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Pioneer Valley Planning Commission

Town of Wilbraham Digital Equity

7/15/2025

This project was funded by the Massachusetts Broadband Institute at the MassTech Collaborative under the Municipal Digital Equity Planning Program. Funding was provided by Massachusetts ARPA State Fiscal Recovery Funds

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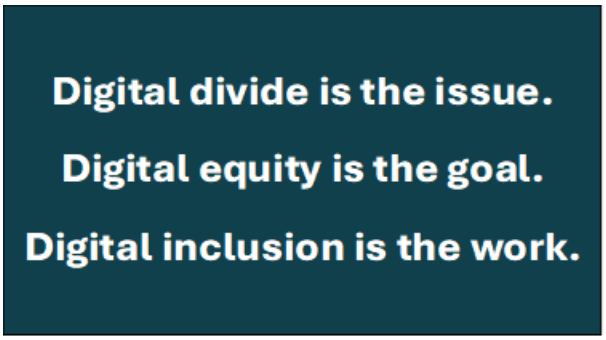
Introduction

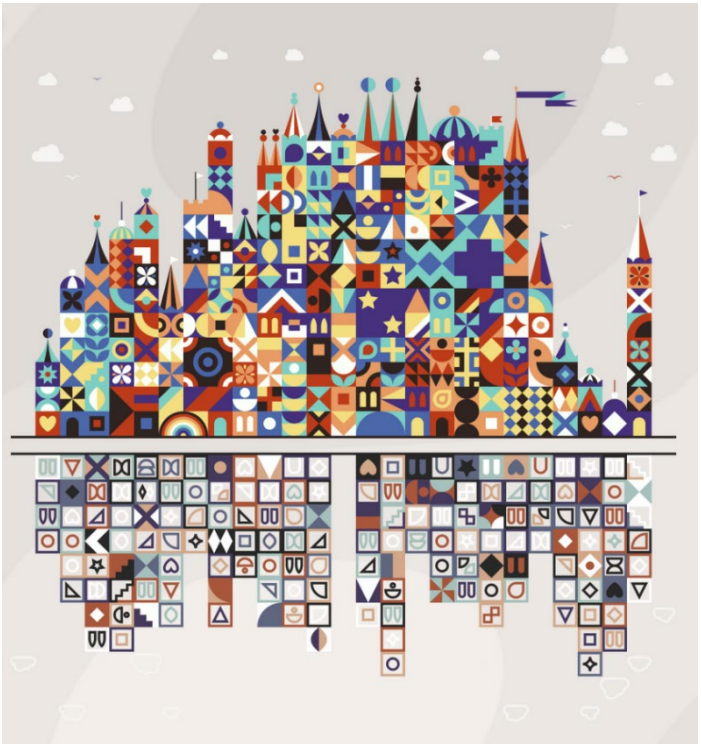
To address this critical issue of the digital divide and to further digital equity at the municipal level, the Massachusetts Broadband Institute created the Municipal Digital Equity Planning program to help communities explore the local conditions related to the digital divide and come up with community-based solutions on how best to create digital equity. This is an interim report being shared with the Town of Wilbraham's Broadband Advisory Committee guiding the Pioneer Valley Planning Commission's municipal digital equity planning in Wilbraham.



Background

The "Digital Divide" is the gap between those who have affordable access, skills and support to effectively engage online and those who do not. 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. *(National Digital Inclusion Alliance, https://www.digitalinclusion.org/definitions/.)*

Currently, in every community there are people who – for a variety of reasons – are not able to fully partake in all of the information and opportunities that are made available through the internet. Data visualization pioneer, Nadieh Bremer, has produced an extensive series of images inspired by the digital divide, a divide that is dramatically evident in her work[1]. Ensuring that all residents of Wilbraham can enjoy the rich tapestry that the Internet makes available is the shared objective of the Town of Wilbraham and the Pioneer Valley Planning Commission in preparing this municipal digital equity plan.



[1] Nadieh Bremer, in Alberto Cairo, *The Art of Insight: How great visualization designers think*. Wiley, 2024., p. 67. Brehmer explains: "The complexity of these symbols is proportional to the speed of each school's internet connection....I placed the squares of each kingdom [i.e. school] above or below a horitizontal line. This represents the digital divide. Schools above that line are connected to the Internet. They have vibrant

The Town of Wilbraham has an active Broadband Advisory Committee that has been meeting regularly for several years. The primary purpose of this committee has been to "research the possibility of deploying a Town owned open access fiber network that would bring competition and transparency to internet services in Wilbraham."[2] In November, 2023, the Town issued a Request for Proposals (RFP) to "provide a platform and all related hardware and software capable of supporting a minimum of one gigabit symmetrical active Ethernet services to business and residential customers for a Town-wide Municipal Fiber Network."[3]

Statewide Digital Equity Planning

The municipal digital equity planning process currently in progress in the Town of Wilbraham fits into the broader context of statewide digital equity planning. The state's digital equity report identifies needs that are felt in varying degrees throughout the Commonwealth, and lay a solid foundation on which the particular challenges faced in Wilbraham can be addressed.

In its state digital equity plan, Massachusetts established a framework to provide context for these needs. To have digital equity for residents, the following conditions must exist:

- Availability – every location has high-speed internet that is available.
- Adoption – every resident can utilize and afford the internet.
- Quality of Service – every location has reliable service.

The lack of these conditions directly maps to five specific categories of digital equity needs. The findings reported in the state report, underscore the generally accepted digital equity needs for the region.

1. Broadband availability and affordability – the need for availability and affordable access to fixed and wireless broadband technology. The state plan documents the following:

- Availability: A significant number of residents do not have internet at home. 45% of respondents access the internet at libraries or community centers; 43% access the internet from a friend or family member's home.

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colours and contain intricate symbols. The schools below the line are not connected; their colors are muted and faded."

[2] Wilbraham Fiber, "the official source of information related to the Wilbraham Fiber Network project. https://www.wilbrahamfiber.com/

[3] LEGAL NOTICE REQUEST FOR PROPOSALS OPEN ACCESS PROVIDER SERVICES FOR WILBRAHAM FIBER, https://www.wilbraham-ma.gov/DocumentCenter/View/5897/Final-Wilbraham-OAP-RFP-110823?bidId=. The full RFP is attached to this document as an Appendix.

- Affordability: Statewide 61% of respondents without internet subscriptions cited cost as a reason for not having an internet subscription at home. The regional average in western Massachusetts for an internet plan is $72/month. Statewide 52% of respondents shared that it was either somewhat hard or very hard to pay their internet bill.
- Quality: Of those respondents with internet service at home, only 72% indicated that the service is good enough to meet their households' needs. This is likely higher in certain neighborhoods in urban areas and in rural areas.

2. Device availability and affordability – the need for availability to and affordable of consumer devices and technical support for these devices. The state plan documents the following:

- Devices: 15% of survey respondents reported having insufficient devices at home to meet all the needs of their households. 33% of respondents statewide cited a lack of devices as a reason for not having an internet subscription at home. Only 57% of respondents can pay for a laptop or desktop computer that costs at least $250; 14% of respondents indicated they can afford a device exceeding $1,000. Of those with devices, respondents identified the inability to keep up with technical developments regarding their devices as significant.

3. Digital literacy – the need for skills and knowledge to use the internet and devices. The state plan documents the following:

- Digital Literacy/Skills: Respondents reported an interest in a broad range of digital skills support. There is frustration with the lack of digital skills and many respondents, especially older adults, reported relying on family and friends for help. There is a need for more classes and opportunities to learn digital skills and effectively use the internet, including in formats and languages appropriate to different demographic groups.

4. Online privacy and cybersecurity – the need for awareness and use of measures on the part of individuals to maintain online privacy and maximize cybersecurity. The state plan documents the following:

- Privacy and CyberSecurity: Statewide, 86% of respondents were somewhat or very concerned about internet safety. Fear of stolen data ranked highest as the cause for concern over internet safety, with 91% of respondents citing this concern. Statewide, 27% of respondents reported that they are unaware of ways to stay safe online.

5. Online accessibility and inclusivity – the need for online access and inclusivity to public resources and services. The state plan documents the following:

- Accessibility and Inclusivity of Public Resources: 85% of respondents reported poor performance while accessing online government services.

The marginalized populations that disproportionally experience digital equity barriers are the same groups living in the region as those identified by the state digital equity plan. These include the eight federally designated "covered" populations as well as other known population groups. All are present in the region. These include: older adults, low-income residents, veterans, individuals with disabilities, residents with limited English or low levels of literacy, BIPOC residents , incarcerated and recently released residents, residents of rural areas, Indigenous residents, religious minority groups, women, LGBTIA+ residents, and residents adversely affected by persistent poverty or inequality including unhoused individuals.

The region of Hampshire and Hampden counties includes all of the above digitally marginalized populations within the region's communities. Despite general differences across communities, all experience digital inequity in multiple ways. While these digital inequities might present differently for different people given their situation or the profile of their community, it is important to recognize that digital equity needs exist throughout the region.

Asset Mapping for Digital Accessibility in Wilbraham

Because Wilbraham is a relatively wealthy community, it has a comparatively small population of residents who cannot afford devices or a high speed internet connection. Our research of Wilbraham has shown that the population most in need of assistance getting meaningfully connected to the extensive amenities available through the internet are senior citizens.

The Town's newly opened Senior Center has extensive amenities that allow its patrons to connect. The Center provides informal one-on-one technology assistance, on an "as needed" bases via full and part-time staff members. If staff encounter problems that go beyond their knowledge, they direct people to the Wilbraham Public Library, where tech support provided by local high school students is available. Seniors are also offered regular educational programming addressing concerns about personal security and privacy. Protecting

The senior center staff sees a need for additional formal education on device usage and functionality as well as cyber security education. Our population would benefit from small group, in person, education classes with their personal devices covering these topics. We also hope to establish a more formal program for tech help that is regularly advertised.

Towards a Townwide Fiber-Optic Network

The Town of Wilbraham has been working towards a townwide fiber optic network for many years. The town's Broadband Advisory Committee has been meeting since at least 2013. Current members (with year their terms expire) include the following:

Biff Simpson (2027)
Thomas Newton (2027)
Matthew Nelson (2027)
Felix Zayas (2027)
Austin Reed (2027)
Selectboard Chair, Sue Bunnell, has also been actively engaged in the town's evolving plans for a fiber optic system.

TOWN LEADERS ARE INTERESTED IN PROMOTING ACCESS FOR ALL RESIDENTS BY MAKING ACCESS AFFORDABLE AND BY PROMOTING UBIQUITOUS INFRASTRUCTURE.

The town's 2023 *Digital Access Plan*[4] identifies a dozen "strategic ideas" established by town leaders for the Digital Access Plan. These include the following:

1) Improve Network Reliability
2) Create Local Resilience
3) Improve Affordability
4) Establish Local Control over Essential Infrastructure
5) Mitigate Risk for the Town, Constituents, and Partners
6) Foster Competition & Choice
7) Foster Innovation and Enable Access to New Services
8) Promote Abundant Bandwidth
9) Create a Network this is Responsive to Community Members
10) Foster Economic Development
11) Make Participation Voluntary
12) Solve the Digital Divide

Community Networks, a project of the Institute for Local Self Reliance (ILSR) tracks the widespread (and growing) reliance on community based fiber optic systems. There are several important variables to consider in designing such a system, including whether access should be Open (with a few variations) or Closed (with a single ISP on the system). While Eastern Massachusetts has several communities using OpenCape's open access fiber optic system, there are currently no such open access systems in Central or Western Massachusetts. Instead, Western Massachusetts has several communities providing retail internet services to business and residential customers. Some of these are via local utilities (such as Crossroads Fiber in Chicopee), while Westfield based Whip City Fiber has

[4] EntryPoint Networks, for the Town of Wilbraham, *Digital Access Plan*, June 2023. https://www.wilbraham-ma.gov/DocumentCenter/View/5836/Wilbraham-MA---Digital-Access-Plan-Final-June-2023-1

been expanding throughout the region, now serving up to 20 Western Massachusetts communities.

The town's *Digital Access Plan* outlines three potential ownership models, and their respective defining characteristics:

Vertically Integrated – Privately owned and operated: leaves community vulnerable to the private owner operating as a monopoly. "Historically, private owners have not demonstrated a willingness or ability to solve the digital divide."[5] As with most private corporations, profit maximization is the driving force for privately owned and operated internet providers.

Publicly owned & privately operated: third-party private operators maintain and operate the publicly owned network. Public ownership retains political accountability for the overall project, while shifting the risk that the initial capital investment might not be recovered from the private operator to the public owner. Because private providers must be profitable, cost to consumer may be higher than with publicly owned and operated models, though the fact that a single fiber network can host several providers also provides both short and long-term efficiencies that can be passed on to consumers.

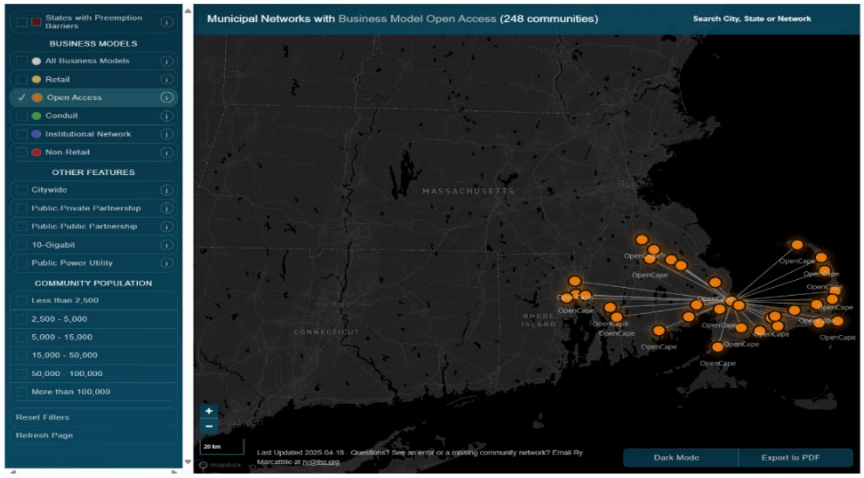


Figure 1: ILSR Community Network Map, Open Access Business Model

[5] Town of Wilbraham, *Digital Access Plan*, page 18.

Publicly owned & operated: with publicly owned and operated models, both citizens and customers have a level of accountability through the regular political process. "Public owners have greater incentives to solve the digital divide."[6]

Wilbraham's proposed business model assumes an *open access* system, in which several ISPs could contract to use the city's infrastructure, thereby generating revenue for Wilbraham Fiber, which increasing competitive pressures on existing providers which should result in lower prices for consumers, and potentially greater accessibility for lower-income consumers who might struggle to afford high speed internet services at current prices.

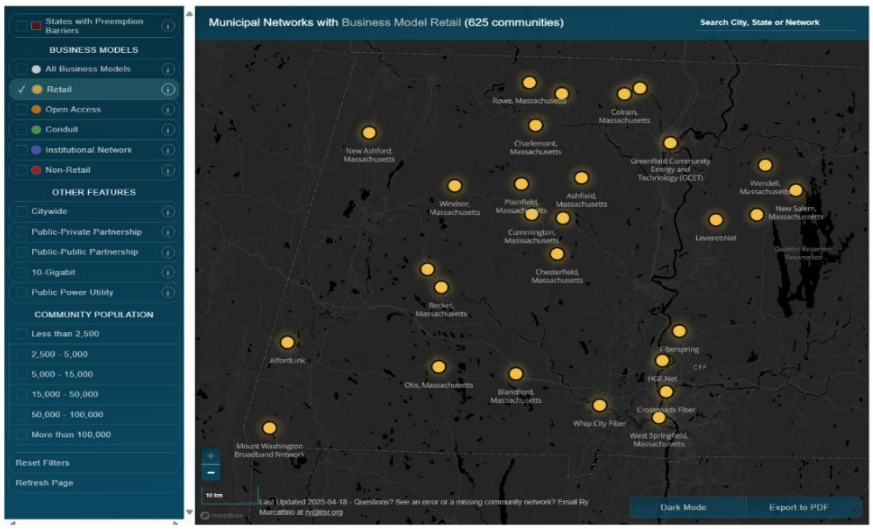


Figure 2: ILSR Community Network Map, [Closed] Retail Business Model

Fiber optic infrastructure offers considerably more bandwidth than that available through either coax cable or satellite based systems. The table above translates download speeds into typical use cases such as downloading a song, movie, or audio book. Download speeds will likely continue to increase as technology improves and as use-cases become more data intensive. Fiber optic infrastructure has much greater capacity to serve the growing demand for increased download speeds, and also has the distinct advantage of offering symmetrical upload speeds, particularly important for occupations such as

Impact of Bandwidth on Applications

Length & Type of Media	Approx Size	10 Mbps	20 Mbps	100 Mbps	1,000 Mbps
4-Minute Song	4 MB	3 sec	1.5 sec	0.3 sec	0.03 sec
5-Minute Song	30 MB	26 sec	13 sec	2.5 sec	0.2 sec
9-Hour Audio Book	110 MB	1.5 min	46 sec	9.2 sec	0.9 sec
45-Minute TV Show	200 MB	3 min	1.5 min	16 sec	1.7 sec
45-Minute HDTV Show	600 MB	8.5 min	4 min	50 sec	5 sec
2-Hour Movie	1.0-1.5 GB	21.5 min	10.5 min	1.5 min	8 sec
2-Hour HD Movie	3.0-4.5 GB	60 min	32 min	4.5 min	25 sec
Large Archive File	10 GB	Too Long	Slow	Better	80 sec

[6] *Ibid*.

graphic design, medical imaging, or content creators, and for students or workers connecting remotely.

Planning and Data Gathering

The PVPC is in the process of collecting as much data as possible concerning internet services available in Wilbraham. The challenges are significant but accurate information is key to moving the process ahead in the proper fashion. This research is being performed at multiple levels and some examples of what we have discovered so far are shared below.

While the Massachusetts Broadband Institute (MBI) and various national organizations have developed tools to better understand the specific details of current internet services available across the Commonwealth, often providing information at the Zip Code level and even in some cases, for each Broadband Serviceable Location (BSL), much of analysis undertaken to understand the needs of the community are derived from imperfect data sources such as the U.S Census Bureau. For smaller communities such as Wilbraham, we rely on 5-year Census Bureau estimates, which may not fully reflect the current situation. As well, because most Census data is based on sample surveys, the resulting data has margins of error that result from the statistical estimating process. As a result comparisons across geographies as well as over time should be undertaken with caution.

Devices available to Wilbraham residents

During the early phase of the COVID-19 pandemic, we quickly learned that the range of devices available for use at home was quite broad, and varied by community and within communities. In Figure 1 below, we see that the share of households with desktop or laptop computers – certainly the "gold standard" for computing devices – was 86% in the Town of Wilbraham, notably higher than the 72% of households with desktops or laptop computers across all of Hampden County. Eighty-three percent (83%) of Wilbraham residents used smartphones, 65% used tablets or other portable wireless computers. Still, even in a comparatively wealthy community, 8% of Wilbraham residents lacked any computer device.

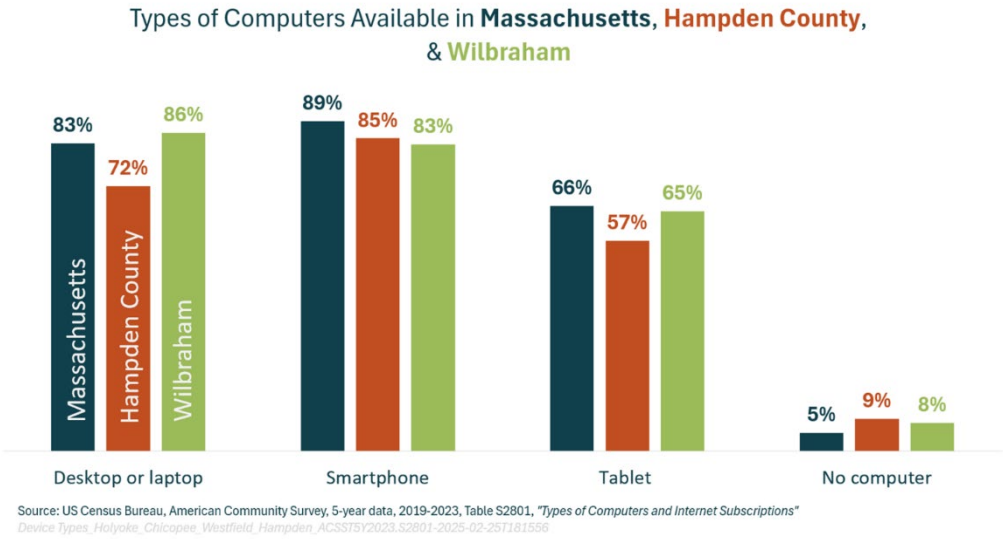


Figure 3:Types of computers available to residents of Wilbraham and Hampden Count

Digital Inequity by Income

Figure 2 below provides a clear picture of the digital divide. Among all households in Wilbraham with incomes less than $20,000/year, 48% have broadband internet, while for households with income greater than $75,000, nearly all (97%) have broadband internet.

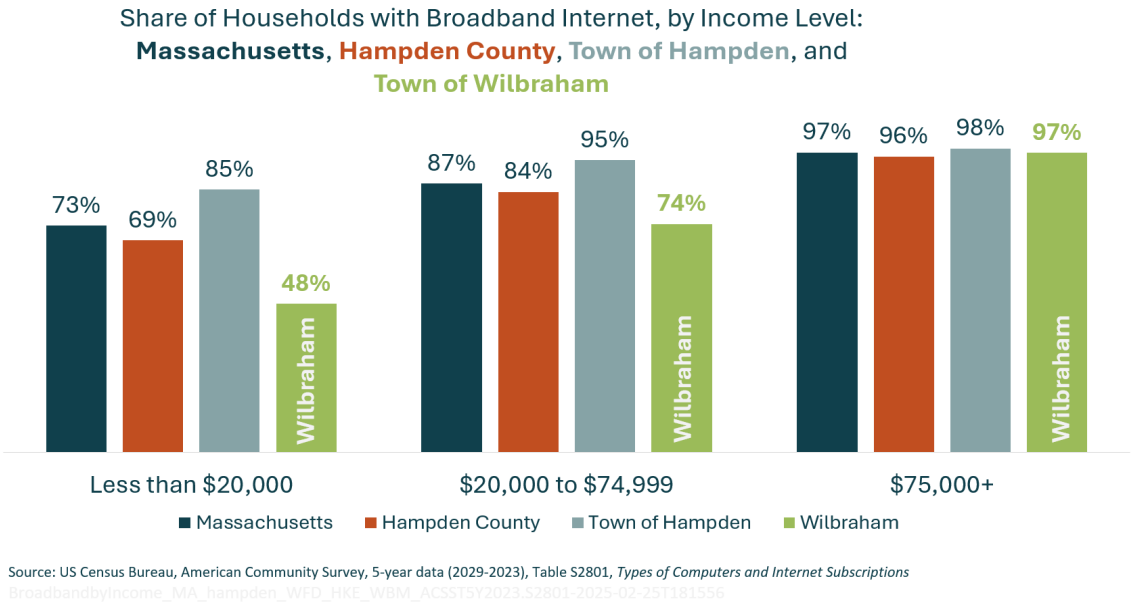


Figure 4: Share of Households with Broadband Internet: Massachusetts, Hampden County, and Wilbraham.

Figure 3 compares the most recent five year window (2019-2023) with the previous five-year window. Estimates for households with incomes of less than $20,000 suggest a larger share had broadband in the later period, for the middle income population, estimates

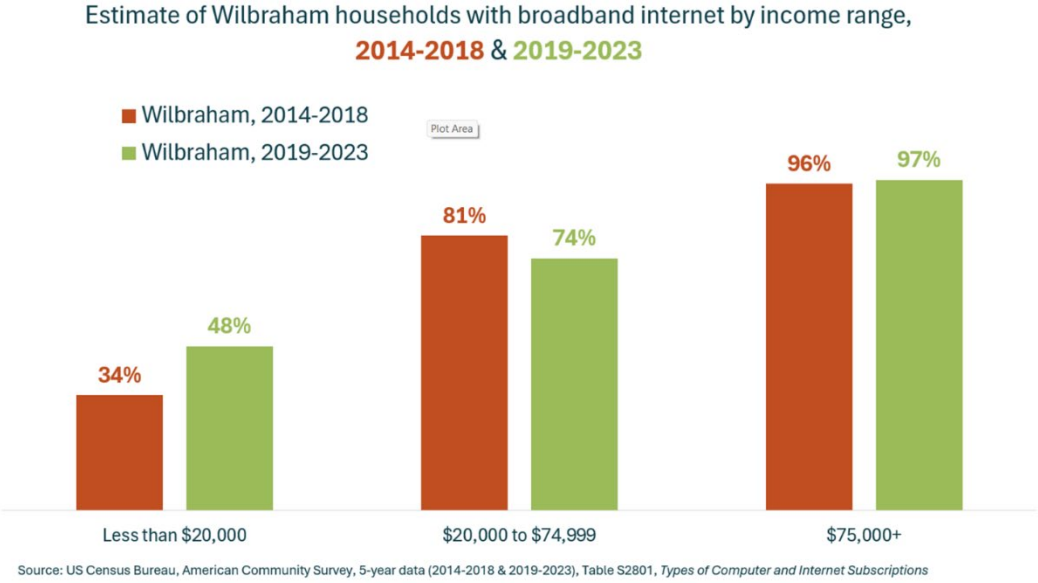


Figure 5: Estimate of Wilbraham Households with Broadband, by Income Range

indicate a decline in broadband internet coverage, and for households with incomes of $75,000 or more, there is virtually no change.[7]

Across the communities of Hampden County, we have seen a strong relationship between the relative wealth of the community, as measured by median household income, and access to devices and the internet. As one of the wealthier communities in our region, Wilbraham fares comparatively well.

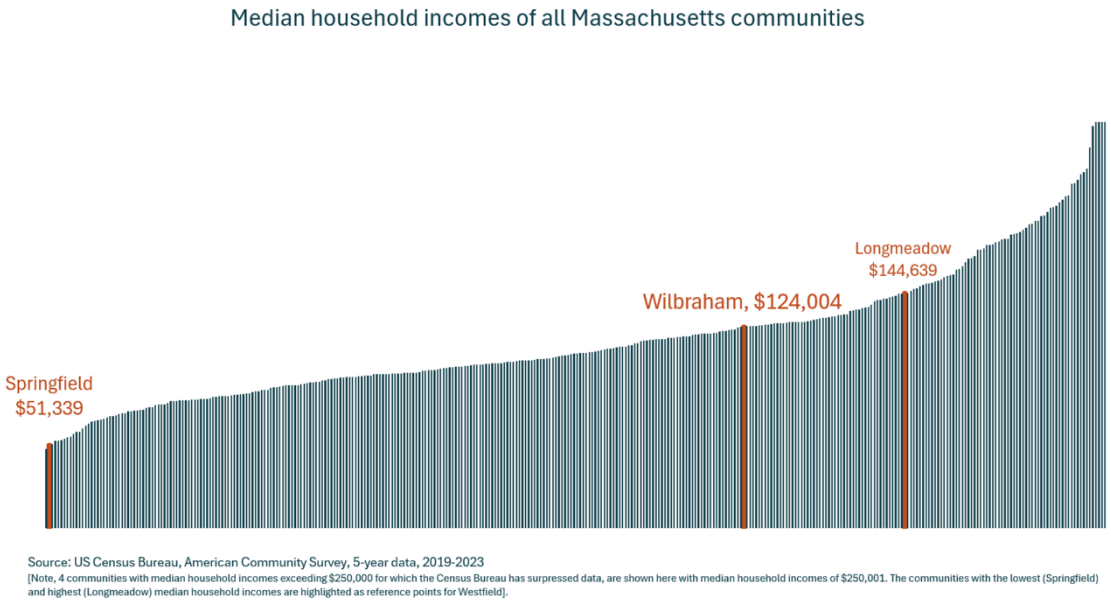


Figure 4

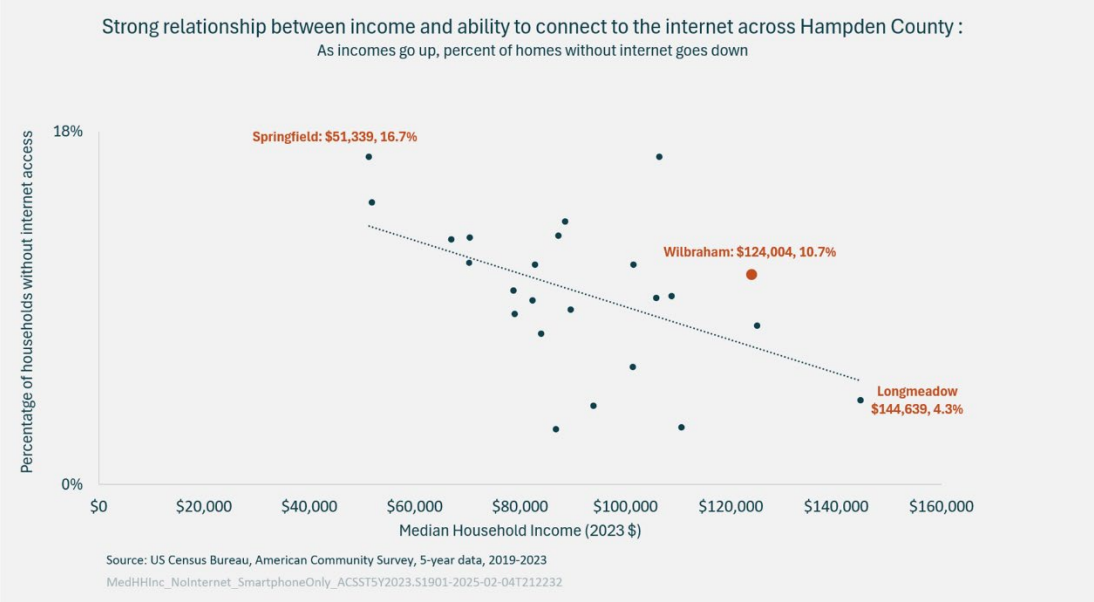


Figure 5

[7] Relatively small samples used to develop these estimates results in fairly large margins of error. As such, none of the evident changes are large enough to be statistically significant.

Digital Inequity by Age

Figure 4 shows stark inequities in computer ownership by age, with older residents – those 65 years old and older – lacking computers of any kind at much higher rates. We see that in Wilbraham, older residents lacked computers at a rate 9x's that of residents under 18 years of age, and more than 5x's the rate for adults 18-64 years of age.

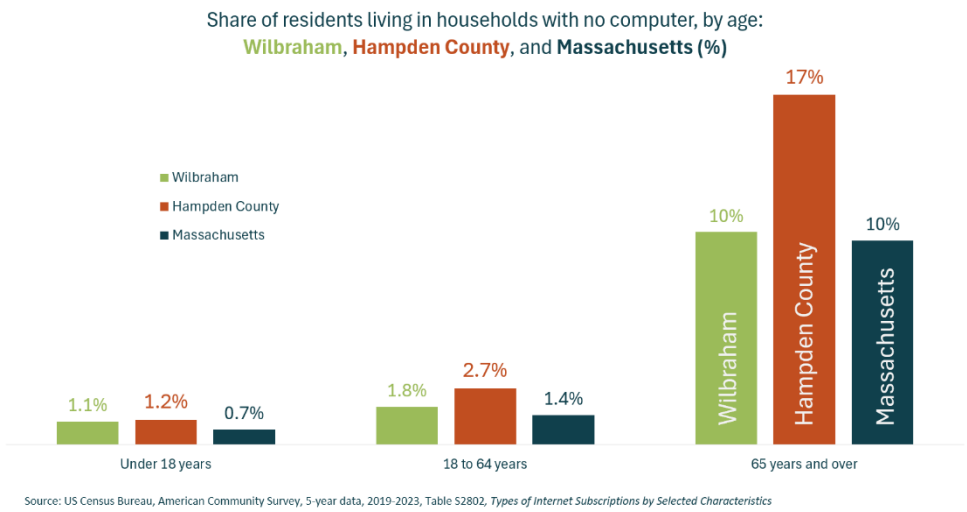


Figure 6: Share of residents with no computer, by age

Similar patterns show that 2% of Wilbraham children live in households without an internet subscription, compared with 4% of residents ages 18-64, and 19% of seniors 65 years and older.[8]

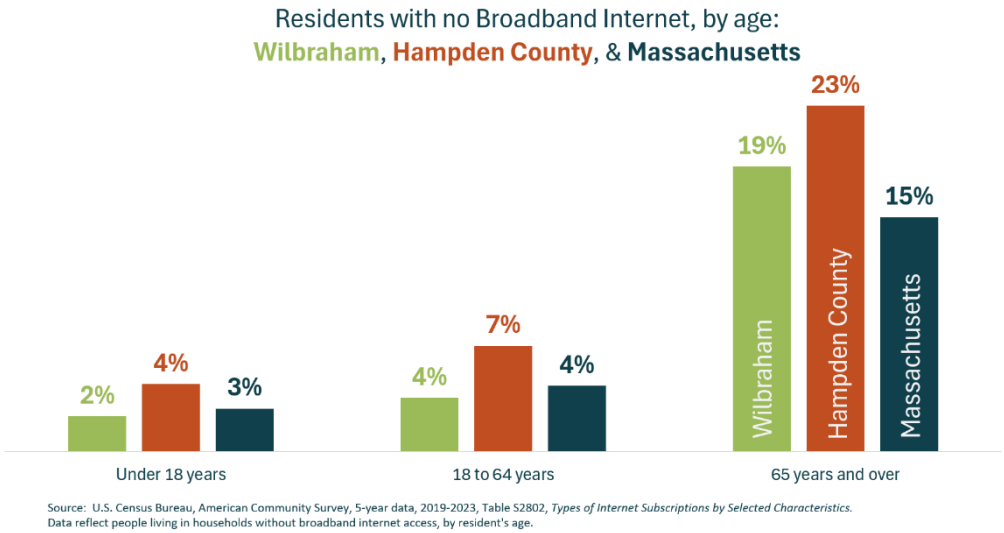


Figure 7: Estimate of Wilbraham Households with no broadband, by age

[8] U.S. Census Bureau, American Community Survey, 5-year data, 2018-2-24, Table S2802, *Types of Internet Subscriptions by Selected Characteristics*.

Staff at the Wilbraham Senior Center provide one-on-one technology assistance to seniors, typically helping them with their smart phones or tablets. Assistance completing online forms and other online activities is also available at the Center, now located at 250 Springfield Street, behind the Town Hall.

Wilbraham is more vulnerable than many communities as a result of seniors facing challenges with digital connection, since the town has a comparatively large number of older residents.

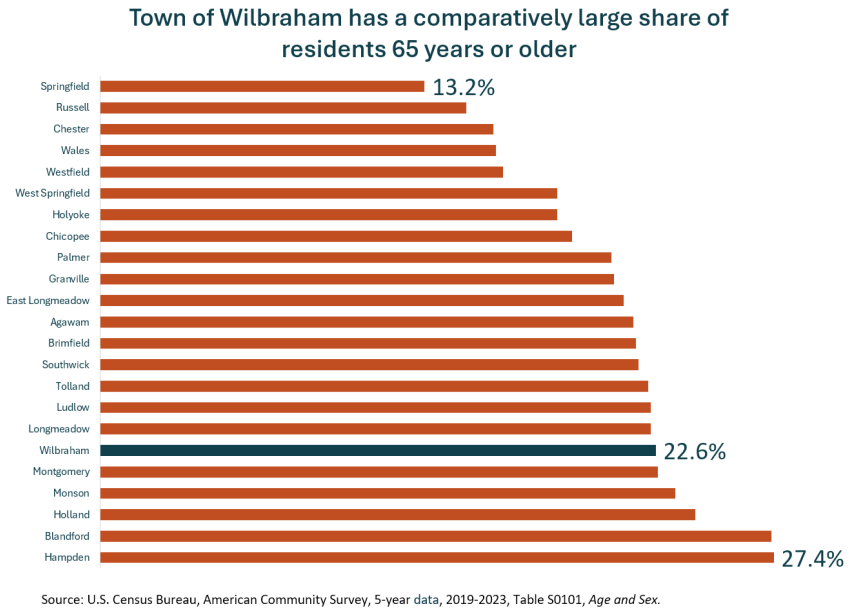


Figure 8

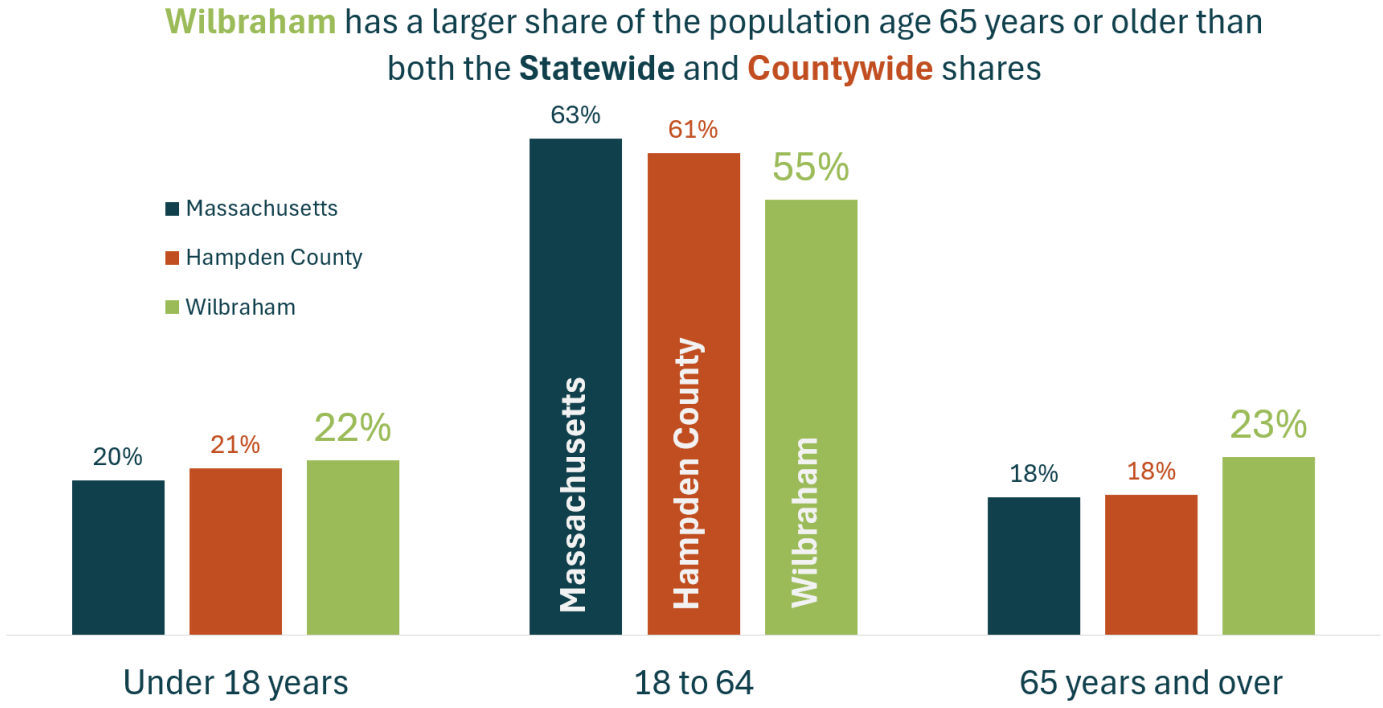
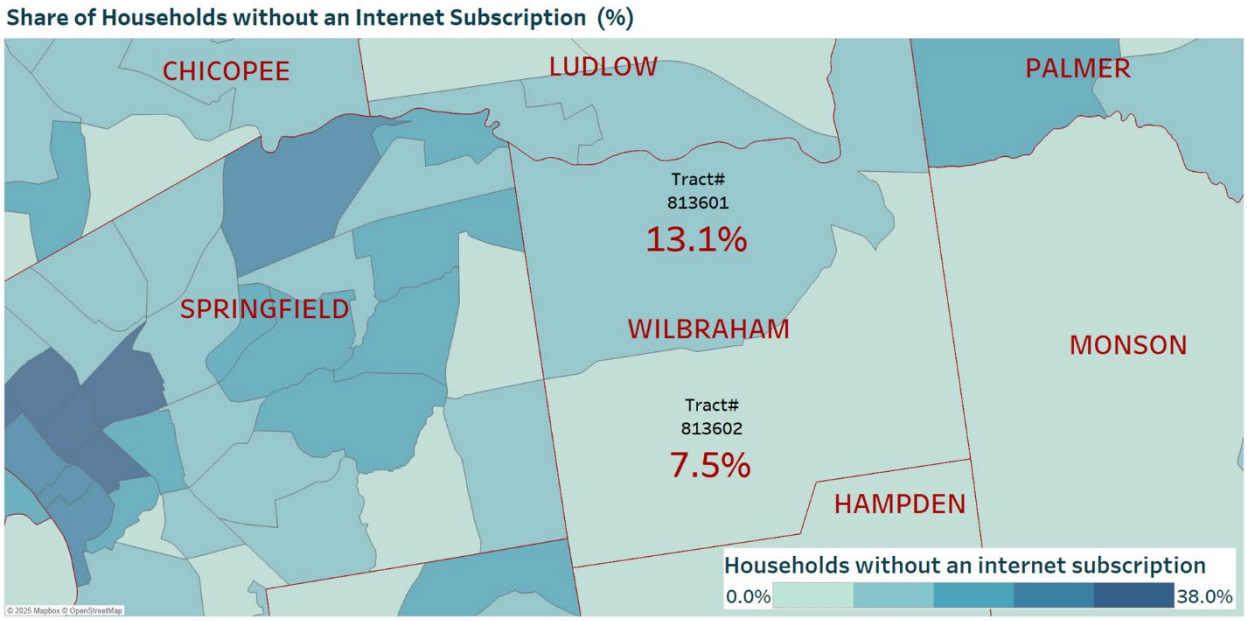


Figure 9

Digital Inequity and Geography

Compared to its larger neighboring communities, there is not a large difference in share of households lacking internet between Wilbraham's two Census Tracts. This is largely a reflection of the fact that Wilbraham is a comparatively wealthy community—the townwide median household income of $124,004 falls third highest among all communities in



Source: US Census Bureau, American Community Survey, 5-year data, 2019-2023, Table S2801, *Types of Computers and Internet Subscriptions*

Figure 10

Hampden County.

And yet, despite the town's relative wealth, there persist disparities in access to the internet based on income range.

Across the entire town, 10.7% of households lacked internet subscriptions in the period 2019-2023, with 13.1% lacking in the more northerly tract, 8136.01, and 7.5 lacking in the southerly tract, 8136.02.

Affordable Connectivity Program (ACP)

The Affordable Connectivity Program (ACP) is a federally funded program that has offered a monthly benefit to eligible households, primarily in support of affordable subscriptions to the internet through local providers. Without urgent congressional funding, ACP will run out of funds, likely in late April, 2024. This will come as a major blow to communities of all sizes. Although Wilbraham is a comparatively wealthy community, ACP has been popular among low income residents. Over the course of the program, ACP enrollment grew to nearly 500 households in Wilbraham.

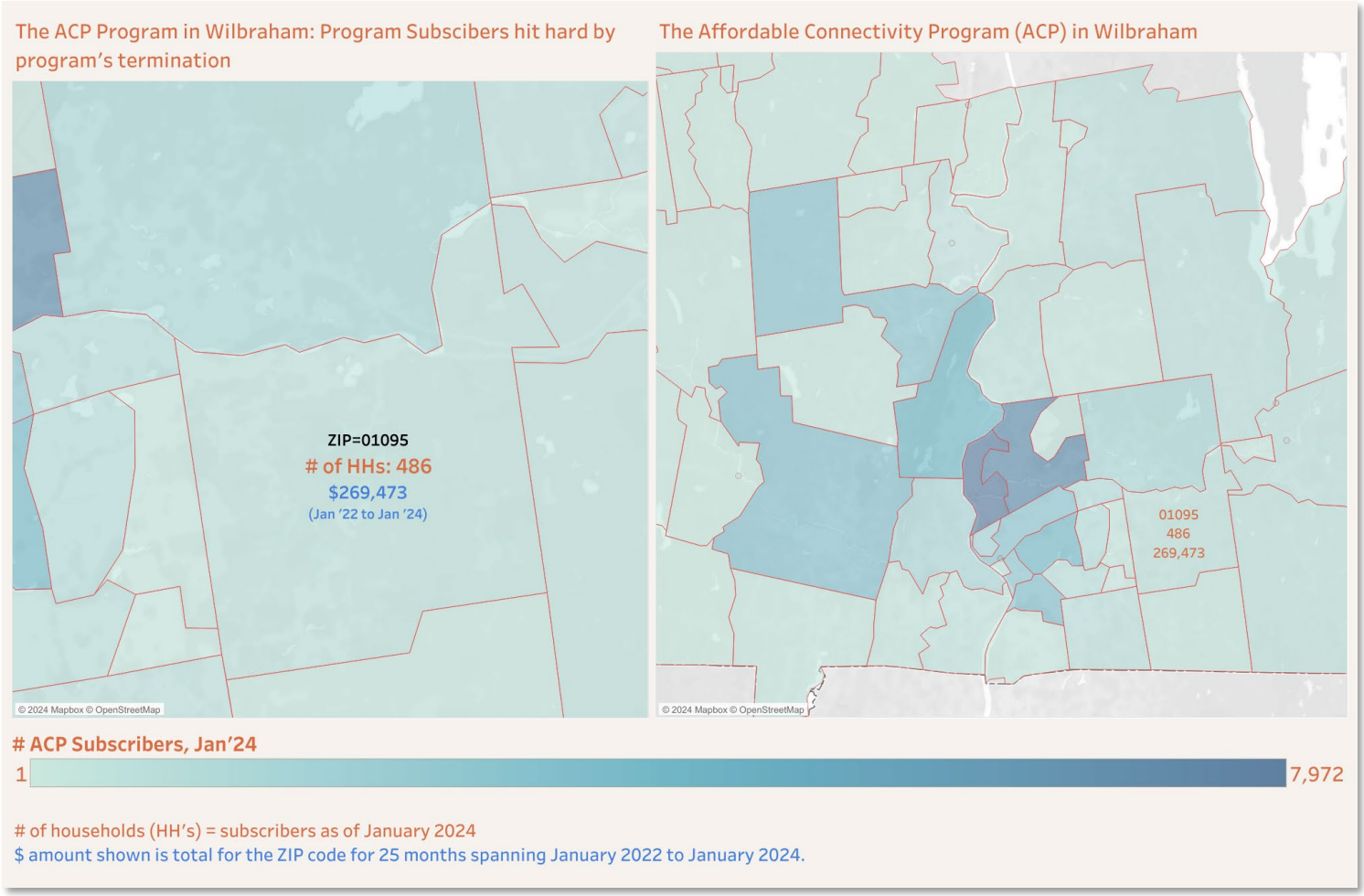


Figure 8: Affordable Connectivity Program (ACP)

In January 2024, 486 households received ACP funding in Wilbraham. Since the program's inception in January 2022, the Affordable Connectivity Program has contributed nearly $270,000 to connect eligible residents of Wilbraham. In the absence of this critical program, ACP subscribers risk being cut off from the internet, or further struggling to afford this critical service.

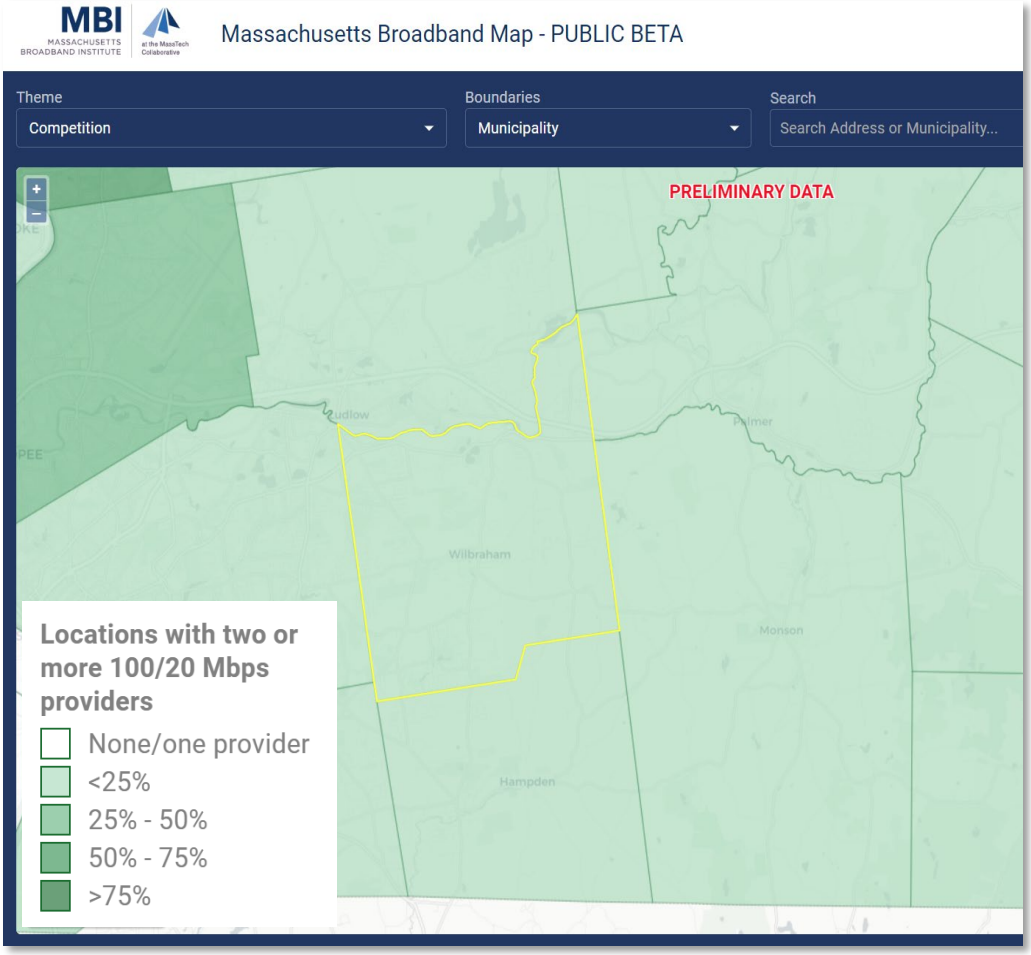
A 2024 analysis of recent US experience with broadband competition notes that with ACP's demise, as participants lose their subsidized access "one expects some households will

unsubscribe from internet service, and the decreased demand may even lead to consolidation in some markets through exits or mergers"[9], which would further undermine any pressure to increase provider competition.

[9] Eric Fruits, Geoffrey A. Manne, Ben Sperry, & Kristian Stout, "Dynamic Competition in Broadband Markets: A 2024 Update", in *International Center for Law & Economics, June 4, 2024*.

Lack of Competition

Available data shows a striking lack of competition at the provider level in the Town of Wilbraham. At the town level, fewer than 25% of customers have access to more than one provider (Figure 8). Charter Communications covers 98.1% of the town's 5,639 "serviceable locations", while Comcast covers 2.7%, according to MBI data. T-Mobile also provides "fixed wireless" (though at slow 25 Mbps speeds) to nearly a quarter of users, and faster service to 5.9% of the town.



Broadband Providers MAP FEEDBACK

Provider	Tech	Speed (Mbps)	↓ Coverage
Charter Communications, Inc.	Cable	1000/35	98.1%
T-Mobile USA, Inc.	Fixed Wireless	25/3	23.4%
T-Mobile USA, Inc.	Fixed Wireless	100/20	5.9%
Comcast Cable Communications, LLC	Cable	1200/35	2.7%

Figure 9: Lack of Provider Competition at town-wide level

Zooming to the block group level in Figure 9, we see that several block groups along Wilbraham's borders with Springfield and Monson have two or more providers available.

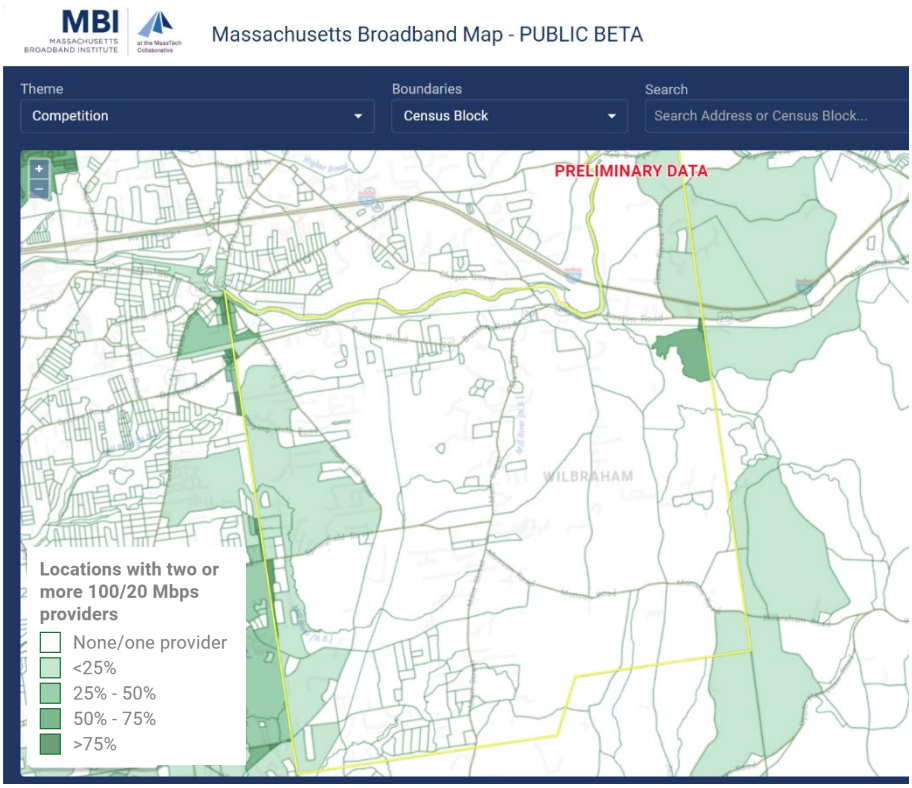


Figure 10: Several block groups have two or more providers

Perhaps surprisingly, with just 2.7% of Wilbraham's Broadband Serviceable Locations having access to two or more providers offering speeds of at least 100Mbps (download)/20Mbps (upload), Wilbraham nonetheless ranks 6th among all communities in Hampden and Hampshire Counties. Notably, the only communities in which more than 5% of residents have access to two or more providers at those speeds are those served by municipal providers (Crossroads Fiber in

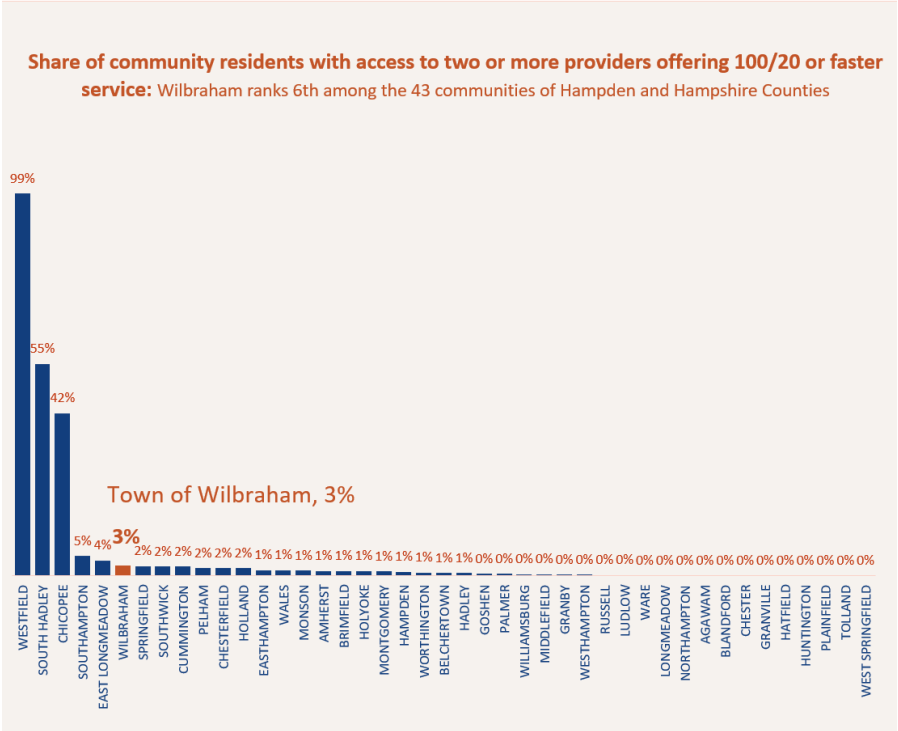


Figure 11: Share of residents with access to two or more providers

Chicopee, Whip City Fiber in Westfield, and Fiberspring in South Hadley).

Fiber to the Home [FTTH]

Significant portions of Western Massachusetts have Fiber to the Home (FTTH) service available, through community based fiber optic companies. Westfield's Whip City Fiber (in red) has expanded to serve several communities, and Chicopee's Crossroads Fiber has been growing throughout Chicopee. Wilbraham's plan to pursue fiber optic infrastucture throughout the community will allow Wilbraham to share in the competitive edge that fiber optics brings to several other communities in the region.

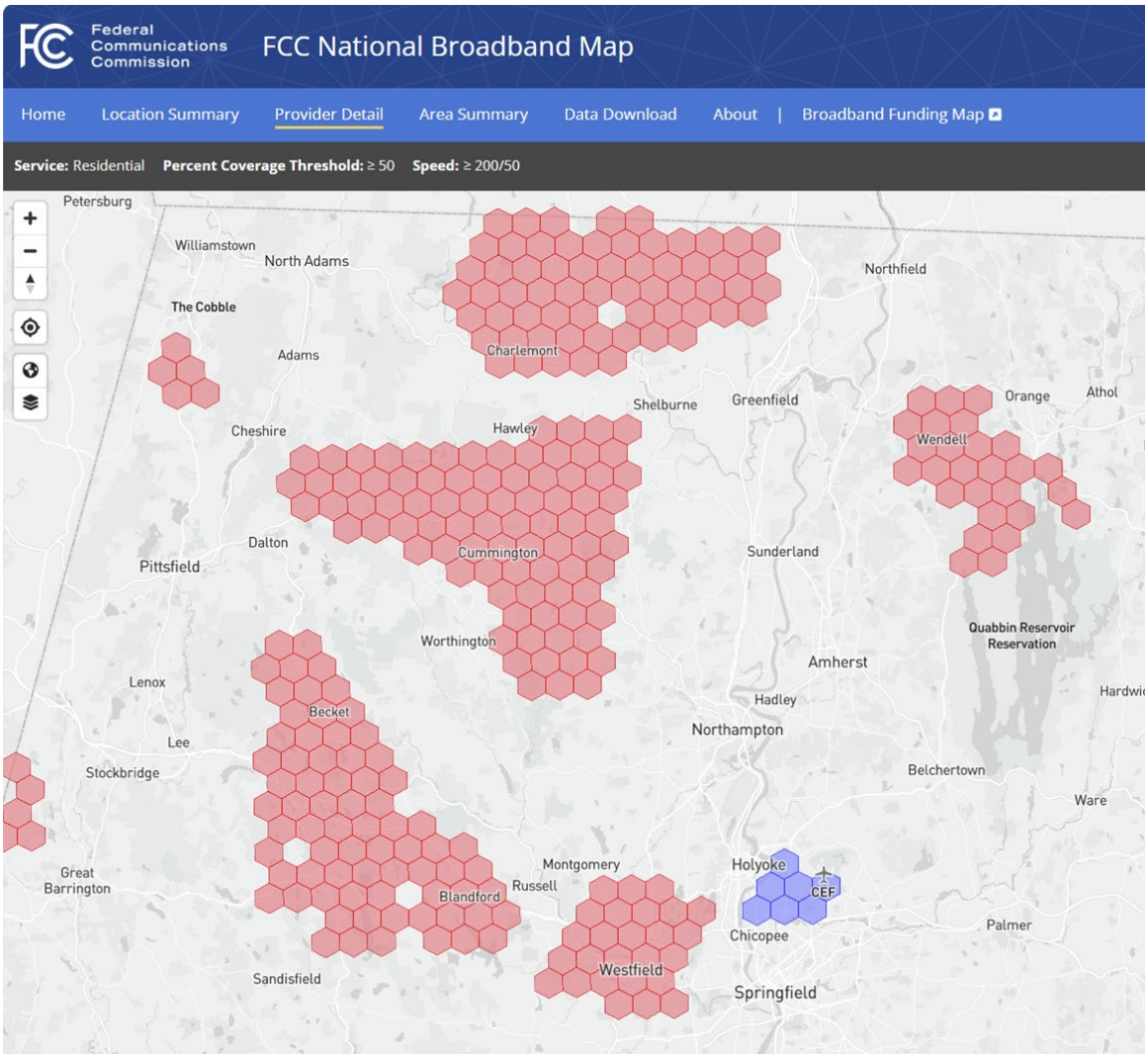


Figure 11

Summary of Wilbraham's Digital Equity Concerns and Opportunities[10]

Despite the town's comparative wealth, 10.7% of households lack a broadband internet connection;

Significant disparities persist in connection to the internet and access to computers by age, with 10% of seniors lacking a computer, and 19% lacking access to broadband internet.

Plans for municipal owned fiber-optic network will increase competition and set the Town up to capitalize on future economic development potential.

[10] This initial list of concerns is based primarily on analysis of publicly available data. We anticipate that community outreach will help us to expand this list to reflect expressed concerns.

PART 3: RECOMMENDATIONS AND CONCLUSIONS

Recommended Options for advancing digital equity in Wilbraham

These recommendations reflect the Town of Wilbraham's focused energy towards becoming the sole provider of internet access over the coming year. It is with this lens that we make the following recommendations to help the Town achieve its goals.

The Town of Wilbraham's Broadband Advisory Committee has been meeting regularly for years, tasked with "research[ing] the possibility of deploying a Town owned open access fiber network that would bring competition and transparency to internet services in Wilbraham." In November, 2023, the Town issued a Request for Proposals (RFP) to "provide a platform and all related hardware and software capable of supporting a minimum of one gigabit symmetrical active Ethernet services to business and residential customers for a Town-wide Municipal Fiber Network."

To support this important effort The Town of Wilbraham would like to pursue the following items;

1. **Continue with the public bid process for providing town wide service.** *The original working group that consisted of residents and key stakeholders provided an important conduit for input and guidance to inform the Town's planning efforts. This should be continued,* **in part to create a high quality fiber network and** potentially to also provide **free public access points** [based on areas of greatest need]. *Installation of publicly accessible Wi-Fi would help connectivity in areas where residential connectivity is poor due to quality or affordability.* ***($15,000 towards consultant costs)***
2. **Provide a hotspot lending program.** *Hotspots are available at approximately $65/month (based on Verizon and T-Mobile vendors). This involves purchasing the unit and a required monthly subscription.* ***($10,000)***
3. ***Work with Schools, Libraries, Council on Aging*** *to continue to provide coordinated support and access and education to improve digital literacy.* Encourage schools to provide more devices & digital navigation services. ***($15,000)***
4. **Continue working with PVPC** to help advance each element of the proposed implementation process ***($10,000)***

Below is a table showing the proposed elements of implementation and associated cost estimates as well as estimated timelines and identifying parties responsible for each element.

Table of Recommendations and Cost Estimates

Action Steps	Comments	Costs	Timeline	Responsible Party
1. Support ongoing effort to implement a town-wide, fiber optic, open access network. Town wide internet provider service bid	Consultant costs to work with the Town of Wilbraham	$20,000	Ongoing, through completion of fiber network	Wilbraham Fiber
3. Expand Hot Spot Program	$180/unit/yr (50 units) + administration/maintenance, expanding on existing programs through Wilbraham Public Schools and Wilbraham Public Library.	$10,000	Phased in, with 25 units by 10/31/2025, 50 by 9/01/2026	Wilbraham Public Schools, Wilbraham Public Library
4. Work with Wilbraham Public Schools, Council on Aging and Public Library to provide ongoing digital mentoring and technical support.	Encourage schools to also provide computer devices such as tablets or laptops.	$15,000	Programs in place by 12/31/2025	Wilbraham Public Schools, Wilbraham Public Library, Wilbraham Council on Aging
PVPC Implementation & Evaluation	PVPC to monitor implementation process, providing advice, expertise, and progress evaluation	$5,000	Ongoing	PVPC
Total Estimated Implementation Cost	Dependent on Award Size from MBI	**$50,000**		