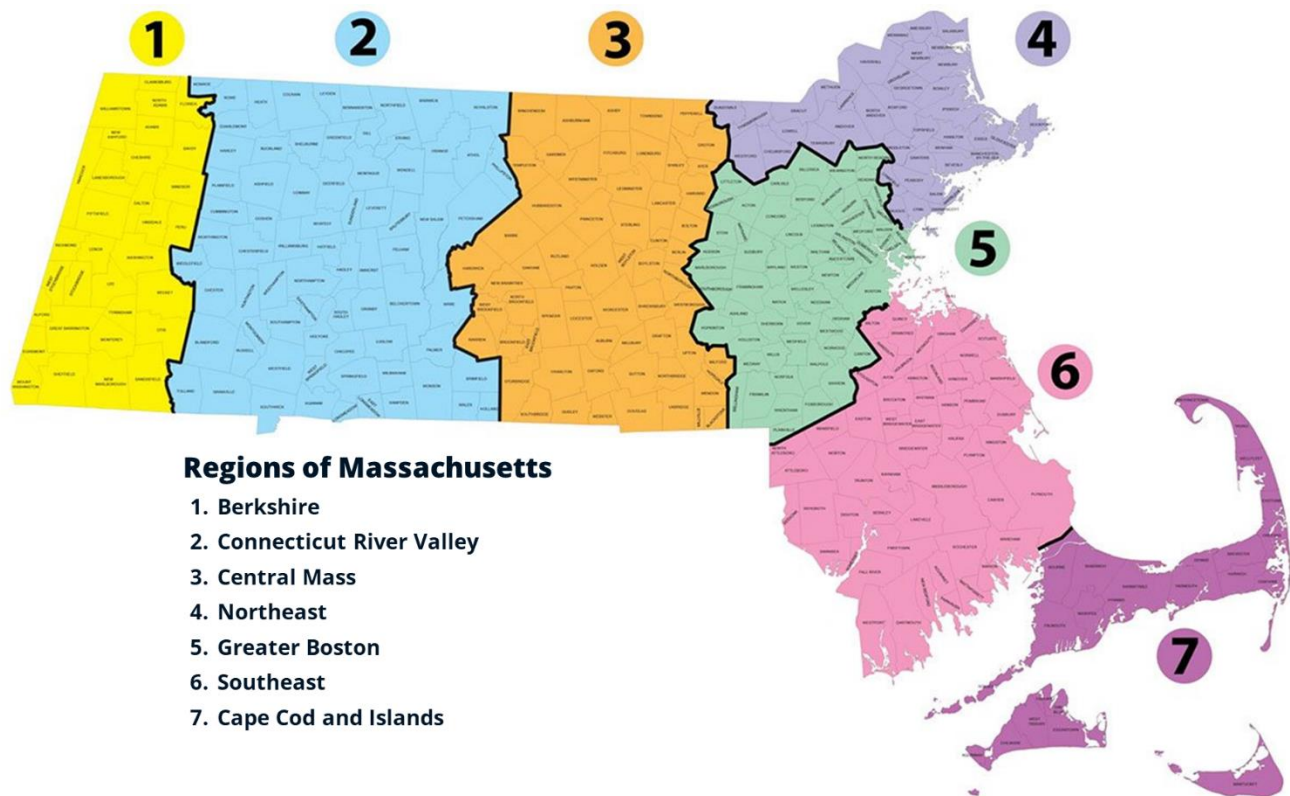
¹¹ See NTIA, Digital Equity Act: State Capacity Grant Program, Planning Grants, and Competitive Grant – Frequently Asked Questions: <https://broadbandusa.ntia.doc.gov/sites/default/files/2022-06/DE-FAQs.pdf>.

NTIA Measurable Objective Categories

Label Used in This Plan	Description (as defined in the NTIA State Digital Equity Planning Grant Program Notice of Funding Opportunity)
Broadband Availability and Affordability	The availability of, and affordability of access to, fixed and wireless broadband technology.
Device Availability and Affordability	The availability and affordability of consumer devices and technical support for those devices.
Digital Literacy	Digital literacy.
Online Privacy and Cybersecurity	Awareness of, and the use of, measures to secure the online privacy of, and cybersecurity with respect to, an individual.
Online Accessibility and Inclusivity	The online accessibility & inclusivity of public resources & services.

Regions of Massachusetts

This Plan breaks Massachusetts into 7 regions for analysis to track regional differences in digital equity today. MBI used the regional definition from MassHire’s Super Workforce Regions.¹²



¹²MassHire Super Workforce Regions, https://masshiregreaternewbedford.com/wp-content/uploads/cc_wb_map-1.jpg. MBI has changed the name of Region 2 from “Pioneer Valley” to “Connecticut River Valley”.

1. Executive Summary

Digital Equity in Massachusetts: A Transformational Opportunity

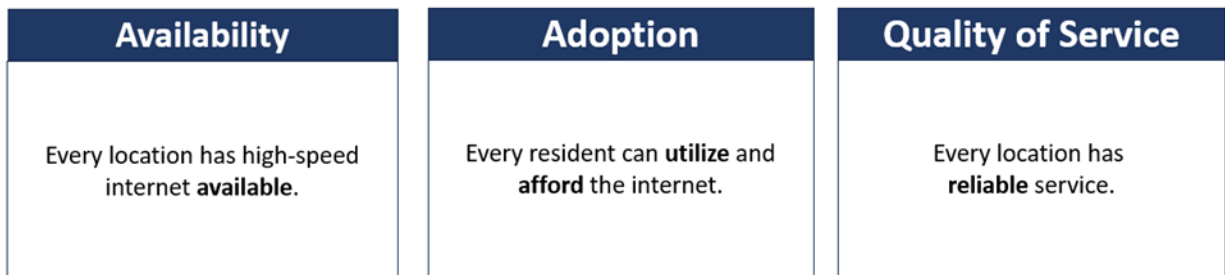
Massachusetts is at a pivotal moment with a unique opportunity to drive transformative change in digital equity. The Massachusetts Broadband Institute (MBI) is the central broadband office for the Commonwealth of Massachusetts. MBI is one of five primary divisions of the Massachusetts Technology Collaborative (MassTech), a quasi-public economic development agency that works closely with the state Executive Office of Economic Development.

MBI has made significant investments to expand internet access across the state. MBI has funded last mile projects, established a middle mile network, and facilitated public-private partnerships to extend high-speed internet access to underserved and remote areas. These efforts have included grants, technical assistance, and collaborations between public entities and private service providers, all aimed at bridging the digital divide and ensuring better connectivity. With these investments, Massachusetts has achieved an availability rate that exceeds 98%, measured by the number of locations with high-speed internet infrastructure. This leaves a limited number of locations lacking high speed connections. Through a once-in-a generation federal funding investment, Massachusetts has an unprecedented opportunity to achieve its strategic goals and unlock meaningful economic potential for all residents.

Vision for Digital Equity

The vision for broadband and digital equity in the Commonwealth is that:

Every resident in Massachusetts has high-speed, high-quality internet availability and can confidently adopt and use the internet regardless of who they are or where they live. This universal connectivity will ensure that everyone has the support they need to enjoy full personal, civic, and economic digital participation throughout their lives with safety and security.



Shaping the BEAD and DEA Planning Processes

MBI's planning process for Broadband Equity Access and Deployment (BEAD) and Digital Equity Act (DEA) prioritized alignment. While the BEAD and DEA plans seek unique goals - with BEAD investing in statewide infrastructure, and DEA focusing on digital equity investments - MBI aligned the efforts to ensure coordinated stakeholder engagement and visioning activities. This allowed MBI to develop a shared strategy to bridge the digital divide across the Commonwealth.

MBI's historic investments in middle mile and last mile infrastructure has set the stage for the Commonwealth to achieve universal broadband availability in the coming years. The sequencing of MBI's infrastructure grant funds will begin with the Broadband Infrastructure Gap Networks Grant Program¹ which aims to fill the remaining gaps in Massachusetts broadband coverage. Any remaining coverage gaps that remain after the Gap Networks Program or that are identified through the BEAD Challenge Process will be addressed with BEAD Deployment funds.

Following the guidance provided by the National Telecommunications and Information Administration (NTIA), we conducted a large-scale engagement process to understand the state of digital equity in Massachusetts and where gaps exist. MBI established a Broadband & Digital Equity Working Group to bring together practitioners across the Commonwealth to inform every step of this work; conducted stakeholder interviews; hosted statewide listening sessions and focus groups; distributed a statewide Digital Equity survey in nine languages; and conducted data analysis involving publicly available data.

This Plan is made possible by our robust network of partners, including existing MBI grantees advancing local, regional, and municipal digital equity planning efforts across the Commonwealth. Throughout the planning process, we deliberately created opportunities to invite these partners to inform both the BEAD and DEA Plans and ensure these Plans reflected their expertise and understanding of digital equity. This exercise helped to strengthen the community of digital equity practitioners across the Commonwealth and positions Massachusetts well to effectively allocate and execute on the Plan with BEAD funds and Digital Equity Capacity grants when available.

Main Findings

Based upon learnings from this process, MBI established digital equity gaps, sourced from the State's major digital equity needs. From these gaps, MBI generated correlating actions, linked to future programs to implement throughout Massachusetts. Gaps were categorized by the NTIA's Measurable Objectives and are connected to forward-looking strategies established in the Statewide Digital Equity Plan. High-level findings from each Measurable Objective area include:

Broadband Affordability & Availability

- High internet subscription costs are the largest identified barrier that prevent Massachusetts residents from having broadband at home.
- Many residents with internet subscriptions experience poor internet quality.

Accessibility of Devices and Device Support

- Residents identify a need for low-cost devices.
- Residents need devices that are easy to use.
- Residents need devices in a way that keeps up with changes in technology, both in terms of receiving required hardware and software updates and in not needing to replace devices too frequently because of their obsolescence.

Digital Literacy

- Residents need greater digital literacy support, especially support that is linguistically and culturally accessible across different demographic groups.
- Residents need support using the internet to conduct essential day-to-day activities, including accessing job opportunities and healthcare.

- Institutions offering digital literacy programs, including libraries, need support in building capacity, staffing, and funding.

Privacy & Cybersecurity

- Residents are concerned about internet safety, especially with regard to protecting themselves from having their data stolen, from online scams, and from digital surveillance.
- Individuals with disabilities are particularly concerned about medical data breaches.
- Residents are concerned about youth safety online.

Accessibility & Inclusivity of Public Resources

- Residents, particularly those with language and accessibility barriers, identify difficulty accessing public resources online.
- Residents need more information about how to access online public resources and desire support programs tailored to their needs.

MBI's assessment of needs found that greater affordability, higher quality of service, and increased internet safety are top priorities for residents across Covered and Underrepresented Populations and regions of the state. These consistent themes underlie the diverse needs across different regions and demographic groups. As a result, MBI is committed to being responsive to the diversity of resident needs, recognizing the unique differences in needs across regions and demographic groups and avoiding a one-size-fits-all approach. MBI used this understanding of needs to recommend programs to improve digital equity in the Commonwealth.

Implementation Plan

MBI developed an implementation strategy to organize our efforts to achieve digital equity in Massachusetts. We designed the framework to rely on extensive collaboration with our local and statewide partners and to make the Plan effective and sustainable over the long term. MBI's implementation strategy is structured to achieve the vision through 3 sets of activities: build on existing programs, develop new programs, and create foundations for success. The list of recommended programs below provides examples that MBI may want to prioritize from the full list of programs.

Build on Existing Programs

Digital Equity Partnerships Program. MBI will scale its existing Partnerships program with a focus on 3 objectives: expand geographical coverage to regions with gaps in support, expand coverage by target populations regardless of geographic location, and expand initiatives supported through past grants where these have proven to be successful.

Municipal Digital Equity Planning Program: Building on the 70 municipalities that have participated in this program to date, MBI's future investments will focus on two initiatives: provide participating municipalities with easily accessible funding to implement priority initiatives based on their plans and create meaningful funding options to implement larger, longer-term projects.

Develop New Programs

State-Supported Technical Assistance. MBI will develop a Front Door program to support quality of service through a consumer-facing web portal dedicated to addressing quality-of-service concerns for the residents through education, troubleshooting tools, and escalation options.

Statewide Digital Navigator Corps. MBI will support organizations throughout Massachusetts to hire, train, and staff digital navigators who can provide local support with technology troubleshooting, education, program access, and more. We will prioritize increasing the number of navigators in regions and among populations where this resource is currently unavailable. MBI will also build upon Telehealth navigators programming to cover online safety, with direct support for individuals with disabilities.

Create Foundations for Success

Foster Regional and Topic-Specific Digital Equity Coalitions: MBI will facilitate the creation of coalitions that promote digital equity across Massachusetts. MBI envisions that coalitions could be structured by region, Covered Population or other socioeconomic or demographic characteristics, priority outcome areas (economic and workforce development, education, healthcare, housing, and infrastructure), or other dimensions.

Establish Best Practices Catalogue: MBI will strengthen the ability of all organizations to support digital equity objectives by educating practitioners and developing a catalogue of best practices. This support will be available both to organizations that focus on digital equity and to those that do not.

MBI will track the outputs and outcomes of its programs in multiple ways. Existing MBI programs already have in place methods to track KPIs and overall progress. Building on these structures and KPIs, MBI will set program evaluation measures with its partners for all programs—based on the Measurable Objectives and key performance indicators—that allow it to assess whether programs are producing results and, if not, where they should improve. MBI will also establish mechanisms for lessons learned to be shared statewide so that successful programs can be expanded more broadly.

The Way Forward

Completing the Massachusetts Internet for All Broadband and Digital Equity Plans is the first step. As we move towards putting the Plans into action, we understand the need to ensure Plans remain as “living documents” that will continue to reflect the realities of diverse communities in the Commonwealth and can guide investments and partnerships where it meets the need and the moment. To do so, MBI will continue ongoing connections with stakeholders and communities across the Commonwealth to have an up-to-date understanding of needs and barriers.

This will be an all-hands-on-deck effort over the coming years, and we look forward to joining hands with major stakeholders in and outside of government—including Commonwealth and local government agencies, nonprofit leaders, and private industry partners—to meet this pivotal moment and ensure universal connectivity and its benefits for all.

2. Digital Equity Vision and Background

The Massachusetts State Digital Equity Plan is guided by a unified vision for digital equity in the state and is supported by the precedent work in the field, both conducted by MBI as well as by longstanding partners and practitioners working to close the digital divide across the state.

This chapter is organized into three parts to reflect the vision and background that underscores the Plan:

- **Unified Vision:** MBI conducted comprehensive stakeholder and community engagement to source input on a unifying vision for digital equity in Massachusetts that will underscore all future investments in existing and new programming throughout the state.
- **Existing Programs Administered by MBI:** MBI has conducted foundational work that will support future programming, by administering grants, convening stakeholders, and funding partners in the digital equity ecosystem to advance digital equity across all demographics and geographic areas. This section details those programs, and where they stand today.
- **Measurable Objectives:** This section introduces the NTIA's Measurable Objectives as indicators of achievement in digital equity areas, addressing gaps defined in Chapter 3 of the Plan. It organizes key performance indicators (KPIs) around these objectives, which will align with individual programs proposed by MBI to address these gaps.

2.1. Unified Vision for Digital Equity in Massachusetts

A unified vision serves to provide a clear, overall objective for digital equity in Massachusetts that MBI and all other organizations across the state will work to achieve. The unified vision sets the target for this Plan and its recommendations as well as for future activities that will follow the Plan.

MBI developed the Plan's unified vision with input from key partners representing different regions, Covered Populations, and organizations across Massachusetts. MBI convened the Massachusetts Broadband and Digital Equity Working Group and hosted regional listening sessions to gather perspectives and ambitions for a unified vision. The Working Group consists of leaders from across the state who offered expertise in digital equity and other areas, while the listening sessions brought together residents who shared their needs. MBI organized visioning activities with each of these groups, asking what "Internet for All" means to them in Massachusetts.

Based on the input of all of these stakeholders, MBI crafted the following unified vision for digital equity in Massachusetts:

Every resident in Massachusetts has high-speed, high-quality internet availability and can confidently adopt and use the internet regardless of who they are or where they live. This universal connectivity will ensure that everyone has the support they need to enjoy full personal, civic, and economic digital participation throughout their lives with safety and security.

2.2. Existing Programs Administered by MBI

MBI seeks to achieve this vision through the Plan by building on the existing programming that it and its partners manage throughout the state. MBI administers grant programs and convenes practitioners and

subject-matter experts to develop and implement digital equity best practices. Alongside MBI, partners lead initiatives that focus on different places, populations, and objectives. This section describes the work to date by MBI and its partners across Covered Populations, the NTIA's 5 Measurable Objectives,¹³ and 5 priority outcome areas through which improvements in digital equity will benefit the lives of all in Massachusetts.¹⁴ All of these programs provide a strong foundation on which Massachusetts will fulfill the vision and achieve digital equity. In partnership with existing programs, MBI will also utilize the asset inventory developed in the statewide planning process to understand and support existing programs throughout the state. Lessons learned from the State Digital Equity Planning process will inform future planning and implementation of these programs, while also building out new programming.

2.2.1. Grant Programs

MBI administers a range of grant programs to support stakeholders across the Commonwealth advance digital equity. Existing programs are mainly funded by American Rescue Plan Act (ARPA) funding and funds from the Capital Projects Fund (CPF).

Municipal Digital Equity Planning Program

MBI launched the Municipal Digital Equity Planning Program to enable municipalities and other local government bodies to develop plans for digital equity and bridging the digital divide. At the outset of the program, MBI worked to pre-qualify a group of planning consultants, to provide municipalities with a streamlined choice for their planning process. Participating municipalities can choose to work with a consultant to conduct a Charrette or Digital Equity Planning option. Both options are intended to yield similar outcomes, but will differ in process, duration of the planning activities and level of detail and nuanced information provided to the municipality:

- **Digital Equity Charrette:** As part of a Charrette, municipalities select pre-qualified consultants to organize and facilitate an intensive workshop engaging municipal officials, community groups, and other stakeholders to gather information on the residents' digital equity needs and barriers, focusing on the populations most impacted by the COVID-19 pandemic. With guidance from the municipality's chosen consultant, digital equity stakeholders work together to identify priorities, challenges, and solutions to address the digital equity divide in the municipality. The Charrette process is intended to have a lower barrier to entry for municipalities with limited staff capacity and limited existing knowledge or activities on digital equity.
- **Digital Equity Planning:** Municipalities that pursue this program receive support to conduct a comprehensive planning exercise. Municipalities select pre-qualified consultants to conduct data collection and analysis, lead extensive outreach and engagement with digital equity stakeholders, and produce a detailed report on the municipality's current situation and recommendations on improving digital equity. In contrast with the short term Charette, the digital equity planning process occurs over a

¹³ The NTIA's 5 Measurable Objective categories are: Broadband Availability and Affordability, Device Availability and Affordability, Digital Literacy, Online Privacy and Cybersecurity, and Online Accessibility and Inclusivity.

¹⁴ These 5 priority outcome areas are: Economic and Workforce Development, Education, Healthcare, Housing, and Infrastructure. These subgroups adhere closely to the Measurable Objectives identified in the Statutory Requirement 2. Members of each outcome area subgroup were self-selected by Working Group members.

longer period of time and includes an in-depth analysis of existing publicly available data, statewide digital equity survey data, an engagement plan, and a final report.

As of October 31, 2023, 70 municipalities have applied to for either the Charrette or Planning options, including 12 Gateway Cities and the City of Boston, Massachusetts' largest municipality. MBI incorporated findings from these activities into chapter 3. Digital Equity in Massachusetts Today.

Lead for America Digital Services Program

MBI supported Lead for America (LFA) to bring its program to Massachusetts. LFA's American Connection Corps (ACC) is the nation's largest service program focused on bridging the digital divide. ACC supports broadband development and digital inclusion while reinforcing civic leadership in places where people are often encouraged to "leave and never come back." ACC places members in a paid, full-time service position addressing local connectivity needs in communities in their hometown or home state. MBI invested \$350,000—alongside other funding from AmeriCorps and philanthropic resources—in a capacity-building pilot program with LFA to support hiring 15 members in Massachusetts. This created the largest concentration of LFA members in any one state since the program's inception.

Members conduct activities across host organizations to provide speed testing, device distribution, ACP outreach and registration, adoption support, rural broadband infrastructure action development, and digital skill building.

Digital Equity Partnership Program

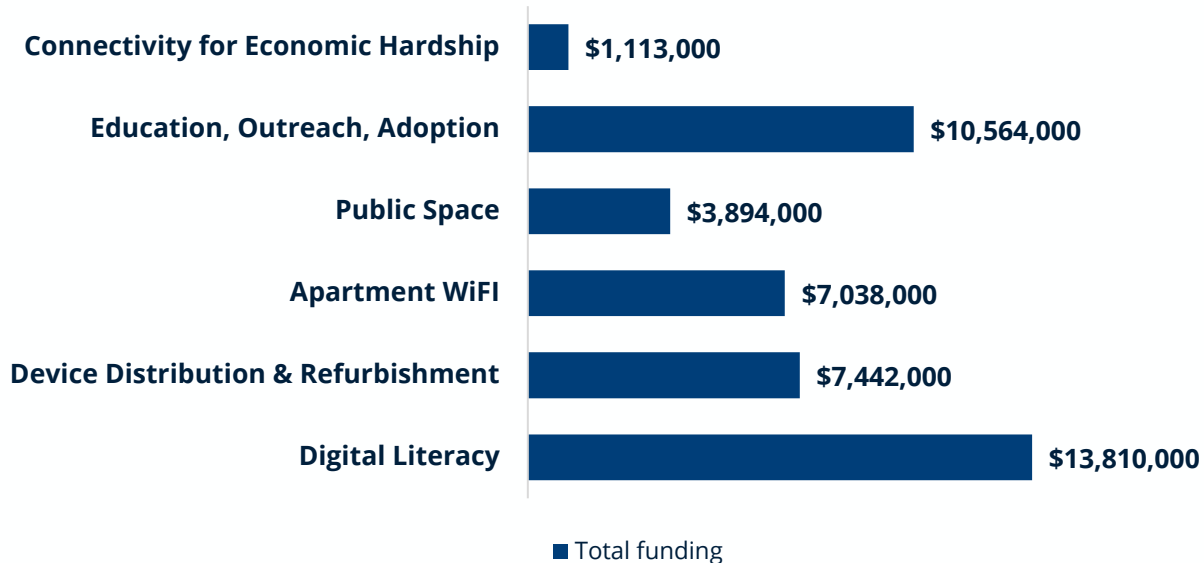
MBI has committed approximately \$39.1 million dollars to support partners implementing a variety of digital equity programs and initiatives. Partners are qualified organizations chosen by MBI to implement digital equity projects (e.g., philanthropies, community colleges, public housing authorities) with organizations such as community development corporations (CDCs), community-based organizations (CBOs), municipalities and municipal agencies, public housing authorities, community colleges, local and regional school districts, healthcare and telehealth organizations (including federally qualified community health centers), and other entities to implement digital equity projects. MBI's Partnership Program align with the legislative goals of the [Broadband Innovation Fund](#) and meet federal requirements established by the U.S. Treasury for the use of Coronavirus State and Local Fiscal Recovery Funds (SLRF).¹⁵

Through its partnerships program, MBI funded 9 new partnerships in 2023 and has committed \$39.1 million to partners with \$13 million going to digital literacy programs and nearly \$11 million going to education, outreach, and adoption programs. Awardees include health center consortiums, municipal governments, and colleges.

¹⁵ "Digital Equity Partnerships Program | MBI." Accessed October 27, 2023.

<https://broadband.masstech.org/partnerships>.

Partnership Program Funding (2023)



The Partnership Program areas are as follows:

- Affordable Connectivity Program (ACP) Outreach and Adoption: Partners work with sub-awardees that provide direct assistance to ACP-eligible target populations to ensure that effective outreach, education, and adoption assistance is available. This happens alongside the other programs described in this section to ensure their maximum impact and reduce the barriers that internet affordability poses.
- Connectivity Initiative for Economic Hardship: Partners work with organizations that provide social services to homeless or transitional individuals and families to deploy cellular hotspots to ensure that this population has access to the internet. Beneficiary organizations include anti-poverty agencies, homeless shelters, social service providers, healthcare providers, food distribution entities, libraries, and more.
- Digital Literacy Initiative: Partners work with sub-awardees to establish and implement digital literacy training programs to ensure that target populations have skills to use devices, online resources, and digital tools. Partners and sub-awardees collaborate to determine the appropriate scale of digital literacy training that meets the needs of end users, which might range from basic computer schools to digital navigator and digital stewardship models. Partners either directly provide digital literacy training or assist sub-awardees to hire digital literacy providers, implement digital literacy services, obtain assistance for devices access, and offer wraparound services like childcare and transportation.
- Device Distribution, Refurbishment Program, Education: Partners work with organizations or groups of organizations to obtain new or used internet-connected devices that can be distributed to their target populations. Partners also work with sub-awardees to receive donations of used devices to meet the specific needs of the community the program aims to serve. Beneficiary organizations include community-based organizations, workforce training providers, educational entities, nonprofits, and private businesses.
- Public Space Internet Modernization Initiative: Partners provide grants that allow locations to install publicly available internet as a service to their users. This program serves libraries, community centers,

senior centers, educational facilities, workforce training locations, commercial corridors, and other locations that serve target populations.

- **Wi-Fi Access Initiative:** Partners work with affordable housing developers, public housing officials, and other property owners to identify properties whose residents face either an affordability or adoption barrier to a household broadband subscription. Partners then provide assistance in obtaining technical assistance and work with the housing owner(s) and/or developer(s) to ensure the effective installation and maintenance of Wi-Fi for residents.

MBI Gateway City Wi-Fi Grants

The Gateway Cities Program was an effort to promote economic and community development in the 26 Gateway Cities in Massachusetts. The Massachusetts Broadband Institute directly awarded grants to Gateway Cities and organizations that developed and implemented wireless access projects in Gateway Cities. For example, MBI funded MAPC using the Gateway City Wi-Fi grant to pilot their Apartment Wi-Fi program, connecting Chelsea, Everett, and Revere Housing Authority properties.

Community-Based Organization Awardees

MBI collaborates with and funds CBOs to assist it in larger planning efforts. MBI funded CBOs to conduct a human-centered outreach and engagement process to inform statewide DEA and BEAD planning efforts and to assist with future implementation activities under these programs. MBI awarded funding to 14 CBOs to host regional- and Covered Population-specific focus groups to inform plan development, and to 12 CBOs to host focus groups to provide feedback on draft plans.

U.S. Treasury Department Capital Projects Fund Programs

Working as the Executive Office of Economic Development's subgrantee, MBI will use the U.S. Treasury Department's Capital Projects Fund to remove barriers to reliable home broadband service. This will provide greater internet access for eligible households, including for essential activities that are often conducted from home, such as for remote work, education, and healthcare. MBI has allocated \$22 million to a new Residential Retrofit Program that will provide an initial set of approximately 22,000 affordable housing units across the state with future-proof infrastructure and state-of-the-art wiring. MBI aims to expand this program to serve a total of 77,000 units in the long term. The program is planned to launch in the first quarter of 2024.

2.2.2. Convening Practitioners and Subject Matter Experts

Broadband and Digital Equity Working Group

MBI established the Broadband and Digital Equity Working Group to guide and advise the SDEP effort, including through statewide stakeholder engagement. The Working Group consists of leaders from across Massachusetts who offer specific topic area expertise and represent target populations as defined by federal guidelines and MBI's programs (see a full list of members in [The Appendix](#)). MBI organized 4 full meetings with the Working Group in the summer and fall of 2023, and continuously consulted (and consults) with members individually and in smaller groups to inform Plan development. The Working Group has supported MBI through the following activities:

- Work with members' networks to promote survey completion, asset inventory development, and participation in listening sessions and focus groups.
- Review and inform the Plan's existing conditions analysis to set baselines for digital equity in Massachusetts and a draft implementation framework to ensure that proposed investment strategies align with the needs of members' constituencies.
- Inform the unified vision, Measurable Objectives, activities, and other Plan components through a series of workshops involving the entire Working Group and breakout groups. Additionally, members of the

Working Group formed 5 Outcome Area Subgroups for Massachusetts' priority outcome areas¹⁶ to develop Measurable Objectives and activities specific to these areas.

- Facilitate coordination and engagement between MBI and other organizations in the state, with an emphasis on collaboration with Commonwealth government agencies, community institutions, and private partners. Supported intergovernmental collaboration on digital equity and development of strategies for Plan implementation across agencies, departments, and initiatives.

Statewide Digital Equity Coalition

MBI convenes a group of digital equity practitioners to learn from their work on the ground throughout Massachusetts. The Coalition meets monthly to discuss notes from the field, programmatic updates, and best practices with the goal of learning from each other's experiences and finding solutions to common problems; attendance ranges from 15-45 members per meeting. The Coalition is a flexible association of people and organizations brought together by a common interest in organizing for collective impact in digital equity.

Tribal Engagement

MBI collaborates with recognized tribes in the state. There are two federally recognized tribes within Massachusetts: the Wampanoag Tribe of Gay Head (Aquinnah) and the Mashpee Wampanoag Tribe. MBI worked with the Mashpee Wampanoag Tribe to distribute the Statewide Digital Equity Survey to its members and to conduct 2 focus groups. MBI continues to engage the Tribe on supporting infrastructure development on Tribal territories and future workforce issues.

2.2.3. Advancing Statewide Goals through Digital Equity

Greater digital equity benefits people across various areas of life, including economic and workforce development, education, healthcare, housing, and infrastructure. These 5 constitute Massachusetts' priority outcome areas. Ensuring equitable access to digital resources can help bridge socioeconomic gaps and strengthen other statewide and regional initiatives that seek to improve quality of life of Massachusetts residents. This section provides examples of statewide plans in each priority outcome area and highlights opportunities to connect those initiatives to the Plan and other programs supporting digital equity.

Economic and Workforce Development

Digital equity is a necessary element of economic and workforce development. Digital access and skills are essential to provide residents with information on available jobs, access to online training and education programs, the possibility of working remotely, receiving communications from workforce training providers and other organizations, and more.

The 2020-2024 Workforce Innovation and Opportunity Act Massachusetts Combined State Plan identifies that the state's challenge is matching economic opportunity with economic prosperity for its individuals and families.¹⁷ In order to address this challenge, the Commonwealth has set the following goals:

- **Adult Employment:** Expand employment opportunities for adults facing challenges such as low incomes, limited English proficiency, and disabilities.

¹⁶ Economic and Workforce Development, Education, Healthcare, Housing, and Infrastructure.

¹⁷ Commonwealth of Massachusetts. "Workforce Innovation and Opportunity Act (WIOA) Massachusetts Combined State Plan, 2023. <https://www.mass.gov/doc/fy2020-workforce-innovation-and-opportunity-act-wioa-massachusetts-combined-state-plan/download>

- Youth Career Paths: Improve career paths and job placement for youth aged 16 to 24.
- Business Growth: Help businesses grow by providing them with a diverse and skilled talent pool.
- System Modernization: Modernize the workforce system by leveraging technology for more efficient and effective services.

Statewide economic and workforce goals are supported by the following digital equity solutions produced in partnership with the Economic & Workforce Development Subgroup of the Working Group:

- Provide digital training and affordable access to technology to help adults facing employment challenges acquire essential skills needed in today's job market.
- Improving equitable access to the internet, internet-enabled devices, and digital training to equip youth with digital skills that are almost universally required in modern career paths.
- Making digital training and technology accessible and inclusive so that businesses benefit from a talent pool with a wider set of digital skills.
- Increased access to tech-enabled workforce systems such as virtual services (e.g., job searching, job fairs) improves accessibility and employment opportunities for populations lacking access.

Education

As highlighted by the COVID-19 pandemic, digital equity is central to educational equity as students and teachers were forced to continue schooling online. As students participate in virtual and hybrid classroom settings, access to a stable internet connection, devices, and digital literacy are essential to academic participation and success.

Multiple Commonwealth agencies are supporting initiatives to improve education in the state. The Department of Higher Education's Strategic Plan for Racial Equity defines an overarching goal of eliminating racial disparities in the Massachusetts' public higher education system.¹⁸ Separately, in May 2021, the Department of Elementary and Secondary Education released a guide on educational technology to advise education leaders and schools on sustaining progress in access and equity through intentional and strategic educational technology (edtech) planning and resource allocation.¹⁹ Additional Statewide goals for education that overlap with digital equity include:

- Develop connections to broad policy efforts focused on science, technology, engineering and mathematics (STEM) education from kindergarten through higher education.²⁰
- Identify, evaluate, and promote effective uses of edtech that serve to enhance student learning.²¹

¹⁸ "Effective Uses of EdTech - Office of Educational Technology (EdTech)." Accessed September 29, 2023. <https://www.doe.mass.edu/edtech/uses/default.html>.

¹⁹ "Effective Uses of EdTech - Office of Educational Technology (EdTech)." Accessed September 29, 2023. <https://www.doe.mass.edu/edtech/uses/default.html>.

²⁰ "Technology Talent Initiative Workforce Plan." Massachusetts Department of Higher Education, 2014. <https://www.mass.edu/bhe/lib/reports/2014-05-05DHETechnologyWorkforcePlan.pdf>.

²¹ "Office of Educational Technology (EdTech) - Massachusetts Department of Elementary and Secondary Education." Accessed October 27, 2023. <https://www.doe.mass.edu/edtech/>.

- Develop educational technology leaders throughout the Commonwealth.²²

Therefore, statewide education goals are supported by the following digital equity solutions produced in partnership with the Education Subgroup of the Working Group:

- Work with partners to assess current curriculum and update to include digital skills.
- Provide trainings to equip teachers with the digital skills they will need to assist their students.

Healthcare

Massachusetts is a national leader in healthcare provision and innovation. Digital equity plays a central role in its progress. Residents' ability to access doctors, care providers, their electronic health records, prescriptions, and other services and information digitally through telehealth are essential to health outcomes in the state. A home broadband connection, devices, and digital skills are a prerequisite to benefit from these tools.

According to the Massachusetts State Health Improvement Plan (SHIP), the Commonwealth should pursue an integrated public health and healthcare system. This includes goals like facilitating public health systems' transformation to achieve equity and accountability; preventing and reducing environmental risk factors (or hazards) in homes, schools, workplaces, and community environments to achieve better health and wellbeing; and improving health outcomes and reducing disparities in health outcomes across population groups²³

These statewide goals are supported by the following digital equity solutions produced in partnership with the Health Subgroup of the Working Group:

- Work with partners to establish a digital literacy question on the social determinants of health form and equip organizations to then address needs indicated on the form.
- Develop a digital skills training program for community health and direct-care workers for after they are hired.

Housing

The home is the default access point for broadband for a majority of people. As a result, MBI targets serving all broadband serviceable locations in the state and is close to meeting this target. The goal goes beyond ensuring that the *location* has access to ensuring that all *units* and *residents* do as well. This is especially important for residents of affordable housing. Affordable housing residents are more likely than others to also be members of one or more Covered Populations. Reliable, affordable, quality service for all homes, paired with digital devices, skills, and support for all residents, is crucial to supporting outcomes across all priority areas, and especially for affordable housing residents. This also applies to homeless shelters, transitional housing, and other residences that serve people experiencing housing instability.

Governor Healey's 2023 Annual Consolidated Plan sets the Commonwealth's overarching goal for all its housing and community development efforts as providing economic opportunity and a high quality of life for all Massachusetts residents.²⁴ The Healey-Driscoll Administration has focused on increasing economic growth and improving housing stability by funding neighborhood stabilization and transit-oriented development, climate-

²² "Effective Uses of EdTech - Office of Educational Technology (EdTech)." Accessed August 30, 2023. <https://www.doe.mass.edu/edtech/uses/default.html>.

²³ Massachusetts State Health Improvement Plan (SHIP).

²⁴ Commonwealth of Massachusetts. "Annual Consolidated Plan." Department of Housing and Community Development, 2023. <https://www.mass.gov/doc/draft-ffy-2023-hud-one-year-action-plan/download>.

resilient housing, revitalization, regional assistance, and rural- and small-town development. The Commonwealth's additional goals include:

- Promote Strong, Sustainable Communities: Strengthen communities throughout the Commonwealth through activities such as climate-resilient housing improvements and revitalization.
- Affordable Rental Housing: Preserve and create affordable rental housing options for low- and moderate-income residents.
- Reduce Homelessness: Target chronic and family homelessness through a housing-based approach, with a goal of completely eradicating homelessness.
- Fair Housing Access: Ensure full and fair access to housing for all Commonwealth residents.

The Commonwealth's housing goals are supported by the following digital equity solutions produced in partnership with the Housing Subgroup of the Working Group:

- Ensuring that affordable housing units are well-connected ensures that residents are not digitally isolated and can fully participate in the digital space.
- Creating public internet access in community centers, libraries, and public spaces can make sure that even those who cannot afford a private connection can access essential online services.
- Develop a comprehensive strategy for dealing with network operating costs in affordable housing
- Incorporate ACP into family self-sufficiency programs and other social services

Infrastructure

The 2022 Massachusetts Broadband Strategic Plan sets the stage for ongoing broadband infrastructure goals developed throughout the 2023 State Digital Equity planning process. The 2022 plan states the Commonwealth's goal to identify and address remaining coverage gaps in areas with low density and along town edges, acknowledging the inadequacy of current federal coverage data and the challenge of undisclosed unserved areas by service providers. To facilitate infrastructure investments using federal broadband funds, the Executive Office of Housing and Economic Development (EOED) and MBI planned a comprehensive data collection initiative, supported by a grant from the U.S. Economic Development Administration.²⁵

These goals are supported by the following digital equity solutions produced in partnership with the Infrastructure Subgroup of the Working Group:

- Understand and fulfill infrastructure needs in rural areas.
- Develop resiliency plans with municipalities to be prepared in the case of catastrophic events.

Overall, the state's current state of infrastructure and ongoing supportive actions are listed in the Broadband Equity Access and Deployment (BEAD) Program's Five-Year Action Plan and Initial Proposal, both posted on MBI's website.

2.3. Measurable Objectives

MBI is designing digital equity activities and grant programs around Measurable Objective areas defined in the Digital Equity Act. These include the following, among each Covered Population located in that state:

²⁵ Massachusetts Broadband Strategic Plan, 2022

1. Improve availability and affordability of broadband
2. Ensure access to affordable devices and tech support for those devices
3. Ensure access to digital skills and support
4. Help residents stay safe online
5. Improve access to government resources and programs online

While these are Measurable Objective areas, Measurable Objectives are the achievements within these digital equity areas by which the state will measure progress.

Below, the Plan introduces Measurable Objectives in each of these areas in response to gaps defined in Chapter 3 of the Plan. The activities laid out in Chapter 5 of this Plan are oriented around these same areas. This section groups key performance indicators (KPIs) by Measurable Outcome area and gap; Section 5.2.3 presents how the same KPIs correspond to each individual program that MBI proposes to address these gaps.

This Plan applies these categories to its organization of identified assets and needs, as laid out in Chapter 3, and further analyzes the experiences, needs, and assets serving the eight Covered Populations identified in the Digital Equity Act.

2.3.1. Broadband Availability and Affordability: Measurable Objectives

The measurable objectives below support all Massachusetts residents, including all Covered Populations.

Table 1: Broadband Affordability and Availability: Measurable Objectives

	Gap Defined in 3.2 Needs Assessment	Key Performance Indicators	Long-Term Intended Outcomes
1	While 99% of Massachusetts residents have high-speed internet, gaps remain, especially in rural areas.	<ul style="list-style-type: none"> • Share of residents that have availability of high-speed internet • Share of homes that are future-proofed to new technologies and higher speeds 	<ul style="list-style-type: none"> • All residents across the state have access to affordable, future-proof, high-speed internet with consistent quality of service • All affordable housing residents across the state have access to free or low-cost, future-proof, high speed internet with consistent quality of service
2	Cost is the most commonly cited reason for not having home internet service. Statewide, one in two survey respondents found it difficult to pay their internet bill.	<ul style="list-style-type: none"> • Share of residents who can afford the internet plan they need • Share of residents in existing affordable housing stock that can afford internet service • Share of residents enrolled in ACP or similar program 	
3	Only 72% of survey respondents statewide expressed that their home internet subscriptions met	<ul style="list-style-type: none"> • Share of residents that report their internet meeting 	

	<p>their needs. Focus group participants across the state shared their experiences of poor or inconsistent internet quality, particularly multi-family households, residents in rural communities, or in the Cape and Islands region.</p>	<p>quality of service needs</p> <ul style="list-style-type: none"> • Share of residents in existing affordable housing stock that have availability of reliable internet service • Share of cases where residents flag inadequate quality of service that are resolved 	
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2.3.2. Accessible Devices & Device Support: Measurable Objectives

Table 2: Accessible Devices & Device Support Measurable Objectives

	Gap Defined in 3.2 Needs Assessment	Key Performance Indicators Medium-Term Outcomes	Long-Term Intended Outcomes
1	<p>Residents express a need for low-cost laptops or desktop computers. Low-income residents, individuals with a language barrier and residents that identify as racial and ethnic minorities expressed being able to pay less for a device.</p>	<ul style="list-style-type: none"> • Number of devices distributed • Share of residents who have the devices they need, specifically residents with a language barrier and residents that identify as racial and ethnic minorities 	<ul style="list-style-type: none"> • Residents have consistent access to low-cost, high-quality, updated, accessible devices
2	<p>Residents need accessible devices, technical support using their devices, along with information about how to access these resources. This need was named among focus group participants with disabilities.</p>	<ul style="list-style-type: none"> • Number of devices distributed • Share of residents with accessible devices, specifically residents with disabilities • Share of residents engaging with device support services • Greater capacity for accessible device supportive service organizations 	
3	<p>Residents express a need for device sustainability over time, specifically</p>	<ul style="list-style-type: none"> • Number of devices distributed 	

	Aging individuals who expressed being concerned with upgrading technology and not being able to use the devices they were already familiar with.	<ul style="list-style-type: none"> Share of Aging individuals comfortable with adopting new versions of technology 	
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2.3.3. Digital Literacy: Measurable Objectives

Table 3: Digital Literacy Measurable Objectives

	Gap Defined in 3.2 Needs Assessment	Key Performance Indicators Medium-Term Outcomes	Long-Term Intended Outcomes
1	Residents express a need for more digital literacy training that is designed for their needs.	<ul style="list-style-type: none"> Share of residents who say they are confident in using the internet Share of residents in existing affordable housing stock that are confident using internet service Share of K-12 students with access to digital literacy skills Share of schools with an instructional technology coach Share of teachers that receive digital literacy training 	<ul style="list-style-type: none"> All residents are comfortable navigating digital spaces to meet their needs
2	Residents express a need for more access to digital literacy training and job skills, specifically for those interested in joining or participating in the Massachusetts job market, and those seeking healthcare, telehealth, or medical records.	<ul style="list-style-type: none"> Share of healthcare facilities that have access to digital literacy resources for patients Share of healthcare facilities that include a digital access question on their social determinants of health intake Share of residents participating in telehealth Increased workforce participation 	<ul style="list-style-type: none"> Improvement in health outcomes Higher rates of employment in Massachusetts

3	Residents express a need for consistent and sustainable resources and capacity building for digital literacy programs in public and community spaces, particularly libraries.	<ul style="list-style-type: none"> Increased support (monetary and capacity building) for public and community spaces, particularly libraries 	<ul style="list-style-type: none"> Libraries and public and community spaces function as accessible hubs for digital literacy learning
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2.3.4. Privacy & Cybersecurity: Measurable Objectives

Table 4: Privacy & Cybersecurity: Measurable Objectives

	Gap Defined in 3.2 Needs Assessment	Key Performance Indicators Medium-Term Outcomes	Long-Term Intended Outcomes
1	Residents from all backgrounds and regions report concerns about Internet safety, with 85% of survey respondents statewide citing this concern. Aging individuals across the state are highly concerned with Internet safety, specifically citing concerns about online scams or online hacking. Individuals with a Language Barrier were least likely to be aware of resources to protect their safety online.	<ul style="list-style-type: none"> Lower share of residents concerned about internet safety Increased awareness of internet safety guidance 	<ul style="list-style-type: none"> All residents feel safer online and understand internet safety guidance
2	Individuals with disabilities highlighted concerns about medical data breaches.		
3	Residents expressed concerns about youth safety online		

2.3.5. Accessibility of Essential Resources & Services: Measurable Objectives

Table 5: Accessibility of Essential Resources & Services: Measurable Objectives

	Gap Defined in 3.2 Needs Assessment	Key Performance Indicators Medium-Term Outcomes	Long-Term Intended Outcomes
1	Individuals with a language barrier and people with disabilities were less likely to find online government services to be accessible. During focus groups, residents with limited English express a need for more translation and language support for online public resources.	<ul style="list-style-type: none"> Share of residents who report using the internet to conduct job searches, access healthcare, engage civically, etc. 	<ul style="list-style-type: none"> All residents feel comfortable accessing essential resources and services
2	Residents with disabilities express a need for greater accessibility of online public resources		

3. Digital Equity in Massachusetts Today

3.1. Summary

The Digital Equity Act of 2021 presents an opportunity for the Massachusetts Broadband Institute to establish a robust understanding of the state of digital equity in the Commonwealth today and thoughtfully design future efforts to meet the need and the moment.

To do this, MBI built on publicly available data on broadband and digital equity and conducted a large-scale community engagement process that included a statewide survey, focus groups, and listening sessions in every region in the Commonwealth. MBI's community engagement approach and data analysis methodologies were informed by two engagement pillars: regional coverage and community-based engagement. Throughout, MBI conducted analysis by region and by each of the Covered Population categories to gain an in-depth understanding of the needs and barriers experienced in each subgroup within the Commonwealth.

This chapter is organized into three parts:

- **Assets supporting digital equity:** A summary of assets supporting digital equity in Massachusetts today and illustrating the contents of the Asset Inventory, an archive of plans, programs, organizations, and other efforts. The asset inventory will be essential in identifying ongoing programming and building organizational capacity for services supported by MBI.
- **Needs and barriers to achieving digital equity:** A synthesis of findings from the Statewide Digital Equity Survey, U.S. Census Bureau's data baseline, community-led focus groups with Covered Populations, and regional listening sessions across the state. Findings are organized statewide, then by Covered Population, then by region. There is intentional overlap across sections to ensure readers who wish to review findings for a specific Covered Population or region can access this information without referencing multiple sections within this chapter.
- **Digital equity gaps:** Based on the previous two sections, a synthesis of gaps sourced from the state's major digital equity needs, existing assets serving each need, and the activities to fill the remaining gaps. The identified gaps will drive the implementation of the Plan and inform [Chapter 5. Implementation](#).

3.1.1. Summary of Findings

Availability

- **Massachusetts has one of the highest levels of broadband** availability in the nation, **with 99% of households having the availability to connect via cable, fiber, or DSL service that meets broadband speed standards.**²⁶

²⁶ See MBI's website, <https://broadband.masstech.org/map-gallery>.

- **Rural towns have lower levels of broadband availability than other regions of the state**, particularly in the northern reaches of the **Berkshires, Connecticut River Valley, and the eastern Cape Cod and Islands regions**.

Quality of Service

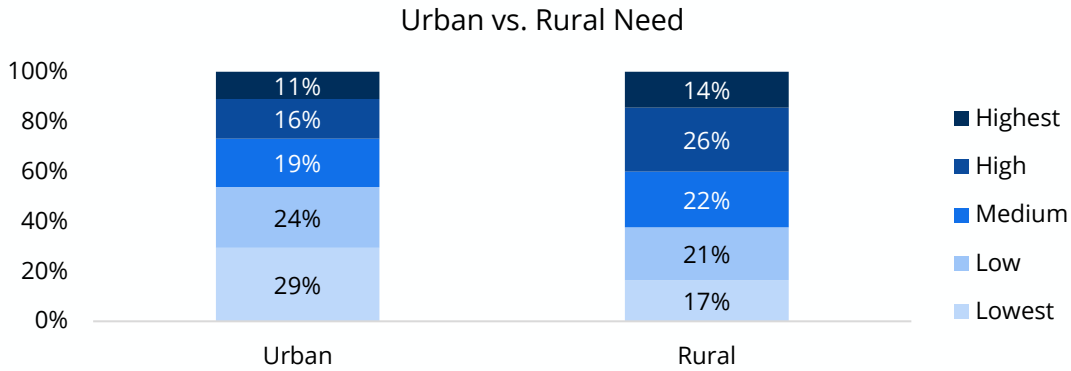
- **Residents who do have internet subscriptions experience poor internet quality.** Only 72% of survey respondents statewide expressed that their home internet subscriptions met their needs. Focus group participants across the state shared their experiences of poor or inconsistent internet quality, particularly multi-family households, residents in rural communities, or in public housing.
- In listening sessions throughout the state, **residents reported a lack of reliable internet quality.** Residents of the Cape & Islands and the Berkshires regions highlighted the impact of weather on service reliability, particularly for households connecting to the internet via satellite technologies.

Adoption

- **Statewide, 93% of survey respondents have a home internet subscription.** Adoption was lower for some Covered Populations, with less than 90% of individuals with a language barrier, low-income individuals, racial and ethnic minorities, and individuals with disabilities having internet subscriptions.
- **High internet subscription costs are the largest barrier that prevents MA residents from having broadband at home.** Statewide, one in two survey respondents found it difficult to pay their internet bill.
- **In listening sessions, residents shared concerns over installation costs, add-on fees, or the end of sign-up promotions** that obscure the true cost of internet subscriptions and create anxiety about the long-term affordability of internet plans.
- **Device access was the second largest barrier to having internet at home, with 15% of survey respondents sharing that they do not have sufficient devices to meet their households' needs.** Statewide, one in four respondents shared that they could afford to pay less than \$50 for a laptop or desktop computer. Residents expressed a need for low-cost laptops or desktop computers, especially for low-income residents, individuals with a language barrier and residents that identify as racial and ethnic minorities. Additionally, residents need devices that are easy to use, technical support to use their existing devices, and devices they can use over a longer period.
- **Residents expressed a need for digital literacy training that is catered to their learning preferences.** Statewide, survey respondents reported interest in a broad range of digital skills support, with do-it-yourself (DIY) training modules and online classes being the two most popular options. Libraries and community centers, the most popular location for accessing the internet for those without a home internet subscription, play a critical role in filling this gap.
- **Residents are concerned about internet safety, especially with regard to protecting themselves from having their data stolen, being scammed, or being the target of online surveillance.** Statewide, 86% of survey respondents are concerned about internet safety. Aging individuals across the State are highly concerned with internet safety, specifically citing concerns about online scams or online hacking; low-income residents shared concerns with safely conducting online transactions and online banking.
- **Online public resources are not accessible to all, especially those with language barriers and people with disabilities.** 87% of survey respondents statewide found online government services to be somewhat or very accessible. Individuals with disabilities, low-income individuals, racial and ethnic minorities, and individuals with a language barrier were more likely to find them inaccessible.
- **Over 592,000 residents in urban areas of the state are experiencing high barriers to broadband use compared to 231,000 residents in rural areas.** However, adjusting for population density, urban

residents were more likely to be well served by broadband, with 53% of residents in urban areas having low levels of barriers to broadband²⁷ compared to 38% of rural residents.

Figure 1: Percentage of Urban vs. Rural Residents by Availability, Affordability, and Adoption Need



3.2. Needs and Barriers to Achieving Digital Equity

3.2.1. Introduction

As the COVID-19 pandemic highlighted, Massachusetts continues to experience a digital divide disproportionately impacting some populations more than others. As residents sheltered in place and a range of everyday activities moved online, students in some communities struggled to keep up with coursework remotely due to not having sufficient devices; parents were faced with unreliable internet services, and low-income residents were pressured by the unaffordable costs of high-speed internet. In stakeholder engagement sessions, MBI heard detailed accounts of how residents across the Commonwealth struggled to keep up as many services went digital during the pandemic.

Historically marginalized communities felt these challenges more acutely in the Commonwealth due to residents’ race, ethnicity, immigration status, ability, and access to resources, among other factors. Poorer communities have poorer technology infrastructure and are often forced to continue relying on copper wires from legacy phone lines that deliver lower quality of service²⁸. This “digital redlining” mirrors historical redlining in housing that denied communities of color and low-income households equal opportunities.

As more aspects of everyday life depend on the internet and as online activity grows more sophisticated and demands higher speeds for full participation, the availability of broadband has a greater impact on quality of life than ever before. Listening session and focus group participants use the internet daily to access

²⁷ Levels of barriers refer to scores on MBI’s Availability, Affordability, and Adoption Index. Each level, from lowest to highest, is a quintile classification of this index score ranging from 0-100. For more information on how the scores are calculated, please refer to the methodology in section 3.2.5. and in the Appendix.

²⁸ Leon Yin and Aaron Sankin, “Dollars to Megabits, You May Be Paying 400 Times As Much As Your Neighbor for Internet Service”, <https://themarkup.org/still-loading/2022/10/19/dollars-to-megabits-you-may-be-paying-400-times-as-much-as-your-neighbor-for-internet-service>.

important needs such as healthcare, work, banking, and social connection. Additionally, gaps in programs providing skills training, affordable devices, and technical support have created an inequitable status quo with some communities feeling confident and able to navigate the internet while others are excluded from the benefits of participating in the digital world. Many historically marginalized communities that do not have internet access rely on public libraries and community centers to connect them.

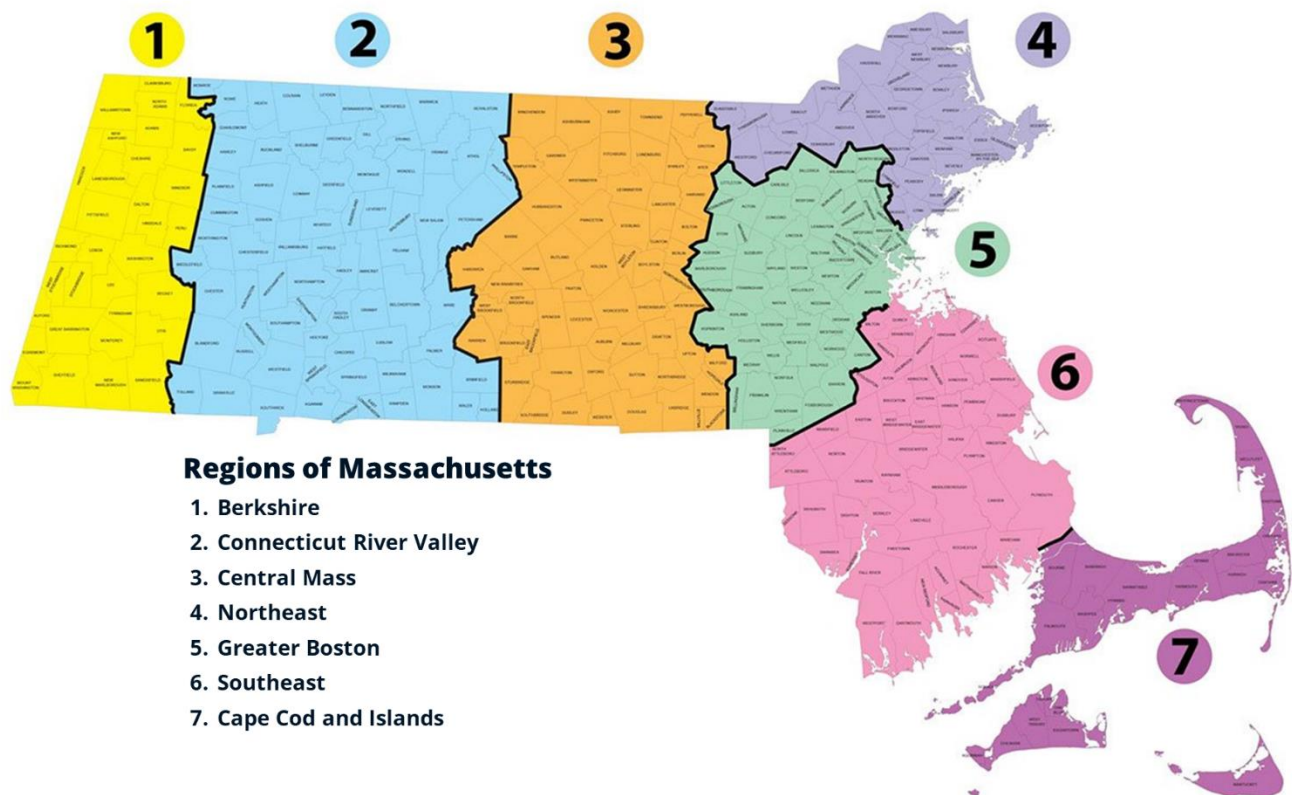
This section summarizes findings from MBI’s analysis of the current state of digital equity, with a special focus on communities that have been marginalized in previous investments and policy decisions and are experiencing the digital divide most acutely. Combined with findings from [Section 3.1 Assets Supporting Digital Equity in Massachusetts](#), MBI then identified gaps – areas where there are barriers to digital equity that are not being met by existing assets. These gaps informed the recommendations in the following chapter.

3.2.2. Methodology

Understanding unique needs by Region

To gain a granular understanding of local conditions in the Commonwealth, MBI analyzed the state of digital equity by geographic regions that divide the state into seven distinct areas. To define these regions, MBI used the MassHire Super Workforce Regions, currently used to conduct targeted programming by MassHire and other organizations. The regions are as follows: Berkshires, Connecticut River Valley, Central Mass, Northeast, Greater Boston, Southeast, Cape Cod and Islands.

Figure 2: Map of the seven regions of Massachusetts



Understanding unique needs by Covered Populations

To design effective strategies to advance digital equity for every resident in Massachusetts, MBI began by establishing an understanding of who is currently being most excluded from the benefits of high-speed internet.

MBI focused on the following groups of residents, which includes NTIA-defined Covered Populations as well as other groups of residents, to examine specific barriers they face:

- Aging individuals: 60 and older
- Low-income residents
- Veterans
- Individuals with disabilities
- Residents with language barriers (limited English or low levels of literacy)
- Racial and ethnic minorities
- Incarcerated individuals
- Residents of rural areas
- Indigenous and Native American persons
- Religious minorities
- Women
- LGBTQI+ individuals
- Residents adversely affected by persistent poverty or inequality

Data Collection Methods

MBI used publicly available datasets, a public survey, focus groups, and listening sessions to understand the current conditions of digital equity in Massachusetts.

Publicly Available Datasets

MBI used data from the American Community Survey (ACS), the Federal Communications Commission (FCC), and BroadbandNow to measure the extent to which residents can use high-quality, high-speed internet. A more detailed methodology is included in [Section 3.2.5 Regional Snapshots](#).

Statewide Digital Equity Survey

To hear from residents across the Commonwealth directly on their experience with high-speed internet, MBI launched a 41-question survey that mirrored the five Measurable Objectives defined by the Digital Equity Act statute and gathered demographic information to identify response from Covered Populations. MBI offered the survey in nine languages (English, Spanish, Portuguese, Chinese, Haitian Creole, Vietnamese, Russian, Arabic, and Khmer) and distributed via an online link and paper surveys over a period of three months. MBI partnered with community-based organizations, municipal consultants, regional planning agencies, and other local groups including educational institutions to distribute the survey across the Commonwealth. MBI received a total of 7,754 valid responses from residents. This large volume of responses enabled MBI to draw statistically significant conclusions for specific Covered Populations and regions. These findings informed subsequent sections of this chapter.

[Appendix 3.2.8.1](#) includes the survey instrument, the number of survey responses collected by region and by covered population, and details on the data cleaning, weighting, and analysis methodology.

Focus Groups

MBI also engaged residents and community leaders across Massachusetts through in-depth conversations to gather their perspectives. MBI contracted with 14 community-based organizations to host small-group conversations. Vinfen and MA Healthy Aging Collaborative also participated as Focus Group hosts outside of the CBO grant program. Hosted focus groups provided intimate settings for representatives from Covered Populations to share experiences specific to their communities. The information shared in these events was processed through a qualitative coding process that generated summary findings from each region and each covered population.

Covered Population	Number of Focus Groups	Number of Participants
Aging Individuals	2	20
Individuals who Live in Low-Income Households	5	68
Individual with Disabilities	5	46
Indigenous & Native American	2	23
Racial and Ethnic Minorities	1	13
Veterans	1	3
Justice-Involved Individuals	3	33
Individuals with a Language Barrier	3	43
LGBTQIA+ *	2	23
Women*	1	9
Rural Inhabitants	8	66

Listening Sessions

MBI conducted eight regional listening sessions to hear from the residents of each region of the Commonwealth. Each listening session included a presentation of the current state of digital equity in each region, then a combination of in-person and virtual breakout groups where a facilitator provided up to 25 residents with the opportunity to share how they think their digital and internet needs should be addressed. Listening sessions totaled around 317 participants.

Region	In-Person Listening Session Participants	Online Listening Session Participants
Berkshires	20	38
Connecticut River Valley	28	37
Central Mass	N/A	10
Northeast	17	8
Greater Boston	15	6
Southeast	50	20
Cape Cod and Islands	40	20
Rural Communities (all regions)	17	11

3.2.3. Statewide Digital Equity Overview

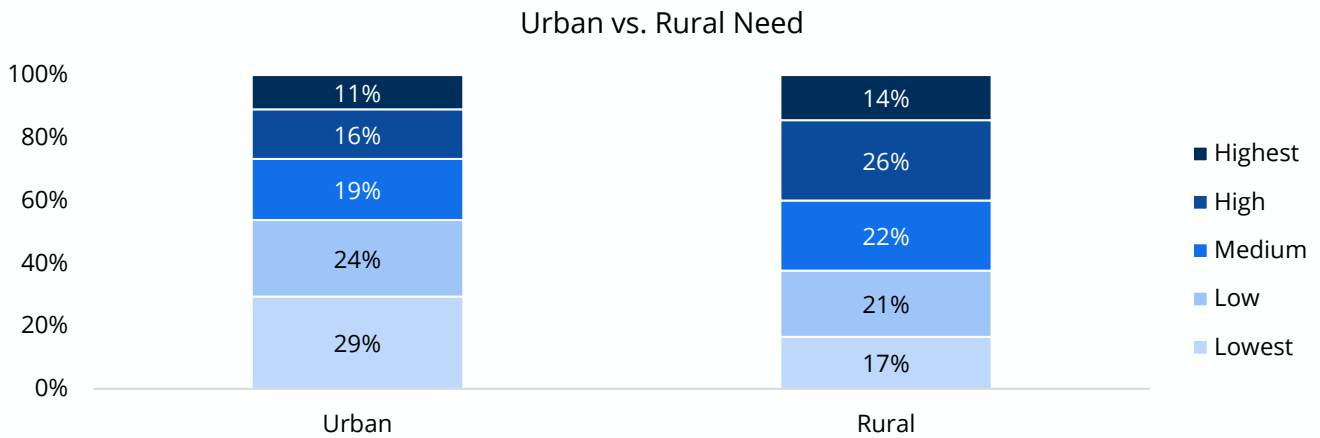
This section summarizes statewide findings from the data collection efforts described above. Findings are organized by the NTIA’s five Measurable Objective categories.

Understanding unique needs by location

MBI used the existing State Office of Rural Health’s definition of rural areas to designate municipalities as rural or urban.²⁹ We then analyzed availability, affordability, and adoption factors by municipality using the methodology detailed above and compared rural and urban towns across the Commonwealth.

Statewide, 592,000 residents in urban areas of the state are classified as experiencing the highest barriers to broadband compared to 230,800 residents in rural areas. Adjusting for the difference in population density, urban residents were more likely to be well-served by broadband, with 53% of residents in urban areas having low levels of barriers to broadband compared to 38% of rural residents.³⁰ However, the total number of urban residents experiencing barriers to affordability and adoption is more than twice that of rural communities.

Figure 3: Percentage of Urban vs. Rural Residents by Availability, Affordability, and Adoption Need



²⁹ See the Massachusetts State Office of Rural Health’s website, <https://www.mass.gov/info-details/state-office-of-rural-health-rural-definition>.

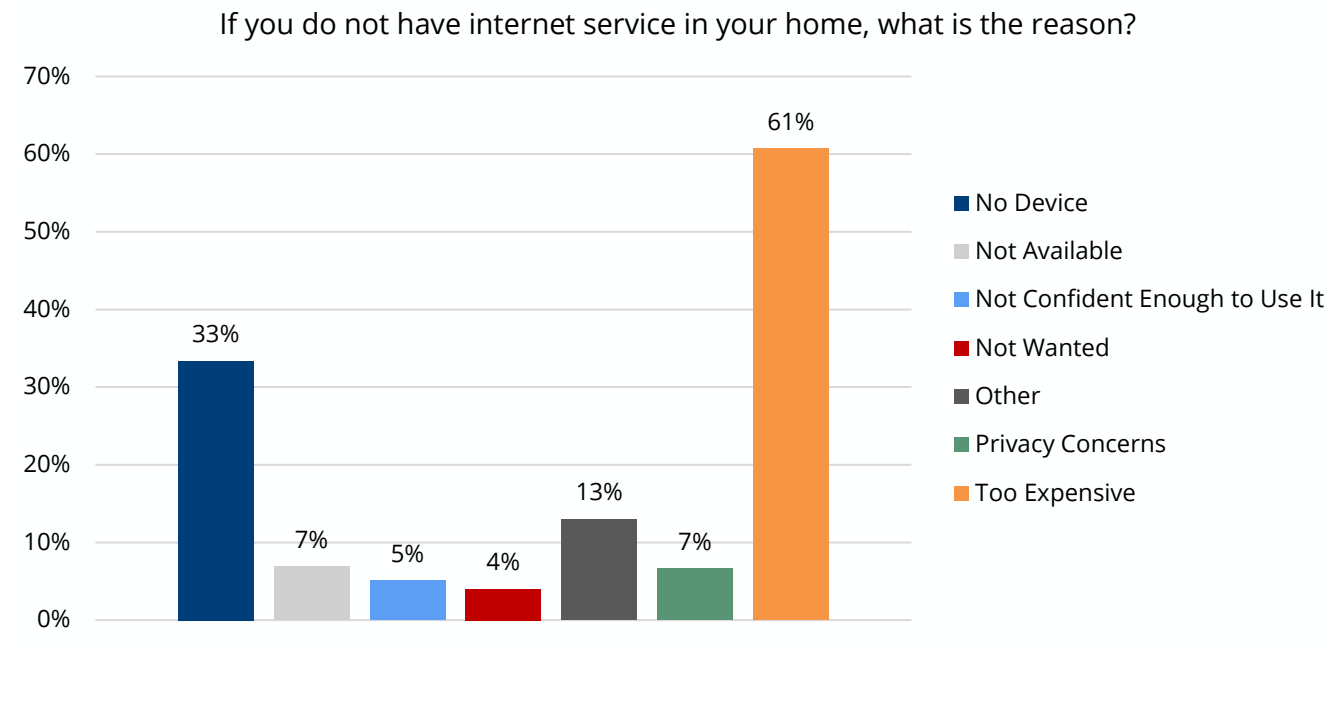
³⁰ Levels of barriers refer to scores on MBI’s Availability, Affordability, and Adoption Index. Each level, from lowest to highest, is a quintile classification of this index score ranging from 0-100. For more information on how the scores are calculated, please refer to the methodology in section 3.2.2.

Broadband Affordability & Availability

Availability

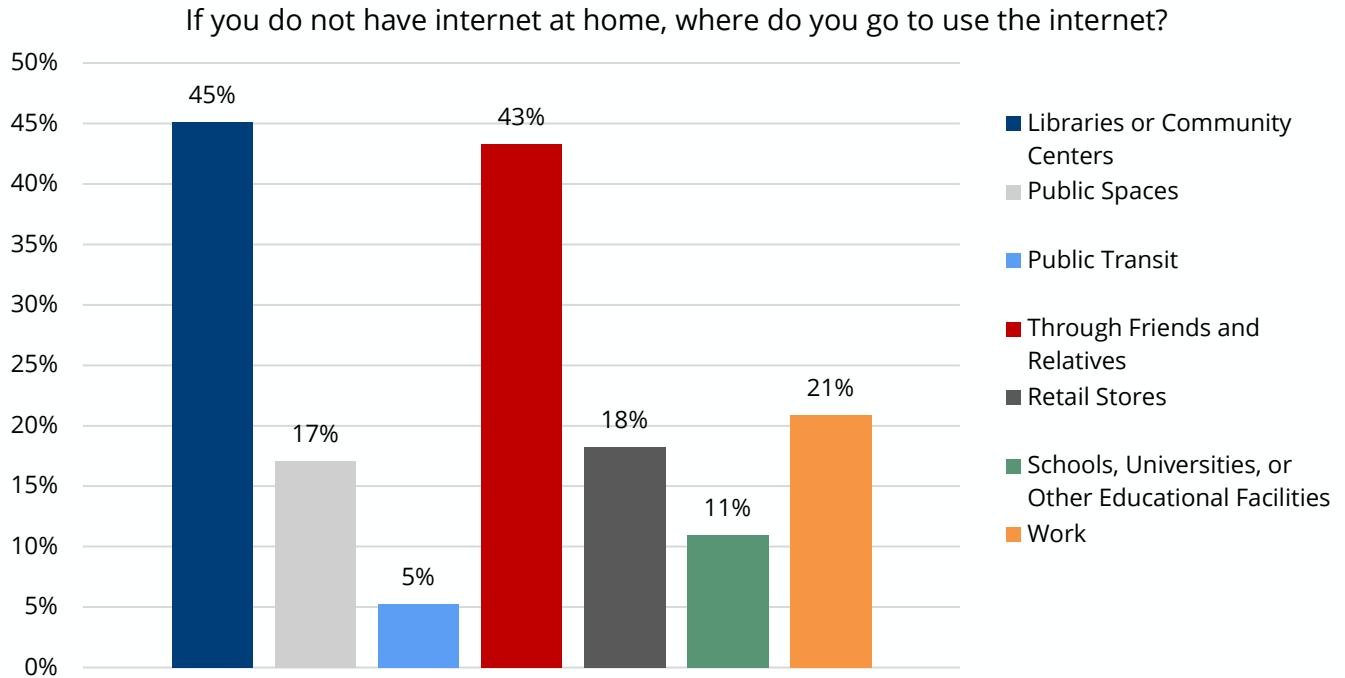
- **Massachusetts has one of the highest levels of broadband availability in the nation**, with 99% of households having access to cable, fiber, or DSL service that meets broadband speed standards.³¹
- While internet adoption is high at 93% for surveyed respondents statewide, 61% of those without internet subscriptions **cited cost as a reason for not having an internet subscription at home**. 33% of respondents cited a lack of devices as a reason for not having an internet subscription at home.
- **Residents with no internet at home cited libraries or community centers as their main location for accessing the internet** with 45% of respondents statewide selecting this option. 43% of respondents cited accessing the internet from a friend or family member's home.
- Despite the high adoption rates statewide, **only 72% of survey respondents with internet subscriptions shared that their home internet service is good enough to meet their households' needs**.
- **Listening session participants described that many faced issues with internet reliability**, particularly in regions with higher usage of satellite technologies for connectivity. In focus groups, participants highlighted the **negative effects that unreliability can have on their ability to attend online meetings, access telehealth, and otherwise participate in digital activities**.

Figure 4: Reasons for Lacking Home Internet Subscription



³¹ See: <https://mapping.massbroadband.org/map/>, Massachusetts Broadband Institute.

Figure 5: Access Locations for Internet Outside of the Home



Affordability

- **Statewide, the median price for monthly internet service among survey respondents is \$75.** Additional pricing information is available at the regional level in [Section 3.2.5. Regional Snapshots](#).
- **Statewide, higher-income households were more likely to have internet subscriptions.** For households earning less than \$20,000 a year, only 68% have broadband subscriptions, while for households earning greater than \$75,000 a year, 97% of households subscribe to broadband service³².
- **52% of survey respondents shared that it was either somewhat hard or very hard to pay their internet bill.**
- Despite cost being the largest barrier statewide for households without home internet subscriptions, **only 50% of statewide respondents were aware of the Affordable Connectivity Program (ACP).**

³² American Community Survey (ACS) 2017-2021 5-Year Estimates

- **Residents who are aware of the ACP still face challenges navigating this program successfully.** Many focus group participants shared that they were either unaware of ACP or looking for further information and support navigating the program.

Affordability and Market Competition in Massachusetts

Residents perceive that a lack of competition in parts of Massachusetts contributes to higher service costs and lower service quality. MBI has heard consistently from residents across the state who live in areas with limited or no competition that they face challenges affording a high-speed internet subscription and that they experience quality issues in their service. A case in point is the Cape and Islands region. In this area, the vast majority of residents only have one option for internet service. In the listening sessions and focus groups we held in the region, we heard that “in the Cape there is a monopoly problem.”³³ Residents expressed difficulty in having ISPs address internet service issues due to the lack of available alternative providers. MBI also heard that due to local and environmental conditions (e.g., disruptive weather, greater web traffic during the summer months as the region accommodates visitors) service can be unreliable, with few or no backup or alternative solutions.³⁴ This is consistent with what we heard elsewhere in the state. For example, residents from the Connecticut River Valley cited challenges with the ISP monopoly in the region, which residents believe keeps prices high.³⁵ The Southeast Regional listening session participants named similar concerns with experiencing only one expensive option for service.³⁶

Region	Average Lowest Broadband Price
Berkshire	\$68.50
Connecticut River Valley	\$72.00
Central Mass	\$58.50
Northeast	\$50.00
Greater Boston	\$42.00
Southeast	\$58.00
Cape Cod and Islands	\$79.50
Source: BroadbandNow: https://github.com/BroadbandNow/Open-Data .	

³³ Cape and Islands Listening Session, September 28, 20223

³⁴ Cape and Islands Listening Session, September 28, 20223

³⁵ Connecticut River Valley Listening Session, September 14, 2023

³⁶ Southeast Listening Session, September 7, 2023

The evidence MBI found in Massachusetts is consistent with findings from national analyses on the relationship between competition and prices.³⁷ MBI is committed to increasing competition to drive down service costs in Massachusetts to ensure that every resident has the speed and service they deserve. One of the steps that we will take after this Plan is published is to encourage competition among ISP where it is possible and economically feasible. We have 2 programs to accomplish this. The first is the Broadband Infrastructure Gap Networks Grant Program, a \$145 million allocation from the U.S. Department of the Treasury's Capital Projects Funds. MBI will direct these resources to address the critical digital needs of towns and cities, with a particular focus on communities with substantial low-income households and disadvantaged populations. MBI will fund the deployment of broadband infrastructure in areas that currently lack access to sufficient broadband internet service.³⁸ (MBI expects to allocate BEAD funding to close gaps as well.) This program will open opportunities for ISPs that are new to the market or growing to expand their service area to un- and underserved locations across the state. The second is our Residential Retrofit program, which will install fiber-to-the-unit connections in public and affordable housing units. This program will create a marketplace for both ISPs and housing owners to meet connection goals, encouraging incumbent and emergent ISPs to expand their service areas to affordable housing developments.

Accessibility of Devices & Device Support

- **Overall, 15% of survey respondents reported having insufficient devices at home to meet all the needs of their households.** In listening sessions, participants highlighted the challenges with keeping up with device developments and expressed concerns about the ability of all members of their community to match the pace of technological change.
- **Statewide, smartphones were the most popular device for accessing the internet, followed by laptops.** According to census data, 6% of households statewide rely solely on smartphones to connect to the internet.³⁹
- **One in four survey respondents shared that they could only afford to pay up to \$50 for a laptop or desktop computer.** 57% of respondents can pay for a laptop or desktop computer that costs at least \$250, while only 14% of respondents can afford a device exceeding \$1,000 in cost.

³⁷ See, for example: Jonathan Schwantes. "Broadband Pricing: What Consumer Reports Learned From 22,000 Internet Bills." November 2022: <https://advocacy.consumerreports.org/wp-content/uploads/2022/11/FINAL.report-broadband.november-17-2022-2.pdf>. Dan Mahoney and Greg Rafert. "Broadband Competition Helps to Drive Lower Prices and Faster Download Speeds for U.S. Residential Consumers." November 2016: https://www.analysisgroup.com/globalassets/content/insights/publishing/broadband_competition_report_november_2016.pdf. Kevin Taglang. "Broadband Prices are Soaring. Competition is the Answer." April 2021: <https://www.benton.org/blog/broadband-prices-are-soaring-competition-answer>.

³⁸ See Massachusetts Broadband Institute, Broadband Infrastructure Gap Networks Grant Program: <https://broadband.masstech.org/broadband-infrastructure-gap-networks-grant-program>.

³⁹ American Community Survey (ACS) 2017-2021 5-Year Estimates

- **For residents who own devices, there is a need for technical support to support them with their use of devices.** In focus groups, participants noted a lack of device support programming and a desire for more training resources.

Figure 6: Percent of Respondents By Device Used to Connect to the Internet

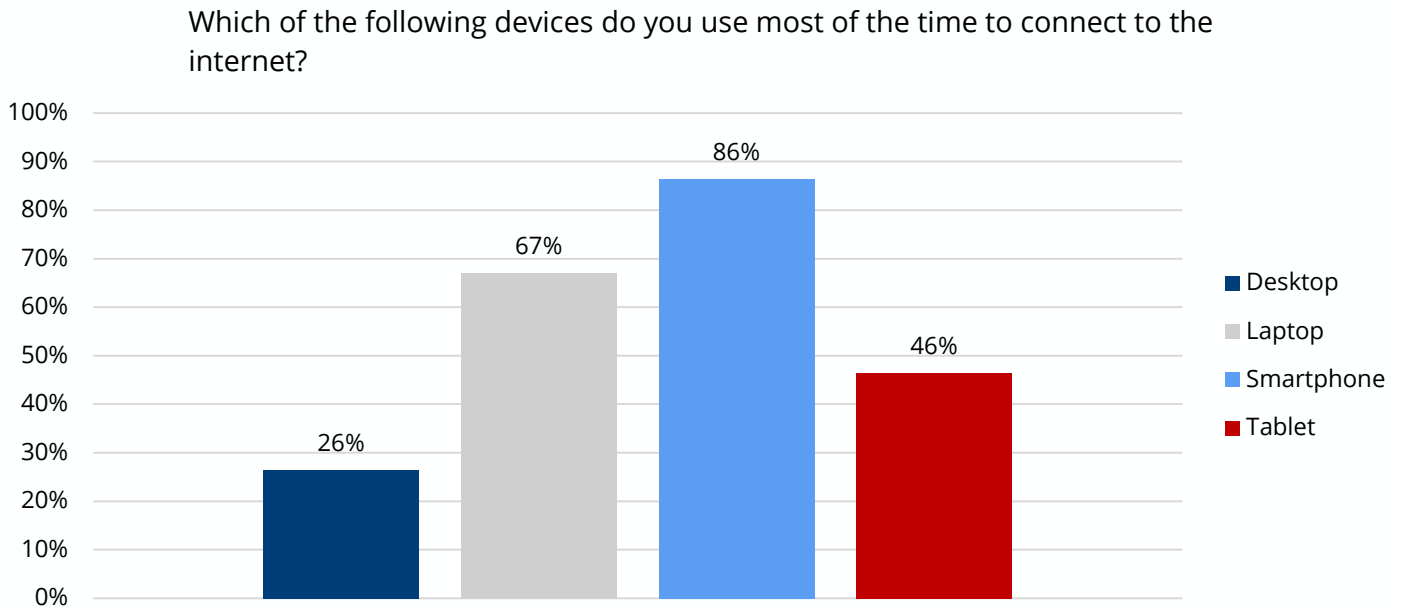
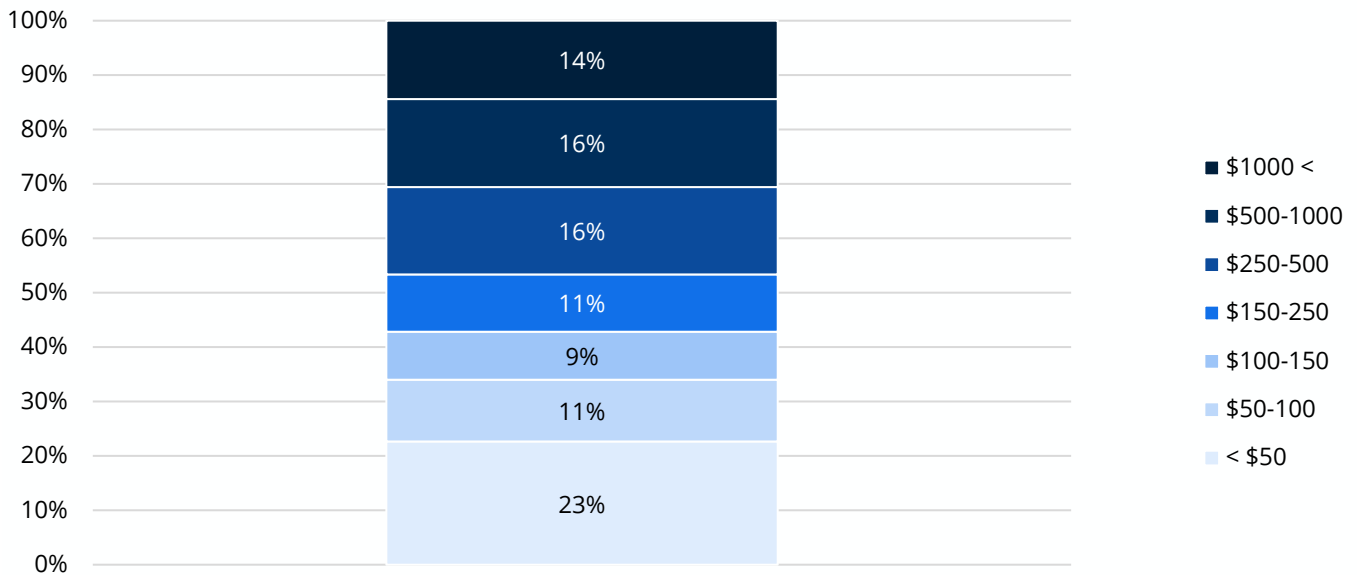


Figure 7: Percent of Respondents Able to Pay for a Laptop or Desktop Computer by Price Range

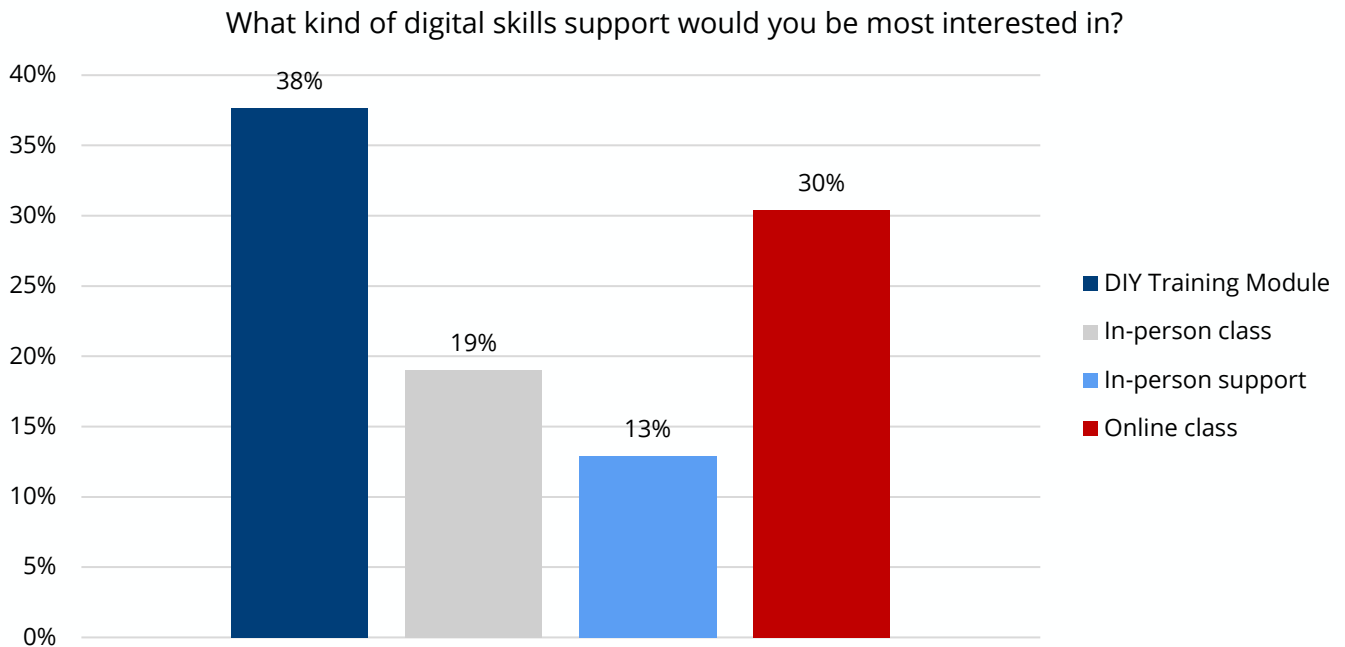
How much would you be able to pay for a laptop or desktop computer?



Digital Literacy

- **90% of survey respondents statewide reported being able to regularly use the internet for online activities.**
- Statewide, survey respondents reported interest in a broad range of digital skills support, **with do-it-yourself (DIY) training modules and online classes being the two most popular options.**
- **Focus group participants expressed frustration with a lack of digital skills and many relied on family and friends for help**, especially aging individuals. Participants called for more classes and opportunities to learn digital skills and effectively use the internet.

Figure 8: Percent of Respondents By Interest in Digital Skills Programming



Privacy & Cybersecurity

- **Statewide, 86% of survey respondents were somewhat or very concerned about internet safety.** Focus group participants shared their concerns with privacy and being targeted by online scams.
- **Fear of stolen data ranks highest in the causes for concern over internet safety statewide, with 91% of respondents citing this concern.** 70% of respondents are likewise concerned over online scams.⁴⁰
- **Statewide, 27% of respondents reported that they are unaware of ways to stay safe online.** An additional 5% citing that the tools or resources they know of are insufficient for their needs.

⁴⁰ Approximately 1,000 more people responded to the survey question “How concerned are you about internet safety?” than “What are you most concerned about?” This may indicate that residents are concerned but may not know what exactly to be concerned about. There may be a need for awareness training and support in order to avoid non-adoption based on general fears about being online.

Figure 9: Percent of Respondents By What Concerns Them Relating to Internet Safety

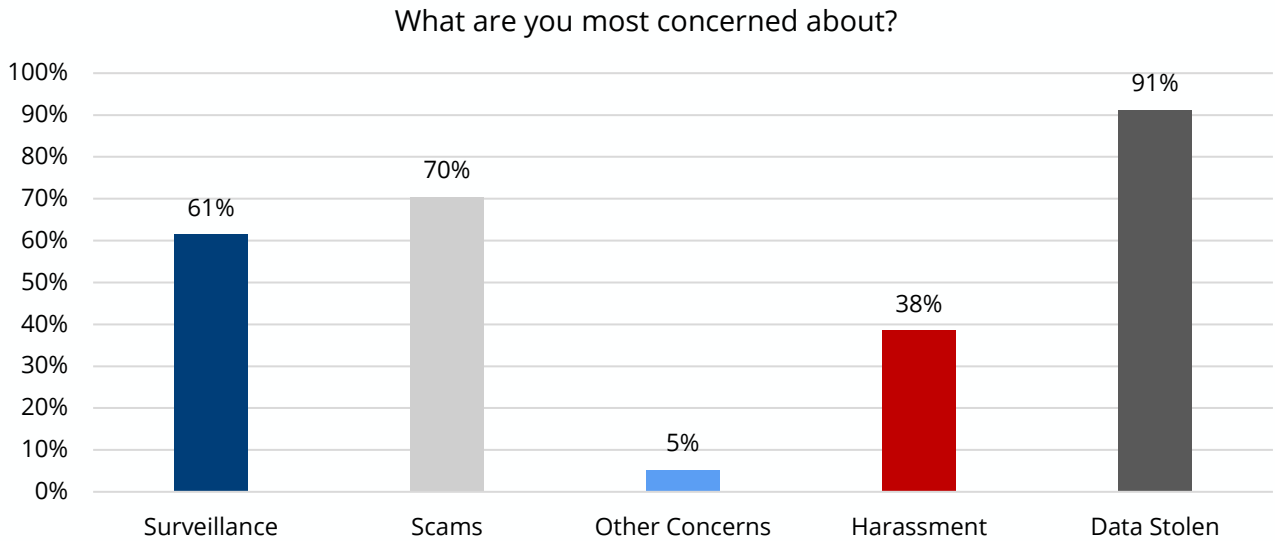
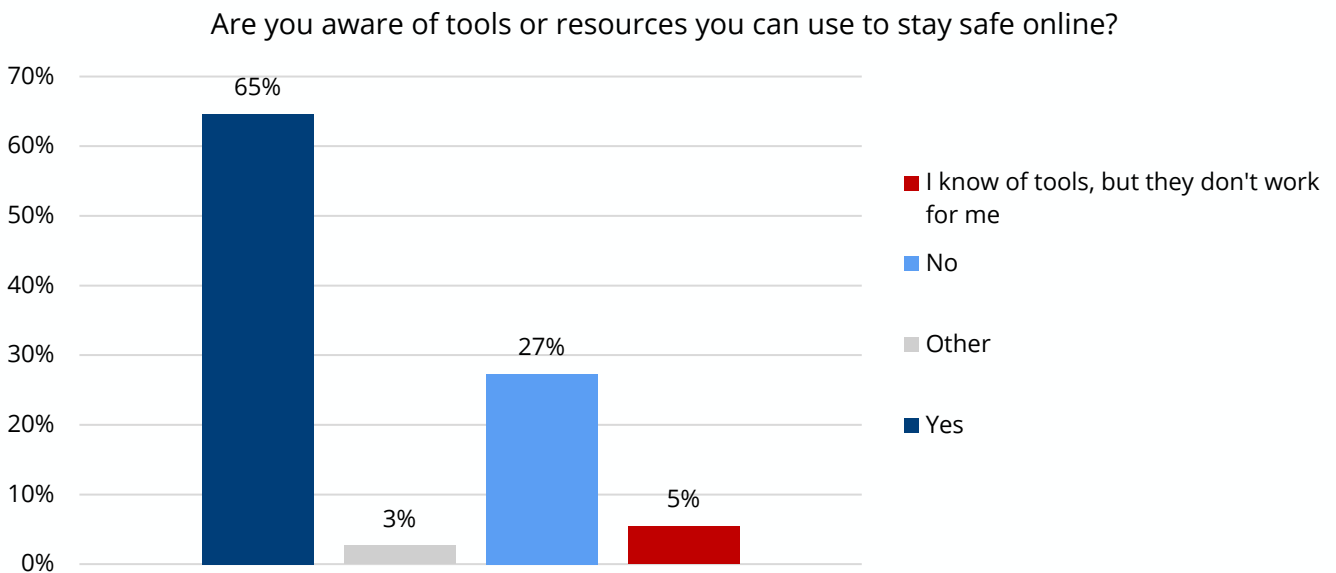


Figure 10: Percent of Respondents By Awareness of Tools and Resources Needed to Stay Safe Online



Accessibility & Inclusivity of Public Resources

- **87% of survey respondents statewide found online government services to be somewhat or very accessible.**
- Additionally, **85% of survey respondents reported poor performance while accessing online government services.**

- Focus group participants and survey respondents found it very difficult to navigate public resources online, citing difficulties with accessing health care and benefits online such as MassHealth.

3.2.4. Needs and Barriers by Covered Population

The following section illustrates population specific experiences of each Covered Population, highlighting their unique needs and barriers. We informed the needs and barriers through a range of data collected through the statewide survey, regional listening sessions, and small focus groups. Our survey findings show significant patterns and differences when comparing a given covered population’s responses to all other respondents.⁴¹ We use the terms “more likely” and “less likely” when describing statistically significant findings for covered populations compared to all other respondents.

The following table shows the covered population percentage for each region in Massachusetts and the statewide percentage highlighted in the bottom row.

Table 1: Covered Population Groups by Region (American Community Survey, 5-year estimates, 2017-2021)

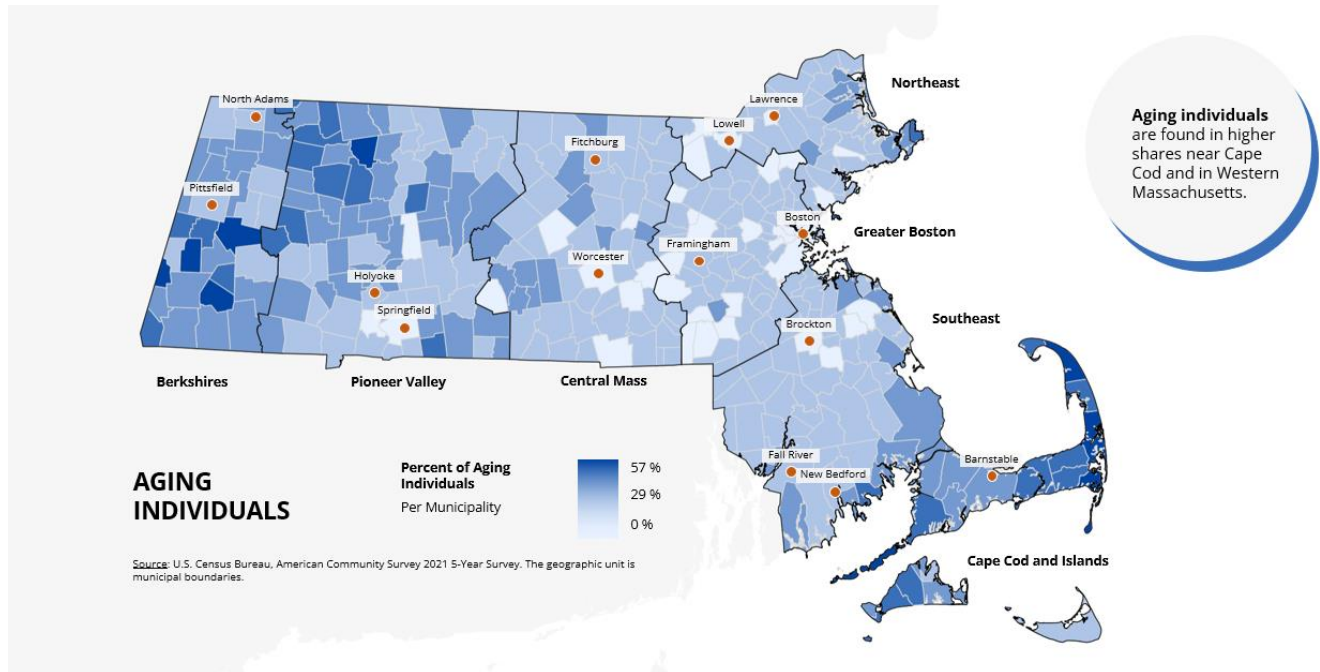
Region	Low-Income Households	Aging Individuals	Veterans	Individuals with Disabilities	Households with Language Barriers	Racial and Ethnic Minorities	Incarcerated Individuals	Rural Residents
Greater Boston	36%	20%	3%	10%	9%	33%	0.39%	1%
Southeast	36%	24%	5%	12%	5.0%	22%	0.36%	5%
Connecticut River Valley	54%	25%	5%	15%	5.6%	21%	0.26%	27%
Northeast	42%	23%	4%	12%	6.8%	25%	0.18%	3%
Cape Cod and Islands	29%	39%	7%	13%	1.7%	12%	0.05%	28%
Berkshires	40%	32%	6%	15%	0.7%	11%	0.15%	66%
Central Mass	39%	23%	5%	12%	4.9%	20%	0.00%	24%
State Total	39%	23%	4%	11%	6%	25%	<0%	10%

Aging Individuals

Aging individuals are defined as individuals 60 years or older. Statewide, **23% of Massachusetts residents fall into this category**, with Cape Cod and Islands region (39%) and Berkshire region (32%) having higher shares of aging individuals compared to the rest of the state.

⁴¹ All other respondents refers to respondents who are not part of a given covered population. For example, we compare aging individuals to non-aging individuals.

Figure 11: Map of Aging Individuals by municipality in Massachusetts (ACS, 5-year estimates, 2017-2021)

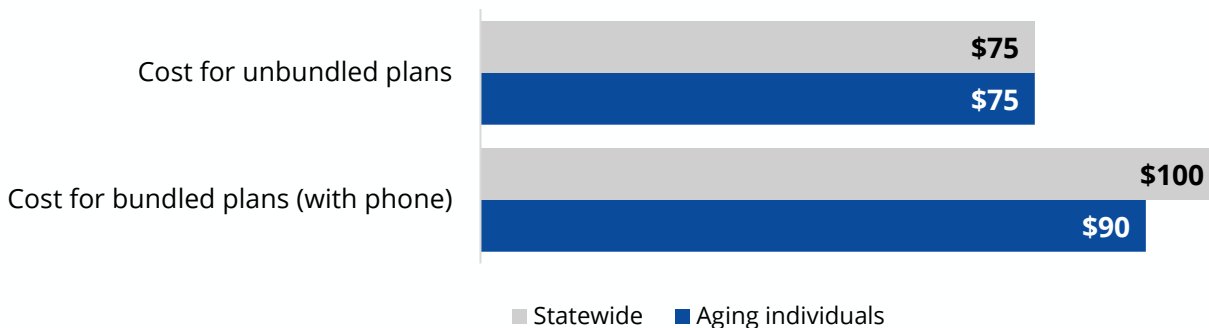


Broadband Availability & Affordability

83% Have broadband at home

50% Think it is hard to pay for internet.

On average, aging individuals pay **between \$75 to \$90** dollars per month for internet.



- Aging individuals surveyed were just as likely as the rest of the state to have internet service in their homes and **more likely to report that their home internet service met their households' needs.**
- On the other hand, among respondents who do not have internet service at home, aging individuals were also slightly **more likely to report not wanting to use the internet.** Focus group participants in the Northeast and Connecticut River Valley region shared that they had **difficulty with internet service being unpredictable and slow at times,** creating challenges to being online.

- Aging individuals were **less likely to have trouble paying their internet bill**, and those who do not have home internet subscriptions were less likely to cite internet cost as a barrier to subscribing. They were **more likely to be aware of the Affordable Connectivity Program (ACP)** compared to all other respondents and, in focus groups, some reported receiving subsidies through ACP and senior discounts through their service provider.

Device Availability and Affordability



73% Often use a smartphone



63% Often use a laptop

- Aging individuals surveyed were **more likely to have access to devices** that meet their everyday needs than all other respondents. They were **less likely to use a smartphone** than all other respondents.
- **While device availability was not a significant barrier for aging individuals who seek to be online, aging individuals' devices may be older** - focus group participants expressed concern over upgrading technology they are already familiar with. One participant shared that she turned down a tablet when offered because the devices she already owns can be overwhelming.

Digital Literacy

- Compared to all other respondents, aging individuals surveyed were **more likely to have difficulty searching or applying for benefits online and finding transportation information online**.
- **While many participants depend on family and friends for help with digital tasks, focus group participants expressed a desire to learn on their own.** Participants expressed that people helping them with a task are often “so busy” and “the world goes so fast now,” which leads to others doing the task for the aging individuals, instead of explaining how to do it. Participants want to learn tasks themselves, are frustrated, and need more opportunities to practice their skills.

Online Privacy & Cybersecurity

- Aging individuals surveyed were **more likely to be concerned with internet safety** than all other respondents. Aging individuals surveyed were most likely to be concerned specifically about having their data stolen, online scams, and surveillance, compared to all other respondents.
- Focus group participants mentioned how **people often target aging individuals in online scams, particularly on websites like Facebook**. Participants expressed concern about online scams, sharing stories of account hacks and scams targeting them, highlighting the prevalence of scams related to home repairs or computer support targeting aging individuals.
- While tools like two-factor authentication are important to keeping people safe online, some aging individuals found them **so difficult to navigate that they gave up using their devices or could not finish tasks**.

Online Accessibility & Inclusivity

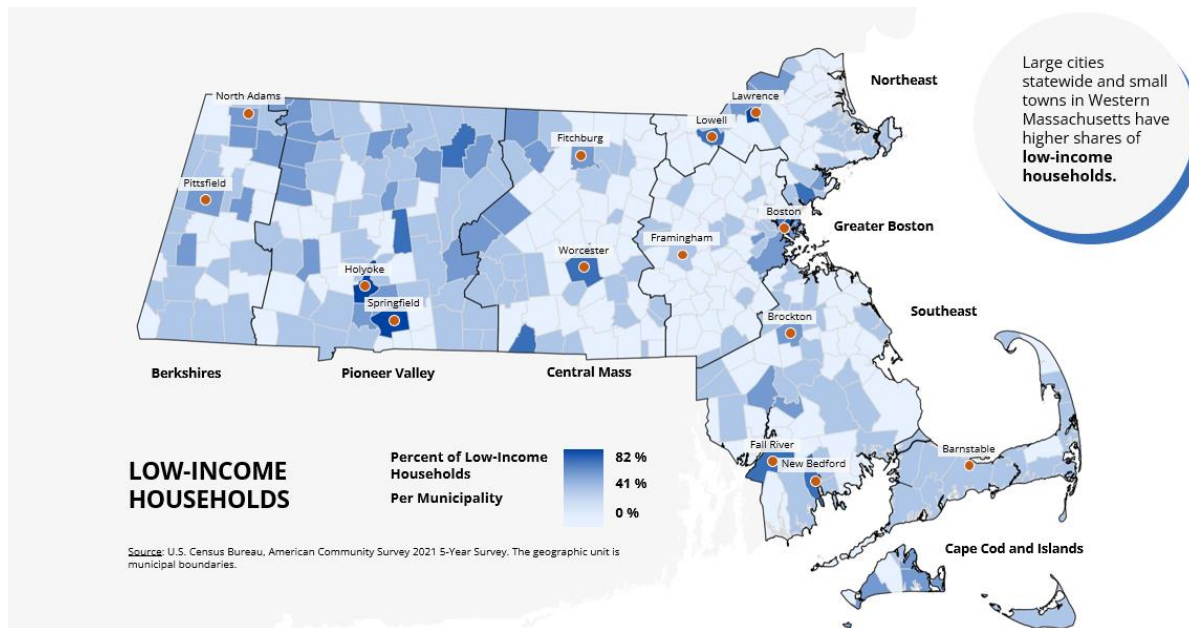
- Aging individuals surveyed were **more likely to report having difficulty navigating online government services** like benefits portals, RMV services, or paying for permits or tickets. Focus group participants expressed the need for more technical support when navigating public resources and services online such as RMV, vaccinations, telehealth, and the Medicare website.

Individuals Who Live in Low-Income Households

We define low-income households as households with incomes equal to or less than 150 percent (1.5 times) of the U.S. Census Bureau’s poverty threshold. **Statewide, 39% of households in Massachusetts are low-income. In the Connecticut River Valley region, 54% of the region’s households are low-income and 42% of households in the Northeast region are low-income.** Since the decline of manufacturing jobs, Gateway Cities are facing social and economic challenges with specific challenges rebuilding the economy and attracting investment. These cities are now regional centers where many low-income individuals live and work.

Low-income households are historically more likely than those with higher incomes to struggle with internet access, affordability, and device access. **Adults with lower incomes are less likely to have broadband services, desktop or laptop computers, and many are not tablet owners.** By comparison, each of these technologies is nearly universal among adults in households earning \$100,000 or more a year.⁴² **Disparities in online access contribute to problems such as the “homework gap”** – the gap between children in households without internet access and children who have internet access. Additionally, **individuals living in low-income households are more likely to rely on smartphones for internet access** compared to those with higher incomes, which forces them to do difficult tasks like searching and applying for jobs on a smartphone rather than a traditionally larger screen device.⁴³

Figure 12: Map of Low-income households by municipality in Massachusetts (ACS, 5-year estimates, 2017-2021)



⁴² Vogels, Emily a. “Digital Divide Persists Even as Americans with Lower Incomes Make Gains in Tech Adoption.” Pew Research Center (blog). Accessed November 2, 2023. <https://www.pewresearch.org/short-reads/2021/06/22/digital-divide-persists-even-as-americans-with-lower-incomes-make-gains-in-tech-adoption/>.

⁴³ Ibid.

Broadband Availability & Affordability

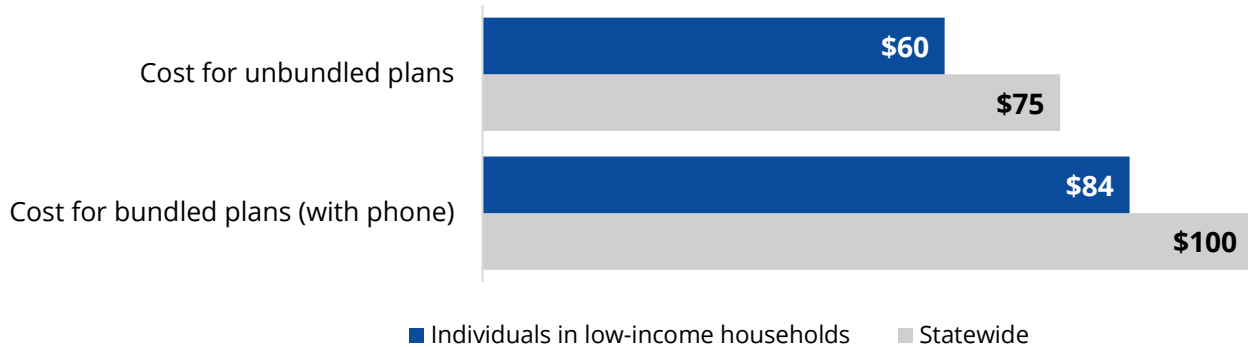


70% Have broadband at home



71% Think it is hard to pay for internet.

On average, individuals in low-income households pay **between \$60 to \$84** dollars per month for internet.



- Low-income individuals surveyed were **less likely to have high speed broadband internet at home** than all other respondents.
- Among those who do not have internet service at home, low-income individuals were **more likely to cite internet cost as a barrier to subscribing**. 71% of low-income individuals surveyed reported they had difficulty paying for their internet bill compared to 52% statewide.
- To keep costs low, **low-income focus group participants reported choosing more basic plans** and sharing costs. One woman shared how her unlimited data plan is now \$65 when it used to be less, and companies are price-gouging. She said better internet or data plans correlate to higher-speed internet. Another young woman said that her roommate has the internet service under her name and so she just pays part of the bill.

Device Availability and Affordability



86% Often use a smartphone



55% Often use a laptop

- Low-income individuals surveyed were **less likely to have sufficient devices** than all other respondents and **less likely to have a desktop or laptop computer**.
- For low-income individuals, **cost is a major barrier to device access**. 41% of low-income individuals surveyed said they would be able to pay \$0 to \$50 for a laptop or desktop computer - focus group participants primarily used smartphones but reported that **relying on smartphones for internet access can be expensive and limiting because of data plans and data caps**.

- Focus group participants also shared how **smartphones limited their ability to complete more complex activities online, such as uploading documents to healthcare portals.**

Digital Literacy

- Low-income individuals surveyed were **more likely to have difficulty with digital skills of all types**, including general internet searching, accessing healthcare online, and searching or applying for benefits online. Low-income individuals had **the most difficulty with searching and applying for jobs online.**
- Focus group participants shared how they **relied on family or friends who were more tech savvy** when they had challenges using the internet.

Online Privacy & Cybersecurity

- Low-income individuals surveyed were just as likely as other respondents to be concerned with their safety online. However, when asked what they were most concerned about, low-income individuals were **more likely to report being specifically concerned about online harassment and online scams.**
- In focus groups, online shopping and online banking were large sources of concern. Focus group participants shared **experiences with unauthorized transactions through debit and credit cards** causing them to be nervous about buying products online and online banking. One woman shared how mother, who is not “internet savvy,” fell for a scam for a vacation, gave her card information to the scammer, and her account was cleared out.

Online Accessibility & Inclusivity

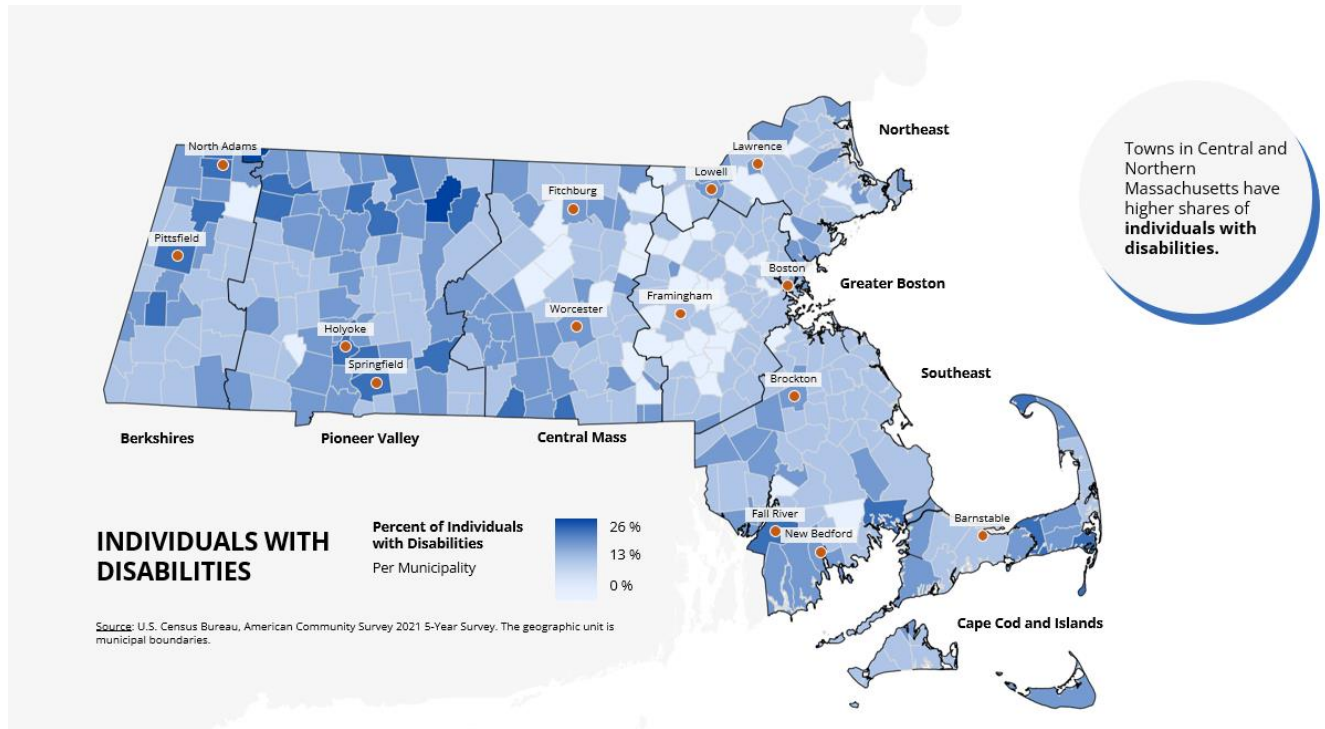
- Low-income individuals surveyed were **less likely to find public services accessible** and **more likely to have difficulty with government services** such as benefits portals and RMV services, compared to all other respondents.
- Focus group participants were **frustrated with public benefit websites, which can be difficult to navigate if you do not have sufficient devices, information, or access to the internet.** For instance, one woman recalled needing to send a doctor's note to her work so she could excuse a sick day but **could not access or upload her healthcare documents online because she did not have internet access.**

Individuals with Disabilities


The U.S. Census Bureau defines people with disabilities as those with serious difficulty with four basic areas of functioning: hearing, vision, cognition, and ambulation (movement).⁴⁴ **Statewide, individuals with disabilities account for 11% of the population.** In both the Connecticut River Valley region and Berkshire region, individuals with disabilities make up 15% of the region's population.


⁴⁴ “American Community Survey and Puerto Rico Community Survey 2021 Subject Definitions,” n.d. https://www2.census.gov/programs-surveys/acs/tech_docs/subject_definitions/2021_ACSSubjectDefinitions.pdf.

Figure 13: Map of individuals with disabilities by municipality in Massachusetts (ACS, 5-year estimates, 2017-2021)

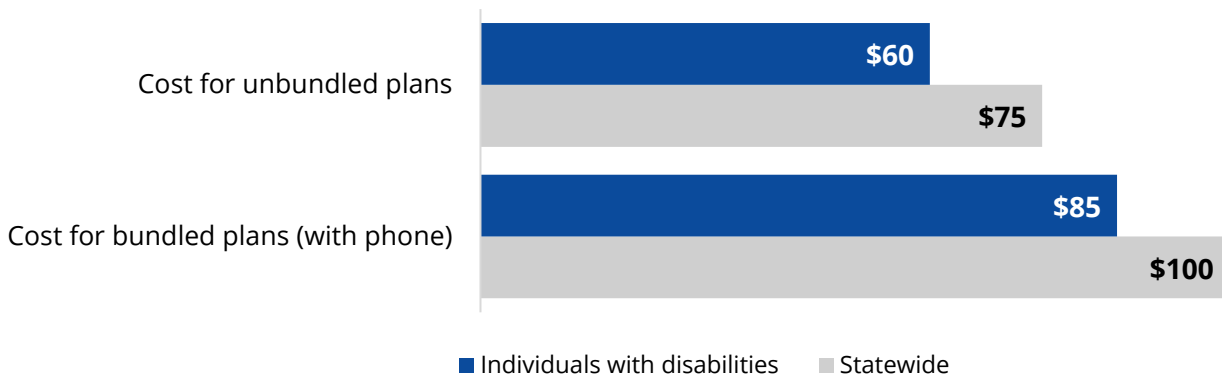


Broadband Availability & Affordability

 **81%** Have broadband at home

 **66%** Think it is hard to pay for internet.

On average, individuals with disabilities pay **between \$60 to \$85** dollars per month for internet.



- Individuals with disabilities surveyed were **less likely to have internet at home** when compared all other respondents.
- Among those without internet service, individuals with disabilities were **more likely to cite a lack of devices and internet cost as barriers to subscribing.**

- 66% of individuals with disabilities surveyed said it was difficult to pay for their internet bill vs 52% statewide - focus group participants reported **sharing internet plans with neighbors and choosing basic or limited packages to save money**. One participant said residents in a multi-family building take turns getting internet and then sharing log-in information with each other to make the internet more affordable.
- Compared to all other respondents, individuals with disabilities surveyed were the **most likely to be aware of the ACP program**. 66% of individuals with disabilities surveyed said they were aware of ACP.

Device Availability and Affordability



85% Often use a smartphone



56% Often use a laptop

- Compared to all other respondents, individuals with disabilities surveyed were **less likely to have sufficient devices that meet their needs** - focus group participants reported **difficulty finding information about device services**.
- Individuals with disabilities surveyed were **more likely to have a lower budget for buying devices**. 38% of individuals with disabilities surveyed said they would be able to pay up to \$50 for a laptop or desktop - focus group participants highlighted the **extra cost of accessible technology when using the internet**.
- Additionally, participants reported that help for newer technology is not always available or accessible for languages and disability needs. For example, one participant said that **cellphones are almost impossible for typing for people with hand tremors and hand eye coordination difficulty**. They said that having the ability to use speech to text feature helps but is not perfect.

Digital Literacy

- Individuals with disabilities surveyed were **more likely to have difficulty across all categories of digital skills** besides general internet searching. One focus group participant **said “it is hard to be confident” using the internet when “most of the internet is inaccessible”** to those with disabilities like vision and hearing impairment, tremors and other hand-eye coordination challenges, and cognitive processing challenges.
- Among those without regular access to the internet, individuals with disabilities surveyed were **more likely to want the internet for healthcare services** and **more likely to want to search and apply for benefits**.

Online Privacy & Cybersecurity

- Individuals with disabilities surveyed were **more likely to be concerned about internet safety**. When asked what they were most concerned about, individuals with disabilities were **more likely to be concerned about having their data stolen and online surveillance**, compared to all other respondents.
- All participants in one focus group voiced concern over their safety on the internet. Participants specifically highlighted how **incidents of medical data breaches caused concern over privacy and safety**. For instance, a participant shared how hackers **stole medical records and data from hospitals**, which caused concern over the security of their data.

- Participants also expressed **concern with financial scams, including unauthorized bank transactions,** and using debit cards online. One participant said a scammer had made thousands of dollars' worth of unauthorized purchases from his bank account and it took him weeks to get the money back. He said he will not save his debit cards online because he believes scammers got access to his card through a retailer's website.

Online Accessibility & Inclusivity

- Like low-income individuals, individuals with disabilities were **less likely to find public services accessible** than all other respondents and **most likely to have difficulty with online government services.** Focus group participants highlighted website inaccessibility, especially for the visually impaired. For instance, a blind woman could not access online healthcare resources. The blind woman reported that the local hospital has an online portal for personal health care information, but she is **unable to access the portal because of her visual limitations.**

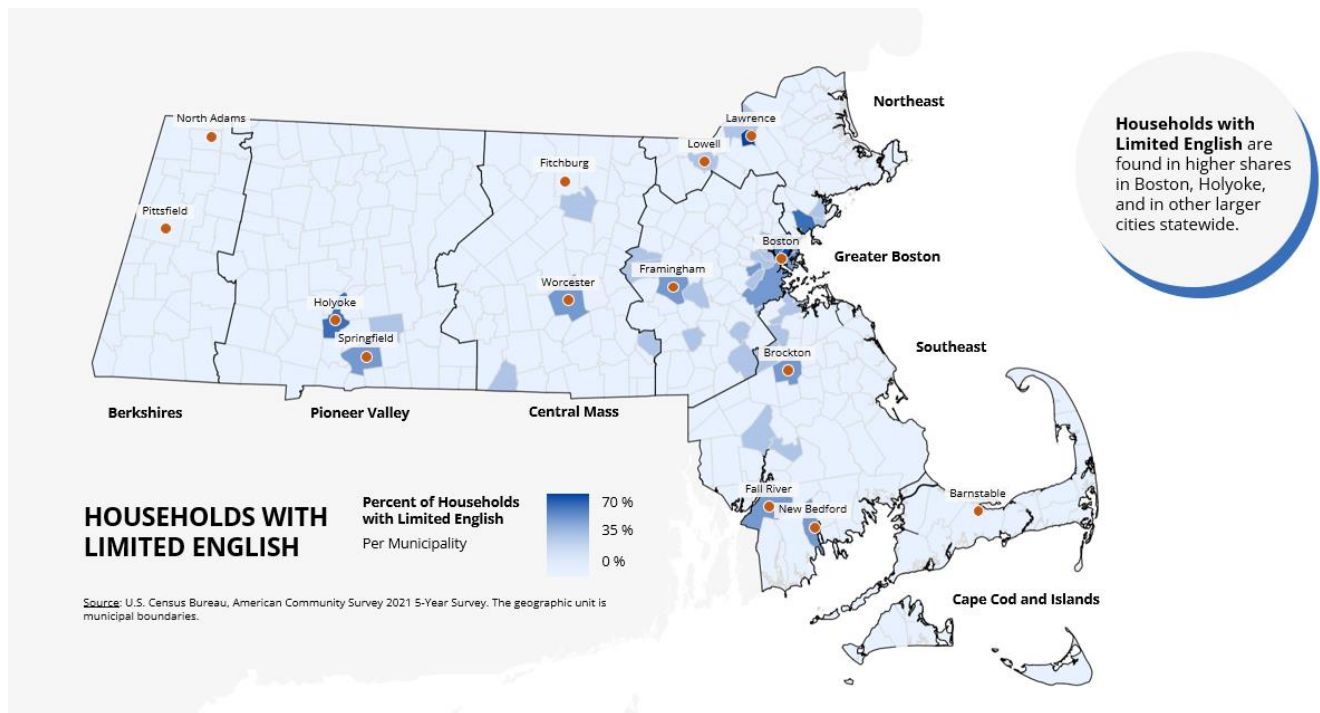
Individuals with Language Barriers

Individuals with language barriers refers to individuals who are English learners (e.g., English is not their first language) and/or who have low levels of literacy. **Statewide, limited English households account for 2% of the population.** In the Greater Boston region, limited English households compose 8% of the region and in the Northeast region, limited English households account for 7% of the region. Massachusetts is also home to many immigrants and refugees who are clustered in Gateway cities. For instance, Chelsea Massachusetts saw an influx of hundreds of immigrants from Haiti, Central and South America just this year.⁴⁵ **Immigrants and refugees can struggle to access vital information and services due to barriers around language accessibility, internet access, and device access.**⁴⁶

⁴⁵ Rojo, Carla. "Hundreds of Immigrants Arriving in Chelsea." NBC Boston (blog), July 7, 2023. <https://www.nbcboston.com/news/local/hundreds-of-immigrants-arriving-in-chelsea/3084621/>.

⁴⁶ MassINC. "Closing Language Barriers and the Digital Divide in Gateway Cities." MassINC, May 7, 2020. <https://massinc.org/2020/05/07/closing-language-barriers-and-the-digital-divide-in-gateway-cities/>.

Figure 14: Map of households who reported they have limited English language ability (ACS, 5-year estimates, 2017-2021)

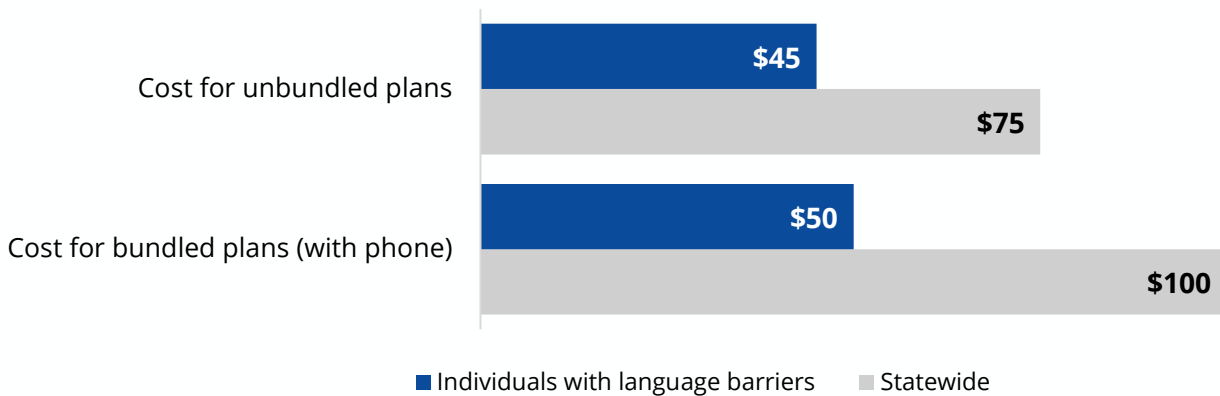


Broadband Availability & Affordability

40% Have broadband at home

56% Think it is hard to pay for internet.

On average, individuals with language barriers pay **between \$45 to \$50** dollars per month for internet.



- Individuals with language barriers surveyed were **least likely to have broadband internet at home** than all other respondents and **less likely to be able to regularly use the internet**. One focus group

participant who struggled with regular internet access shared how they **use resources like the Center for New Americans to access quality internet.**

- Among those who do not have internet service, individuals with language barriers were **more likely to say internet service reliability was a barrier to subscribing.**
- According to the survey, cost was not a significant barrier for individuals with language barriers. In fact, individuals with language barriers were **less likely to say cost is a barrier to subscribing to the internet** and their internet costs are also comparatively lower. One reason for this may be due to reliance on smartphones and data plans, which can be cheaper than home internet service.
- Individuals with language barriers were the **least likely group to be aware of ACP.**

Device Availability and Affordability



86% Often use a smartphone



32% Often use a laptop

- Individuals with language barriers surveyed were **least likely to have sufficient devices.** They were also **least likely to have a desktop, laptop, or tablet** compared to all other respondents - focus group participants noted that smartphones and tablets were not sufficient to meet family needs. For instance, the majority of focus group participants primarily used smartphones, but specifically said it **was not sufficient for their family who had to complete daily tasks like doing homework.**
- Individuals with language barriers surveyed were **less likely to have a large budget for buying devices.** 46% of individuals with language barriers surveyed said they would pay up to \$50 dollars for a laptop or desktop computer - focus group participants also cited cost as a barrier to devices. One participant said it was hard to afford internet on his phone and wished he could apply ACP benefits to his phone.

Digital Literacy

- Individuals with language barriers surveyed were **more likely to have difficulty across all categories of digital skills.** Compared to all other respondents, individuals with language barriers were most likely to have **difficulty searching and applying for jobs online, accessing healthcare or telehealth, and participating in the local community.**
- Focus group participants called for access to more classes and some participants cited trouble with job searching, applying for benefits online, and scheduling doctors' appointments.

Online Privacy & Cybersecurity

- Individuals with language barriers surveyed were on par with the rest of the state in their concerns over internet safety. However, focus group participants were specifically **concerned about online scams.** Participants shared experiences and anecdotes about scams and how people have their credit card information stolen. One participant shared how **they receive online messages daily asking specifically for their phone number, banking information, and credit card number.**

Online Accessibility & Inclusivity

- Individuals with language barriers surveyed were **more likely to say that public services are inaccessible** - focus group participants were frustrated navigating government websites. One participant

wanted a **centralized document about where to get help for lawyers, how to get documents (statewide or federal), how to pay bills, what organizations can help people.**

- Focus group participants also **cited language barriers when calling for technical support or accessing digital services.** Some participants turned to community centers or family members for support navigating government services. For instance, one **participant struggled understanding translations for a driver’s license test,** saying that it “ends up being easier to study and take [the] driver’s license test in English.”

Racial and Ethnic Minorities

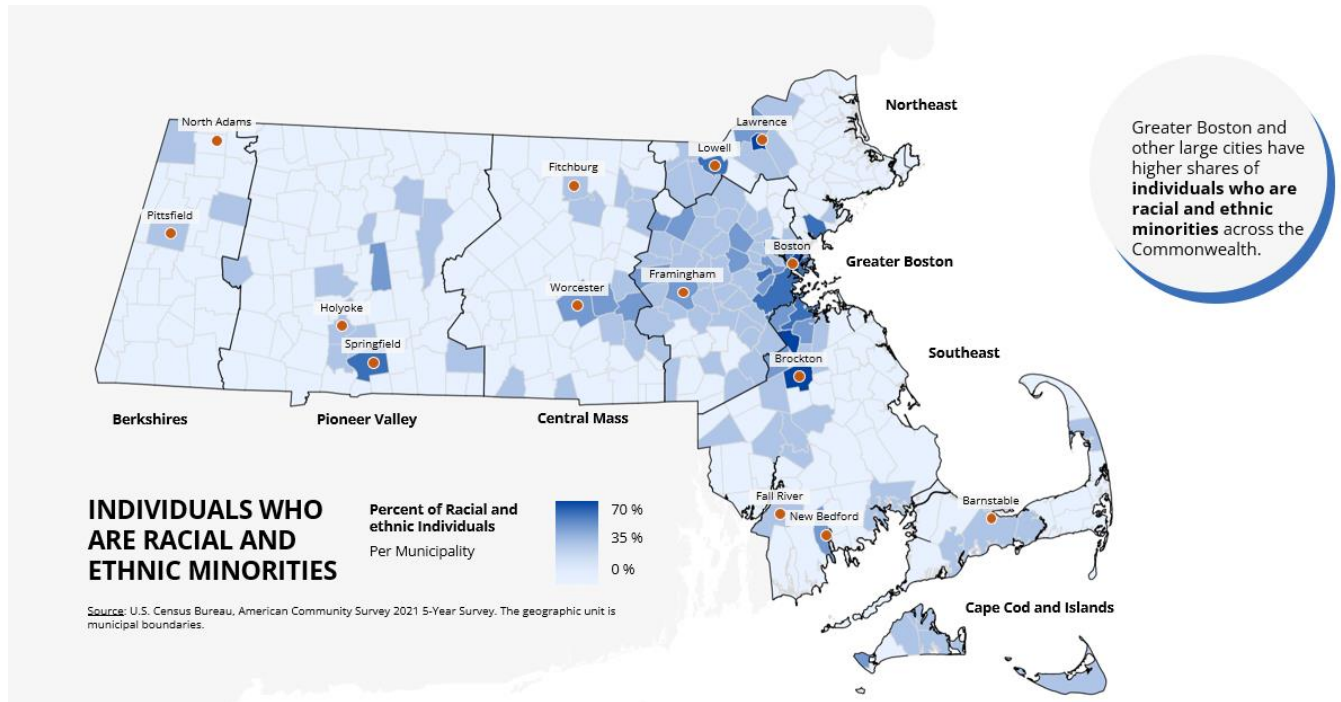
Individuals who are racial and ethnic minorities refers to people who identify as American Indian (including Alaska Native, Eskimo, and Aleut); Asian American; Native Hawaiian and other Pacific Islander; Black; and/or Hispanic.⁴⁷ **Statewide, racial and ethnic minorities account for 25% of the population.** In the Greater Boston region, racial and ethnic minorities account for 32% of the region and in the Northeast region, racial and ethnic minorities account for 25% of the region. Gateway cities have a high proportion of non-white individuals (41%) and immigrant communities.⁴⁸ For instance, Lowell has the nation’s second largest Cambodian community and Lawrence is home to Dominican and Puerto Rican communities.⁴⁹

⁴⁷ See Cornell Law School, Legal Information Institute: https://www.law.cornell.edu/definitions/uscode.php?width=840&height=800&iframe=true&def_id=42-USC-591738112-1708089047&term_occur=4&term_src=title:42:chapter:6A:subchapter:XV:section:300u%E2%80%9336.

⁴⁸ Forman, Ben, Angelia Heimsoth, Priya Lane, Miles Roper, and Oren Sellstrom. “Empowering Cities to Accelerate Equitable Growth.” MassINC, July 12, 2022. <https://massinc.org/research/empowering-cities-to-accelerate-equitable-growth/>.

⁴⁹ MassINC. “About the Gateway Cities.” Accessed November 2, 2023. <https://massinc.org/our-work/policy-center/gateway-cities/about-the-gateway-cities/>.

Figure 15: Map of racial and ethnic minorities by municipality in Massachusetts (ACS, 5-year estimates, 2017-2021)



Broadband Availability & Affordability

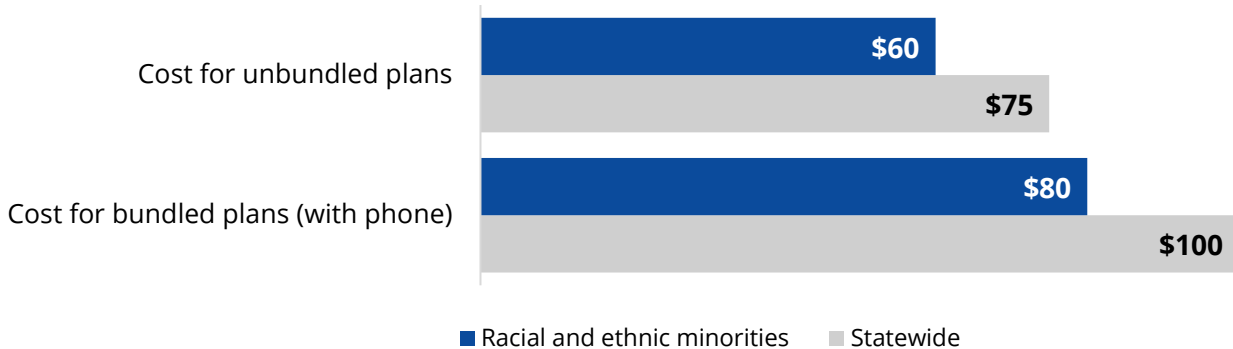


66% Have broadband at home



67% Think it is hard to pay for internet.

On average, racial and ethnic minorities pay **between \$60 to \$80** dollars per month for internet.



- Racial and ethnic minorities surveyed were **less likely to have internet at home and less likely to have broadband internet at home.**
- Among those who do not have internet service at home, racial and ethnic minorities **were more likely to say internet service is too expensive to subscribe.** Focus group participants reported having to use internet outside the home because they do not have access, but public spaces have limited hours and less privacy for activities like telehealth appointment. For instance, one participant’s home internet quality

hindered her daughter's schoolwork and **using the library internet was challenging due to limited hours**, which led them to use its parking lot for internet. However, security often expelled them, further affecting her daughter's grades.

Device Availability and Affordability



87% Often use a smartphone



59% Often use a laptop

-
- Compared to all other respondents, racial and ethnic minorities surveyed **were less likely to have sufficient devices** and **more likely to use a smartphone** to connect to the internet.
 - Focus group participants shared challenging experiences using a smartphone only - one participant struggled to take part in online Zoom appointments and another struggled logging onto a virtual court case. Another participant reported **challenges saving and storing documents on her phone** due to not having a computer.

Digital Literacy

- Among those who do not have internet service at home, racial and ethnic minorities surveyed **more likely to want to use the internet to search and apply for jobs or benefits than all other respondents**.
- Compared to all other respondents, racial and ethnic minorities surveyed were **slightly more likely have difficulty with participating in the local community, accessing healthcare, and applying for jobs** - focus group participants expressed the need for more training so they can understand how best to use the internet. One participant noted how "after the pandemic, everything is online" and she relies on her son for help.

Online Privacy & Cybersecurity

- Racial and ethnic minorities surveyed were on par with the rest of the state in their concern over internet safety. However, when asked what they were most concerned about, racial and ethnic minorities were **more likely to report being concerned about online scams and about online harassment** compared to all other respondents.
- Focus group participants cited **particular concern about online safety and privacy, especially for young people who might be vulnerable to communicating with online predators**. They expressed a desire for training on how to interact safely online, with some already helping younger family members recognize potential threats.

Online Accessibility & Inclusivity

- Racial and ethnic minorities surveyed were **more likely to say that public services are inaccessible** - one focus group participant said there was not adequate support for non-English speakers. The participant mentioned often coming across **inaccurate translations and misunderstandings** of region-specific Spanish terminology.

Incarcerated Individuals

An incarcerated individual is an inmate confined in a prison or a jail. This may also include halfway houses, boot camps, weekend programs, and other facilities.⁵⁰ **There are approximately 20,000 incarcerated people and 24 prisons and jails in Massachusetts.**⁵¹ Incarcerated individuals live in higher shares in Carlisle, Southampton, and other small towns that have prisons. In December 2023, Massachusetts is poised to become the fifth state nationwide to make it free for incarcerated people to call, video call, and e-message.⁵² However, unique digital equity challenges remain for incarcerated people in the Commonwealth.

While we did not survey actively incarcerated individuals, we held focus groups with justice-involved individuals in the Connecticut River Valley and Northeast regions to identify needs and barriers. Justice-involved individuals refers to people leaving jail or prison within six months, who have recently left jail or prison within a year, on parole, or on probation.⁵³

Some of the findings in this section will also apply to returning citizens. According to the Massachusetts Department of Corrections, Suffolk, Bristol, and Hampden Counties have a higher share of residents released within the County than the percentage of residents living in each county,⁵⁴ and may have a higher share of residents who would benefit from digital equity supports catered to the unique challenges of incarcerated individuals.

⁵⁰ Bureau of Justice Statistics. "Bureau of Justice Statistics (BJS) Glossary." Accessed November 2, 2023.

<https://bjs.ojp.gov/glossary>.

⁵¹ Bureau, US Census. "Digital Equity Act of 2021." Census.gov. Accessed November 2, 2023.

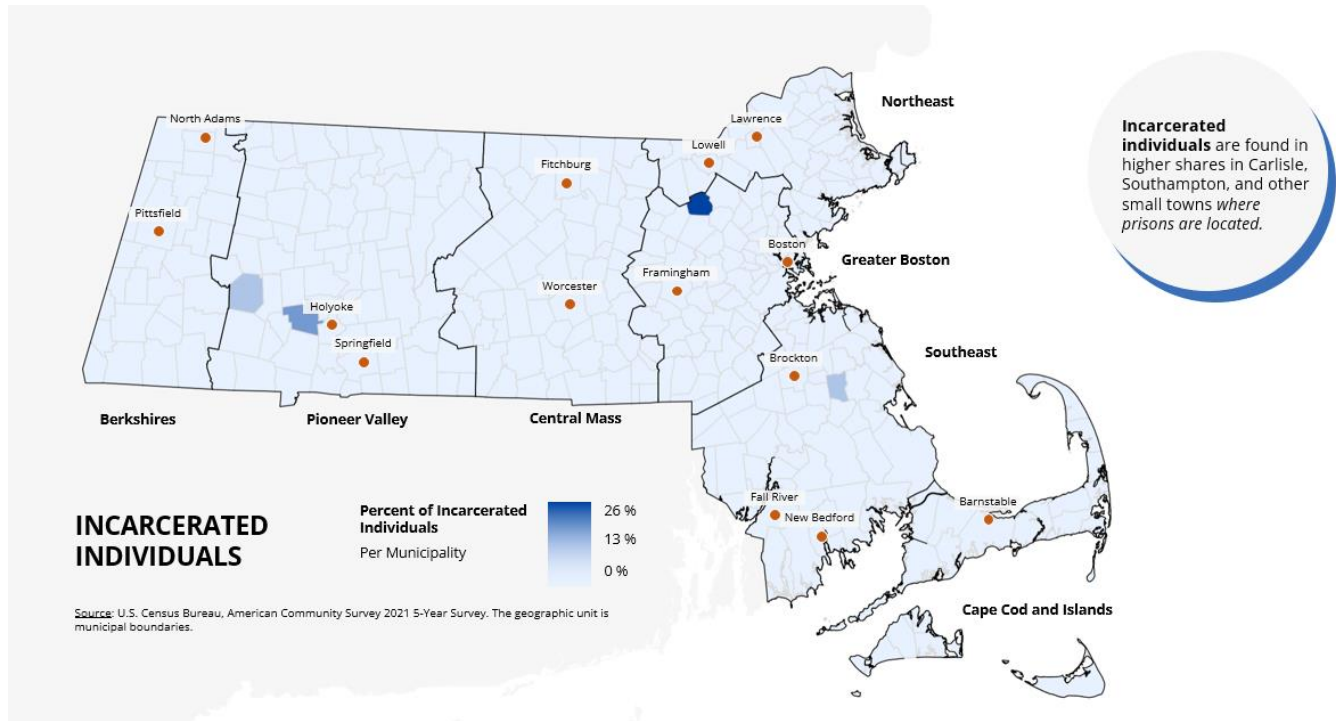
<https://www.census.gov/programs-surveys/community-resilience-estimates/partnerships/ntia/digital-equity.html>.

⁵² National Consumer Law Center. Accessed November 3, 2023. <https://www.nclc.org/massachusetts-governor-signs-new-budget-legislature-must-act/>

⁵³ "MassHealth Behavioral Health Supports for Justice Involved Individuals (BH-JI) | Mass.Gov." Accessed November 2, 2023. <https://www.mass.gov/masshealth-behavioral-health-supports-for-justice-involved-individuals-bh-ji>.

⁵⁴ Massachusetts Department of Corrections, 2022. <https://www.mass.gov/doc/prison-population-trends-2022/download>

Figure 16: Map of incarcerated individuals by municipality in Massachusetts (ACS, 5-year estimates, 2017-2021)



Broadband Availability & Affordability

- While in prison or jail, **individuals have no choice over network providers, which affects their internet speed, quality, and availability.**⁵⁵
- Many **justice-involved individuals expressed concerns about internet affordability** in focus groups. Focus group participants noted that it can be difficult to prioritize and pay for the internet. One participant said **“I need food more than I need Wi-Fi. I need housing, “**while another agreed stating how it is important to have Wi-Fi, but **“there are so many other priorities that we have to survive.”**
- Participants also cited accessing professional development, jobs and job boards, telehealth and attending remote classes as **challenges they face with inconsistent internet access.**

Device Availability and Affordability

- Justice-involved focus group participants highlighted the need for sufficient devices and cited cost as a device barrier. ~80% of incarcerated persons had no income the year preceding incarceration. **Costs for internet and data plans can force many justice-involved individuals to choose between social connection and essential services,** such as medicine, household items and food.⁵⁶

⁵⁵ Advancing Digital Equity for the Incarcerated People by Ameelio.

⁵⁶ Ibid.

- Participants also discussed **challenges that come with reliance on inadequate quality devices** as well as their reliance on smartphones as their only device. For instance, one person struggled with taking a class due to a disconnected phone and lacking Wi-Fi, which affected their ability to access emails and the class itself.

Digital Literacy

- Justice-involved focus group participants expressed **anxiety around digital skills** and felt society was leaving them behind. One participant said “I’m nervous to ask how to use Excel and Microsoft. I feel like I’m just not mentally up to date with everyone” and expressed how his **lack of digital skills training in prison left him unprepared for the world he entered upon being released**. Another said: “I’m from an era where applying to a job is me calling the hiring manager, but I guess now you have to do all the signing stuff and do the application online.”
- Additionally, participants felt discomfort with digital skills and devices, noting a desire to attend more classes. **One participant notes that she could not use her email on her iPhone and lost out on job opportunities and doctors appointments**. Some participants expressed a desire to step away from the internet due to a lack of technical support and/or society’s dependence on technology.

Online Privacy & Cybersecurity

- Justice-involved focus group participants were very **concerned about internet safety, specifically getting scam calls looking for personal information**. They also expressed concerns about data privacy when online, especially with online shopping. One participant said they were the target of so many scam calls “to the point where people were calling me telling me that you’ve won \$2,000”.

Online Accessibility & Inclusivity

- Justice-involved focus group participants **cited a lack of comfort with state and government websites**. For instance, one person said they needed to learn “how to set up appointments” specifically through the Registry of Motor Vehicles.

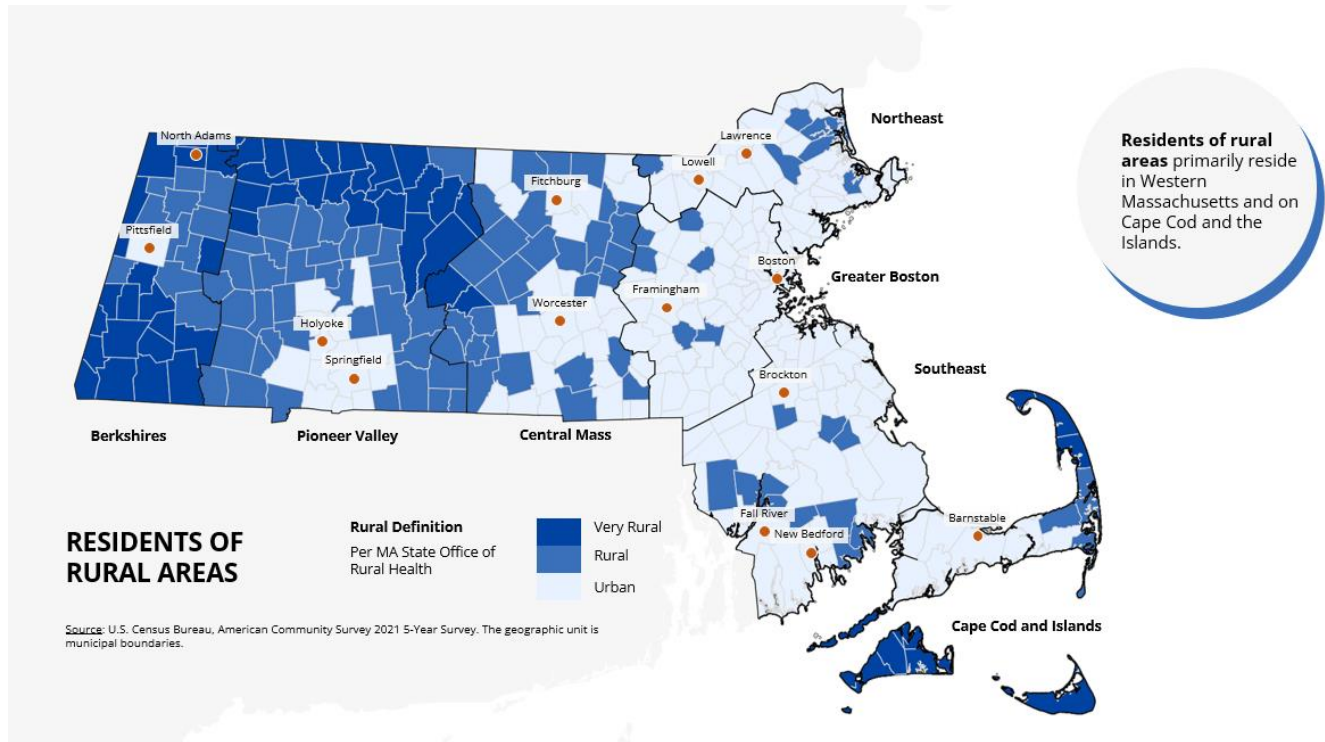
Residents of Rural Areas

Rural residents are defined as individuals who live in any municipality that the Massachusetts State Office of Rural Health defines as rural.⁵⁷ Residents of rural areas primarily live in Western Massachusetts and on Cape Cod and the Islands. **Statewide, rural residents account for 10% of the population**. In the Cape Cod & Islands region, rural residents are 27% of the region’s population and 66% of the Berkshire region are rural residents.

While rural residents overall did not have major barriers besides internet quality and availability, there are important intersections with rural and other high need population groups. For instance, **49% of rural respondents were 60 years and above and 31% of rural respondents were low-income**. Therefore, the experiences of aging individuals and low-income individuals may also apply to rural residents.

⁵⁷ See Mass.gov, State Office of Rural Health Rural Definition: <https://www.mass.gov/info-details/state-office-of-rural-health-rural-definition>. This is consistent with the NTIA’s NOFO definition, which defines rural areas as ones other than: a city or town that has a population of greater than 50,000 inhabitants; any urbanized area contiguous and adjacent to a city or town that has a population of greater than 50,000 inhabitants; and in the case of a grant or direct loan, a city, town, or incorporated area that has a population of greater than 20,000 inhabitants.

Figure 17: Map of rural residents by municipality in Massachusetts (ACS, 5-year estimates, 2017-2021)



Broadband Availability & Affordability

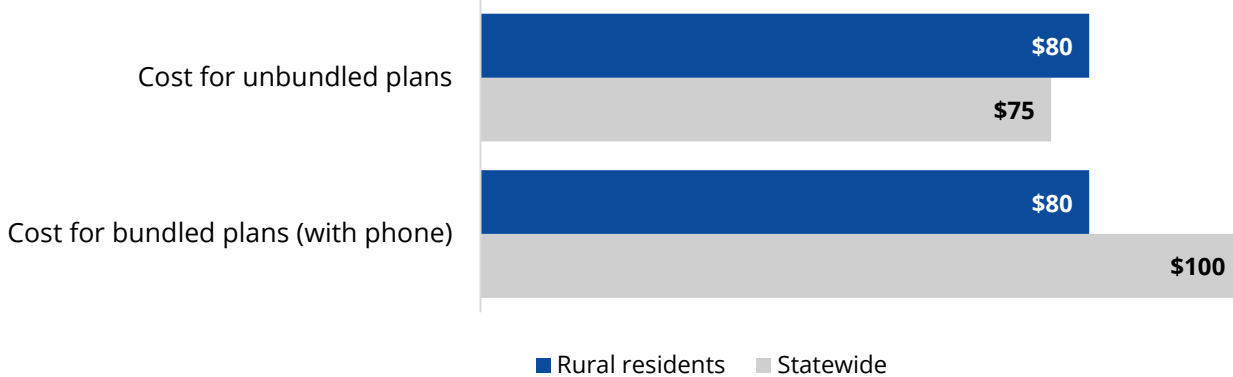


84% Have broadband at home



37% Think it is hard to pay for internet.

On average, rural residents pay **\$80** dollars per month for internet.



- Rural residents surveyed were **more likely to have internet at home** compared to all other respondents. They were the **least likely to say it is difficult to pay their monthly internet bill**.
- Among those who do not subscribe to the internet, rural residents were **most likely to say they do not subscribe because service is unavailable**, compared to all other respondents.

- Listening session participants also raised the issue of service reliability. Many participants expressed frustration paying for **unreliable service, which can be expensive despite the low quality they experience**. Participants also noted that they have few choices in internet service providers, which limits their service options.

Device Availability and Affordability



79% Often use a smartphone



73% Often use a laptop

- Rural residents surveyed were more **likely to have devices that meet their needs compared to all other respondents**. They were also **more likely to have a desktop or laptop** than all other respondents.
- On the other hand, while many rural residents surveyed have sufficient devices, listening session participants noted that they can **experience connectivity issues when their household is using more than one device**.

Digital Literacy

- Compared to all other respondents, rural residents surveyed were **less likely to find it difficult to participate in the local community online, use the internet for general searching, and apply for benefits online**. However, listening session participants noted that rural aging individuals particularly struggle with both equipment and digital literacy.
- Libraries in rural areas can offer crucial digital literacy services. However, listening session participants noted that larger, **urban libraries can offer more digital literacy services compared to small town libraries that have limited budgets** to provide these services.

Online Privacy & Cybersecurity

- Rural residents surveyed were just as concerned with internet safety than all other respondents. However, when asked what they were most concerned about, rural residents were **more likely to report being the most concerned about having their data stolen and about surveillance online**.

Online Accessibility & Inclusivity

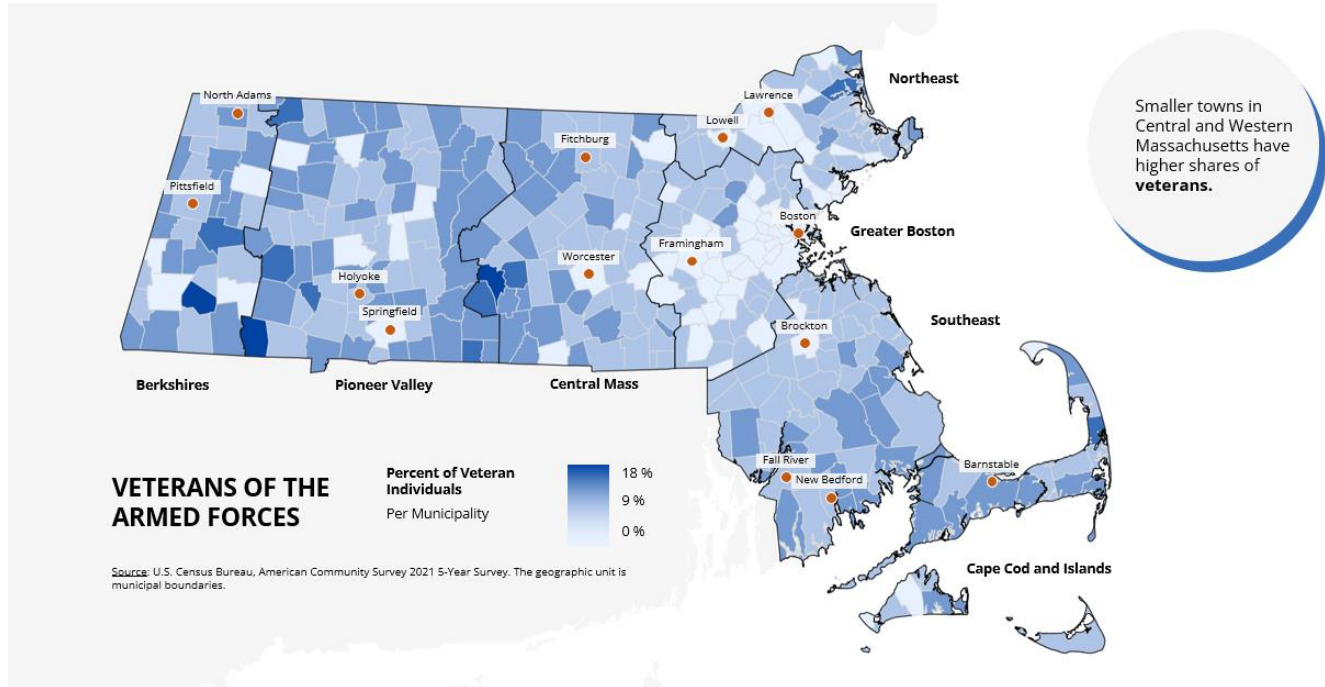
- While rural residents as a group were on par with all other respondents in how they rated the accessibility of online government services, many individuals statewide found government services inaccessible.
- In rural areas, listening session participants **specifically noted difficulty applying for ACP**. Listening session participants **also expressed concern over learning how to navigate services online such as healthcare, which transitioned online during the pandemic**.

Veterans

The U.S. Census Bureau defines veterans as individuals who served in the past or were on active duty in the U.S. Army, Navy, Air Force, Marine Corps, or the Coast Guard, or who served in the U.S. Merchant Marine during World

War II.⁵⁸ **Statewide, veterans account for 4% of the population.** In the Cape Cod & Islands region, veterans are 7% of the region’s population and 5% in the Berkshire region. Additionally, 28% of veterans also have a disability and 61% are 60 years or above.⁵⁹ Therefore, the experiences of individuals with disabilities and aging individuals may also apply to veterans.

Figure 18: Map of veterans by municipality in Massachusetts (ACS, 5-year estimates, 2017-2021)



Broadband Availability & Affordability



91% Have broadband at home

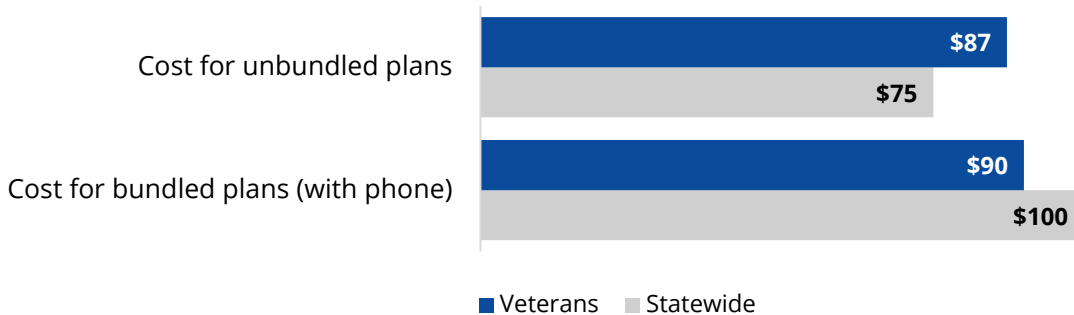


53% Think it is hard to pay for internet.

⁵⁸ “American Community Survey and Puerto Rico Community Survey 2021 Subject Definitions,” n.d. https://www2.census.gov/programs-surveys/acs/tech_docs/subject_definitions/2021_ACSSubjectDefinitions.pdf.

⁵⁹ USAFacts. “Veterans in Massachusetts: Statistics, Rankings, and Data Trends on Population, Demographics, and More,” October 27, 2023. <https://usafacts.org/topics/veterans/state/massachusetts/>; Planning, Office of Policy and. “National Center for Veterans Analysis and Statistics.” General Information. Accessed November 2, 2023. https://www.va.gov/vetdata/veteran_population.asp.

On average, veterans pay **between \$87 to \$100** dollars per month for internet.



- Veterans surveyed were just as likely as all other respondents to have internet service in their homes. Compared to all other respondents, they were **more likely to have a home wireline connection with cable, fiber, or DSL.**
- Compared to all other respondents, veterans were **less likely to connect to the internet outside of home, at work, at libraries, or community centers.**

Device Availability and Affordability



75% Often use a smartphone



72% Often use a laptop

- Veterans surveyed were **more likely to have a desktop or laptop**, but just as likely as other respondents to have a smartphone.

Digital Literacy

- Compared to all other respondents, veterans surveyed were not significantly different in how they rated digital skills.
- Among those who do not have internet service at home, veterans were **slightly less likely to want to use the internet to search and apply for jobs online.**

Online Privacy & Cybersecurity

- Compared to all other respondents, veterans were just as concerned with internet safety as the rest of the state. However, **over half of veterans are aging and aging individuals were the most concerned about online safety.**
- Additionally, when asked what they were most concerned about, veterans **were more likely to be concerned with people stealing their data, online scams, and surveillance online.**

Online Accessibility & Inclusivity

- Veterans surveyed were on par with all other respondents in how they rated online government services, many individuals statewide found government services inaccessible. However, **a third of veterans surveyed were also individuals with disabilities who reported significant barriers accessing online services.**

Long-Term Outcomes by Statewide Goals

The long-term intended outcomes that this Plan seeks to achieve connect to Massachusetts’ priority outcome areas of economic and workforce development, education, healthcare, housing, and infrastructure. See [Section 2.2.3](#) for more information on Massachusetts’ priority outcome areas.

Priority Outcome Area	Key Performance Indicators	Long-Term Intended Outcomes
<i>Economic & Workforce Development</i>	<ul style="list-style-type: none"> • Share of residents who report using the internet to conduct job searches, access healthcare, engage civically 	<ul style="list-style-type: none"> • Higher rates of employment in Massachusetts • Libraries and public and community spaces function as accessible hubs for digital literacy learning • Residents have consistent access to low-cost, high quality, updated, accessible devices • All residents are comfortable navigating digital spaces to meet their needs
<i>Education</i>	<ul style="list-style-type: none"> • Share of residents who report using the internet to conduct job searches, access healthcare, engage civically • Share of K-12 students with access to digital literacy skills • Share of schools with an instructional technology coach • Share of courses that integrate digital literacy skills in the curriculum • Share of teachers that receive digital literacy training • Number of digital navigators deployed across the state 	<ul style="list-style-type: none"> • All residents are comfortable navigating digital spaces to meet their needs • Libraries and public and community spaces function as accessible hubs for digital literacy learning • Residents have consistent access to low-cost, high quality, updated, accessible devices
<i>Healthcare</i>	<ul style="list-style-type: none"> • Share of residents who report using the internet to conduct job searches, access healthcare, engage civically • Share of healthcare facilities that include a digital access question on their social determinants of health intake form • Share of healthcare facilities that have access to digital literacy resources for patients 	<ul style="list-style-type: none"> • Improvement in health outcomes

Housing	<ul style="list-style-type: none"> • Share of homes that are future-proofed to new technologies and higher speeds • Share of residents that have availability of high-speed internet, are connected, and are successfully using it • Share of newly developed affordable housing units that provide free broadband • Share of residents in existing affordable housing stock that have availability of reliable internet service • Share of residents in existing affordable housing stock that can afford internet service • Share of residents in existing affordable housing stock that are confident using internet service 	<ul style="list-style-type: none"> • All residents across the state have access to affordable, future-proof, high-speed internet with consistent quality of service • All affordable housing residents across the state have access to free or low-cost, future-proof, high speed internet with consistent quality of service
Infrastructure	<ul style="list-style-type: none"> • Share of homes that are future-proofed to new technologies and higher speeds • Share of cases where residents flag inadequate quality of service that are resolved • Share of residents that report their internet meeting quality of service needs 	<ul style="list-style-type: none"> • All residents across the state have access to affordable, future-proof, high-speed internet with consistent quality of service • Libraries and public and community spaces function as accessible hubs for digital literacy learning
Other	<ul style="list-style-type: none"> • Share of residents who can afford the internet plan they need • Share of residents who have the devices they need • Share of residents who say they are confident in using the internet • Share of residents enrolled in ACP or similar program • Number of devices distributed 	<ul style="list-style-type: none"> • All residents feel comfortable accessing essential resources and services • All residents feel safer online and understand internet safety guidance

3.2.5. Regional Snapshots

This section synthesizes findings by each of the seven Regions. For each Region, MBI summarized:

- Demographic information from the region to help compare regional covered populations to the broader composition of the state.
- Selected survey data across the five Measurable Objective categories
- Significant findings from focus groups to provide nuance and further depth on challenges affecting covered populations in specific regions.

Additionally, each snapshot contains a map illustrating the areas that MBI will focus digital equity initiatives, as measured by the combined availability, affordability, and adoption needs (AAA needs) for high-speed internet. This map is a visual, geographic representation of a composite score generated by processing data related to each of these topics with **darker colors showing areas that are most underserved**

and will be priority for future investments. Specifically, MBI created maps showing how residents across the Commonwealth were faring on the following measures of digital equity:

- Availability: whether residents have high-quality, high-speed internet available for them to use, regardless of their ability to pay for this service. MBI measured this by computing the percentage of households with high quality internet and measurements of internet service.
- Affordability: whether residents can pay for high-speed internet, regardless of the availability of high-speed internet. MBI measured this by calculating the percentage of households living in poverty.
- Adoption: as the combined outcome of both availability and affordability, whether residents subscribe to high-speed internet plans. To measure this, MBI examined whether households had digital devices in their homes and whether households had internet availability but no subscriptions.

The Appendix includes more detail on variables that informed each of the measures above. MBI used these data sources to create composite index scores that identify areas of need for broadband availability, affordability, and adoption across the Commonwealth. Additional maps of where covered populations live in the Commonwealth, included in Section 3.2.4 Needs and Barriers by Covered Population, highlight relationships between internet need and other socioeconomic factors.

Berkshires

Figure 19: Map of Availability, Access, and Adoption Needs

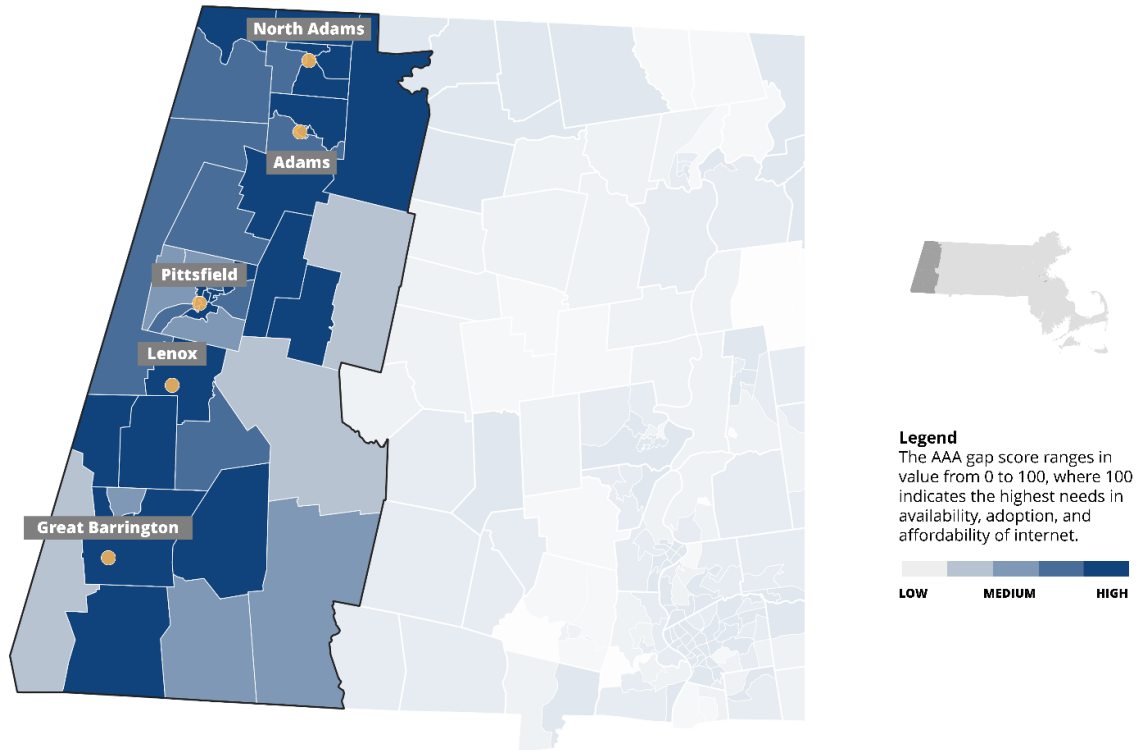
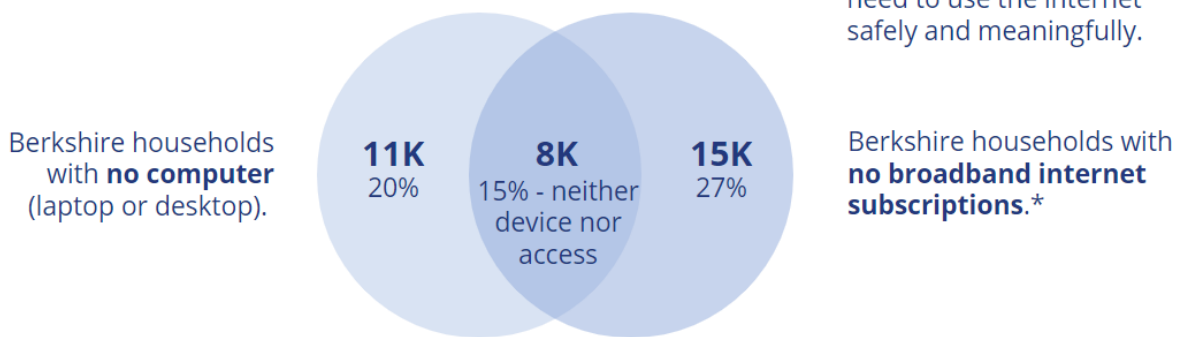


Figure 2: Venn Diagram of Digital Equity Gaps

Of **55,500 households** in the Berkshires...



These challenges have **disproportionate impact for specific population groups** depending on a range of socioeconomic, historical, and geographic factors.

* Residents with no broadband access (cable, fiber optic, or DSL) in their household. **Source:** U.S. Census Bureau

The Berkshires contains a higher share of rural inhabitants (66%) than other parts of the state (10%)⁶⁰. Availability, access, and adoption needs are highest in rural areas and in the urban setting of Pittsfield.

Focus group participants noted that they wished there was better service in rural areas, and many rely on community spaces such as libraries to use the Internet to meet their needs. In the Berkshires listening session, residents described reliability issues with internet service, focusing on the impact of weather-related disturbances to technologies such as satellite service and the challenge of navigating data caps. Participants also named the lack of competition, noting that "One ISP is the only game in town" and that it is "very cost prohibitive for lots of people."

The Berkshires region contains⁶¹:

129,089 total residents

\$65,235 median household income

55,525 total households

97% of households have broadband internet available at home, compared to **99%** of households statewide⁶²

Population	The Berkshires	Massachusetts
Low-income households	40%	39%
Aging individuals	32%	23%
Incarcerated individuals	0.1%	0.3%
Veterans	6%	4%
Individuals with disabilities	15%	11%
Households with Limited English	1%	6%
Racial and ethnic minorities	11%	25%
Rural inhabitants	66%	10%

Broadband Availability

- **90% of survey respondents from the Berkshires had internet service at home.**
- Respondents from the Berkshires **were less likely to have internet service** than respondents from the other regions of Massachusetts.

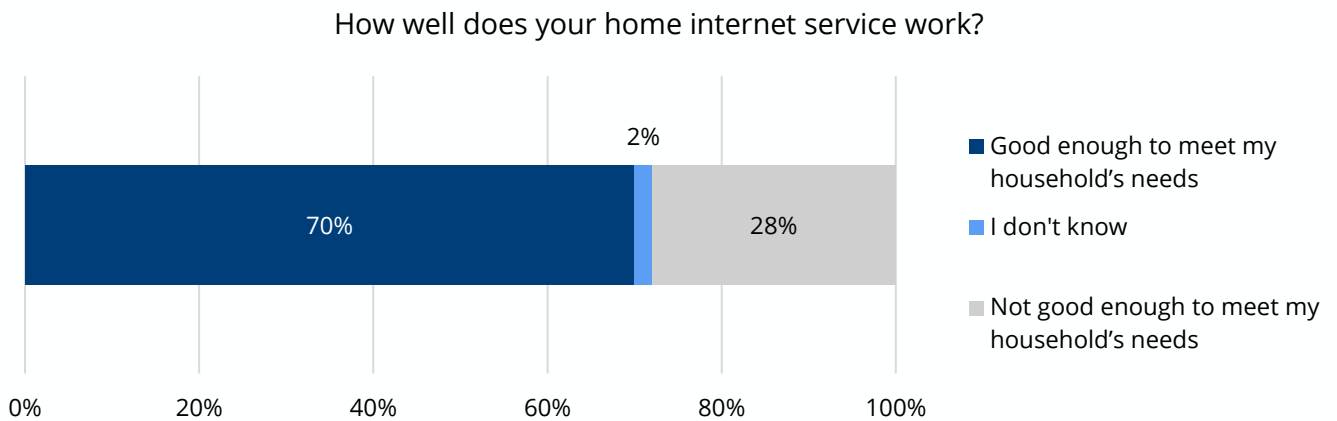
⁶⁰ American Community Survey (ACS) 2017-2021 5-Year Estimates.

⁶¹ American Community Survey (ACS) 2017-2021 5-Year Estimates.

⁶² See MBI's Massachusetts Broadband Map, <https://mapping.massbroadband.org/map>.

- **70% of respondents from the Berkshires reported that their home internet service is good enough to meet their household's needs.**
- Survey respondents from the Berkshires without internet service at home **were more likely to connect at libraries, community centers, or retail stores** than respondents from the other regions of Massachusetts.
- Survey respondents from the Berkshires **were more likely to subscribe to a wireless connection (cable, fiber, or DSL)** than respondents from the other regions of Massachusetts.

Figure 20: Percentage of Respondents By Quality of Internet Service

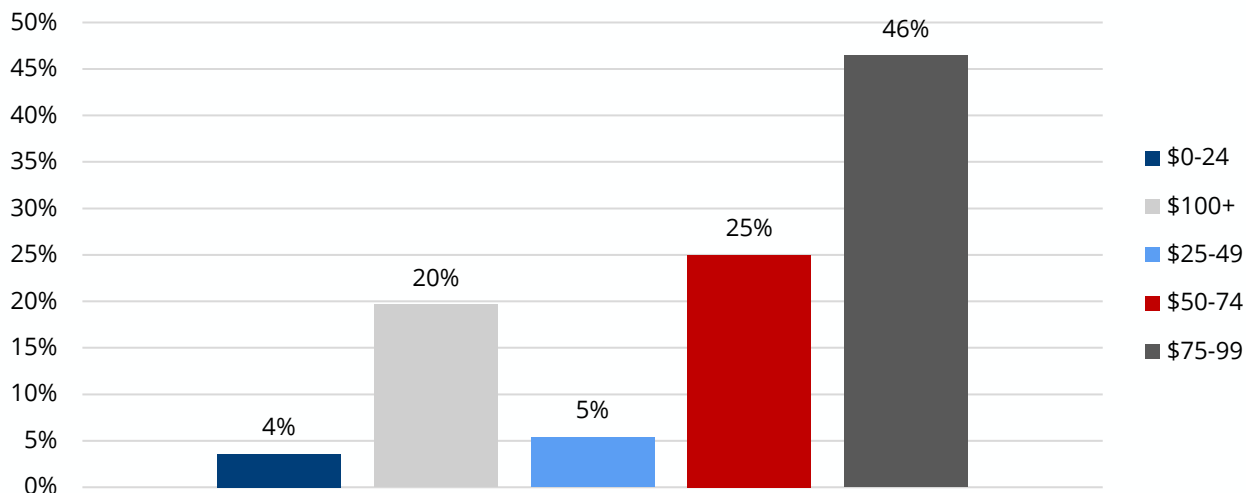


Broadband Affordability

- **62% of survey respondents from the Berkshires noted that the costs of their available monthly internet subscriptions are very or somewhat hard to afford.**
- In the Berkshires, **46% of respondents noted paying between \$75 - \$99 for internet service every month.**

Figure 21: Percentage of Respondents By Monthly Internet Costs

How much do you pay for the internet every month?

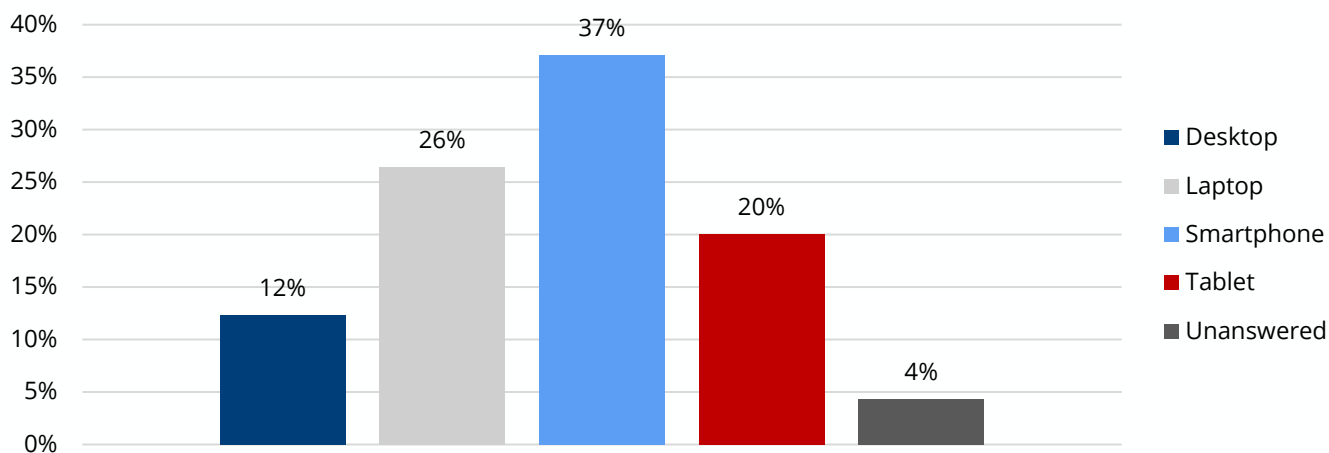


Devices

- **78% of survey respondents in the Berkshires had sufficient devices in their homes.**
- Residents of the region reported **using smartphones as the most common device used to get online.**
- In the Berkshires listening session, participants described challenges maintaining devices at home and being unaware of what equipment to upgrade to when their devices age.

Figure 22: Percent Respondents By Device Used to Connect to the Internet

Which of the following devices do you use most of the time to connect to the internet?

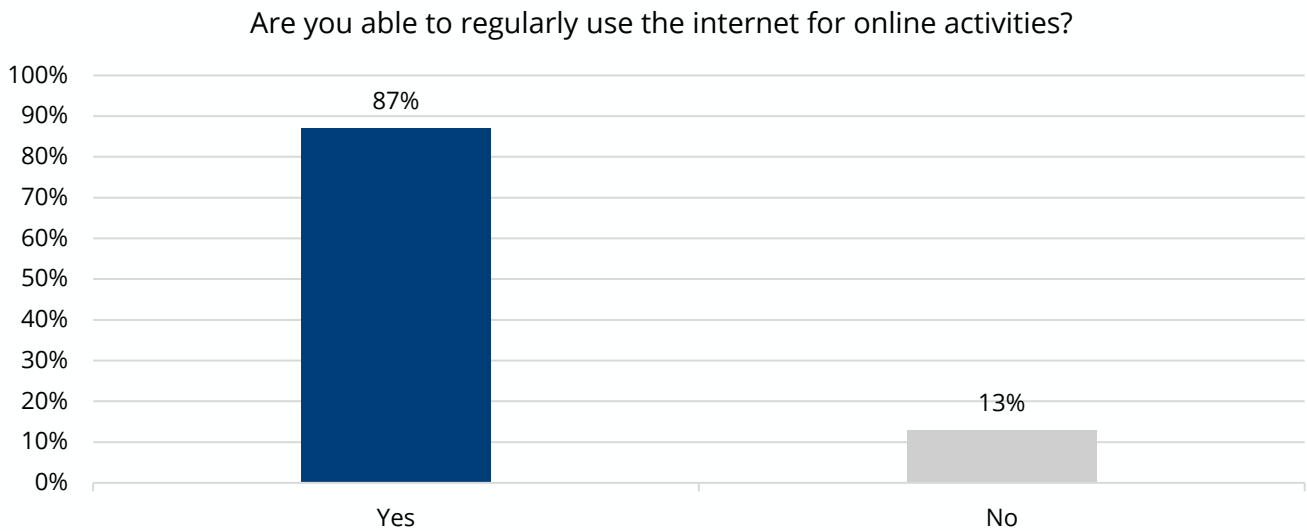


Internet Use & Digital Skills

- **13% of survey respondents from the Berkshires reported that they cannot regularly use the internet for online activities.**

- While survey respondents were less likely to have difficulty participating in local community events and general internet searching, they were **more likely to have difficulty finding transportation information** than respondents from the other regions of Massachusetts.
- To improve digital skills, **respondents were most interested in do-it-yourself training modules and online classes.**

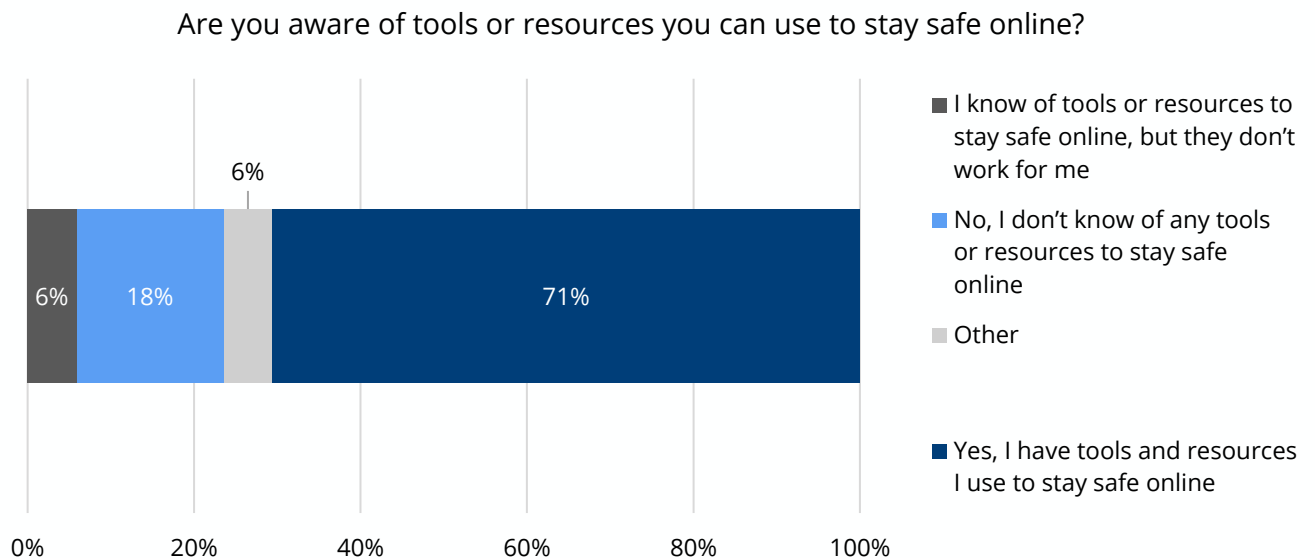
Figure 23: Percentage of Respondents by Ability to Regularly Use the Internet



Online Privacy and Security

- **76% of survey respondents from the Berkshires were somewhat or very concerned about internet safety.**
- Respondents from the Berkshires were **most concerned about the risk of scams, stolen data, and surveillance online.**
- 29% of survey respondents from the region reported struggling to keep themselves safe from such dangers on the internet.

Figure 24: Percent Respondents by Awareness of Tools and Resources to Stay Safe Online



Accessibility of Online Government Services

- **Online government services were accessible to 74% of survey respondents in the Berkshires**, with 16% of survey respondents reporting poor performance while accessing these services.
- Focus group participants noted that they struggle to use online government services due to accessibility barriers, such as visual limitations, and a lack of assistive technology.
- In the Berkshires listening session, residents noted that information about ACP is often challenging to access.

Connecticut River Valley

Figure 25: Map of Availability, Access, and Adoption Needs

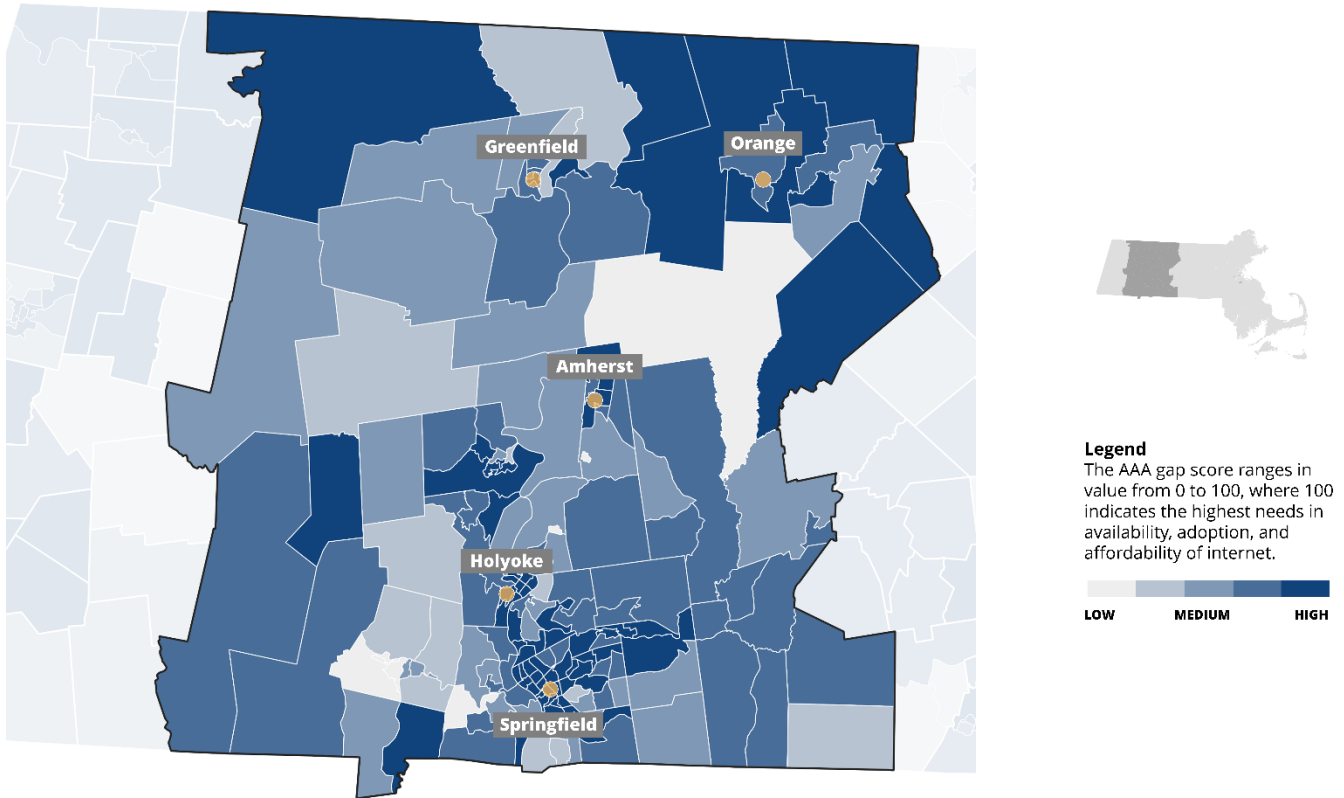
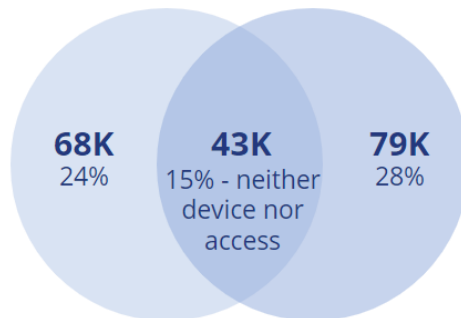


Figure 26: Venn Diagram of Digital Equity Gaps

Of **281,000 households** in the Connecticut River Valley Region...

Households with **no computer** (laptop or desktop).



Many more face challenges with finding the support they need to use the internet safely and meaningfully.

Households with **no broadband internet subscriptions**.*

These challenges have **disproportionate impact for specific population groups** depending on a range of socioeconomic, historical, and geographic factors.

* Residents with no broadband access (cable, fiber optic, or DSL) in their household. **Source:** U.S. Census Bureau

The Connecticut River Valley contains a higher share of low-income households (54%) than other parts of the state (39%).⁶³ Availability, access, and adoption needs are highest in urban areas of Springfield and Holyoke.

Many focus group participants cited a lack of affordable options as a barrier to Internet adoption, with ISPs lacking affordable packages and prices rising every couple of years. Listening Session participants highlighted a lack of resources to train users on devices and new technologies.

The Connecticut River Valley region contains⁶⁴:

715,632 total residents

\$67,120 median household income

281,463 total households

99% of households have broadband internet available at home, compared to **99%** of households statewide⁶⁵

Population	Connecticut River Valley	Massachusetts
Low-income households	54%	39%
Aging individuals	25%	23%
Incarcerated individuals	0.3%	0.3%
Veterans	5%	4%
Individuals with disabilities	15%	11%
Households with Limited English	6%	6%
Racial and ethnic minorities	21%	25%
Rural inhabitants	27%	10%

Broadband Availability

- **97% of survey respondents from the Connecticut River Valley had internet service at home.**
- Respondents from the Connecticut River Valley **were more likely to have internet service** than respondents from the other regions of Massachusetts.
- **72% of respondents from the Connecticut River Valley reported that their home internet service is good enough to meet their household’s needs.**

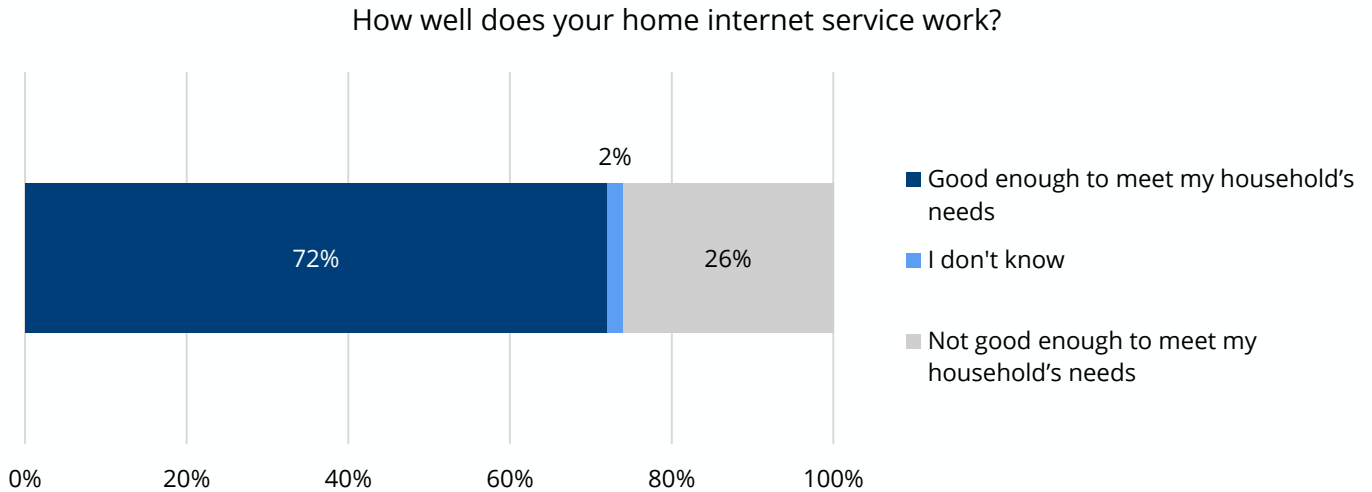
⁶³ American Community Survey (ACS) 2017-2021 5-Year Estimates.

⁶⁴ American Community Survey (ACS) 2017-2021 5-Year Estimates.

⁶⁵ See MBI’s Massachusetts Broadband Map, <https://mapping.massbroadband.org/map>.

- Survey respondents from the Connecticut River Valley without internet service at home **were less likely to connect at libraries, community centers, workplaces, or retail stores** than respondents from the other regions of Massachusetts.
- Survey respondents from the Connecticut River Valley **were more likely to subscribe to a wireless connection (cable, fiber, or DSL)** than respondents from the other regions of Massachusetts.

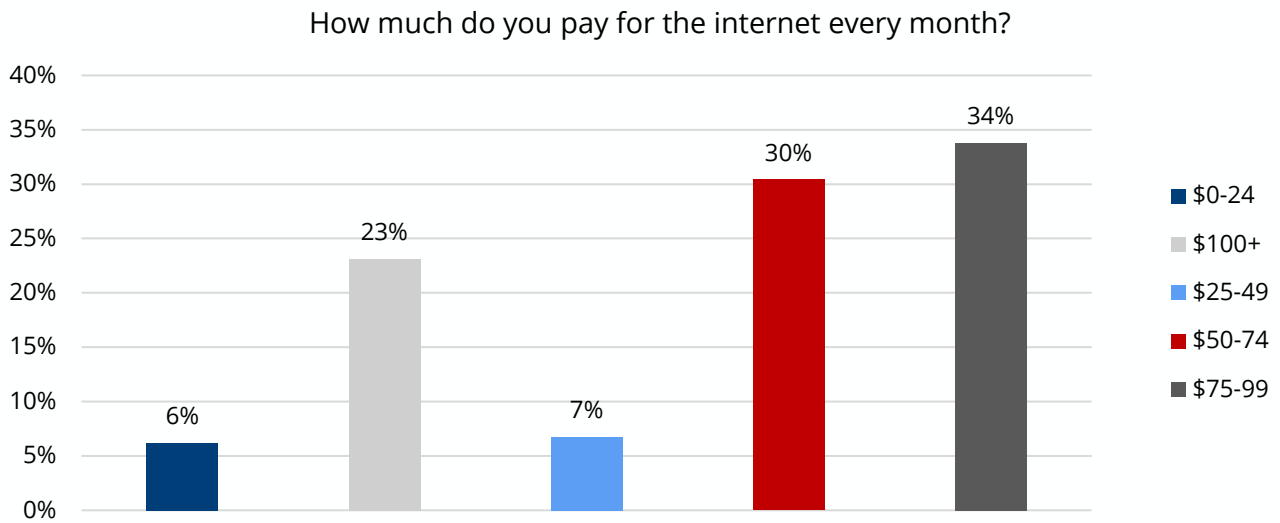
Figure 27: Percentage of Respondents By Quality of Internet Service



Broadband Affordability

- **50% of survey respondents from the Connecticut River Valley noted that the costs of their available monthly internet subscriptions are very or somewhat hard to afford.**
- Respondents from the Connecticut River Valley were **less likely to state that the cost of a subscription prevents them from subscribing to the internet** than respondents from the other regions of Massachusetts.
- In the Connecticut River Valley, **34% of respondents noted paying between \$75 - \$99 for internet service every month.**

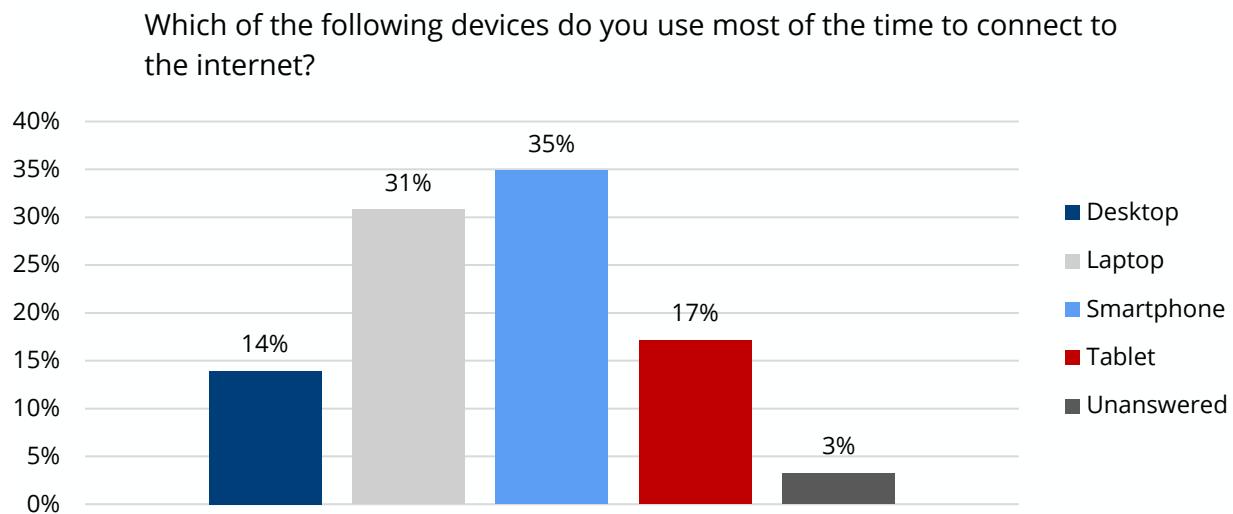
Figure 28: Percentage of Respondents By Monthly Internet Costs



Devices

- **83% of survey respondents in the Connecticut River Valley had sufficient devices in their homes.** Respondents from the Connecticut River Valley were **more likely to report the presence of sufficient devices in their homes** than respondents from the other regions of Massachusetts.
- Respondents from the region reported **using smartphones as the most common device used to get online.**
- Survey respondents from the region were **more likely to use desktops and laptops to connect to the internet** than respondents from the other regions of Massachusetts.
- In the Connecticut River Valley listening session, participants described challenges understanding technological terms and communicating about issues they are facing with their devices.

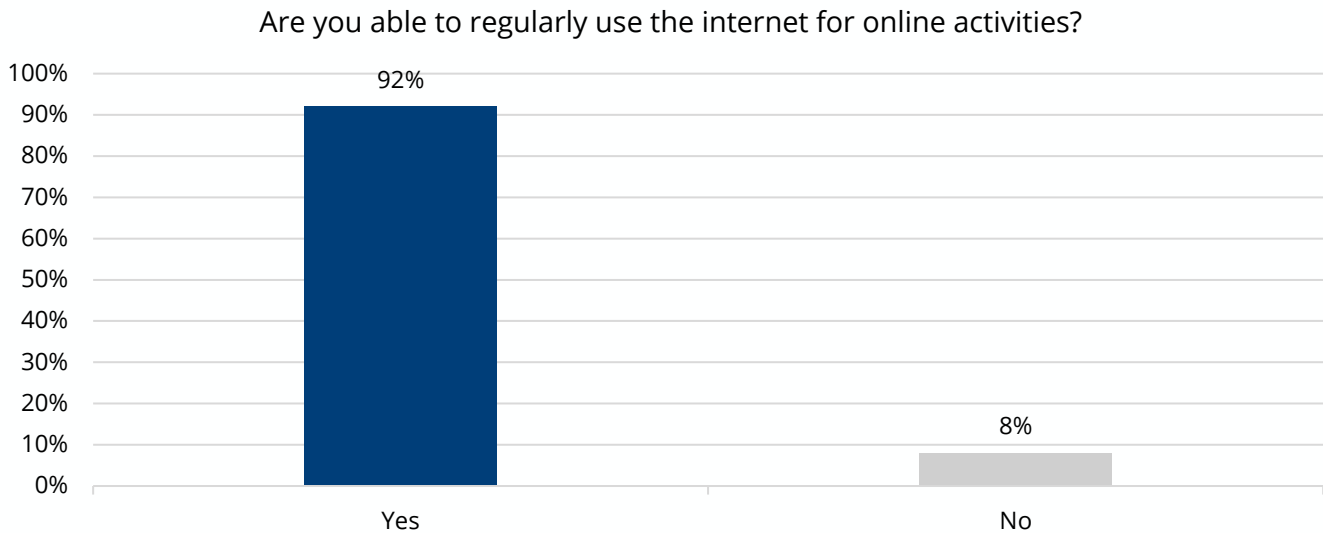
Figure 29: Percent Respondents By Device Used to Connect to the Internet



Internet Use & Digital Skills

- **8% of survey respondents from the Connecticut River Valley reported that they cannot regularly use the internet for online activities.**
- Survey respondents were **less likely to have difficulty with general internet searching** than respondents from the other regions of Massachusetts.
- To improve digital skills, **respondents were most interested in do-it-yourself training modules.**

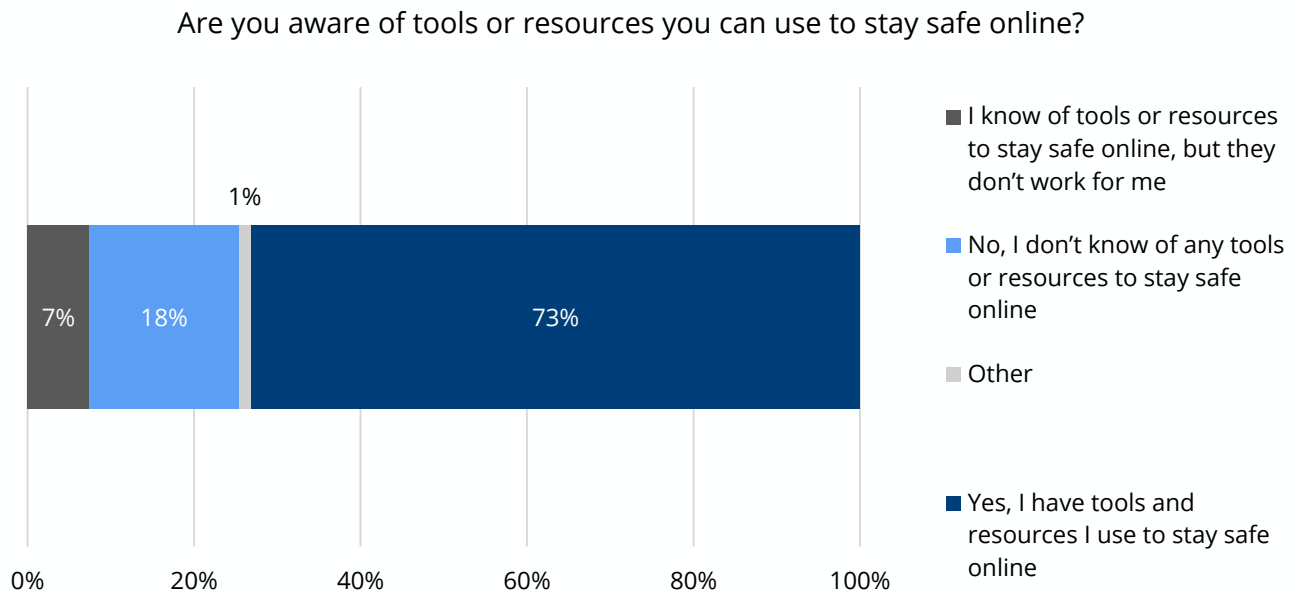
Figure 30: Percentage of Respondents by Ability to Regularly Use the Internet



Online Privacy and Security

- **79% of survey respondents from the Connecticut River Valley were somewhat or very concerned about internet safety.**
- Survey respondents from the Connecticut River Valley **were more likely to be concerned about online scams, surveillance, and stolen data** than respondents from the other regions of Massachusetts.
- Respondents from the Connecticut River Valley were **most concerned about the risk of scams and stolen data.**
- 27% of survey respondents from the region reported struggling to keep themselves safe from such dangers on the internet.

Figure 31: Percent Respondents By Awareness of Tools and Resources to Stay Safe Online

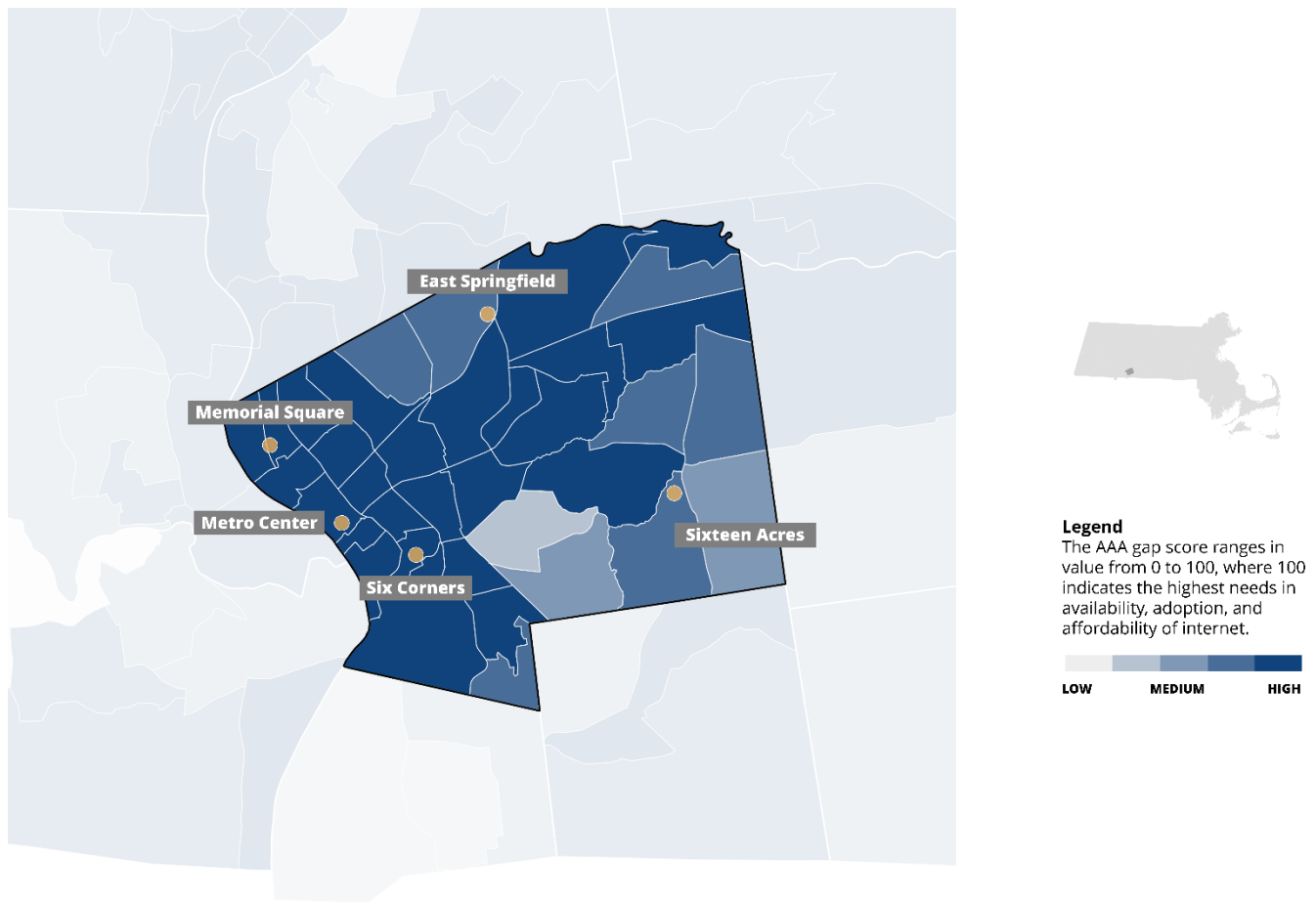


Accessibility of Online Government Services

- **Online government services were accessible to 79% of survey respondents in the Connecticut River Valley**, with 16% of survey respondents reporting poor performance while accessing these services.
- Respondents from the Connecticut River Valley **were more likely to be aware of the ACP subsidy** than respondents from the other regions of Massachusetts.
- Focus group participants noted considerable frustration communicating with ISPs to get ACP discounts, as well as general challenges using online government site accessibility.
- In the Connecticut River Valley listening session, residents noted that ongoing investment in programs to support accessibility of benefits would be more beneficial than one-time investments in the region.

Springfield

Figure 32: Map of Availability, Access, and Adoption Needs in the City of Springfield



As one of the three largest cities in the Commonwealth, broadband needs in the City of Springfield differ from that of the greater region around it. Additionally, Springfield contains a higher concentration of Covered Populations including racial and ethnic minorities and low-income households than in the broader Connecticut River Valley.

Availability, affordability, and adoption needs are highest in the City of Springfield in neighborhoods near Metro Center, Memorial Square, and Six Corners. In the Connecticut River Valley listening session, participants identified some successful assets providing digital literacy training such as Springfield Tech and Tech Foundry while highlighting the need for more robust programming to serve the needs of the community.

Central Massachusetts

Figure 33: Map of Availability, Access, and Adoption Needs

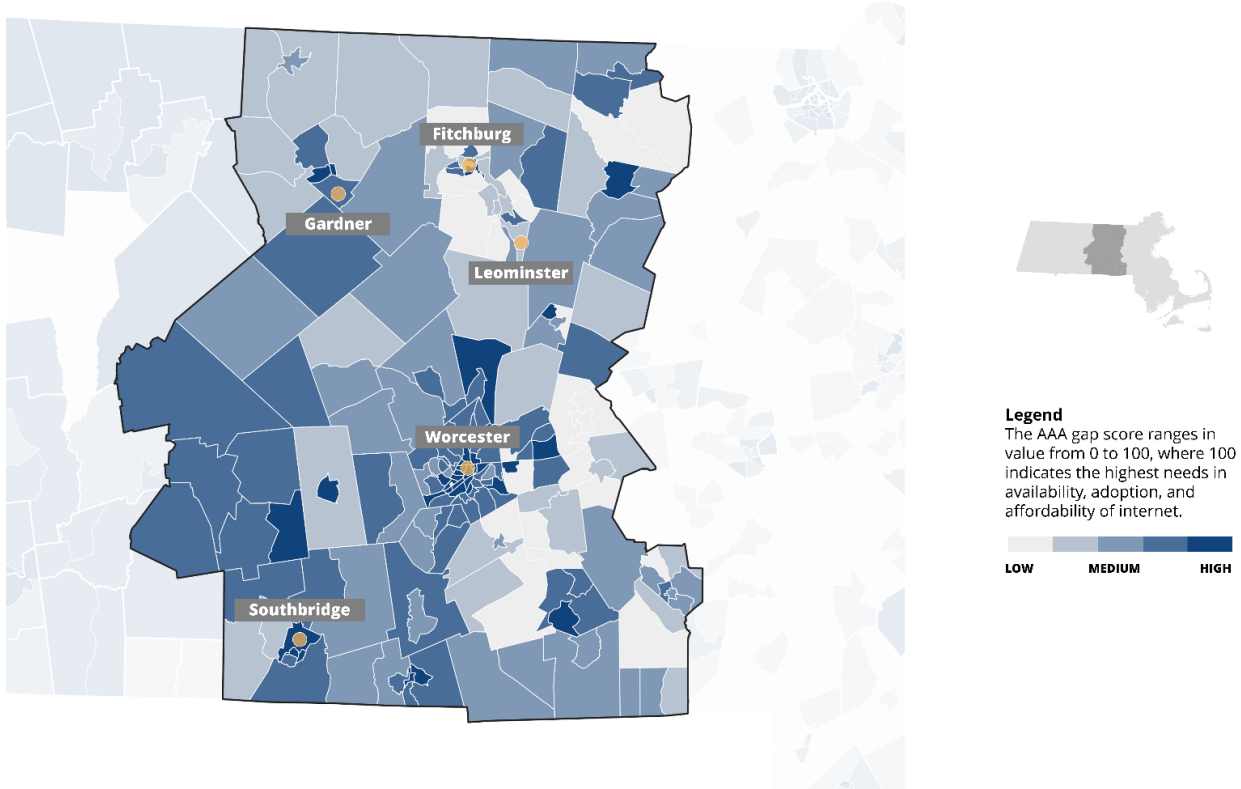
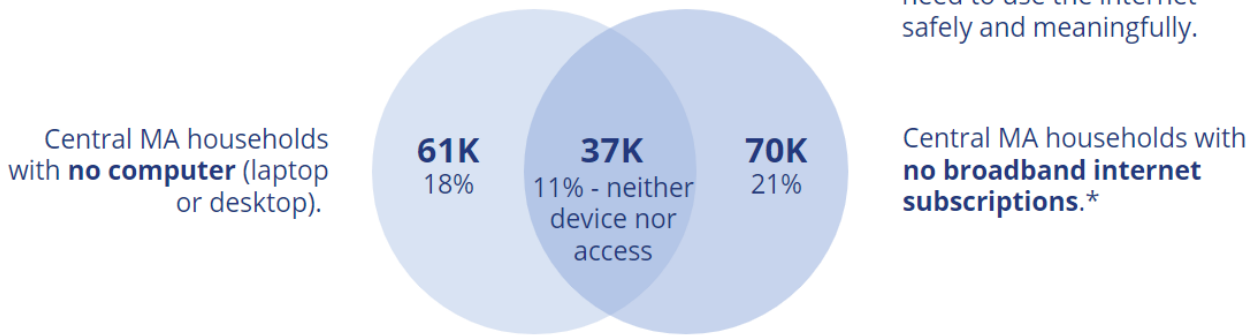


Figure 34: Venn Diagram of Digital Equity Gaps

Of **335,500 households** in the region...



Many more face challenges with finding the support they need to use the internet safely and meaningfully.

Central MA households with **no broadband internet subscriptions**.*

These challenges have **disproportionate impact for specific population groups** depending on a range of socioeconomic, historical, and geographic factors.

* Residents with no broadband access (cable, fiber optic, or DSL) in their household. **Source:** U.S. Census Bureau

Central Massachusetts contains a higher share of rural inhabitants (24%) than other parts of the state (10%)⁶⁶. Availability, access, and adoption needs are highest in urban areas of Worcester and in rural towns.

In focus groups, participants highlighted issues obtaining necessary technologies to use the internet safely. Listening Session participants cited technical challenges with incumbent ISPs, inconsistent quality of service, language barriers, and difficulties navigating affordable options as barriers to Digital Equity in the region.

Central Massachusetts region contains⁶⁷:

881,060 total residents

\$87,200 median household income

335,570 total households

96% of households have broadband internet available at home, compared to **99%** of households statewide⁶⁸

Population	Central Massachusetts	Massachusetts
Low-income households	39%	39%
Aging individuals	23%	23%
Incarcerated individuals	< 0.01%	0.3%
Veterans	5%	4%
Individuals with disabilities	12%	11%
Households with Limited English	5%	6%
Racial and ethnic minorities	20%	25%
Rural inhabitants	24%	10%

Broadband Availability

- **96% of survey respondents from Central Massachusetts had internet service at home.**
- Respondents from Central Massachusetts **were more likely to have internet service** than respondents from the other regions of Massachusetts.
- **71% of respondents from Central Massachusetts reported that their home internet service is good enough to meet their household’s needs.**

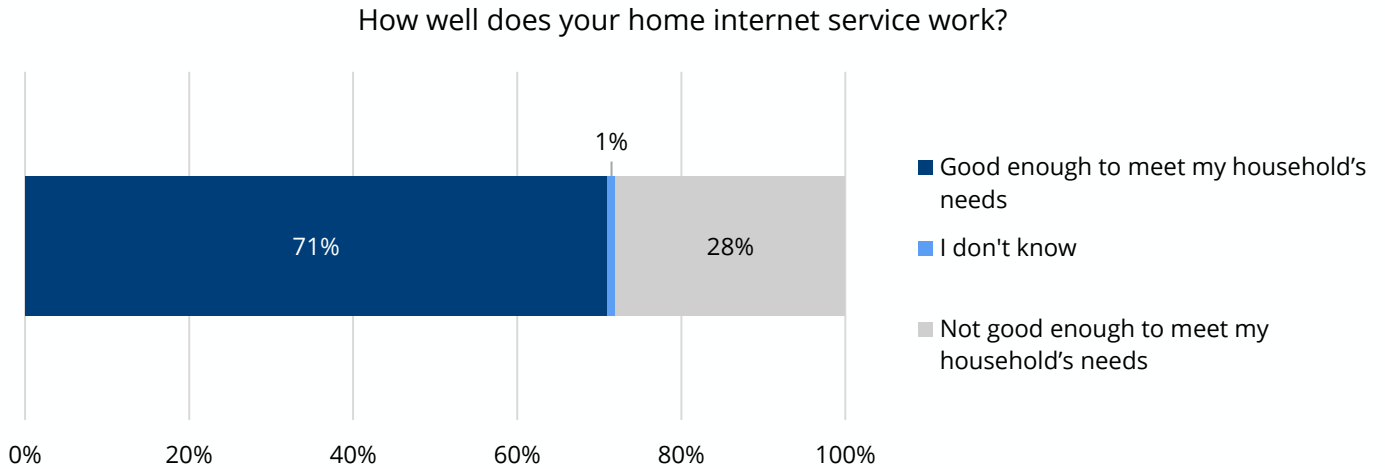
⁶⁶ American Community Survey (ACS) 2017-2021 5-Year Estimates.

⁶⁷ American Community Survey (ACS) 2017-2021 5-Year Estimates.

⁶⁸ See MBI’s Massachusetts Broadband Map, <https://mapping.massbroadband.org/map>.

- Survey respondents from Central Massachusetts without internet service at home **were less likely to connect at libraries, community centers, workplaces, schools, the homes of family or friends, or on public transportation** than respondents from the other regions of Massachusetts.
- Survey respondents from Central Massachusetts **were more likely to subscribe to a wireless connection (cable, fiber, or DSL)** than respondents from the other regions of Massachusetts.

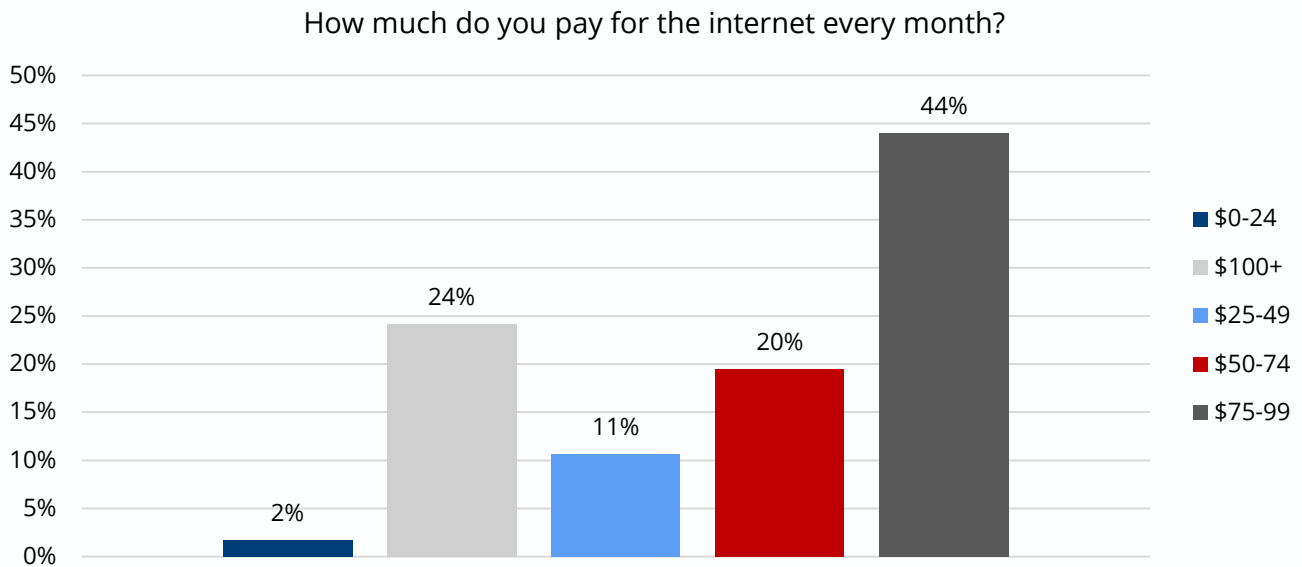
Figure 35: Percentage of Respondents By Quality of Internet Service



Broadband Affordability

- **60% of survey respondents from Central Massachusetts noted that the costs of their available monthly internet subscriptions are very or somewhat hard to afford.**
- In Central Massachusetts, **44% of respondents noted paying between \$75 - \$99 for internet service every month.**
- In the Central Massachusetts listening session, participants described challenges understanding the complete cost of an internet subscription and detailed frustrations with add-on expenses that are billed after subscription.

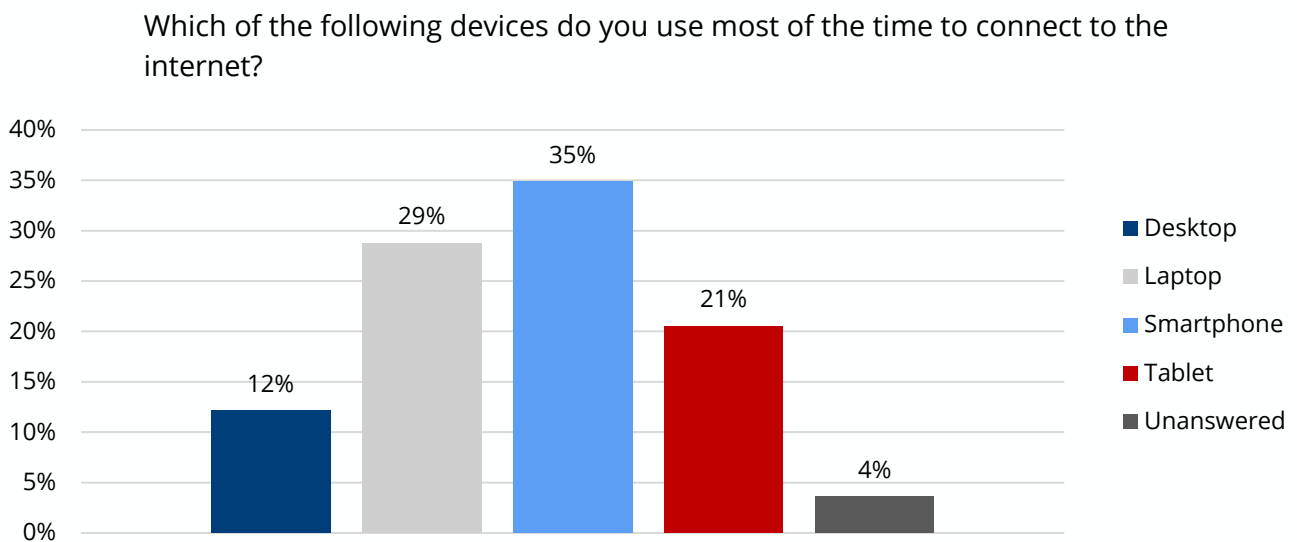
Figure 36: Percentage of Respondents By Monthly Internet Costs



Devices

- **84% of survey respondents in Central Massachusetts had sufficient devices in their homes.** Respondents from Central Massachusetts were **more likely to report the presence of sufficient devices in their homes** than respondents from the other regions of Massachusetts.
- Respondents from the region reported **using smartphones as the most common device used to get online.**
- Survey respondents from the region were **more likely to use tablets to connect to the internet** than respondents from the other regions of Massachusetts.

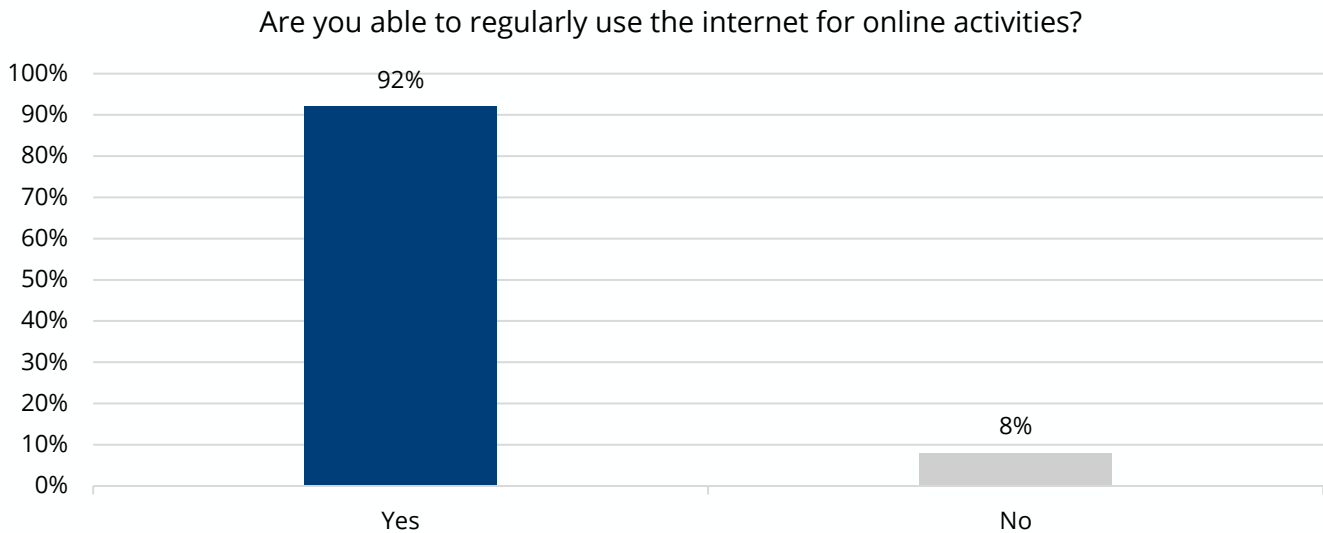
Figure 37: Percent Respondents By Device Used to Connect to the Internet



Internet Use & Digital Skills

- **8% of survey respondents from Central Massachusetts reported that they cannot regularly use the internet for online activities.**
- To improve digital skills, **respondents are most interested in do-it-yourself training modules.**
- In the Central Massachusetts listening session, participants described not knowing the extent of what they could use the internet for and the need for more information on the possibilities of the digital world.

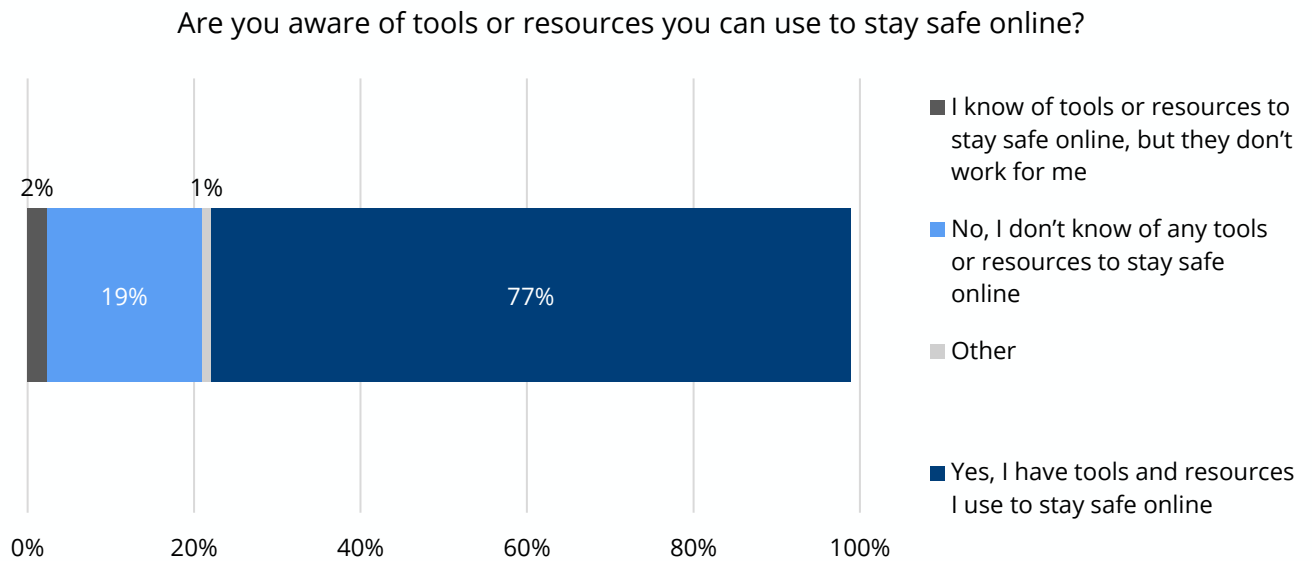
Figure 38: Percentage of Respondents by Ability to Regularly Use the Internet



Online Privacy and Security

- **76% of survey respondents from Central Massachusetts were somewhat or very concerned about internet safety.**
- Survey respondents from Central Massachusetts **were more likely to be concerned about online scams, surveillance, and stolen data** than respondents from the other regions of Massachusetts.
- Respondents from Central Massachusetts were **most concerned about the risk of scams and stolen data.**
- 23% of survey respondents from the region reported struggling to keep themselves safe from such dangers on the internet.

Figure 39: Percent Respondents By Awareness of Tools and Resources to Stay Safe Online

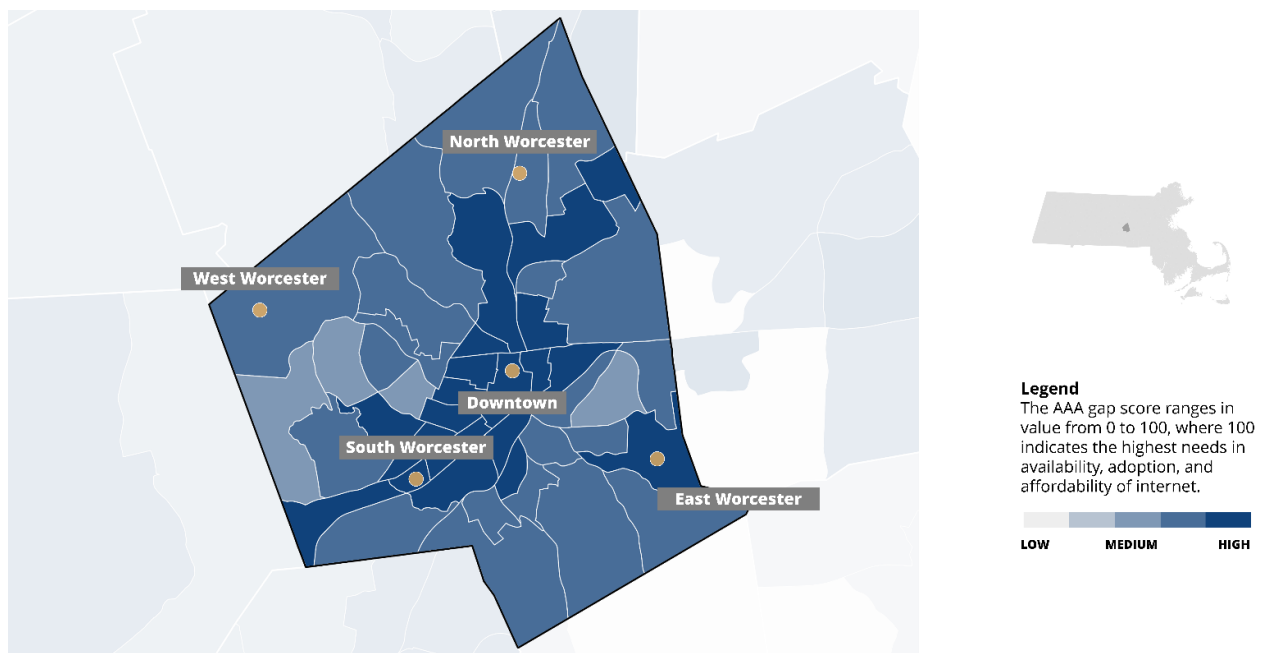


Accessibility of Online Government Services

- **Online government services were accessible to 78% of survey respondents in Central Massachusetts,** with 11% of survey respondents reporting poor performance while accessing these services.
- In the Central Massachusetts Listening Session, participants cited specific challenges with understanding how to engage with civil processes and access information.

Worcester

Figure 40: Map of Availability, Access, and Adoption Needs in the City of Worcester



As one of the three largest cities in the commonwealth, broadband needs in the City of Worcester differ from that of the greater region around it. Additionally, Worcester contains a higher concentration of covered populations including racial and ethnic minorities and low-income households than in the broader Central Massachusetts region.

Availability, affordability, and adoption needs are highest in the City of Worcester in neighborhoods near Downtown, East Worcester, and South Worcester. In the Central Massachusetts listening session, participants described the challenge of getting community input and participation in broadband planning initiatives such as the statewide survey given the complexity of the issues and the lack of accessible explanation materials.

Northeast

Figure 41: Map of Availability, Access, and Adoption Needs

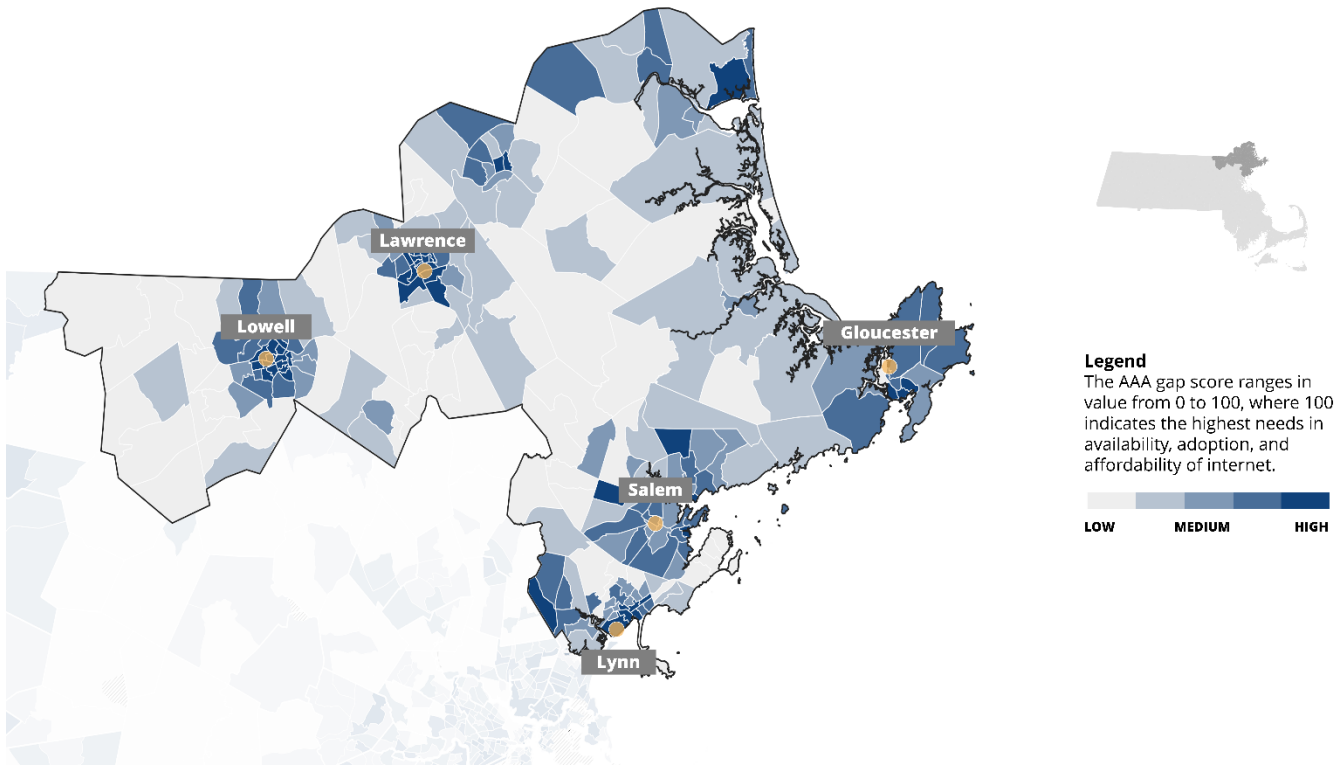
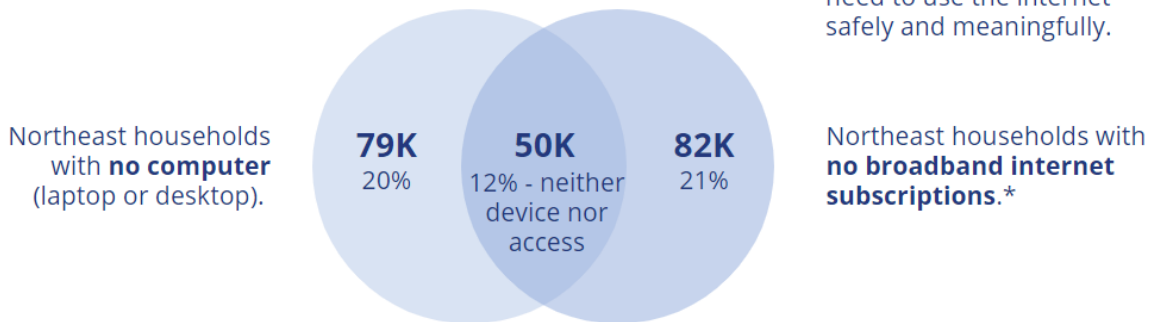


Figure 42: Venn Diagram of Digital Equity Gaps

Of **402,000 households** in the region...



These challenges have **disproportionate impact for specific population groups** depending on a range of socioeconomic, historical, and geographic factors.

* Residents with no broadband access (cable, fiber optic, or DSL) in their household. **Source:** U.S. Census Bureau

The Northeast contains a higher share of low-income households (42%) than other parts of the state (39%)⁶⁹. Availability, access, and adoption needs are highest in urban areas of Lowell, Lawrence, and Lynn.

Many focus group participants spoke about their experiences with poor internet quality, as well as lack of devices in the home and the need for digital skills training. Listening session participants described difficulties using online resources due to language barriers and the accessibility of training resources.

The Northeast region contains⁷⁰:

1,059,483 total residents

\$93,900 median household income

401,940 total households

99% of households have broadband internet available at home, compared to **99%** of households statewide⁷¹

Population	Northeast	Massachusetts
Low-income households	42%	39%
Aging individuals	25%	23%
Incarcerated individuals	0.2%	0.3%
Veterans	4%	4%
Individuals with disabilities	12%	11%
Households with Limited English	7%	6%
Racial and ethnic minorities	25%	25%
Rural inhabitants	3%	10%

Broadband Availability

- **92% of survey respondents from the Northeast had internet service at home.**
- Respondents from the Northeast **were less likely to have internet service** than respondents from the other regions of Massachusetts.
- **73% of respondents from the Northeast reported that their home internet service is good enough to meet their household’s needs.**

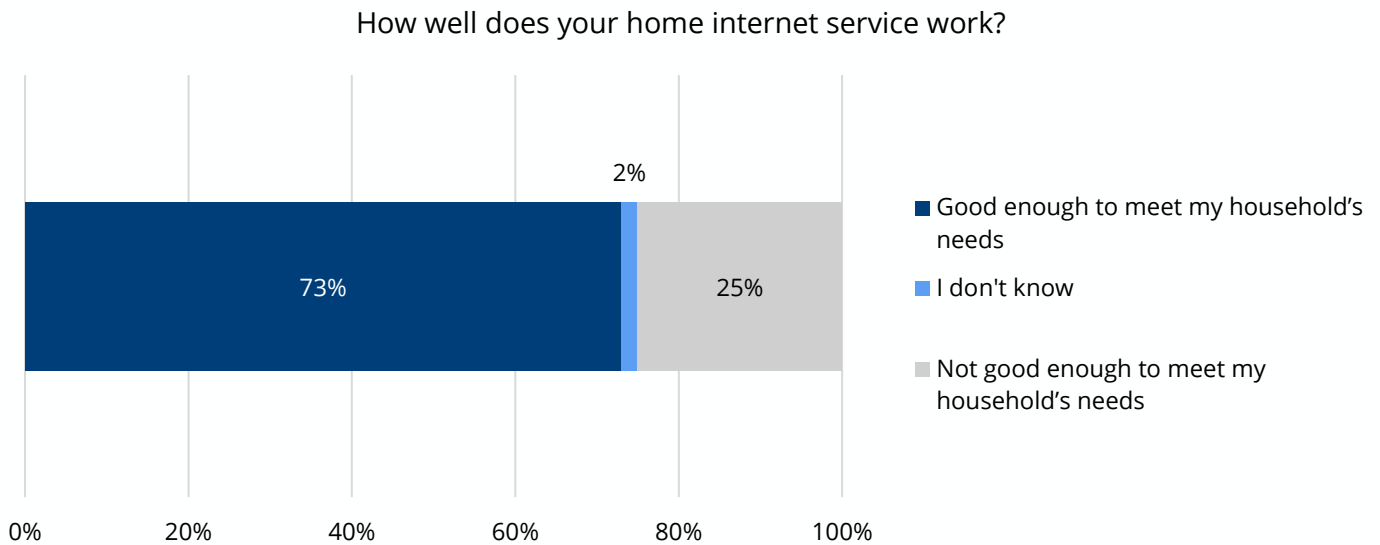
⁶⁹ American Community Survey (ACS) 2017-2021 5-Year Estimates.

⁷⁰ American Community Survey (ACS) 2017-2021 5-Year Estimates.

⁷¹ See MBI’s Massachusetts Broadband Map, <https://mapping.massbroadband.org/map>.

- Respondents from the Northeast **were more likely to state that not wanting a subscription prevents them from subscribing to an internet plan** than respondents from the other regions of Massachusetts.
- Survey respondents from the Northeast **were less likely to subscribe to a wireless connection (cable, fiber, or DSL)** than respondents from the other regions of Massachusetts.

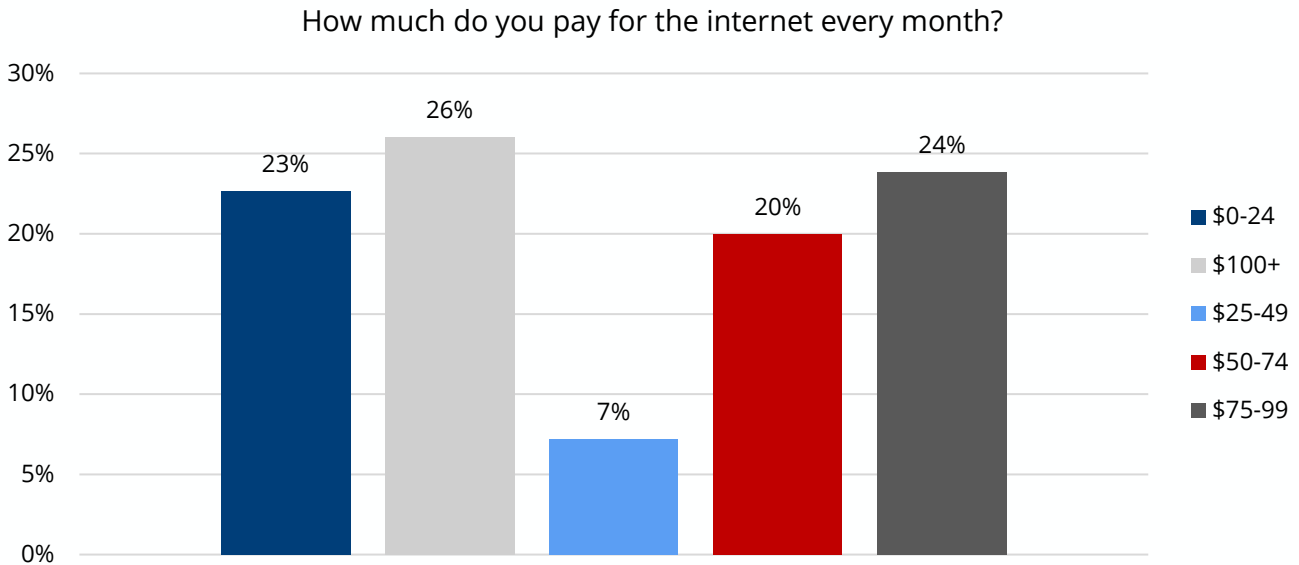
Figure 43: Percentage of Respondents By Quality of Internet Service



Broadband Affordability

- **65% of survey respondents from the Northeast noted that the costs of their available monthly internet subscriptions are very or somewhat hard to afford.**
- In the Northeast, **26% of respondents noted paying over \$100 for internet service every month.**
- Respondents from the Northeast **were more likely to state that the cost of a subscription prevents them from subscribing to an internet plan** than respondents from the other regions of Massachusetts.

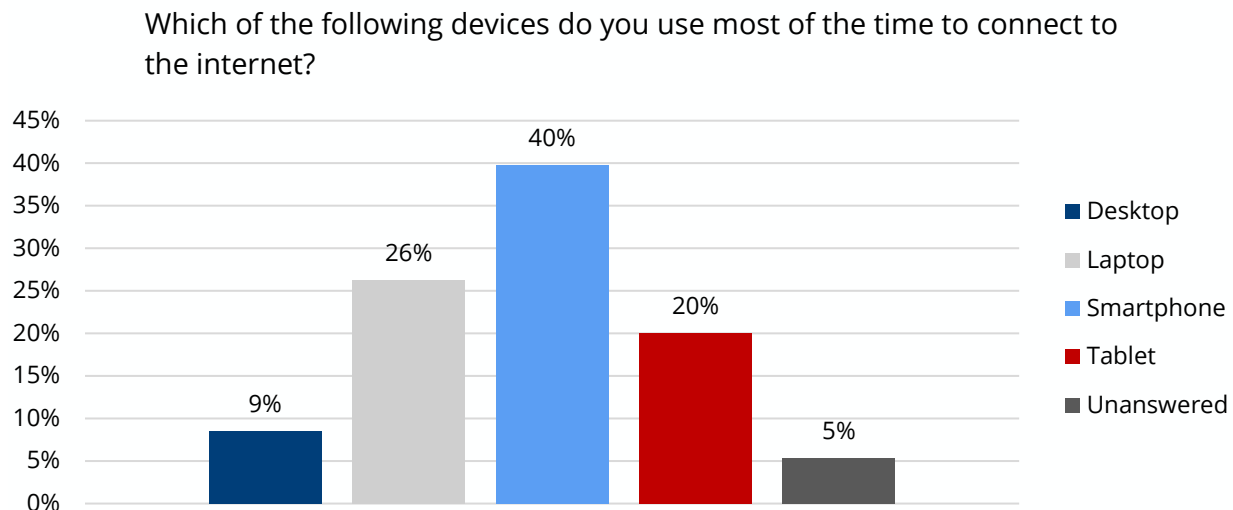
Figure 44: Percentage of Respondents By Monthly Internet Costs



Devices

- **73% of survey respondents in the Northeast had sufficient devices in their homes.** Respondents from the Northeast **were less likely to report the presence of sufficient devices in their homes** than respondents from the other regions of Massachusetts.
- Respondents from the region reported **using smartphones as the most common device used to get online.**
- Survey respondents from the region **were less likely to use desktops, laptops, and tablets to connect to the internet** than respondents from the other regions of Massachusetts.

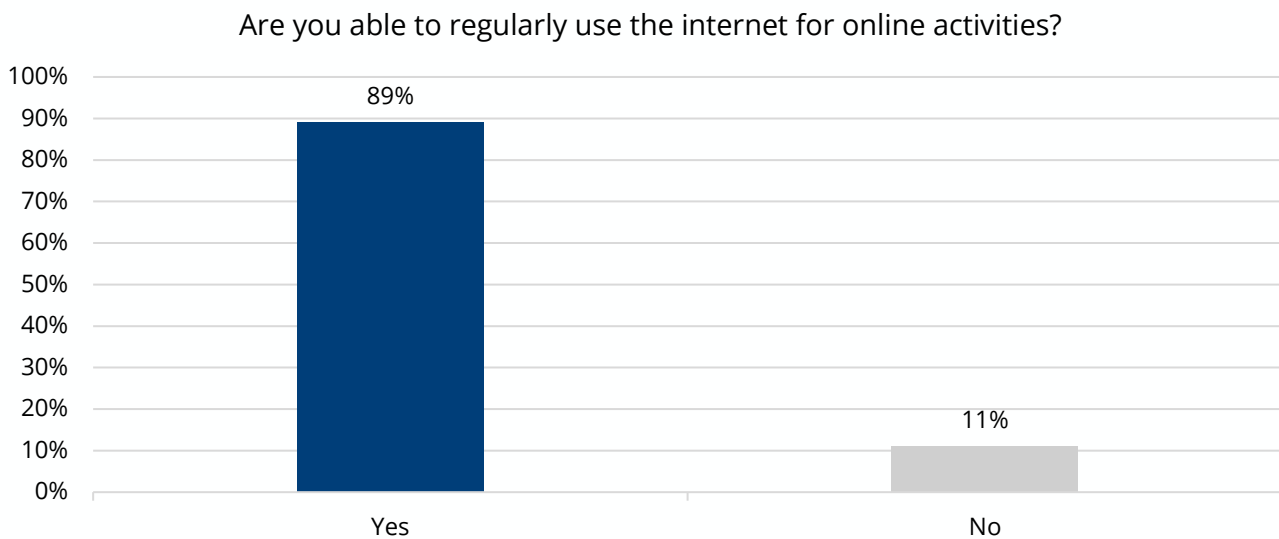
Figure 45: Percent Respondents By Device Used to Connect to the Internet



Internet Use & Digital Skills

- **11% of survey respondents from the Northeast reported that they cannot regularly use the internet for online activities.**
- To improve digital skills, **respondents were most interested in do-it-yourself training modules and online classes.**
- In the Northeast listening session, participants described challenges knowing who to reach out to for support using the internet and focused on the importance of developing transferable skills for when technologies develop.

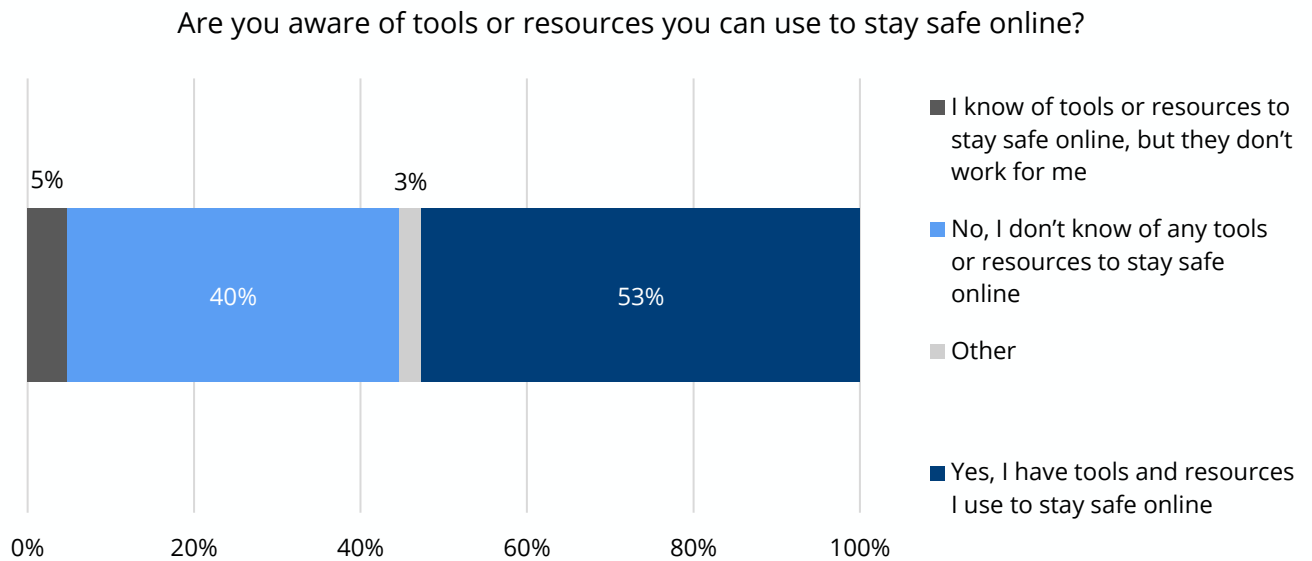
Figure 46: Percentage of Respondents by Ability to Regularly Use the Internet



Online Privacy and Security

- **67% of survey respondents from the Northeast were somewhat or very concerned about internet safety.** Respondents from the region **were more likely to be concerned about internet safety** than respondents from the other regions of Massachusetts.
- Survey respondents from the Northeast **were less likely to be concerned about online scams, surveillance, and stolen data** than respondents from the other regions of Massachusetts.
- Respondents from the Northeast were **most concerned about the risk of scams and stolen data.**
- 45% of survey respondents from the region reported struggling to keep themselves safe from such dangers on the internet.

Figure 47: Percent Respondents By Awareness of Tools and Resources to Stay Safe Online



Accessibility of Online Government Services

- **Online government services were accessible to 74% of survey respondents in the Northeast**, with 15% of survey respondents reporting poor performance while accessing these services.
- Focus group participants noted challenges with site accessibility, as well as a lack of comfort with state websites.
- In the Northeast Listening Session, participants stated that increased promotion and explanation of ACP would increase enrollment.

Greater Boston

Figure 48: Map of Availability, Access, and Adoption Needs

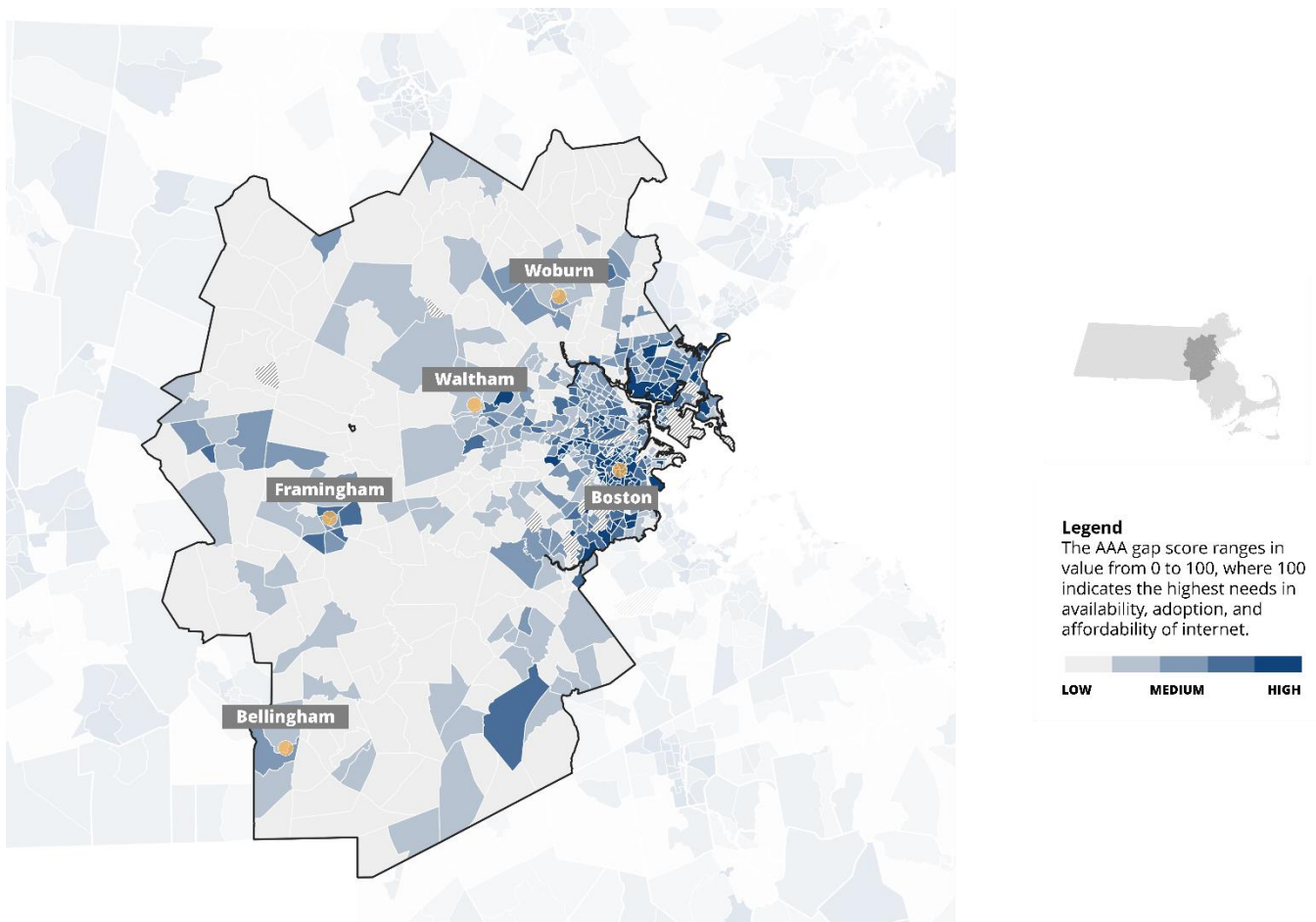
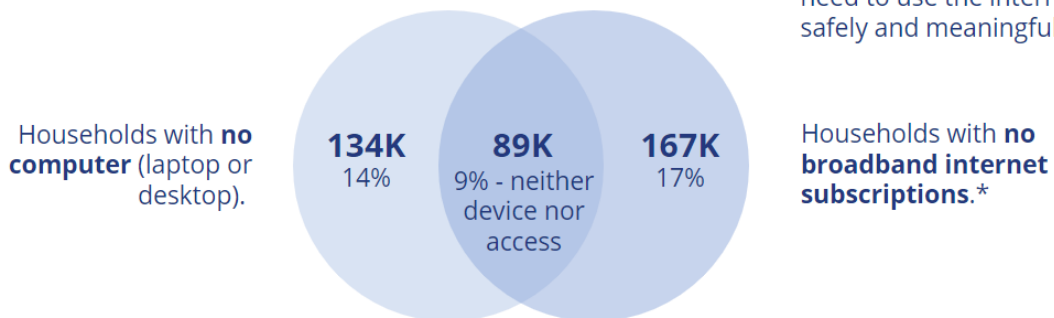


Figure 49: Venn Diagram of Digital Equity Gaps

Of **980,000 households** in the region...



Many more face challenges with finding the support they need to use the internet safely and meaningfully.

These challenges have **disproportionate impact for specific population groups** depending on a range of socioeconomic, historical, and geographic factors.

* Residents with no broadband access (cable, fiber optic, or DSL) in their household. Source: U.S. Census Bureau

Greater Boston contains a higher share of racial and ethnic minorities (33%) than other parts of the state (25%) ⁷². Availability, access, and adoption needs are highest in urban areas of Boston.

Focus group participants detailed their experience with poor internet quality, challenges with digital skill building, and the lack of sufficient affordable device access. In the Greater Boston listening session, participants described challenges with internet reliability and insufficient bandwidth in places for multiple devices.

Greater Boston region contains⁷³:

2,527,999 total residents

\$111,372 median household income

981,814 total households

99% of households have broadband internet available at home, compared to **99%** of households statewide⁷⁴

Population	Greater Boston	Massachusetts
Low-income households	36%	39%
Aging individuals	20%	23%
Incarcerated individuals	0.4%	0.3%
Veterans	3%	4%
Individuals with disabilities	10%	11%
Households with Limited English	8%	6%
Racial and ethnic minorities	33%	25%
Rural inhabitants	1%	10%

Broadband Availability

- **93% of survey respondents from Greater Boston had internet service at home.**
- **78% of respondents from Greater Boston reported that their home internet service is good enough to meet their household’s needs.**
- Respondents from Greater Boston **were more likely to state that a lack of reliable internet service prevents them from subscribing to an internet plan** than respondents from the other regions of Massachusetts.

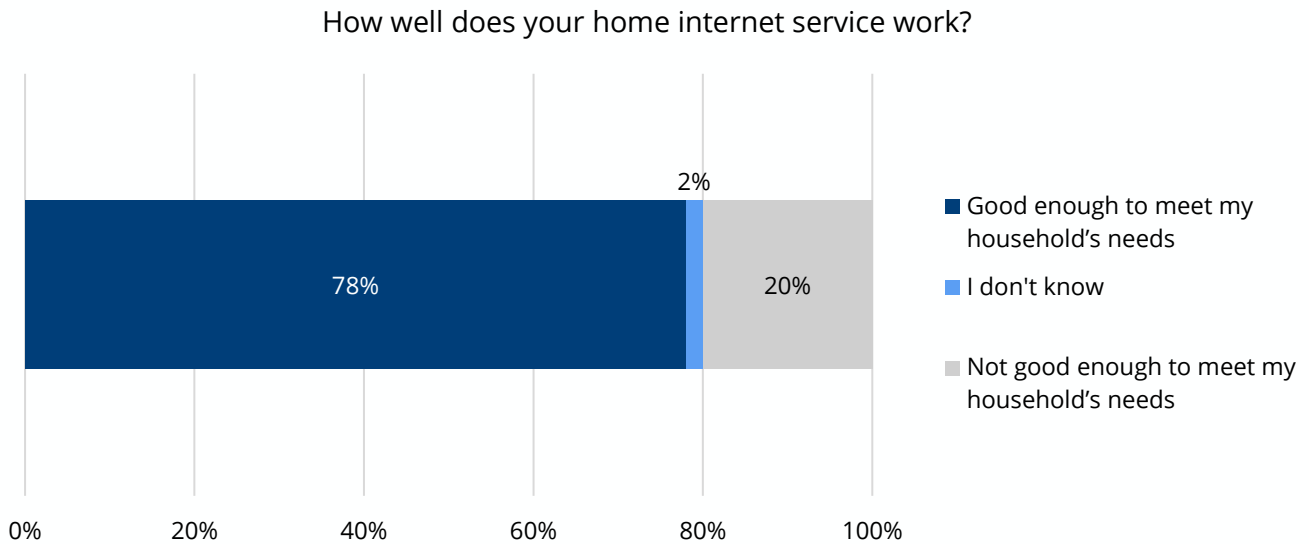
⁷² American Community Survey (ACS) 2017-2021 5-Year Estimates.

⁷³ American Community Survey (ACS) 2017-2021 5-Year Estimates.

⁷⁴ See MBI’s Massachusetts Broadband Map, <https://mapping.massbroadband.org/map>.

- Survey respondents from Greater Boston **were less likely to subscribe to a satellite connection** than respondents from the other regions of Massachusetts.

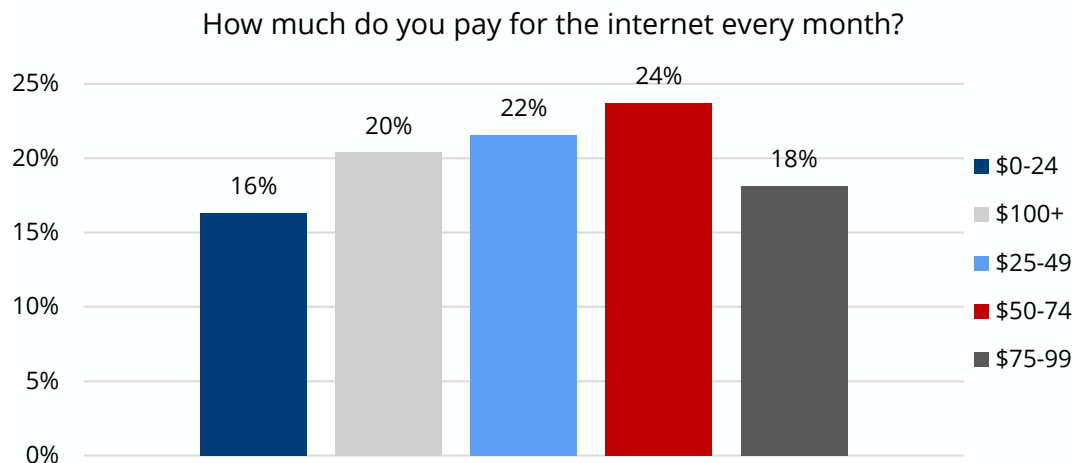
Figure 50: Percentage of Respondents By Quality of Internet Service



Broadband Affordability

- **65% of survey respondents from Greater Boston noted that the costs of their available monthly internet subscriptions are very or somewhat hard to afford.**
- In Greater Boston, **24% of respondents noted paying between \$50 - \$74 for internet service every month.**
- Respondents from Greater Boston **were less likely to state that the cost of a subscription prevents them from subscribing to an internet plan** than respondents from the other regions of Massachusetts.

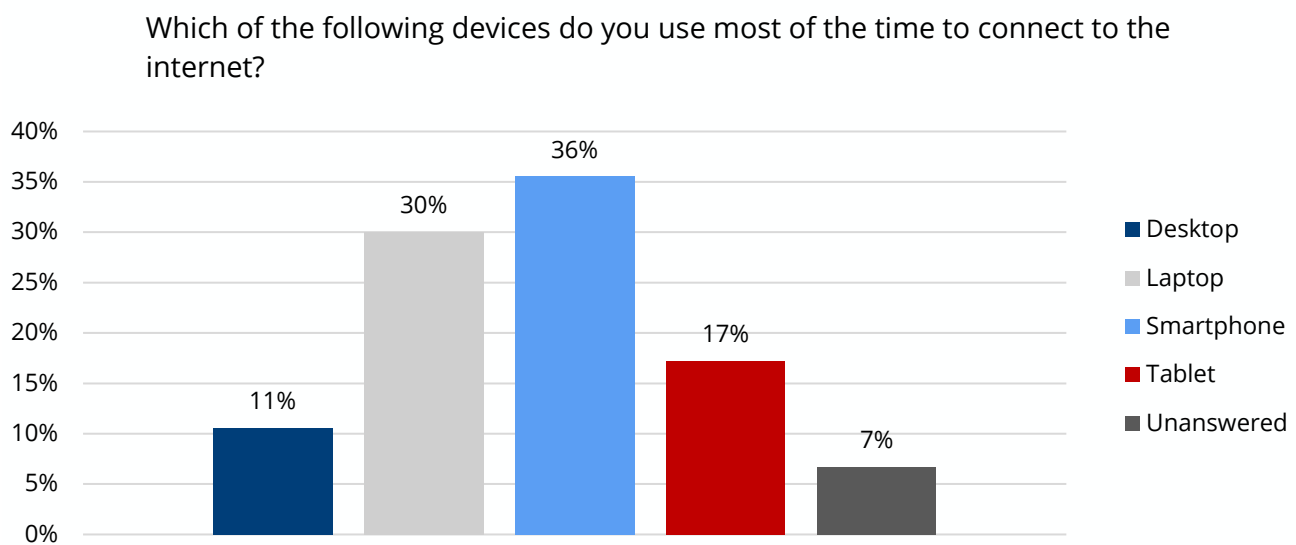
Figure 51: Percentage of Respondents By Monthly Internet Costs



Devices

- **77% of survey respondents in Greater Boston had sufficient devices in their homes.** Respondents from Greater Boston **were more likely to report the presence of sufficient devices in their homes** than respondents from the other regions of Massachusetts.
- Respondents from the region reported **using smartphones as the most common device used to get online.**
- Survey respondents from the region **were less likely to use smartphones and tablets to connect to the internet** than respondents from the other regions of Massachusetts.

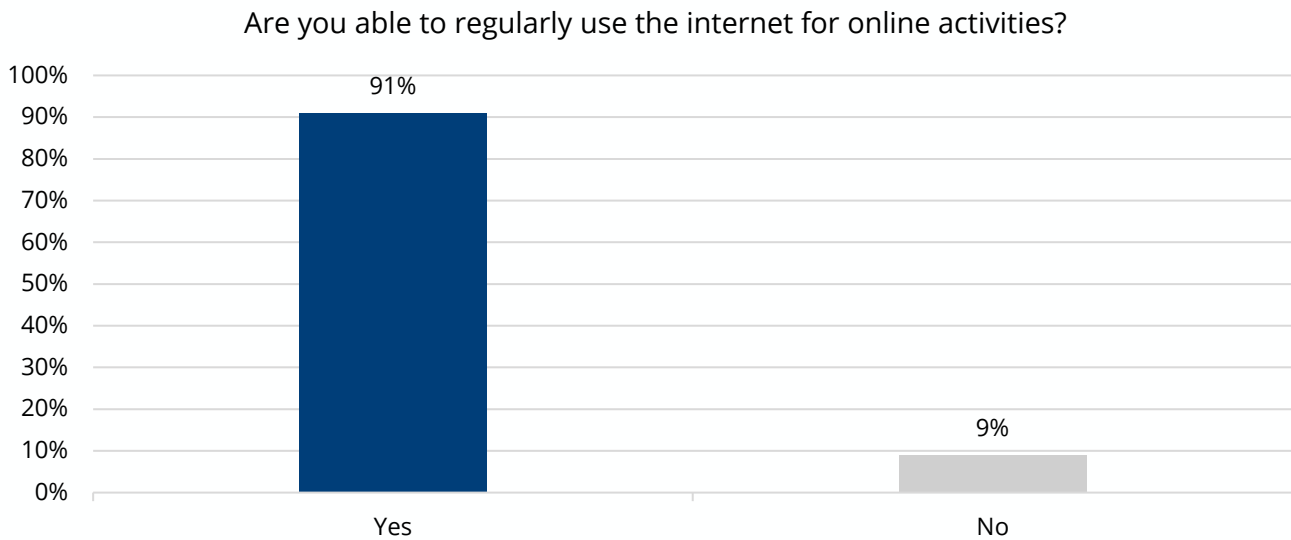
Figure 52: Percent Respondents By Device Used to Connect to the Internet



Internet Use & Digital Skills

- **9% of survey respondents from Greater Boston reported that they cannot regularly use the internet for online activities.**
- To improve digital skills, **respondents are most interested in do-it-yourself training modules and online classes.**
- Survey respondents were **less likely to have difficulty with healthcare or telehealth, participation in local community events, and transportation information** than respondents from the other regions of Massachusetts.
- In the Greater Boston listening session, participants noted the need for more digital education, hands-on workshops, and digital skills trainings for work and healthcare.

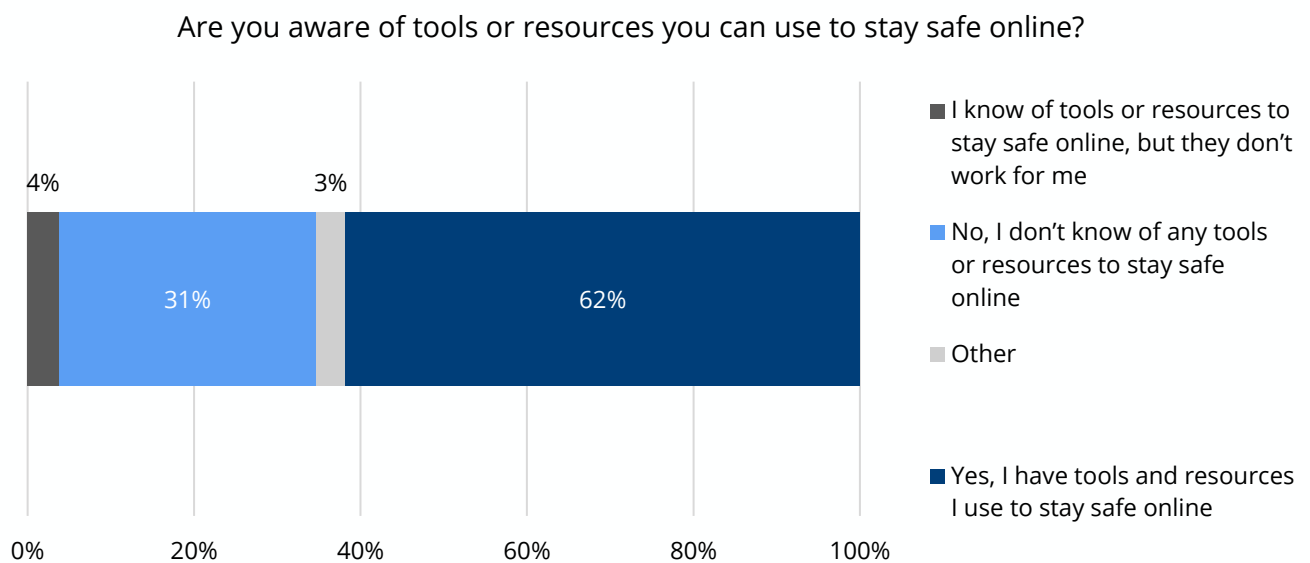
Figure 53: Percentage of Respondents by Ability to Regularly Use the Internet



Online Privacy and Security

- **69% of survey respondents from Greater Boston were somewhat or very concerned about internet safety.**
- Survey respondents from Greater Boston **were less likely to be concerned about online scams, surveillance, and stolen data** than respondents from the other regions of Massachusetts.
- Respondents from Greater Boston were **most concerned about the risk of scams and stolen data.**
- 38% of survey respondents from the region reported struggling to keep themselves safe from such dangers on the internet.

Figure 54: Percent Respondents By Awareness of Tools and Resources to Stay Safe Online

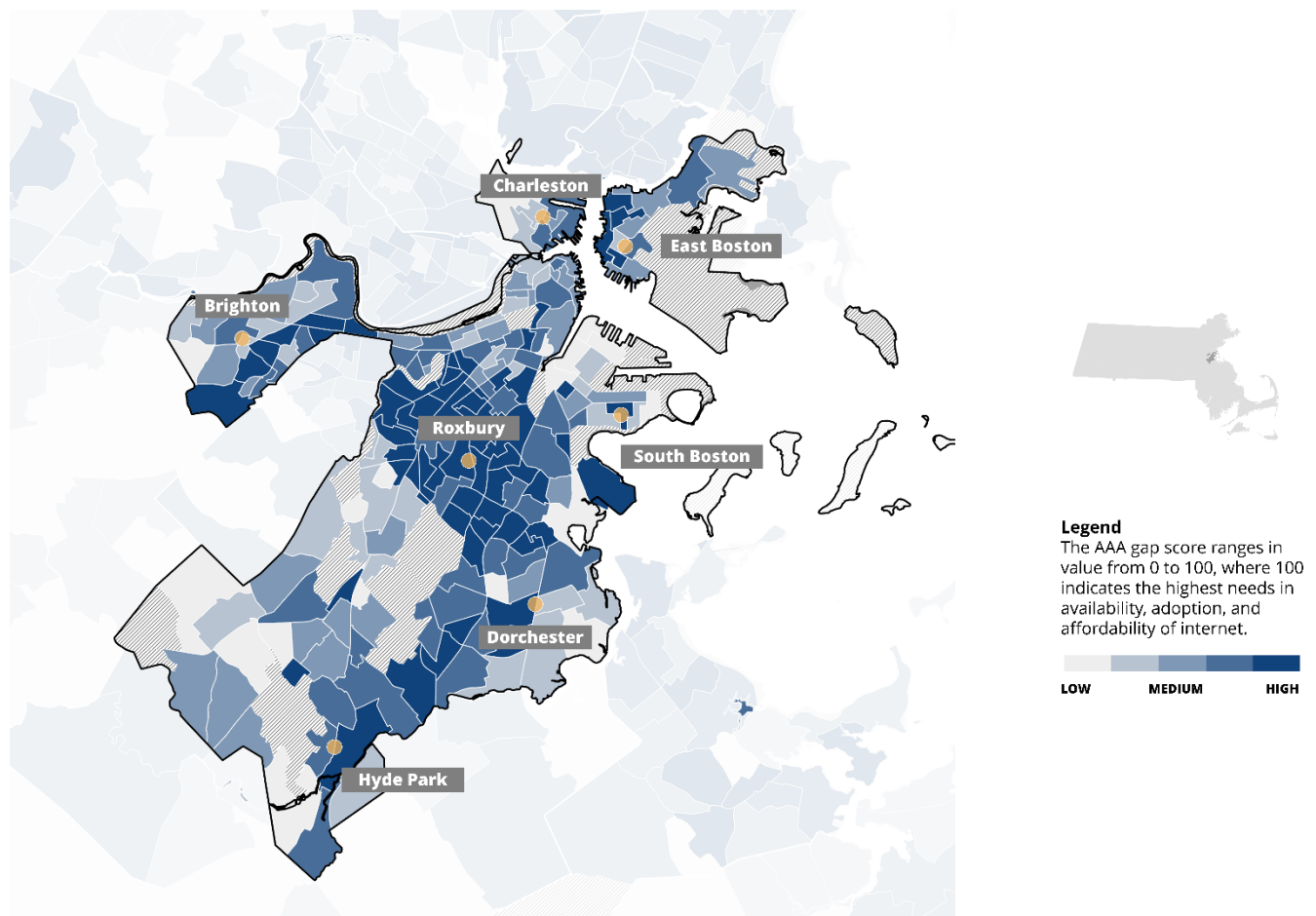


Accessibility of Online Government Services

- **Online government services were accessible to 71% of survey respondents in Greater Boston**, with 16% of survey respondents reporting poor performance while accessing these services.
- Focus group participants noted that they experience challenges with using smartphones to access online public resources.
- In the Greater Boston Listening Session, participants described that many residents of the region were hesitant to apply to ACP as they do not wish to provide their information to governments and non-profits organizations.

Boston

Figure 55: Map of Availability, Access, and Adoption Needs in the City of Boston



As one of the three largest cities in the commonwealth, broadband needs in the City of Boston differ from that of the greater region around it. Additionally, Boston contains a higher concentration of covered populations including racial and ethnic minorities and low-income households than in the broader Central Massachusetts region.

Availability, affordability, and adoption needs are highest in the City of Boston in neighborhoods including Roxbury, Brighton, and East Boston. In the Greater Boston listening session, participants described the challenge of navigating both government and general online resources in the diversity of languages present in the communities of Boston.

Southeast

Figure 56: Map of Availability, Access, and Adoption Needs

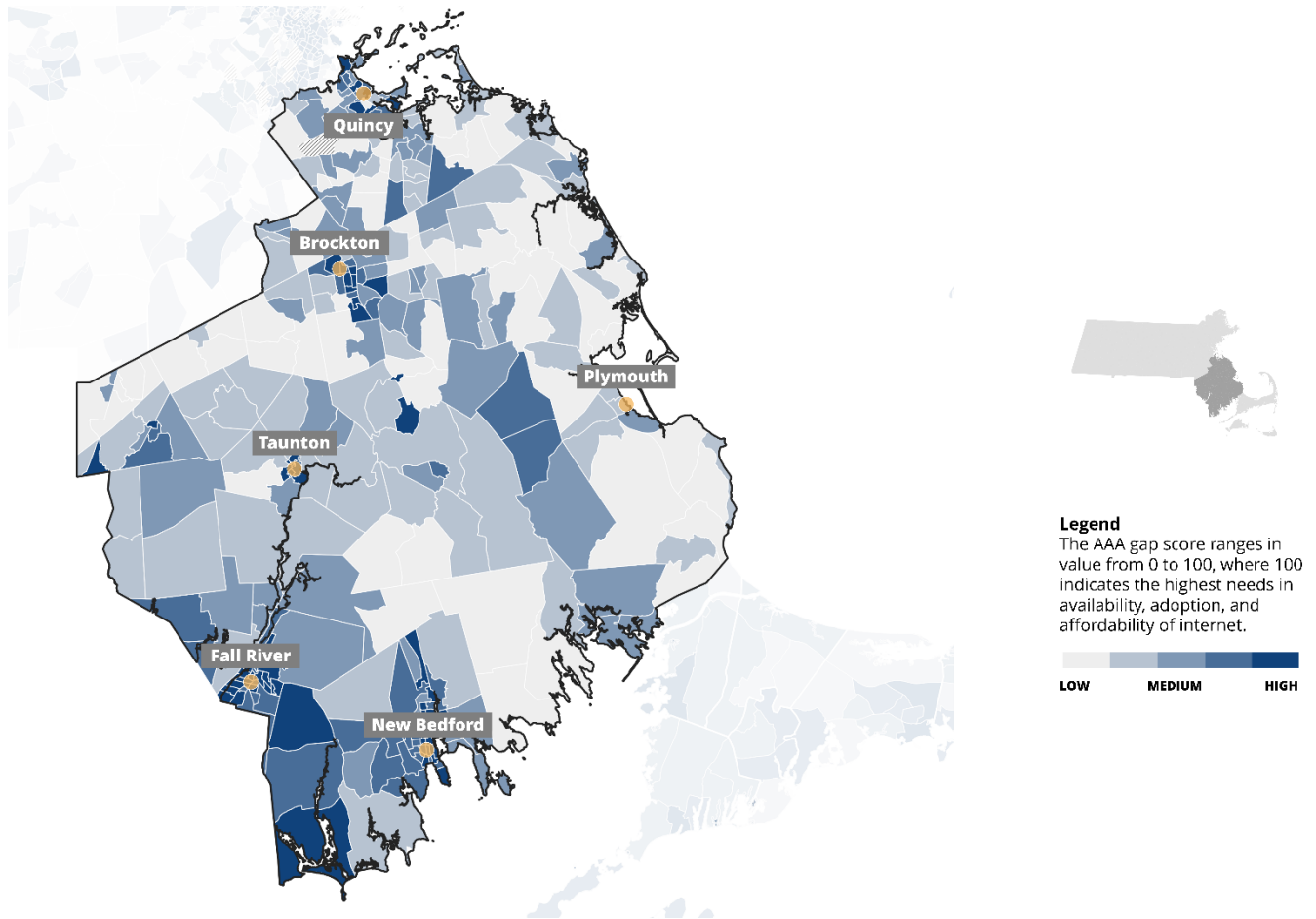
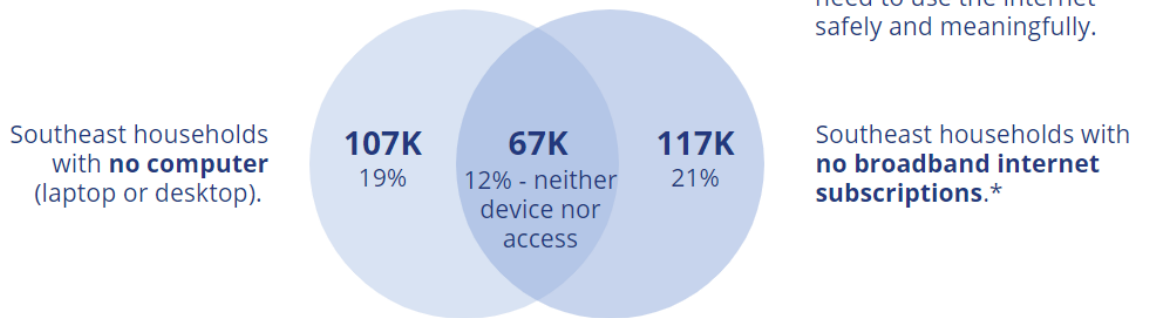


Figure 57: Venn Diagram of Digital Equity Gaps

Of **550,000 households** in the Southeast...



Many more face challenges with finding the support they need to use the internet safely and meaningfully.

These challenges have **disproportionate impact for specific population groups** depending on a range of socioeconomic, historical, and geographic factors.

* Residents with no broadband access (cable, fiber optic, or DSL) in their household. **Source:** U.S. Census Bureau

The Southeast contains a higher share of veterans (5%) than other parts of the state (4%)⁷⁵. Availability, access, and adoption needs are highest near Brockton, Fall River, and New Bedford.

Listening Session participants cited major barriers to internet such as high internet costs, unclear plans, slow speeds, and difficulty accessing internet in languages other than English. Besides libraries, many participants were unaware of where to access free Wi-Fi and devices.

The Southeast region contains⁷⁶:

1,416,595 total residents

\$90,658 median household income

549,141 total households

99% of households have broadband internet available at home, compared to **99%** of households statewide⁷⁷

Population	Southeast	Massachusetts
Low-income households	36%	39%
Aging individuals	24%	23%
Incarcerated individuals	0.4%	0.3%
Veterans	5%	4%
Individuals with disabilities	12%	11%
Households with Limited English	5%	6%
Racial and ethnic minorities	22%	25%
Rural inhabitants	5%	10%

Broadband Availability

- **90% of survey respondents from the Southeast Region had internet service at home.**
- Respondents from the Southeast **were less likely to have internet service** than respondents from the other regions of Massachusetts.
- **62% of respondents from the Southeast reported that their home internet service is good enough to meet their household’s needs.**

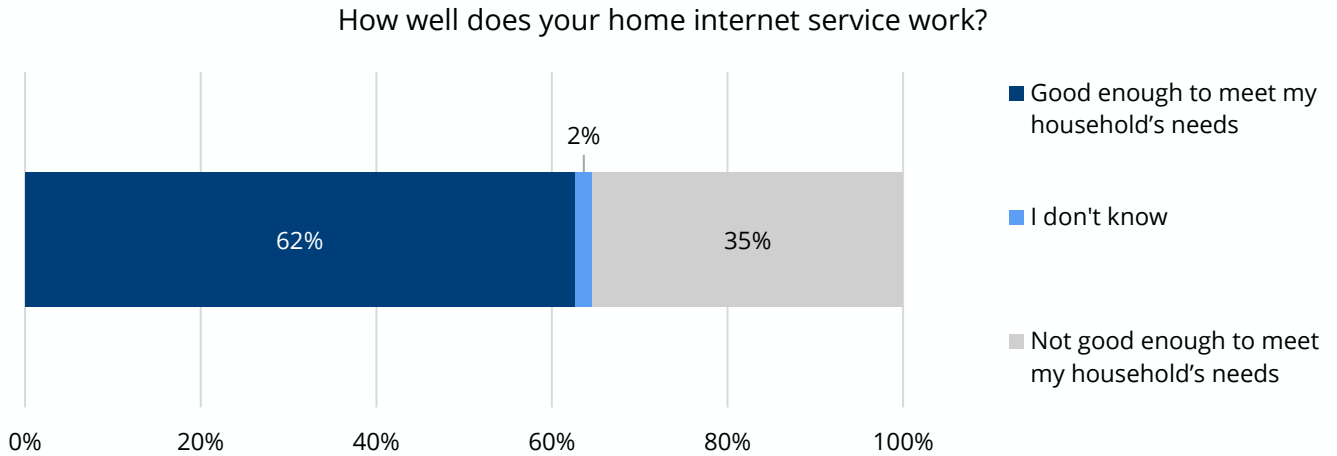
⁷⁵ American Community Survey (ACS) 2017-2021 5-Year Estimates.

⁷⁶ American Community Survey (ACS) 2017-2021 5-Year Estimates.

⁷⁷ See MBI’s Massachusetts Broadband Map, <https://mapping.massbroadband.org/map>.

- Respondents from the Southeast **were less likely to state that a lack of reliable internet service or a lack of desire for internet service prevents them from subscribing to an internet plan** than respondents from the other regions of Massachusetts.
- Survey respondents from the Southeast **were more likely to subscribe to a satellite connection** than respondents from the other regions of Massachusetts.

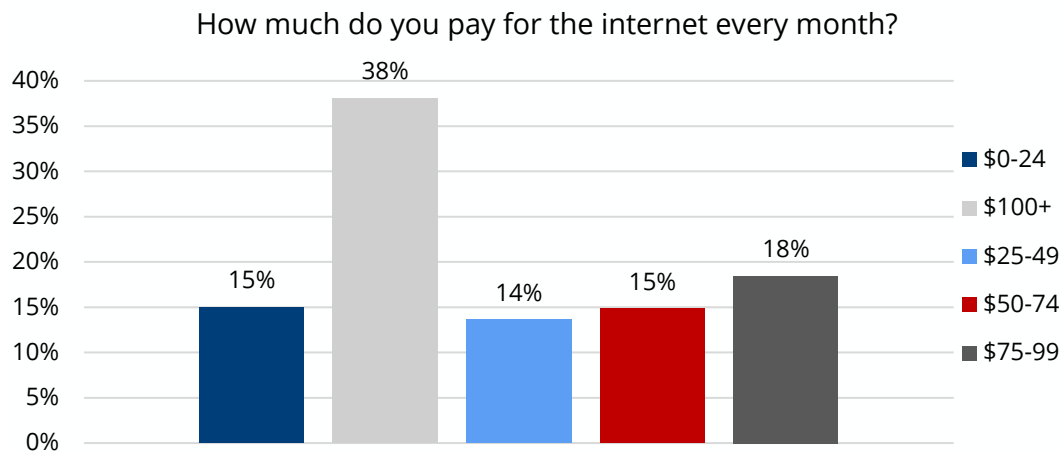
Figure 58: Percentage of Respondents By Quality of Internet Service



Broadband Affordability

- **71% of survey respondents from the Southeast noted that the costs of their available monthly internet subscriptions are very or somewhat hard to afford.**
- In the Southeast, **38% of respondents noted paying over \$100 for internet service every month.**
- Respondents from the Southeast **were more likely to state that the cost of a subscription prevents them from subscribing to an internet plan** than respondents from the other regions of Massachusetts.

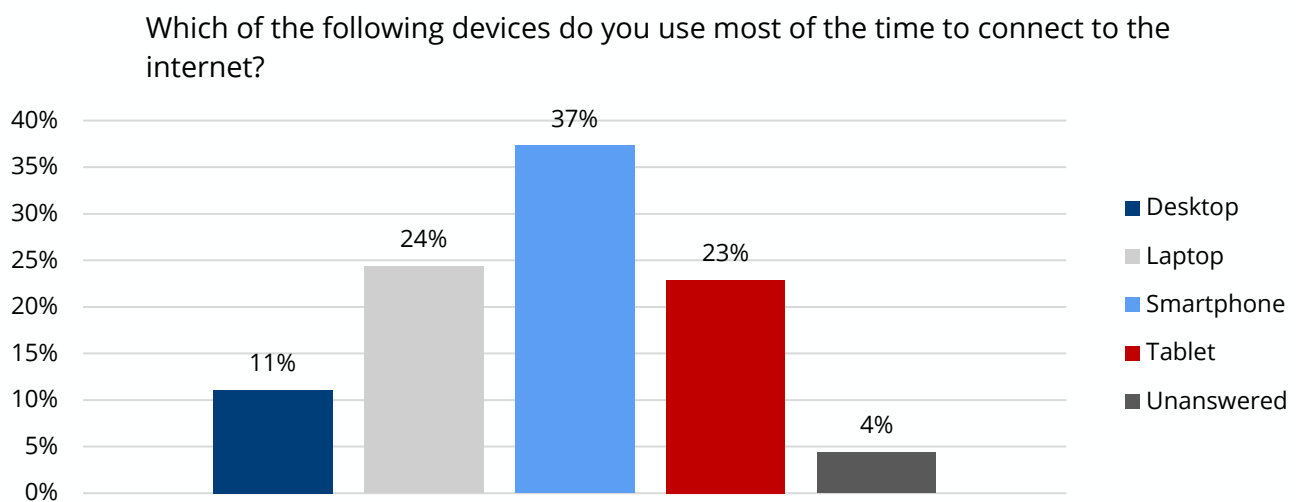
Figure 59: Percentage of Respondents By Monthly Internet Costs



Devices

- **72% of survey respondents in the Southeast had sufficient devices in their homes.** Respondents from the Southeast **were less likely to report the presence of sufficient devices in their homes** than respondents from the other regions of Massachusetts.
- Respondents from the region reported **using smartphones as the most common device used to get online.**
- Survey respondents from the region **were less likely to use laptops to connect to the internet** than respondents from the other regions of Massachusetts.

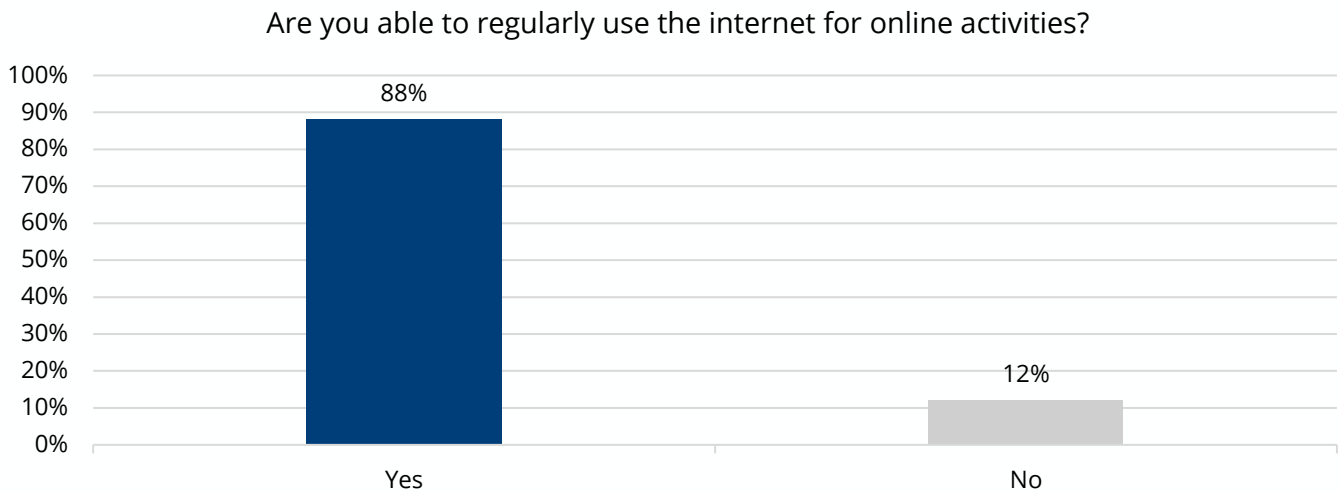
Figure 60: Percent Respondents By Device Used to Connect to the Internet



Internet Use & Digital Skills

- **12% of survey respondents from the Southeast reported that they cannot regularly use the internet for online activities.**
- To improve digital skills, **respondents were most interested in do-it-yourself training modules and online classes.**
- Survey respondents were **more likely to have difficulty with searching or applying for a job, healthcare or telehealth, participation in local community events, general internet searching, transportation information, and applying for benefits or resources** than respondents from the other regions of Massachusetts.
- In the Southeast listening session, participants described challenges using modern applications, particularly when these software programs run on devices such as smartphones or tablets.

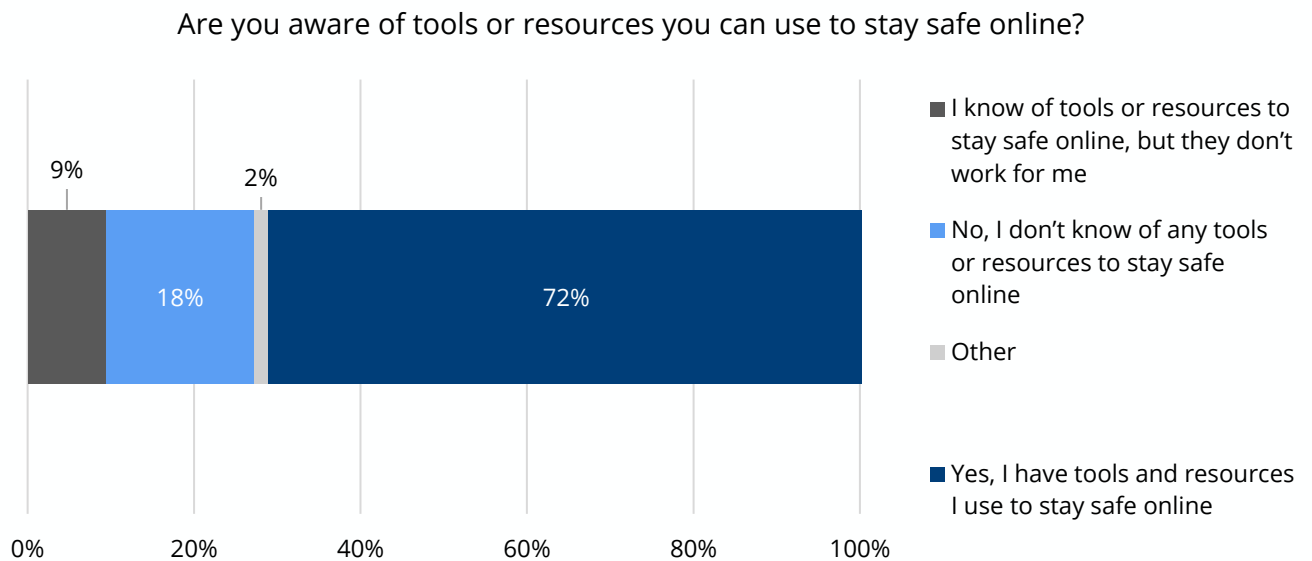
Figure 61: Percentage of Respondents by Ability to Regularly Use the Internet



Online Privacy and Security

- **74% of survey respondents from the Southeast were somewhat or very concerned about internet safety.**
- Respondents from the Southeast were **most concerned about the risk of scams and stolen data.**
- 28% of survey respondents from the region reported struggling to keep themselves safe from such dangers on the internet.

Figure 62: Percent Respondents By Awareness of Tools and Resources to Stay Safe Online



Accessibility of Online Government Services

- **Online government services were accessible to 73% of survey respondents in the Southeast**, with 15% of survey respondents reporting poor performance while accessing these services.
- Focus group participants noted that they experience challenges communicating with artificial intelligence support services such as online chatbots or automated voice menus.
- In the Southeast Listening Session, participants highlighted that for immigrants who have English language barriers, using the internet can be a challenge because it's not in their native language and websites can lack translation capabilities.

Cape Cod and Islands

Figure 63: Map of Availability, Access, and Adoption Needs

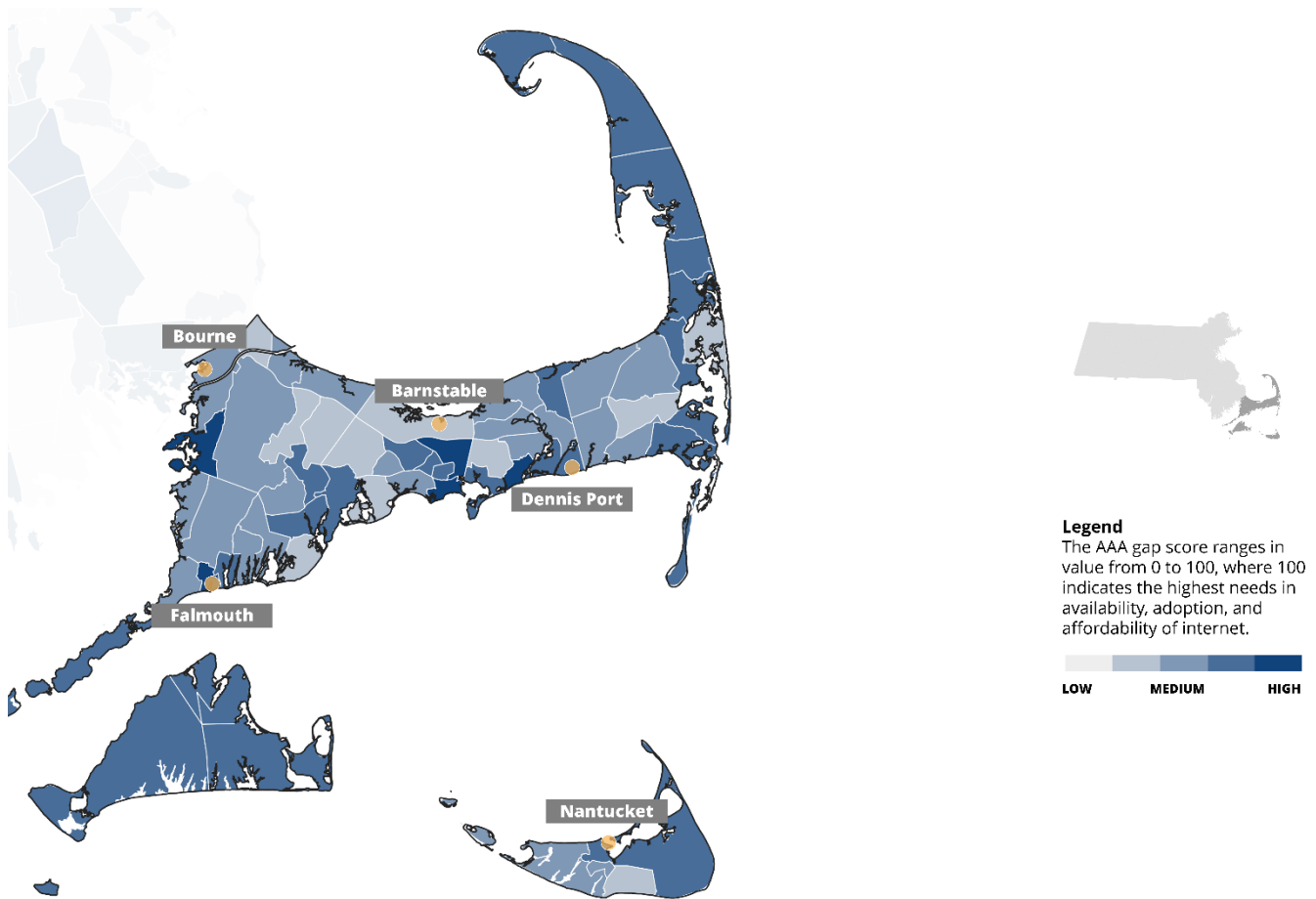
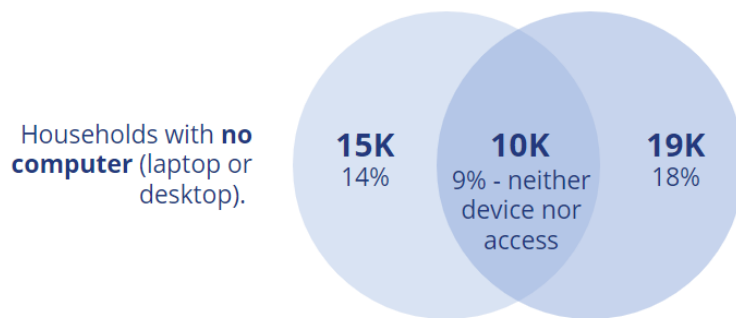


Figure 64: Venn Diagram of Digital Equity Gaps

Of **109,000 households** in the region...



Many more face challenges with finding the support they need to use the internet safely and meaningfully.

Households with **no broadband internet subscriptions**.*

These challenges have **disproportionate impact for specific population groups** depending on a range of socioeconomic, historical, and geographic factors.

* Residents with no broadband access (cable, fiber optic, or DSL) in their household. **Source:** U.S. Census Bureau

Cape Cod and Islands contains a higher share of aging individuals (39%) than other parts of the state (23%)⁷⁸. Availability, access, and adoption needs are highest in many rural towns across the region.

Focus group participants cited difficulty affording service, a need for technical support, as well as concerns about data privacy and environmental service disruptions. In the Cape Cod & Islands listening session, participants expressed concern over the reliability of internet service, particularly during weather-related emergencies.

The Cape Cod and Islands region contains⁷⁹:

262,014 total residents

\$83,808 median household income

108,995 total households

99% of households have broadband internet available at home, compared to **99%** of households statewide⁸⁰

Population	Cape Cod and Islands	Massachusetts
Low-income households	29%	39%
Aging individuals	39%	23%
Incarcerated individuals	0.1%	0.3%
Veterans	7%	4%
Individuals with disabilities	13%	11%
Households with Limited English	2%	6%
Racial and ethnic minorities	12%	25%
Rural inhabitants	28%	10%

Broadband Availability

- **98% of survey respondents from the Cape Cod and Islands Region had internet service at home.**
- Respondents from Cape Cod and Islands **were more likely to have internet service** than respondents from the other regions of Massachusetts.
- **57% of respondents from Cape Cod and Islands reported that their home internet service is good enough to meet their household’s needs.**

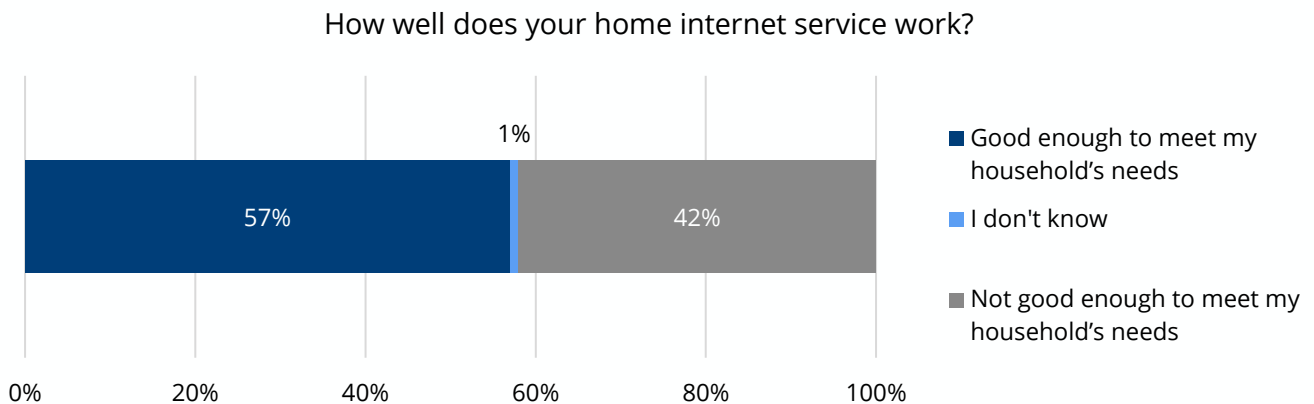
⁷⁸ American Community Survey (ACS) 2017-2021 5-Year Estimates.

⁷⁹ American Community Survey (ACS) 2017-2021 5-Year Estimates.

⁸⁰ See MBI’s Massachusetts Broadband Map, <https://mapping.massbroadband.org/map>.

- Respondents from Cape Cod and Islands **were less likely to state that a lack of reliable internet service prevents them from subscribing to an internet plan** than respondents from the other regions of Massachusetts.
- Survey respondents from Cape Cod and Islands without internet service at home **were less likely to connect at libraries, community centers, workplaces, the homes of family or friends, parks or public spaces, or public transportation** than respondents from the other regions of Massachusetts.
- Survey respondents from Cape Cod and Islands **were more likely to subscribe to a wireless connection (cable, fiber or DSL)** than respondents from the other regions of Massachusetts.

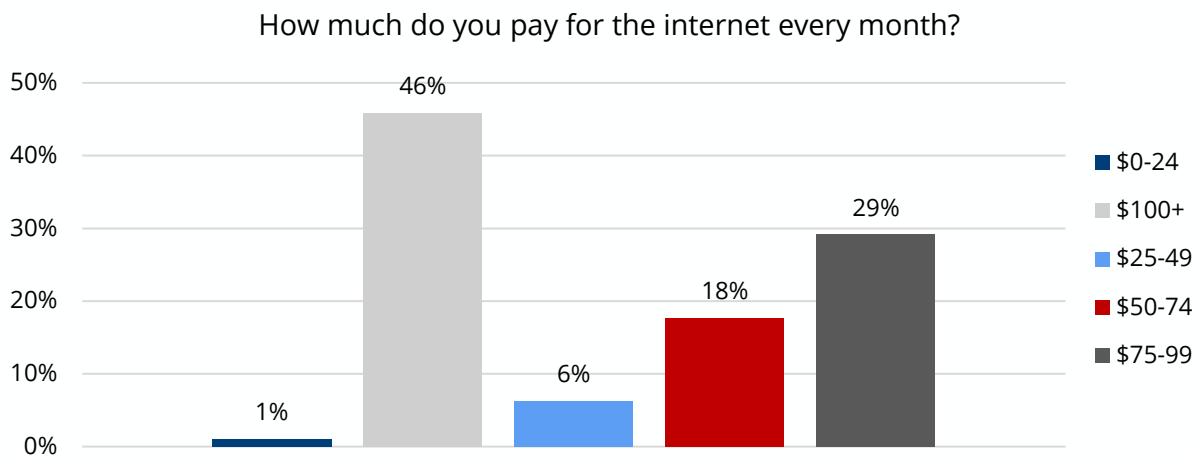
Figure 65: Percentage of Respondents By Quality of Internet Service



Broadband Affordability

- **58% of survey respondents from Cape Cod and Islands noted that the costs of their available monthly internet subscriptions are very or somewhat hard to afford.**
- In Cape Cod and Islands, **46% of respondents noted paying over \$100 for internet service every month.**
- In the Cape Cod and Islands listening session, participants noted that high installation fees limit subscription to internet plans across the region, particularly for small businesses.

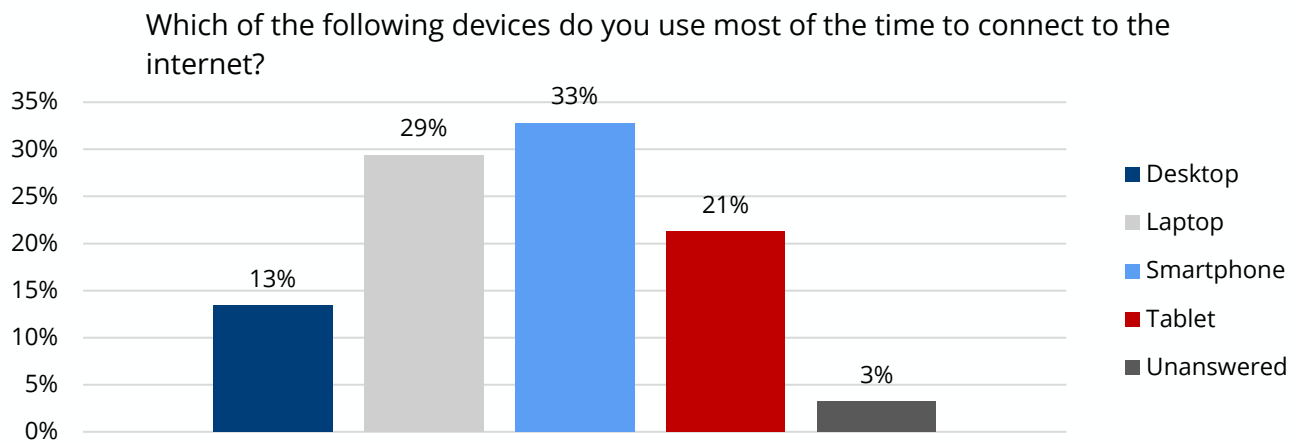
Figure 66: Percentage of Respondents By Monthly Internet Costs



Devices

- **83% of survey respondents in Cape Cod and Islands had sufficient devices in their homes.** Respondents from Cape Cod and Islands **were more likely to report the presence of sufficient devices in their homes** than respondents from the other regions of Massachusetts.
- Respondents from the region reported **using smartphones as the most common device used to get online.**
- Survey respondents from the region **were more likely to use desktops, laptops, and tablets to connect to the internet** than respondents from the other regions of Massachusetts.

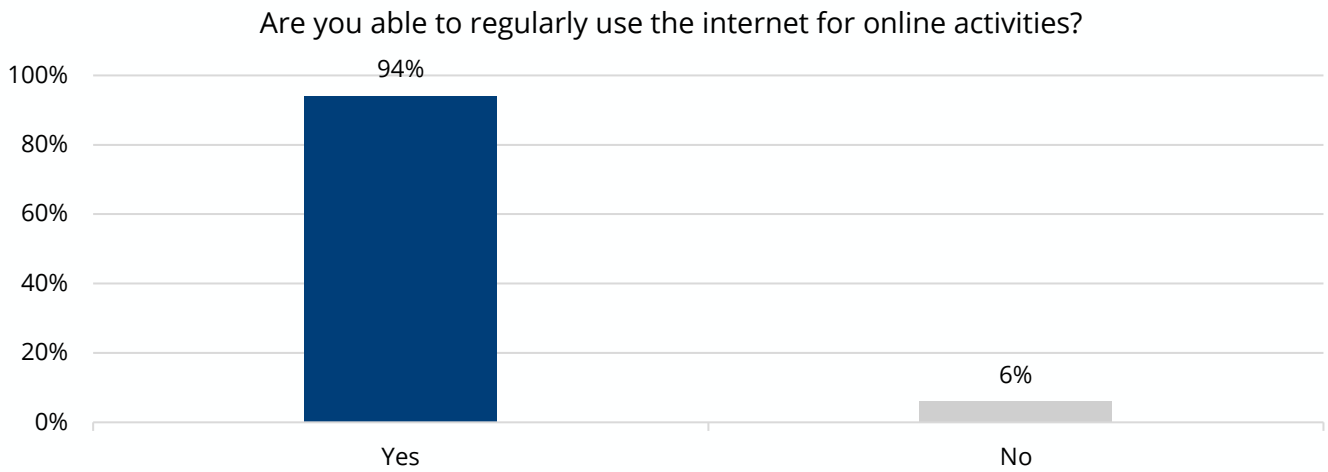
Figure 67: Percent Respondents By Device Used to Connect to the Internet



Internet Use & Digital Skills

- **6% of survey respondents from Cape Cod and Islands reported that they cannot regularly use the internet for online activities.**
- To improve digital skills, **respondents from the region were most interested in do-it-yourself training modules.**
- Survey respondents **were less likely to have difficulty with searching or applying for a job and applying for benefits or resources** than respondents from the other regions of Massachusetts.
- In the Cape Cod and Islands listening session, participants described the need for greater digital literacy programs that build on the existing programming provided by the libraries.

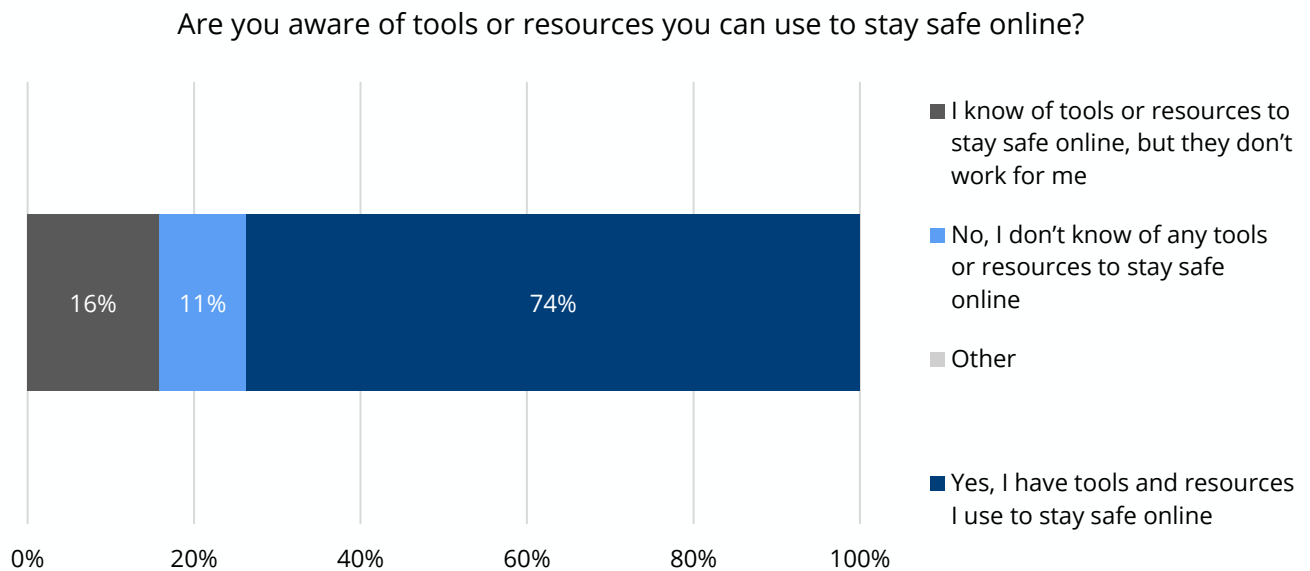
Figure 68: Percentage of Respondents by Ability to Regularly Use the Internet



Online Privacy and Security

- **78% of survey respondents from Cape Cod and Islands were somewhat or very concerned about internet safety.** Respondents from the region **were more likely to be concerned about internet safety** than respondents from the other regions of Massachusetts.
- Survey respondents from Cape Cod and Islands **were more likely to be concerned about online scams, surveillance, and stolen data** than respondents from the other regions of Massachusetts.
- Respondents from Cape Cod and Islands were **most concerned about the risk of scams and stolen data.**
- 26% of survey respondents from the region report struggling to keep themselves safe from such dangers on the internet.

Figure 69: Percent Respondents By Awareness of Tools and Resources to Stay Safe Online



Accessibility of Online Government Services

- **Online government services were accessible to 77% of survey respondents in the Southeast**, with 16% of survey respondents reporting poor performance while accessing these services.
- Focus group participants noted that they experience challenges communicating with artificial intelligence support services such as online chatbots or automated voice menus.
- In the Cape Cod and Islands listening session, participants noted that they have concerns about their ability to call 911 emergency services due to their inconsistent service.

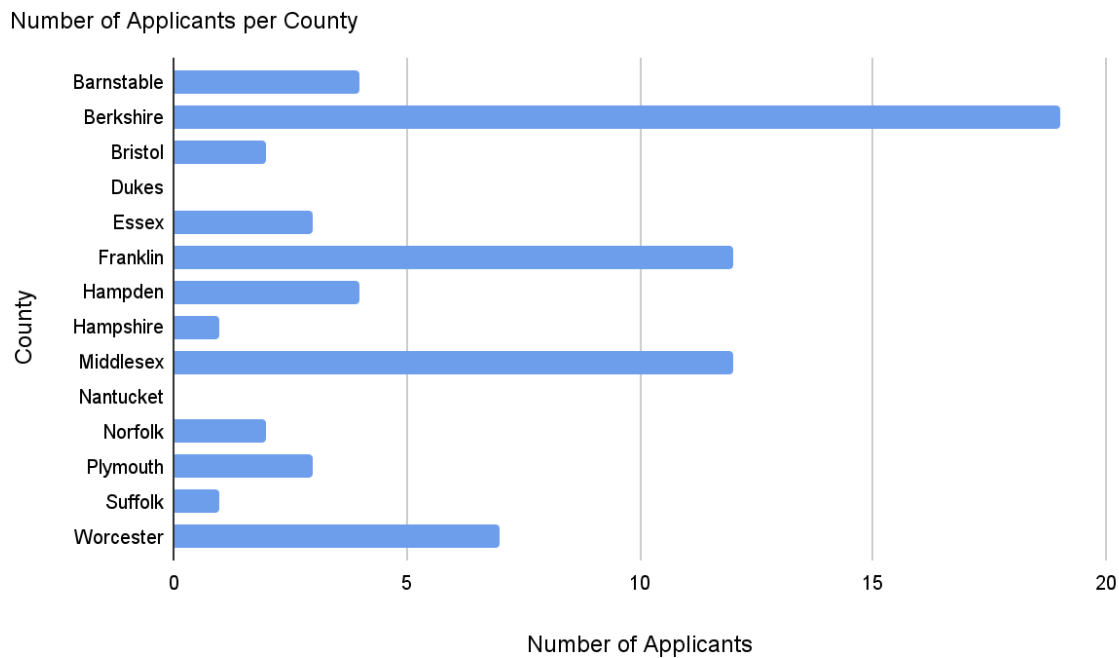
3.2.6. Findings from Municipal Digital Equity Planning

MBI established the Municipal Digital Equity Planning Program to support local digital equity planning across Massachusetts. This program allows municipalities, or other local bodies of government, to engage in planning activities related to digital equity and bridging the digital divide. The Municipal Digital Equity Planning Program offers 2 options to pursue digital equity planning activities: a short-term planning charrette or a longer-term Digital Equity Plan process. Both options are supported by a consultant team pre-qualified by MBI. Both formats are intended to guide municipal decision-making and investments that will increase availability and adoption of the internet for the populations most impacted by the COVID-19 pandemic and that prepare municipalities to submit grant proposals for existing or forthcoming state or federal programs to support digital equity activities. MBI will append completed municipal digital equity plans to this Plan.

Overall Responses

As of October 31, 2023, MBI has received applications from 70 municipalities for assistance through the Municipal Digital Equity Planning Program. Applicants include municipalities from 12 of the Commonwealth’s 14 counties. Twelve applications are from Gateway Cities and one is from the City of Boston.⁸¹

Figure 70: Number of Applicants per County to the Municipal Digital Equity Planning Program



⁸¹ Of the 70 applicants, 7 applied for the charrette option only, although 1 municipality withdrew its Charrette application and re-applied for the Plan option as part of a regional group. Including that change, 64 applied for the full Plan option.

Charrette Municipalities
East Bridgewater Town of Lee (participating in regional plan) Town of Tyngsborough* Town of Clarksburg Town of Charlton New Marlborough City of Worcester
*The Town of Tyngsborough withdrew its original Charrette application to participate as part of the Greater Lowell Region plan application with eight other communities.

Several applicants are collaborating on a regional approach.

Sub-Region	Municipalities
Southern Berkshire County	Sheffield, Lee, Great Barrington, Stockbridge, West Stockbridge, Lenox
Northern Berkshire County	Adams, North Adams, Cheshire, Lanesborough, Florida
Northwest Worcester County	Phillipston, Royalston, Templeton
Franklin County Cooperative	Charlemont, Colrain, Leyden, New Salem, Northfield, Orange, Warwick, Wendell
Greater Lowell	Lowell, Billerica, Chelmsford, Dracut, Dunstable, Pepperell, Tewksbury, Tyngsborough, Westford
Mid-Berkshire County	Becket, Otis, Washington, Windsor

In total, 70 municipalities have been approved, 38 applicants or groups of applicants have chosen a consultant, and MBI has approved a scope and budget for 34 communities.

Interest in Program

Sixteen of the 70 applicants indicated an ISP monopoly or limited competition as a motivating factor for applying to this program. Though there is no mention of this specific issue in other applications it is likely that more than 16 of the communities that have applied are limited to few or only one ISP option.

Plan Applicants: Of the 64 applicants, 48 indicated alignment of this process with other existing or forthcoming plans, studies, or grant activities. The Town of Sandwich pointed out that digital equity was marked as a growing concern among residents through the master planning process. The Greater Lowell Region applicants indicated alignment with local master plans as well as two regional plans: the Economic Recovery and Resiliency plan, in which food security and healthcare providers noted difficulty serving populations lacking technology skills or broadband access; and the Comprehensive Economic Development Strategy (CEDS), which identified digital equity

as critical to the region's prosperity. The Town of Windsor's recently completed Master Plan and Municipal Vulnerability Plan both identify internet access as a necessity for all 21st-century homes.

In describing interest in the program, applicants provided details about where they are lacking in terms of digital equity and why this program would be beneficial. The most common topics of concern were:

- High levels of elderly, minority, immigrant, and/or low-income residents (40 applicants)
- Need for better understanding/more data in order to identify and prioritize needs (39 applicants)
- Unaffordable and/or insufficient broadband, including lack of infrastructure (34 applicants)
- Many residents lacking digital skills and/or sufficient device access (30 applicants)
- Need to engage un/underserved and provide access to information or resources (11 applicants)

While only a few applicants made specific mention of it, many applicants have high levels of low-income residents. The City of Lynn also cited a desire for a more holistic approach to digital equity efforts and a need for increased capacity. The Towns of Sheffield, Stockbridge, Lenox, and Great Barrington expressed interest in being more digitally competitive to attract a younger workforce and sustain economic development. Pittsfield expressed a desire to restore trust within the community to feel safe using the internet by ensuring equitable access. The City of Quincy emphasized building capacity to support the digital economy. Towns of the Franklin County Cooperative expressed interest in identifying ways to mitigate risk factors associated with internet use and to protect town networks. The Town of Shutesbury seeks to focus its efforts on identifying the needs and barriers to the 10% of residents that have not subscribed to the municipal-run ShutesburyNET, which offers residential gigabit service for \$60 per month. Springfield cited high levels of residents utilizing ongoing digital equity services and barriers to equitable access such as language, age, transportation, financial situation, training capacity, disability, unstable housing, and lack of awareness. The City of Springfield hopes the planning process can help develop a coordinated effort to identify and expand promising practices while moving away from duplicating efforts.

Charrette Applicants: Charrette applicants did not have as many commonalities in their reasons for applying. East Bridgewater emphasized the town's increasing diversity and the importance of digital access and ability. Charlton seeks to identify underserved areas to guide advocacy efforts. New Marlborough has noticed a wide gap between those with and without digital access, and wants to become digitally inclusive for all, especially low-income residents and seniors currently unable to use the internet to its full potential. Lee indicated a desire to learn more about what services are most needed for which populations. Clarksburg indicated high levels of need amongst the elderly population and school-aged children with insufficient means/access. The City of Worcester seeks to "create an inclusive and connected environment that benefits its residents socially, educationally, and economically." Lee, Charlton, and East Bridgewater indicated that the Charrette would help inform their in-progress master plans. The Charrette process will also complement the Worcester Now|Next citywide plan.

Populations Served

The program is designed to support residents facing economic hardship, lack access to internet services, devices, and/or digital literacy skills, and whose situation was exacerbated by the COVID-19 pandemic.

Fifty-four applicants indicated more than 25% of their residents earn less than 300% of the federal poverty level.

Of these, 35 indicated that more than 33% of residents fall into that category and 9 reported that more than half of residents fall below that threshold.⁸²

There are no obvious trends connecting municipality size to the percentage of residents below specified poverty guidelines. The town with the lowest rates of individuals below 300% or 185% of the poverty line is one of the smallest (Phillipston) and the 2 largest applicants have 2 of the higher rates of individuals below those thresholds.

Twelve participants are Gateway Cities and 7 of these have populations of more than 100,000 people. Boston, the largest city in the state, is also a participant.

Intended Outcomes and Processes

Plan Applicants: Five major themes for intended outcomes emerged from review of applications to the full plan option:

- Understanding of actionable items, strategies, and priorities (42 applicants)
- Better understanding and/or visibility of assets and needs (42 applicants)
- Increased capacity, new and/or improved programming (digital literacy education, technology/WiFi in community spaces, etc.) (25 applicants)
- Development or identification of funding sources to sustain initiatives (24 applicants)
- Improved internet and/or device access (24 applicants)

There were 4 common processes desired by municipalities:

- Surveys (multilingual, written, digital) (48 applicants)
- Public meetings, forums, and/or focus groups (42 applicants)
- Data collection/analysis (asset mapping, needs assessment, speed tests, etc.) (39 applicants)
- Coordination with other entities (schools, nonprofit organizations, community centers, regional planning agencies, etc.) (30 applicants)

The City of Holyoke also anticipates establishing an ongoing public process, co-led by a public official and community representatives, for monitoring progress towards digital equity goals. The City of New Bedford wants to conduct a quality-of-service initiative to test and triage speeds in communities with reported insufficient internet service. The Greater Lowell communities hope to each have a half-day, charrette-like process to identify unique needs and to explore municipal broadband feasibility. Although a municipal broadband study would be ineligible for funding under this program, it may still emerge as a recommendation for communities to facilitate this type of work separate from their local digital equity plans.

The City of Boston wants to develop “wiring and connectivity standards for [multiple dwelling units] and other restricted income housing.” The Franklin County Cooperative also seeks time dedicated to peer learning for municipal staff involved in the planning process. The Town of Bourne explicitly mentioned surveying the needs of in-town members of the Herring Pond Wampanoag Tribe. Windsor has a goal to “ensure all residents are secure in the digital age.” Ashby hopes that the digital equity plan will lead to increased “participation in local government and educational opportunities.” Otis seeks to conduct “outreach in ways that allow information to be provided to

⁸² The 9 municipalities with more than half of residents below 300% of the federal poverty level are Adams, Chicopee, Holyoke, Lowell, Lynn, New Bedford, Orange, Springfield, and Worcester.

people who don't typically complete surveys or go to public meetings." Springfield wants to use this process as an "opportunity to build upon what residents and planners have already identified as desirable practices." The city wishes to create an online inventory of available equipment, tools, and classes, as well as to increase capacity for digital literacy training.

Charrette Applicants: East Bridgewater seeks to identify areas of need and possible solutions and sources of funds. The Town of Lee seeks to provide better digital literacy resources to seniors and low-income residents. Clarksburg seeks to gain a better understanding of gaps and potential opportunities to expand options for internet users. Charlton seeks to build capacity to improve digital equity initiatives and create an action plan to pursue future infrastructure investments. New Marlborough's desired outcomes include improved digital literacy, safety, and security; expanded public Wi-Fi; empowerment of marginalized groups; enhanced access to education, telehealth, and other online services; increased economic opportunities; and social inclusion.

Worcester hopes to include various stakeholders to "lead to a more holistic and coordinated approach to bridging the digital divide." The city also wants to ensure accessibility is considered throughout the process and to establish metrics to track progress over time. Similar to New Marlborough, Worcester's desired outcomes include improved digital access, increased digital literacy, enhanced educational opportunities, economic empowerment, access to government services, equity in digital healthcare, and sustainable implementation.

Six of the charrette applicants indicated surveys and public meetings/discussions as methods of gathering information. East Bridgewater, New Marlborough, and Worcester included interviews, focus groups, and general data collection and analysis as important processes to utilize.

Existing Digital Equity Programming

Plan Applicants: Applicants that provided examples of digital equity activities can be grouped into the following categories:

- Other programming in public spaces (schools, libraries, community centers, etc.), including digital literacy/education (31 applicants)
- Free WiFi in public areas or housing; public or school-sponsored access to technology such as hot spots, computers, etc. (28 applicants)
- Advisory committee, working group, and/or existing planning efforts or reports relating to broadband and/or the digital divide (16 applicants)
- Municipal-owned fiber network fully built or in progress (11)

Charrette Applicants: The East Bridgewater Council on Aging and the local public library have public computers with internet access but lack educational programming to build digital literacy skills. In New Marlborough, hot spots provide Wi-Fi access in public spaces and public school students are loaned laptops for use throughout the school year. The Worcester Public Library provides a weekly digital literacy course, and the Worcester Public Schools System has an initiative to increase enrollment in the Affordable Connectivity Program. Clarksburg, Charlton, and Lee did not provide any information about existing activities related to digital equity in their applications.

Regional Collaboration and Program Outreach Goals

MBI has conducted numerous meetings with neighboring municipalities that have applied in an attempt to coordinate these municipalities with each other and promote regional approaches to the program. The Berkshire Regional Planning Commission and Franklin Regional Council of Governments have been particularly active in promoting this approach and the program among their communities. These conversations have yielded new applications from several small towns and helped facilitate the formation of 3 sub-regional applications from Berkshire County, one from Northwest Worcester County, and one from Franklin County. MBI provided monetary

support to the regional planning agencies to raise awareness, solicit engagement, forge municipal partnerships, and submit regional or sub-regional applications, ultimately boosting overall participation in the program.

MBI continues to conduct outreach to expand participation in the program. The goal is to enroll 120 municipalities across the Commonwealth. MBI is in the process of seeking more Gateway City applicants as a priority.⁸³

3.3. Digital Equity Gaps in Massachusetts

Broadband Availability & Affordability

High internet subscription costs prevent Massachusetts residents from having broadband at home.

- **Need:** Cost is the most commonly cited reason for not having home internet service. Statewide, one in two residents surveyed found it difficult to pay their internet bill.
- **Sample Assets and Programs:** Organizations including but not limited to **Way Finders, Southeast Asian Coalition of Central MA, Moroccan American Connections in Revere (MACIR), Essex County Community Foundation, and Better Broadband for Falmouth (BB4F)** work to connect residents to reliable home-internet through activities such as ACP enrollment assistance, advocacy for broadband infrastructure, and portable hot-spots.
- **Actions:**
 - Support more residents to access the ACP by raising awareness of this program, making it easier to navigate, including by residents with limited English proficiency.
 - Increase access to low-cost, affordable internet service plans and associated tech support.

Residents with internet subscriptions experience poor internet quality

- **Need:** Only 72% of survey respondents statewide expressed that their home internet subscriptions met their needs. Focus group participants across the state shared their experiences of poor or inconsistent internet quality, particularly multi-family households, residents in rural communities, or in the Cape and Islands region.
- **Sample Assets and Programs:** Programs including but not limited to the digital navigation network through **MetroNorth Workforce Investment Board** and the Apartment Wi-Fi program through the **Metropolitan Area Planning Council (MAPC)** work to connect residents to reliable and affordable at-home-internet.
- **Actions:**
 - Retrofit affordable housing developments with state-of-the-art wiring.
 - Expand Apartment Wi-Fi Program.

⁸³ There are 11 Gateway Cities that have neither previously conducted a municipal digital equity plan, nor applied to this program: Attleboro, Barnstable, Fall River, Fitchburg, Haverhill, Lawrence, Malden, Methuen, Salem, Taunton, and Westfield.

- Improve the process for residents who seek to escalate issues of poor internet quality to their ISPs, potentially with support from digital navigators.

Device Availability and Affordability

Residents identified a need for low-cost devices

- **Need:** Residents express a need for low-cost laptops or desktop computers. Low-income residents, individuals with a language barrier and residents that identify as racial and ethnic minorities expressed being able to pay less for a device.
- **Sample Assets and Programs:** Organizations including but not limited to **UMass Lowell Innovation Hub (Haverhill), TEK Collaborative, Tech Goes Home, and The Boston Higher Education Resource Center** work to connect residents to internet-enabled devices and device repair services.
- **Actions:**
 - Expand the Partnerships Program to fill regional gaps where possible, reaching missing populations by making the program more accessible, and expanding efforts where programs are successful.
 - Support a robust and active device refurbishment ecosystem, including coordinating closely with large scale employers, school districts, higher education institutions, and e-waste recycling companies, as well as establishing local distribution hubs.

Residents identified a need for devices that are easy to use.

- **Need:** Residents need accessible devices, technical support using their devices, along with information about how to access these resources. This need was named among focus group participants with disabilities.
- **Sample Assets and Programs:** Organizations including but not limited to Massachusetts Association for the Blind and Visually Impaired (MABVI), **Boston Center for Independent Living, Northeast Arc, Taunton Housing Authority, Worcester Talking Book Library, and Bay State Council of the Blind,** work to connect individuals with disabilities to accessible devices and tech assistance.
- **Actions:** Draft(s):
 - Set state accessibility standards and principles for devices.
 - Expand digital navigator programs that provide technical support for the use of devices.

Residents identified a need for sustainable devices

- **Need:** Residents express a need for device sustainability over time, specifically Aging individuals who expressed being concerned with upgrading technology and not being able to use the devices they were already familiar with.
- **Sample Assets and Programs:** Organizations including but not limited to **LBFE Boston, Healthy Aging Martha's Vineyard, Fairhaven Council on Aging, Elder Services of the Worcester Area, and Coastline Elderly Services, Inc. (Coastline)** work to connect aging individuals to devices and tech assistance.
- **Actions:** Drafts(s):
 - Expand device support paired with technical support, deploy device refurbishment programs with navigators, including youth/senior navigator pairings.

Digital Literacy

Residents identified a need for greater digital literacy support

- **Need:** Residents express a need for more digital literacy training that is designed for their needs.
- **Sample Assets and Programs: Libraries** across the state and organizations including but not limited to Tech Goes Home, **Worcester Senior Center, Training Resources of America, Second Street Second Chances, Open Sky, and Ralph Froio Senior Center Pittsfield** work to provide digital skills training, digital navigation services, and improve digital literacy.
- **Actions:** Draft(s):
 - Expand digital literacy programs in priority areas based on existing conditions analysis and with cultural and linguistically representative organizations.
 - Create a robust ecosystem of digital literacy providers across the state that provide cohesive entry, advanced, and expert training programs.
 - Statewide digital navigator program.

Residents identified a need for support using the internet to conduct essential day-to-day activities including accessing job opportunities and health care.

- **Need:** Residents express a need for more access to digital literacy training and job skills, specifically for those interested in joining or participating in the Massachusetts job market, and those seeking healthcare, telehealth, or medical records. The training should be accessible to residents with language barriers.
- **Sample Assets and Programs: Libraries** across the state and organizations including but not limited to **Timothy Smith Network, Taunton Housing Authority, Revere Community School, Aspergers/Autism Network of New England, and FQHC Telehealth Consortium** work to provide digital skills training and digital navigation assistance to connect individuals to telehealth and job opportunities.
- **Actions:** Draft(s):
 - Build digital literacy capacity with workforce development orgs, build ecosystem capacity, including with those serving residents with language barriers.
 - Build and expand upon telehealth navigator programs, train healthcare professionals using standard DE curriculum. Ensure programs are inclusive of those with language barriers.

Institutions offering digital literacy programs, including libraries, need operating support

- **Need:** Residents express a need for consistent and sustainable resources and capacity building for digital literacy programs in public and community spaces, particularly libraries.
- **Sample Assets and Programs: Libraries** across the state and organizations including but not limited to **Boston Center for Independent Living, Beth Israel Deaconess Medical Center, Behavioral Health Network, and Blue Sky** 1-on-1 digital navigation services.
- **Actions:** Draft(s):
 - Provide launch pad funding and capacity building for organizations not engaged in digital equity activities, but that have direct connections with covered populations to engage in digital equity activities.
 - Provide support for existing organizations to build capacity to expand services.

Online Privacy and Cybersecurity

Residents are concerned about internet safety, especially with regard to protecting themselves from having their data stolen, scams, and surveillance.

- **Need:** Residents from all backgrounds and regions report concerns about Internet safety, with 85% of survey respondents statewide citing this concern. Aging individuals across the State are highly concerned with Internet safety, specifically citing concerns about online scams or online hacking; low-income residents shared concerns with safely conducting online transactions and online banking. Individuals with a Language Barrier were least likely to be aware of resources to protect their safety online.
- **Sample Assets and Programs:** **Libraries** across the state and organizations including but not limited to **Mattapoisett Police Department, MassCyberCenter, and MakeIT Haverhill** that provide cyber security training or cyber security lessons as part of larger digital literacy, economic development, or workforce development programs.
- **Actions:** Draft(s):
 - Build out cybersecurity curriculum, embed into digital literacy programming.
 - Create tailored curriculum for seniors, include internet safety as a curriculum for youth digital navigators serving seniors, awareness campaigns.

Individuals with disabilities are concerned about medical data breaches

- **Need:** Individuals with disabilities highlighted concerns about medical data breaches.
- **Sample Assets and Programs:** Organizations including but not limited to **Harvard Street Neighborhood Health Center, Inc., Boston Center for Independent Living, Beth Israel Deaconess Medical Center, Behavioral Health Network, and FQHC Telehealth Consortium** work to support telehealth access through digital navigation support.
- **Action:** Train **existing digital navigators** to support residents with telehealth navigation such that residents, including individuals with disabilities, can feel safe online.

Residents are concerned about youth safety online

- **Need:** Residents expressed concerns about youth safety online.
- **Sample Assets and Programs:** **Libraries and schools** across the state and organizations including but not limited to **YMCA of Martha's Vineyard, One Bead, Kids in Tech Inc., and Jr. Tech** work to support youth digital literacy.
- **Actions:**
 - Build out educational/awareness resources for schools, educational orgs, & for parents.

Online Accessibility and Inclusivity

Residents, particularly those with language and accessibility barriers, identify difficulty accessing public resources online.

- **Need:** Individuals with a language barrier and people with disabilities were less likely to find online government services to be accessible. During focus groups, residents with limited English express a need for more translation and language support for online public resources.
- **Sample Assets and Programs:** Organizations including but not limited to **Way Finders, Center for New Americans, Casa Da Saudade Library, Immigrant Assistance Center, Lawrence Community Works,**

and **Mujeres Unidas Avanzando** work to support digital skills access and access to government services for individuals with language barriers.

- **Actions:**
 - Expand accessibility support for online public resources, set standards at the state level.
 - Expand translation support for online public resources, set standards at the state level.

Residents need more information about how to access online public resources, with support programs tailored to residents' needs.

- **Need:** Residents with disabilities express a need for greater accessibility of online public resources.
- **Sample Assets and Programs:** Organizations including but not limited to **HMEA's Autism Resource Central, Boston Center for Independent Living, Northeast Arc, and Taunton Housing Authority** work to support internet, device, and navigation access to better connect individuals with disabilities to government services.
- **Actions:**
 - Expand awareness, host resources centrally, train navigators.

3.4. Assets Supporting Digital Equity in Massachusetts

3.4.1. Overview

Purpose and methodology

To ensure that the Massachusetts State Digital Equity Plan builds on existing efforts in the Commonwealth that advance digital equity and inclusion, MBI worked with Regional Planning Associations, Partnerships Program grantees, and Community Based Organization (CBO) partners to gather information on existing assets—programs, organizations, plans, or individuals working to advance digital equity and inclusion—as part of an Asset Inventory. To collect data for the Asset Inventory, MBI launched a comprehensive outreach strategy, relying on partners and existing programming to spread the Asset Inventory Intake form, which fed directly into the inventory. MBI held a training and office hours with Regional Planning Agency partners, pre-qualified Municipal Planning Consultants, as well as Community Based Organization (CBO) partners engaged in Plan outreach. The Asset Inventory represents active organizations at the point in time in which it was sourced by community members.

The Massachusetts Statewide Digital Equity Plan Digital Equity and Broadband Asset Inventory can be found at:

<https://bit.ly/MA-SDEP-Asset-Inventory>

Findings overview

All findings from the Asset Inventory represent the point in time of writing the SDEP. MBI will maintain the Asset Inventory as a living crowd-sourced database by continuing to collect data on assets.

At the time of writing, this database has 750 assets across the whole state, cataloging unique organizations, programs, plans, and more that support the digital equity ecosystem in Massachusetts. Each of these assets

serves a covered population in the state, whether as a general community serving plan, program, or institution, or as an asset specifically serving a unique covered population. Below is a summary of assets cataloged by covered population.

Covered Population Served	Number of Assets
General – All Covered Populations	186
Low-Income Households (<150% federal poverty level)	289
Aging Individuals (60 and older)	234
Incarcerated Individuals (in non-Federal facilities)	27
Veterans	80
Individuals with Disabilities	141
Individuals with a Language Barrier (English learners or low-literacy)	152
Members of Racial/Ethnic Minority Groups	180
Residents of Rural Areas	84

Below is a summary of assets cataloged by region.

Region	Number of Assets
Berkshires	101
Boston Metro	134
Cape Cod and the Islands	113
Central	231
Connecticut River Valley	137
Northeast	154
Southeast	167

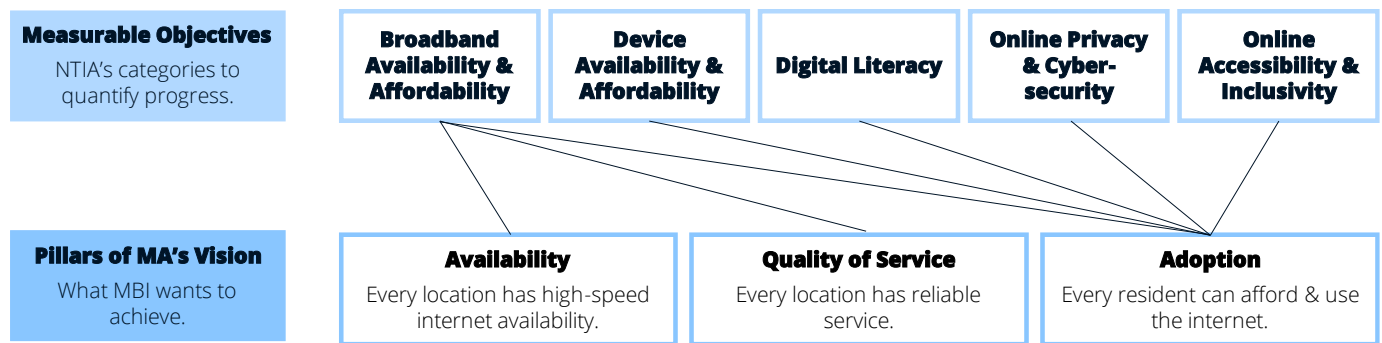
In section 3.2 we further explore the existing digital equity and broadband barriers that exist across the state. While the assets cataloged in the Asset Inventory are critical to closing the digital divide in Massachusetts, gaps still exist both in terms of the types of services and interventions offered across the state and in the capacity of each organization providing services to meet community needs. Below are several findings sourced from RPAs on the strengths and weaknesses of digital equity and broadband assets across the state.

- Regional libraries and Community Anchor Institutions provide a variety of digital equity and broadband interventions across the state including hot spot lending, digital literacy courses, 1-on-1 navigation support, computer banks, and free public Wi-Fi.
- Most Councils on Aging recognize the importance of providing one-on-one technical support and digital skill building to their clients but may have limited full-time or part-time staff capacity or training to be able to devote the time and energy needed to assist older adults who lack digital literacy.
- There are limited formalized device access programs beyond libraries, especially as schools scale back lending with a return to in-person classes post-Covid.
- While a variety of non-profit and public organizations provide some advocacy or intervention related to digital equity, some organizations still view digital equity as secondary to other goals rather than a critical component of other equity or policy goals. Some community organizations are not fully aware of how their

work aligns with digital equity and would benefit from an increased understanding of opportunities to advance digital equity within their work.

3.4.2. Assets supporting Digital Equity in Massachusetts

In this section, MBI organized findings from the Asset Inventory using the five NTIA Measurable Objectives. As further described in [Chapter 5. Implementation](#), MBI uses three pillars (Availability, Adoption, Quality of Service) to guide its work to advance digital equity. The following diagram illustrates the relationship between the NTIA Measurable Objectives and the three pillars supporting MBI’s vision. Assets supporting Broadband Availability & Affordability might support one or more of MBI’s three pillars, while assets supporting all other NTIA Measurable Objectives primarily support Adoption.



Assets by Measurable Objective

Assets Advancing Broadband Affordability & Availability

- As of writing, 330 assets have been cataloged that support broadband Affordability and Availability. This includes assets that provide subsidized internet access programs; WiFi in public spaces; Digital Navigator programs, and more. Organizations within this group of providers include libraries, Community Anchor Institutions and more. While several assets including ShutesburyNET and Fiber Connect of the Berkshires provide limited subsidies for at-home broadband, the majority of assets bridging affordability and availability gaps are providing service in public spaces.

Assets Advancing Accessibility of Devices & Device Support

- As of writing, 348 assets have been cataloged that support accessibility of devices and device support. This includes assets that provide device distribution and refurbishment, and technical support for devices. Organizations within this group of providers include libraries, digital equity organizations, Community Anchor Institutions and more. Device access programs vary by organization, and some provide devices for specific purposes like applying to jobs or taking classes. Programs that exist at libraries tend to allow for greater open-ended uses, however, the device loan programs are generally short-term.

Assets Advancing Digital Literacy

- As of writing, 402 assets have been cataloged that support digital literacy. This includes any assets that provide digital literacy and skills classes. Organizations within this group of providers include libraries, Community Anchor Institutions, academic institutions, workforce development organizations, and more. Digital literacy programs vary in formality, from structured group classes to one-on-one troubleshooting. Across the state, there is a great deal of overlap between device support and technical assistance, and digital literacy support. Many on-on-one digital navigators serve both of these roles, especially at libraries.

Assets Advancing Privacy & Cybersecurity

- As of writing, 53 assets have been cataloged that support improved privacy and cybersecurity across the state. This includes any assets that support awareness-raising to protect online privacy and cybersecurity and provide training in these skills. Organizations within this group of providers include libraries, schools, digital navigators, and private and non-profit organizations narrowly focused on cybersecurity and internet safety. Services vary from vocational training programs for careers in cybersecurity, to training integrated into larger digital literacy programs, and one-on-one cybersecurity troubleshooting.

Assets Advancing Accessibility & Inclusivity of Public Resources

- As of writing, 187 assets have been cataloged that support improved accessibility and inclusivity of public resources. This includes any assets that are making government websites easier to navigate by providing translations, using accessible language, or by making it generally easier to interact with the government online. Organizations within this group of providers include libraries, government bodies, Community Anchor Institutions, and more. Services advancing the accessibility and inclusivity of public resources vary greatly and often overlap with work across the other four measurable objectives, including device access in service of connecting residents to government websites, or digital navigation support to help residents navigate these sites.

Digital Equity Plans

- As of writing, 30 plans, reports, or other data sources have been submitted that support greater knowledge and planning around digital equity across the state. Resources vary from municipal digital equity plans geared at helping the public and policy makers understand barriers within the community, community needs assessments that include an element of digital equity analysis as it overlaps with broader planning efforts, an outdoor library Wi-Fi access map providing the public an understanding of where access points exist, and more. Most of the authors are municipal governments, regional planning organizations, or some other government body.

Many of these plans come out of a long history of advocacy, policy-making, and community action to bridge the digital divide, that predates this statewide planning initiative. **Below are several pre-existing local and regional digital equity plans from community partners and municipalities across the state that informed this Plan.**

Plan	Overview
<p><u>Connecting Communities Through Digital Equity</u></p> <p>Author: MassINC, Massachusetts. Competitive. Partnership</p>	<p>This report focuses on the digital divide within the Gateway Cities. Key existing conditions include:</p> <ul style="list-style-type: none">• Roughly 1 in 10 (287,000) households in Massachusetts was without internet service when COVID-19 arrived.• At the onset of the pandemic, approx. 470,000 MA households did not have a laptop or desktop computer.

<p><u>Making Progress on Digital Equity</u> Author: Essex County Community Foundation, Tufts, The Center for State Policy Analysis</p>	<p>ECCF's report found that households of color would benefit most from efforts to enhance digital equity, as Black and Hispanic residents have more limited access to digital resources, even after adjusting for differences in income and education. On average, families of color earning \$100,000 have lower access to broadband than white families earning just \$50,000.</p>
<p><u>The Digital Divide and Challenges to Digital Equity</u> Author: The Alliance for Digital Equity</p>	<p>The Alliance for Digital Equity's survey found that people's inability to connect online is resulting in reduced enrollment and participation in community programs and services. The quality of these programs and services, offered by organizations and systems designed to support people, may be impacted as well.</p>
<p><u>Boston Digital Equity Assessment</u> Author: CTC Technology and Energy</p>	<p>The Boston Digital Equity Assessment documents the rise of competitive broadband service in Boston, describes City efforts to close broadband affordability, devices and skills gaps, characterizes the remaining gaps, and makes policy recommendations.</p>
<p><u>Boosting Broadband: Access, Performance, Improvements, and Funding</u> Author: Worcester Regional Research Bureau</p>	<p>Worcester's Boosting Broadband report builds upon the Broadening Broadband report by looking at three years of data, examining internet connection speed, and WPS student access. The report finds that in 2019, only 61% of low-income households in Worcester had a broadband internet connection at home, compared to 93.7% of households earning more than \$75,000 annually.</p>
<p><u>Digital Equity Plan</u> Author: Metropolitan Area Planning Council</p>	<p>In 2021, the cities of Chelsea, Everett, and Revere asked MAPC to create the Commonwealth's first regional digital equity plan, with financial support from MBI. Key findings from the report include that many households that are connected aren't getting broadband speed, even when that's what they are paying for.</p>

Digital Equity Programs and Organizations

- As of writing, 163 programs have been cataloged as assets promoting digital equity within Massachusetts. Programs vary greatly, serving every measurable objective and every covered population across almost every corner of the state. Programs include one-on-one tech and digital navigation support, hotspot and device loan programs, digital citizenship training, and more.

Outside of programs administered by MBI (detailed in [Section 2.2](#)), a diverse array of organizations and efforts are active to promote digital equity in Massachusetts. This section highlights select examples of existing digital equity work across measurable objectives and populations served. We chose

the following organizations and programs to show examples of the services offered across regions, services offered within easy measurable objective areas, and services for each covered population.

Example Organization or Program	Measurable Objective(s)	Covered Population(s)
<p><u>Wi-Fi Access Initiative</u> As a program area of MBI's Digital Equity Partnership Program, MAPC will build upon their Apartment Wi-Fi work and partner with affordable housing developers, public housing officials and other property owners to identify and connect properties whose residents face either an affordability or adoption barrier to a household broadband subscription. <i>Region(s):</i> Statewide</p>	<ul style="list-style-type: none"> Broadband Availability and Affordability 	<ul style="list-style-type: none"> Low-income
<p><u>Tech Goes Home</u> Founded in 2000, Tech Goes Home empowers communities to access and use digital tools to overcome barriers and improve lives. Programs focus on serving people and communities who face systemic barriers to technology adoption. <i>Region(s):</i> Greater Boston, Southeast, Northeast, Berkshires, Central Massachusetts, Connecticut River Valley</p>	<ul style="list-style-type: none"> Broadband Availability and Affordability Device Availability and Affordability Digital Literacy 	<ul style="list-style-type: none"> Aging individuals Low-income Racial and ethnic minorities Individuals with a language barrier <i>Immigrants and refugees</i>
<p><u>MassCyberCenter</u> Through the MassCyberCenter, the Commonwealth government provides collaborative support to the world-class cybersecurity ecosystem that exists in the state. MassCyberCenter administers several initiatives: the Cyber Resilient Massachusetts Working Group, Cybersecurity Training and Education Working Group, Cybersecurity Mentorship Program, and a range of workforce development initiatives. <i>Region(s):</i> Statewide</p>	<ul style="list-style-type: none"> Online Privacy and Cybersecurity 	<ul style="list-style-type: none"> All

<p><u>Boston Center for Independent Living (BCIL)</u></p> <p>The Boston Center for Independent Living is a civil rights organization led by people with disabilities that advocates for eliminating discrimination, isolation, and segregation. It provides advocacy, information, referrals, peer support, skills training, personal care assistant services, and transitional services to enhance the independence of people with disabilities. BCIL's goal is to help consumers access the best assistive technology available with staff trained in teaching consumers how to use this technology to enhance their independent living experience. BCIL collaborates with and promotes the Easterseals Technology Center.</p> <p><i>Region(s):</i> Greater Boston</p>	<ul style="list-style-type: none"> • Online Accessibility and Inclusivity 	<ul style="list-style-type: none"> • Individuals with disabilities • Individuals with a language barrier
<p><u>North Shore Community Health Center and Lynn Community Health Center through C3 Coalition</u></p> <p>The Telehealth Navigator Program is designed to overcome barriers to telehealth and provides a model approach to regional philanthropy collaboration.</p> <p><i>Region(s):</i> Northeast</p>	<ul style="list-style-type: none"> • Broadband Availability and Affordability • Device Availability and Affordability • Digital Literacy • Online Accessibility and Inclusivity 	<ul style="list-style-type: none"> • Low-income • Racial and ethnic minorities • Individuals with disabilities • Individuals with a language barrier
<p><u>Massachusetts Law Reform Institute (MLRI)</u></p> <p>MLRI created a digital equity project through its racial equity work based on feedback on how the lack of access to, and affordability of, high-speed broadband internet services disproportionately was thwarting the advancement and inclusion of communities of color in society and perpetuating the cycle of poverty. Programs include ACP outreach.</p> <p><i>Region(s):</i> Statewide</p>	<ul style="list-style-type: none"> • Broadband Availability and Affordability 	<ul style="list-style-type: none"> • Individuals with a language barrier • Racial and ethnic minorities • Low-income • Aging individuals

<p><u>MassHire: Berkshire Veteran Services</u>⁶ This career center offers Veterans' Representatives to help veterans find jobs, acquire skills and education, plan their career, attend workshops, and take advantage of other resources. <i>Region(s):</i> Cape and Islands</p>	<ul style="list-style-type: none"> • Broadband Availability and Affordability • Digital Literacy 	<ul style="list-style-type: none"> • Veterans
<p><u>The Last Mile at Massachusetts Correctional Institution-Shirley</u> The Last Mile implements technology training in prisons with the goal of breaking the cycle of incarceration by preparing people in prison for re-entry and stable jobs. In early 2023, a Web Development training started at MCI-Shirley with 16 students. <i>Region(s):</i> Central Massachusetts</p>	<ul style="list-style-type: none"> • Broadband Availability and Affordability • Digital Literacy • Privacy and Cybersecurity • Device Availability and Affordability • 	<ul style="list-style-type: none"> • Incarcerated Individuals
<p><u>Alliance for Digital Equity</u> The Alliance for Digital Equity is a Western Massachusetts-based coalition of community-focused organizations working toward digital equity for all people. The Alliance works to raise community awareness around digital equity gaps and support each member organization in their work to bridge the digital divide. <i>Region(s):</i> Connecticut River Valley</p>	<ul style="list-style-type: none"> • Broadband Affordability and Availability 	<ul style="list-style-type: none"> • Low-Income • Racial and ethnic minorities • Aging individuals • Residents of Rural Areas
<p><u>Massachusetts Technology Learning Collaborative for Healthy Aging</u> Provides communities and organizations with a common space to share ideas, collaboratively address the digital divide for older adults, and promote equitable and meaningful access to technology. Hosted by the Executive Office of Elder Affairs and the Massachusetts Healthy Aging Collaborative. <i>Region(s):</i> Statewide</p>	<ul style="list-style-type: none"> • Broadband Availability and Affordability • Device Availability and Affordability • Digital Literacy 	<ul style="list-style-type: none"> • Aging individuals

Assets that Advance Broadband Adoption

- Greater comfort with technology, internet, and device access increases internet adoption. Assets that meet many of these needs are detailed in section [3.1.2.1. Assets by Covered Population](#).

Assets that Advance Broadband Affordability

- 10 assets were cataloged that are said to specifically support knowledge around and enrollment in the ACP. These organizations include libraries and Community Anchor Institutions. However, libraries across the state, and other personalized digital navigator services, regularly support residents with a variety of tech and digital navigation questions including enrolling in public benefits like the ACP. Libraries play a key role in almost every downstream outcome of improved digital literacy, including access to public benefits. Free and affordable Wi-Fi service through affordable housing providers is also a key affordability resource for low-income residents who live in affordable units. Further information on assets advancing accessibility and inclusivity of public resources can be found in section [3.1.2.1. Assets by Covered Population](#). Overall, 1 in 2 survey respondents were aware of the ACP program. Individual with language barriers surveyed were less likely to know ACP than statewide (45%) while individuals with disabilities (66%), individuals in low-income households (55%), and aging individuals (53%) were more likely to know about the ACP program than statewide.

4. Collaboration and Stakeholder Engagement

This chapter summarizes the stakeholder engagement approach and methodologies that MBI used to shape this Plan. Stakeholder engagement is the process of involving individuals, groups, or organizations that have an interest or “stake” in a particular project, decision, or issue to collaborate and gather their feedback. The purpose of stakeholder engagement for the Massachusetts State Digital Equity Plan is to gather input from the public and from other individuals and organizations to understand existing gaps and help guide future implementation.

Stakeholder engagement within this Plan builds on existing engagement assets, such as coalitions, regional planning organizations, community-based organizations, and other partnerships to ensure a more inclusive and effective analysis and implementation strategy. By engaging with Massachusetts residents, digital equity practitioners, industry partners, and municipal planning partners, MBI ensured coverage across Covered Populations and other stakeholder groups, regions, and Measurable Objective areas to shape all elements of the Plan.

4.1. Engagement Principles and Approach

MBI established 5 core principles to guide the stakeholder engagement process:

- Lead with a human-centered approach in outreach, communication, and operations.
- Develop an intentional, comprehensive, and inclusive strategy to maximize reach.
- Work with trusted partners.
- Build on existing programs and offerings where possible.
- Invest across sectors and regions to build capacity in partners serving Covered Populations.

We applied these principles consistently in each of our activities, which we designed to achieve inclusive engagement across all of Massachusetts’ regions,⁸⁴ Covered Populations, and other populations of interest. While some activities were primarily geographic (e.g., listening sessions that took place in all corners of the state) and others primarily population specific (e.g., focus groups structured by Covered Population), all gathered information across the dimensions of place, population characteristics, and other factors that influence digital equity outcomes.

⁸⁴ See Chapter 3 for more information on regional boundaries and selection.

MBI followed NTIA’s stakeholder engagement guidance while going beyond its baseline recommendations.

NTIA’s guide for states on setting up stakeholder engagement describes 4 types of engagement approaches, ranging between low effort and high effort methods.⁸⁵ Engagement activities cover 4 types of engagement—communication, consultation, coordination, collaboration—with many engagements overlapping functions. In addition to the 4 Cs of *what* MBI did, MBI implemented 3 Cs of *how* it conducted those activities. We were mindful of content (materials that were clear and accessible to people with different language or abilities), community (openness and inclusion), and cultural competence (respecting and accommodating differences). For instance, we designed listening session and focus group locations to be reachable and welcoming to as many people as possible; translated materials in multiple languages based on local needs; and provided on-site ACP education and enrollment support to provide additional benefits to participants. *Who* MBI worked with to conduct engagement activities also mattered to us, and we chose to partner with many trusted community anchor institutions like community-based organizations, healthcare centers, schools, libraries, re-entry service providers, faith-based organizations, shelters, and transitional housing, and more. Our partners facilitated the large engagement across all activities.

The following table provides examples of activities within each engagement type, while the following section describes in detail the different engagement actions that MBI undertook.

Engagement Type	NTIA Description	Examples
Communication	<ul style="list-style-type: none"> • Sharing information or updates with stakeholders. • Providing visibility to interested stakeholders. • Informing stakeholders’ own efforts. 	<ul style="list-style-type: none"> • Working Group • Statewide Digital Equity Coalition (also referred to as Practitioners’ Network) • Municipal Digital Equity Planning • Partnerships • Newsletters/e-blasts • Internet For All website • Social media
Consultation	<ul style="list-style-type: none"> • Directed and targeted outreach, collecting input on specific engagement and planning processes. • Reaching stakeholders who are difficult to engage or hardest to access based on existing barriers. 	<ul style="list-style-type: none"> • Listening sessions • Survey Distribution
Coordination	<ul style="list-style-type: none"> • Reducing overlap between stakeholder efforts. 	<ul style="list-style-type: none"> • Working Group

⁸⁵ “Setting Up Initial Stakeholder Engagement” National Telecommunications and Information Administration. <https://broadbandusa.ntia.doc.gov/sites/default/files/2022-04/Initiating%20Stakeholder%20Engagement.pdf>

- Connecting with one another stakeholders who are already engaged in broadband and digital equity efforts.
- Municipal Digital Equity Planning Consultants
- Regional Planning Associations
- Practitioners’ Network
- Digital Equity Partners

Collaboration	<ul style="list-style-type: none"> • Working alongside stakeholders. • Sharing decision making power and data. • Learning lessons from failures. • Aligning complex efforts and multiple perspectives, fostering ownership. 	<ul style="list-style-type: none"> • Working Group • DE Partners • Regional Planning Associations (RPAs) • Municipal Digital Equity Planning • Public Comment period • Ongoing (future) engagement • Community-Based Organization Request for Qualifications (CBO RFQ) • Focus Groups
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Throughout this process, MBI catalogued interactions with stakeholders in a partnership inventory, detailing the type of partnership and method of engagement deployed. The partnership inventory guided MBI’s outreach with different stakeholder groups, and highlighted the gaps in outreach. Where MBI found gaps, MBI committed more resources towards building new and strengthening existing relationships. The overall goal was to cover all 8 Covered Populations in every region of the state. With these relationships in place, MBI called on stakeholders to promote and help plan the public survey outreach, the asset inventory, focus groups, and regional listening sessions. This inventory will be a resource to MBI in future outreach efforts and for Plan implementation.

4.2. Stakeholder Engagement Activities

This section describes all of the activities that MBI led to engage stakeholders and inform the Plan, our analysis of gaps and barriers to digital equity, and shape recommendations.

4.2.1. Listening Sessions

Throughout the planning process, MBI hosted regional digital equity listening sessions across the state, inviting all residents within a region to take part. These introduced the concept of digital equity, the role of the Plan in bridging the digital divide, presented region-specific digital equity assets and barriers, and invited participants to share their experience of regional digital equity needs, barriers, and their vision for a future Massachusetts with Internet for All.

MBI partnered with local and regional organizations to host listening sessions in Massachusetts’ 7 workforce regions: Berkshires, Connecticut River Valley, Central Massachusetts, Southeast, Cape and Islands, Greater Boston, and Northeast. MBI also held a virtual and in-person listening session specifically for rural residents statewide. During listening sessions, partner organizations shared specific needs and assets within the region and participated in the listening portion of the session. After the presentations concluded, MBI’s facilitators split residents into in-person and virtual breakout groups to discuss their experiences and learn about specific barriers to access and adoption and existing organizations and resources within their region.

Participants attended a in-person event at a main venue hosted by a local community anchor institution, or attended a “satellite” location closer to their homes, or joined virtually. Approximately 317 Massachusetts residents took part in the digital equity planning process through these sessions (see table below).

Region	Number of people reached
Berkshire	38
Central Massachusetts	10
Northeast	25
Cape & Islands	60
Connecticut River Valley	65
Greater Boston	21
Southeast	70
Rural	28
TOTAL	317

In addition to informing the Plan, listening sessions created an opportunity for local government representatives, Planning and Economic Development Councils, and ISPs to understand barriers to broadband access and digital equity within their region. Listening sessions also featured navigators who could advise participants on ACP enrollment and other digital adoption questions.

4.2.2. Focus Groups

In addition to listening sessions, MBI worked with community-based organizations—organizations driven by community residents and/or community wellbeing—to conduct focus groups with Covered Populations. MBI designed focus groups to learn in depth about the challenges and barriers to digital equity that specific populations face in the state. MBI and its partners across the state conducted 25 focus groups engaging 269 individuals.⁸⁶ These numbers, included in the table below, account for the intersection of participants who may have been engaged across multiple focus groups. MBI also distributed focus groups geographically across the state, prioritizing regions with high proportions of Covered Populations.

Focus groups added further detail and depth to the data MBI collected through the online survey. MBI designed focus group discussion guides to align with questions in the survey, but with more time given to hear anecdotes and capture nuance and sentiments from participants who might not otherwise be represented in the survey or who might have multiple, overlapping barriers that are hard to capture through a survey. Partner organizations used an online notetaking form structured around the 5 Measurable Objective areas, and guided participants through a demographic intake form available both online and on paper. MBI then collected data from both sources, systematically coded the qualitative data, and analyzed the consistent themes and anecdotes we heard throughout the focus groups, breaking them down by Covered Population, demographic and socioeconomic factors, Measurable Objectives, and other characteristics to identify trends and patterns. This analysis informed Chapter 3 of the Plan.

⁸⁶ Focus group engagements were engagements that informed both the SDEP and BEAD Plan. Of the 25 focus groups, 19 informed the SDEP.

MBI and its partners provided incentives (typically gift cards to local grocery stores) to focus group participants to compensate individuals for their time. This made focus groups more accessible to those with limited resources, who might lose income for participation, or who face economic hardships that prevent them from participating in civic engagement opportunities.

Covered Population	People Reached
Aging individuals	20
Racial and Ethnic minorities	23
Individuals in low-income households	68
Veterans	3
Individuals with disabilities	44
Individuals with a language barrier	43
Incarcerated Individuals	35
Rural residents	66

4.2.3. Survey

MBI created a statewide Digital Equity Survey to gather information about needs, barriers, and opportunities from as large and representative sample as possible of Massachusetts residents. The survey was available online and on paper in 9 languages (English, Spanish, Portuguese, Chinese, Haitian Creole, Vietnamese, Russian, Arabic, and Khmer). Through the survey cutoff date of October 2, we received 7,865 responses (see table below).⁸⁷

This considerable number of responses, with strong representation throughout the state and Covered Populations, is a result of the work that MBI and its partners committed to reaching as many Massachusetts residents as possible. MBI developed response rate targets for the survey based on regional and statewide population demographics to ensure that responses and results represented all Covered Populations and regions in statewide data to the greatest possible extent. Municipal Digital Equity Consultant partners and community-based organizations helped distribute the survey in their communities, using unique outreach strategies to reach residents. These partners also facilitated survey completion for the hardest-to-reach people within their communities.

⁸⁷ MBI removes some responses in the data cleaning process. See [Chapter 3](#) and [the Appendix](#) for more information.

The survey addressed the five Measurable Objective areas of broadband availability and affordability, device availability and affordability, digital literacy, online privacy and cybersecurity, and online accessibility and inclusivity. MBI used this data to understand the baseline statewide digital equity needs and barriers, such as who has access to the internet, what gaps participants have when it comes to digital skills, and if participants have trouble accessing public resources. MBI also analyzed this data by Covered Population and region across the state to understand how these needs and barriers show up differently across demographics and geographies. MBI validated this information with listening session and focus group findings. See [Chapter 3](#) and [the Appendix](#) for more information on the methodology and results.

Region	Responses	Target
Connecticut River Valley	933	307
Greater Boston	1,182	1,085
Cape Cod & Islands	936	112
Southeast	1,303	608
Northeast	1,181	455
Central Mass	764	378
Berkshire	1,479	55
Unknown	87	-
Total	7,865	3,000

Covered Population	Responses	Target
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Aging Individuals	2,822	695
Veterans	334	119
Racial and Ethnic Minorities	3,032	764
Households with Limited English*	316	71
Individuals with Disabilities	1,069	341
Low-Income Households	1,253	454
Rural Inhabitants	2,257	302

* Corresponds to individuals with a language barrier.

Note: Respondents could identify as belonging to one or more group. The survey did not ask respondents about their experience with the justice system and is not used to isolate findings for incarcerated individuals.

4.2.4. Asset Inventory

MBI also collected data for a statewide asset inventory to gather information about key programs, resources, individuals, and organizations working to improve digital equity across Massachusetts. Partners and stakeholders populated the asset inventory based on their existing knowledge and through public meetings and engagements. MBI established Asset Mapping Services Agreements with Regional Planning Agencies to support this effort. MBI also worked with Municipal Digital Equity Planning Consultants and community-based organizations to conduct outreach to stakeholders for the inventory.

For detailed findings from the Asset Inventory, please reference [Section 3.4 Assets Supporting Digital Equity](#).

4.2.5. Broadband and Digital Equity Working Group

MBI convened key stakeholders as a part of the Broadband and Digital Equity Working Group throughout the planning process. Working Group members discussed MBI's stakeholder engagement planning process, responded to interim analysis of the current state of digital equity in Massachusetts, and directly shaped the Unified Vision and Implementation Plan. Members met four times over the course of the process, advocating on behalf of their constituents and supporting MBI's alignment with state priorities.

For a list of Working Group members and their affiliations, please reference [the Appendix](#).

4.2.6. Interagency Coordination

MBI invited Commonwealth government agencies to collaborate with it in conducting stakeholder engagement and developing the Plan. MBI's goals were to keep Commonwealth agencies informed about the process, request their support on stakeholder outreach and Plan development, and coordinate digital equity activities more broadly. In alignment with these goals, MBI interviewed both Partnership program entities and other state agencies early in the planning process to understand each agencies goals, needs and barriers from constituents, and to contextualize MBI's stakeholder engagement process. MBI hosted an interagency

coordination meeting on July 27, 2023, which 30 representatives from various agencies attended. In that meeting, MBI presented representatives with the following opportunities for coordination: the Affordable Connectivity Program (ACP), statewide planning support, infrastructure investment alignment, and agency coordination.

4.2.7. Tribal Engagement

MBI worked with tribes throughout the engagement process. MBI collaborated on outreach and engagement activities that were facilitated by the federally recognized Mashpee Wampanoag Tribe (MWT), which served as a lead for additional outreach with Indigenous communities across the state. Sister tribes, including the cultural group Herring Pond Tribe of the Wampanoag Nation, and the North American Indian Center of Boston (formerly, the Boston Indian Council) were engaged by MWT for surveys and focus groups. MWT hosted survey-taking sessions at its housing, veteran, and elder-serving Tribal agencies, resulting in 120 responses, which is 4% of its members.

MBI and MWT developed the survey so that MWT could extract and analyze MWT-specific data for their digital equity needs assessment and programmatic planning. MWT hosted two focus groups with a total of 23 participants, resulting in at least 143 MWT members providing input into the Plan.

Additionally, the Tribal Employment Rights Director spoke at a regional listening session where she shared the specific barriers faced by Tribal members in Massachusetts.

4.2.8. Additional Channels

Throughout the planning process, MBI met with key stakeholders and created virtual public feedback information sessions as needed, organizing partners in state government as well as civil society and the private sector. MBI added all engagement information to the new Internet for All page, and held one on one interviews with key stakeholders, as well as office hours for partners. At the outset of the engagement process, MBI held a Digital Equity Summit, including panels with practitioners from the field. This Plan will go through public comment, providing another channel for residents to engage with MBI’s work. The public comment period will create opportunities for residents, including those who identify as or serve Covered Populations, to ensure the Plan responds to their unique needs and barriers. MBI will notify the public comment opportunity to all stakeholders who were involved in shaping the draft of the Plan.

4.2.9. Engagement Methods by Covered Population

Covered Population	Method for targeted engagement
Aging individuals	<ul style="list-style-type: none"> Statewide Digital Equity Survey Interviews with community stakeholders serving Aging Individuals
Racial and ethnic minorities	<ul style="list-style-type: none"> Focus groups Statewide Digital Equity Survey Interviews with community stakeholders serving multiple Covered Populations, including people of color
Individuals in low-income households	<ul style="list-style-type: none"> Focus Groups Statewide Digital Equity Survey Interviews with community stakeholders serving multiple Covered Populations including individuals in low-income households
Veterans	<ul style="list-style-type: none"> Focus Groups Statewide Digital Equity Survey

	<ul style="list-style-type: none"> • Interviews to community stakeholders serving multiple Covered Populations including veterans
Individuals with disabilities	<ul style="list-style-type: none"> • Focus Groups • Statewide Digital Equity Survey • Interviews with community stakeholders serving multiple Covered Populations including individuals with disabilities
Individuals with language barriers	<ul style="list-style-type: none"> • Focus Groups • Statewide Digital Equity Survey • Interviews with community stakeholders serving multiple Covered Populations including individuals with limited English
Incarcerated Individuals	<ul style="list-style-type: none"> • Focus Groups • Statewide Digital Equity Survey
Rural residents	<ul style="list-style-type: none"> • Focus Groups • Statewide Digital Equity Survey • Interviews with community stakeholders serving multiple Covered Populations including rural residents

4.3. Looking Ahead: Ongoing Engagement Strategy

MBI is committed to continuing a meaningful and inclusive stakeholder engagement process throughout its future activities. MBI will prioritize continuing to foster existing relationships with current trusted partners while developing new relationships with organizations supporting underserved Covered Populations. These relationships will inform the development of future programs, ensure that programs have stakeholder support from the start, provide accountability in tracking program outcomes, and help share successful approaches across the state.

MBI's continuing work with digital equity coalitions, regional planning agencies, Tribal leaders and organizations, community-based organizations, residents, and more will underlie its future programs. MBI will compensate organizations and individuals for the time they contribute to digital equity activities. We will also continue to create content and communicate in multiple languages through multiple media so all can access information and choose to participate in the way that is right for them. MBI anticipates that it will publish summary materials in English, Spanish, Portuguese, Haitian Creole, and Simplified Chinese, and will prioritize these languages for ongoing engagement in languages other than English.

Chapter 5 describes the programs that MBI proposes to address the identified gaps in digital equity in Massachusetts.

5. Implementation

This chapter describes how MBI, the Commonwealth of Massachusetts’ agencies, and statewide partners will deliver on the unified vision to achieve digital equity in the state. It provides details on how Massachusetts will work with organizations from throughout the state to address barriers to digital participation through strategies and activities that address the needs of Covered Populations and are implementable on a clear timeline and with specific key performance indicators. This chapter also describes how MBI will make the Plan effective and sustainable over the long term through mechanisms for progress to be tracked, the Plan to be updated, and for lessons learned to be shared statewide. Massachusetts is well positioned to provide broadband to every state resident, and therefore sets an ambitious target to close the remaining gap while pursuing wide-ranging digital equity to make the state a leader in ensuring all its residents benefit from this technology. Massachusetts recognizes that universal service alone, though important, will not achieve digital equity. MBI therefore proposes to complement universal service with resources that will empower people to use the internet with confidence.

5.1. Implementation Framework

MBI’s implementation strategy is structured to achieve the 3 pillars of its vision by building on existing programs, launching new strategies, and strengthening the digital equity ecosystem in ways that align with and can be tracked by the NTIA’s 5 Measurable Objective categories. As we describe in Chapter 2, Massachusetts’ unified vision is the following:

Every resident in Massachusetts has high-speed, high-quality internet availability and can confidently adopt and use the internet regardless of who they are or where they live. This universal connectivity will ensure that everyone has the support they need to enjoy full personal, civic, and economic digital participation throughout their lives with safety and security.

5.1.1. Comprehensive Investment Approach

MBI expects to achieve the unified vision by using the more than \$400 million dollars of federal and Commonwealth funds that have been allocated for digital equity in Massachusetts. These funds, and others that may be allocated in the future, will be committed across the Broadband Equity, Access, and Deployment (BEAD) Program and the State Digital Equity Plan (SDEP; this Plan).

Program	Amount (in millions)
Federal	\$398
Coronavirus State and Local Fiscal Recovery Funds (SLFRF)	\$75
Capital Projects Fund	\$175
Infrastructure Investment and Jobs Act – Broadband Equity, Access, and Deployment	\$147
Infrastructure Investment and Jobs Act – Digital Equity Planning	\$1
Infrastructure Investment and Jobs Act – Digital Equity Implementation	<i>To be determined</i>
Commonwealth	

Capital Budget – Middle Mile Maintenance and Last Mile	\$7.5
TOTAL	\$405.5

MBI has allocated these resources to meet its goals in each of the 3 pillars from the unified vision. MBI’s goals are to provide service to all locations in Massachusetts; reduce the number of households who struggle with adoption of high-speed internet by 300,000; and provide reliable service to all affordable housing units as well as to all other state residents.

Pillars of MA’s Vision	Availability	Quality of Service	Adoption
Description	Every location has high-speed internet availability.	Everyone’s internet service meets their needs.	Every resident can afford and use the internet.
Barrier	18,000 locations are unserved. <i>More unserved locations may be identified in the challenge process through Summer 2024.</i>	Residents of 75,000 affordable housing units have unreliable service. 1,900,000 other locations have service but may experience disruptive quality issues.	1.04 million households are struggling to afford and use the internet.
Goals	All locations identified as unserved receive service.	Provide reliable service to all affordable housing units. Create pathways to fix service issues for all other locations.	Support adoption for 300,000 households through enrollment in the Affordable Connectivity Program or similar programs, devices, digital literacy training, and/or other solutions.

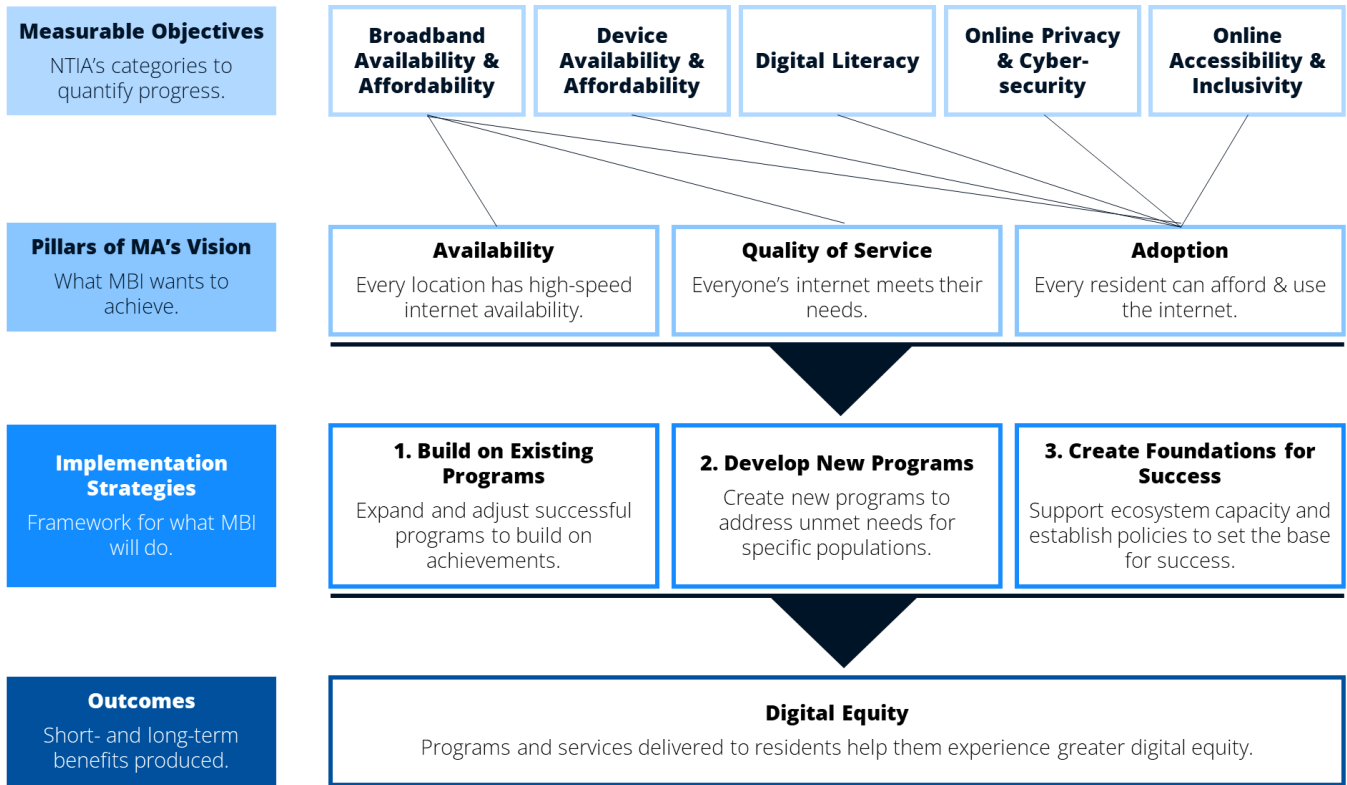
The following section describes the strategies and ecosystem-building framework that MBI will use to implement this investment approach.

5.1.2. Implementation Strategies

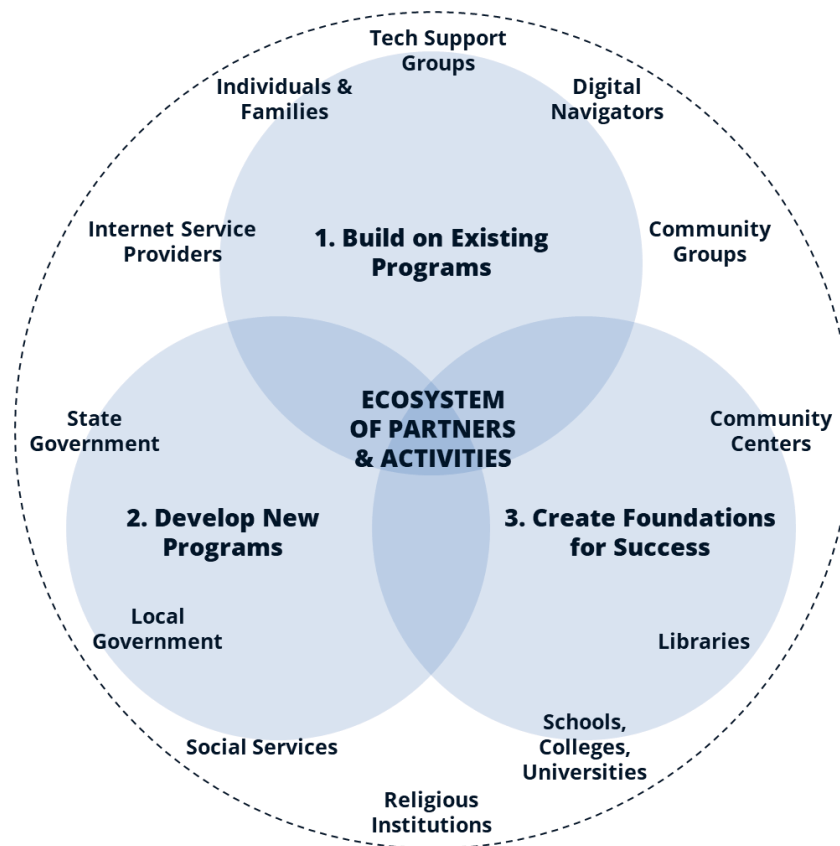
For each of the vision’s pillars—availability, adoption, and quality of service—MBI will deploy one or more of 3 implementation strategies. The goal across all categories is for activities to be scalable across the state if they are proven to be effective.

1. **Build on Existing Programs:** MBI will build on its existing programs (see 2. Digital Equity Vision and Background) by extending their duration and increasing their funding to make them reach a larger scale. This effort builds on MBI and its partners’ track record of addressing digital equity barriers in the state.
2. **Develop New Programs:** MBI will develop and implement new strategies—in collaboration with organizations and communities throughout the state—that focus on Covered Populations, regions, or Measurable Objectives that have received less support to date or that face the largest barriers to digital equity. MBI will develop new partnerships, programs, and funding streams to address these gaps.

3. Create Foundations for Success: MBI will establish initiatives that build the foundations for success in Massachusetts' digital equity ecosystem. The approach here will have 2 components: ensuring that there is a robust ecosystem of digital equity partners with capacity to collaborate in MBI activities, and establishing policies, data systems, and other resources to support the Plan's activities in the long term.



The 3 categories of action are designed to be flexible in how Massachusetts will support digital equity throughout the state ecosystem. Partner organizations and stakeholders have varying levels of capacity and focuses. As a result, MBI has created a range of options for how these partners can participate in and benefit from Plan implementation. In this ecosystem, different partners can support one or more types of activities based on their expertise, location, and role. MBI's approach recognizes that digital equity ecosystems involve interactions between individuals, communities, and their larger social and technical environments that shape digital inclusion outcomes. MBI will rely on what support multiple organizations and informal groups are able to contribute to welcome new users into digital adoption and share resources, social norms, practices, and support related to using these technologies.



Note: Graphic is demonstrative; partner organizations will play roles across multiple strategies.

The following sections describe the activities that Massachusetts will pursue and how MBI and its partners will ensure that they are prioritized, implemented, evaluated, scaled, and kept current to the state’s evolving digital equity needs and opportunities.

5.2. Strategy and Program Details

MBI proposes a series of programs that will achieve the unified vision and produce digital equity in Massachusetts. This section of the Plan describes each program in detail and connects how each program will contribute to the 5 Measurable Objective areas and produce positive outcomes for Covered Populations. MBI designed these programs to address the gaps that the Plan describes in Section 2.3. The programs, collectively, provide solutions to the identified gaps and barriers to digital equity and will be further developed with activities that address unique needs faced by specific Covered Populations.

5.2.1. Proposed Programs

Build on Existing Programs

BEP1. Digital Equity Partnerships Program: MBI will scale its existing Partnerships program with a focus on 3 objectives:

- Expand geographical coverage to regions with gaps in support: Current awards do not include regional partners for parts of Central Massachusetts, areas of Greater Boston outside of the City of Boston and its northern suburbs, the Southeast, and the Cape and Islands. The next phase of the Partnerships program

will prioritize MBI providing funding to regional partners in regions with no partners and in those with the highest needs (Berkshire and Cape Cod and Islands).

- Expand coverage by target populations regardless of geographic location: Current awards support organizations that assist aging individuals and people with disabilities throughout Massachusetts. The next phase of the Partnerships program will prioritize MBI providing funding to partners who serve Covered Populations with the highest needs (individuals in low-income households, individuals with disabilities, and individuals with a language barrier).
- Expand initiatives supported through past grants where these have proven to be successful: As MBI evaluates past grants, it will identify promising and successful early initiatives that it will expand with its partners.

MBI will use the asset inventory and the relationships it has developed through the SDEP process to identify new partners in the first 2 categories. We will also establish a “stepping stone” program that helps smaller organizations become active in the digital equity ecosystem within the Partnerships program by building their capacity independent of other larger organizations. MBI will continue providing technical assistance for all partners.

All of these partnerships will implement projects that focus on Wi-Fi access, public space internet modernization, device distribution and refurbishment, digital literacy, education, outreach, and adoption support (including ACP and other support for connectivity for people experiencing economic hardship).

BEP2. Municipal Digital Equity Planning Program: Building on the 70 municipalities that have participated in this program to date, MBI’s future investments will focus on two initiatives:

- Provide seed funding: MBI will provide participating municipalities with easily accessible funding to implement priority initiatives based on their plans.
- Create meaningful funding options: MBI will set aside a portion of future funds for municipalities that have completed their plans for them to implement larger, longer-term projects. This could take the form of a regular (e.g., bi-annual) competitive grant program to eligible municipalities.

These investments will enable communities to address the specific spatial, population, and service issues affecting their residents in a way that is tailored to their local needs.

BEP3. Lead for America: MBI’s next phase of programming will scale the Lead for America program in Massachusetts and make it sustainable over the long term:

- Expand to mid-career professionals: In partnership with Lead for America, MBI will establish an additional fellowship track for mid-career professionals who can provide additional staff support and capacity in program implementation to local and regional digital equity initiatives.
- Obtain ongoing private support: MBI will continue to seek private partnerships and funding to ensure the longevity of the program in Massachusetts.

MBI will continue to match fellows with municipalities, regional planning authorities, and other organizations that participate in the Partnerships and Planning programs. We will also work with these partners to create clear pathways between the fellowship and full-time work opportunities in the digital equity ecosystem to ensure that graduating fellows can remain in this space to build on their skills and connections. MBI will collaborate with Lead for America throughout these activities to evaluate the program and identify opportunities for program improvement.

Develop New Programs

DNP1. Closing Network Gaps: MBI estimates that there remain approximately 18,000 unserved locations in Massachusetts. Our priority will be to provide high-speed internet availability at each of these locations, and to do so by encouraging competitive markets where possible and economically feasible.

DNP2. BEAD Challenge and Resolution Process: MBI will establish a process to identify infrastructure and service deficiencies and to address them in collaboration with Commonwealth government, ISPs, community anchor institutions, and other partners. MBI will launch a challenge and resolution process in early 2024 that allows residents to work with municipal and Commonwealth agencies to make a formal challenge to existing quality of service. The goal is to identify insufficient service to make locations eligible for BEAD grants. This process will rely on a public campaign (through MBI's website and other resources and channels) that inform residents on actions they can take to assess quality of service issues. MBI will pair self-service challenge options with support from local resources such as digital resource centers at local anchor institutions, digital navigators, and more. These assets will provide trusted local advice on challenging service quality, device troubleshooting, ongoing technology support, internet subscription troubleshooting, ACP registration, and more. Additionally, MBI will establish a strategic partnership with the Massachusetts Department of Telecommunications and Cable to create and promote a statewide internet quality issue triage and response system (comparable to a "311" support system for internet service).

DNP3. BEAD Deployment Process: Having identified areas of insufficient service quality through the challenge process, MBI will allocate BEAD deployment funding to unserved locations. MBI will facilitate this process by taking advantage of connection points at community anchor institutions as local distribution hubs (points of presence). We will triage issues and coordinate with ISPs both to address quality of service issues and to ensure that residents' future access is affordable by linking issue resolution with support for enrollment in ACP and other programs.

DNP4. Residential Unit Retrofit: MBI estimates that approximately 77,000 affordable housing units in Massachusetts are underserved. We will prioritize funding for these locations to ensure that they have reliable, high-speed internet. MBI will also provide simple options for households who benefit from this program to also enroll in ACP or other lower-cost internet service to improve affordability. This will benefit a range of Covered Populations, who are more likely to reside in affordable housing units.

DNP5. Ongoing Affordable Connectivity Options and Enrollment: MBI will continue to support access to affordable connectivity options through the ACP and/or other solutions. MBI remains committed to ensuring maximum adoption of the ACP program. However, as the ACP is projected to run out of funds in mid-2024 and its extension is unclear, MBI will establish state-based alternatives to ensure that changes to ACP availability will not impact Massachusetts residents. MBI will also seek solutions that complement the ACP by providing for greater affordability as the program may not reduce costs sufficiently for residents with the lowest incomes in regions with the least affordable options for high-speed internet. We will coordinate with Commonwealth government agencies to develop ACP enrollment communications and support to their clients (e.g., students, jobseekers, veterans, older residents, motorists, etc.) through multiple channels (e.g., in-person offices, newsletters, emails, text, social media, etc.) with the goal of increasing program take-up.

DNP6. Statewide Device Network: MBI will establish a single point of support for device procurement and refurbishment to assist partners statewide in getting devices to residents. While several organizations currently provide device availability and affordability assistance in Massachusetts, MBI can help to coordinate and expand efforts by:

- Establishing programs that enables partners to obtain devices and software at a lower cost, and
- Setting up local distribution hubs and network of supporting stakeholders to expand access to regions and populations without current coverage in device support.

DNP7. Statewide Training Network: MBI will create comprehensive training and support materials and programs that are tailored to the needs of specific populations. Based on the assets and gaps we have identified, we will work with community-based partners to prepare and deliver resources to communities that most struggle with digital literacy and online accessibility and inclusivity. These materials will include both direct support to community members as well as train-the-trainer programs that provide local individuals and organizations with the skills and tools to educate their neighbors who struggle with internet adoption.

DNP8. Statewide Digital Navigator Corps: MBI will create a digital navigator corps using the training materials developed for the Statewide Training Network. MBI will support organizations throughout Massachusetts to hire, train, and staff digital navigators who can provide local support with technology troubleshooting, education, program access, and more. We will prioritize increasing the number of navigators in regions and among populations where this resource is currently unavailable. MBI will also build upon Telehealth navigators programming to cover online safety, with direct support for individuals with disabilities.

DNP9: State-Supported Technical Assistance: MBI will develop a “Front Door” program in support of its quality-of-service pillar. The Front Door will involve a consumer-facing web portal dedicated to quality-of-service concerns for residents. The site will include consumer-facing educational tools to encourage self-service internet troubleshooting. Additionally, the Front Door program will offer an escalation pathway tool and online form to submit service concerns. MBI will work in partnership with ISPs to coordinate on improving quality of service, promoting transparency, and addressing resident and community concerns.

Create Foundations for Success

CFS1. Foster Regional and Topic-Specific Digital Equity Coalitions: MBI will facilitate the creation of coalitions that promote digital equity across Massachusetts. MBI envisions that coalitions could be structured by region, Covered Population or other socioeconomic or demographic characteristics, priority outcome areas (economic and workforce development, education, healthcare, housing, and infrastructure), or other dimensions. MBI will encourage coalitions to collaborate across these dimensions to ensure that lessons learned and ideas are diffused throughout the state. MBI will identify ways that coalitions can connect with relevant research institutions (e.g., colleges and universities, think tanks, healthcare institutions) to facilitate learning and evaluation around areas where there may currently be insufficient information.

CFS2. Provide Resource Support and Education: MBI will expand the network of digital equity practitioners and organizations. MBI will use the materials it creates through DNP7. Statewide Training Network (see above) to establish a capacity-building workshop series. These workshops will be dedicated to educating participants from a range of organizations about digital equity, equipping them to provide their customers with support in this area, and increasing their organizational capacity to potentially develop digital equity programs and apply for digital equity funding through MBI grant programs. MBI will proactively seek out organizations that serve Covered Populations and regions that are underserved by current programs. MBI will also build on its relationships with the Massachusetts Association of Regional Planning Agencies and the Community Compact Cabinet⁸⁸ to build digital equity capacity across regional organizations, Commonwealth agencies, and local government to ensure that all municipalities have experts they can access for broadband and digital equity initiatives.

⁸⁸ The Community Compact Cabinet is a structure established by the Governor’s Office for Commonwealth government and municipalities to coordinate around initiatives and best practices. For more information, see: <https://www.mass.gov/orgs/community-compact-cabinet>.

CFS3. Establish Best Practices Catalogue: MBI will strengthen the ability of all organizations to support digital equity objectives by educating practitioners and developing a catalogue of best practices. This support will be available both to organizations that focus on digital equity and to those that do not. This recognizes that while organizations dedicated to digital equity or with related projects are essential to meeting the vision, organizations that work with Covered Populations or conduct other relevant activities can also provide digital equity support to strengthen the ecosystem overall.

MBI will establish regular convenings among program implementation partners where participants will share what is or is not working. These meetings will allow collaborators to identify potential challenges to implementation and collectively identify solutions. MBI will document challenges and solutions to circulate statewide, creating a repository of materials for organizations to use. These convenings will also create communities of practice dedicated to different areas of digital equity (e.g., potentially based on the 5 Measurable Objective areas or 5 priority outcome areas⁸⁹) where practitioners can meet in smaller groups to provide each other with expertise on program improvements. The overall goal is to help spread and scale successful strategies across the state.

CFS4. Regular ISP Convenings: MBI will Ensure coordination and engagement with ISPs through regular convenings and roundtables. MBI will align these meetings with BEAD and CPF implementation to ensure effective collaboration between ISPs, MBI, and other partners.

5.2.2. Proposed Programs by Measurable Objective Area

The following table shows what proposed programs address which Measurable Objective areas as a priority or secondary focus.

Strategy and Programs	Broadband Availability & Affordability	Device Availability & Affordability	Digital Literacy	Online Privacy & Cybersecurity	Online Accessibility & Inclusivity
Build on Existing Programs					
BEP1. Digital Equity Partnerships Program	Priority Area			Secondary Area	
BEP2. Municipal Digital Equity Planning Program					
BEP3. Lead for America					
Develop New Programs					
DNP1. Closing Network Gaps					
DNP2. BEAD Challenge and Resolution Process					

⁸⁹ Massachusetts’ priority outcome areas are: Economic and Workforce Development, Education, Healthcare, Housing, and Infrastructure.

DNP3. BEAD Deployment Process					
DNP4. Residential Unit Retrofit					
DNP5. Ongoing Affordable Connectivity Options and Enrollment					
DNP6. Statewide Device Network					
DNP7. Statewide Training Network					
DNP8. Statewide Digital Navigator Corps					
DNP9: State-Supported Technical Assistance					
Create Foundations for Success					
CFS1. Foster Regional and Topic-Specific Digital Equity Coalitions					
CFS2. Provide Resource Support and Education					
CFS3. Establish Best Practices Catalogue					
CFS4. Regular ISP Convenings					

5.2.3. Proposed Program Key Performance Indicators

This section groups key performance indicators (KPIs) by each individual program that MBI proposes to address gaps in digital equity in Massachusetts. Section 2.3 presents how the same KPIs correspond to Measurable Outcome areas and gaps. Section 5.3.2 below describes how MBI plans to track these KPIs as it implements the Plan.

Strategy and Programs	Key Performance Indicators
Build on Existing Programs	
BEP1. Digital Equity Partnerships Program	<ul style="list-style-type: none"> Number of regions with 1 or more dedicated programs

	<ul style="list-style-type: none"> • Number of Covered Populations with 1 or more dedicated programs • Share of residents in existing affordable housing stock that have availability of reliable internet service • Projects completed • Number of people reached and served • Number of devices distributed • Number of people who receive training • Share of residents enrolled in ACP or similar program
BEP2. Municipal Digital Equity Planning Program	<ul style="list-style-type: none"> • Number of people engaged • Funding deployed • Projects completed
BEP3. Lead for America	<ul style="list-style-type: none"> • Number of people engaged • Number of fellows trained and deployed • Number of fellows hired in digital equity jobs after their fellowship • Number of organizations supported
Develop New Programs	
DNP1. Closing Network Gaps	<ul style="list-style-type: none"> • Share of homes that are future-proofed to new technologies and higher speeds • Share of residents that have availability of high-speed internet
DNP2. BEAD Challenge and Resolution Process	<ul style="list-style-type: none"> • Share of residents that report their internet meeting quality of service needs • Share of cases where residents flag inadequate quality of service that are resolved
DNP3. BEAD Deployment Process	<ul style="list-style-type: none"> • Share of residents that report their internet meeting quality of service needs • Share of cases where residents flag inadequate quality of service that are resolved
DNP4. Residential Unit Retrofit	<ul style="list-style-type: none"> • Share of residents in existing affordable housing stock that have availability of reliable internet service • Share of residents in existing affordable housing stock that can afford internet service • Share of residents in existing affordable housing stock that are confident using internet service
DNP5. Ongoing Affordable Connectivity Options and Enrollment	<ul style="list-style-type: none"> • Share of residents enrolled in ACP or similar program

	<ul style="list-style-type: none"> • Share of residents who can afford the internet plan they need
DNP6. Statewide Device Network	<ul style="list-style-type: none"> • Number of devices distributed • Share of residents who have the devices they need
DNP7. Statewide Training Network	<ul style="list-style-type: none"> • Share of courses that integrate digital literacy skills in the curriculum • Share of schools with an instructional technology coach • Share of teachers that receive digital literacy training • Number of people who receive training
DNP8. Statewide Digital Navigator Corps	<ul style="list-style-type: none"> • Share of residents who say they are confident in using the internet • Share of K-12 students with access to digital literacy skills • Number of digital navigators deployed across the state • Share of healthcare facilities that have access to digital literacy resources for patients • Share of residents who report using the internet to conduct job searches, access healthcare, engage civically, etc.
DNP9: State-Supported Technical Assistance	<ul style="list-style-type: none"> • Number of people reached and served
Create Foundations for Success	
CFS1. Foster Regional and Topic-Specific Digital Equity Coalitions	<ul style="list-style-type: none"> • Number of organizations that participate in capacity-building programs • Number of projects completed
CFS2. Provide Resource Support and Education	<ul style="list-style-type: none"> • Number of organizations that participate in capacity-building programs • Number of projects completed
CFS3. Establish Best Practices Catalogue	<ul style="list-style-type: none"> • Number of resources documented • Number of projects benefiting from available resources
CFS4. Regular ISP Convenings	<ul style="list-style-type: none"> • Number of organizations that participate in activities

5.2.4. Proposed Programs and Covered Populations

The proposed programs collectively provide activities, resources, funding, and other interventions that will serve all Covered Populations in Massachusetts. Because of the cross-cutting nature of the programs,

which will operate in partnership with multiple community anchor institutions and community-based organizations in one or more regions, it is not possible at this stage for MBI to provide a direct cross-walk between each program and one or more Covered Populations. As MBI and its partners further refine the programs, we will pay particular attention to how they should be prioritized for the Covered Populations that we identified as having the highest needs: individuals in low-income households, individuals with disabilities, and individuals with a language barrier. Overall, MBI will work to ensure that we develop and deliver robust programs that each benefit Massachusetts residents who are most in need while also benefiting as many Covered Populations as possible.

5.3. From Plan to Action

Successful implementation of the plan requires that it be regularly updated and that its programs be assessed. This section describes how MBI plans to incorporate new information, findings, and objectives into the Plan, as well as how it will track progress towards current objectives and key performance indicators.

5.3.1. Maintaining the Plan As a Living Document

MBI will also work with statewide partners to ensure that the SDEP is a living document that is updated to reflect evolving needs and solutions in Massachusetts. This will involve the following activities:

- Providing access to key elements from the SDEP on a user-friendly website: MBI will add a section to its website (<https://broadband.masstech.org>) that includes links to the SDEP and BEAD documents; the Executive Summary of each translated in Spanish, Portuguese, Haitian Creole, and Simplified Chinese; municipal plans and other statewide planning documents; dynamic maps of availability, affordability, and adoption that allow visitors to zoom in on their communities; downloadable data; and other resources that partners and advocates can use to improve digital equity throughout Massachusetts. MBI will update these materials and links on an ongoing basis.
- Incorporating municipal digital equity plans into the SDEP to provide more specific local strategies: The Plan's appendix will reference municipal digital equity plans and other materials that are specific to regions or other areas of the state. These materials will be downloadable in full on MBI's website, which will also reference municipalities' websites for additional information.
- Establishing an ongoing survey platform and questionnaire to conduct regular (likely annual) surveys: MBI will consult with its statewide partners to create a survey methodology and structure that it can use regularly (annually or on another cadence) to track progress compared to the baseline digital equity survey that MBI administered for the SDEP process. This survey will be designed to be consistent with the SDEP survey, while also having the opportunity to ask about emerging areas of digital equity that may be relevant to local and statewide organizations in the coming years. MBI will establish appropriate data-sharing mechanisms such that municipalities and other organizations will be able to access anonymized (and un-identifiable) datasets for their local planning purposes.
- Establishing Advisory Committees: MBI will consider establishing advisory bodies to provide ongoing guidance on Plan implementation, technical questions, policy, and more. These advisory bodies will provide expertise based on lived experience, technical know-how, and other perspectives to keep Massachusetts' efforts focused on the most beneficial solutions for state residents.
 - *Community Advisory Committee:* MBI will consider creating a committee that consists of individuals who have a lived experience of the digital divide and can advise MBI on program development and evaluation. MBI will devise a process to select members that ensures representation across Covered Populations, regions, gender identity and sexual orientation, and other key characteristics that encapsulate all residents of Massachusetts and their diverse perspectives and

experiences. MBI will compensate committee members to ensure that participating in this body does not impose a financial burden and is accessible to people from all backgrounds.

- *Policy Advisory Committee:* MBI will consider creating a committee to inform the process of establishing policies, standards, and strategies through executive, legislative, and regulatory actions. This body will consist of experts from Commonwealth and local government agencies, nonprofit and advocacy organizations, technology companies and other relevant industry partners, and others who are mission-aligned with Massachusetts' digital equity vision and can contribute their knowledge to pursuing it.
- *Safety and Cybersecurity Advisory Committee:* MBI will consider creating a committee that informs policy setting, program development, and implementation specifically in the areas of online safety, misinformation, and cybersecurity. This group will seek solutions to the challenges posed by misinformation; generative artificial intelligence models that can create large volumes of written, visual, and audio content; surveillance-based platforms; hacking and ransomware; and data privacy and security, among other areas of concern.

5.3.2. Ongoing Program Evaluation and KPI Tracking

MBI will track the outputs and outcomes of its programs in multiple ways. Existing MBI programs already have in place methods to track KPIs and overall progress. Building on these structures and KPIs, MBI will set program evaluation measures with its partners for all programs—based on the Measurable Objectives and key performance indicators described above—that allow it to assess whether programs are producing results and, if not, where they should improve. This evaluation refers to the KPIs identified in sections 2.3 and 5.2.3.

- Monitoring overall trends: MBI will use official and third-party data sources that are updated on a regular basis to produce regular snapshots of the state of digital equity in Massachusetts. In this Plan, we have provided maps that display indices of availability, affordability, and adoption (in addition to an overall index that aggregates all three). This analysis uses an established methodology and data sources⁹⁰ that MBI will use year after year to track trends at a statewide and regional level. This will allow MBI to update statewide and regional maps every 1-2 years to assess how availability, affordability, and adoption are increasing or decreasing across Massachusetts, thus providing a comprehensive picture. MBI envisions making a web dashboard of this data available on its website, thus allowing partners and residents to view trends in their community as well.
- Program-specific data collection: In this Plan, MBI has established KPIs to track program progress. In programs where it collaborates with partners, or where implementation occurs through partners, MBI will require participating organizations to collect data on these KPIs and to share it with MBI to allow it to track progress during a program's duration and at its conclusion.⁹¹ MBI will provide guidance for this data

⁹⁰ This approach relies on federal (e.g., Census), third-party (e.g., Ookla), and other sources that are updated every 1-2 years. Due to the structure of these sources, this analysis can be available at the Census tract level.

⁹¹ For example, a 2-month municipal planning effort might be required to provide data on the number of community members it has engaged every other week (to ensure it is meeting targets) and at the end of the program (to assess overall performance). On the other hand, a 2-year device distribution campaign may require partners to share data with MBI monthly or quarterly before providing a final report at program conclusion.

collection (e.g., through templates, definitions of datapoints, policies to protect privacy and other sensitive information, etc.) for its partners to follow, requiring data to be collected and shared at least one every fiscal year. MBI will seek to make this process as simple for itself and its partners as possible such that it collects the information it needs without burdening them excessively through overhead. This will provide MBI visibility into program implementation, allowing it to intervene to address potential issues if programs are not meeting their targets.

- **Qualitative assessment:** Aggregated data collection may not capture specific nuances that may vary by geography, Covered Population, and other factors. MBI will use the tools described in Section 5.3.1. above to gather additional information on broader performance and KPIs, This includes regular surveys, advisory committees, and analysis of engagement feedback provided through municipal and other planning processes. MBI will develop questions and analyses that use these sources to determine what initiatives are effective and how to modify them to increase effectiveness.

5.3.3. Preparing the Workforce to Meet the Need

We recognize the importance of a highly skilled workforce and the valuable roles of existing state and local workforce and education agencies, unions, community colleges, vocational techs, education and training providers, and community-based organizations. Our priorities emphasize not just technical training but also inclusivity, ensuring that historically underserved communities have equal access to training programs, apprenticeships, and job fairs. Understanding the challenges many face, MBI is also evaluating approaches to expand access to supportive services, such as transportation assistance and childcare, to bolster participation. Additionally, safety will remain at the forefront of our priorities. Effective safety training is critical, including promoting a consistently safe working environment.

In collaboration with the Workforce Skills Cabinet, MBI will work towards enhancing the broadband workforce and developing a skilled and diverse workforce. We will explore the feasibility of employing the following approaches:

- **Strategic Workforce Assessments:** Review existing workforce studies and data to assess current gaps in the current landscape of skills, diversity, and inclusion within the workforce. This will involve data-driven analyses to identify skill gaps, demographic representation, and areas where targeted interventions are required to elevate job quality and equitable access.
- **Inclusivity in Training and Recruitment:** By leveraging partnerships with local educational entities, vocational programs, and community-based organizations, MBI will ensure that training opportunities are accessible to all. During the application process, subgrantees must describe their recruitment practices and how they plan to recruit a workforce reflective of the community demographics.
- **Integration with Local Initiatives:** MBI will integrate its efforts with existing state and local workforce development initiatives. By aligning with these programs, MBI will create synergies that amplify the impact of equitable workforce development, utilizing the infrastructure of established entities such as unions, community colleges, and vocational schools.
- **Cultivating Partnerships:** Cultivating partnerships with organizations that prioritize workforce diversity is vital. MBI will require its subgrantees to engage with these entities to develop training programs that are not only inclusive but also of high quality, ensuring that participants are well-prepared for the rigors of the industry.
- **Supportive Services:** Recognizing the barriers that impede equitable participation in workforce development, MBI will require subgrantees to provide supportive services. These may include

transportation assistance, child care support, and wraparound services, thus removing obstacles that disproportionately affect low-income and minority populations.

- **Quality Employment Standards:** To ensure job quality, during the application process, MBI will require subgrantees to certify their adherence to employment standards that prioritize fair wages, benefits, and safe working conditions. Subgrantees will be evaluated on their commitment to these standards, ensuring that workforce development is coupled with job quality.
- **Continuous Monitoring and Improvement:** MBI will set clear, measurable outcomes for equitable workforce development and job quality and establish continuous monitoring mechanisms to ensure that workforce development efforts are equitable and advance job safety. This will include regular reporting on diversity metrics, wage standards, and safety records, facilitating accountability and continuous improvement. These feedback loops will provide insights into the effectiveness of workforce initiatives, highlighting successes and identifying areas where adjustments are needed to enhance equity and job quality.

For more information on workforce readiness, please refer to the BEAD proposal.

5.4. Prioritization and Timeline

MBI will use the following criteria to prioritize implementation and investments across the strategies and activities it will pursue. MBI will be coordinating a range of programs through the implementation of this Plan. We will consider and prioritize each of those programs based on its potential to address one or more of the 4 criteria below.

Prioritization Criteria			
<u>Availability:</u> Extent to which the set of strategies and activities close existing gaps in all locations having availability of high-speed internet.	<u>Adoption:</u> Extent to which the set of strategies and activities close existing gaps in all residents affording and using the internet throughout areas like increasing internet affordability, providing devices, improving digital literacy, enhancing privacy and cybersecurity, and/or improving the accessibility and inclusivity of online services.	<u>Quality of Service:</u> Extent to which the set of strategies and activities close existing gaps in all residents having access to high-quality service or being able to rapidly restore service quality,	<u>Equity:</u> Extent to which the set of strategies and activities target closing existing gaps experienced by Covered Populations in particular.

The equity prioritization criteria will take special consideration of the existing gaps to digital equity that MBI identified for each Covered Population. Note that while we link gaps with a specific Covered Population, addressing those gaps will also likely benefit all other Covered Populations.

Covered Population	Gap(s)
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<p>Individuals who live in covered households (or, low-income household)</p>	<ul style="list-style-type: none"> • Cost is the most commonly cited reason for not having home internet service. Statewide, one in two survey respondents found it difficult to pay their internet bill. • Residents express a need for low-cost laptops or desktop computers. Low-income residents, individuals with a language barrier and residents that identify as racial and ethnic minorities expressed being able to pay less for a device. • Residents from all backgrounds and regions report concerns about Internet safety, with 85% of survey respondents statewide citing this concern. Aging individuals across the State are highly concerned with Internet safety, specifically citing concerns about online scams or online hacking. Individuals with a Language Barrier were least likely to be aware of resources to protect their safety online.
<p>Aging individuals</p>	<ul style="list-style-type: none"> • Residents express a need for device sustainability over time, specifically Aging individuals who expressed being concerned with upgrading technology and not being able to use the devices they were already familiar with. • Residents from all backgrounds and regions report concerns about Internet safety, with 85% of survey respondents statewide citing this concern. Aging individuals across the state are highly concerned with Internet safety, specifically citing concerns about online scams or online hacking. Individuals with a Language Barrier were least likely to be aware of resources to protect their safety online.
<p>Incarcerated individuals, other than individuals who are incarcerated in a Federal correctional facility</p>	<ul style="list-style-type: none"> • Residents express a need for more access to digital literacy training and job skills, specifically for those interested in joining or participating in the Massachusetts job market, and those seeking healthcare, telehealth, or medical records.
<p>Veterans</p>	<ul style="list-style-type: none"> • Residents from all backgrounds and regions report concerns about Internet safety, with 85% of survey respondents statewide citing this concern. Aging individuals across the state are highly concerned with Internet safety, specifically citing concerns about online scams or online hacking. Individuals with a Language Barrier were least likely to be aware of resources to protect their safety online.
<p>Individuals with disabilities</p>	<ul style="list-style-type: none"> • Residents need accessible devices, technical support using their devices, along with information about how to access these resources. This need was named among focus group participants with disabilities. • Residents from all backgrounds and regions report concerns about Internet safety, with 85% of survey respondents statewide citing this concern. Aging individuals across the State are highly concerned with Internet safety, specifically citing concerns about online scams or online hacking. Individuals with a Language Barrier were least likely to be aware of resources to protect their safety online. • Individuals with disabilities highlighted concerns about medical data breaches.

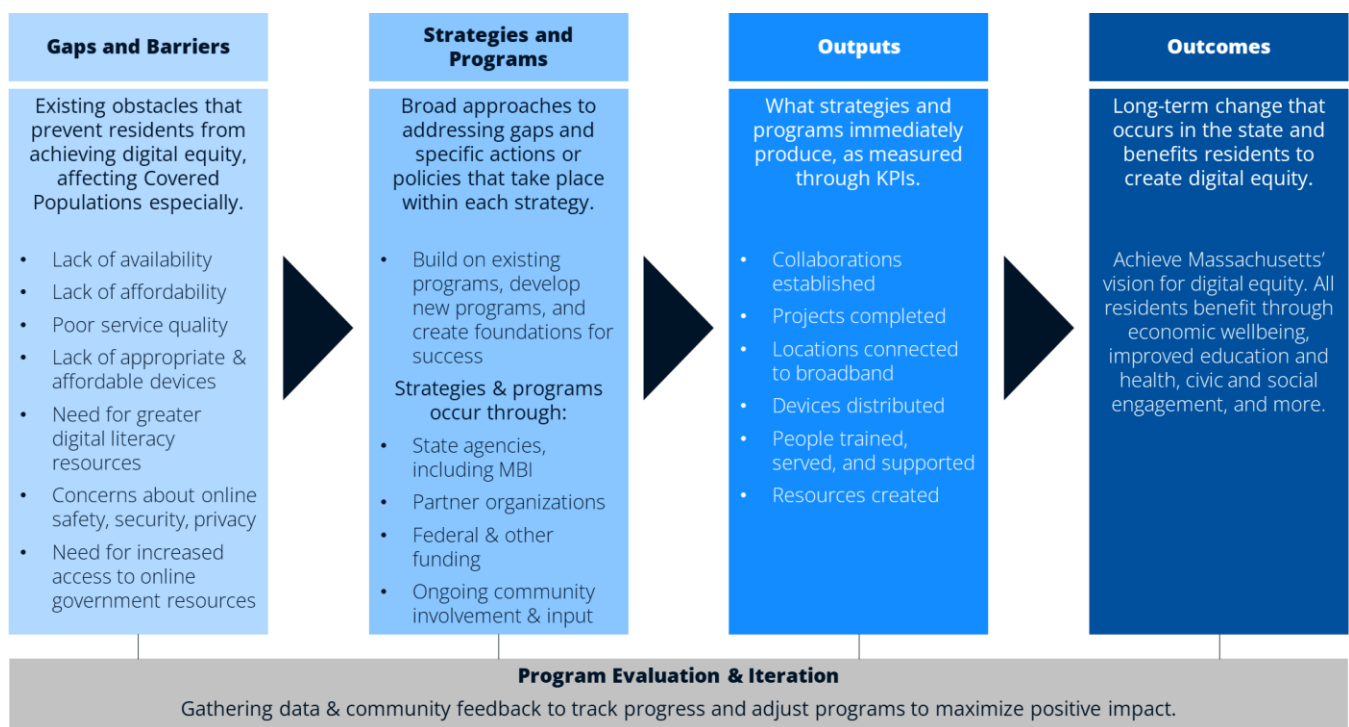
	<ul style="list-style-type: none"> Individuals with a language barrier and people with disabilities were less likely to find online government services to be accessible. During focus groups, residents with limited English express a need for more translation and language support for online public resources.
Individuals with a language barrier	<ul style="list-style-type: none"> Residents express a need for low-cost laptops or desktop computers. Low-income residents, individuals with a language barrier and residents that identify as racial and ethnic minorities expressed being able to pay less for a device. Residents from all backgrounds and regions report concerns about Internet safety, with 85% of survey respondents statewide citing this concern. Aging individuals across the State are highly concerned with Internet safety, specifically citing concerns about online scams or online hacking. Individuals with a Language Barrier were least likely to be aware of resources to protect their safety online. Individuals with a language barrier and people with disabilities were less likely to find online government services to be accessible. During focus groups, residents with limited English express a need for more translation and language support for online public resources.
Racial and ethnic minorities	<ul style="list-style-type: none"> Residents express a need for low-cost laptops or desktop computers. Low-income residents, individuals with a language barrier and residents that identify as racial and ethnic minorities expressed being able to pay less for a device. Residents from all backgrounds and regions report concerns about Internet safety, with 85% of survey respondents statewide citing this concern. Aging individuals across the State are highly concerned with Internet safety, specifically citing concerns about online scams or online hacking. Individuals with a Language Barrier were least likely to be aware of resources to protect their safety online.
Rural inhabitants	<ul style="list-style-type: none"> While 99% of MA residents have high-speed internet, gaps remain, especially in rural areas. Only 72% of survey respondents statewide expressed that their home internet subscriptions met their needs. Focus group participants across the State shared their experiences of poor or inconsistent internet quality, particularly multi-family households, residents in rural communities, or in the Cape and Islands region. Residents from all backgrounds and regions report concerns about Internet safety, with 85% of survey respondents statewide citing this concern. Aging individuals across the State are highly concerned with Internet safety, specifically citing concerns about online scams or online hacking. Individuals with a Language Barrier were least likely to be aware of resources to protect their safety online.
See section 2.3 for more details on the gaps.	

The following high-level timeline provides an overview of MBI’s planned actions over the next 2 years. MBI will develop a more detailed timeline once it has greater clarity around future federal grant funding allocation and guidance.

Period	Action
Fall 2023	<ul style="list-style-type: none"> • Gap Networks Grant Program launch • Public comment period – BEAD Initial Proposal and Statewide Digital Equity Plan
Fall/Winter 2023	<ul style="list-style-type: none"> • Residential Retrofit Program Launch • Final revision and submission – BEAD Initial Proposal and Statewide Digital Equity Plan
Spring 2024	<ul style="list-style-type: none"> • Approval TBD – BEAD Initial Proposal and Statewide Digital Equity Plan
Spring/Summer 2024	<ul style="list-style-type: none"> • BEAD Challenge Process • BEAD Grantee Selection Process
Winter 2024/Spring 2025	<ul style="list-style-type: none"> • Draft and submission – BEAD Final Proposal

6. Conclusion: The Way Forward

Completing the Statewide Digital Equity Plan is just the first step. As we move from planning to implementation, we understand the need to ensure this Plan remains a living document that will continue to reflect the realities of diverse communities in the Commonwealth and can guide investments and partnerships to meet the need and the moment. This Plan has developed a framework for this to happen in Massachusetts: it has identified gaps and barriers in digital equity, proposed strategies and programs to address them, a set of KPIs to track outputs, and defined a set of outcomes and a vision that the state strives to accomplish. Underpinning all of these components is a system for program evaluation and iteration that provides the assessment and adjustment that should happen over time and that will be informed by the voices and experiences of state residents.



MBI's connections with stakeholders and communities across the Commonwealth are and will remain at the heart of our work. Massachusetts' diverse residents face barriers to digital equity based on where they live and who they are, and we are committed to a future where everyone has the digital resources they need to thrive throughout their entire life.

This will be an all-hands-on-deck effort over the coming years, and we look forward to joining hands with major stakeholders in and outside of government—including state, and local government agencies, private industry partners, and nonprofit and community leaders—to meet this pivotal moment and ensure all residents benefit from the possibilities that digital equity deliver.

7. Appendices

Public Survey Methodology

Data Collection

MBI launched the Massachusetts Statewide Digital Equity Survey in mid-June 2023 and collected responses until early October 2023. We assigned each region and covered population a target response count, based on Census data, according to the proportion of each group compared to the state overall population. While the original total target response count was 3,000, the survey reached 8,541 people, far exceeding the target.

Data Cleaning

After October 2nd, 2023, MBI cleaned the survey data to remove any invalid entries, including those from people living outside of Massachusetts, those under 18, or those who did not answer a survey question related to digital equity. Following this data cleaning process, the total number of remaining responses was 7,754.

Public Survey Cleaning Results

Cleaning Step	Total dropped
Raw Observations	8,541
Cleaning steps	
Valid Resident	64
Valid Age	33
Accurate Zip Code	99
Relevant Questions Answered	590
Non-missing Zip Code or Municipality	1
Total	7,754

Data Analysis

To create a statistically representative statewide dataset, we then weighted the results by Covered Population and Region using the American Community Survey 5-year estimate (2017-2021). All survey results presented statewide represent results using this weighted dataset.

To draw conclusions about needs and barriers experienced by covered population groups and Regions, we conducted statistical analysis to compare the responses of each covered population and each region to all other respondents. Statistically significant findings are synthesized in Section 3.2.4 Needs and Barriers by Covered Population and Section 3.2.5 Regional Snapshots.

Massachusetts Statewide Digital Equity Survey Questions

Section 1: Please answer the following questions.

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

Do you have internet service in your home?

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

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

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

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

When complete, skip to section 4 below.

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

10. If you do not have internet service in your home, what is the reason?
- | | |
|---|--|
| <input type="checkbox"/> Service is not available in my area | <input type="checkbox"/> I can't afford or access a device to use the internet |
| <input type="checkbox"/> Service is too expensive | <input type="checkbox"/> I don't want / don't use the internet. |
| <input type="checkbox"/> I am concerned about online privacy or safety | <input type="checkbox"/> Other (please specify): _____ |
| <input type="checkbox"/> I don't feel confident navigating the internet or using online tools | |
11. If you do not have internet at home, where do you go to use the internet? Please check all that apply.
- | | |
|---|--|
| <input type="checkbox"/> A workplace | <input type="checkbox"/> A public space such as a park or government building |
| <input type="checkbox"/> A friend or family member's home | <input type="checkbox"/> On public transit |
| <input type="checkbox"/> School, college, or university | <input type="checkbox"/> I do not regularly access internet in these or any other spaces |
| <input type="checkbox"/> A library or community center | <input type="checkbox"/> Other (please specify): _____ |
| <input type="checkbox"/> A business such as a restaurant, cafe, or bookstore (e.g., McDonald's, Taco Bell, Starbucks, etc.) | |
12. What kind of digital skills support would you be most interested in?
- | | |
|--|--|
| <input type="checkbox"/> In person classes | <input type="checkbox"/> In person support from a friend or instructor |
| <input type="checkbox"/> Online classes | <input type="checkbox"/> A do-it-yourself training module |

When complete, proceed to section 4 below.

Section 4: All respondents should answer these questions.

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

Easy

Not easy

Hard

Searching and applying for a job	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Health care or telehealth services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Participating in your local community	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
General internet searching	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Transportation information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Searching and/or applying for benefits or resources for you or your family	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

18. If you do not have regular access to the internet, what would most like to use it for if you could?

- | | |
|--|--|
| <input type="checkbox"/> Searching and applying for a job | <input type="checkbox"/> Searching and/or applying for benefits or resources for you and your family |
| <input type="checkbox"/> Health care or telehealth services | <input type="checkbox"/> Something else |
| <input type="checkbox"/> Participating in your local community | <input type="checkbox"/> I don't want to use the internet regularly |
| <input type="checkbox"/> General internet searching | |
| <input type="checkbox"/> Transportation information | |

19. What kind of digital skills support would you be most interested in?

- | | |
|--|--|
| <input type="checkbox"/> In person classes | <input type="checkbox"/> In person support from a friend or instructor |
| <input type="checkbox"/> Online classes | <input type="checkbox"/> A do-it-yourself training module |

20. How concerned are you, if at all, about internet safety?

- | | |
|---|---|
| <input type="checkbox"/> Very concerned | <input type="checkbox"/> Not very concerned |
| <input type="checkbox"/> Somewhat concerned | <input type="checkbox"/> Not at all concerned |

21. What are you most concerned about? (Select all that apply)

- | | |
|---|---|
| <input type="checkbox"/> That my data could get stolen or used without my consent | <input type="checkbox"/> That I could be tracked or surveilled |
| <input type="checkbox"/> That I or a loved one could get scammed or tricked | <input type="checkbox"/> That I or a loved one could be harassed or abused online |

22. Are you aware of tools or resources you can use to stay safe online?

- | | |
|---|---|
| <input type="checkbox"/> Yes, I have tools and resources I use stay safe online | <input type="checkbox"/> I know of tools or resources to stay safe online, but they don't work for me |
| <input type="checkbox"/> No, I don't know of any tools or resources to stay safe online | <input type="checkbox"/> Other (please specify) : _____ |

23. How accessible are online government services like benefits portals, RMV services, or paying for permits or tickets to you?

- | | |
|--|--|
| <input type="checkbox"/> Very accessible | <input type="checkbox"/> Not very accessible |
| <input type="checkbox"/> Somewhat accessible | <input type="checkbox"/> Not at all accessible |

24. When you have used online government services like benefits portals, RMV services, or paying for permits or tickets, how well did they work for you?

- | | |
|--|--|
| <input type="checkbox"/> Very well | <input type="checkbox"/> Not too well |
| <input type="checkbox"/> Somewhat well | <input type="checkbox"/> Not well at all |

When complete, proceed to section 5 below.

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

25. What is your age?

- | | |
|-----------------------------------|---|
| <input type="checkbox"/> 18 to 24 | <input type="checkbox"/> 60 to 74 |
| <input type="checkbox"/> 25 to 34 | <input type="checkbox"/> 75 and older |
| <input type="checkbox"/> 35 to 44 | <input type="checkbox"/> Prefer not to answer |
| <input type="checkbox"/> 45 to 59 | |

26. What is your gender identity?

- | | |
|-------------------------------------|---|
| <input type="checkbox"/> Woman | <input type="checkbox"/> Gender fluid |
| <input type="checkbox"/> Man | <input type="checkbox"/> Other |
| <input type="checkbox"/> Non-binary | <input type="checkbox"/> Prefer not to answer |

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

- | | |
|----------------------------|---|
| <input type="checkbox"/> 1 | <input type="checkbox"/> 6 |
| <input type="checkbox"/> 2 | <input type="checkbox"/> 7 |
| <input type="checkbox"/> 3 | <input type="checkbox"/> 8 or more |
| <input type="checkbox"/> 4 | <input type="checkbox"/> Prefer not to answer |
| <input type="checkbox"/> 5 | |

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

- | | |
|----------------------------|---|
| <input type="checkbox"/> 0 | <input type="checkbox"/> 4 |
| <input type="checkbox"/> 1 | <input type="checkbox"/> 5 or more |
| <input type="checkbox"/> 2 | <input type="checkbox"/> Prefer not to answer |
| <input type="checkbox"/> 3 | |

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

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

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

- Yes
 No
 Prefer not to answer

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

- | | |
|--|--|
| <input type="checkbox"/> White or Caucasian | <input type="checkbox"/> Native American/American Indian/Alaska Native |
| <input type="checkbox"/> Black or African-American | <input type="checkbox"/> Pacific Islander/Native Hawaiian |
| <input type="checkbox"/> Asian or Asian-American | <input type="checkbox"/> Some other race (please specify) _____ |

Prefer not to answer

32. Do you belong to a North American Indigenous, Native, or Tribal group?

Yes

Prefer not to answer

No

33. What is your total annual household income from all sources, and before taxes?

Less than \$22,000

\$45,000 to \$52,999

\$22,000 to \$29,999

\$53,000 to \$59,999

\$30,000 to \$36,999

\$60,000 or more

\$37,000 to \$44,999

Prefer not to answer

34. Do you identify as a person with a disability? (Note: Disability is defined as physical, emotional, or mental health conditions that result in limitations of activities or restrictions to full participation at school, at work, at home, or in the community).

Yes

No

Prefer not to answer

35. If you identify as a person with a disability, do you have difficulty in any of the following areas? Please check all that apply.

Seeing even if wearing glasses

Communicating, for example understanding or being understood

Hearing even if using a hearing aid

Prefer not to answer

Walking or climbing steps

I do not identify as a person with a disability

Remembering or concentrating

Self-care

36. Do you identify as a member of the LGBTQIA+ community?

Yes

No

Prefer not to answer

37. Did you serve on active duty in the U.S. Armed Forces?

Yes

No

Prefer not to answer

38. Do you live in affordable housing? (Note: Affordable housing is defined as housing subsidized by a housing authority, paid for through a voucher, or in a building run by a private developer.)

Yes

No

Prefer not to answer

39. Where did you hear about this survey? Please check all that apply.

From a government website, email list, flyer, or other outreach

Other (Please specify) _____

From a friend, colleague, or acquaintance

From a community meeting, community anchor such as a library or school, or other local institution

From an organization's website, email list, flyer, or other outreach

Focus Groups

Methodology

MBI worked with community-based organizations and partners to host small focus group discussions for covered populations. A summary of Covered Populations reached is included in section 4.2.2 Focus Groups. After each focus group, organizers and facilitators shared notes with MBI. MBI and its partners processed and coded notes to create a full and holistic picture of needs and barriers to digital participation for those most impacted by digital inequity.

After receiving notes, MBI and partners analyzed the focus groups according to seven themes:

- Accessibility of Government Online Services
- Device Affordability
- Device Availability
- Digital Skills
- Internet Affordability
- Internet Availability
- Internet Safety

To analyze focus groups, MBI gave codes to participant's quotes and stories using the seven themes above. With this information, we identified the most prevalent themes across focus groups and gathered stories related to participants' experience with the seven themes. MBI used the stories and experiences of focus group participants to highlight survey findings and find trends related to each theme.

Focus Group Questions

Main Questions
1. <i>[Warm-up question]</i> Just to begin, how did you learn about this focus group session?
* 2. <i>[Warm-up question]</i> Let's warm up with a bit of an icebreaker: does anyone have a story to share about a time when internet access or lack of access has impacted your life? Some way it has had an impact on you, maybe helped you to do something you wouldn't have been able to do before?
3. What do you regularly use the internet for? Please raise your hand for any of the following options that apply, and we'll discuss some of them in more detail. <ul style="list-style-type: none">• Work• School• Healthcare• Family and social connection• Civic engagement• Public benefits• Other?
4. If you don't have access to the internet on a regular basis, but need it, what do you need it for the most? Please raise your hand for all that apply: <ul style="list-style-type: none">• Work• School• Healthcare• Family and social connection

- Civic engagement
- Public benefits
- Other?

*5. Do you have internet service in your home? Please raise your hand if so.

6. For those of you who have internet service in your home, how well does your home internet service work?

- Good enough to meet my household's needs
- Not good enough to meet my household's needs
- I don't know

How difficult is it for you to pay your internet bill every month, given other expenses?

Have you ever had any especially positive or negative experiences with your internet service provider? If you've had issues with your service, have they been responsive and able to fix the problem?

*7. If you do not have internet service in your home, what is the main reason why? Please raise your hand for all that apply, and we'll discuss some of them in more detail.

- Service is not available in my area
- Service is too expensive
- I am concerned about online privacy or safety
- I don't feel confident navigating the internet or using online tools
- I can't afford or access a device to use the internet
- I don't want/don't use the internet
- Other reasons?

8. If you do not have internet service in your home, are there any common places that you go to access internet?

Some thought-starters...

- Friend or family member's home
- School, college, or university
- Workplace
- Library or community center
- Business such as a cafe or bookstore
- Public space such as a park or government building
- In a parking lot outside of one of these spaces
- On public transit
- I do not regularly access internet in these or any other spaces

How is the quality of the service at these locations?

Where else do you wish you could access internet service?

*9. Does everyone in your household have access to the computer devices they need to meet their everyday needs for internet use? (Computers, smartphones, tablets, or other internet enabled devices)? Please raise your hand if so.

If yes, what kind of computing devices do you own?

- Cell phone
- Desktop computer
- Laptop computer
- Tablet (or similar device)
- Other type of Internet-connected device (please specify)

If yes, are the devices you have sufficient for your needs (e.g., work, school, telehealth, etc.)?

If no, what's the main barrier to having one?

Some thought starters...

- Cost
- Not sure how to use it
- Concerns about online privacy or safety
- Don't need one

*10. How confident do you feel with navigating the internet and using different online services? For example...

- Work
- School
- Healthcare
- Family and social connection
- Civic engagement
- Public benefits
- Other?

Are there some activities you feel more or less comfortable with than others?

Are there any activities you'd like to do on the internet but feel you don't have the knowledge or skills to access?

*11. How concerned are you about internet safety?

- Very concerned
- Somewhat concerned
- Not very concerned
- Not at all concerned

If yes, what are some of your specific concerns?

Some thought-starters...

- My data getting stolen or used without my consent
- That I or a loved one could get scammed or tricked
- That I could be tracked or surveilled
- That I or a loved one could be harassed or abused online
- Other concerns?

*12. Where do you turn for digital help in your community? Are there organizations, programs, or places that are providing helpful resources and services?

Some thought-starters...

- Public Wi-Fi
- Digital skills training providers
- Device lending or access programs
- Information on internet discounts
- Others?

Digital Equity Working Group Members

Name	Title	Affiliation
Susan Adams	Vice President of Health Informatics team	Massachusetts League of Community Health Centers
Carol Allman-Morton	Executive Director	Berkshire Community College
Jay Ash	CEO	Mass Competitive Partnership
Virginia Benzan	Director of Racial Justice Advocacy	Mass Law Reform Institute
Tricia Canavan	Executive Director	The Tech Foundry
Emilio Dorcely	CEO	Urban Edge
Linda Dunlavy	Executive Director	Franklin Regional Council of Governments
Mark Fine	Director of Municipal Collaboration	Metropolitan Area Planning Council (MAPC)
Ben Forman	Director of Research	MassINC
James Fuccione	Senior Director	Mass Healthy Aging Collaborative
Santiago Garces	Chief Information Officer	City of Boston
Tom Golden	City Manager	City of Lowell
Kristen Gowin	Executive Manager	Electrical Contractors Association of Greater Boston
Denise Jordan	Executive Director	Springfield Housing Authority
James Lonergan	Director	Massachusetts Board of Library Commissioners
Joseph Lopes	Executive Director	Greater New Bedford Workforce Investment Board
Ron Marlow	Director of Workforce Development and Alternative Education	Acton for Boston Community Development
Paul Matthews	Executive Director	Worcester Regional Economic Bureau
Derek Mitchell	Co-Founder and President	LEADS
Dan Noyes	CEO	Tech Goes Home
David Podell	President	MassBay Community College

Pam Reeve	Chair	The Women's Edge
Frank Robinson	Vice President of Public Health and Community Relations	Baystate Health/Western MA Alliance for Digital Equity
Leo Sarkissian	Executive Director	The Arc of Massachusetts
Scott Scharffenberg	Executive Director	Roca Inc.
Kim Shellenberger	Vice President, Integrated Care and Innovation	Vinfen
Q.J. Shi	Director	Asian Business Empowerment Council
Steve Smith	Executive Director	Cape Cod Technology Council
Victoria Torres	Manager of Advocacy & Organizing	Latinos for Education
Kyle Toto	Public Affairs Specialist	VA Boston Healthcare System
David Weeden	Deputy THPO/Tribal Councilman	Mashpee Wampanoag Tribal Council
Tim Wilkerson	President	New England Cable & Telecommunications Association (NECTA)

Availability, Affordability, Adoption Map Methodology

MBI mapped availability, affordability, and adoption at the census block group level to examine the barrier impacting internet usage across Massachusetts. Each topic was computed as an index score for each census block group by summing weighted percentages of a variety of factors.

Data sources

MBI used two major data sources to inform the mapping:

1. **American Community Survey (ACS):** MBI used the ACS 5-year estimates to source data on household income, poverty status, and households without internet subscriptions or devices. While the ACS provides the most comprehensive nationwide information about internet adoption, it has limitations, including the historical undercounting of certain population groups such as unhoused individuals.
2. **Federal Communication Commission (FCC)'s Broadband Data Collection (BDC):** As part of the BDC initiative, all ISPs file data with the FCC twice a year on where they offer consumer-facing Internet access service using their own broadband network facilities as well as the percentage of households served within those geographies. All providers must report data as of June 30 (due September 1) and December 31 (due March 1) each year.
3. **Ookla's Open Data Initiative:** Ookla's open datasets provide a robust source of speed test information that provides the average upload and download speeds in given locations. The availability index takes factors from these three datasets and combines them to create a composite score for availability of quality, reliable internet across Massachusetts.

Availability Index

The index formula consists of:

Percent of 2021 population not using the internet at 100/20 Mbps * 0.8
- Average download speed * 0.1
- Average upload speeds * 0.1

= Availability Index

These scores were normalized using z-scores to provide an estimate for the differential between a given geography from the average within the state.

Affordability Index

To compute the affordability index, MBI used the ACS 2021 5-Year Estimate table B17005: Poverty Status of Individuals by Sex by Employment Status.

The index takes the percentage of individuals in poverty in each census tract, which refers to households with income below the poverty level in the past 12 months. The index formula consists of:

Percent of Individuals Living in Poverty * 1.0

= Affordability Index

These scores were normalized using z-scores to provide an estimate for the differential between a given geography from the average within the state.

Adoption Index

To compute the adoption index, MBI used the ACS 2021 5-Year Estimate tables: B28011: Internet Subscriptions in Household and B28008: Presence of a Computer and Type of Internet Subscription in Household.

The index takes the percentage of individuals in poverty in each census tract, which refers to households with income below the poverty level in the past 12 months.

The index formula consists of:

Percent of Homes without Internet Access or Not Subscribing * 0.6
+ Percent of Homes with No Computing Device * 0.4

= Adoption Index

These scores were normalized using z-scores to provide an estimate for the differential between a given geography from the average within the state.

Composite Index

The composite or "AAA" index is generated as a combination of the three individual indices: availability, affordability, and adoption.

The composite index formula consists of:

Availability Index Score
+ Affordability Index Score
+ Adoption Index Score

= Composite AAA Index

These scores were normalized using z-scores to provide an estimate for the differential between a given geography from the average within the state.

Partners & Organizations Involved in the Planning Process

The following is a list of organizations who MBI collaborated with to develop the State's digital equity plan.

Listening Session Partners

- Broadband & Digital Equity Summit - Worcester, MA
 - **Alister Martin**, Chief Executive Officer, A Healthier Democracy
 - **Amalia Murguia**, Fellow, Lead for America
 - **Ashley Stolba**, Undersecretary of Economic Foundations, Executive Office Economic Development, Commonwealth of Massachusetts
 - **Candra Szymanski**, Interim Assistant Vice President, Hospital at Home Program, UMass Memorial Medical Center
 - **Courtney Dozier**, Deputy Director, BEAD Program, NTIA
 - **David Podell**, President, MassBay Community College
 - **Dave Donegan**, Vice President of Operations, Sullivan & McLaughlin Electrical Contractor
 - **Dave Keating**, Business Manager, International Brotherhood of Electrical Workers
 - Digital Equity Advisor, NTIA
 - **Ed Markey**, U.S. Senator
 - **Emilio Dorcely**, Chief Executive Officer, Urban Edge
 - **Gina Cooper Benjamin**, Deputy Director, National Digital Inclusion Alliance
 - **Ian Cain**, City Councilor, City of Quincy
 - **Kevin Gallagher**, Senior Advisor to the Secretary, US Department of Commerce
 - **Marvin Venay**, Chief Advocacy Officer, Tech Goes Home
 - **Matthew Summy**, Vice President of Strategic Planning for Impact & Inclusion, Comcast
 - **Quentin Palfrey**, Director of Federal Grants and Infrastructure, Office of Governor Maura Healey, Commonwealth of Massachusetts
 - **Santiago Garces**, Chief Information Officer, City of Boston
 - **Sean Gerner**, Senior Program Director, EducationSuperHighway
 - **Stephanie Lee**, Vice President – New England State and Local Government Affairs, Verizon
 - **Stuart Freiman**, Federal Program Officer for Massachusetts, NTIA
 - **Tim Wilkerson**, President, New England Cable & Telecommunications Association
 - **Tom Flaherty, Sr.**, General Manager, Westfield Gas & Electric
 - **Victoria Torres**, Manager of Advocacy & Organizing, Latinos for Education
- The Southeast Region Listening Session - Brockton, MA
 - Boys and Girls Club of Metro South
 - **Robert Sullivan**, Mayor of Brockton
- The Berkshire Region Listening Session - Pittsfield, MA
 - **Kevin Zawistowski**, Chief Information Officer, City of Pittsfield
 - Lenox Library
 - **Michael Obasohan**, Chief Diversity Officer, City of Pittsfield
 - North Adams Library
 - **Pastor Joel Bergeland**
 - **Wylie Goodman**, the Berkshires Regional Planning Commission

- Zion Lutheran Church
- The Connecticut River Valley Region Listening Session - Holyoke, MA
 - City of Holyoke
 - **Eric Weiss**, Pioneer Valley Planning Commission (PVPC)
 - Forbes Library
 - **Frank Robinson**, Vice President, Baystate Health
 - Lenox Library
 - **Michael DeChiara**, Alliance for Digital Equity
 - Springfield Partners for Community Action
 - **Stacy Graves**, Holyoke Community College MGM Culinary Arts Institute
 - Tech Foundry
- The Northeast Region Listening Session - Lowell, MA
 - Hamilton-Wenham Public Library
 - Metropolitan Area Planning Council (MAPC)
 - Northern Middlesex Council of Governments
 - Saugus Public Library
 - United Teen Equality Center (UTEC)
- The Berkshires Region Listening Session
 - Berkshires Regional Planning Commission
 - City of Pittsfield
 - The Common Room at Zion Lutheran Church
 - North Adams Library
 - Lenox Library
- The Cape & Islands Region Listening Session - Hyannis, MA
 - Barnstable Town Hall
 - Bourne Veteran's Memorial Community Center
 - Cape Cod Commission
 - Cape Cod Tech Council
 - Cape Cod Chamber of Commerce
 - Hyannis Chamber of Commerce
 - Cape Cod Young Professionals
 - Cape Cod Foundation,
 - Cape & Islands Workforce Board
 - **Ellen Sharpe**, Mashpee Wampanoag Tribe
 - Oak Bluffs Public Library on Martha's Vineyard
- The Greater Boston Region Listening Session - East Boston, MA
 - Canton Public Library
 - City of Boston
 - East Boston Branch of the Boston Public Library
 - Tech Goes Home
- Rural Communities Listening Session - Greenfield, MA
 - John W. Olver Transit Center
 - **Ted Harvey**, Franklin Regional Council of Governments (FRCOG)
- The Central Massachusetts Region Virtual Listening Session
 - Central Massachusetts Regional Planning Commission
 - Montachusett Regional Planning Commission

Digital Equity Working Group Participants:

- Action for Boston Community Development
- Asian Business Empowerment Council
- Baystate Health
- Berkshire Community College
- Cape Cod Technology Council
- City of Boston
- City of Lowell
- Electrical Contractors Association of Greater Boston: NECA Boston Chapter
- Franklin Regional Council of Governments
- Greater New Bedford Workforce Investment Board
- Latinos for Education
- LEADS
- MA Dept of Higher Education
- MA Healthy Aging Collaborative
- Mashpee Wampanoag Tribal Council
- Mass Competitive Partnership
- Mass Law Reform Institute (MLRI)
- Massachusetts Board of Library Commissioners
- Massachusetts League of Community Health Centers (CHC)
- MassBay Community College
- MassINC
- Mildred Hailey Tenants
- National Electrical Contractors Association of Greater Boston Inc (NECA) Boston
- New England Cable & Telecommunications Association (NECTA)
- Roca Inc
- Springfield Housing Authority
- Tech Goes Home
- The Arc of Massachusetts
- The Metropolitan Area Planning Council (MAPC)
- The Tech Foundry
- The Women's Edge
- Urban Edge
- VA Boston Healthcare System
- Verizon
- Vinfen
- Worcester Regional Economic Bureau

Focus Group Partners:

- Baystate Medical
- Berkshire Regional Planning Commission
- City of Quincy
- Essex County Community Foundation
- Haitian Community Partners Foundation
- Mass Healthy Aging
- Mashpee Wampanoag Tribe
- Revere Community Schools
- Tech Foundry

- Urban Impact
- Essex County Community Foundation
- Mass Healthy Aging

Municipal Planning Partners:

- Berkshire Regional Planning Commission (BRPC)
- Central Massachusetts Regional Planning Council (CMRPC)
- City of Lowell
- CTC Technology & Energy
- Franklin Regional Council of Governments
- Health Resources in Action
- Kimley Horn
- Martha's Vineyard Commission
- MassTech
- Merrimack Valley Planning Commission (MVPC)
- Metropolitan Area Planning Council
- Montachusett RPC
- Northern Middlesex Council of Governments
- Old Colony Planning Council
- Pioneer Valley Planning Commission
- Southeastern Regional Planning & Economic Development District (SRPEDD)
- Vanessa Hagan Brustlin (VHB)

Government Agency Partnerships:

- Board of Higher Education (BHE)
- Boston Library Consortium
- Community Economic Development Assistance Corporation (CEDAC)
- Commonwealth Corporation
- Department of Telecommunications and Cable
- Department of Criminal Justice Information Services
- Department of Developmental Services
- Department of Housing and Community Development (DHCD)
- Department of Public Health
- Department of Telecommunications and Cable (DTC)
- Department of Transitional Assistance (DTA)
- Division of Capital Asset Management and Maintenance (DCAMM)
- Executive Office of Economic Development (EOED)
- Executive Office of Housing and Livable Communities (EOHLC)
- Executive Office of Labor and Workforce Development (EOLWD)
- Executive Office of Technology Services and Security
- Executive Office of Technology Services and Security (EOTSS)
- Executive Office of Veterans' Services (EOVS)
- MA Dept of Higher Education
- Mass Workforce Development Board
- Massachusetts Department of Elementary and Secondary Education (DESE)
- Massachusetts Department of Revenue (DOR)
- Massachusetts Libraries Board of Library Commissioners

- Massachusetts Library System
- Massachusetts Office on Disability (MOD)
- Massachusetts Rehabilitation Commission
- MassDevelopment
- MassHousing
- The National Telecommunications and Information Administration (NTIA)
- Office of Elder Affairs (EOEA)

Partnerships Program Participants:

- Baystate Health
- City of Boston
- Massachusetts Association for Community Action (MassCap)
- Metropolitan Area Planning Council (in Partnership with ESH&HR&A)
- Tech Goes Home
- The Community Builders TCB
- UMass Lowell
- Vinfen