

# COMMUNITY TECHNOLOGY AND LIBRARIES

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# AGENDA

1. Context
2. What it is and where are we?
3. Why do we care?
4. Broadband and libraries
5. Examples
6. Questions



# CONTEXT

Connect Michigan, non-profit dedicated to expanding broadband access, adoption, and use for improved quality of life. Core competencies include:

- Network mapping, validation, and analysis
- Broadband and technology research
- Local, state, and national policy analysis and capacity building
- Worked in 14 states during the State Broadband Initiative (SBI) funded by the NTIA
- Community technology planning
  - Connected Community Engagement Program (Connected)
  - Established and field validated effort to facilitate the expansion of broadband and technology at a local level

# CONTEXT

Supply

## Access

The physical connection to high-speed infrastructure

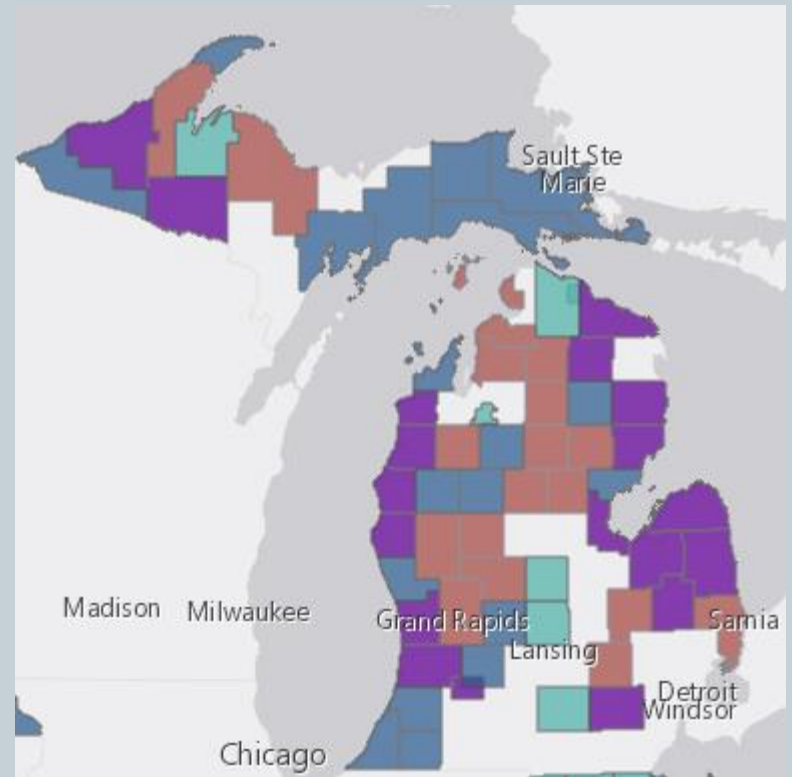
Demand

## Adoption

Recognizing the value of broadband and subscribing either at home, work, or via public institutions

## Use

Skills and applications to leverage technology to improve quality of life and community/economic development



# WHAT IT IS AND WHERE ARE WE?

It's more than  
just pipes and  
Wi-Fi.

# WHAT IS BROADBAND

- More commonly referred to as high-speed internet access
- Two Types of Service
  - Fixed, terrestrial broadband
  - Mobile broadband
- Fixed, terrestrial broadband
  - Any service designed for stationary use with a signal that stays on earth.
  - Includes cable, fiber optic, fixed wireless, and DSL.
- Mobile broadband
  - Wireless service designed for continuous use on a portable device
- Fixed and mobile services are treated as equally important but are different
- Satellite, while often a last resort option for service, is not considered fixed-terrestrial or mobile.
- Two speeds make up a connection, X Mbps/X Mbps. The first is download speed and the second is upload speed.

## Speed Comparison:

Time to download a large music file (70Mb) from an online music service, (e.g. iTunes, Amazon, etc.)

### Dial-Up Service

56 Kbps (4 hours 10 mins.)

### Broadband

1 Mbps  
(14 mins.)

2 Mbps  
(7 mins.)

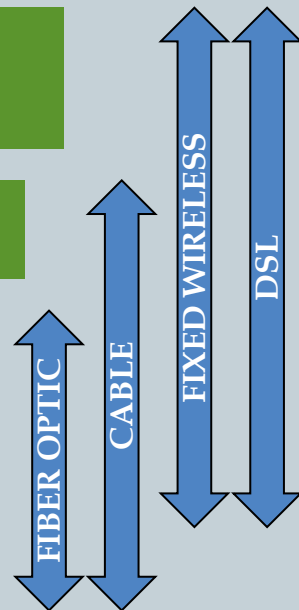
5 Mbps  
(4 mins.)

10 Mbps

25 Mbps

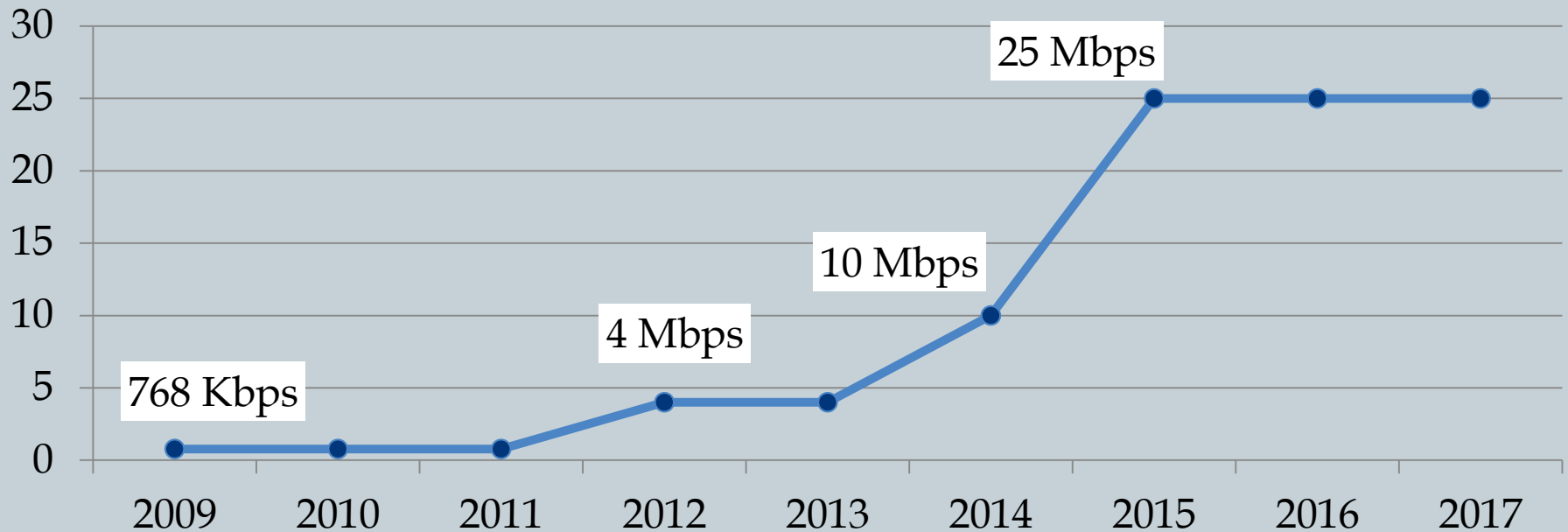
50 Mbps

100 Mbps



# MORE THAN A BINARY DISCUSSION

**Changing Definition of Broadband with Guidance from the FCC by Download Speed**

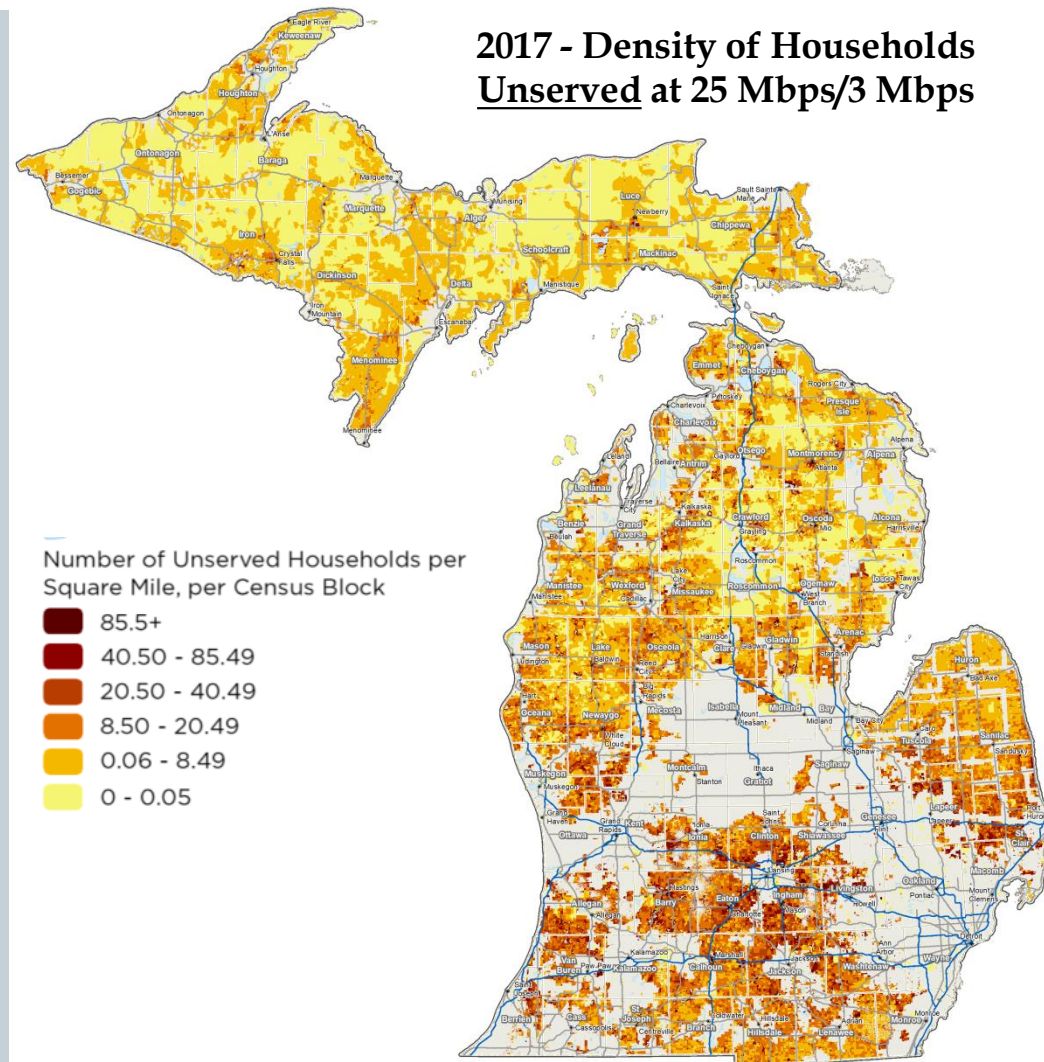




# WHERE DO WE STAND?

- Michigan has approximately 175 fixed internet service providers
  - 21% - Fiber
  - 26% - DSL
  - 17% - Cable
  - 36% - Fixed Wireless
- Six mobile broadband providers serve the state
- ~90% of households in the state have access to broadband at 25/3 Mbps (the current FCC definition), as shown, however, this doesn't translate geographically.
- On average, areas unserved at 25/3 Mbps have a household density of ~14 homes per square mile.
- ~65% of households subscribe to fixed internet service at home, 11% rely on mobile broadband for home service, and 6% rely on satellite.

**2017 - Density of Households Unserved at 25 Mbps/3 Mbps**

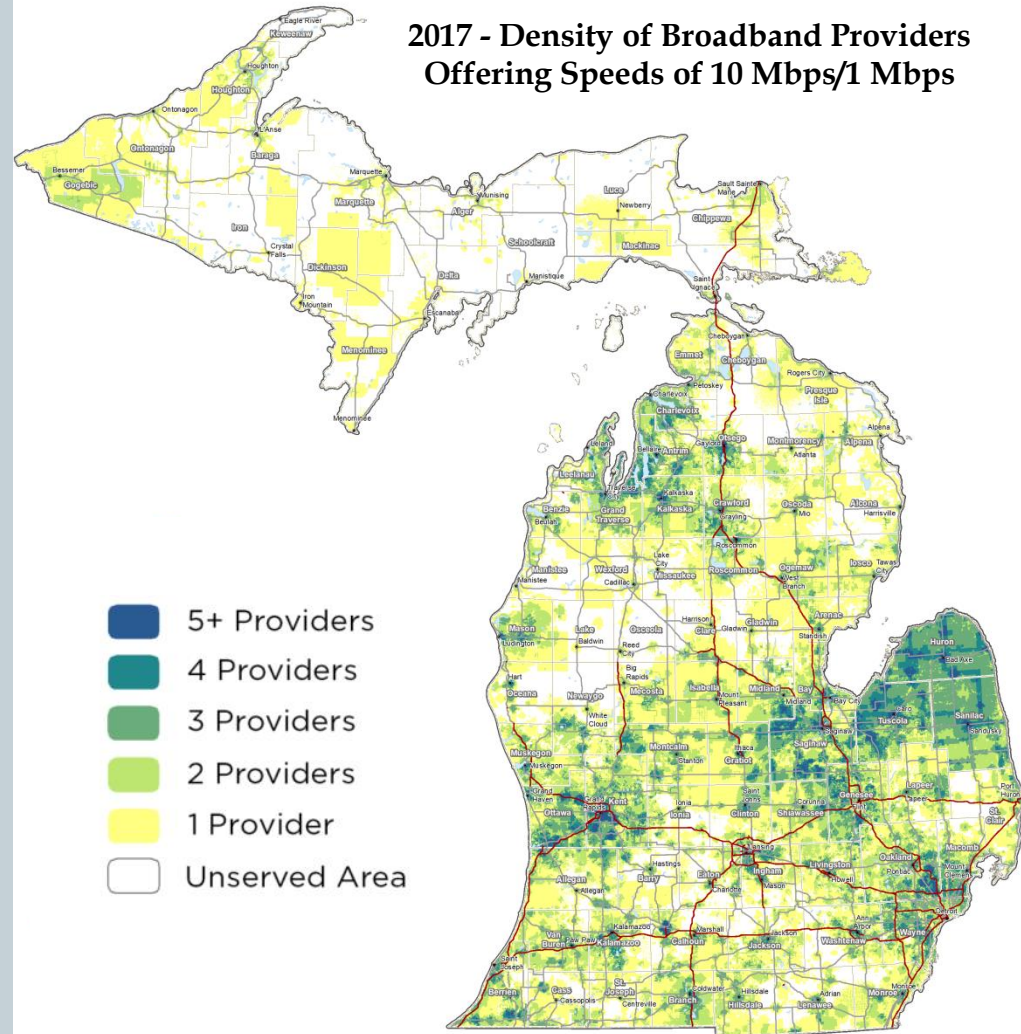




# WHERE DO WE STAND?

- The other aspect we examine is competition, what choices do consumers have for service?
- At 10/1 Mbps, ~84% of households have access to at least two providers (represented by the green areas on the map).
- However, at 25/3 Mbps, only 51% of households have access to at least two providers.
- In rural areas, even if 25/3 service is available, it is often only from one provider.

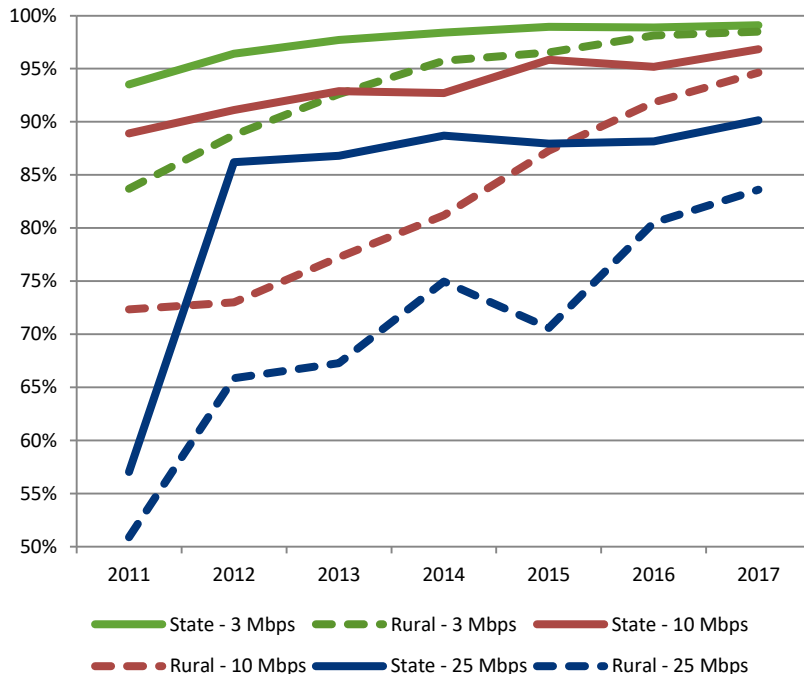
2017 - Density of Broadband Providers  
Offering Speeds of 10 Mbps/1 Mbps



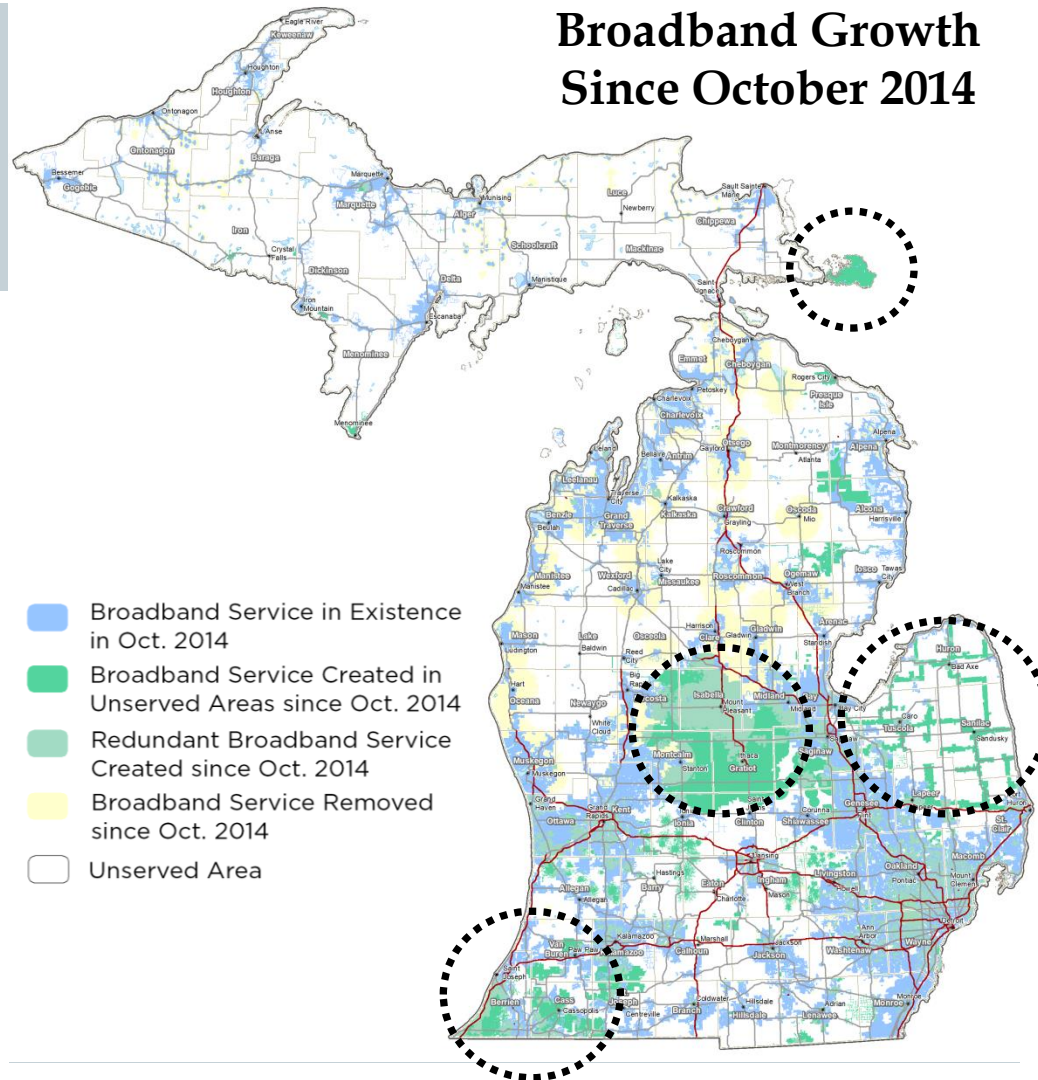
# WHERE IS BROADBAND GETTING BETTER?

Of new 25/3 Mbps internet connections made between 2014 and 2017, only 7% were made to households that didn't already have such a connection available from another provider.

**Growth of Household Availability of Broadband by Speed Tier for Rural Michigan**



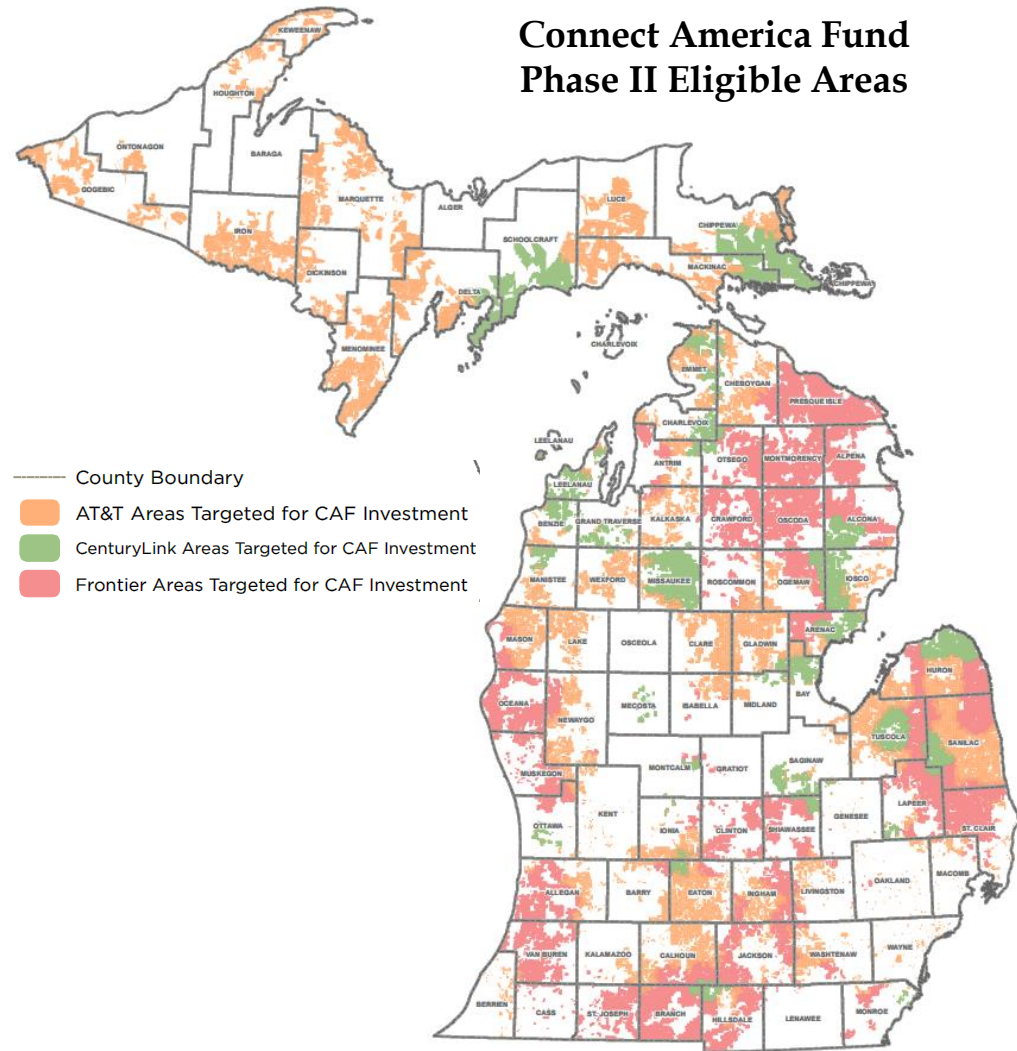
## Broadband Growth Since October 2014



# CONNECT AMERICA FUND

- The FCC is currently subsidizing several internet service providers in Michigan to build out connections to more rural areas, but progress isn't measurable yet.
- The first benchmark for construction comes at the end of 2017 when 40% of connections need to be made. The process for reporting and validating this benchmark, however, have not yet been determined.
- Build-outs need to be complete by the end of 2020.
- Providers are only required to build connections that provide 10 Mbps upstream and 1 Mbps downstream.
- Total subsidy to Michigan is ~\$390M.
- Additional subsidies and auctions to come.

	AT&T Michigan	Frontier	CenturyLink	Rate of Return Carriers
Locations to be Served	86,635	68,512	25,230	34,711
Total Subsidy	\$178M	\$130M	\$54M	\$28M





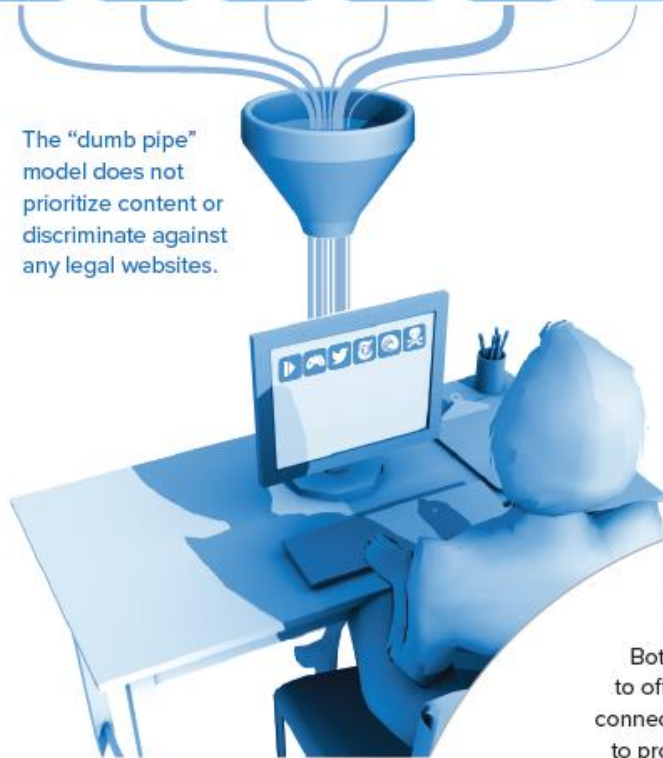
# NET NEUTRALITY

## ISP as Public Utility

Net neutrality ensures that internet service providers operate as neutral conduits, or common carriers, for a nondiscriminatory flow of internet traffic. Telecoms can charge more for faster access, but cannot prioritize, screen or filter content.



The “dumb pipe” model does not prioritize content or discriminate against any legal websites.



## ISP as Content Manager

Telecommunication companies want freedom to prioritize web traffic through their systems, providing customers with faster or cheaper access to websites that pay fees. Customer access to other websites might be slower, more expensive or even unavailable.



Paid prioritization creates internet fast lanes for websites that cut deals with ISPs.

Content blocking

“Throttling” reduces activity judged by the ISP to be inappropriate or excessive.



## Middle ground?

Both sides see the potential for ISPs to offer separate dedicated high-speed connections for television, while continuing to provide equal access to web content.

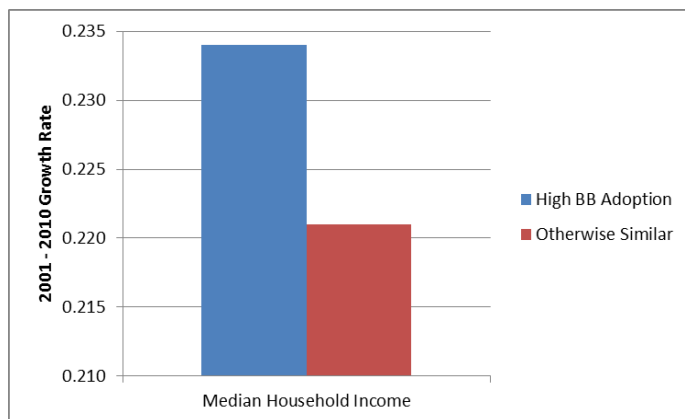
# WHY DO WE CARE?

Broadband is an essential infrastructure for residents, businesses, institutions, and communities to participate in a global digital economy.

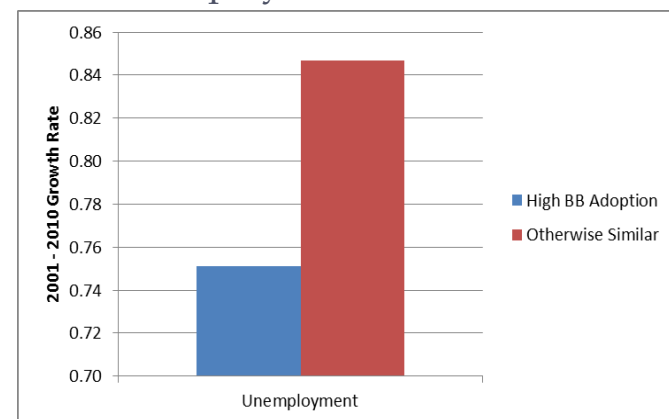
# OTHERS HAVE FOUND THAT BETWEEN 2001 & 2010...

In rural counties  
with high  
broadband  
adoption,  
(60%+)...

Income Grew Faster

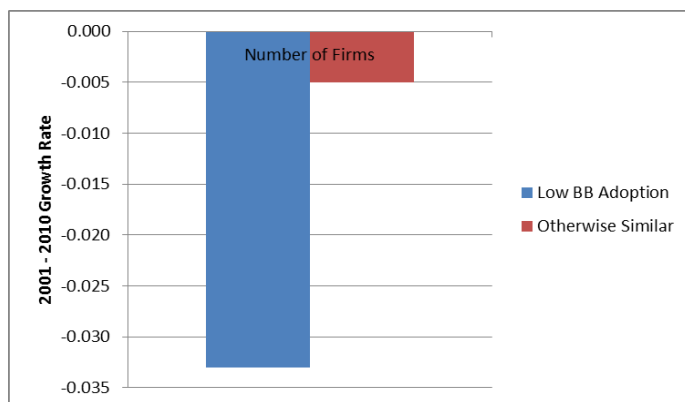


Unemployment Grew Slower

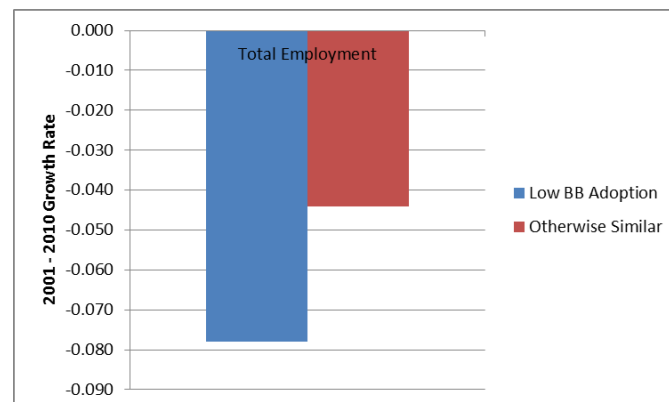


In rural counties  
with low  
broadband  
adoption,  
(<40%)...

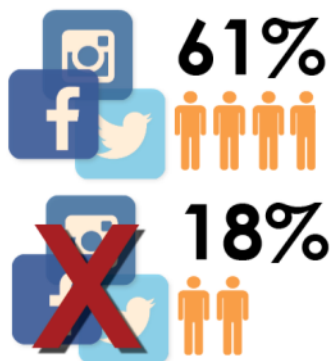
Lost More Businesses



Lost More Jobs



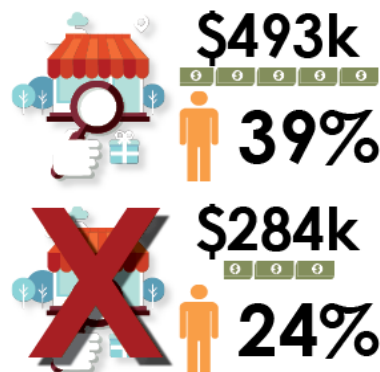
# WE'VE FOUND...



Small businesses using social media weekly are 3x more likely to have recently hired and hired for more positions than businesses that don't use social media.



Small businesses with faster internet connections tend to have higher annual revenues than those with slower connections.



Small businesses with websites have higher annual revenues and are more likely to have recently hired than those without websites.

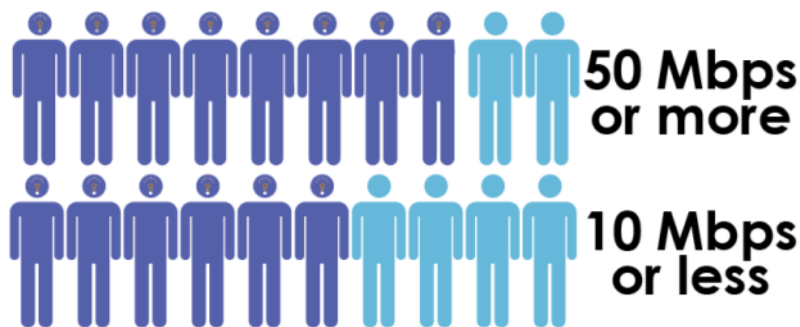


# WE'VE FOUND...



As digital literacy increases, so too does digital interaction btw. residents and local businesses and local government.

Residents who do not telework typically have incomes that are 75% of that earned by those who telework with some frequency.



Businesses with faster connections have a higher share of employees with advanced tech. skills than those with slower internet speeds.

# BROADBAND AND LIBRARIES

Better access and higher adoption leads to improved communities, and libraries can be a central place to spark these improvements.

# WHAT WE'VE FOUND: LIBRARIES



Nearly two-thirds of libraries are active on social media.



Nearly all (97%) of libraries offer free public Wi-Fi.



Two out of five libraries do not use e-rate or are unsure if they do or not.



All responding libraries offer internet-enabled public computers.



The median download speed for responding libraries is 75 Mbps.



Three of four libraries provide tech-enabled public meeting space.



More than half of libraries provide some form of STEAM programming for youth.



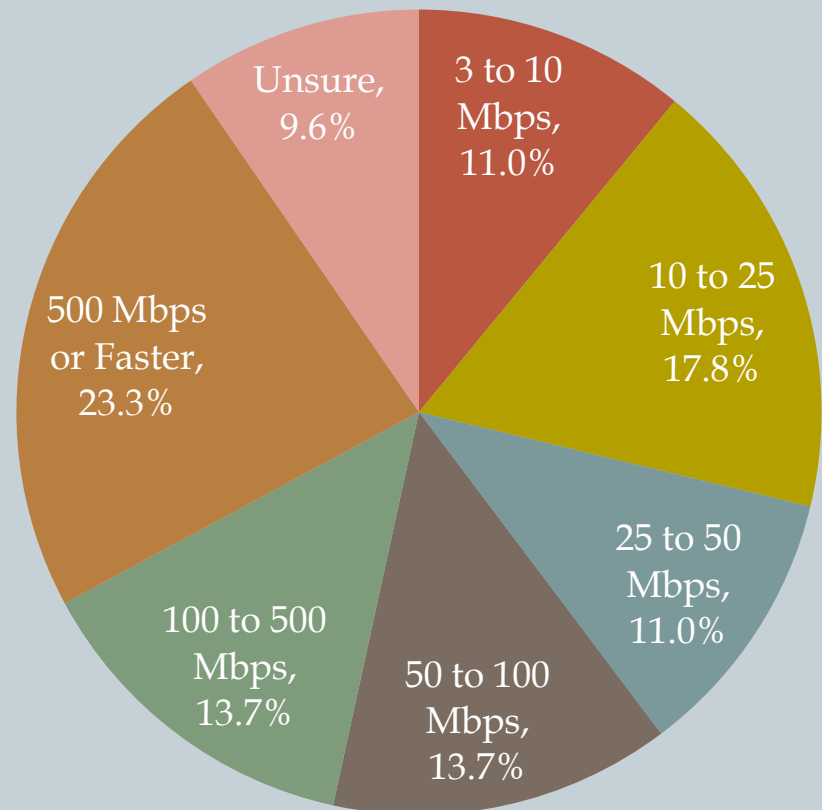
More than three-quarters of libraries offer digital skills training.

Data comes from a survey of 80 libraries across the state of Michigan.

# WHAT WE'VE FOUND: LIBRARIES

- Just over half of libraries have a download connection speed greater than 50 Mbps.
- The FCC's National Broadband Plan calls for libraries to be connected with speeds of 1 Gbps or faster; only a few locations in Michigan with that capability.
- Several resources available to help libraries find and secure better connectivity:
  - Your friendly local library cooperative
  - Universal Service e-Rate program: <http://www.universalservice.org/sl/>.
  - Schools, Health, and Libraries Broadband Coalition (SHLB): <http://shlb.org>
  - Library of Michigan: [www.michigan.gov/libraryofmichigan/](http://www.michigan.gov/libraryofmichigan/)
  - Connect Michigan map and list of providers by county: [www.connectmi.org](http://www.connectmi.org)

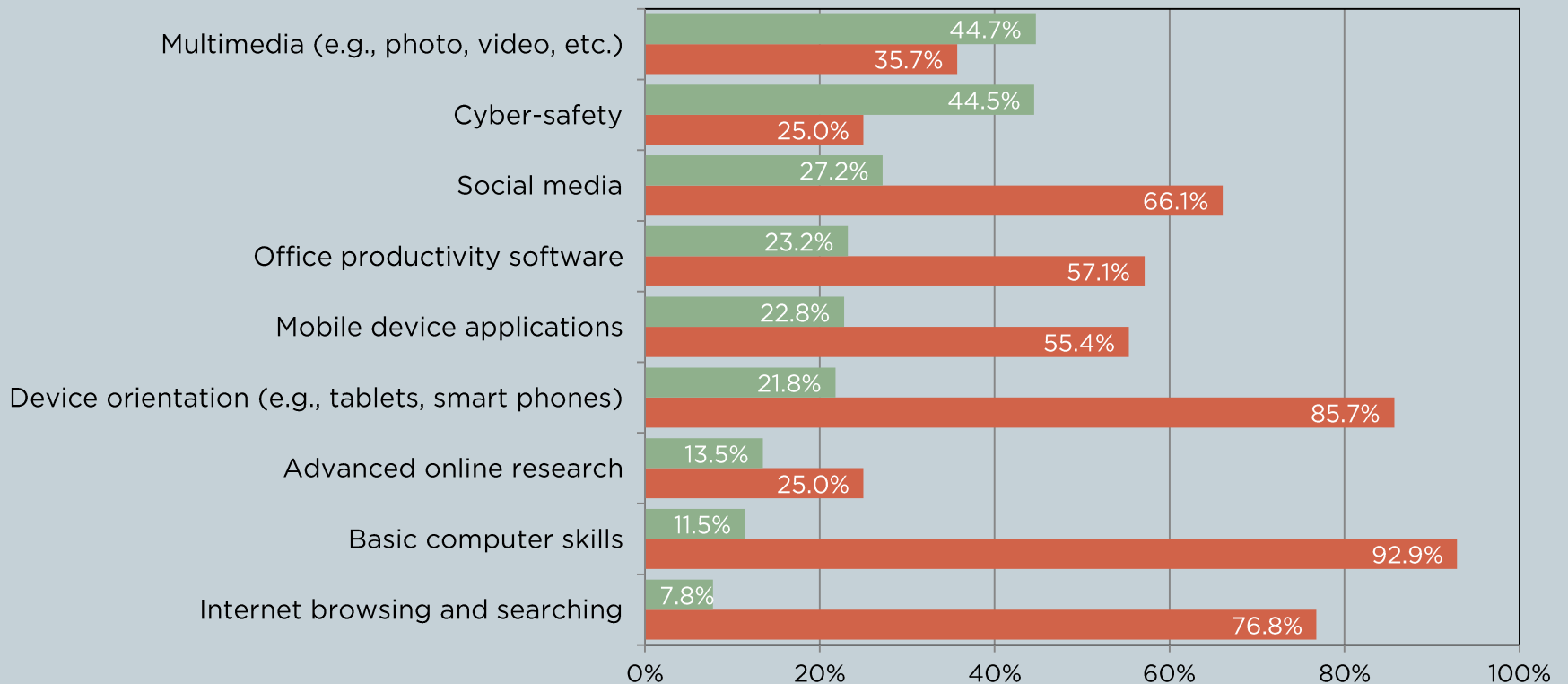
**Reported Connection Download Speed for Libraries**



# WHAT WE'VE FOUND: DIGITAL SKILLS TRAINING

Percent of libraries offering training by topic

Percent of residents stating they, "need to learn," or, "know little about," topic



On average, libraries that offer training offer five different types.

Additionally, 23% of libraries offer coding or application development and 18% offer training for businesses.

# WHAT WE'VE FOUND: MICHIGANDERS



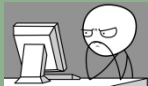
One in five Michigan adults say they go online at least once a week and interact with libraries.



Nearly 30% of teleworkers say they rely on their local library as a remote workplace.



One-quarter of Michigan households without internet service go online at their local library.



More than 8% of households unhappy with their internet go to their library for access.



One in twelve households earning less than \$35k say they access the internet at their local library.



Young adults (age 18-34) are twice as likely to use the internet at their library compared to older adults.



Nearly one-quarter of households with school-age children digitally interact with libraries weekly.



Residents who digitally interact with libraries more frequently tend to be more digitally literate.

Data comes from surveys of 5,300 Michigan households conducted by Connect Michigan in Leelanau, Arenac, Osceola, Mecosta, Newaygo, Ottawa, and Muskegon Counties.



CONNECT  
NATION



# EXAMPLES

Local community action has the best chance to realize the expansion of broadband access, adoption, and use.



# HOW DO WE USE DATA TO EFFICIENTLY LEVERAGE BROADBAND AND TECHNOLOGY FOR THE IMPROVEMENT OF ECONOMIC ACTIVITY AND PROSPERITY IN THE COMMUNITY?

Who's left offline?

Adoption is lowest among low-income, young families, seniors, unemployed, and households with children

Why are they offline?

Digital Literacy is a barrier for seniors, those earning \$35k or less annually, and adults with a high school diploma or less.

What's the issue?

The most oft-cited applications with low digital literacy are cybersecurity, multimedia, social media, office productivity, and mobile applications.

Are we addressing the issue?

Office productivity and cyber-safety are offered at many libraries, but social media, mobile applications, and multimedia training are limited

How do we fix it?

Solution 1: Develop more aggressive and targeted marketing materials to disconnected populations and make available office productivity and cyber-safety training.

Solution 2: Create and expand learning opportunities in the areas of multimedia, social media, and mobile applications to meet community needs.

# STORY TIME

## **St. Clair County:**

Eleven libraries offer computer access and digital training, looking to explore opportunities to support small businesses with tech. adoption and use.

## **Roscommon County:**

Four libraries provide digital training and public access. Provide training to more than 3,000 patrons annually.

## **Eastern UP Bayliss Libraries:**

With community support, bandwidth was increased at libraries to help support local one-to-one device programs in schools.

## **Chelsea & Capital Area:**

Library offers take-home wireless hotspots to patrons who are without a home internet connection.

## **Mason County:**

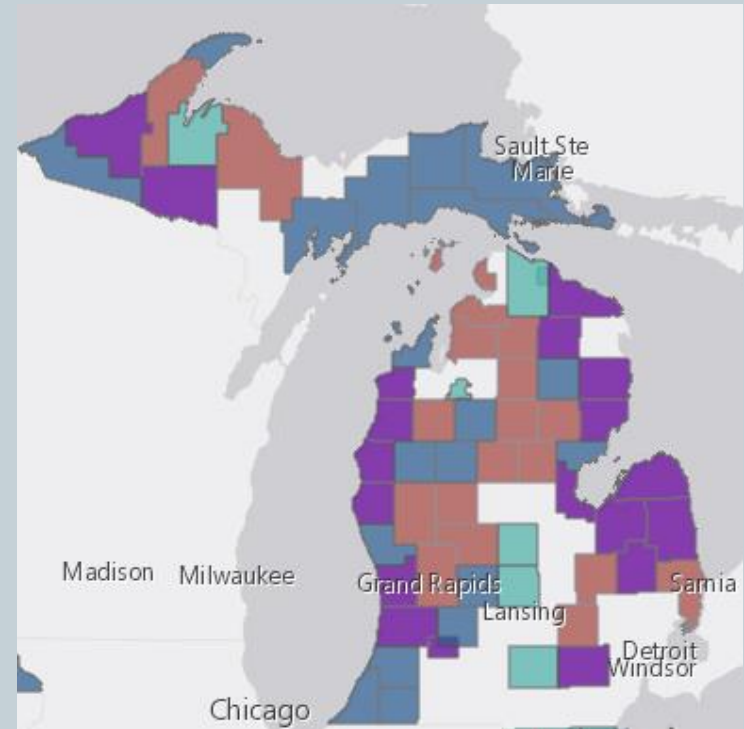
Offers access to e-books and audiobooks to patrons, particularly students, to compliment resources provided by schools.

## **Houghton County:**

Library partners with Michigan Tech. allowing students to conduct digital training for patrons.

# STARTING TOMORROW

- **Examine your technology and take stock**
  - Figure out your connection speed and who provides it
  - What public access technology is available?
  - What digital training opportunities do you offer?
- **Plug into an existing community technology teams**
  - Connect Michigan has been working with local technology teams for the last six years, contact us to find out if there's one near you.
- **Connect with service organizations, schools, and others in the community**
  - Explore opportunities for leveraging technology at libraries for community development
  - How could service delivery improve?
- **Seek resources and ask questions**
  - Your friendly local library cooperative
  - Universal Service e-Rate program: <http://www.universalservice.org/sl/>.
  - Schools, Health, and Libraries Broadband Coalition (SHLB): <http://shlb.org>
  - Library of Michigan: [www.michigan.gov/libraryofmichigan/](http://www.michigan.gov/libraryofmichigan/)
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# QUESTIONS

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*[www.connectmi.org](http://www.connectmi.org)*

*[www.connectmycommunity.org](http://www.connectmycommunity.org)*