Broadband Equity, Access, and Deployment Program (BEAD) Five-Year Action Plan

Michigan High-Speed Internet Office
Michigan Department of Labor and Economic Opportunity
July 2023

Contents

List of Figures

List of Tables

Executive Summary

Michigan recognizes that nearly every aspect of life is impacted by access to fast, reliable, and affordable high-speed internet service. From virtual learning, telehealth, remote working, job opportunities, communication, to government services, access to the internet is critical for every resident, business, institution, and community in Michigan.

Acknowledging digital connectivity deficiencies exist not just in the state of Michigan but throughout the United States, the Broadband Equity Access and Deployment (BEAD) program was established as part of the 2021 Infrastructure Investment and Jobs Act (IIJA). The program appropriates $42.45 billion for high-speed internet deployment, mapping, and adoption projects, that is set to make a significant impact on improving internet access across the nation. Each state will receive a minimum allocation of $100 million with additional formula funding allocated based on the number of unserved areas within each state. The National Telecommunications and Information Administration (NTIA) is the federal agency administering this program and is a key resource and collaborator for its successful implementation. The goals of the BEAD Program are closely aligned with Michigan's broadband goals outlined in the state's 2021 Broadband roadmap and in this Five-Year Action Plan. These objectives include funding the necessary infrastructure for widespread access to affordable and equitable broadband, creation good paying jobs, and closing long-standing equity gaps in broadband adoption. The BEAD Program, coupled with the State Digital Equity Planning Grant Program (SDEPG) program, offers Michigan a once-in-a-generation opportunity to comprehensively address connectivity challenges and create a more digitally equitable state.

What is our challenge?

As of 2023, close to 500,000 households are unserved or underserved by high-speed internet infrastructure and another 730,000 households face barriers related to affordability, adoption, device access, digital literacy, or a combination thereof. Taken together, this means that approximately 30% of Michigan households do not have an affordable, reliable high-speed internet connection that meets their needs.

How have we organized?

The Michigan High-Speed Internet (MIHI) Office was created in June 2021 within the Department of Labor and Economic Opportunity (LEO) to drive Michigan's broadband mission to close the digital divide. MIHI is the administering entity for the BEAD Program in Michigan. The MIHI Office currently has a staff of eight with an additional seven, limited-term positions anticipated to be added in late 2023. The office has two dedicated teams, one that focuses on infrastructure related programs and the other on digital equity. MIHI is currently administrating Realizing Opportunity with Broadband Infrastructure Networks (ROBIN) Program funded through the Capital Projects Fund.

Given the integrated nature of broadband infrastructure and digital equity, the MIHI office developed a robust and innovative community and stakeholder engagement process that was used to gather the needs and priorities of Michiganders. This stakeholder engagement provided valuable input to this plan and the Michigan Digital Equity Plan and will be used to inform MIHI strategies and plans to close the digital divide.

Our Vision and Goals

The BEAD funding that the state of Michigan will receive will be used to support the ten-year broadband vision of the state where every Michigander has:

- An affordable and reliable high-speed internet connection available that meets their household needs
- A high-speed internet enabled device(s) that meet the needs of everyone in the home or in their community centers
- Access to digital skills training regardless of who they are or where they live
- Access to technical support to maximize device and application use
- The ability to reside anywhere in the state and not worry about access to high quality and reliable internet service
- Freedom from digital discrimination and barriers to connectivity within an evolving and unbiased digital equity ecosystem.

MIHI's ultimate goals for broadband in the state is to ensure that high-speed internet access is available to every home, business, institution, and community (100% availability) and that 95% of Michigan households adopt a permanent home internet connection. MIHI's goals for the BEAD Program and to achieve the 10-year broadband vision are included below.

MIHI's Goals for the BEAD program

1. **Expand high-speed broadband infrastructure to reach unserved and underserved areas**
2. **Increase digital skills**
3. **Promote affordable broadband services.**
4. **Support equitable access to devices**
5. **Empower consumers with applications and online content**

Current State of Broadband and Digital Inclusion in Michigan

The BEAD Program is part of a connected ecosystem of plans, programs and existing assets all working towards the goal of closing the country's digital divide. Early on, MIHI identified that a robust partnership and decision-making framework is necessary to resolve obstacles and barriers, achieve the identified goals and objectives, and design and implement the BEAD Program. The framework provides MIHI with guidance, inputs, and decision-making support for the BEAD Program as well as a network of support and resources. The following graphic provides a visual demonstration of the partnership framework.

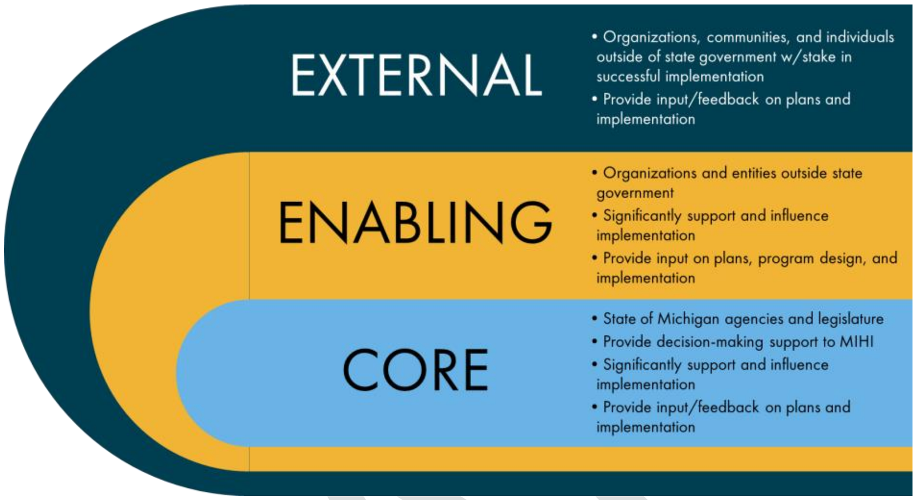


Figure 1:MIHI Partnership Framework – External, Enabling, and Core Partners

Execution of this plan requires leveraging existing hard and soft assets available to Michigan. The asset inventory includes soft assets such as E-Rate Support, Wi-Fi Hot Spot Map, and 2-1-1 Assistance and hard assets such as the Michigan Public Safety Communications System. As stewards of federal funding, MIHI will provide resources to BEAD applicants and leverage partnerships and existing assets wherever possible to extend the reach of BEAD funding.

Similarly, the identification of current gaps and needs of broadband deployment and digital equity is critical to inform the priorities and execution strategies of the BEAD program. Further, Michigan chose to examine its needs and gaps regionally to highlight the nuanced differences in digital needs between these areas of the state. The purpose here is to establish a baseline for understanding the unique digital equity and connectivity needs of the state and each region separately. Each profile contains a digital equity analysis that identifies the covered populations as defined by the Digital Equity Act, as well as the current state and needs assessment for broadband availability, adoption, devices, and data gathered during MIHI's community engagement process.

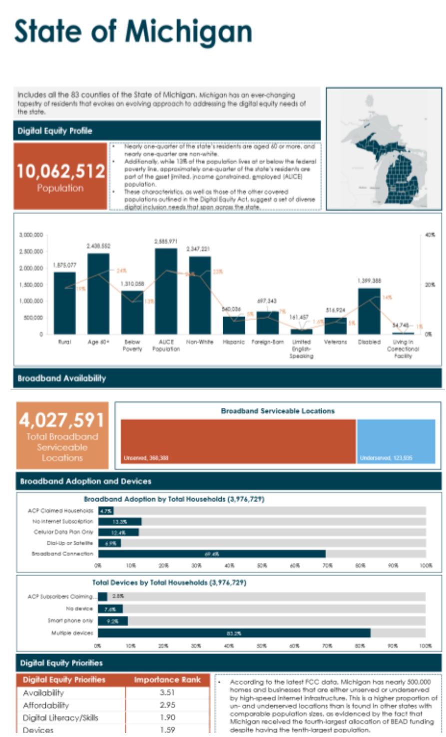


Figure 2: State of Michigan Digital Equity Profile

Obstacles and Barriers

Identifying the obstacles and barriers for the future deployment and non-deployment of broadband is crucial to the 5-Year Action Plan so that appropriate strategies could be developed to address and mitigate potential obstacles. The MIHI Office has identified several obstacles and barriers that could hinder the successful implementation of the BEAD Program, specifically regarding the deployment of new high-speed internet networks. These include:

Infrastructure Deployment Barriers

- Legislative or Regulatory Barriers
- Permitting
- Workforce Storages
- Supply Chain and Material Availability
- Local Capacity
- Topography/ Geography
- Procurement, Contracting, and Industry Participation
- Knowledge and Communication

Digital Equity Barriers

- Device Access and Cost
- Digital Literary and Skills
- Affordability
- Inclusivity
- Relevance/ Awareness

The obstacles and barriers identified have been summarized into impact matrixes that assess 1) the estimated impact the barrier may have on the success of the BEAD Program; and 2) the likelihood that through the collective action of public, private, and other partners the barriers can be overcome. The estimated impact and the state's ability to address each barrier were determined through engagement with MIHI's Partnership Roundtable. The impact matrixes for deployment barriers and digital equity are included below.

Deployment Impact Matrix

Category	Barrier	Impact on BEAD	Likely to Overcome
Legislative or Regulatory Barriers	Pole Attachment		
	Municipal Participation		
	Utility Notification and Flagging Capacity		
Federal Permitting			
State Permitting	Environmental		
	Cultural and Historic		
	State Rights-of-Way		
Local Permitting	City, Village, and Township Rights-of-Way		
	County Rights-of-Way and Drains		
	Railroad crossings		
Workforce			
Supply Chain and Materials			
Local Capacity			
Topography/Geography			
Procurement, Contracting, and Industry Participation			
Knowledge and Communications			

Figure 3: Deployment Impact Matrix

Digital Equity Impact Matrix

Barrier	Impact on BEAD	Likely to Overcome
Device Access		
Digital Literacy and Skills		
Affordability		
Inclusivity		
Relevance/ Awareness		

Figure 4: Digital Equity Impact Matrix

How will the plan be implemented?

The implementation plan is a direct reflection of stakeholder engagement during MI Connected Future Tour and the Partnership Roundtables efforts and MIHI's commitment to our vision and goals for closing the digital divide. In addition to the BEAD program priority requirements of connecting the unserved, underserved, and CAIs, MIHI defined five key priorities to achieve the vision and goals for broadband deployment and digital inclusion. These priorities will guide the development of the program and the strategies employed by MIHI to help ensure successful implementation of the BEAD program in Michigan.

MIHI’s Key Priorities for the BEAD Program

- ✓ Reduce barriers to broadband deployment
- ✓ Maximize the use and reach of federal funds
- ✓ Promote digital equity and inclusion
- ✓ Advocate for resiliency and sustainability for broadband infrastructure development
- ✓ Empower communities through engagement and involvement

The key priorities identified where used to identify the required execution strategies that MIHI and their stakeholders will implement to overcome barriers and successfully implement the BEAD Program. For each of the execution strategies developed, planned activities have been identified as the actionable and discreet actions that can be taken by MIHI and their partners to effectively implement the strategies and help ensure the priorities of the program are realized.

This Five-Year Action Plan serves to meet the requirements of the BEAD Program and to provide the roadmap for achieving universal availability in Michigan over the next ten years. Built on a foundation of authentic engagement with communities throughout Michigan, data, and the support of MIHI’s partners and stakeholders, the plan provides a comprehensive landscape of the current state and path forward to a digitally equitable future.

Overview of the Five-Year Action Plan

Vision

Michigan has long recognized the importance of broadband access for the economic development, educational opportunities, and health of its citizens. Our vision for broadband deployment and digital equity in Michigan is to create a connected and inclusive state where every resident has access to affordable high-speed internet, and to the necessary tools that enables that access, regardless of their location, income, or demographic. To achieve this vision, we will work towards closing the digital divide by expanding broadband infrastructure, promoting digital literacy, and providing access to affordable devices and services.

Michigan will strive towards this vision by implementing this plan with collaboration, efficiency, creativity, and transparency. We will work with internet service providers, local governments, and community organizations to develop subprograms geared towards investing in new infrastructure and upgrading existing networks to ensure that high-speed internet is available to all. Concurrently, we will focus on promoting digital literacy and providing affordable devices and services to help close the digital divide and ensure that every Michigander can take advantage of the opportunities that come with connectivity. Together, we can build a more equitable and connected Michigan where everyone has the digital tools they need to succeed and improve their quality of life.

As envisioned, by 2030, every Michigander will have:

- An affordable and reliable high-speed internet connection available that meets their household needs;
- A high-speed internet enabled device(s) that meet the needs of everyone in the home;
- Access to digital skills training regardless of who they are or where they live;
- Access to technical support to maximize device and application use;
- The ability to reside anywhere in the state and not worry about access to high quality and reliable internet service; and
- Freedom from digital discrimination and barriers to connectivity within an evolving and unbiased digital equity ecosystem.

Goals and Objectives

Michigan's statewide goals for broadband are to ensure that high-speed internet access is available to every home, business, institution, and community and that at least 95% of Michigan households adopt a permanent home internet connection. MIHI has further establishes the following objectives to realize its vision and these goals:

1 **Expand high-speed broadband infrastructure to reach unserved and underserved area**
Identify and address areas of the state where high-speed internet access is limited or non-existent and invest in new infrastructure to close the gaps.

2 **Increase digital skills**
Develop and implement programs to promote digital literacy and digital skills and provide training and education for individuals and organizations, particularly those that are underrepresented and marginalized, to effectively use and benefit from technology. Digital skills training should be designed to evolve as required skills for new technologies and devices advance over time.

3 **Promote affordable broadband services**
Help ensure internet service providers offer affordable plans for low-income households and create programs to make broadband services and affordability programs more accessible to all.

4

Support equitable access to devices

Provide support for residents to obtain and use affordable devices such as computers and tablets and promote the use of libraries and other community centers as digital access and device lending points. Device programs should also evolve as device technology advances over time, and consumers should have ready access to quality technical support to sustain and prolong their use.

5

Empower consumers with applications and online content

Support the development of robust applications and online content designed to enable and encourage self-sufficiency, participation, and collaboration that are accessible by all Michiganders. Moving towards digital equity allows the development of new, robust accessible online content that allows users to improve their quality of life.

Current State of Broadband and Digital Inclusion

Existing Programs

The following provides a summary of the activities, positions, contractor support, and funding for the Michigan High-Speed Internet Office.

Current Activities of the Michigan High-Speed Internet Office

Activity Name	Description	Intended Outcome(s)
Realizing Opportunity with Broadband Infrastructure Networks (ROBIN) Program[1]	ROBIN is a last-mile and middle-mile broadband infrastructure grant program. The program is funded by $250M from the Capital Projects Fund with $238M in project funds for grants. The program is designed to connect locations currently without 100/20 Mbps service. MIHI anticipates making final grant awards in August 2023.	Connect 80,000 – 90,000 locations with high-speed internet service.
MI Connected Future Partnership Roundtable[2]	The Partnership Roundtable is designed as an inclusive opportunity for stakeholders to be involved in the decision-making process for the current and forthcoming federally funded programs administered by MIHI. Partners meet virtually each month to respond to question posed by MIHI staff that drive office decision making and program design. More than 200 unique organizations have participated in the Partnership Roundtable. More on this activity can be found in the stakeholder engagement section of this plan.	Provide decision-making guidance to MIHI. Provide input and feedback on program design. Maintain active engagement with a diverse stakeholder group.
MI Connected Future Community Listening Tour[3]	The Community Listening Tour is designed as an in-person opportunity for MIHI to hear the connectivity and digital equity needs, aspirations, goals, and ideas of Michigan's many communities. MIHI held 31 community meetings to gather data in preparation for this plan, and ten additional meetings to present the results. More on this activity can be found in the stakeholder engagement section of this plan.	Engagement with local and community stakeholders. Data gathering to inform plan and program development.
Connecting Michigan Taskforce (CMIT)	CMIT was conceived in the fall of 2020 in response to the COVID-19 pandemic. CMIT is an internal State of Michigan taskforce formed to help coordinate broadband, digital equity, and other related efforts across agencies.	Ongoing coordination among state agencies. Improved communication regarding digital equity activities, programs, and initiatives.
Connecting Michigan Communities (CMIC) Program[4]	CMIC was created in late 2018 as Michigan's first broadband infrastructure grant program and seeded with $20M in initial funds. An additional $14.3M was added to the program in mid-2020. The program has issued three rounds of grants with the last occurring in 2022. The program is currently housed at the MI Dept. of Technology, Management, and Budget, but recent discussion may shift administration of the program to MIHI. No additional grant awards are anticipated from the program.	Connect more than 17,000 locations to high-speed internet.

Table 1: Current Activities of MIHI Office

[1] https://www.michigan.gov/leo/bureaus-agencies/mihi/funding-opportunities
[2] https://www.michigan.gov/leo/bureaus-agencies/mihi/miconnectedfuture/partnership-roundtable
[3] https://www.michigan.gov/leo/bureaus-agencies/mihi/miconnectedfuture/mi-connected-future-tour-schedule
[4] https://www.michigan.gov/dtmb/policies/governance/cmic-grant

Current and Planned Full-Time and Part-Time Employees of the Michigan High-Speed Internet Office

The Michigan High-Speed Internet Office was created in June 2021 by Executive Directive 2021-2[5] within the Department of Labor and Economic Opportunity (LEO). While created in June 2021, LEO did not receive funding or the authorization to hire staff for the office until the passage of the Building Michigan Together[6] plan in April 2022. MIHI's Chief Connectivity Officer was onboarded at the end of July 2022 and the office was staffed with eight full-time employees in January 2023. An additional Executive Directive 2021[7]-12 has ensured that Michigan is poised to make effective use of the once-in-a-generation resources that are being made available through the federal Infrastructure Investment and Jobs Act (IIJA). The MIHI Office represents the first time Michigan has had a dedicated office within state government to address the Digital Divide.

The Michigan High-Speed Internet Office currently has a staff of eight with an additional seven limited-term positions anticipated to be added in late 2023. Once fully staffed, the office will have a two-section organizational structure; one will be focused on infrastructure related programs and the other on digital equity. The organizational chart below provides a visual representation of the office structure. Positions in orange are existing and those in gray are planned.

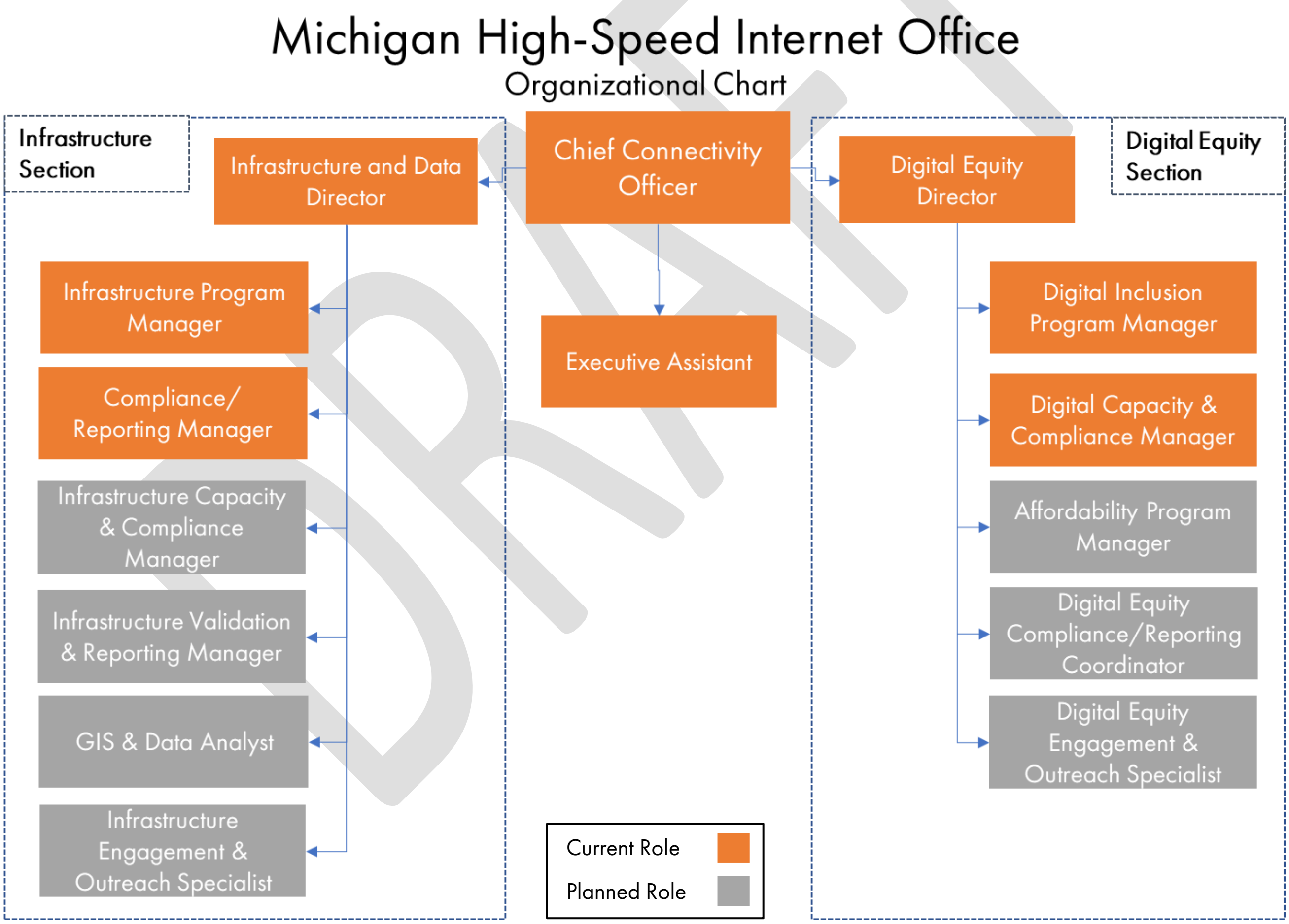


Figure 5: Michigan High-Speed Internet Office Current and Planned Roles

[5] https://www.michigan.gov/whitmer/news/state-orders-and-directives/2021/06/02/executive-directive-2021-2
[6] http://www.legislature.mi.gov/documents/2021-2022/publicact/pdf/2022-PA-0053.pdf
[7] https://www.michigan.gov/whitmer/news/state-orders-and-directives/2021/12/06/executive-directive-2021-12-2

The following table describes the role of each position in the office.

Current/ Planned	Full-Time/ Part-time	Position	Description of Role
Current	Full-Time	Chief Connectivity Officer (CCO)	The CCO leads the MIHI Office and serves as the primary point of contact (POC) for all broadband and digital equity matters in the state.
Current	Full-Time	Executive Assistant	The Executive Assistant is responsible for providing a full range of administrative and executive support functions relating to the day-to-day activities of the Michigan Chief Connectivity Officer and the Michigan High-speed Internet Office.
Current	Full-Time	Infrastructure and Data Director	The Infrastructure and Data Director leads the Infrastructure and Data team within the MIHI Office. The responsibilities include research, policy development, program planning, implementation, and assessment related to office high-speed internet infrastructure related programs. The Infrastructure and Data Director also plans, coordinates, manages, and executes the office data, infrastructure, and geospatial strategies.
Current	Full-Time	Infrastructure Program Manager	The Infrastructure Program Manager serves as the recognized resource responsible for the administration of the office's infrastructure grant program(s). Performs complex consultative services and technical assistance work related to the financial program management within the office. Work involves providing financial and administrative advice and support services to designated program(s), awardees, proponents, recipients, and contractors in areas such as project development, implementation and monitoring as applied to the wide-variety of projects and throughout the lifecycle of programs.
Current	Full-Time	Infrastructure Federal Compliance/ Reporting Manager	The Infrastructure Federal Compliance/ Reporting Manager serves as a recognized resource for the planning, development, and implementation requirements of federal law regarding broadband infrastructure related funding opportunities and assists with in-state applications to discretionary funding opportunities.
Planned	Full-Time	Infrastructure Capacity and Compliance Manager	The Infrastructure Capacity and Compliance Manager serves as a recognized resource for the planning, development, and implementation requirements of federal law regarding broadband infrastructure related funding opportunities. The position also provides assistance to grantees and other stakeholders to build capacity within external organizations to seek out, apply for, manage, and comply with federal and other grant opportunities related to high-speed internet deployment.
Planned	Full-Time	Infrastructure Validation and Reporting Manager	The Infrastructure Validation and Reporting Manager serves as a recognized resource for the planning, development, and implementation requirements of federal law regarding broadband infrastructure related funding opportunities and assists with in-state applications to discretionary funding opportunities. Serves as a liaison for program compliance reporting and issues and serves as a field validation specialist to ensure infrastructure deployment progress and completion.
Planned	Full-Time	GIS and Data Analyst	The GIS and Data Analyst is tasked with high-speed internet and digital equity-related mapping coordination, data collection, data analysis and geospatial data collection. The GIS and Data Analyst's work in this regard relates to federal funds allocated to the state for broadband and digital equity work. This position will be responsible for collecting, analyzing, and interpreting large data sets related to broadband access, affordability, and adoption in the state.

Current/ Planned	Full-Time/ Part-time	Position	Description of Role
Planned	Full-Time	Infrastructure Engagement and Outreach Specialist	The Infrastructure Engagement and Outreach Specialist serves as a recognized resource responsible for engaging with a variety of external stakeholders to provide education, capacity building, support, and coordinate technical assistance on the topics of high-speed internet infrastructure, broadband deployment, network development, and other issues related to the availability of high-speed internet.
Current	Full-Time	Digital Equity Director	The Digital Equity Director leads the Digital Equity team within the MIHI Office. Responsibilities include research, policy development, program planning, implementation, and assessment related to digital equity and inclusion programs. The Digital Equity Director is the primary office liaison with the public, businesses, ISPs, state agencies, legislature, and other critical stakeholders.
Current	Full-Time	Digital Inclusion Program Manager	The Digital Inclusion Program Manager serves as a recognized resource responsible for the operations of broadband related programs and services focused on digital literacy, affordability and digital equity and inclusion. Work involves developing, operationalizing, and managing digital equity and literacy services and programs; providing financial and administrative advice and support services to designated program(s), awardees, proponents, recipients, and contractors in areas such as project development; implementation and monitoring as applied to a wide-variety of projects and throughout the lifecycle of programs.
Current	Full-Time	Digital Capacity and Compliance Manager	The Digital Capacity and Compliance Manager serves as a recognized resource for the planning, development, and implementation for the NTIA requirements of federal law regarding broadband related funding opportunities and assist with in-state applications to discretionary funding opportunities.
Planned	Full-Time	Affordability Program Manager	The Affordability Program Manager serves as a recognized resource responsible for the operations of broadband related programs and services focused on broadband affordability and digital equity and inclusion. Work involves developing, operationalizing, and managing digital equity and affordability programs.
Planned	Full-Time	Digital Equity Compliance/ Reporting Manager	The Digital Equity Compliance/Reporting Manager serves as a recognized resource for the planning, development, and implementation requirements of federal law regarding digital equity related funding opportunities and assist with in-state applications to discretionary funding opportunities.
Planned	Full-Time	Digital Equity Engagement and Outreach Specialist	The Digital Equity Engagement and Outreach Specialist serves as a recognized resource responsible for engaging with a wide variety of external stakeholders to provide education, capacity building, support, and coordinate technical assistance on the topics of digital equity, digital inclusion, digital literacy, devices, and other issues related to the adoption and use of high-speed internet.

Table 2: Current and Full Time Roles for MIHI Office

Current and Planned Contractor Support

The following provides a summary of the current and planned contractor support for the office.

Current/ Planned	Full-Time/ Part-time	Position	Description of Role
Current	1.5 FTE	Geospatial Support	AppGeo provides MIHI with geospatial support for the ROBIN program, FCC challenge process, BEAD, SDEPG, and other similar applications.
Current	1.5 FTE	Compliance, plan, and program development	KPMG provides a variety of services to the MIHI Office including compliance, planning, and subgrant process development.
Current	0.25 FTE	Community Engagement Support	Connected Nation provides support with the planning and facilitations of community and stakeholder engagement meetings. Additionally, Connected Nation supports the engineering application review and field validation of objections for the ROBIN grant program.

Table 3: Current and Planned Contractor Support

Broadband Funding

This section identifies funding from various sources that are currently available for broadband deployment or that have already been committed for broadband deployment and other related activities in the state. As shown, most of the funding for deployment or related activities in Michigan is already obligated.

Source	Purpose	Total	Obligated	Available
Broadband Equity, Access, and Deployment Program (BEAD)	Funded through IIJA this program is the largest source of broadband funding. Priority in this program is given to building networks that connect unserved and underserved locations and community anchor institutions. This program will be implemented as a subgrant program to a variety of entities include private ISPs, nonprofits, communities, cooperatives, and others.	$1.559B	$0	$1.559B
US Dept. of Treasury, Coronavirus Capital Projects Fund	Realizing Opportunity with Broadband Infrastructure Networks (ROBIN) Program is a last mile and middle mile broadband infrastructure grant program. Applications were accepted from 01/13/2023 through 03/14/2023. Final grant announcements are expected near Labor Day 2023. MIHI anticipates being able to connect 80k-90k locations with the ROBIN program.	$238M	$0	$238M
State Digital Equity Planning and Capacity Grant Programs (SDEPG & SDECG)	The State Digital Equity Planning Grant Program provides funding to develop the state digital equity plans. The State Capacity Program will fund digital equity projects and the implementation of digital equity plans.	$32M	$0	$32M

Source	Purpose	Total	Obligated	Available
USDA ReConnect	The USDA ReConnect program is a federal initiative that provides loans and grants to expand access to broadband services in rural communities. The program aims to improve economic and educational opportunities, as well as healthcare and public safety, by supporting the development of high-speed internet infrastructure in underserved areas. Eligible entities can apply for funding to construct, improve, or acquire broadband facilities and provide broadband service to rural households, businesses, and farms. Ten entities have received ReConnect funds since 2020 in Michigan.	$77M	$77M	$0
FCC Emergency Connectivity Fund (ECP)	The FCC's ECP is a $7.17 billion program that aims to help schools and libraries provide internet connectivity and devices to students and staff who lack access to them. The program provides funding to educational institutions to purchase and distribute laptops, tablets, Wi-Fi hotspots, modems, routers, and other necessary equipment. The ECP was launched in response to the COVID-19 pandemic. Since its launch, 373 schools and libraries in Michigan have received ECP funds. Data provides is aggregated across the state.	$158M	$158M	$0
FCC Rural Digital Opportunity Fund (RDOF)	The FCC's Rural Digital Opportunity Fund (RDOF) is a program designed to expand high-speed internet access in unserved rural areas of the United States. The program offered up to $20.4 billion in funding over 10 years to internet service providers (ISPs) to deploy broadband infrastructure in eligible areas. ISPs in Michigan won $363M in RDOF awards in 2020 and are currently building to meet their obligations.	$363M	$363M	$0
FCC Alternative Connect America Cost Model	The FCC's Alternative Connect America Cost Model (A-CAM) is a program designed to provide funding to telecommunications providers that serve high-cost, rural areas of the United States. The program offers predictable, ongoing support for the deployment and maintenance of broadband infrastructure in these areas. Providers that accept the A-CAM offer commit to deploying broadband with specified speeds and latency, and to meet certain build-out requirements over a ten-year period. The funds indicated are annual estimates of the on-going subsidy in Michigan.	$53M	$53M	$0
FCC Supply Chain Reimbursement Program	The FCC's Supply Chain Reimbursement Program is an initiative aimed at helping small and rural communications providers remove and replace equipment that poses a national security risk. The program provides funding to cover the costs of removing and replacing equipment from certain designated companies that pose a risk to national security. One entity has received funds from this program.	$21M	$21M	$0

Source	Purpose	Total	Obligated	Available
FCC E-Rate Program	The E-Rate program is an initiative that provides funding to help schools and libraries obtain affordable access to broadband internet and other telecommunications services. The program is administered by the Universal Service Administrative Company and is funded by fees charged to telecommunications providers. E-Rate funding can be used to pay for services such as broadband internet access, Wi-Fi networks, and internal connections like routers and switches. Data is from 2020-2023 and is aggregated among all E-Rate participating entities.	$124M	$124M	$0
FCC Rural Healthcare Program	The FCC Rural Health Care Program is an initiative aimed at helping healthcare providers in rural areas obtain affordable access to telecommunications and broadband services. The program is administered by the Universal Service Administrative Company and is funded through the Universal Service Fund. The program provides funding for eligible healthcare providers to help cover the costs of broadband connectivity, network equipment, and other related expenses. Data is from 2020-2023.	$85k	$85k	$0
ARPA State and Local Fiscal Recovery Funds	The State and Local Fiscal Recovery Fund is a program created by ARPA that provides funding to states, territories, and eligible local governments to help them recover from the economic impacts of the COVID-19 pandemic. The program aims to support public health efforts, replace lost revenue, and address negative economic impacts such as job loss and decreased economic activity. Several Michigan communities have used these funds for broadband expansion.	$26M	$26M	$0
NTIA Connecting Minority Communities Pilot Program	The NTIA's Connecting Minority Communities Pilot Program is an initiative aimed at addressing the digital divide in communities that are traditionally underserved or underrepresented in broadband adoption. The program provides $268 million in funding to support broadband infrastructure deployment, digital inclusion activities, and workforce development in minority communities, including those with high poverty rates. One entity in Michigan received an award in this program in 2023.	$3M	$3M	$0
NTIA Broadband Infrastructure Program	The NTIA's broadband infrastructure program provides grants to support broadband deployment and adoption in unserved and underserved areas. The grants can be used for a range of activities, such as building and upgrading broadband infrastructure, establishing public computer centers, and providing digital skills training. One entity received funding through this program in 2022.	$22M	$22M	$0

Source	Purpose	Total	Obligated	Available
NTIA Tribal Broadband Connectivity Program	The NTIA's Tribal Broadband Connectivity Program is an initiative that provides grants to support broadband deployment and adoption in tribal communities across the United States. The program offers $1 billion in funding to tribal governments and tribal organizations to expand access to high-speed internet and improve digital inclusion. The grants can be used for a range of activities, such as building and upgrading broadband infrastructure, establishing public computer centers, and providing digital skills training. One entity has received an award through this program.	$1.2M	$1.2M	$0
NTIA Enabling Middle Mile Broadband Infrastructure Program	NTIA's Middle Mile Broadband Infrastructure Program provides $1B from the Bipartisan Infrastructure Law to reduce the cost of bringing high-speed internet service to unserved and underserved communities by connecting local networks to major networks. Peninsula Fiber Network was awarded $61.2M in funding to construct middle mile networks connecting the Upper and Lower Peninsulas with fiber via Beaver Island to create new redundant routes from Benton Harbor to Chicago. New overland routes are also planned to provide greater capacity to unserved areas of the state.	$61.2M	$61.2M	$0
Connecting Michigan Communities (CMIC) Program	CMIC was created in late 2018 as Michigan's first broadband infrastructure grant program and seeded with $20M in initial funds. An additional $14.3M was added to the program in mid-2020. The program has issued three rounds of grants with the last occurring in 2022.	$34.4M	$34.4M	$0

Table 4: Existing Broadband Funding

Partnerships

The following provides descriptions of the current and planned partnerships of the Michigan High-Speed Internet Office. Additionally, this section outlines the partnership structure to be used by MIHI to develop and implement the BEAD Program.

Key Partners

Partners	Description of Current or Planned Role in Broadband Deployment and Adoption
Michigan Infrastructure Office (MIO)	Coordinator of all IIJA infrastructure resources in Michigan. Provides cross-sectoral support to MIHI, coordinate responses to global issues such as supply chain, workforce, permitting, etc.
Lieutenant Governor's Office/EOG (Executive Office of the Governor)	Administration stakeholder and subject matter expert (SME) on digital inclusion. Propels BEAD needs and requirements within administration and with legislature.
Michigan Public Service Commission (MPSC)	Telecommunications division that intersects with ISPs on the telecom and cable side. Does not regulate broadband. Provides context on telecom/cable issues, intersection with ISPs, works closely with FCC.
Michigan Department of Agriculture and Rural Development (MDARD)	Office of rural development has a specific charge to address rural broadband. The majority of BEAD funds will be deployed in rural communities. Coordination and advocacy in rural communities to ensure networks are deployed AND adopted is key.
State Legislature	Appropriates BEAD and Digital Equity (DE) Capacity funds to MIHI.
Michigan Economic Development Corporation (MEDC)	Experience addressing broadband from a community and economic development perspective for years. Provides key insights into community needs, cybersecurity, and how to leverage new networks for economic growth. The Michigan State Historic Preservation Office for permitting is located within this department.
Michigan Department of Health and Human Services (MDHHS)	Engages directly with vulnerable and covered populations. Supports messaging and future DE program implementation.
Michigan Department of Education (MDE)	Plays a key role in digital skills in the P-20 environment. Direct contact with vulnerable populations via local schools. Responsible for the Library of Michigan and has previous experience with the federal program E-rate, which provides for reduced rates on Internet access and internal connections for schools and libraries.
Michigan Department of Technology, Management and Budget (DTMB)	Provide context on state assets, networks, and CAIs.
MI State Housing Development Authority (MSHDA)	Engages with public housing entities and thus covered populations.
Michigan Department of Transportation (MDOT)	Provides coordination on permitting and right-of-way (ROW) access.
Michigan Dept. of Environment, Great Lakes, and Energy (EGLE)	Provides coordination for environmental permitting
Michigan Department of Corrections (MDOC)	Provides coordination with covered populations for needs identification and workforce development
Michigan Department of Civil Rights (MDCR)	Provides context and outreach on issues of digital equity and inclusion
Michigan Department of Military and Veterans Affairs (MMVA)	Provides coordination with covered populations for needs identification and workforce development
ISPs	Enables deployment of new infrastructure networks and services

Partners	Description of Current or Planned Role in Broadband Deployment and Adoption
Covered population organizations	Represents defined covered populations to provide MIHI with information and context for addressing the needs of those they represent. Includes AARP, ethnic commissions, etc.
CAI supporting organizations	Represents the needs of the state's many and varied community anchor institutions.
Grassroots/Community Organizations	Engage with residents, businesses, institutions, and Non-Governmental Organization (NGOs) at the local community level throughout the state. This group will provide guidance on local engagement for digital equity planning and support efforts with community organizations for implementation. Includes community action agencies, LISC, MSU Extension, United Ways, Public Housing Commissions.
Deployment supporting organizations	Advise infrastructure planning, development, and implementation by providing insight to barriers and opportunities for coordination in relation to rights-of-way, permitting, pole attachments, and other topics related to the physical deployment of broadband networks. Streamlining and coordinating permit processes will be critical to deploying networks at a scale called for in BEAD. Includes road commissions, drain commissions, SHPO, MISSDIG, Rail Association, etc.
Economic Opportunity Supporting Organizations	Provide guidance on planned engagement with business and economic development communities to support leveraging new networks to create economic opportunity for Michigan residents and businesses. The BEAD Program requires states to identify each unserved and underserved business in the state and ensure their connectivity needs are met. The business community can also play a key role in digital equity and inclusion.
Tribes	Tribal communities have unique connectivity challenges that can be addressed by the BEAD and the State Digital Equity Planning Grant Program (SDEPG)
Local Government	Provide valuable insights into the connectivity needs of Michigan's many and varied communities. MIHI's federally administered programs require robust engagement with local and regional governments, and Michigan's regions, counties, townships, and cities.
Sustainability Organizations	Organizations from philanthropy, academia, and other similar groups. Implementing the MI Connected Future Plan will likely necessitate long-term sustainability to achieve systemic change. MIHI's federally funded programs will provide states with funding for infrastructure deployment and digital inclusion, but additional sources of funding and smart policy decisions will be needed to create a more digital equitable state.
Workforce Development Organizations	Organizations that impact the talent and workforce ecosystem in the state. A talented workforce will be critical to the timely deployment of broadband infrastructure in the short-term but ensuring that Michigan has a well-trained workforce that can use information and communications technology will be needed to grow Michigan's economy into the future. Unions, educational entities, trade associations, etc.

Table 5: MIHI Key Partners

Partnership Framework

MIHI identified, early on, that a robust partnership and decision-making framework was necessary to resolve obstacles and barriers , to achieving the identified goals and objectives, and to designing and implementing the BEAD Program. MIHI has identified three layers of partners and have organized them into a framework that provides MIHI with guidance, input, and decision-making support for the BEAD Program. Each layer of the framework is nested and build on each other to ensure a continuity of knowledge and engagement as MIHI's dependence on each nested layer increases. The following graphic provides a visual demonstration of the partnership framework.

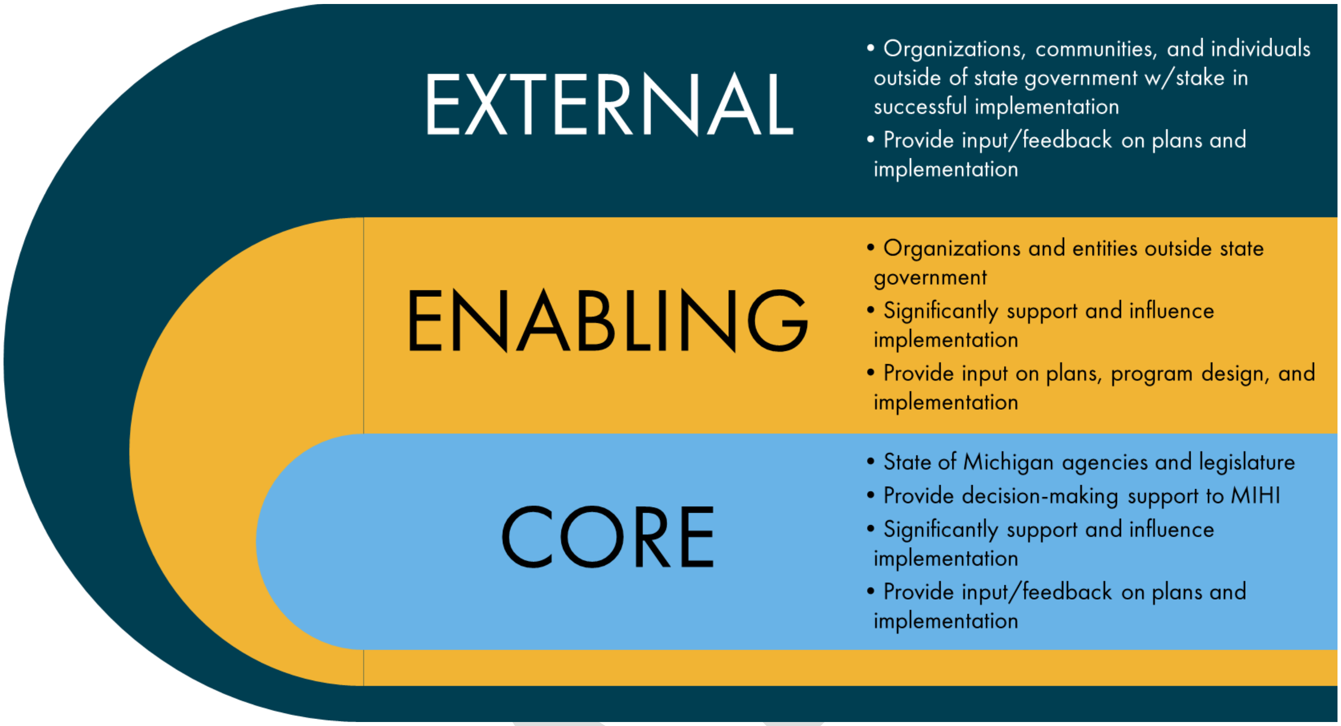


Figure 6: MIHI Key Partnership Framework

Core Partners

Core partners include state agencies and offices that assist in the development of the BEAD plan and program. Core Partners have a key stake in the BEAD program and contribute resources such as funding, assets, or decision-making support in addition to feedback, information, or guidance. Core Partners include:

- Office of Lieutenant Governor Garlin Gilchrist II;
- Michigan Legislature;
- Michigan Department of Agriculture and Rural Development;
- Michigan Department of Civil Rights; and
- Michigan Department of Corrections;
- Michigan Department of Education, including the State Library of Michigan.
- Michigan Department of Environment, Great Lakes, and Energy;
- Michigan Department of Health and Human Services; and
- Michigan Department of Labor and Economic Opportunity
- Michigan Department of Military and Veterans Affairs.
- Michigan Department of Natural Resources
- Michigan Department of Technology, Management, and Budget;
- Michigan Department of Transportation;
- Michigan Economic Development Corporation;
- Michigan Infrastructure Council;
- Michigan Infrastructure Office;
- Michigan Public Service Commission;
- Michigan State Housing Development Authority;
- State Historic Preservation Office

Core Partners participate in the partnership roundtable, community listening tour, provide feedback/input on program plans and design, identify barriers, and develop and implement solutions. Core Partners represent program ownership and responsibility for the program in partnership with MIHI.

Enabling Partners

Enabling partners include organizations outside of state government that significantly impact the development and implementation of the BEAD Program. Enabling partners are or will be key to the deployment of high-speed infrastructure and ensuring Michigan can achieve program goals within the time specified by the NTIA.

Enabling partners include organizations and associations that represent the following; permitting, right-of-way owners/managers, and similar entities; labor unions and other workforce entities; local, county, and regional government; state agencies; utility providers; and other similar organizations. These partners are key to identifying barriers to infrastructure deployment and developing and implementing solutions to overcome these barriers. Enabling partners may be asked to develop or modify policy that contributes to successful program implementation.

Enabling partners include, but are not limited to:

- American Electric Power
- AT&T
- Charter Communications
- Comcast
- Communications Workers of America
- Consumers Energy
- DTE Energy
- Frontier Communications
- Highline Broadband
- HomeWorks Tri-County
- International Brotherhood of Electrical Workers
- Indiana Michigan Power Company
- Lansing Board of Water and Light
- Merit Network
- Michigan Association of Counties
- Michigan Association of County Drain Commissioners
- Michigan Building and Construction Trades Council
- Michigan Cable Telecommunications Association
- Michigan County Road Association
- Michigan Electric Cooperative Association
- Michigan Infrastructure and Transportation Association
- Michigan Municipal Electric Association
- Michigan Municipal League
- Michigan Public Service Commission
- Michigan Railroads Association
- Michigan Townships Association
- Michigan Utility Notification Center
- Midwest Energy and Communications
- NATE: The Communications Infrastructure Contractors Association
- Nokia
- Peninsula Fiber Network
- PROTEC Michigan
- Telecommunications Association of Michigan
- Tribal Nations
- T-Mobile
- Verizon

External Partners

External partners represent a variety of organizations from both inside and outside state government including state agencies, non-profits, industry associations, and private sector entities. External Partners have a stake in the implementation of BEAD as well as its connectivity and digital equity goals and results of the program. External partners are those that participate in the Community Listening Tour and the Partnership Roundtable aspects of MIHI's MI Connected Future planning process, (see the stakeholder engagement section of this plan for more information) and provide key input that supports in the development of the strategy and implementation of the program.

External partners include organizations, and their related associations, that represent the following; community anchor institutions; Digital Equity Act-defined covered populations; state agencies; community organizations; internet service providers; local, county, and regional governments; business and economic development; philanthropy; utilities; Tribal nations; and permitting and similar entities. External partners exist and participate from all scales; national, state, regional, and local, but most are represented at the state level. These external partners provide input and feedback on program plans, design, and implementation throughout the BEAD performance period. See Appendix A for a full list of external partners.

Asset Inventory

This asset inventory is intended to capture both existing hard assets (e.g., towers, buildings, utility poles) and soft assets—or efforts (e.g., programs, activities, strategies, skills, technical assistance) that can be leveraged to close the digital divide in Michigan.

Additionally, MIHI developed a [Digital Inclusion Resource Map](#) in September 2022. The map was developed based on responses received to the Michigan Statewide Digital Inclusion survey developed by MIHI and distributed to key stakeholders and the public throughout the state. MIHI used several channels to engage stakeholders and encourage participation in the survey, including socializing it at community meetings as part of the MI Connected Future tour, Partnership Roundtables, and in the MIHI newsletter. By targeting stakeholders, such as non-profit organizations, for-profit organizations, government agencies, colleges, universities, trade schools, public libraries, and K-12 schools, the survey seeks to determine the current state of digital equity and inclusion programs and identify key organizations involved in these efforts. Based on these insights, the Digital Inclusion Resource Map is continuously updated, providing an ongoing and up-to-date inventory of digital inclusion assets in Michigan.

The following table identifies key hard and soft assets that contribute to broadband deployment, adoption, affordability, access, and digital equity. This inventory is not exhaustive and MIHI continues to identify assets that can contribute to the successful and efficient implementation of the BEAD Program.

Asset	Type	Category	Description
E-Rate Support[8]	Soft	Access	This $5M matching grant program, if passed, will provide improved connections to schools and libraries at much lower costs with better reliability and leverage additional federal E-Rate funds. Program will be implemented by the MI Dept. of Education.
Wi-Fi Hot Spot Map[9]	Soft	Access	During the COVID-19 Pandemic, the Michigan Public Service Commission created a map of known public Wi-Fi hot spots to support those without a home connection.
2-1-1 Assistance[10]	Soft	Adoption	Michigan 2-1-1- Information Assistance provides users with information on a variety of services, including the Affordable Connectivity Program.
ACP Eligible Households	Soft	Affordability	An estimated 1,685,725 households in Michigan are eligible for the ACP program. As of April 1, 2023, 604,108 households are enrolled in the program; approximately 35.8% of the estimated eligible households.
Utility Assistance Programs[11]	Soft	Affordability	The Michigan Public Service Commission maintains a database of utility assistance programs to support consumers. Information on ACP and Lifeline is also included.
Fiber Optics Certifications[12]	Soft	Deployment	Washtenaw Community College offers certification courses for fiber optic technicians, fiber specialists in testing and maintenance, and fiber specialist in splicing.

[8] https://www.michigan.gov/libraryofmichigan/libraries/admin/erate
[9] https://cngis.maps.arcgis.com/apps/webappviewer/index.html?id=0d69accbb5ff422a82eccc2c9101b69d
[10] https://mi211.org/
[11] https://www.michigan.gov/mpsc/consumer/get-help/utility-customers
[12] https://www.wccnet.edu/business/workforce-development/fiber-optics-1-campaign.php

Asset	Type	Category	Description
Michigan Geographic Framework[13]	Soft	Deployment	MI Dept. of Technology, Management, and Budget manages a variety of geospatial datasets, enterprise software licenses, aerial photography, and other remote sensing products that can be used for a variety of purposes.
Michigan Infrastructure Asset Audit	Soft	Deployment	During the summer of 2022, MIHI contractors traversed more than 65,000 miles of roads identifying and cataloging the location of infrastructure that can support at least 100/20 Mbps connectivity. The study area was defined as places where infrastructure is likely to terminate given the rurality of the area.
Michigan Public Safety Communications System[14]	Hard	Deployment	The MI Public Safety Communications System is a network of 206 towers located throughout the state that support public safety communications. These towers can also be used as colocation points for wireless broadband facilities.
Michigan State Education Network	Hard	Deployment	The State Education Network (SEN) is a fiber-optic network that provides fast, affordable, reliable, and secure broadband internet capacity to schools and public entities throughout Michigan. It is an entity external to the State of Michigan. The vision of the SEN is to connect 100% of Michigan's Intermediate School Districts (ISD), Local Education Agencies (LEA), and Public-School Academies (PSA).
Community Information Exchange (CIE)[15]	Soft	Digital Equity	CIE is a localized effort to create and sustain the technology and relationships required to support Social Determinants of Health (SDOH) needs of both individuals and communities. The program is coordinated by the MI Dept. of Health and Human Services.
Digital Inclusion Location Map[16]	Soft	Digital Equity	The MIHI Office maintains a database and map of digital inclusion programs throughout the state to aid residents in finding the services they need.
Michigan Poverty Taskforce[17]	Soft	Digital Equity	The Michigan Poverty Task Force, within the MI Dept. of Labor and Economic Opportunity, is committed to finding ways to strengthen, broaden, coordinate, and streamline existing state efforts to ensure that Michigan families have access to the support they need.
Office of Global Michigan[18]	Soft	Digital Equity	The mission of the Office of Global Michigan is to empower and engage the immigrant, refugee, and international community to make Michigan the home for opportunity. The office assists immigrant and refugee communities with connectivity needs.
Student Information System (SIS) Questionnaire	Soft	Digital Equity	The MI Dept. of Education has asked schools to collect digital equity data as part of their SIS questionnaire to start the year. While not mandatory, MDE hopes to grow this dataset to support digital inclusion efforts.

[13] https://www.michigan.gov/dtmb/services/maps
[14] https://www.michigan.gov/mpscs
[15] https://www.michigan.gov/mdhhs/inside-mdhhs/legislationpolicy/2022-2024-social-determinants-of-health-strategy/community-information-exchange-task-force
[16] https://www.michigan.gov/leo/bureaus-agencies/mihi/michigan-digital-inclusion-resources
[17] https://www.michigan.gov/leo/initiatives/poverty-task-force
[18] https://www.michigan.gov/ogm

Asset	Type	Category	Description
Michigan Reconnect[19]	Soft	Workforce	Michigan Reconnect provides free in-district tuition at a Michigan community college to earn an associate degree or Pell-eligible skill certificate. Participants can receive up to $1,500 towards tuition costs for eligible career training programs here in Michigan with the Short-Term Training Program.
Michigan Achievement Skills Scholarship[20]	Soft	Workforce	Students can choose to attend a career training program in Michigan through the Michigan Achievement Skills Scholarship. Students who graduate from high school in Michigan with a diploma or certificate of completion or achieved a high school equivalency certificate in 2023 or after will be eligible for up to $2,000 if they attend a career training program in Michigan, per year, up to two years.
Futures for Frontliners[21]	Soft	Workforce	State scholarship program for Michiganders without college degrees who worked in essential industries during the state COVID-19 shutdown in spring 2020 (April 1 - June 30). This scholarship provides these frontline workers with tuition-free access to local community college to pursue an associate degree or a skills certificate, either full-time or part-time while you work.

Table 6: Current Asset Inventory of Hard and Soft Assets

[19] https://www.michigan.gov/reconnect
[20] https://www.michigan.gov/mistudentaid/programs/michigan-achievement-scholarship/career-training
[21] https://www.michigan.gov/frontliners

Needs and Gaps Assessment

The purpose of this section is to identify the gaps between the current state and needs of broadband deployment and digital equity in Michigan. This section begins with data profiles for the state as a whole, followed by a similar regional analysis. A summary of the key deployment, adoption, affordability, access, and digital equity needs, and gaps follows the state and regional data profiles.

State and Regional Profiles

The MIHI Office has chosen to examine its needs and gaps regionally. The Michigan Department of Labor and Economic Opportunity (LEO), that houses the MIHI Office, defines ten, multi-county economic prosperity regions as a basis for analysis and implementation across programs. The map below provides the regional boundaries.

The profiles begin with that of Michigan as a whole, followed by a similar profile for each of the ten regions. The purpose of these profiles is to establish a baseline for understanding the unique digital equity and connectivity needs of the state and each region. Each profile contains a digital equity analysis that identifies the covered populations as defined by the Digital Equity Act, as well as the current state and needs for broadband availability, adoption, devices, and the priorities defined by each region during MIHI's MI Connected Future listening tour. The following describes each of the data points found in the profiles. If a metric is highlighted in a regional profile, the rate of that metric in the region is higher/lower than the state average, which may indicate a need for additional focus on this covered population or element of digital equity.

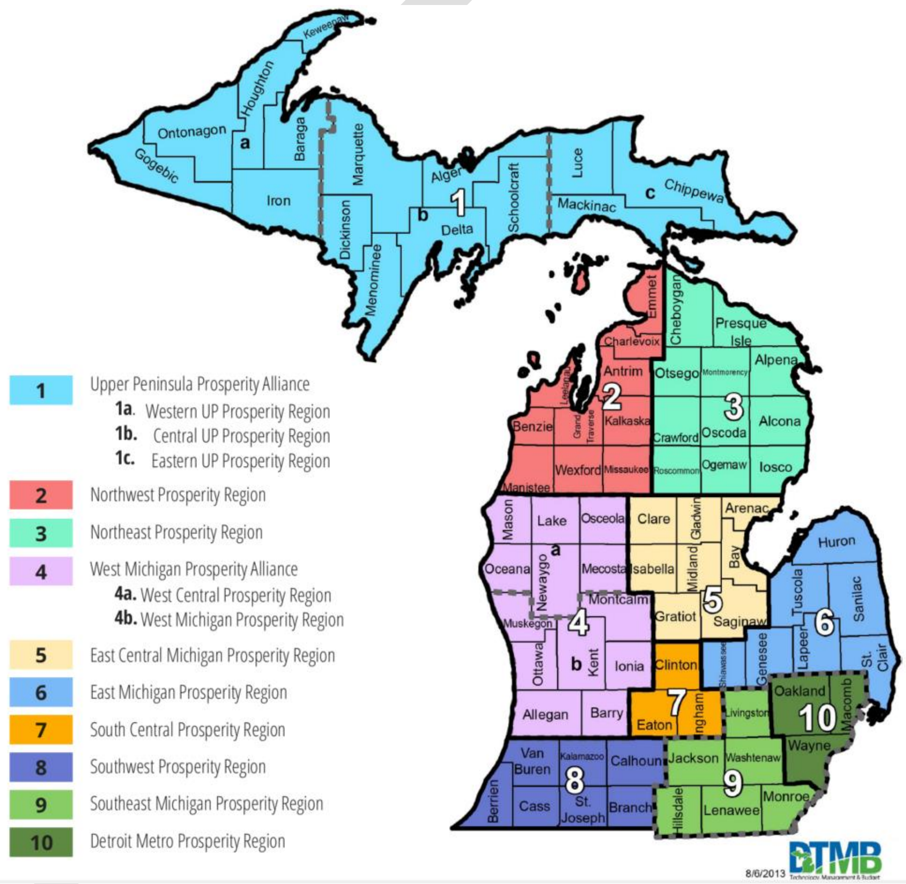


Figure 7: Map of the 10 Prosperity Regions of Michigan

Digital Equity Profile

The Digital Equity Profile identifies and enumerates the various Digital Equity Act 'covered' populations within each region. These metrics are critical for identifying the unique digital equity needs throughout the state that can drive future digital inclusion program implementation.

<u>Population:</u> The total population of the area from the American Community Survey 2021 5-Year Estimates.

<u>Rural:</u> The total number and percentage of the population residing in rural areas of the region as defined by the USDA 2013 Rural-Urban Continuum Code.

Age 60+: The total number and percentage of the population aged 60 years or more in the region from the American Community Survey 2021 5-Year Estimates.

Below Poverty: The total number and percentage of the population living below the federal poverty guideline in the region from the American Community Survey 2021 5-Year Estimates.

ALICE Population: The total number and percentage of the population defined as Asset Limited, Income Constrained, Employed (ALICE) in the region as defined by the United Way. Data is from 2021.

Non-White: The total number and percentage of the population identifying as a race other than white, not including those of Hispanic descent, in the region from the American Community Survey 2021 5-Year Estimates.

Hispanic: The total number and percentage of the population identifying as being of Hispanic descent in the region from the American Community Survey 2021 5-Year Estimates.

Foreign-Born: The total number and percentage of the population in each region born outside of the United States from the American Community Survey 2021 5-Year Estimates.

Limited English-Speaking: The total number and percentage of the population in each region that identify as being limited English speakers. This data was derived by identifying the number of households in each region identifying as such and multiplying it by the average household size for each region to determine the estimated population that are limited English speakers. Data is from the American Community Survey 2021 5-Year Estimates.

Veterans: The total number and percentage of the population in the region that indicate past military service from the American Community Survey 2021 5-Year Estimates..

Disabled: The total number and percentage of the population in the region that indicate that they have mental or physical disability from the American Community Survey 2021 5-Year Estimates.

Living in Correctional Facility: The total number and percentage of the population in the region that is living in a correctional facility. This data comes from the 2020 Decennial Census. The data does not differentiate between those in federal or state correctional facilities.

Broadband Availability

This section identifies the total number of Broadband Serviceable Locations (BSL) identified on the BSL Fabric developed and maintained by the Federal Communications Commission. The number and percentage of unserved (locations without 25/3 Mbps service available) and underserved (locations without 100/20 Mbps service available) BSLs are included for each region. This data comes from the June 15th, 2023 data published by the FCC that represents availability reported by internet service providers as of December 31, 2022. These metrics are critical for understanding the service availability needs and gaps within each region.

Broadband Adoption

This section identifies the various scales of home broadband adoption/subscription in the region. This data does not represent the availability of these connection types, but the reported subscription type for households. These metrics are critical for understanding adoption or subscription needs and gaps within each region which can indicate barriers to broadband affordability and other related issues.

Households: The total number of households in the region from the American Community Survey 2021 5-Year Estimates.

Broadband Connection: The total number and percentage of households in the region reporting that they have a broadband connection. Types of subscriptions may include fiber, cable, DSL, or otherwise. The speed of the connection is unknown. These households may also have a cellular internet subscription in addition to their broadband connection. Data is from the American Community Survey 2021 5-Year Estimates.

Dial-Up or Satellite: The total number and percentage of households in the region reporting that they have a dial-up or satellite internet connection, but not a broadband connection. The speed of the connection is unknown. These households may also have a cellular internet subscription but do not have a broadband subscription. Data is from the American Community Survey 2021 5-Year Estimates.

Cellular Data Plan Only: The total number and percentage of households in the region reporting that they have only a cellular data plan only; no other type of internet subscription is present. The speed of the connection is unknown. Data is from the American Community Survey 2021 5-Year Estimates.

No Internet Subscription: The total number and percentage of households in the region reporting that they have no internet subscription whatsoever in their home. The reason for not having an internet subscription is unknown. Data is from the American Community Survey 2021 5-Year Estimates.

ACP Claimed Households: The total number and percentage of total households in the region claimed by an internet service provider that is participating in the FCC's Affordable Connectivity Program (ACP). Households must meet eligibility requirements to participate in ACP. The percentage is of the total households, however, not the total eligible households in the region. Data is from the Universal Service Administrative Company (USAC) and is current as of February 2023.

Devices

This section focuses on the reported types of devices in the home. These metrics are critical for understanding device access needs and gaps within each region. Device access, or lack thereof, is a known barrier to digital equity.

Households: The total number of households in the region from the American Community Survey 2021 5-Year Estimates.

Multiple Devices: The total number and percentage of households in the region that indicate they have one or more computing devices in the home. Those with only a smart phone are not included in this total. Data is from the American Community Survey 2021 5-Year Estimates.

Smart Phone Only: The total number and percentage of households in the region that indicate they have only a smart phone to connect to the internet with no other devices present, from the American Community Survey 2021 5-Year Estimates.

No Device: The total number and percentage of households in the region that indicate they have no computing device of any kind, from the American Community Survey 2021 5-Year Estimates.

ACP Households Claiming Device: The total number of households in the region that have claimed a device discount from the Affordable Connectivity Program (ACP). The percentage shown is the percent of ACP households claiming a device compared to the total number of ACP households claimed in the region, not the total number of households in the region. Data is from the Universal Service Administrative Company (USAC) and is current as of February 2023.

Digital Equity Priorities

This data is derived from the MI Connected Future statewide community listening tour MIHI conducted in early 2023. Community meetings were held in each region and participants were asked to prioritize the importance of the four primary barriers to digital equity; 1) Availability; 2) Affordability; 3) Digital Literacy/Skills; and 4) Devices. Participants were asked to rank these topics in order of importance through a dot-sticker exercise. Votes were weighted according to their importance and the results averaged to determine the overall importance of each topic on a scale of one to four with four being the most important and one being the least important. This data helps identify the most critical issues for those living in each region of the state.

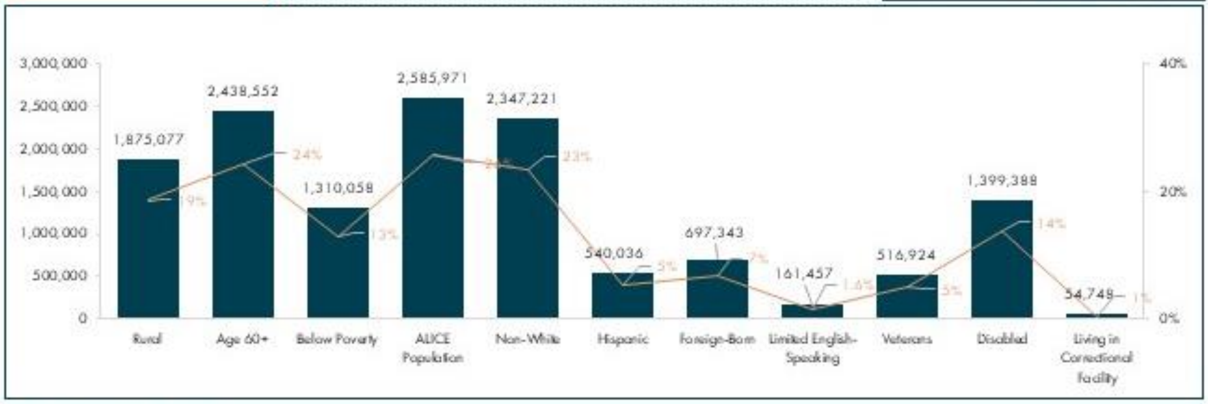
State of Michigan

Includes all the 83 counties of the State of Michigan. Michigan has an ever-changing tapestry of residents that evokes an evolving approach to addressing the digital equity needs of the state.

Digital Equity Profile

10,062,512
Population

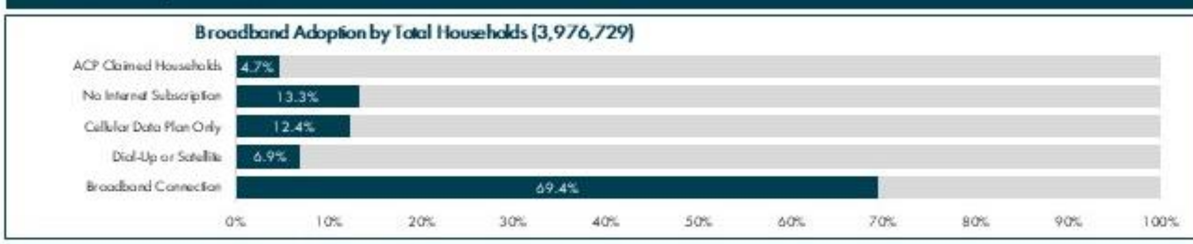
- Nearly one-quarter of the state's residents are aged 60 or more, and nearly one-quarter are non-white.
- Additionally, while 13% of the population lives at or below the federal poverty line, approximately one-quarter of the state's residents are part of the asset limited, income constrained, employed (ALICE) population.
- These characteristics, as well as those of the other covered populations outlined in the Digital Equity Act, suggest a set of diverse digital inclusion needs that span across the state.

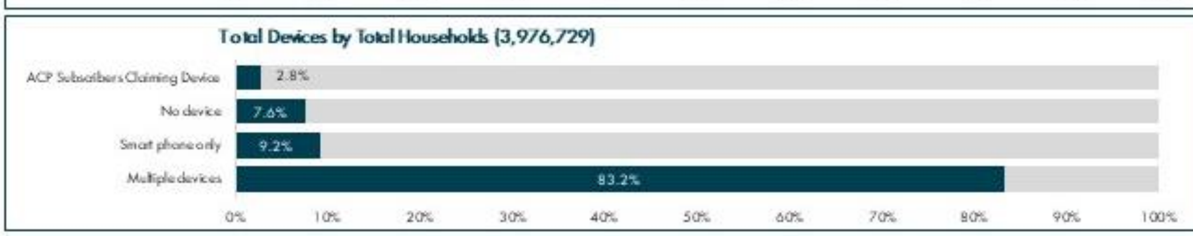


Broadband Availability

4,027,591
Total Broadband Serviceable Locations

Broadband Adoption and Devices





Digital Equity Priorities

Digital Equity Priorities	Importance Rank
Availability	3.51
Affordability	2.95
Digital Literacy/Skills	1.90
Devices	1.59

- According to the latest FCC data, Michigan has nearly 500,000 homes and businesses that are either unserved or underserved by high-speed internet infrastructure. This is a higher proportion of un- and underserved locations than is found in other states with comparable population sizes, as evidenced by the fact that Michigan received the fourth-largest allocation of BEAD funding despite having the tenth-largest population.

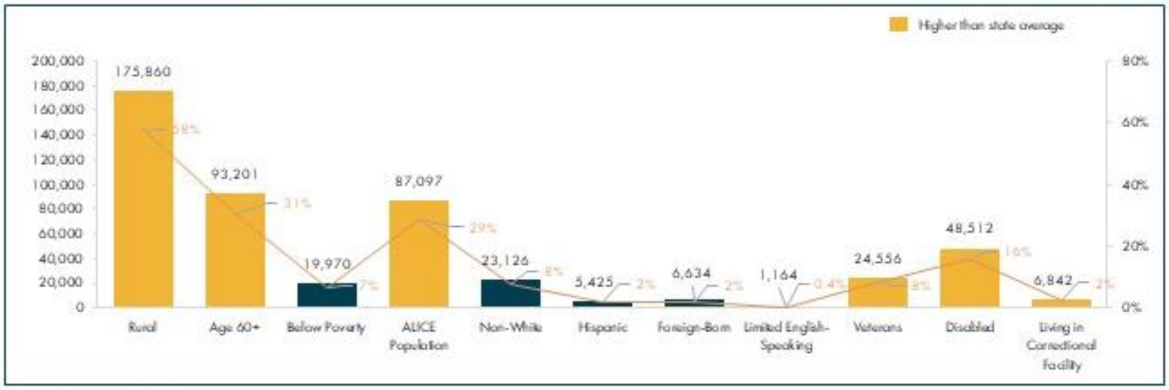
Prosperity Region One: Upper Peninsula

Includes the counties of: Alger, Baraga, Chippewa, Delta, Dickinson, Gogebic, Houghton, Iron, Keweenaw, Luce, Mackinac, Marquette, Menominee, Ontonagon, and Schoolcraft and represents the entirety of Michigan's Upper Peninsula.

Digital Equity Profile

303,102
Population

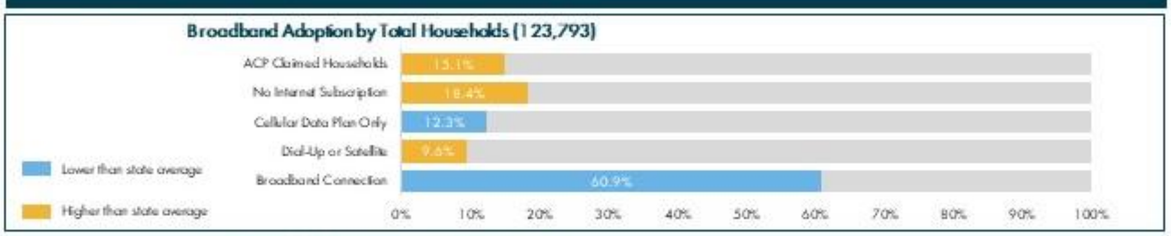
The region has a significant rural population, as well as an older and less affluent one compared to the state, (the region has a lower rate of those at the federal poverty line, but a higher ALICE population). It also has a higher concentration of veterans and those with disabilities, as well as those living in correctional facilities.

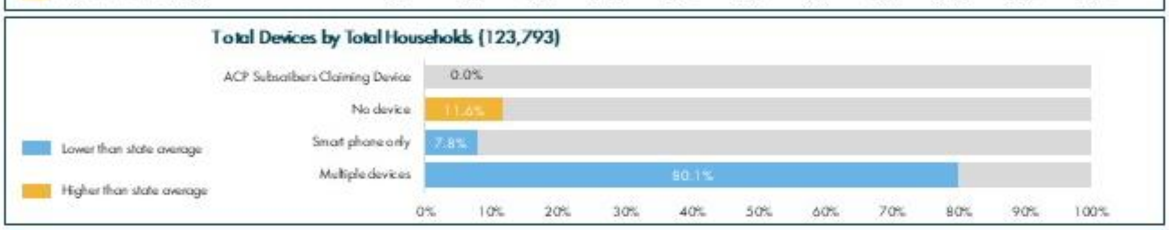


Broadband Availability

180,746
Total Broadband Serviceable Locations

Broadband Adoption and Devices





Digital Equity Priorities

Digital Equity Priorities	Importance Rank
Availability	3.69
Affordability	3.07
Digital Literacy/Skills	1.69
Devices	1.63

Higher than state average

- As expected, a more rural population equates to more un/underserved locations and lower rates of home broadband adoption and higher reliance on other methods of connectivity.
- These data points are reflected in the region's high prioritization of availability and affordability during the MIHI listening tour.

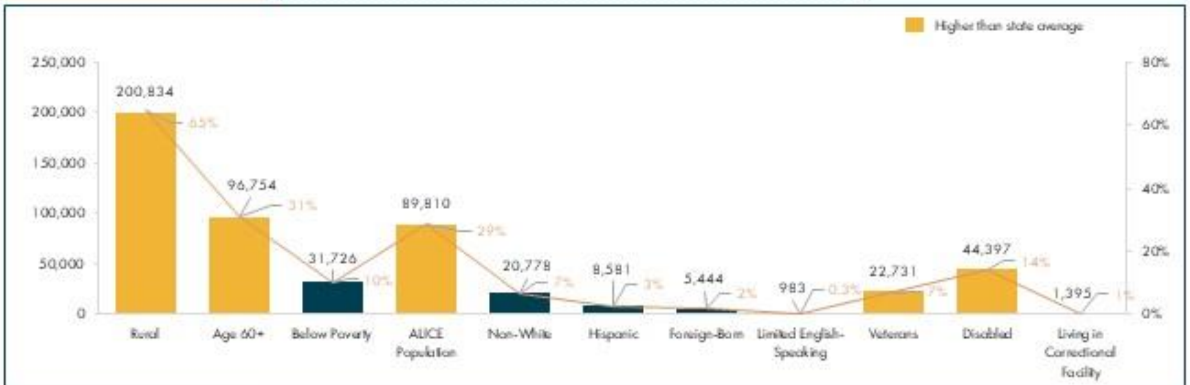
Prosperity Region Two: Northwest

Includes the counties of: Antrim, Benzie, Charlevoix, Emmet, Grand Traverse, Kalkaska, Leelanau, Manistee, Missaukee and Wexford.

Digital Equity Profile

309,563
Population

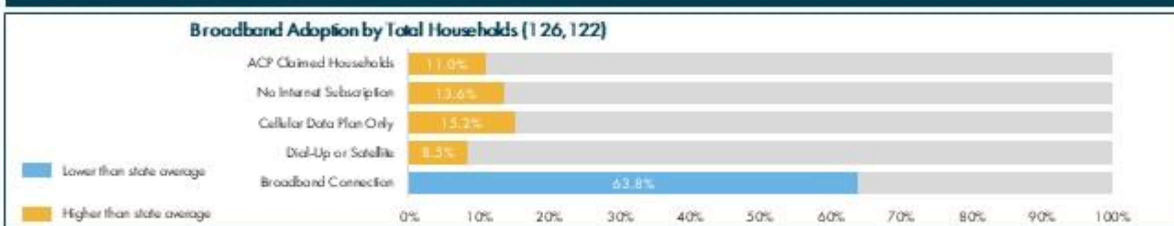
The region encompasses the northwest corner of Michigan's Lower Peninsula, including the cities of Traverse City and Petoskey. Like Region One, Region Two has a high concentration of rural residents, those over 60, ALICE population, Veterans, and those with disabilities.

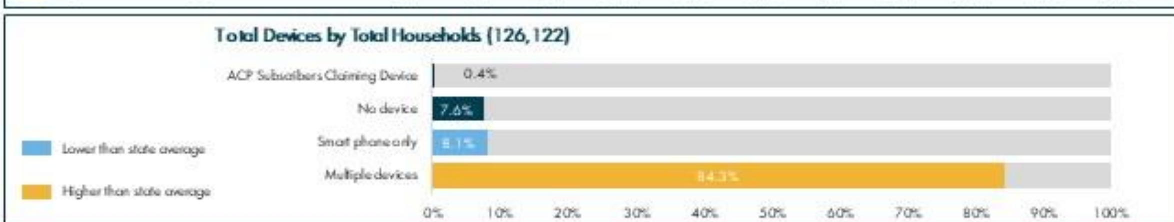


Broadband Availability

183,208
Total Broadband Serviceable Locations

Broadband Adoption and Devices





Digital Equity Priorities

Digital Equity Priorities	Importance Rank
Availability	3.66
Affordability	2.92
Digital Literacy/Skills	1.90
Devices	1.48

Higher than state average

- Given the high proportion of unserved and underserved households, a lower home broadband adoption rate is expected coupled with higher rates of other forms of connectivity.
- Region Two indicated that availability was their highest priority while affordability, digital literacy/skills, and devices fell below the state average priority.

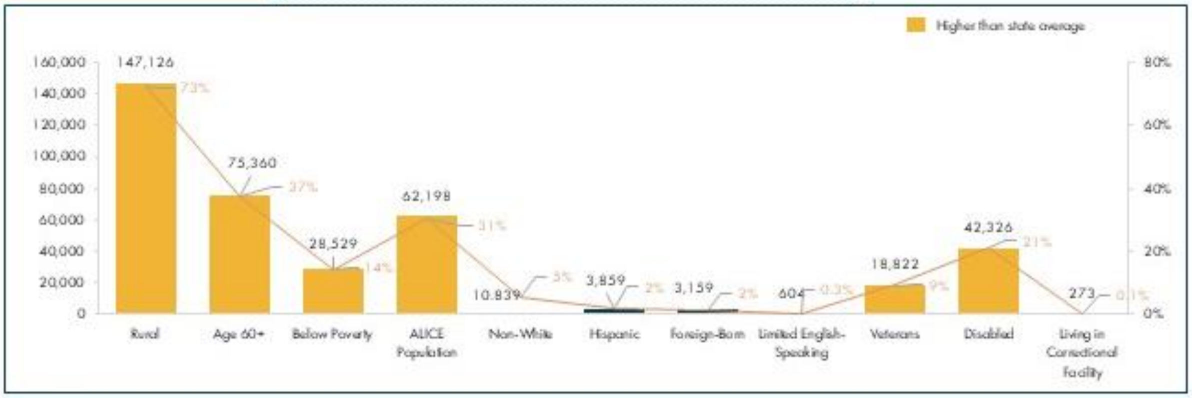
Prosperity Region Three: Northeast

Includes the counties of: Alcona, Alpena, Cheboygan, Crawford, Iosco, Montmorency, Ogemaw, Oscoda, Otsego, Presque Isle, and Roscommon.

Digital Equity Profile

202,634
Population

The region is in the northeastern part of Michigan's Lower Peninsula and includes the cities of Alpena and Rogers City. Region Three has a high concentration of rural older, and less affluent Michiganders than the state as a whole, and a higher rate of veterans and those with disabilities than most other regions.



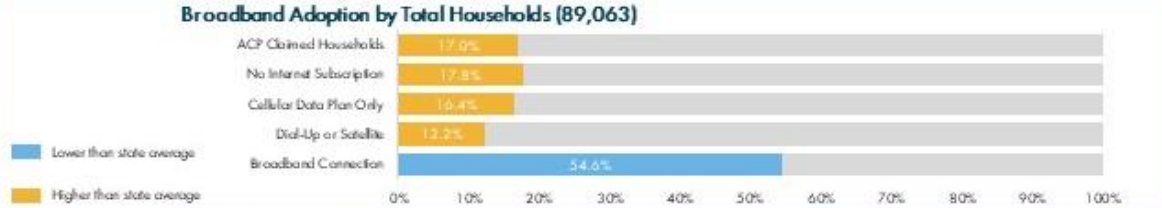
Broadband Availability

163,801
Total Broadband Serviceable Locations

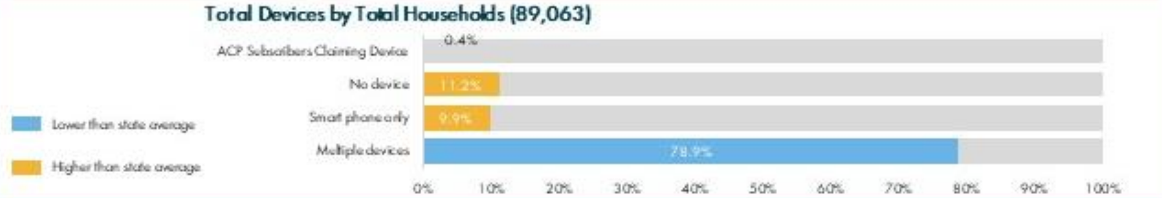
Broadband Serviceable Location Availability

Broadband Adoption and Devices

Broadband Adoption by Total Households (89,063)



Total Devices by Total Households (89,063)



Digital Equity Priorities

Digital Equity Priorities	Importance Rank
Availability	3.72
Affordability	2.94
Digital Literacy/Skills	1.70
Devices	1.42

Higher than state average

- The low rate of household broadband adoption is reflective of the low rate of broadband availability. Device ownership is also less prevalent in Region Two.
- While a priority for devices was not reflective in their region's priorities, there is a strong desire and priority for improving availability.

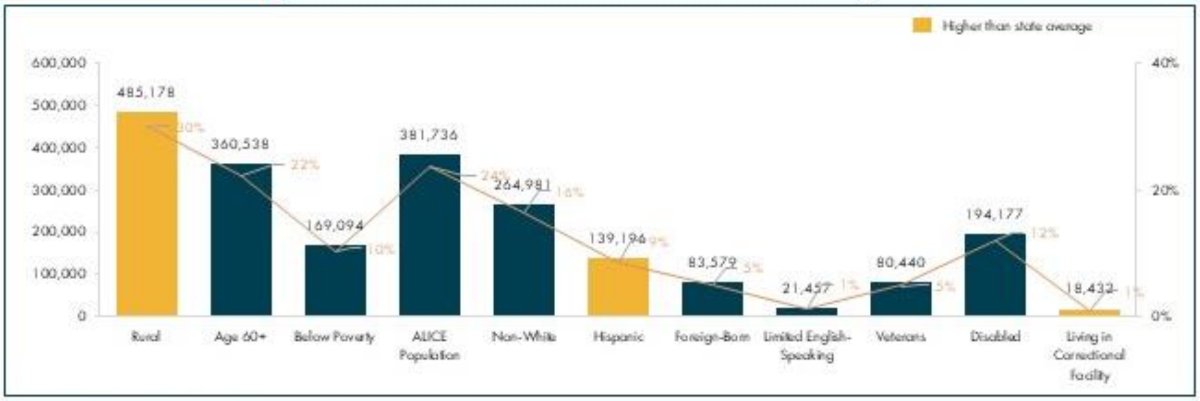
Prosperity Region Four: West

Includes the counties of: Allegan, Barry, Kent, Ionia, Lake, Mason, Mecosta, Montcalm, Muskegon, Newaygo, Oceana, Osceola, and Ottawa.

Digital Equity Profile

1,619,257
Population

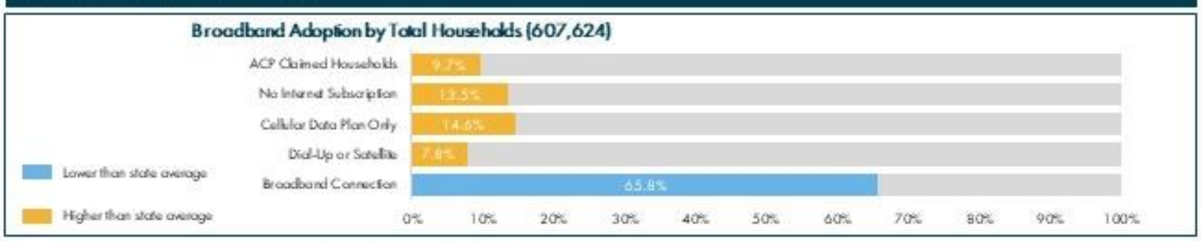
The region is in the middle and western areas of the Lower Peninsula bordering Lake Michigan and includes the Grand Rapids metropolitan area. While the region has large rural areas, the majority of the population residents in the Grand Rapids area. The region has a higher proportion of Hispanic residents than the state as a whole, as well as those living in correctional facilities.

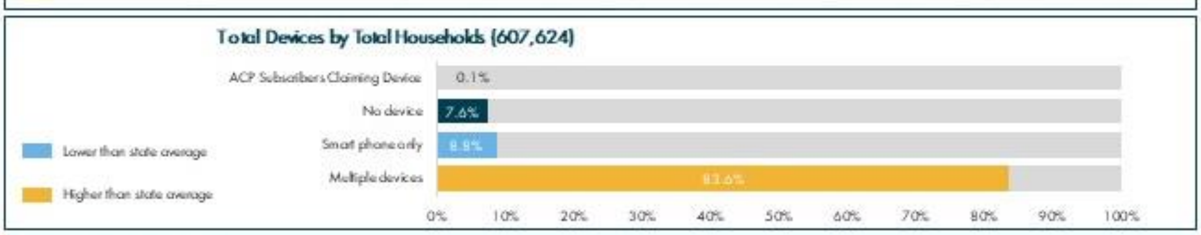


Broadband Availability

619,080
Total Broadband Serviceable Locations

Broadband Adoption and Devices





Digital Equity Priorities

Digital Equity Priorities	Importance Rank
Availability	3.53
Affordability	2.75
Digital Literacy/Skills	1.64
Devices	1.73

Higher than state average

- Home broadband adoption is lower than the state average, but higher than in some of the more northernly regions likely due to the higher rates of infrastructure availability.
- This is also reflected in the region's priority for availability (higher than the state average but lower than other, more rural regions), and higher priority for devices.

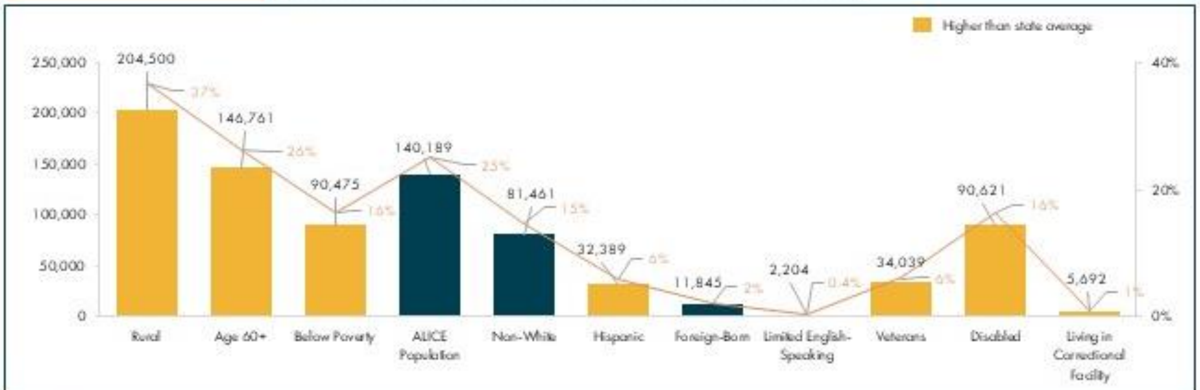
Prosperity Region Five: East Central

Includes the counties of: Arenac, Bay, Clare, Gladwin, Gratiot, Isabella, Midland, and Saginaw, and is located in the middle of Michigan's Lower Peninsula.

Digital Equity Profile

556,618
Population

The region is more rural than the state as a whole and has a higher concentration of aging residents. While the ALICE population is similar to the state, the region has a higher proportion of those living at or below the federal poverty line. The region also has slightly more veterans and disabled individuals than the state.



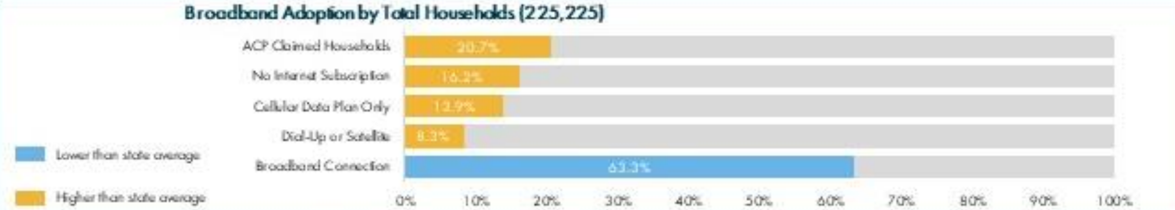
Broadband Availability

255,046
Total Broadband Serviceable Locations

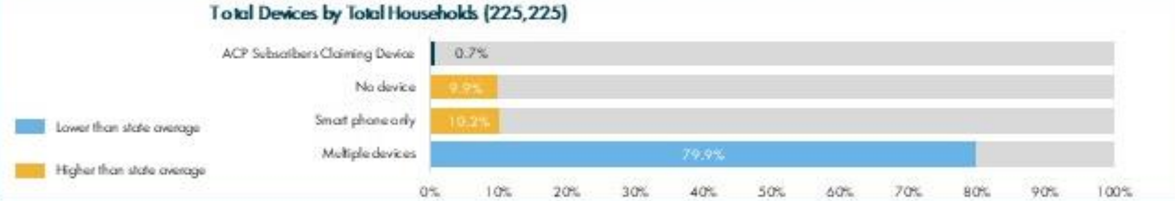
Broadband Serviceable Location Availability

Broadband Adoption and Devices

Broadband Adoption by Total Households (225,225)



Total Devices by Total Households (225,225)



Digital Equity Priorities

Digital Equity Priorities	Importance Rank
Availability	3.16
Affordability	3.17
Digital Literacy/Skills	1.96
Devices	1.71

Higher than state average

- While region has areas lacking availability, home broadband adoption is only rather less than state average.
- Device ownership is less than state average, and region has a higher proportion of those relying on smart phones or without a device altogether.
- These data points are reflected in region's prioritization of affordability, digital literacy/skills, and devices at higher rate than state.

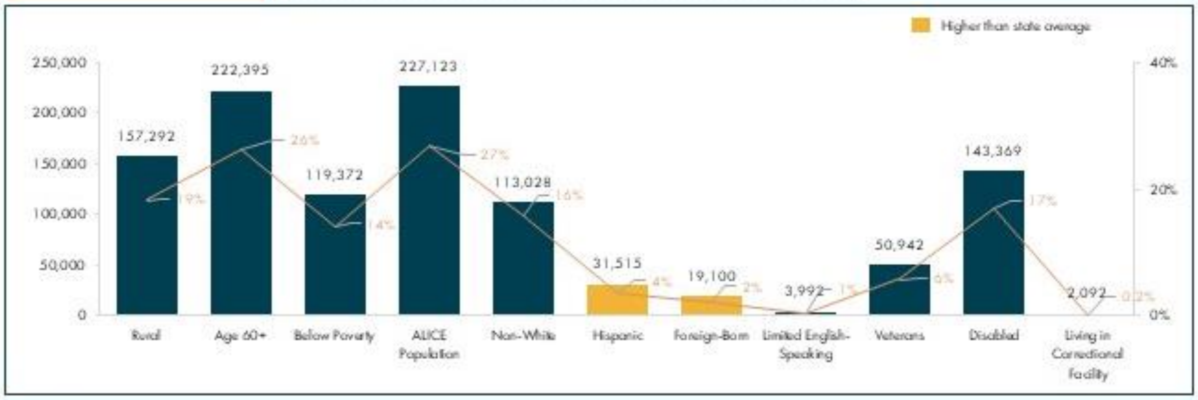
Prosperity Region Six: East Michigan

Includes the counties of: Genesee, Huron, Lapeer, Sanilac, Shiawassee, St. Clair, and Tuscola.

Digital Equity Profile

848,973
Population

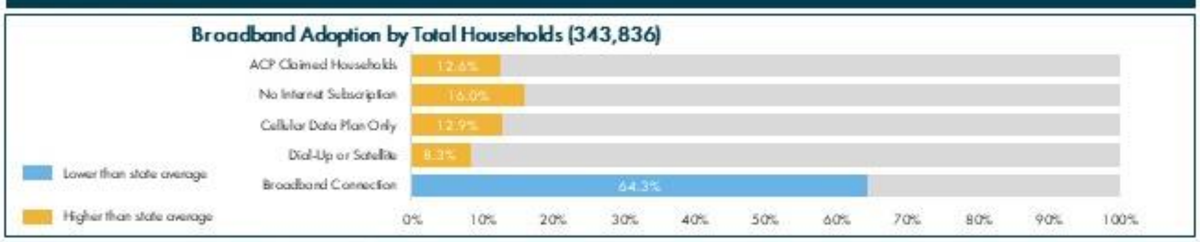
The region is located in the eastern part of Michigan's Lower Peninsula, often referred to as Michigan's "Thumb," and includes the Flint metro area. The region has a smaller rural population than more northernly regions but has a higher proportion of aging individuals and those in poverty and defined as ALICE.

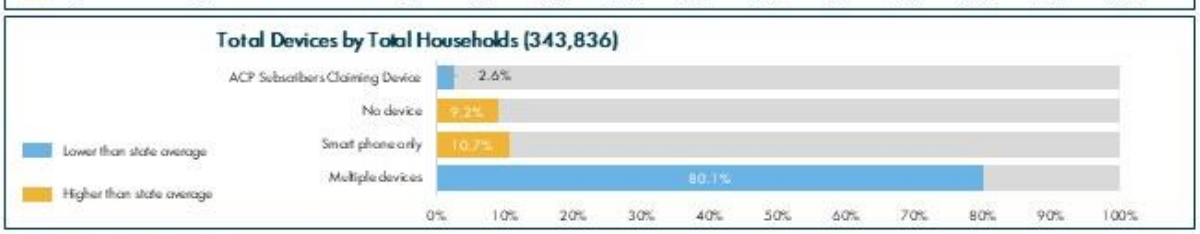


Broadband Availability

384,174
Total Broadband Serviceable Locations

Broadband Adoption and Devices





Digital Equity Priorities

Digital Equity Priorities	Importance Rank
Availability	3.64
Affordability	2.89
Digital Literacy/Skills	1.93
Devices	1.54

Higher than state average

- Home broadband adoption is slightly lower than the state average and rates of connecting with dial-up, satellite, and cellular data plans are also slightly elevated. The rate of homes with multiple devices is slightly less than the state average as well with elevated rates of smart phone only and no device households.
- The region prioritized availability and digital literacy/skills higher than the state average.

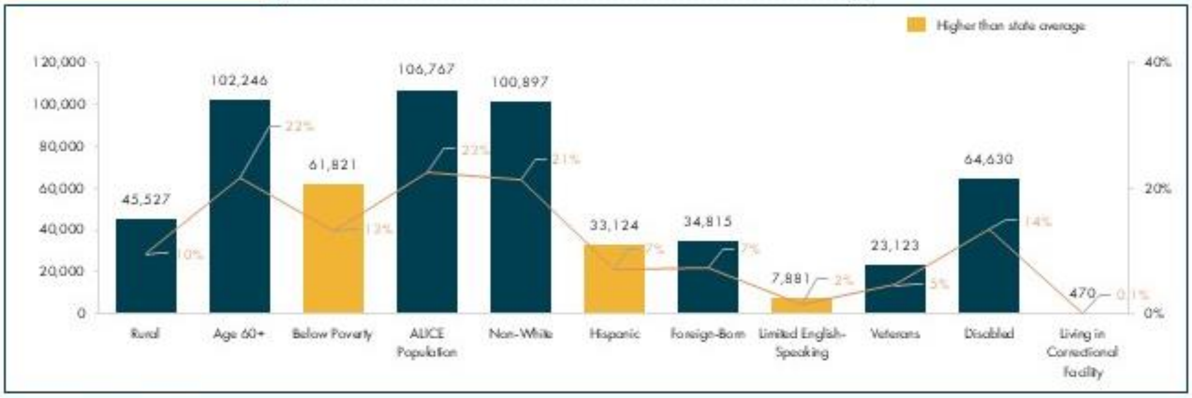
Prosperity Region Seven: South Central

Includes the counties of: Clinton, Eaton, and Ingham and is in the southern part of Michigan's Lower Peninsula and includes the Lansing metro area.

Digital Equity Profile

473,527
Population

The region has a higher rate of poverty than the state average, as well as a higher proportion of Hispanic and limited-English speaking residents.



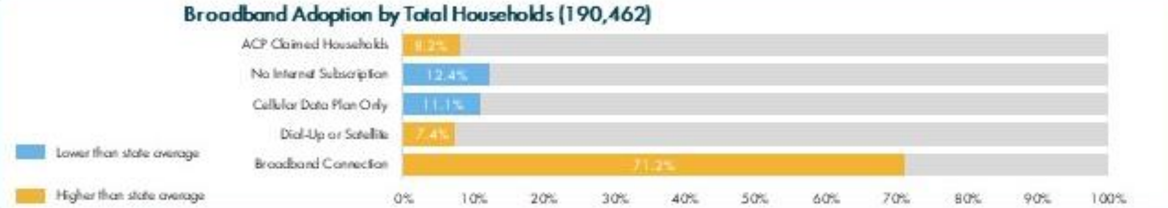
Broadband Availability

165,439
Total Broadband Serviceable Locations

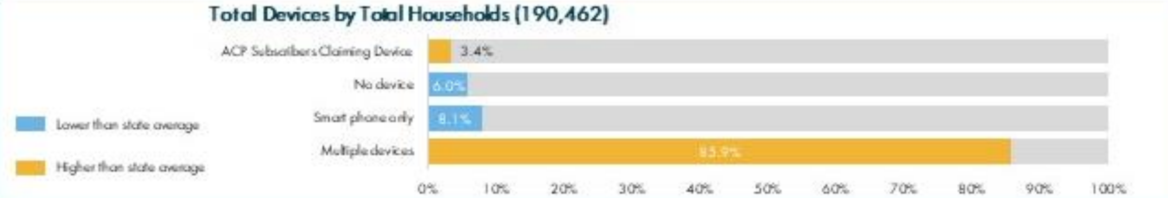
Broadband Serviceable Location Availability

Broadband Adoption and Devices

Broadband Adoption by Total Households (190,462)



Total Devices by Total Households (190,462)



Digital Equity Priorities

Digital Equity Priorities	Importance Rank
Availability	3.52
Affordability	2.86
Digital Literacy/Skills	1.83
Devices	1.60

Higher than state average

- Home broadband adoption is higher than the state average, but the area has a higher reliance on dial-up and satellite services, likely in the more agricultural rural areas.
- The Regional priorities are slightly elevated for availability and devices, but overall, closely match the state average priorities.

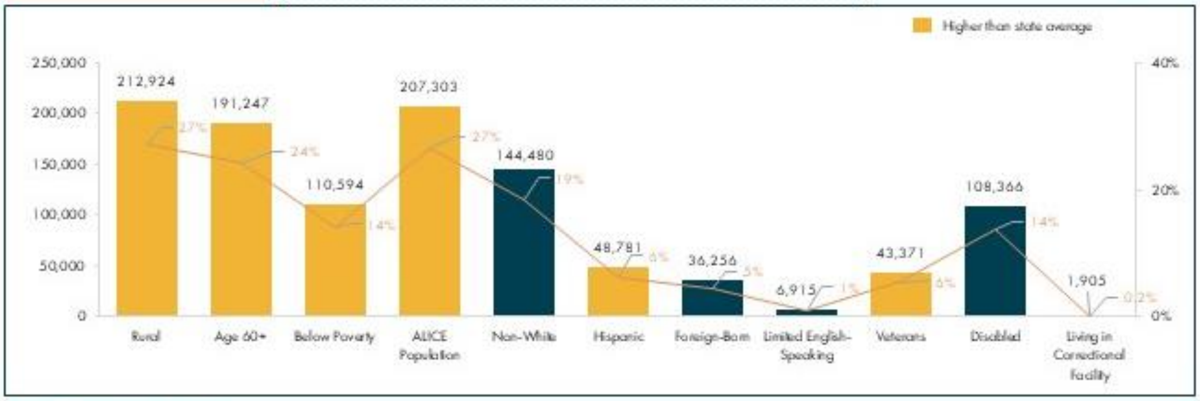
Prosperity Region Eight: Southwest

Includes the counties of: Berrien, Branch, Calhoun, Cass, Kalamazoo, Van Buren, and St. Joseph and is in the southwestern part of Michigan's Lower Peninsula.

Digital Equity Profile

782,437
Population

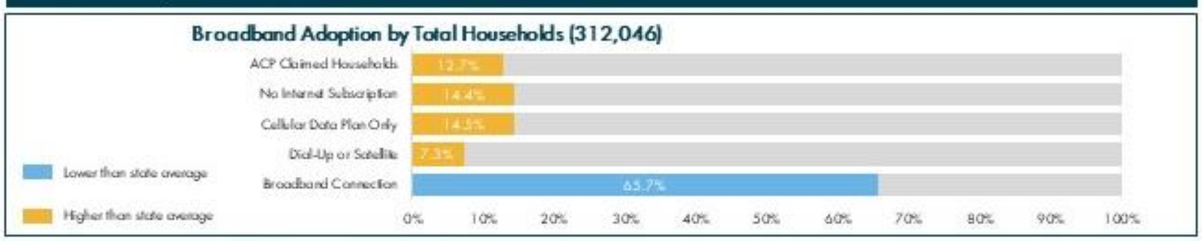
Region has scattered aging, rural population that's less affluent than state. The region also has high proportion of Hispanic residents and veterans.

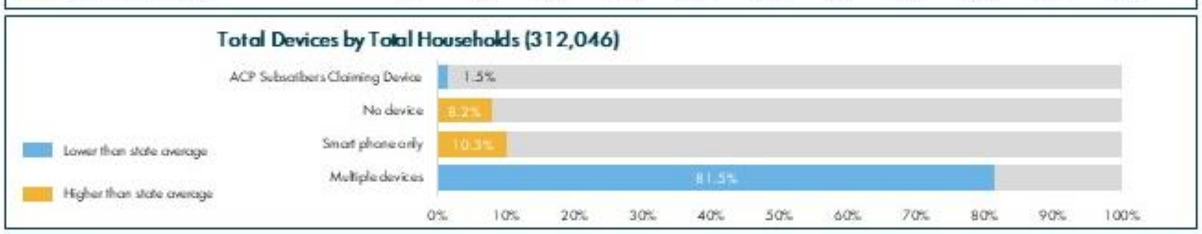


Broadband Availability

332,518
Total Broadband Serviceable Locations

Broadband Adoption and Devices





Digital Equity Priorities

Digital Equity Priorities	Importance Rank
Availability	3.45
Affordability	2.95
Digital Literacy/Skills	1.94
Devices	1.55

Higher than state average

- Home broadband adoption is lower than state average and many households rely on dial-up, satellite, or cellular data plans to connect, or simply don't have an internet subscription. Device ownership is also slightly less than state average.
- Regional priorities elevate digital literacy/skills over the state average, but priorities among the four digital equity priorities close match those of the state as a whole.

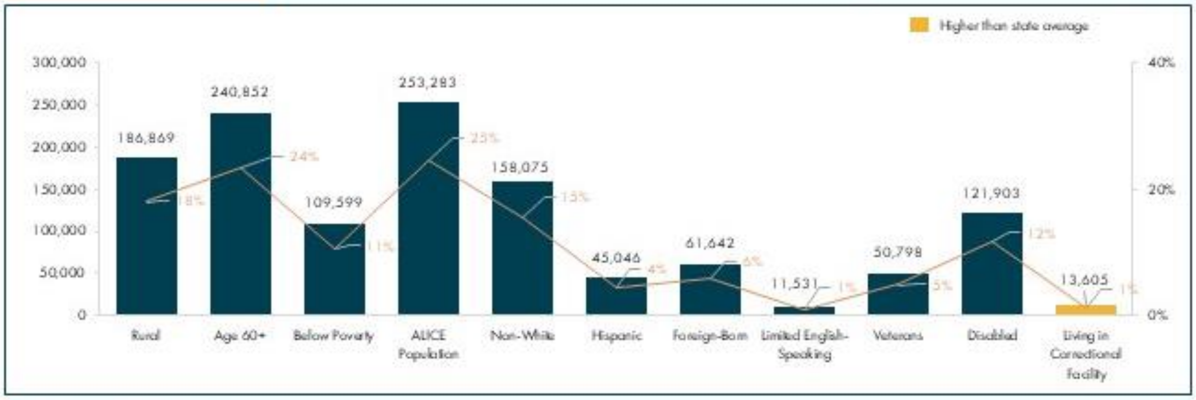
Prosperity Region Nine: Southeast Michigan

Includes the counties of: Hillsdale, Jackson, Lenawee, Livingston, Monroe, and Washtenaw and is located in the southeastern corner of Michigan's Lower Peninsula.

Digital Equity Profile

1,025,514
Population

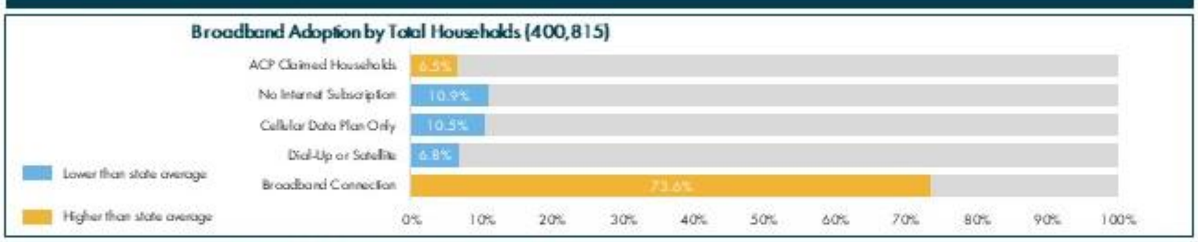
Much of the region is representative of the statewide proportions of covered population, with the exception of those living in correctional facilities.

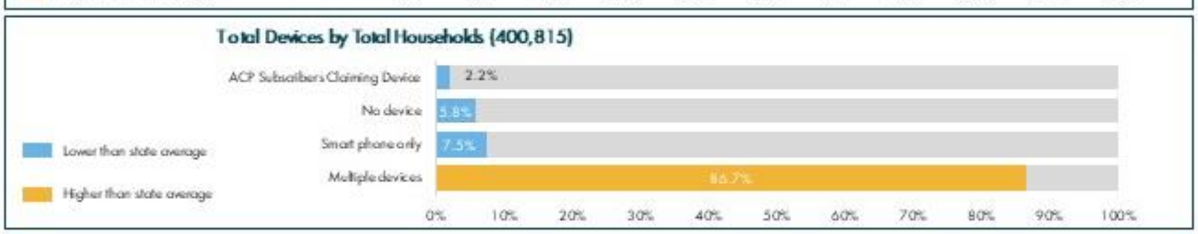


Broadband Availability

383,024
Total Broadband Serviceable Locations

Broadband Adoption and Devices





Digital Equity Priorities

Digital Equity Priorities	Importance Rank
Availability	3.65
Affordability	2.99
Digital Literacy/Skills	1.88
Devices	1.52

Higher than state average

While the region has higher rates of home broadband adoption than the state and other regions, availability and affordability have been identified as regional priorities.

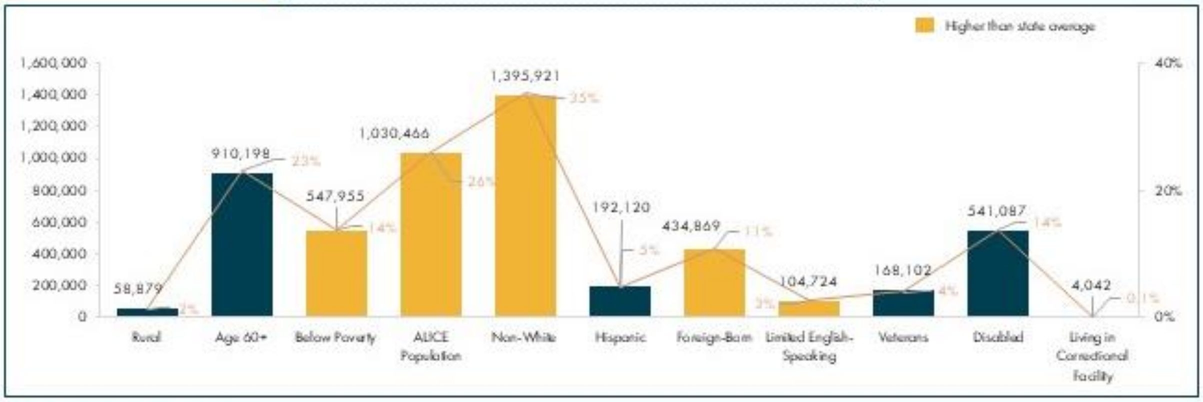
Prosperity Region Ten: Detroit Metro

Includes the counties of: Macomb, Oakland, and Wayne and is located in the southeastern part of Michigan and is home to the state's largest city, Detroit, and its metropolitan area.

Digital Equity Profile

3,940,887
Population

The region has a higher proportion of those in poverty and ALICE. The region is also more demographically diverse with higher proportions of non-white, foreign-born, and limited English-speaking residents than the state as a whole.



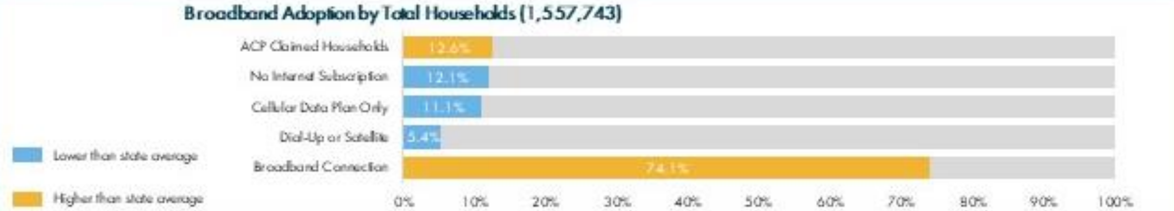
Broadband Availability

1,359,185
Total Broadband Serviceable Locations

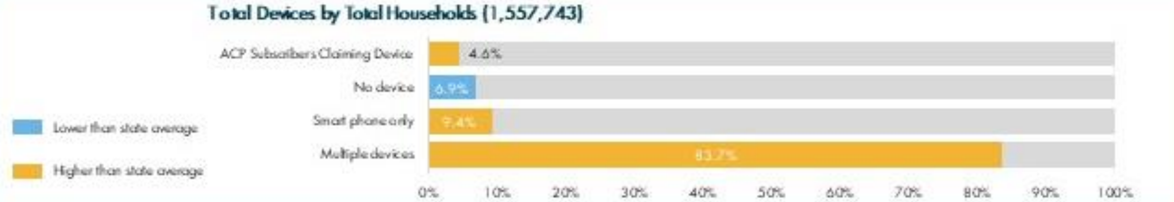
Broadband Serviceable Location Availability

Broadband Adoption and Devices

Broadband Adoption by Total Households (1,557,743)



Total Devices by Total Households (1,557,743)



Digital Equity Priorities

Digital Equity Priorities	Importance Rank
Availability	2.98
Affordability	2.98
Digital Literacy/Skills	2.38
Devices	1.68

Higher than state average

- Home broadband adoption is higher than the state and other regions as is device ownership.
- Region Ten did not prioritize availability as high as other regions, but affordability, digital literacy/skills, and devices are more a priority for this region than the state as a whole.

Regional Profile Summary

Michigan has an ever-changing tapestry of residents that evokes an evolving approach to addressing the digital equity needs of the state. Notably, among the covered populations outlined in the Digital Equity Act, nearly one-quarter of the state's residents are aged 60 or more, and nearly one-quarter are non-white. Additionally, while 13% of the population lives at or below the federal poverty line, approximately one-quarter of the state's residents are ALICE. These characteristics, as well as those of other covered populations, suggest a set of diverse digital inclusion needs that span across the state.

According to the latest FCC data, Michigan has nearly 500,000 homes and businesses that are either unserved or underserved by high-speed internet infrastructure. This is a higher proportion of un/underserved than other large states as evidence by Michigan's BEAD allocation. While having the tenth highest population in the country, Michigan's BEAD allocation of funds was fourth largest.

As of the June 15, 2023 FCC National Broadband Map, nearly one-half million locations in Michigan are identified as unserved or underserved. The geographic distribution of un/underserved locations in the state follows expected patterns and can be found in the rural areas of the northern Lower Peninsula and Upper Peninsula. However, the widespread agricultural and small-town communities of southern Michigan are also prone to higher levels of un/underserved locations as well.

While broadband availability is one matter, adoption of a connection in the home is another. Across the state, approximately 70% of households subscribe to a broadband connection. The remainder either do not have an internet subscription at all (13.3%) or seek out alternative methods of connectivity such as dial-up or satellite (6.9%) or cellular hot-spot (12.4%).

When it comes to internet-connected devices in the home, 83.2% report having multiple devices to support their connectivity. Nearly 10% of households, however, report only having a single smart phone to support their home's connectivity, and another 7.6% report having no device at all.

In terms of priorities, participants in MIHI's MI Connected Future listening tour prioritized service availability far above other issues. This is anticipated given the pervasiveness of the un/underserved locations across the state. Affordability of service was the second priority among Michiganders, followed then by digital literacy/skills and devices. It is clear that ensuring the universal availability of high-speed internet is a priority for Michiganders, and that once those connections are available, that they are affordable to all. These state level priorities vary by region thus the need for prioritizing different digital inclusion interventions and foci across the state.

The availability of high-speed internet service is a clear priority for the state and its regions. Ensuring access to service for all is a goal shared by Michiganders, the MIHI Office, and the BEAD Program. Available connections, however, need to be affordable for those they serve; a clear secondary priority among listening tour participants. While digital literacy/skills and devices received a lower relative priority ranking compared to availability and affordability, these aspects of digital equity can only come once affordable, reliable, high-speed networks are available to all. MIHI anticipates seeing priorities shift to digital literacy/skills and devices once the BEAD program begins to deliver affordable connectivity to all.

Michigan's regions vary greatly in their digital equity and inclusion needs and the populations among which digital equity efforts need to be focused. Participant feedback on priorities gathered during the MI Connected Future listening tour further validates the needs and gaps that exist across the state. The data on covered populations and identified priorities will guide the implementation of this plan as well as the statewide Digital Equity Plan.

Workforce

The MIHI Office acknowledges the importance of engaging the existing broadband workforce in Michigan as well as empowering the growth of the workforce to meet the needs of the BEAD Program. We have identified key areas of need and developed plans to fulfil them.

The below chart highlights identification and plans to address known or potential obstacles and gaps related to workforce:

Identification	Plan(s)
Michigan is facing a projected worker shortage in 12 NTIA identified occupation groups. The most significant occupation groups impacted by projected shortfall are "laborers and material movers," "trenchers," and "inspectors" which are facing a 11.9%, 10.4%, and 9.8% shortfall respectively	MIHI is actively partnering with the workforce development division of LEO to creatively solve these shortfall projections. Upcoming workforce strategies highlight the importance of diversity, equity, and inclusion to expand the labor pool to those not historically represented in the construction industry.
Criminal history as barrier to employment	Michigan launched the "Clean Slate" Pilot Program to support justice involved individuals to expunge their records and obtain meaningful employment. Clean Slate is run through Michigan Works! Associations and expunges certain infractions from an individual's record including minor traffic infractions, misdemeanor marijuana possession/use, or if a person has not received additional convictions during certain time frames (dependent on infraction class and number of infractions).

Table 7: Michigan Broadband Workforce Obstacles, Gaps, and Plans for Mitigation

Workforce gaps are top of mind for Michigan policy makers and agencies, especially as Michigan is entering the time for unprecedented broadband infrastructure deployment. MIHI is leveraging existing workforce development structures within the state given the vast network stewarded by our Workforce Development division. Partners in this space are eager to engage with MIHI to support workforce growth in their respective capacities.

MIHI partners with LEO Employment and Training to support relationship building among the Michigan Community College Association (MCCA), the Michigan Association of Intermediate School Administrators (MAISA), and Michigan Occupational Dean's Advisory Council (MODAC). Additionally, LEO houses the Michigan office of Registered Apprenticeships which provides supportive services and funding for employers of apprentices. The GoingPRO Talent fund supports employers in reskilling new workers and ensures a pathway to credentialling as part of the involvement in the program. GoingPRO is housed in the WD division.

Some other programs include the Michigan Youth Apprenticeship Readiness Network (MiYARN) which aims to expand youth registered apprenticeships by partnering with regional entities, the Michigan Learning and Education Advancement Program (MiLEAP) which supports in the transition from education and training programs to high-wage jobs. MiLEAP focuses on underrepresented populations, particularly that of economically distressed rural and urban areas.

Outlined below are relevant plans, strategies, and programs LEO and other State of Michigan Departments have in place. This list is not exhaustive in nature.

Agency	Strategy/Plan/Program
Michigan Economic Development Corporation (MEDC)	$34 million talent attraction and retention strategy targeting student, job seekers and industry professionals in key growth areas (i.e. EV mobility, telecommunications, and semiconductor industries).
MEDC	STEM-Forward Internship program connects students, who attend Michigan colleges and universities, with paid internship opportunities in STEM-focused careers.

Agency	Strategy/Plan/Program
LEO - Michigan Science, Technology, Engineering, and Math (MiSTEM) Network	Removing barriers to employment by increasing the implementation of project-, problem-, and place-based education-based instruction in K-12 schools in Michigan and expose 200,000 students to STEM careers.
LEO – Workforce Development, Education and Training (E&T)	Addressing talent shortages by engaging and creating customized targeted solutions to meet employer needs by: • Establishing and strengthening existing employer-led collaboratives (ELCs) • Aligning career pathways and educational credentials that lead to transferrable skills and increased wages for job seekers
LEO – E&T; MEDC	Expand talent in Michigan by upskilling and reskilling Michiganders and leverage resources resulting in 7,500 postsecondary credentials by: • Promoting tuition free pathways to obtain postsecondary credentials; • Expanding relationships with secondary and postsecondary education providers to improve job outcomes for students with disabilities; and, • Boosting apprenticeship opportunities to obtain industry-recognized credentials.
LEO – E&T; Michigan Works! Agencies	Expand Michigan's labor force by providing job readiness services to 800 people by conducting outreach activities and supporting eligible persons experiencing barriers to employment to re-enter the labor force.
LEO – Office of Prosperity; Women's Commission	Help 50,000 Michigan women re-enter or remain in the workforce with support of the Tr-Share Child Care program and the MI Fostering Access, Rights and Equity (MI FARE) program. MI FARE is designed to educate women workers about their employment rights and benefits.
Michigan Department of Corrections (MDOC)	MDOC operates a skilled trades training program that aims to provide a positive learning community for prisoners who are serious about completing career and technical education. Prisoners complete training at the vocational village located in the state prion facilities. Career paths include (but are not limited to): • Commercial Driving License and Forklift Operation • Carpentry • Electrical • Computer Coding • Computer Numerical Control Machine Tooling and Robotics • Line Clearance and Tree Trimming

Table 8: Existing Plans, Strategies, and Programs for Addressing Workforce in Michigan

Obstacles and Barriers

The purpose of this section is to proactively identify the obstacles or barriers that Michigan may encounter as it implements the BEAD Program—and more generally, as it addresses issues related to broadband deployment and digital inclusion. Each barrier contains a description of the barrier and a reference to the relevant Priorities or Key Strategies found in the Implementation Plan that will address the barrier.

Deployment Barriers

The MIHI Office has identified several obstacles and barriers that could hinder the successful implementation of the BEAD Program, specifically regarding the deployment of new high-speed internet networks. The following organizes and summarizes these obstacles and barriers and provides context for how they could impact broadband deployment.

Legislative or Regulatory Barriers

The broadband deployment ecosystem has a light regulatory framework, however some aspects of this framework could impact the success of the BEAD Program. These obstacles include the pole attachment process, state and local taxes, municipal participation as an ISP, the capacity of the Michigan Utility Notification Center, and mandates for facilities relocation. Other regulatory barriers include permitting, however, permitting is given its own section given the layers of permitting required for deployment.

Pole Attachment

Pole attachments refer to the cables, wires, and other equipment that are attached to utility poles to provide broadband services. While these attachments are essential for delivering broadband services to customers, they can also be a barrier to broadband deployment for several reasons including high fees, delays in make-ready, limited physical space on the pole, denial of access, and the need to replace aging or damaged poles.

In Michigan, pole attachment authority is regulated by the Michigan Public Service Commission (MPSC). The MPSC has authority over investor-owned utilities in the state, including electric and gas utilities, and it regulates the rates, terms, and conditions of pole attachments. The MPSC has adopted rules and regulations to govern the process of obtaining pole attachments, including the application and approval process, the rates and fees charged by pole owners, and the terms and conditions of attachment agreements. Additionally, some municipalities in Michigan have their own municipal utilities with their own ordinances and regulations regarding pole attachments, which may supplement or differ from the state-level regulations. In those cases, providers seeking pole attachments will need to comply with both state and local requirements.

Overall, pole attachments can be a significant barrier to broadband deployment, particularly for small or new providers. Reducing the cost and complexity of obtaining pole attachments, increasing access to poles, and creating consistent regulations and policies can help to promote broadband deployment and increase access to high-speed internet.

Municipal Participation

Michigan state law allows public entities to provide broadband services, but only if the public entity has first sought bids in the form of a request for proposal (RFP) on the project from private companies and has only received less than three "qualified" bids. The public entity must also adhere to the same terms and conditions that private companies would need to meet as specified in the request for proposals. Doing so effectively eliminates some of the benefits that building a public network can offer residents.

While not every municipality may want or be able to act as an internet service provider, municipalities want to have a say and participate to ensure their residents, businesses, and institutions are connected. However, local governments may not have the capacity or knowledge to effectively participate in the BEAD program. This can lead to delays and miscommunication between communities and subgrantees.

Utility Notification and Flagging Capacity:

Utility notification programs are used by utilities to notify other parties, such as ISPs, of planned work that may impact existing infrastructure, such as roads or utility poles. Flagging programs, on the other hand, involve physically marking the location of underground utilities to prevent damage during excavation or construction work. The Michigan Utility Notification Center (MISS DIG) is the state's only utility safety notification system.

If both programs do not have the capacity to handle demand, it can lead to delayed notification of planned utility work, which can disrupt services and result in costly and time-consuming delays. Similarly, if flagging programs are not able to keep up with demand, it can increase the risk of damage to underground utilities during excavation or construction work. The lack of capacity in both programs can create significant safety risks for workers and the public. If utility work is not adequately marked or notification of planned work is delayed, it can create hazardous conditions for workers and increase the risk of accidents or injuries.

Permitting

Broadband network deployment in Michigan requires permits from multiple authorities, including local governments, county governments, state agencies, and federal entities. The requirements and processes for obtaining permits vary among these authorities, leading to inconsistencies and delays in the permitting process. Additionally, a lack of standardized requirements for similar work can lead to confusion and inconsistency in the permit application process, as well as potential delays and additional costs for applicants. This lack of standardization also applies to permitting fees and timelines among the various and sometimes overlapping permitting authorities.

Federal Permitting

Michigan has several federally managed lands, including national parks, national lakeshores, national forests, national wildlife refuges, among others. These federal lands represent significant opportunities for outdoor recreation and conservation but can pose barriers to high-speed internet expansion. The permitting process for building networks across federal lands can be complex and lengthy and involve multiple agencies and regulations. Federal timelines for approval are often lengthy and are often longer. It is worth noting that the permitting process can vary depending on the agency, the type of land involved, and other factors.

State Permitting

Environmental

The Michigan Department of Environment, Great Lakes, and Energy (EGLE) is the primary entity responsible for approving environmental permits for broadband deployment. EGLE is the state agency charged with protecting Michigan's environment and public health through a variety of regulatory programs and initiatives.

EGLE is responsible for administering several state and federal environmental laws and regulations that may apply to broadband deployment projects, including the Michigan Environmental Protection Act, the Natural Resources and Environmental Protection Act, and the federal Clean Water Act and Clean Air Act.

Entities seeking to deploy broadband infrastructure in Michigan may need to obtain one or more environmental permits or approvals from EGLE, depending on the nature and location of the project. These activities may include permits for activities such as wetland mitigation, stormwater management, air emissions, and water quality.

The timeline and process for obtaining an environmental permit from the Michigan Department of Environment, Great Lakes, and Energy (EGLE) for broadband deployment can vary depending on the nature and location of the project and the completeness of the permit application and lead to extended project timelines. EGLE aims to complete the permit review process as quickly as possible while ensuring that the proposed project meets all applicable environmental regulations and requirements.

Cultural and historical

Permits for cultural and historic significance related to broadband deployment are typically approved by the Michigan State Historic Preservation Office (SHPO). The SHPO is part of the Michigan State Housing Development Authority (MSHDA) and is responsible for reviewing and approving permits for projects that may impact cultural or historic resources in Michigan.

When an entity seeks to deploy broadband infrastructure that may impact cultural or historic resources, they should consult with SHPO to determine if a permit is required. If a permit is required, the entity will need to submit an application to SHPO that describes the proposed project, the potential impacts on cultural or historic resources, and any mitigation measures that will be taken to minimize those impacts.

SHPO will then review the application and any accompanying documentation and may request additional information or studies if needed. Once SHPO determines that the proposed project is compliant with applicable cultural and historic preservation laws and regulations, a permit will be issued.

State rights-of-way

In Michigan, the Michigan Department of Transportation (MDOT) is the entity that approves permit requests for installing broadband infrastructure within a state-owned right of way. MDOT has established policies and procedures for issuing permits to entities seeking to install broadband infrastructure within the state's right of way. These policies and procedures are designed to ensure that broadband infrastructure is installed safely and efficiently, without disrupting other transportation activities or damaging the environment.

Entities seeking to install broadband infrastructure within a state-owned right of way in Michigan must submit a permit application to MDOT, providing detailed information about the proposed infrastructure, including the route, design, and potential environmental impacts. The permit application will be reviewed by MDOT to ensure compliance with applicable laws, regulations, and policies. If the application is approved, the permit may include conditions or requirements to ensure compliance with relevant laws and regulations, as well as technical specifications for the broadband infrastructure and requirements for restoration of the right of way after installation.

MDOT aims to review and approve permit applications as quickly as possible while ensuring compliance with applicable laws, regulations, and policies.

According to MDOT's policies and procedures, the review process for a permit application can take up to 30 days for a standard application or up to 60 days for a complex application. However, if additional information is needed or if there are other issues that arise during the review process, the timeline may be extended. It is also worth noting that MDOT may require additional permits or approvals from other agencies before issuing a right of way permit, which can further affect the timeline.

Local Permitting

City, village, and township rights-of-way

On March 14, 2002, Act 48 of the Public Acts of 2002, created the Metropolitan Extension Telecommunication Rights-of-Way Oversight (METRO) Authority, whose purpose was to assist telecommunications providers cut through red tape and obtain permits without having to pay excessive fees or endure unnecessary delays. On October 1, 2014, the powers, duties, functions, and responsibilities previously vested in the METRO Authority under the METRO Act, 2002 PA 48, as amended, were transferred to and vested in the Local Community Stabilization Authority (LCSA).

The METRO Act streamlines the process for telecommunications providers seeking to obtain rights-of-way permits in designated metropolitan areas. The Act set common fees and a maximum permit approval period. The METRO Act does not cover the permitting process for county rights-of-way. The METRO Act does not necessarily present a barrier or obstacle to the success of the BEAD program, but it is important context for infrastructure deployment and a potential model to streamline permitting and access to other rights-of-way.

County rights-of-way and drains

In Michigan, county right of way permitting can be a major barrier to broadband deployment. To install broadband infrastructure in Michigan's county right of way, providers need to obtain permits from the county, which can be a lengthy and expensive process. Each of Michigan's 83 counties has its own set of rules, regulations, and permit requirements that broadband providers must adhere to, which can vary widely from one county to another. The lack of standardization in the permitting process makes it difficult for broadband providers to cost-effectively deploy broadband infrastructure, particularly when deployment projects cross county boundaries.

Moreover, some counties in Michigan have restricted access to their right of way for broadband deployment, either due to concerns over aesthetic issues, liability, or safety concerns. This creates further barriers for broadband providers.

County drain permits can be a barrier to broadband deployment in Michigan, particularly in rural and more agricultural areas. To install broadband infrastructure near or across county drains, broadband providers need to obtain permits from the county drain commissioner. This process can be time-consuming, complex, and expensive. In addition to the permitting process, there are also concerns related to the physical infrastructure of county drains, such as the possibility of damaging drainage systems during construction or installation of broadband infrastructure.

County drain and road commission offices that are not used to a high-volume of permit requests could find themselves without the capacity to approve a multitude of permits submitted for network deployment projects that will likely occur once funding from the BEAD Program is issues to subgrantees.

Railroad crossings

Railroad crossings have traditionally been an impediment to broadband deployment due to the complex and lengthy permit processes that can create delays and additional costs for broadband providers. In some cases, railroad companies may require expensive insurance or indemnification agreements, or they may impose restrictions on the use of their land that are incompatible with broadband deployment.

In February of 2023, however, the Michigan Court of Appeals issued a ruling impacting the installation of telecommunications facilities under a railroad crossing. The ruling makes the following points:

1. Permits from governmental entities with jurisdiction over the road right-of-way, (such as county road commissions and the MDOT), are still required.
2. A METRO Act permit from a city, township, or village in which the public road crosses the railroad tracks satisfies the permitting requirement of the local municipality where the local entity has jurisdiction over the right-of-way.
3. The depth at which to install the underground facilities should be no less than 5 feet below the surface of the roadbed. The depth required to install such lines may be even greater if the roadbed under the tracks is deeper than the customary 5 feet.
4. Permission of the railroad to install underground facilities under tracks located outside where the tracks cross a public right-of-way is still required. The railroad may impose permitting and fee requirements for the installation of facilities in such locations.

This ruling provides clarity on and streamlines the permitting process for telecommunications facilities installed under railroad crossings within the public right-of-way. This eases the permitting burden for deploying broadband networks, however the decision could be overturned by the Michigan Supreme Court. While not expressly a barrier currently, this ruling is important context as the BEAD Program is implemented.

Workforce

Labor and workforce shortages create significant barriers to broadband deployment by limiting the availability of skilled workers for construction, installation, maintenance, and customer support. These shortages can cause delays and increase costs for broadband providers, as well as reduce the reliability of broadband services for customers. The shortage of skilled workers can also limit the ability of smaller broadband providers to compete with larger providers, as they may struggle to attract and retain skilled workers.

The deployment of broadband infrastructure requires not only a skilled workforce, including engineers, construction workers, and technicians, but also general laborers, material movers, and trucking crews. If there are shortages of skilled workers in these fields, it may be more difficult to deploy broadband infrastructure quickly and efficiently. The NTIA provided MIHI with an analysis of BEAD's occupational demand on Michigan's workforce and which occupations have broader cross-industry deficits. The following chart shows the anticipated BEAD Demand and Cross-Industry Deficits by occupation group.

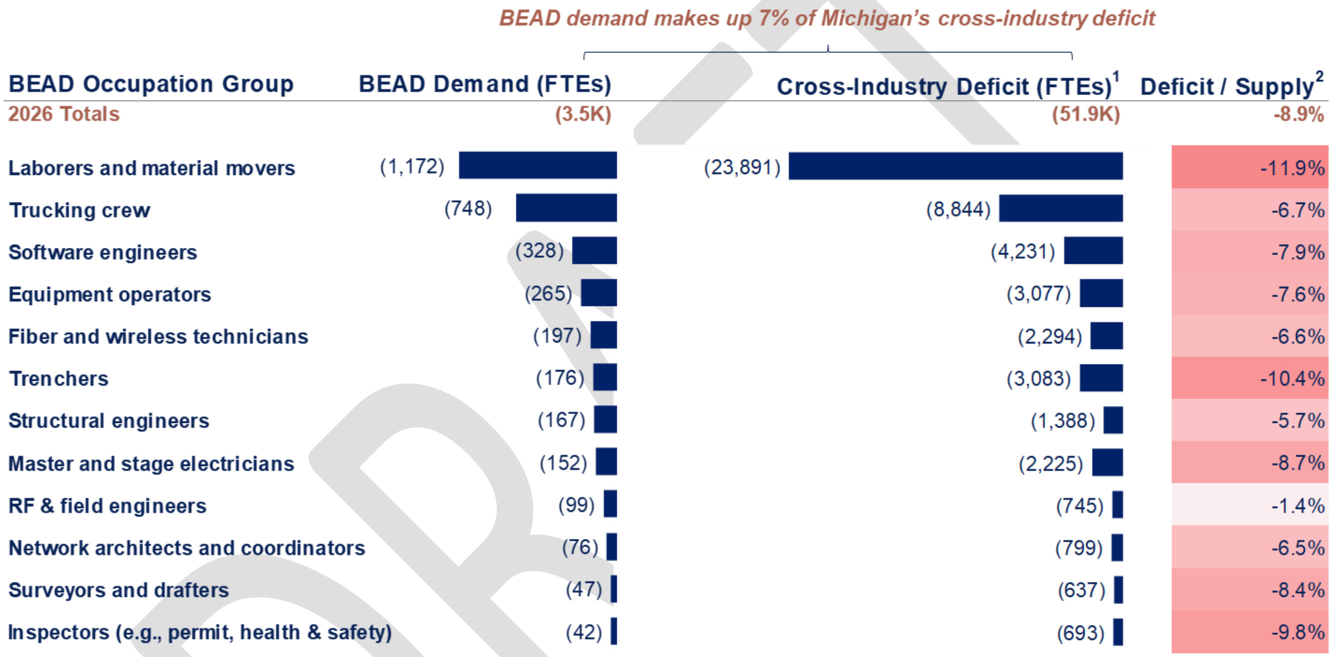


Figure 8: BEAD Demand and Cross-Industry Gaps by Occupation Group

As shown, BEAD alone is estimated to have a deficit of 3,500 positions by 2026, the majority of which are represented in the laborers and material movers and trucking crew occupation groups. These two groups also represent the largest cross-industry deficits in the state. Small gaps exist in the more BEAD-specific occupation groups such as network architects and coordinators, RF and field engineers, and fiber and wireless technicians. There will likely be competition for workers between the BEAD projects and other large infrastructure projects happening in the state, such as road construction and in particular energy or other utility related project. This competition for workers may make it more difficult to find enough skilled workers to complete broadband projects on schedule.

Additionally, in Michigan, weather patterns may impact the ability to deploy broadband infrastructure throughout the year. Contracted firms and labor, seeking continuity of employment and revenue, often seek opportunities in warmer climates during the winter months. While the deployment of broadband is not as sensitive to winter weather construction compared to other infrastructure types, the general migration of contractors to warmer climates can impact the availability of such work in Michigan.

Supply Chain and Materials

Supply chain and materials shortages can create significant barriers to broadband deployment by limiting the availability of key components and materials needed for the construction and maintenance of broadband infrastructure. These shortages can cause delays, increase costs, and impact the quality and reliability of broadband services. The COVID-19 pandemic has further exacerbated these supply chain and materials shortages due to disruptions in global shipping and manufacturing. The following summarizes key obstacles and barriers in the supply chain space.

Limited Availability of Materials

The deployment of broadband infrastructure requires a wide range of materials, including fiber optic cable, wireless equipment, and utility poles. If there is limited availability of these materials due to high demand or supply chain disruptions, it may be more difficult to deploy broadband infrastructure quickly and efficiently.

Semiconductors

Semiconductors are used in a wide range of electronic devices, including broadband networking equipment. The global semiconductor shortage, which began in 2020, has led to supply chain disruptions and delays in the production of networking equipment.

Fiber Optic Cables

Fiber optic cables are the backbone of broadband networks, and the demand for these cables has surged due to the pandemic. The production of fiber optic cables is complex and time-consuming, which has contributed to supply chain disruptions.

Modems and Routers

The pandemic has led to a surge in demand for home internet services, which has resulted in a shortage of modems and routers. The production of these devices has been impacted by the semiconductor shortage, as well as supply chain disruptions.

Network Switches

Network switches are used to connect devices in a network, and the demand for these devices has surged due to the pandemic. The production of network switches has been impacted by the semiconductor shortage, as well as supply chain disruptions.

Batteries

Batteries are used in a wide range of electronic devices, including networking equipment. The global demand for batteries has surged due to the shift towards electric vehicles and renewable energy, which has contributed to supply chain disruptions and higher prices.

Supply Chain Disruptions

The COVID-19 pandemic has exposed vulnerabilities in global supply chains, and disruptions could occur due to transportation restrictions, factory closures, or other factors. Michigan may face delays or higher costs if key components or equipment are not available due to supply chain disruptions.

Additionally, the 'Build America, Buy America Act,' passed as part of the Infrastructure Investment and Jobs Act, has caused concern among many internet service providers and manufacturers in the industry. The 'Build America, Buy America Act' requires that all of the iron, steel, manufactured products (including but not limited to fiber-optic communications facilities), and construction materials used in the project or other eligible activities are produced in the United States unless a waiver is granted. The strict enforcement of, or failure to grant waivers of general applicability for broadband network equipment and consumer devices, could significantly delay the implementation of the BEAD Program and prevent states and subgrantees from meeting the timelines outlined in the BEAD Notice of Funding Opportunity.

Competition for Resources
Every state and territory in the United States is investing in broadband network deployment on roughly the same timeline, and there will likely be competition among them for the same resources, such as fiber optic cables and network equipment. This could lead to increased costs and delays if Michigan subgrantees are unable to obtain the necessary resources in a timely manner.

Local Capacity
Broadband infrastructure deployment requires significant planning, coordination, and execution, which can only be achieved through effective local leadership. When there is a lack of capacity or expertise in local leadership, it can hinder the progress of deployment.

Local leaders play a critical role in facilitating deployment by identifying funding sources, coordinating with internet service providers, and advocating for broadband infrastructure projects. Without local leaders who have the necessary skills and expertise to carry out these tasks, the deployment of broadband infrastructure may not move forward as planned.

Furthermore, local leaders are responsible for engaging and educating their communities about the benefits of broadband connectivity. This education is crucial, particularly in rural areas where residents may not have access to high-speed internet and may not understand how broadband can improve their lives. A lack of local leadership can hinder such education and outreach efforts, slowing down the process of broadband adoption once networks have been deployed and are available.

In short, a lack of local community leadership capacity can hinder the progress of broadband infrastructure deployment by impeding planning, coordination, execution, and community engagement efforts. It is, therefore, important to build and support local leadership capacity to overcome this barrier and ensure successful broadband deployment. The following summarizes additional barriers related to local capacity.

Limited Local Resources
Local governments, community organizations, and other entities often invest in broadband infrastructure projects to meet the needs of their residents and businesses, often through public-private partnerships or by providing matching funds for a specific project. If these sources of funding are insufficient, it can be challenging to secure any additional necessary funds for deployment.

Limited Demand for Service
Network deployment requires a sufficient level of demand for service to justify the investment and ongoing maintenance costs. One of the primary factors that influence demand for broadband service is the number of residents and businesses in the area. In areas with a small population, demand for service may be limited, making it difficult to justify the investment needed for infrastructure deployment. While grant programs can offset these costs, areas that are extremely remote with low population density will still struggle to get connected to the relative lack of demand. In addition to location density, there may be a lack of awareness or understanding of the benefits of being connected to high-speed internet in the area. If residents and businesses are not aware of the benefits of broadband service, they may not see a need to subscribe to the service, leading to limited demand.

Lack of Community Engagement
Community engagement is essential to ensure that newly deployed broadband infrastructure meets the needs of local residents and businesses. Without input from the community, infrastructure projects may not reflect the specific needs and challenges of the area, leading to suboptimal outcomes and lower rates of adoption. Additionally, without engagement and feedback from local residents and businesses, there may be a lack of awareness and understanding about the benefits of broadband infrastructure, leading to a lack of demand. A lack of engagement can also hinder the funding and financing of broadband infrastructure projects. Network deployment is expensive, and funding sources

may require evidence of local community support to justify investment. Without community engagement, it can be challenging to secure the necessary funding for broadband deployment.

Topography/Geography

Michigan's topography and geography present several challenges to the deployment of broadband internet infrastructure. The state's large size and rural areas make it expensive to install and maintain broadband infrastructure. The terrain, including forests, hills, and waterways, can impede the signal, making it difficult to provide reliable service to remote areas. Additionally, the harsh weather conditions in Michigan can cause damage to the infrastructure, requiring frequent repairs and maintenance. The following summarizes key obstacles and barriers related to topography and geography.

Rural Terrain

Michigan has many rural areas with challenging terrain, such as hills, valleys, forests, inland lakes, and wetlands. These areas can be difficult to access and may require specialized equipment and techniques to install and maintain fiber optic cables and other network infrastructure.

Great Lakes

Michigan is surrounded by four of the five Great Lakes, which can create challenges for underwater fiber optic cable deployment. The Great Lakes have fluctuating water levels, strong currents, and extreme weather conditions that can impact the stability and maintenance of underwater cables or networks deployed along the shoreline of the lakes.

Remote Areas

Michigan has remote areas that are difficult to access, such as the Upper Peninsula and certain parts of northern Michigan. These areas may have limited transportation infrastructure, which can make it challenging to deliver equipment and materials to remote locations or attract a skilled workforce to the area for long periods of time. Many of Michigan's remote areas are federally managed lands such as the Hiawatha and Huron-Manistee National Forests and the Seney Wildlife Refuge.

Winter Weather

Michigan experiences cold and snowy winters, which can create challenges for equipment installation and maintenance and shorten the annual construction season. Additionally, heavy snowfall, ice storms, and freezing temperatures can impact the performance and reliability of broadband network infrastructure and increase long-term maintenance costs.

Environmental Concerns

Michigan has many environmentally sensitive areas, such as wildlife habitats, wetlands, and water bodies. The deployment of broadband network infrastructure will need to comply with regulations related to environmental impact assessments, protected species, and water quality.

Remote Islands

Michigan has several remote islands in the Great Lakes, which require unique solutions for broadband network deployment. These islands have limited transportation options, making it challenging to deliver equipment and materials.

Procurement, Contracting, and Industry Participation

Procurement processes and contracting can present significant challenges to the deployment of broadband infrastructure in the state. Procurement processes can be complicated and time-consuming, making it difficult to move quickly and efficiently to deploy broadband infrastructure. Overly complex competitive bidding processes can be a barrier to entry for smaller providers who may not have the resources to participate. Additionally, state and federal regulations can vary, making it challenging to navigate and comply with all requirements and reporting obligations. Finally, contract negotiations can be complex and time-consuming, leading to further delays in the deployment of broadband infrastructure. Some of the key barriers in this category include; hefty financial incentives/match requirements; regulatory and reporting burdens; legal liability of grantees; slow and complex processes; a lack of competition among applicants; and limited collaboration. Government processes are thorough and comprehensive to protect public investments, however, overly bureaucratic and complex reporting procedures can create undue burdens on grantees and the grantor.

Knowledge and Communications

Without effective communication, various stakeholders involved in broadband deployment, such as government agencies, service providers, and local communities, may not be able to coordinate their efforts effectively. This can lead to duplication of efforts, delays, and inefficiencies in broadband deployment, as well as misinformation and local resistance to deployment efforts. The following summarizes barriers related to gaps in knowledge and communications.

Accurate and timely data is critical to effective broadband planning and deployment. Without access to comprehensive and up-to-date information about existing infrastructure, demand for broadband, and other relevant factors, it may be difficult to plan and deploy broadband services effectively. Finally, a lack of information and communication can also limit access to resources that are critical for broadband deployment, such as funding, technical expertise, and community support. Without access to these resources, broadband deployment efforts may be stymied, or progress may be slow.

Local Resistance

A lack of community engagement can create local resistance to broadband deployment. In some cases, community members may be resistant to infrastructure projects due to concerns about privacy, security, or property rights. Without effective community engagement, educational programs, and capacity building efforts, these concerns may not be addressed, leading to opposition that can stall or even halt the deployment process.

Misinformation

Misinformation can create significant challenges for broadband deployment efforts. It is crucial to address misinformation by providing accurate and clear information about the benefits, costs, and safety of broadband deployment. Misinformation can be a significant barrier to successful deployment in several ways:

False Claims about Health and Safety

False claims about the health and safety risks of broadband deployment, such as radiation exposure, can generate fear and resistance among communities. This can lead to delays or cancellation of broadband projects.

Misconceptions about Costs

Misconceptions about the costs of broadband deployment can lead people to believe that broadband is too expensive or not worth the investment. This can reduce support for broadband deployment initiatives and slow down the deployment process.

Myths about the Benefits of Broadband

Misinformation may also generate myths about the benefits of broadband, such as the notion that it is only needed for entertainment purposes. This can lead people to undervalue the importance of broadband, making it harder to gain support for deployment initiatives.

False Information about Availability

Misinformation could lead to false claims about the availability of broadband services in a particular area, leading people to believe that it is not necessary to invest in broadband deployment. This can hinder the deployment process by reducing the perceived need for broadband services.

Lack of Topical Knowledge/Awareness

Many people are not aware of the benefits of broadband and may not understand how it can improve their lives. This lack of understanding can lead to resistance or apathy towards broadband deployment efforts. There is also a lack of knowledge among the public regarding the basic technical aspects of high-speed internet availability. The difference in speeds, service quality, delivery technologies, bits vs. bytes, and other aspects of consumer internet service can cause confusion which could manifest as a barrier to deployment, apathy, or ineffective community engagement.

Deployment Barriers Impact Matrix

The following table provides a summary of the aforementioned deployment obstacles and barriers and identifies; 1) the estimated impact the barrier may have on the success of the BEAD Program; and 2) the likelihood that through the collective action of public, private, and other partners the barrier can be overcome. The estimated impact and the state's ability to address each barrier were determined through engagement with MIHI's Partnership Roundtable and Enabling Partners.

Impact on BEAD

The Impact on BEAD metric in the table below was derived from members of the Partnership Roundtable responding to questions asking how significant they felt each barrier would to the success of the BEAD Program. The table is coded as follows:

How significant will <barrier> be to achieving the goals of universal high-speed internet availability and digital equity in Michigan?	Not a Barrier	Minor Barrier	Moderate Barrier	Serious Barrier

Likely to Overcome

The Likely to Overcome metric in the table below was derived from members of the Partnership Roundtable responding to questions regarding the likelihood/ability of the state to address the various barriers. The table is coded as follows:

Please rate the likelihood that the barrier of <barrier> can be overcome through the collective action of public, private, and other interested partners?	Not Likely	Somewhat Likely	Probably Likely	Definitely Likely

Deployment Impact Matrix

Category	Barrier	Impact on BEAD	Likely to Overcome
Legislative or Regulatory Barriers	Pole Attachment		
	Municipal Participation		
	Utility Notification and Flagging Capacity		
Federal Permitting			
State Permitting	Environmental		
	Cultural and Historic		
	State Rights-of-Way		
Local Permitting	City, Village, and Township Rights-of-Way		
	County Rights-of-Way and Drains		
	Railroad crossings		
Workforce			
Supply Chain and Materials			
Local Capacity			
Topography/Geography			
Procurement, Contracting, and Industry Participation			
Knowledge and Communications			

Table 9: Digital Equity Matrix

The Impact Matrix is designed to help identify the barriers that are most significant to the BEAD Program success and are likely to be overcome through the collective action of MIHI and its key partners. More can be found on the solutions to these barriers in the Implementation Plan section.

Digital Equity Barriers

Similar to the previous section, the MIHI Office has identified several barriers that could prevent the realization of the state's digital equity and non-deployment goals. The following organizes and summarizes these obstacles and barriers and provides context for how they could impact digital equity and inclusion.

Device Access

Device access is a barrier to digital equity given that not all individuals have access to a device such as a computer or smartphone to access the internet. This lack of access can prevent individuals from participating in digital activities such as remote learning, job applications, and accessing government services. According to the Census, 16.8% of households only have one device or no device at all, and 9.2% of those households rely solely on a single smart phone for their internet access. Greater device access data is provided in each of the regional profiles included earlier in this plan. The following describes the issues associated with device access in greater detail.

Cost

Computers and other devices can be expensive, and not everyone has the financial means to purchase them. This is particularly true for low-income households where the cost of a computer or device can represent a significant portion of their income. Even if individuals or households are able to afford a computer or device, they may prioritize other expenses over purchasing one, such as paying for basic needs like food, housing, and healthcare, and multiple devices may be needed in a home, particular homes with school-aged children.

Obsolescence

Technology is advancing at an incredibly fast pace, which means that newer devices with better features and capabilities are constantly being released. This can make older devices quickly outdated, meaning that they may not be able to handle newer software, applications, or internet speeds. Additionally, as devices become outdated, they may become more prone to breakdowns and require more frequent repairs, which can be costly and time-consuming. This can be frustrating for users who rely on their device for work or other important tasks and may deter them from investing in home broadband if they feel that their device will not be able to keep up with the demands of a high-speed internet connection. Additionally, the cost of upgrading to a newer device can be a significant barrier for many users, particularly those with limited financial means. Upgrading to a newer device can be expensive, and may not be feasible for some users, particularly if they have recently invested in an older device.

Technical Support

Many users may not have the technical skills or knowledge required to set up and maintain their device or troubleshoot issues that arise. This can be particularly true for older users or those with limited experience using technology. As a result, they may be hesitant to invest in home broadband if they feel that they will not be able to get the support they need to use it effectively. Furthermore, even users with some technical knowledge may require assistance with more complex issues that arise, such as hardware or software problems. Without access to technical support, users may struggle to address these issues on their own, which can be frustrating and time-consuming. Additionally, technical support can be particularly important in the event of a cyber-attack or other security breach. Without access to timely and effective technical support, users may be unable to respond quickly enough to prevent or mitigate the damage caused by such attacks, which can put their personal information and privacy at risk.

Solution: Establish non-deployment initiatives and align subprograms with the goals and objectives of the state's Digital Equity Plan.

Digital Literacy and Skills

The skills necessary to fully leverage a high-speed internet connection go beyond the basics of how to use a computer, mouse, and keyboard. A lack of digital literacy and other associated skills can be significant barrier to home broadband adoption and digital equity.

Confidence/Limited Technology Experience

A lack of confidence or limited technology experience can be a significant barrier to digital literacy and, in turn, home broadband adoption. When users lack the confidence or experience to use technology effectively, they may feel intimidated or overwhelmed by the prospect of using a computer or other similar device to access the internet.

In turn, these feelings of uncertainty and lack of experience can make it difficult for users to take full advantage of the many benefits of home broadband. For example, they may be less likely to use online resources such as educational tools, job search websites, or online banking services. They may also be less likely to connect with friends and family through social media or other online platforms.

Online Safety and Security

Online safety and security is a significant aspect of digital literacy that can act as a barrier to home broadband adoption. Users who lack digital literacy skills may not be aware of the potential risks and threats that come with using the internet and may not know how to protect themselves from these risks.

One of the biggest risks associated with internet use is cybercrime, including malware, phishing, and hacking. Users who lack digital literacy skills may not be aware of these risks or may not know how to identify and avoid them. This can put their personal information and privacy at risk and make them hesitant to invest in home broadband.

Overall, online safety and security is an important aspect of digital literacy that can act as a barrier to home broadband adoption. Users who lack the knowledge and skills necessary to protect themselves online may be hesitant to invest in home broadband, which can limit their ability to take advantage of the many benefits that it offers.

Advanced Online Services

Not being able to access advanced online services is a significant digital literacy barrier to home broadband adoption. Many online services require a certain level of digital literacy to use them effectively. Users who lack the necessary skills and knowledge may find it difficult or impossible to access these services, which can limit their ability to take advantage of the full range of benefits offered by home broadband.

Examples of advanced online services that may require digital literacy skills include online banking, distance learning, telemedicine, and e-commerce. Users who lack the necessary digital literacy skills to access these advanced online services may be hesitant to invest in home broadband, as they may feel that they are unable to take advantage of the full range of benefits that it offers.

Solution: Develop awareness strategies that improve adoption through marketing and communication, and establish non-deployment initiatives and align subprograms with the goals and objectives of the state's Digital Equity Plan.

Affordability

Affordability is a substantial issue that impacts home broadband adoption. For many individuals and families, the cost of broadband service can be a significant barrier to adoption, preventing them from accessing the many benefits of an internet connection. This can be especially true for low-income households, which may find it difficult or impossible to afford the cost of broadband service along with other necessary expenses.

The high cost of broadband service can be attributed to several factors, including the availability of service providers in a given area, the quality and speed of the service offered, and the terms of the contract or subscription. In addition, users may also need to purchase or rent equipment such as a modem or router to use the service, which can add to the overall cost.

For many low-income households, the cost of broadband service may simply be too high, making it difficult to justify the expense. As a result, these households may rely on other forms of internet access, such as public Wi-Fi hotspots or public computer centers, which may not provide the same level of speed and reliability as home broadband. This can limit their ability to access online resources, communicate with friends and family, and participate in online commerce and education.

The impact of affordability on home broadband adoption is not limited to low-income households. Many middle-class households may also find the cost of broadband service to be prohibitive, especially in areas where there is limited competition among service providers. This can result in a "digital divide" between households that can afford broadband service and those that cannot, which can have long-term social and economic implications.

Additionally, the issues of affordability and awareness or relevance are interconnected. Awareness refers to the level of understanding people have about the benefits of using the internet. People who are not aware of these benefits may not be motivated to invest in broadband or may not understand how to use it effectively. This lack of awareness can lead to a lack of demand for broadband, which can affect affordability.

Relevance, then, refers to the extent to which the content available via the internet meet the needs and interests of different groups of people. If the available content do not meet the needs or interests of a particular group, then they may not find broadband affordable or valuable. For example, if the available content is not available in their language or does not reflect their culture, they may not find broadband relevant.

Overall, affordability is a significant factor that impacts home broadband adoption. By addressing this issue, we can help to ensure that all individuals and families have access to the many benefits of home broadband, regardless of their income level or geographic location.

Solution: Develop awareness strategies that improve adoption through marketing and communication, develop and implement subgrantee accountability and compliance strategies, and prioritize geographically challenging, economically distressed, and historically underrepresented areas.

Inclusivity

Technological inclusivity is impacted by discrimination and bias. Research has shown that the digital divide discriminates based on age, income, race, ethnicity, educational attainment, and geography. Discrimination and bias in relation to digital equity, home broadband adoption, and technology can manifest in several ways:

Socioeconomic Status: Discrimination can also manifest in the form of unequal access to technology based on an individual's socioeconomic status. For example, low-income families may not be able to afford home computers, tablets, or smartphones, and may have to rely on public libraries or schools for access to technology.

Online Harassment: Discrimination can take the form of online harassment and cyberbullying, including racist, sexist, or homophobic hate speech, that can prevent certain individuals or groups from fully participating in online spaces.

Algorithmic Bias: Discrimination can also manifest in the form of algorithmic bias, which occurs when automated decision-making systems perpetuate existing social biases and inequalities. This can result in discriminatory outcomes, such as biased hiring practices or discriminatory loan decisions.

Accessibility

Many people with disabilities face physical barriers that can make it difficult to access technology, such as physical limitations that make it difficult to use a mouse or keyboard, or visual or auditory impairments that make it difficult to see or hear digital content. Assistive technology, such as screen readers or speech recognition software, can help people with disabilities access and use technology. However, many assistive technology solutions can be expensive, and people with disabilities may not have access to the necessary technology or training to use it effectively. People with disabilities may also face barriers to accessing digital content, such as websites or online applications that are not designed to be accessible to people with visual or auditory impairments. This can limit their ability to access online resources, including educational and employment opportunities.

Geographic Location

Inequality occurs when certain communities are excluded from advanced connectivity due to a lack of investment in networks in low-income communities or those with concentrations of racial or ethnic minorities. Internet service providers may discriminate against minority communities by offering them lower quality or more expensive broadband services compared to other communities. This practice, known as digital redlining, can exacerbate existing inequalities and limit access to critical online resources.

Additionally, rural areas struggle for digital equity as high-speed connectivity is often less likely to be available where they live. Rural areas are less attractive to internet service providers as there are fewer potential customers per mile of infrastructure deployed. Additionally, even when high-speed internet is available in a rural or small-town community, digital inclusion programs are resources aren't as readily available given the low population density and lack of capacity among local institutions to provide such services.

Language and Cultural Barriers

Ethnic minority communities may face language barriers when it comes to understanding and accessing broadband services or digital inclusion programs. This can limit their ability to navigate complex technical terms and understand their rights as consumers and use applications and hardware that are designed for much of the population.

Solution: Prioritize geographically challenging, economically distressed, and historically underrepresented areas, establish non-deployment initiatives and align subprograms with the goals and objectives of the state's Digital Equity Plan, develop an approach for communities to define infrastructure and equity program roll out, and develop and implement subgrantee accountability and compliance strategies.

Relevance/Awareness

A lack of relevance/awareness can contribute to perceived issues of broadband affordability in several ways. When people do not see the relevance of having broadband internet access or are unaware of its benefits, they may be less willing to pay for it. This can make broadband seem less affordable to them, even if the actual cost is reasonable. Additionally, if people do not see the relevance of broadband, they may not prioritize it when it comes to their household budget, which can make it difficult for them to justify the expense.

Furthermore, if people do not see the relevance of broadband or are unaware of its benefits, they may not use it as often or as effectively as they could. For example, if they do not understand how to use online resources to save money or access services, they may not see the value in having broadband. This can create a cycle where people do not use broadband to its full potential, which can make it seem even less relevant and more expensive over time.

Moreover, a lack of relevance can also impact the demand for broadband, which can affect the cost of service. If there is low demand for broadband in a particular area, providers may charge higher prices to make up for the lack of customers. This can make broadband seem less affordable for people who do not see the relevance of having it.

Overall, a lack of relevance/awareness can contribute to perceived issues of broadband affordability by making it less appealing to consumers, reducing their willingness to pay for it, and limiting their ability to use it effectively.

Solution: Develop awareness strategies that improve adoption through marketing and communication, coordinate deployment planning, and prioritize geographically challenging, economically distressed, and historically underrepresented areas.

Digital Equity Impact Matrix

The following table provides a summary of the aforementioned deployment obstacles and barriers and identifies; 1) the estimated impact the barrier may have on the success of the BEAD and SDPEG programs; and 2) the likelihood that through the collective action of public, private, and other partners the barrier can be overcome. The estimated impact and the state's ability to address each barrier were determined through engagement with MIHI's Partnership Roundtable.

Impact on BEAD and SDEPG

The Impact on BEAD and SDEPG metric in the table below was derived from members of the Partnership Roundtable responding to questions asking how significant they felt each barrier would to the success of the BEAD and SDEPG programs. The table is coded as follows:

How significant will <barrier> be to achieving the goals of universal high-speed internet availability and digital equity in Michigan?	Not a Barrier	Minor Barrier	Moderate Barrier	Serious Barrier

Likely to Overcome

The Likely to Overcome metric in the table below was derived from members of the Partnership Roundtable responding to questions regarding the likelihood that, through collective action, the various barriers can be overcome. The table is coded as follows:

Please rate the likelihood that the barrier of <barrier> can be overcome through the collective action of public, private, and other interested partners?	Not Likely	Somewhat Likely	Probably Likely	Definitely Likely

Digital Equity Impact Matrix

Barrier	Impact on BEAD		Likely to Overcome
Device Access			
Digital Literacy and Skills			
Affordability			
Inclusivity			
Relevance/ Awareness			

Table 11: Digital Equity Impact Matrix

The Impact Matrix is designed to help identify the barriers that are most significant to program success and are likely to be overcome through the collective action of MIHI and its partners.

Implementation Plan

The implementation plan was developed by first conducting a comprehensive stakeholder engagement process to gather information on barriers, needs, recommendations, and priorities. Stakeholder engagement included community meetings, partner and stakeholder meetings, and consultations with tribal leaders. Following MIHI's extensive stakeholder engagement, the plan was developed by synthesizing all the data and feedback collected to identify key priorities for the BEAD program. The priorities identified then informed the execution strategies required to ensure the priorities for the program were addressed. For each of the execution strategies developed, planned activities have been identified as the actionable and discreet steps to implement the strategies and successfully implement the BEAD Program.

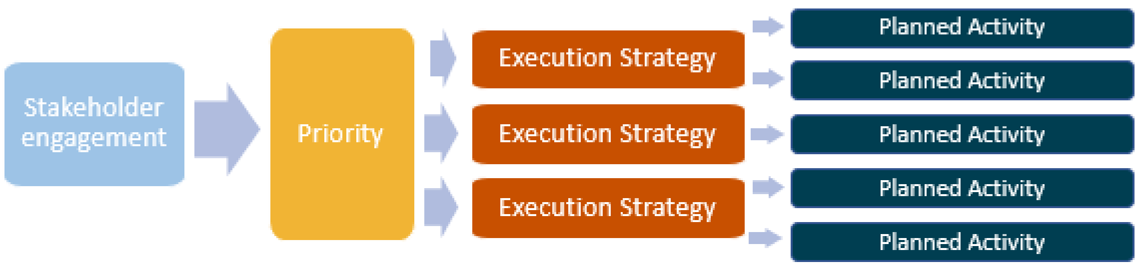


Figure 9: Implementation Plan Development Approach

Stakeholder Engagement Process

The stakeholder engagement process for the BEAD Program was developed to also align to the requirements of the Digital Equity Plan Act and give a voice to communities with the greatest digital needs. Additionally, following the development of this plan, ongoing community feedback is planned over the life of the BEAD Program to track the impact of MIHI's execution strategies and planned activities, ensuring that the priorities identified in this document are achieved.

The MIHI office developed a robust and innovative community and stakeholder engagement process called MI Connected Future (MiCF). The MiCF aimed to holistically and authentically engage with communities and stakeholders to provide the state with the input and direction needed to achieve universal broadband access and a more digitally equitable state. Comprised of in-person regional meetings and partnership roundtables comprised of industry leaders and organizations representing covered populations, MiCF actively supports robust community outreach and input while providing an opportunity for industry to provide additional barriers in the broadband space in a comprehensive and equitable manner. MIHI adopted the ethos of "listen first, plan second" to ensure the needs and current challenges of communities and stakeholders were collected and incorporated into the planning process equitably. Results of MIHI's efforts will be available to the public and continuously updated on our website. The approach included three primary components:

1. Community Listening Tour
2. Partnership Roundtables
3. Tribal Consultations

Community Listening Tour

The MIHI office conducted a collaborative state-wide tour to engage with communities to build trust and long-term relationships, support quality data collection and analysis, highlight stories of needs and success, and emphasize cyclical input. Each region and community in the state is unique and approaching the needs of each in the way that serves them best promotes equity. MiCF supports equitable engagement by respecting the unique needs of each community. This manifests as relationship building with community leaders prior to hosting community meetings in their towns. Buy-in is crucial for the success of MiCF, and ultimately for the success of BEAD and DEA programs. In the conversations leading up to a formal community meeting, MIHI acted within its capacity to understand the issues that are important to the community, including critical context regarding past and current broadband and digital equity and inclusion activities. MIHI tailored the approach to the community meeting based on the information gathered prior to the event, however, the feedback prompts during the meetings remained the same for all stakeholders to gather consistent data that could be analyzed.

During the meetings, community members were given the opportunity to share their thoughts on prioritizing BEAD Program funding to deliver affordable, equitable, and reliable high speed internet service throughout Michigan. MIHI divided the community meeting portion of MiCF into two phases: initial data collection and public comment/feedback. Phase one consisted of 31 MiCF stops throughout all ten economic Prosperity Regions in Michigan. Phase two consisted of an additional ten stops to collect public comment and feedback on the draft BEAD Five-Year Action Plan and the Digital Equity Plan.

MIHI created additional opportunities for engagement with special MiCF sessions with youth in Flint and Wayne State University and through the Community Meeting in a Box (CMIB) program. CMIBs provided advocacy groups and communities with an opportunity to engage in the MiCF process if they were not able to attend one of the in-person sessions. CMIBs contained all of the presentation and data collection materials, along with a meeting facilitation guide for hosting local MiCF events without MIHI staff present. Forty-five CMIBs were sent to organizations and communities during the MiCF listening tour.

Various approaches were used to promote participation in the Community Listening Tour meetings, including social media posts, email campaigns, and distribution of flyers. Special attention was placed on creating opportunities for engagement among historically marginalized populations who have been underrepresented in community decision-making. These groups included low-income individuals, aging adults, rural residents, refugees, members of racial or ethnic minority groups, veterans, people with disabilities, those with language barriers, and incarcerated individuals.

The initial data collection phase of MICF aimed to gather feedback from Michiganders regarding their biggest broadband barriers and their priorities for addressing digital equity. Collection of quality data is crucial for determining the correct baseline for broadband service in Michigan. Quality data also supports an equitable deployment strategy in both the infrastructure and digital equity programs. Questions asked and feedback requested from community members were consistent throughout the state-wide tour, however, the context in which the questions were delivered was unique to the type of participants MIHI was engaging. The MIHI team has analyzed feedback from and engaged with other professional organizations to ensure analysis accurately reflects the data collected. MIHI plans to engage with experts in the digital equity field and assess existing digital equity indices to highlight areas of need in a geospatial format to support the implementation of both BEAD and the DE programs. The results of the priority identification and rankings data gathered during the listening tour can be found in the regional profiles in the Needs and Gaps Assessment section.

Figure 10: Summary of MIHI's State-Wide Tours and Participation

Partnership Roundtables

Partnership Roundtables represent MIHI's work to regularly convene a wide variety of stakeholders to provide feedback and input on various office activities related to BEAD and DEA. A series of virtual Partnership Roundtables were convened monthly from January 2023 to July 2023 to gather input from the wider external stakeholders throughout Michigan irrespective of location. Participants of the Roundtables consisted of representatives from community anchor institutions, tribal nations, organizations representing covered populations, internet service providers, local government, and many others. The cross-sectoral format aimed to share information and resources, raise awareness of potential issues concerning infrastructure deployment and digital inclusion, and provide MIHI with policy and operational guidance for the development and implementation of the BEAD Program.

The Partnership Roundtables met regularly throughout the development of the BEAD Five Year Action Plan and will continue through the development of the Initial Proposal and BEAD implementation. Each meeting focused on a topic or theme. Participants were asked targeted questions to which MIHI would collect responses. The first meeting was used to level-set the BEAD Program goals and requirements, introduce the format of the discussions, and seek participants' input on ultimate goals. The subsequent meetings focused on different themes such as deployment equity/infrastructure availability, affordability, workforce development, and digital skills. The discussions allowed stakeholders to provide direct input on equitable solutions and strategies regarding broadband deployment in underserved Michigan areas, affordability program ideas, and structures for execution, workforce development investment, digital skills training, and curriculum. Future meetings will focus on the impact of the program and whether participants are witnessing improvements in digital connectivity and equity.

Tribal Consultations

Tribal Consultation sessions were held with Tribal leaders and representatives. These discussions focused on critical issues related to BEAD and digital equity and invited Tribal representatives to provide advice and insights on how best to get tribal communities connected. MIHI requested Tribal input on key considerations regarding digital equity for Tribal nations, identification of unserved and underserved areas, listing of community anchor institutions eligible for funding, and broadband deployment and digital equity projects within Tribal nations. MIHI seeks to collaborate with Tribal nations on the Five-Year Action Plan and Digital Equity Plan to provide digital access and connectivity to all of Michigan's tribes. The following Tribal nations were invite to participate in the consultation, an asterisk indicates their participation.

Bay Milles Indian Community*
Grand Traverse Band of Ottawa and Chippewa Indians*
Hannahville Indian Community
Keweenaw Bay Indian Community*
Lac Vieux Desert Band of Lake Superior Chippewa Indians of Michigan
Little River Band of Ottawa Indians
Little Traverse Bay Bands of Odawa Indians
Match-e-be-nash-she-wish Band of Potawatomi Indians*
Nottawaseppi Huron Band of Potawatomi
Pokeagon Band of Potawatomi Indians
Saginaw Chippewa Indian Tribe of Michigan*
Sault Ste. Marie Tribe of Chippewa Indians*

Priorities

Following the stakeholder engagement, the MIHI Office used the detailed feedback, input, and data to develop high-level priorities for the BEAD program. Five primary priorities are identified. Each priority is then further divided into multiple key strategies, and each strategies and priority has several planned activities for implementation.

Priorities for Broadband Deployment and Digital Equity

Priority	Description
Reduce barriers to broadband deployment	Reducing barriers to infrastructure deployment is critical to the timely execution of the BEAD Program and to realizing the program's goals of providing affordable high-speed internet access to Michigan's un/underserved locations. These barriers include lengthy and complex processes for permitting, pole attachments, and right of way access, among others, and a potential shortage in broadband workforce. Some of these existing processes in the state are complex and pose a hurdle to successful and timely broadband infrastructure deployment. Expediting these processes requires a collaborative effort between the state, local governments, private sector, and communities. By reducing the complexity and time associated with these processes and ensuring the right set of skills are available, MHI can accelerate broadband deployment and ensure a timely delivery of the BEAD Program projects.
Maximize the use and reach of federal funds	To achieve equitable access to affordable internet throughout Michigan, including high-cost areas with difficult topography and remote locations, Michigan will aim to maximize private sector participation and matching funds. This priority is of paramount importance to MIHI particularly given Michigan's geography and the presence of remote areas. Certain rural areas in Michigan have extremely low population densities, with just 2-20 individuals residing per square mile making physical infrastructure deployment difficult and costly. It is by extending the reach of federal and local funds that MIHI will be able to serve these locations and ensure the goal of universal high-speed internet availability is achieved.
Promote digital equity and inclusion	Promoting digital equity is crucial in today's increasingly connected world. However, there are multiple factors such as device access, skills, affordability, and inclusivity, that perpetuate the digital divide, making it difficult for some individuals to fully participate in the digital world. In Michigan alone, 1.2 million households still struggle with internet connectivity[22] and approximately 730,000 households face barriers related to high-speed internet access[23]. This means that approximately 30% of Michigan households do not have an affordable, reliable high-speed internet connections Additionally, Two-fifths (40%) of these households report not being able to afford to pay for home internet subscriptions at all, which further exacerbates the digital divide.[24] Access to the internet has become a critical aspect of modern life, and those who are unable to connect are at a distinct disadvantage when it comes to finding a job, participating in online learning, or even accessing essential healthcare services. Addressing adoption, affordability, digital skills, and devices supports the deployment of network infrastructure and helps to ensure their long-term sustainability.
Deploy resilient and sustainable broadband infrastructure	Deploying resilient and sustainable infrastructure is essential for ensuring the long-term viability and capacity of new infrastructure to meet the needs of Michigan's residents now and far into the future. With the increasing number of harsh weather events caused by climate change, it has become imperative to adopt a proactive approach that prioritizes sustainable infrastructure deployment. By investing in sustainable infrastructure that lasts for decades, the state of Michigan can mitigate the effects of climate change and save significant costs in the long run and ensure that BEAD investments can be sustained over time. Sustainable networks also mean ensuring that BEAD funded connections can meet the connectivity needs of Michigan's residents now and for the future. BEAD-funded networks should provide more than the minimum required connection speeds to ensure Michiganders have the connections they need far into the future. Prioritizing resiliency and sustainability aim to address and deliver benefits now and for generations to come.
Empower communities through engagement and involvement	Incorporating community input plays a crucial role in driving program planning, spending, and broadband deployment where it is needed the most. It can also create an equitable approach to infrastructure deployment that prioritizes the unique needs of communities throughout the state of Michigan. By giving underrepresented communities an opportunity to share their thoughts and concerns, the implementation of federal programs like BEAD can ensure that their voices are heard, and their views are considered. Engaging communities to drive program planning can also lead to innovation and creative solutions to the unique challenges faced by different communities.

Table 10: Priorities and Description for Broadband Deployment and Digital Equity

[22] American Community Survey 2021 5-Year Estimates

[23] Federal Communications Commission Broadband Data Collection and fabric Version 3

[24] Horrigan, J. (2021). Affordability and the Digital Divide: The first in a 3-part series on digital connectivity during the pandemic (1). EveryoneOn. https://www.everyoneon.org/2021-national-study

Key Strategies

To support its goals, objectives, and priorities MIHI plans to adopt the following execution strategies. The strategies described in this section are also supported by the planned activities described in the following section.

Reduce barriers to broadband deployment	To reduce barriers to broadband infrastructure deployment, MIHI will adopt several strategies to streamline processes and support the development of a skilled workforce. These strategies include: ▪ **Streamline permitting processes:** Identify ways to streamline permitting processes required for infrastructure deployment. ▪ **Coordinate deployment planning:** Establish regular communication and coordination structures with relevant entities to prevent permitting and other delays to deployment. ▪ **Standardize processes and supporting documentation, where possible:** Standardize the terms of fiber make-ready agreements such as pole attachments and easements. ▪ **Encourage the development of a unified approach for right of way access and fiber deployment and maintenance:** Work with stakeholders to develop a consistent process and unified approach, where possible, to right of way access for fiber deployment and maintenance. ▪ **Prioritize workforce development plans and support job training programs:** Support the supply of a highly skilled workforce for broadband infrastructure projects.

Maximize the use and reach of federal funds	To maximize the reach of federal funds, MIHI will adopt several strategies to leverage existing assets and encourage private sector participation and contributions. These strategies include: ▪ **Encourage the use of existing infrastructure and assets:** Encourage program participants to leverage the use of existing infrastructure and assets by introducing scoring criteria in the proposed subprograms. ▪ **Maximize private sector participation and promote the development of public-private partnerships**. To promote the use of public-private partnerships, MIHI will provide guidance and resources to local and regional governments to support them in developing partnerships with ISPs. Additionally, subgrant programs will incentivize private-sector matching funds in areas with lower estimated deployment costs to maximize the reach of federal funds. ▪ **Improve participation in the State's subprograms by running a fair and transparent subgrantee selection process**. Ensure that the application process is widely communicated and that all resources and materials are available to all applicants through MIHI's website. Also, the selection criteria will be developed to ensure smaller ISPs, local governments, and utilities are afforded the same opportunities as larger ISPs. ▪ **Establish a Middle Mile focused program to ensure infrastructure is available for last mile projects**. To help ensure future last mile projects are supported by middle mile networks, MIHI will develop a subprogram specifically for middle mile networks. ▪ **Develop and implement subgrantee accountability and compliance strategies**. Subgrantee accountability and compliance is of the utmost importance to Michigan. MIHI will prioritize subgrantee compliance by developing a risk assessment and monitoring framework for applicants and subgrantees. Additionally, support will be provided to subgrantees including resources such as compliant reporting templates and guidance.

<table>
<tr>
<td>Promote digital equity and inclusion</td>
<td>
To promote digital equity and inclusion, MIHI will adopt several strategies that will help ensure unserved areas, underserved areas, and CAIs have access to reliable high-speed internet access and that non-deployment programs are not only established but have a means to continue beyond the period of performance of the BEAD Program. These strategies include:

Prioritize geographically challenging, economically distressed, and historically underrepresented areas: To prioritize these areas MIHI will develop targeted subprograms and leverage enhanced scoring criteria. These locations will be identified through data and mapping carried out internally by MIHI and use data from the FCC, Census, and other sources. Fiber deployment in these locations will be prioritized, where possible.
Establish non-deployment initiatives and align subprograms with the goals and objectives of the State’s Digital Equity Plan. To align the BEAD and the Digital Equity programs, MIHI developed a coordinated stakeholder engagement and listening process that collected data and needs to inform the development of both programs. To further align BEAD non-deployment uses and the SDEPG programs MIHI is developing this Five-Year Action Plan and the Digital Equity Plan in parallel, using consistent resources across both plan developments to help ensure alignment.
Develop awareness strategies that improve adoption through marketing and communication. Support awareness campaigns for digital equity subprograms developed by the State as well as federal program targeting low- and medium-income households such as the Affordable Connectivity Program. MIHI will continue to raise awareness and provide communications to the public on existing and future subprograms through social media, email campaigns, and other media.

</td>
</tr>
</table>

Advocate for resiliency and sustainability for broadband infrastructure development	Advocating for resiliency and sustainability in the development of broadband infrastructure requires a multifaceted approach that not only prioritizes resilient and sustainable infrastructure, but also seeks to prioritize long-term sustainability and capacity of service and equity programs, beyond the period of performance of the BEAD Program. To support the implementation of resilient and sustainable projects, MIHI plans to execute the following strategies: ▪ **Include resiliency and sustainability criteria as part of subprogram requirements:** Work with identified key partners to determine the right resiliency and sustainability standards and requirements for the subprograms that MIHI intends to administer. ▪ **Promote the deployment of fiber and define the "Extremely High-Cost per Location":** Set a high Extremely High-Cost per Location threshold, given the funding allocation, to maximize fiber adoption throughout the state. ▪ **Encourage service providers to upgrade outdated infrastructure:** Incentivize applicants to upgrade their existing assets by including evaluation criteria related to the use of existing assets in the subprogram application requirements. Overall, the strategy is to incentivize applicants to upgrade their existing assets by providing them with financial support and related evaluation criteria. This can help increase the quality of assets and thus, improve the applicant's chances of being selected for subprograms. ▪ **Assess project applications for long-term service and reliability**. Ensuring that affordable, accessible, high-capacity internet service is sustained beyond the period of performance of the BEAD Program and creating lasting change for universal availability in the State of Michigan is a top priority for the MIHI Office. To achieve this goal, MIHI will evaluate all applications based on long-term reliability and affordability. This means that proposed solutions and projects must be able to provide consistent, high-speed internet access over an extended period of time, ideally beyond the duration of the BEAD Program. Additionally, MIHI may require applicants to provide a detailed plan for how they will maintain and improve service quality over time or demonstrate a successful track record of maintaining reliable internet service. ▪ **Enable variable match requirements based on cost of deployment.** Adopt a strategy of variable match requirement depending on the cost and feasibility of broadband infrastructure deployment. This strategy is intended to ensure that all locations and communities in the state, regardless of location or existing infrastructure will have access to affordable high-speed internet.

Empower communities through engagement and involvement	Maintain the stakeholder and community engagement activities described in the Stakeholder Engagement Process section above throughout the implementation of the BEAD Program. MIHI will continue to seek input and involvement from the communities in Michigan to help shape the structure of the BEAD Program and course correct, if needed. To empower communities in the BEAD Program development and implementation, MIHI will adopt the following strategies: ▪ **Leverage community inputs to drive subprogram planning and implementation:** Actively seek and leverage community input during the planning and implementation of subprograms. This will involve identifying pathways and channels through which communities can provide input on subprogram development. Such channels may include public meetings, surveys, focus groups, townhalls, formation of local or regional technology councils and other similar means of gathering input. The insights gained from these community engagement efforts will be used to help shape the direction of MIHI subprograms, build awareness from program progress and success, and ensure that processes and programs are designed to meet the unique needs of Michigan communities and provide maximum benefit to all residents of the state. ▪ **Develop an approach for communities to define infrastructure and equity program roll out:** Determine the best approach for collecting and incorporating community needs for infrastructure and non-deployment digital equity programs. This strategy is intended to give communities a voice in how they will be served through the BEAD Program. ▪ **Include evidence of community support and partnerships as part of subprogram requirements.** Encourage subprogram applicants to engage and communicate with the communities they plan to serve. As part of the evaluation criteria, MIHI intends to require evidence of consultations, partnership and/or support from targeted communities.

Planned Activities

In this section, the MIHI Office provides a comprehensive outline of the specific activities that it will undertake to implement each of the execution strategies provided above. This also includes identifying the funding sources for each activity to ensure that the MIHI Office has the necessary resources to execute those strategies successfully.

By detailing the below activities and their sources of funding, the MIHI Office can provide a clear roadmap for achieving the state's broadband goals and objectives and bring the benefits of high-speed internet connectivity to the state's residents and businesses. This information will be beneficial not only to the MIHI Office but also to its stakeholders and key partners who will need to be aware of those activities.

Activity	Key Implementor	Funding Source	Expected Outcome(s)
Continue to work on and improve the GIS mapping for the state to identify unserved and underserved locations, Community Anchor Institutions, and existing assets.	MIHI	BEAD Planning Funds / SDEPG Funds	Comprehensive and accurate maps to help identify areas that lack connectivity so that they are prioritized in terms of funding. Funding for this activity will be through BEAD and SDEPG planning funds and output data will be published on MIHI's website.
Work with Michigan core and enabling stakeholders to streamline the permitting process for broadband infrastructure projects. For example, leveraging the Michigan Information Office (MIO) permitting dashboard and support tools or the Michigan Infrastructure Council (MIC) Dig-Once Portal.	MIHI and Core/Enabling Stakeholders	BEAD Planning Funds	Reduced processing or waiting times for securing permits and approvals for construction and/or right of way access. Increased transparency and information for subgrantees. No funds are expected to be incurred for this activity but in the event funds are required MIHI will use a portion of its BEAD planning funds.
Set up regular meetings with core and enabling stakeholders and other relevant stakeholders regarding standardizing permitting processes	MIHI and Core/Enabling Stakeholders	BEAD Planning Funds	
Coordinate with local governments and utilities regarding pole attachments and make-ready and create faster systems for resolving disputes.	MIHI, Local Governments, and Utilities	BEAD Planning Funds	Reduced dispute times for pole attachments related issues and aligned responsibilities for the benefit of broadband expansion. No funds are expected to be incurred for this activity but in the event funds are required MIHI will use a portion of its BEAD planning funds.

Activity	Key Implementor	Funding Source	Expected Outcome(s)
Hold meetings with industry associations, labor unions, and other relevant stakeholders to discuss workforce development plan	MIHI, Industry Associations, Labor Unions, Enabling Partners	BEAD Planning Funds	A comprehensive workforce development plan that incorporates stakeholder input. MIHI will use BEAD and SDEPG planning funds to support the logistics of holding such meetings.
Leverage existing partnerships to develop the workforce development plan with input from wider Michigan workforce assessment/plan and LEO	MIHI and LEO	BEAD Planning Funds	
Participate in the development of training programs for skills and licenses required by the telecommunications industry	MIHI and LEO	BEAD Planning Funds	Increased availability of a skilled broadband workforce. Funding for this activity will be provided through both BEAD and SDEPG planning funds.
Research MIHI's ability to support county drain and road commission permitting offices with increased review capacity.	MIHI	BEAD Administrative Funds	Increased capacity of permitting offices to review requests for the anticipated influx of permit applications. Decreased wait time for permitting approvals and support for project deployment timelines.
Determine information, data, and input from stakeholders required to establish a scoring methodology to maximize private sector contributions while not excluding participation from smaller ISPs and other eligible subgrant applicants	MIHI	BEAD Planning Funds	Increased amount of funding available and support a greater number of broadband projects
Set up a dedicated subprogram for middle mile infrastructure with associated evaluation criteria and selection process	MIHI	BEAD Planning Funds	A subprogram that is tailored specifically to addressing the unique challenges and opportunities associated with middle mile infrastructure. This program will likely have its own evaluation criteria that take into account factors such as existing infrastructure, community needs, and the technical feasibility of the proposed project. The selection process for this program would also be tailored to meet the unique needs of middle mile infrastructure projects, such as considering the impact on existing networks and the potential to catalyze the development of last mile infrastructure.

Activity	Key Implementor	Funding Source	Expected Outcome(s)
Identify other sources of BEAD matching funds to help ensure that the reach of federal funds is maximized	MIHI	BEAD Planning Funds	Identify potential state funding that can be used to support matching funds and maximize the reach of BEAD funds. Funding for this activity will be based on state support. No funds are expected to be incurred for this activity but in the event funds are required MIHI will use a portion of its BEAD planning funds.
Provide technical resources and assistance to eligible entities to support their participation in the subgrant process	MIHI	BEAD Planning Funds	Comprehensive technical support for potential applicants to develop projects and submit compliant applications. The goal of this support is to help ensure that eligible entities have access to the resources they need to successfully participate in the subgrant process and compete for funding. MIHI may leverage some of its BEAD and SDEPG planning funds to support this activity.
Set up a risk evaluation, validation, and monitoring framework for applicants and subgrantees	MIHI	BEAD Planning Funds	Reduced risk for noncompliance with the federal award and early identification or any reporting or compliance issues.
Develop targeted subprograms for digital equity and inclusion based on needs identified through the community listening tours	MIHI	BEAD Planning Funds	Subprograms that incorporate the needs identified during community listening tours, which solicit feedback from key stakeholders. The targeted subprograms will likely have their own unique goals, evaluation criteria, and selection processes, based on the specific needs and priorities identified by the communities.
Support smaller ISPs, advocacy organizations, and other similar stakeholders with technical assistance to provide low-cost service (including ACP) through information and application support	MIHI	BEAD Planning Funds	Increased participation in the Affordable Connectivity Program (ACP) and increase the availability of affordable broadband services.

Activity	Key Implementor	Funding Source	Expected Outcome(s)
Leverage existing workforce training programs with colleges, universities, and workforce development entities to develop mentoring and training programs for digital literacy and skills. Establishing an education pipeline through K-12.	MIHI and LEO	BEAD Planning Funds	Increased availability of education and training programs for digital literacy and skills. Long term skill gap reduction through increased education on digital skills in schools.
Develop a plan for digital equity and inclusion that targets covered populations and underrepresented areas	MIHI	BEAD Planning Funds	A comprehensive plan that prioritizes the unique needs of community in the way that serves them best and promotes equity.
Promote ACP adoption using ongoing information and awareness campaigns through social media posts, email campaigns, and flyer distribution	MIHI	BEAD Planning Funds	Improvement in broadband adoption rates among low-income households. MIHI will work with ISPs to promote the availability of the ACP program among lower income households.
Align Digital Equity Capacity grant activities and non-deployment programs developed through BEAD	MIHI	BEAD Planning Funds	Aligning the BEAD goals and objectives included in this document with those of the Digital Equity plan and ensuring that the activities are complementary rather than duplicative.
Work with Stakeholders to determine infrastructure resiliency core elements	Core/Enabling Stakeholders	BEAD Planning Funds	Broadband infrastructure resiliency requirements and guidance for applicants that supports long-term infrastructure
Use a data driven approach to set the Extremely High Cost Per Location Threshold for addressing high-cost areas	MIHI	BEAD Planning Funds	An Extremely High Cost Per Location Threshold that promotes the deployment of fiber as much as possible within the given funding amount

Activity	Key Implementor	Funding Source	Expected Outcome(s)
Establish minimum requirements for a cybersecurity risk management plan with the support of core and enabling stakeholders	MIHI and Core/ Enabling Stakeholders	BEAD planning Funds	Cybersecurity mitigation plan and guidance that is made available to subgrantees to ensure their compliance with federal requirements.
Develop scoring methodology that assesses physical and financial long-term viability and sustainability of service	MIHI	BEAD planning Funds	Deployment projects that provide long-term affordable service to unserved and underserved locations
Continue community and partnership communications and engagement	MIHI	BEAD planning Funds/ SDEPG Funds	Input from communities and stakeholders on needs, gaps and priorities which can continue to shape the outcomes, support decision-making, and be used to measure the success of the BEAD program
Create and leverage local or regional technology committees to provide input on scoring or project selection	Enabling Stakeholders	BEAD planning Funds	Projects awarded are based on community needs and input.
Provide transparency, accessibility (including multiple languages), and empower communities with knowledge through public facing documents and websites	MIHI	BEAD Planning Funds / SDEPG Funds	Reduced misinformation, clearer communication, and increased broadband adoption
Develop scoring methodology to incentivize applicants that demonstrate addressing community needs	MIHI	BEAD Planning Funds	Prioritizing unserved and underserved locations
Establish application requirement for applicants to demonstrate community support or feedback related to issues with reliability and speed of service	MIHI	BEAD Planning Funds	Addressing reliability and service issues based on community input and actual service performance.

Table 11: Planned Activities, Key Implementor, Expected Outcomes, and Activity

Estimated Timeline for Universal Service

Michigan estimates that universal availability of reliable, affordable, high-speed internet throughout Michigan will occur by 2030. In the below Gannt chart, Michigan estimates the start and end dates for BEAD Program activities based on released guidance from the NTIA and due dates set in the NOFO.

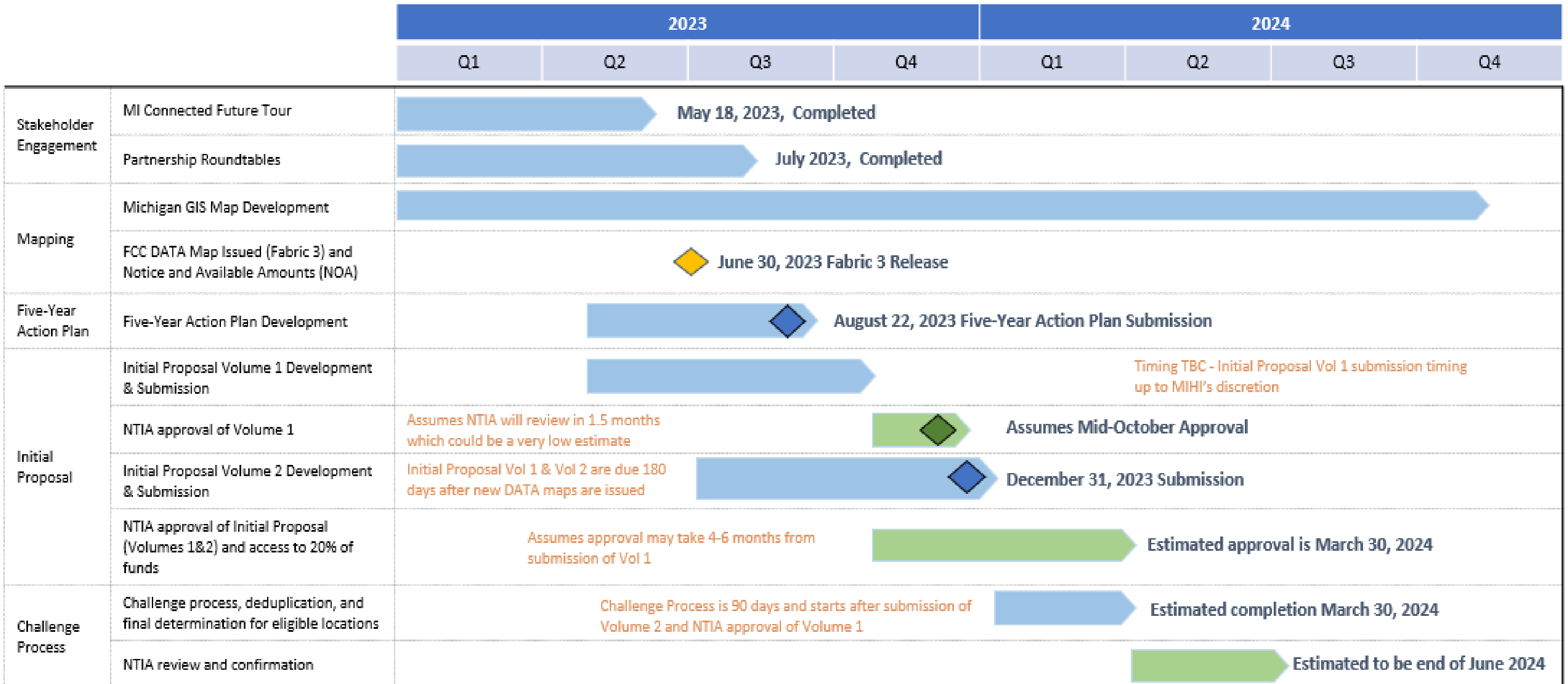


Figure 11: Estimated Universal Timeline Stakeholder Engagement through Challenge Process

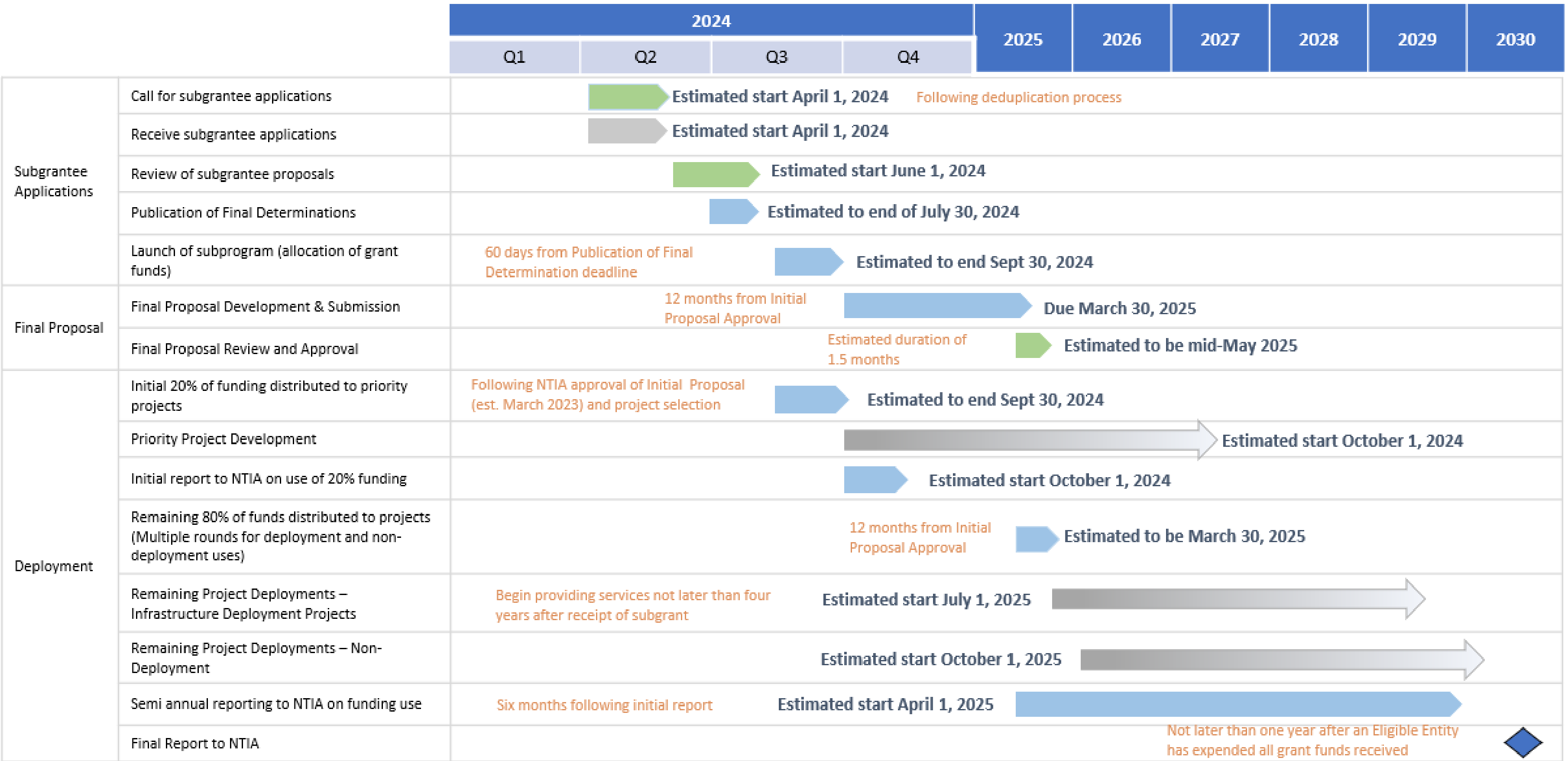


Figure 12: Estimated Universal Timeline Subgrantee Applications through Deployment

Execution of this timeline depends on the approval and responsiveness of the NTIA and the overcoming of obstacles and barriers as described in the section Obstacles and Barriers of this plan.

Estimated Cost for Universal Service

The MIHI does not yet have an estimate for the cost of achieving universal availability. The cost for universal service depends on multiple programs in addition to BEAD including RDOF, CAF, ROBIN, and others. The office is still waiting to receive cost modeling data from CostQuest via an agreement with the NTIA.

Alignment

The purpose of this section is to explain how the Five-Year Action Plan is aligned to Michigan's priorities and other existing and planned efforts. The following identifies and summarizes other existing state plans and efforts and how each enables or supports the BEAD five-year action plan, the state digital equity plan, and vice versa. This is a not an exhaustive list but represents a best effort of the MIHI Office to identify key plans across the state government. Plans are organized by topic.

Economic Development

Michigan Economic Development Corporation (MEDC) Five-Year Strategic Plan

The MEDC is Michigan's economic development lead with a mission to achieve long-term economic prosperity for Michiganders by investing in communities, enabling the growth of good jobs, and promoting Michigan's strong image worldwide. The six strategic focus areas rely heavily on MIHI achieving universal broadband availability and improved digital equity:

1. Attract, keep, and grow businesses in industries that support maximum growth in jobs, wages and investments.
2. Cultivate the skills and talent needed for in-demand and high-growth occupations statewide.
3. Collaborate with local communities and partners to create places in which people and talent want to live, work, visit and play.
4. Support entrepreneurial growth to enable commercialization and new high-tech business creation.
5. Promote Michigan's image as a world-class business location and travel destination.
6. Help existing small and microbusinesses grow and thrive and improve economic prosperity for all through small business ownership.

Robust, reliable, and affordable high-speed internet that is universally available supports business and job growth, creates attractive communities, supports entrepreneurs, promotes the state's competitiveness, and enables economic prosperity for all.

Michigan Poverty Task Force Report

The Michigan Poverty Task Force, established in 2019, issued its second report[25] with recommendations aimed at lifting Michiganders out of poverty, connecting families in every corner of Michigan with economic opportunity, improving quality of life, improving outcomes, and creating real change. The following selection of recommendations from the report are relevant to the work of MIHI and the BEAD and DEA programs:

1. Increase investments in a universal benefit application so Michigan residents can apply for resources in one place.
2. Establish a highly visible education and awareness effort to boost participation in and access to a formal network of Community-Based Education and Training Information Portals.
3. Develop a coordinated strategy to help communities address the digital divide.

The report includes many other recommendations that are tangentially related to the success of the BEAD Program, but that could be facilitated more rapidly by ensuring every home, business, and institution in the state has access to affordable and reliable high-speed internet. Ensuring digital equity allows programs that rely on digital platforms or apps to reach their intended participants/audiences.

[25] https://www.michigan.gov/leo/-/media/Project/Websites/leo/Folder16/22-LEO-0478-PTF-PrePress.pdf?rev=db428253b1154b5e8621b799370c123d&hash=5F422576BB6C143F65BB5A50ED5A1E70

Education

Education Equity in Michigan Plan

Created by the Michigan Civil Rights Commission in September 2022, the Education Equity in Michigan plan recommends that the Michigan Department of Civil Rights expand the existing Council for Government and Education on Equity and Inclusion to include representatives of the Michigan Department of Education and establish the Council as the entity responsible for implementing and overseeing the following recommendations for action.

1. Develop a Statewide Educational Equity Plan to enhance policies, accountability, and opportunities for all, using a holistic approach to inform the Michigan Department of Civil Rights, the State Department of Education, and schools statewide.
2. Ensure that all data collected by state and county government entities be disaggregated by race and ethnicity.
3. Encourage schools across the state to create local school equity plans and contribute information and resources to encourage and support equitable practices and opportunities for schools.
4. Host periodic professional development training workshops and a yearly "Best Practices in Education Equity" conference.
5. Provide year-round cultural competency/race and equity education, advice, and coaching.
6. Increase internet access for students and families and develop an easily accessible electronic outreach and inclusion model that is available to everyone involved in the education process.
7. Support a well-resourced and quality teacher training program (through universities and colleges), encouraging diversity in its teaching roles and student enrollment.

Given the necessity of high-speed internet connectivity and digital inclusion in the P-20 environment, this plan supports the vision and mission of MIHI, this plan, and the State Digital Equity Plan to create a more digitally equitable state by ensuring equity of access across several aspects of the education ecosystem.

Michigan's Top 10 Strategic Education Plan

The Top 10 Strategic Education Plan[26] has a vision that states; "every learner in Michigan's public schools will have an inspiring, engaging, and caring learning environment that fosters creative and critical thinkers who believe in their ability to positively influence Michigan and the world beyond."

One of the key guiding principles of the plan states that students should be provided every opportunity to achieve the broadest range of life dreams, and a selection of key goals seek to; 1) expand early childhood learning opportunities; 2) improve the health, safety, and wellness of all learners; 3) expand secondary learning opportunities for all students; and 4) increase the percentage of adults with a post-secondary credential. While high-speed internet access isn't explicitly called out in the plan, equitable and affordable access and use are inherent in supporting Michigan's achievement of the goals outlined in the plan.

Environment

MI Healthy Climate Plan

The Michigan Department of Environment, Great Lakes, and Energy (EGLE) published the MI Health Climate Plan[27] in April 2022. This plan lays out a broad vision for fulfilling the governor's fall 2020 commitment for Michigan to achieve 100% economy-wide carbon neutrality by midcentury – the global science-based benchmark for reducing greenhouse gas emissions to avoid the most devastating and costly impacts of climate change. The plan establishes

---

[26] https://www.michigan.gov/mde/-/media/Project/Websites/mde/top10/top_10_mi_strategic_ed_plan_promising_practices_1_pager.pdf?rev=8a9af7389097471a971dc5e97d48a6a8&hash=E1CDB70B6C52F11C51E4F2D4AD040333

[27] https://www.michigan.gov/egle/-/media/Project/Websites/egle/Documents/Offices/OCE/MI-Healthy-Climate-Plan.pdf?rev=d13f4adc2b1d45909bd708cafccbfffa&hash=99437BF2709B9B3471D16FC1EC692588

ambitious goals and strategies for achieving the plan's vision. The follow selected goals and strategies are supported by the efforts of the MIHI Office and vice versa.

1. Clean the electric grid.
2. Electrify vehicles and increase public transit.
3. Repair and decarbonize homes and businesses.
4. Drive clean innovation in industry.
5. Protect Michigan's land and water.

Many of the innovative solutions to mitigate climate change rely on advancements in technology, which is heavily dependent on high-speed connectivity.

Health

Health Information Technology Roadmap

This roadmap is maintained and implemented by the Policy and Planning, Strategic Engagement, and Alignment section of the Michigan Department of Health and Human Services. The Health IT Roadmap[28] identifies several relevant goals, objectives, and strategies that impact and are impacted by the BEAD and State Digital Equity Programs:

1. Identify Champions and Empower Leaders
2. Enhance Health Date Utility
3. Address Michigan's Digital Divide
4. Improve Onboarding and Technical Assistance
5. Protect Public Health
6. Adopt Standards for Social Care Data Fields

While the deployment of universal high-speed internet service and addressing digital equity contribute to each of these objectives, and the objective from the Roadmap to, "Address Michigan's Digital Divide," directly aligns with the vision and goals of this and Michigan's Digital Equity Plan. The successful implementation of BEAD will directly support the goals of the Health IT Roadmap.

Michigan Roadmap to Healthy Communities

The Michigan Roadmap to Health Communities[29] aims to address the social determinants of health (SDOH) through a collaborative, upstream approach to remove barriers to social and economic opportunity, improve health outcomes, and advance equity. Phase I of the SDOH Strategy promoted the alignment of efforts at the state, local, and community level and the improvement of programs and policies through an in-depth internal review. It prioritized efforts in three focus areas – health equity, housing stability, and food security. Phase II of the SDOH Strategy builds on improvement and alignment efforts from Phase I, with a focused effort on health equity through multisector collaboration and supporting holistic solutions.

A key component of the Roadmap is the development of a Community Information Exchange (CIE). A CIE is an evolving set of best practices and technology guided by the goal of identifying and addressing social needs. As identified in the plan, a successful CIE requires widespread access to broadband and technology and a workforce trained in its use, agreed protocols around data collection and coding, staff with dedicated time to facilitate the

[28] https://www.michigan.gov/mdhhs/-/media/Project/Websites/mdhhs/Doing-Business-with-MDHHS/Boards-and-Commissions/Health-Information-Technology-Commission/CY2022-Bridge-to-Better-Health-Report_Adopted_Final-Aug22.pdf?rev=4dd6bf50a4d24d71a049c15f7032b524

[29] https://www.michigan.gov/mdhhs/-/media/Project/Websites/mdhhs/Inside-MDHHS/Policy-and-Planning/Social-Determinants-of-Health-Strategy/Strategy-Documents/Phase-II-SDOH-Strategy-2823.pdf?rev=12e0ca6c22a9434ea133d197e44d9b82&hash=591123DA9B8D2012DE255E44B1DAD44F

referral process, and a robust network of referral partners. The success of this plan is heavily reliant on the universal availability of high-speed internet service.

Infrastructure

Thirty-Year Integrated Infrastructure Plan

Developed by the Michigan Infrastructure Council, this plan includes the state's dig-once strategy to collocate facilities during construction within state and local rights-of-way. This plan enables the efficient deployment of broadband networks. This plan is currently under development.[30]

Michigan Public Service Commission (MPSC) Strategic Plan

The mission of the MPSC is to serve the public by ensuring safe, reliable, and accessible energy and telecommunications services at reasonable rates. While the MPSC does not regulate broadband, the commission intersects with the goals, vision, and objectives of the MIHI Office, this plan, and the statewide digital equity plan. The follow are selected key goals and strategies of the MPSC Strategic Plan[31] that support the efforts of the MIHI Office and vice versa.

1. Empower customers to make informed utility choices.
   a. Public accurate information on energy and telecommunications programs
   b. Promote Connect Michigan broadband expansion
   c. Collaborate with other state departments and stakeholders
   d. Develop energy and technology pilots
2. Assure safe, secure, and reliable utility services and infrastructure
   a. Issue a Telecommunications Assessment
   b. Define roles for telecommunications outage monitoring
   c. Support the transition to IP-911
3. Assure accessible and affordable utility services through regulatory oversight
   a. Examine role in addressing systemic racism's impact on energy and telecom programs
   b. Administer and promote customer programs
4. Cultivate open and diverse communication and education
   a. Establish and encourage virtual stakeholder participation in workgroups and proceedings
   b. Engage partners on informational webinars/forums
   c. Evaluate communication and outreach programs and efforts

Transportation

Michigan Future Mobility Plan

The Michigan Office of Future Mobility and Electrification oversees the Michigan Future Mobility Plan[32]. This plan identifies several objectives to position the state as the leader in mobility. The following objectives from the plan have been identified as those that impact or are impacted by the BEAD and State Digital Equity Programs:

1. Deploying EV chargers.
2. Ensuring Mobility as a Service (MaaS) access across all 77 public transit agencies.
3. Be the number one state for mobility research and development.
4. Be a top ten state for mobility investments.

[30] https://www.michigan.gov/mic/30-year-integrated-infrastructure-strategy
[31] https://www.michigan.gov/-/media/Project/Websites/mpsc/about/External_Strategic_Plan_2021-2025.pdf?rev=29287fd46c794a07a671c37f4e97f5f9
[32] https://www.michiganbusiness.org/4aecec/globalassets/documents/mobility/state-strategy-for-the-future-of-mobility-and-electrification-detailed-version.pdf

5. Reduce congestion and traffic crashes, (improve traffic safety).

Mobility and electrification are heavily reliant on the availability of wired and wireless connections to provide real-time data, enable transactions, and monitor the electrical grid and associated systems. Universal connectivity and adoption are important for the operations of EV chargers and transit access. Having large green sites that are attractive for automotive investments in the future will mean looking outside of traditional urban areas to parts of the state that aren't connected today. The operations of intelligent transportation systems and connected/automated vehicle tech rely on the reliable availability of IoT and edge computing across cellular-vehicle-to-vehicle/everything (CV2V / CV2X) systems. Michigan's BEAD and Digital Equity Programs directly support the success of the Michigan Future Mobility Plan.

Michigan Mobility 2045 Plan

Michigan's State Long-Range Transportation Plan (MM2045)[33] is an essential element of Michigan's transportation planning and program development process. The public- and stakeholder-driven plan provides a foundation for developing Michigan's transportation programs, including MDOT's Five-Year Transportation Program (5YTP) and the statewide, rural and metropolitan transportation improvement programs, and presents the social and economic cases for transportation investment in Michigan.

The universal availability of high-speed internet is recognized as a key requirement for the successful implementation of the MM2045 Plan. Additionally, the plan contains the following strategies that are relevant to the BEAD Program and work of the MIHI Office:

1. Identify opportunities to expand fiberoptic, broadband, and 5G connections through coordination or partnerships.
2. Leverage technology to improve passenger transportation availability and services.
3. Invest in data, data collection, analytics, and information systems to advance data informed decisions.
4. Extend opportunities to share data and information for improved efficiency, accountability, and transparency across all of Michigan's transportation partners.
5. Implement and expand a real-time Transportation Infrastructure Data Exchange (TIDE) system to function as a centralized platform to support continuous exchange of transportation data among MDOT and other stakeholders.

Workforce

Michigan Workforce Development Plan

The Michigan Workforce Development Plan is maintained and implemented by the Employment and Training Division of the Michigan Department of Labor and Economic Opportunity (LEO), the same agency that houses the MIHI Office. This plan is currently under development.

Michigan Sixty by 30 Strategic Plan

The Michigan Sixty by 30 Initiative aims to increase post-secondary educational attainment to 60% by 2030. The Sixty by 30 program is housed within the Michigan Department of Labor and Economic Opportunity (LEO), the same agency that houses the MIHI Office. The Sixty by 30 Strategic Plan[34] outlines several focus areas that are impacted by the work of the MIHI Office including:

1. Boost youth college going rates.
2. Boost adult postsecondary enrollment.
3. Create pathways for immigrants and international students.

---

[33] http://www.michiganmobility.org/pdfs/mm2045_plan/MM2045_Plan_FINAL_2021_11_03_remediated.pdf

[34] https://www.michigan.gov/-/media/Project/Websites/leo/Documents/Executive/Sixty_by_30_Strategic_Plan.pdf?rev=b75c735459cf411ca327cb22628ac0c7

4. Partner with employers.
5. Catalyze a statewide postsecondary completion agenda with postsecondary institutions.
6. Address barriers to success, especially for students living below the ALICE threshold.

The achievement of the universal availability of high-speed internet and improved digital equity supports the focus areas of the Sixty by 30 initiative as student and career success is supported through expanded access to the internet.

Technical Assistance

MIHI is grateful for the technical assistance that the NTIA has provided thus far and is looking forward to NTIA's continued support in the form of guidance and informational webinars on the following topics, as described in the NOFO:

- Identification of Extremely High Cost Per Location areas
- Approaching the subgrantee selection process
- Developing grant applications
- Procedures for distribution of funds
- Cybersecurity
- Preference for maximum subgrantee contribution and minimal BEAD subsidy determinations

In addition to guidance, timely review and feedback from NTIA on the Five-Year Action Plan, Initial Proposal, and Final Proposal as well as dedicated technical assistance in the revision process of the Initial Proposal will support the BEAD program deployment in Michigan.

In addition to the guidance NTIA has already reported, the below are additional areas of technical assistance requested by MIHI:

- Audit requirements
- Subgrantee compliance and reporting requirements including timelines, templates, and tutorials
- Compliance with Build America and Buy America Acts
- Resiliency standards or guidance
- Application of 2 CFR 200 requirements including real property, program income, cost principles and procurement standards
- Low-cost service option requirements
- Use of public data sets
- Defining digital equity KPIs
- Rural area definition
- Representations of covered populations and the relation to the recommended data sets

MIHI values input from their partners and aims to provide them with the technical assistance necessary to implement a successful BEAD project. During MIHI's partnership roundtable meetings, concerns regarding the availability of electronic components and supply chain shortages were raised. MIHI shares NTIA's confidence in current supply chain and material availability, while acknowledging that unforeseen issues may arise. Therefore, MIHI also requests guidance on flexibility of the required milestones, timelines, and requests for extensions, in the event delays due to supply chain shortages occur.

MIHI would appreciate guidance on how we can holistically plan for and overcome non-traditional barriers that may keep Michiganders from being digitally connected. Non-traditional barriers may include those that reach into broader social determinants such as socioeconomic status.

Conclusion

Access to high-speed internet substantially effects the ability to fully participate in everyday life and plays a critical role in accessing employment, education, and healthcare. The digital divide has the most significant impact on communities that have previously been overlooked or that have been historically disadvantaged. The BEAD Program offers an opportunity for Michigan to finally close the digital divide and achieve its statewide goals to ensure that high-speed internet access is available to every home, business, institution, and community and that 95% of Michigan households adopt a permanent home internet connection.

MIHI's robust and innovative community and stakeholder engagement process highlighted the need to address and approach broadband challenges based on the unique characteristics of regions and local communities.

It is not possible to fully address the digital divide in Michigan without concurrently addressing digital equity. MIHI is committed to digital inclusion and will coordinate the planning and implementation of the BEAD Program with the State Digital Equity Plan and SDECG to achieve its digital equity goals. With the help of the state Digital Equity Plan, and in collaboration with partners and stakeholders, MIHI is confident in its ability to overcome obstacles and barriers. MIHI has conducted meetings with its enabling partners and partnership roundtables, which have reassured MIHI that stakeholders throughout the state are willing to collaborate for achieving the state's vision for broadband and digital equity. MIHI is grateful to all the Michiganders who have taken the time to participate in the surveys, roundtables, coordination meetings, and the listening tours and is looking forward to a continued dialog with residents and partners throughout the BEAD program implementation. This participation and stakeholder feedback are key to the state's strategy for closing the digital divide. Following the submission of this Five-Year Action Plan, MIHI will continue to engage with its stakeholders and collect valuable input and data for the BEAD program implementation to serve communities in the best possible way that meets their needs.

Appendices

Appendix A – External Partner Organizations

The following is a list of organizations invited to participate as external partners and attend MIHI's monthly Partnership Roundtable meetings, (*indicates organization has attended at least one partnership roundtable meeting).

123.NET, INC.
906 Technologies, LLC
AARP*
Above Wireless LLC
ACD.net*
Ace Telephone Company of Michigan, Inc*
AcenTek
Adtran, Inc.*
AEG/ITC Broadband
Agri-Valley Communications, Inc*
Allband Communications Cooperative*
Allegan County Government*
Almont Township
Almvoy Inc
Altman Solon*
American Arab Chamber of Commerce
American Electric Power (AEP)*
Aspen Wireless
Astrea Connect*
AT&T*
Athens Township*
ATI Networks, Inc.
AuSable Valley CMHA*
Ballmer Group
Baraga Telephone Company*
Barger Creek Wireless
Barry County Telephone Company
Bath Township MI Broadband Taskforce
Bay Arenac ISD
Bay County Commission*
Bay County*
Bay Mills Indian Community*
BCN Telecom, Inc.
Beaver Island Joint Townships Telecommunications Advisory Committee*
Benefits Data Trust*
Berrien County*
Big Rapids Charter Township*
Big River Telephone Company, LLC
Black Leadership Advisory Council
Blanchard Telephone Co.
Bloomingdale Telephone Company, Inc.*
Blue Collar ISP
Bruce Township
Buckeye Broadband*
Building Assets to Strengthen Society (BASS Inc)*
Business Leaders of Michigan
Cadillac Area Chamber of Commerce*
Calhoun County
Cannon Township
Capital Area District Libraries
Carr Telephone Company
CCI Systems
CEDAM*
Cedar Creek Wireless LLC
Center for Change Northern Michigan Advocacy*
Center Upper Peninsula Planning and Development*
Central Michigan University*
Central Upper Peninsula Planning and Development Regional Commission*
Chaldean Community Foundation
Charter Communications (Spectrum) *
Charter Township of Hampton
Charter Township of Union*
Charter Township of Vienna*
Cheboygan County*
Cherry Capital Connection, LLC*
Chikaming Township*
Chocolay Township
CHR Solutions*
Church of the Messiah / BLVD Harambee*
City of Alpena
City of Birmingham, MI*
City of Detroit*
City of Flint*
City of Hart
City of Norway
City of Portland
Clare County EMHSD*
Climax Telephone Company
Closing The Digital Gap*
CMC Telecom, Inc.
CMSInter.net LLC
Cogent Communications*
Coldwater Telecommunications Utility
COLI, Inc.
College of Healthcare Information Management Executives (CHIME)
Columbia Township Board*
Columbus Township
Comcast*
Commission on Middle Eastern American Affairs
Communications Workers of America*
Community Action Agency Association

Community Action Alger Marquette*
Community Action of Allegan County
Community Advisory Council-D4 (Detroit)*
Community Economic Development Association of Michigan
Connecting Manistee County*
Consumer Cellular, Incorporated
Consumers Energy
Convis Township
Conway Township
Cooperative Network Services
COOR ISD*
Corewell Health
Council of Michigan Foundations
County of Gladwin*
County of Iosco
County Road Association of Michigan*
Crown Castle Fiber LLC
Crystal Automation Systems, Inc dba Casair, Inc
CS Mott Foundation
D & P Communications*
DayStarr LLC
DCS Technology Design*
Detroit Community Technology Project*
Detroit Regional Chamber
Detroit Regional Partnership
DetroitJCS*
Develop Iosco, Broadband Advisory Committee*
Dexter Township
Dickinson Area Community Foundation
DMCI Broadband LLC*
Downriver Community Conference*
DTE Energy
Duke Broadband*
Dykema
Dynamic Environmental Associates, Inc.
East Bay Township
East Michigan Council of Governments*
Eastern UP Regional Planning and Development Commission*
Eclipse Communications
Egelston Township
Elk Rapids Schools*
EUPConnect Collaborative / EUPISD*
Everstream GLC Holding Company LLC
Farmers Mutual Telephone Company
FirstNet Built with AT&T
Flint Innovative Solutions*
Frontier Communications*
Frontier*
Fund MI Future*
General Equipment Maintenance and Language llc*
Gerald R Ford Job Corps Center
Gladwin County Commission
Gladwin County Democratic Party*
Gladwin County Office of Veterans Affairs*
Global Entrepreneurship Business Lab*
GLS Region V Planning and Development Commission
Google North America Inc.
Grand Rapids Alliance of Cooperative Communities
Grand Rapids Area Black Businesses
Grand Rapids Chamber*
Grand Rapids Urban League*
Grand Traverse Band of Ottowa and Chippewa Indians
Granite Telecommunications, LLC
Gratiot County
Great Lakes Energy*
Great Lakes Islands Alliance*
Guidehouse
GVSU*
Hannahville Indian Community, Michigan
Hayes Township
Health Care Association of Michigan
Henry Ford Health*
Hiawatha Communications*
Hiawatha Telephone Company
Hidden Lake Wireless, Inc.
Highland Twp Supervisor*
Highline*
Hispanic/Latino Commission
Holland Board of Public Works
HomeWorks *
Hudson Webber Foundation
Human-I-T*
Huron County
Huron & Sanilac Economic Development Corp*
IBEW*
ICEA*
Indiana Michigan Power Company Inc.
Internet Service Inc.*
InvestUP*
Ionia Unlimited LLC
Iron River Coop TV and Ant.
ISP Management Inc.
ITC*
JMF Solutions, Inc.
JSI Telecom*
Kalamazoo Regional Educational Service Agency
Kaleva Telephone Company
KALITTA AIR *
Kellogg Foundation of Michigan
Kent County*
Kent ISD
Keweenaw Bay Indian Community
KPMG*
Lac Vieux Desert Band of Lake Superior Chippewa Indians
LakeNet*
Lansing Board of Water & Light*
Lansing Regional Chamber

Lapeer County ISD
Latin Americans United for Progress
Lee Township Allegan County*
Leland Public Schools*
Lennon Telephone Company
LEO - Employment & Training*
Leroy Township
Library of Michigan
Lighthouse.Net
Lit Communities*
Little River Band of Ottawa Indians*
Little Traverse Bay Bands of Odawa Indians
LLEAD - Latino Leaders for the Enhancement of Advocacy and Development
Local Access, LLC
Local Initiatives Support Corporation
Local Union 876
London Township*
Lynx Network Group, Inc.
Macomb County Dept of Planning & Economic Development
Macomb Intermediate School District*
Macon Township
MAEDS Michigan Association for Educational Data Systems
Mainstee County Commission*
Mainstee County Human Services Collaborative Body*
Make This World Foundation
Market Van Buren*
Marq6 Broadband
Marquette County*
MASAL
Mastodon Township Planning Commission
Match-E-Be-Nash-She-Wish Band of Pottawatomi Indians (Gun Lake)*
MBK Benton Harbor
MBK Highland Park
MBK Lansing
MBK Southfield
MBK Washtenaw County
McKenzie Health System*
MDHHS*
MDOT*
Mental Health Association in Michigan*
Mercury Broadband*
Meridian Charter Township
Merit Network*
Merritt Township*
MetaLINK Technologies, Inc.*
Metro Fibernet, LLC
Metropolitan Telecommunications of Michigan, Inc., dba MetTel
MI Community Action*
MI Health and Hospital Association*
Michigan AgriBusiness Association
Michigan Asian Pacific American Affairs Commission
Michigan Association for Computer Users in Learning (MACUL)*
Michigan Association of Counties*
Michigan Association of County Drain Commissioners
Michigan Association of Intermediate School Administrators
Michigan Association of Senior Centers
Michigan Association of State Universities
Michigan Association of United Ways
Michigan Building and Construction Trades Council
Michigan Central Broadband Company, LLC
Michigan Chamber of Commerce
Michigan Coalition on Black Civic Participation
Michigan College Access Network*
Michigan College Alliance
Michigan Community College Association
Michigan Cooperatives Directors Association
Michigan Department of Agriculture and Rural Development*
Michigan Department of Civil Rights*
Michigan Department of Corrections*
Michigan Department of Education
Michigan Department of Education Office of Special Education*
Michigan Department of Health and Human Services*
Michigan Department of Natural Resources*
Michigan Department of Technology, Management, and Budget*
Michigan Department of Transportation*
Michigan Economic Developers Association
Michigan Economic Development Corporation*
Michigan Educational Technology Leaders
Michigan Electric Cooperatives Association*
Michigan Farm Bureau
Michigan Farmers Union*
Michigan Health and Hospital Association
Michigan Health Council
Michigan Health Improvement Alliance*
Michigan Hispanic Chamber of Commerce
Michigan Infrastructure and Transportation Association
Michigan Infrastructure Council
Michigan Infrastructure Office*
Michigan League For Public Policy
Michigan Library Association
Michigan Medicine*
Michigan Municipal Electric Association
Michigan Municipal League*
Michigan Primary Care Association*
Michigan Public Service Commission*
Michigan Railroads Association
Michigan Small Business Development Center
Michigan State University Center for Community and Economic Development*
Michigan State University*

Michigan Technological University, Information Technology*
Michigan Townships Association*
Michigan Unemployment Insurance Agency*
Michigan Veterans Affairs Agency*
Michigan Veterans Foundation
Michigan Workforce Development Institute
Michigan Works! Association*
Michigan Works! Region 7B*
Michigan Works! Region 7B/Ogemaw EDC*
Michigan's Great Lakes Bay Regional CVB*
Michwave Technologies, Inc.
Middle Michigan Development Corporation
Midland Area Transportation Study*
Midwest Energy & Communications*
Millennium
MISSDIG (Michigan Utility Notification Center)*
MITCON, LLC
Mobilitie Management, LLC
MPSC*
MSU
MSU Extension*
Munson Healthcare*
MVAA*
MyMichigan Health
Nation Outside A Voice for the Formerly Incarcerated*
Negaunee Cable Company
NEMCOG*
Networks Northwest/Northwest Michigan Works!*
NMU Network
Nokia
North End Woodward Community Coalition*
Northeast Michigan Council of Governments
Northern Broadband*
Northern Lakes Economic Alliance
Northern Michigan University*
Northside TV Corporation
Northwest Education Services*
Northwest Michigan Council of Governments (dba. Networks Northwest)
Norvell Township Government
NOS Communications, Inc.
Nottawaseppi Huron Band of the Potawatomi*
nTechQuity Community Learning *
Oakfield Township
Oakland Livingston Human Service Agency*
Oakland University*
Oceana Country Economic Alliance*
Oceana County Board of Commissioners
Office of Foundation Liaison
Office of Global Michigan
Office of U.S. Senator Debbie Stabenow*
Ogden Telephone Company
Osceola County
Ottawa County*
Park Township
Pasty.net*
Peerless Network of Michigan, LLC
Peiane Township*
Peninsula Fiber Network*
Pennies from Heaven Foundation*
Pentwater Township*
Pinconning Township
Plainfield Township*
Plante Moran
Point Broadband Fiber Holding, LLC
Pokagon Band of Potawatomi
Presque Isle Electric & Gas Co-op*
PROTEC Michigan*
Pure Broadband*
Quello Center at MSU*
Ralph J Wilson Jr Foundation
Region 2 Planning Commission
Regional Educational Media Center Association of Michigan*
REMC*
Representative Greg Alexander's Office
Richland Township, Kalamazoo County
Rockford Telephone Company, Inc.
Roscommon County
Roscommon Township*
Rural Gig LLC*
Rural Innovation Strategies Inc
Sage Telecom Communications, LLC
Saginaw Chippewa Indian Tribe*
Saginaw County Community Action Center*
Saginaw County Information Technology Director*
Saginaw Housing Commission
Sand Creek Telephone Company*
Sanilac County Community Foundation*
Sault Ste. Marie Tribe of Chippewa Indians*
SCIT*
Secord Township
ShoreWaves LLC
Sidney Township*
Sister Lakes Cable TV
Small Business Association of Michigan*
SoftPath Technologies, LLC
SonicNet, Inc.*
Southcentral Michigan Planning Council
Southeast Michigan Council of Governments*
Southwest Michigan Planning Commission
Southwestern Michigan Urban League
Springport Telephone Co*
Sprint Communications Company, L.P.
St James Township, Charlevoix County*
St. Clair County Commissioner
St. Clair County Metropolitan Planning Commission

State Historic Preservation Office
State of Michigan (MDARD) - Office of Rural Development*
State Representative Angela Witwer*
STELLAR Broadband*
Strategic Alliance Community Development*
Summit Digital
Sunrise Communications, LLC
Surf Broadband
Sylvester Broome Empowerment Village
SyncWave, LLC*
TC3 Telecom, Inc.
TDS Telecom
Telecommunications Association of Michigan*
The Chillicothe Telephone Company
The Disability Network *
The Ezekiel Project
The Kresge Foundation
The Right Place*
Thumb Electric
T-Mobile
Torch Wireless
Township of Bruce
Tri-County Electric Cooperative dba HomeWorks Connect*
Tri-County Regional Planning Commission
United Tribes of Michigan
United Way for Southeastern Michigan*
University of Michigan - Flint*
University of Michigan*
UP Health Care Solutions / Health Information Exchange*
Upjohn Institute*
Urban League of Detroit and Southeastern Michigan
Urban Wireless Solutions*
US Cellular*
US Signal Company, L.L.C.
Vantage Point
Vergennes Broadband LLC
Verizon*
Victor Township, Clinton County*
Village of Pentwater*
Waldron Communication Co.*
Washington Township*
Washtenaw County
Washtenaw Fiber Properties LLC
Wayne County Community College District*
Wayne Metro
Wayne State University*
Webster Broadband Cooperative
West Michigan Regional Planning Commission
West Michigan Shoreline Regional Development Commission*
Western Upper Peninsula Planning and Development Regional Commission*
Westphalia Broadband, Inc.
Wheatfield Township*
Wideband Group, LLC*
Williamston Township*
WISPA*
WOW!
Wyandotte Cable
Zayo Group, LLC