

# HARBOR AREA REGIONAL BOARD OF RESOURCES, INC.

# **TECHNOLOGY ACTION PLAN**

# PREPARED BY CONNECT MICHIGAN AND THE HARBOR, Inc. BROADBAND COMMITTEE





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# **EXECUTIVE SUMMARY**

# **Key Findings**

Connect Michigan, in conjunction with the HARBOR, Inc. Broadband Committee, has released a Harbor Area Regional Board of Resources, Inc. Community Technology Action Plan following a community assessment of overall broadband and technology readiness, using criteria that analyzes broadband access, adoption, and use.

# **Community Technology Scorecard**

Community Champion: Rachel Smolinski Community Advisor: Tom Stephenson			
FOCUS AREA	ASSESSMENT CRITERIA	COMMUNITY SCORE	MAXIMUM POSSIBLE SCORE
	Broadband Availability	4	10
	Broadband Speeds	3	5
ACCESS	Broadband Competition	2	5
ACCESS	Middle Mile Access	6	10
	Mobile Broadband Availability	8	10
	TOTAL ACCESS SCORE	23	40
	Digital Literacy	8	10
	Public Computer Centers	10	10
ADOPTION	Broadband Awareness	8	10
	Vulnerable Population Focus	10	10
	TOTAL ADOPTION SCORE	36	40
	Economic Opportunity	10	10
	Education	10	10
USE	Government	8	10
	Healthcare	4	10
	TOTAL USE SCORE	32	40
COMMUNITY ASSESSMENT SCORE 91 120			

# **Analysis of Scorecard**

- The HARBOR, Inc. area achieved a score of 91 points out of 120 for overall broadband and technology readiness which indicates that the community is exhibiting high success in technology adoption and use.
- The community scored 23 out of a possible 40 points in broadband access primarily because



- of some gaps in broadband availability. While broadband availability is at 83.59% of households having access to 3 Mbps, the HARBOR Inc. service area is below the state average of 96.45%.
- While the results indicate that the community has made tremendous strides and investments in technology, this technology plan will provide some insight and recommendations that will help the community continue to achieve success.

#### Introduction

Today, technology plays a pivotal role in how businesses operate, the type of service consumers expect, how institutions provide services, and where consumers choose to live, work, and play. For children to succeed, access to online resources has become crucial. More importantly, the success of a community has become dependent on how broadly and deeply the community adopts technology resources – this includes access to reliable high-speed networks, digital literacy of residents, and the use of online resources locally for business, government, and leisure.

In order to determine if businesses and residents are maximizing the benefits from using high-speed Internet technologies, there is a need to determine the current state of technology before identifying gaps. Thus, the need to know the state of technology in a community – and subsequently in a state – is great. In response to this need, Connected Nation¹ developed the Connected community program to help guide a community through an assessment of its overall broadband and technology status, using criteria that Connected Nation has developed as a "community certification" model. The program helps train community team leaders and supports the formation of community planning teams made up of various sector representatives with the goal of creating an actionable plan for expanding the access to broadband infrastructure, adoption, and use of Internet technologies and becoming a certified technology community. Funded by the National Telecommunications and Information Administration (NTIA), this effort is part of the State Broadband Initiative.

The HARBOR, Inc. Broadband Committee is leading the way into a new economy for the HARBOR, Inc. area by actively participating in Connect Michigan's Connected community program. Using tools provided by Connect Michigan, the HARBOR, Inc. Broadband Committee collaborated with multiple community organizations and residents to assess the overall broadband and technology status in the HARBOR, Inc. area.

<sup>1</sup> Connected Nation, parent company for Connect Michigan, is a national non-profit 501(c)(3) organization that expands access to and use of broadband Internet and the related technologies that are enabled when individuals and communities have the opportunity and desire to connect. Connected Nation works in multiple states to engage community stakeholders, state leaders, and technology providers to develop and implement technology expansion programs with core competencies centered around the mission to improve digital inclusion for people and places previously underserved or overlooked.



# Methodology

In order to determine the state of technology in the HARBOR, Inc. area, the community team initiated a 4-step community engagement program that consisted of:

- Identification and empowerment of a community team leader (local champion) and creation of a community team composed of a diverse group of local residents from various sectors of the economy including education, government, healthcare, the private sector, and libraries.
- 2. Assessment of community technology resources.
- Development of a community technology plan and implementation of recommended actions that will lead to community certification as a Connected community (ongoing).
- 4. Once a community is certified, the community will have an avenue to discuss its success and pursue opportunities as a recognized, technologically advanced community.

# **Itemized Key Findings**

HARBOR, Inc. Broadband Committee identified the following key findings (in addition to findings illustrated in the community scorecard) through its technology assessment:

#### **ACCESS**

- 20 last-mile broadband providers currently provide service in the HARBOR, Inc. area:
  - 83.59% of households have access to 3 Mbps.
  - More than 75% of HARBOR, Inc. area homes have access to 10 Mbps service.
  - 74.55% of HARBOR, Inc. area households have access to more than one provider.
- Middle mile fiber infrastructure is available from multiple providers in the HARBOR, Inc. area.
- 98.87% of HARBOR, Inc. area households have access to mobile broadband.

#### **ADOPTION**

- 5 Public Computer Centers (PCC) with a total of 26 computers are open to the public.
- 1 Digital Literacy Program exists in the community resulting in 58 graduates over the past year.
- 3 Broadband Awareness Campaigns are reaching up to 95% of the HARBOR, Inc. area.
- 4 organizations are working with vulnerable populations.

#### **USE**

- At least 9 uses of broadband were identified in the area of economic opportunity including 2 advanced uses and 7 basic uses.
- At least 7 uses of broadband were identified in the area of education including 4 advanced



uses and 3 basic uses.

- At least 5 uses of broadband were identified in the area of government including 3 advanced uses and 2 basic uses.
- At least 3 uses of broadband were identified in the area of healthcare including 1 advanced use and 2 basic uses.

Through the broadband mapping and inventory undertaken by both Connect Michigan and the HARBOR, Inc. Broadband Committee, several Community Anchor Institutions (CAI) were identified in Emmet County. They are broken down by type below:

	САІ Туре	Number of CAIs
1	School K-12	19
2	Library	14
3	Medical/Healthcare	1
4	Public Safety	8
5	University, College, Other Post-Secondary	1
6	Other Community Support – Government	0
7	Other Community Support – Nongovernment	2

In addition to the items identified above, the HARBOR, Inc. Broadband Committee identified the following technology resources in the community:

#### **Technology Providers**

- 19 broadband providers were identified in the HARBOR, Inc. area
- 2 hardware providers
- 1 software provider
- 4 network integrators
- 1 web developer

#### **Technology Facilities**

- 5 public computing centers
- 6 wireless hotspots

#### **Community Websites**

- 1 Business-related website (excluding private businesses)
- 2 Education-related websites
- 11 Government-related websites
- 5 Healthcare-related websites
- 1 Library-related website
- 2 Tourism-related websites



# **Current Community Technology Developments in HARBOR, Inc.**

This community is comprised of the six townships that are part of the Harbor Springs School District. In Emmet County, 23.7% of the population lives in the Harbor Springs School District.

HARBOR, Inc. launched a survey in July of 2012 to all the full- and part-time residents in order to determine broadband needs of all the residents within the six townships that encompass the service area for HARBOR, Inc. or the Harbor Springs School District.

During the assessment process, the community team identified projects that are currently in development or implementation. These projects are helping to enhance technology in the HARBOR, Inc. area:

- In November of 2011, the voters of the Harbor Springs Public School district approved a \$3.9 million technology and transportation bond allowing the school to install Wi-Fi in all the school facilities this fall and to launch a 1:1 iPad Initiative learning program.
- As of the writing of this document, 77 iPads had been issued to all administrators and teachers in the Harbor Springs School District, and iPads are targeted to be issued to 300 students by the end of 2012. By the fall of 2013, all 875 students will receive iPads.
- Digital Literacy classes at the Harbor Springs Library and community centers. The Harbor Springs Library, in partnership with the Perry Farm Villages senior center, launched a Summer Technology Series and iPad User Group where they will be hosting a series of classes about operating and maintaining computers as well as hosting a monthly iPad User Group.
- The Harbor Springs area broadband survey was launched in July 2012 in an attempt to facilitate the expansion of reliable, affordable high-speed Internet to residents, businesses, and visitors to the HARBOR, Inc. service area that are currently unserved or underserved as a long-time initiative of HARBOR, Inc. A small subcommittee has been meeting over the past few years to work on the initiative, and most recently has been working with the HARBOR, Inc. Broadband Committee to facilitate the process through the Connect Michigan Connected community engagement program. One of the projects implemented to address access is a broadband survey for residents in the service area in order to provide more information to the Team and to attract potential service providers to the area. The survey was launched in July via a mailing to over 5,000 full and seasonal residents.
- Increase access to broadband in the unserved area such as Good Hart. The HARBOR, Inc.
  Broadband Committee facilitated discussions and helped to foster a collaborative project
  among a technology service provider and Good Hart community members to bring highspeed Internet service to the Good Hart area.



- Members of the HARBOR, Inc. Broadband Committee are working with the Emmet County
  Planning and Zoning Department and the region's tower leasing companies to help facilitate
  the erection of a new tower, thereby increasing cell phone coverage in the northern region
  of their service area.
- The HARBOR, Inc. Broadband Committee is supporting the use of the region's 911 Emergency Tower Network by private broadband providers.
- In working with the Emmet County Planning and Zoning Department, the HARBOR, Inc.
   Broadband Committee is helping to examine the community's zoning ordinances for any unnecessary local regulatory barriers that would inhibit the expansion of broadband.

# **Priority Projects**

This exercise has culminated in the outlining of projects to allow the community to continue its recognized excellence in technology and broadband planning across the community. Below are four priority projects, each describing a project plan with suggested steps.

#### Host website and social media classes for the local businesses

#### **Project Description**

For small businesses, an online presence and the use of social media are vital to stay competitive in today's twenty-first century. A website and social media use is not just for companies that have the experience, staff, or budget; any small business can tap into these resources. Training should be provided to small businesses regarding the use of websites and social media within each small business. Website topics should range from starting a basic website to more advanced topics such as e-commerce. Social media topics should include a variety of social media outlets including Facebook, Twitter, YouTube, Pinterest, and LinkedIn.

For many business owners, the belief that broadband would not help their business, or the lack of knowledge of how broadband positively effects business development, is the main reason that they do not adopt broadband service. Many believe that since they have always operated without broadband, they can continue to do so. Communicating how businesses can achieve significant results via the utilization of broadband and broadband-enabled business tools is important to overcoming the barriers of relevance and lack of awareness. The key to this communication is providing local examples of successful broadband utilization and facilitating collaboration and cooperation among businesses and technology and service providers.



Broadband adoption should not be the end goal for an awareness program. New technology platforms continue to emerge, software and hardware evolve, and website, media, and online customer engagement methods continue to change, which can complicate adoption or leave businesses with outdated technology infrastructure and ineffective marketing strategies. An awareness program should promote the benefits of broadband, offer education and training, and provide assistance with follow-up questions and concerns. Thus, it is important to have a support network of businesses and community organizations that can assist each other with adoption and the continued use of technology.

#### Goals

- 1. Promote the adoption and use of broadband and broadband-enabled tools among businesses via awareness-building and training.
- 2. Build awareness of the benefits associated with the adoption of broadband among businesses and how a connected business community positively effects the county's economic development through communicating how broadband and broadband-enabled tools allow businesses to increase efficiency, improve market access, reduce costs, and increase the speed of both transactions and interactions.

#### **Action Items**

- 1. Develop an awareness program: Methods of implementing a broadband awareness program include, but are not limited to, facilitating awareness sessions, press conferences led by community leaders, inviting a speaker to community business conferences or summits, and public service announcements.
- 2. Build awareness and cohesion: Facilitate the distribution of needs assessments, case studies, technology education resources, and success stories among local businesses, and work to develop an informal network of local business owners who have adopted broadband for business operations in order to provide a resource to field common questions and respond to issues within the community.
- 3. Identify support: Identify federally or state-sponsored business support programs (e.g. Chamber of Commerce, SBA, EDA, Agriculture or Manufacturing extension) that include assistance with broadband or IT content.
- 4. Develop local partnerships: Develop local partnerships with organizations such as the Chamber of Commerce, economic development corporation, main street program, or community anchor institutions such as the Mid Michigan Community College or district library to expand on existing programs or develop programs that provide technology education.



- 5. Develop a training program: A training program or entry-level "Broadband 101" course should be developed to give small and medium businesses an introduction on how to capitalize on broadband connectivity, as well as more advanced applications for IT staff. In addition, training should include resources for non-IT staff, such as how to use commerce tools for sales, streamline finances with online records, or leverage knowledge management across an organization. Additional training might include:
  - a. "How to" training for key activities such as online collaboration, search optimization, cybersecurity, equipment use, and Web 2.0 tools.
  - b. Technical and professional support for hardware, software, and business operations.
  - c. Licenses for business applications such as document creation, antivirus and security software, and online-audio-and videoconferencing.
  - d. Website development and registration.
  - e. Basic communications equipment, such as low-cost personal computers and wireless routers.
  - f. Educate local businesses on Internet tools that are available at minimal or no cost to them.

#### **Implementation Team**

To be determined.

# Increase the availability of public computers at the library and senior citizens facilities

#### **Project Description**

For many residents, public libraries are the primary center for public computer and Internet access. In areas where broadband access is not available, the local library is the Internet medium. Quite often, the patrons of local libraries express the value of library staff who offer one-on-one help, training, and guidance. One of the many challenges facing libraries is access to adequate broadband bandwidth. Ensuring the community and library have appropriate speeds, efforts should be undertaken to first identify currently adopted broadband bandwidth, then work with library leaders to increase adopted broadband speeds.

#### Goals

1. Increase the availability of public computers at the library and senior citizen centers.

#### **Action Items**

- 1. Work with local broadband providers to find ways to increase available bandwidth.
- 2. Pursue e-rate application as a means of increased funding for the increased broadband speeds.



#### **Implementation Team**

To be determined

### Develop program supporting schools' new technology initiatives

#### **Project Description**

A large number of Michigan's public school districts are requesting and receiving technology bond issues in order to implement e-learning programs such as the iPad 1:1 Initiative, and because of the value of these programs, communities need to develop a program to support these new technology initiatives. Research conducted by Connect Michigan reveals that broadband adoption rates among low-income groups with children range from 37% to 45% (or 56% in rural communities), thereby creating a digital divide and logistical problems for those school districts implementing e-learning programs. Suggestions for support include, but are not limited to:

#### Goals

1. Support the Harbor Spring School District's new 1:1 iPad initiative.

#### **Action Items**

- 1. Develop an awareness campaign within the community to inform its citizens of the new technology advances and earn the community support that is required to ensure the success of the programs. Utilize the local media and public events to educate the public on the advantages of these programs.
- 2. Examine the community's existing digital resources necessary to support these new elearning programs. Do the existing public computer centers have adequate bandwidth? Do they have enough computers? Are they open evenings and weekends for school children to do their homework?
- 3. Remove any unnecessary barriers that would increase the cost of broadband. Community leaders should work in coordination with the school district, local business leaders, the citizens of the community, and local broadband providers to ensure that adequate resources are available to all the students to close the digital divide and ensure the success of these e-learning programs.

#### **Implementation Team**

To be determined



### Identify and expand wireless hotspots in the community

#### **Project Description**

Wireless hotspots in the community are a benefit to local residents without broadband at home as well as tourists traveling to the region. In order to maximize the benefits that wireless hotspots provide, a community must ensure there is an appropriate number of hotspots along with a published inventory of the locations of each wireless hotspot. Wireless hotspots are classified as free or fee. Hotspots are often found at restaurants, train stations, airports, libraries, hotels, hospitals, coffee shops, bookstores, fuel stations, department stores, supermarkets, RV parks and campgrounds, public pay phones, and other public places. Many universities and schools have wireless networks on their campuses as well. Once an inventory is created, two actions should be undertaken.

#### Goals

 Provide access to broadband local residents without broadband at home as well as tourists traveling to the region.

#### **Action Items**

- Conduct an analysis to identify key areas and organizations for the expansion of the local wireless hotspots.
- 2. Promote hotspots (especially by chambers of commerce and tourism groups) to ensure maximum visibility in the community.

#### **Implementation Team**

To be determined

# **Complete List of Recommended Actions**

Below is a complete list of 38 recommended actions. Numbered actions indicate those recommended by Connect Michigan, whereas non-numbered actions indicate those developed by the HARBOR, Inc. Broadband Committee. Detailed descriptions of each solution proposed by Connect Michigan can be found in the *Recommended Actions* section later in this report.



#### **ACCESS**

#### **Broadband Availability**

- 1. Apply to USDA for Funding Support to Build out Broadband in Community
- 2. Develop & Issue an RFP for Build-out

**Broadband Speeds** – No recommended actions.

#### **Broadband Competition**

- 3. Develop Public-Private Partnerships to Deploy Broadband Service
- 4. Study and Possibly Reassess Major Telecom Purchase Contracts

Middle Mile Access – No recommended actions.

#### **Mobile Broadband Availability**

- 5. Identify, Map, and Validate Broadband Demand
- 6. Perform a Broadband Build-out Analysis in Unserved Areas
- 7. Complete a Vertical Assets Inventory
- 8. Perform Analysis of Local Policies and Ordinances

#### **ADOPTION**

#### **Digital Literacy**

9. Distribute Digital Literacy Content

#### **Public Computer Centers**

PRIORITY PROJECT: Increase the availability of public computers at the library and senior citizens facilities

Increase awareness of public computer centers in the community

#### **Broadband Awareness**

- 10. Facilitate a Technology Summit
- 11. Develop or Identify a Broadband Training and Awareness Program for Small & Medium Businesses
- 12. Initiate a Community Computer Refurbishment Program
- 13. Implement a Community-Based Technology Awareness Program
- 14. Procure a Multipurpose Mobile Technology Center

**Vulnerable Population Focus** – No recommended actions.



#### **USE**

#### **Economic Opportunity**

PRIORITY PROJECT: Host website and social media classes for the local businesses PRIORITY PROJECT: Identify and expand wireless hotspots in the community

Upgrade the community websites to include social media

Develop an online business/entrepreneur resource center through the Downtown Development Authority

Develop a teleworker support and attraction program (affinity marketing program)

Develop digital economic incubator sites to attract twenty-first century jobs to the region

Facilitate the expansion of the fiber network to the local manufacturers and businesses

#### **Education**

PRIORITY PROJECT: Develop program supporting schools' new technology initiatives
Support the broadband needs of low-income children
Provide Internet access on school busses

Develop a database of local providers and public computer centers Develop a technology mentoring program involving student mentors

15. Improve Education through Digital Learning

#### Government

Develop an intergovernmental network for the HARBOR, Inc. community
Facilitate additional computers at the township halls
Facilitate the increase of e-government services at all levels of local government

- 16. Perform a Community IT Assessment
- 17. Improve the Online Presence of Government
- 18. Improve Online Business Services Offered by the Government
- 19. Seek Funding for Improving the Public Safety Network

#### Healthcare

- 20. Facilitate a Technology Summit
- 21. Promote Telemedicine in Remote Areas



## **INTRODUCTION**

# **Purpose**

The purpose of this report is to summarize the assessment of the HARBOR, Inc. area's current capacity for encouraging the Access, Adoption, and Use of technology as well as the best next steps for addressing any deficiencies or opportunities for improving the HARBOR, Inc. area's technology landscape. (Community assessment results and recommended actions are provided later in this report.)

# **Background**

Today, high-speed Internet access plays an integral role in how we conduct our business and how we live our lives on a day-to-day basis. As noted in the National Broadband Plan, a high-speed network is "a foundation for economic growth, job creation, global competitiveness and a better way of life." Despite the growing dependence on technology, as of 2012 nearly 34% of Americans did not have a high-speed connection at home. Further, 14 million Americans are lacking access to broadband infrastructure that can support today's and tomorrow's applications. Connected Nation's studies also show that 17 million families with children do not have broadband at home – and 7.6 million of these children live in low-income households. In 2010 Connected Nation surveyed 9,650 businesses in 11 states and Puerto Rico. Based on this data, Connected Nation estimates that at least 2.1 million businesses - 28% - in the United States do not utilize broadband technology today.

In this age of technology, a number of factors have forced businesses to change time-honored models of operation, including global competition and a demand for faster and more personalized services from consumers. Research shows that businesses that use high-speed Internet generate more revenue<sup>6</sup> and experience the most direct benefit of high-speed Internet with increased sales, profit, and growth. Gaining benefits from the implementation of high-speed Internet is not just for large corporations. For smaller businesses and entrepreneurs in small communities, technology creates an even playing field with companies much bigger than

<sup>2</sup> Connecting America: The National Broadband Plan, Federal Communications Commission, April 2010, <a href="http://www.broadband.gov/download-plan/">http://www.broadband.gov/download-plan/</a>

<sup>3</sup> Pew Internet and American Life Project <a href="http://pewinternet.org/Trend-Data-%28Adults%29/Home-Broadband-Adoption.aspx">http://pewinternet.org/Trend-Data-%28Adults%29/Home-Broadband-Adoption.aspx</a> (suggests that 66% have access to Broadband).

<sup>4</sup> Federal Communications Commission, Connecting America: The National Broadband Plan, March 17, 2010, p. 20.

<sup>5</sup> Connected Nation, *Broadband and Business: Leveraging Technology to Stimulate Economic Growth*, <a href="http://www.connectednation.org/survey-results/business">http://www.connectednation.org/survey-results/business</a>, 2010.

<sup>6</sup> Connected Nation, *Broadband & Business Leveraging Technology to Stimulate Economic Growth*, <a href="http://www.connectednation.org/sites/default/files/broadband">http://www.connectednation.org/sites/default/files/broadband</a> and business - connected nation.pdf.



themselves. Where small businesses were once limited to whatever local customers they could attract through local advertising, e-commerce allows small or even home-based businesses to operate and sell their goods on a national and sometimes international scale.

Schools, colleges, universities, and community and technical colleges continue to find new ways and tools to educate the students of the digital age. With the evolution of social networking and mobile applications, educational institutions are using these tools to communicate effectively with students.

The healthcare sector also relies on technology. On a daily basis, doctors must keep up with the latest research; patient records have to be easily accessible and accurate; and images, test results, and prescriptions have to be delivered promptly, without errors, to practitioners, pharmacies, and insurance providers. Network-based technologies like videoconferencing and digital stethoscopes allow specialists to consult with rural patients, reducing travel time and hazards. This ability to reach rural patients through technology has allowed many people to seek treatment that otherwise may not have done so.

Families are relying more and more on technology for services, education, information, communication, news, and improving their quality of life. Digital literacy training has become the most basic means by which communities and institutions work to teach community members basic skills that allow them to navigate the Internet, perform basic functions, and become a skilled workforce for potential investors.

Local governments have also seen the importance of an online presence. Local governments provide communities with many services, offer a great deal of local information, and encourage public involvement and awareness. The demand for faster and better services has increased the need for high-speed networks.

In order to address challenges associated with the lack of high-speed access, adoption, and use, Connect Michigan is working to help communities identify their technology needs and opportunities. Bolstered by benchmarking data that has been gathered through Connect Michigan's mapping and market research, the Connected community program is drilling down to the regional and local levels to facilitate community technology planning. Through this program, regions and communities are aiming to accelerate the access, adoption, and use of technology toward creating a better business environment, more effective community and economic development, improved healthcare, enhanced education, and more efficient government. Essentially, Connect Michigan is helping communities create a forum and structure to take informed actions that help to:

- Improve a community's technology and broadband landscape.
- Identify a community's technology assets.



- Increase economic opportunity, education, healthcare, and e-government in a community.
- Connect a community to technology opportunities and partnerships.
- Leverage a community's existing technology innovations.
- Help a community make strides towards achieving goals outlined in the statewide strategic plan.



# **DETAILED FINDINGS**

# **HARBOR, Inc. Assessment Findings**

Today, residents in the HARBOR, Inc. (or sections of the community) area are served by 19 providers. Currently broadband is defined as Internet service with advertised speeds of at least 768 Kbps downstream and 200 Kbps upstream. According to Connect Michigan's latest broadband mapping update, the following providers have a service footprint in the HARBOR, Inc. community:

Broadband Providers	Technology Type	Website Reference	
AT&T Mobility LLC	Mobile Wireless	www.wireless.att.com	
CenturyLink	DSL	www.centurylink.com	
Chain of Lakes Internet	Fixed Wireless	www.colicom.com	
Charter Communications, Inc.	Cable	www.charter.com	
Cherry Capital Connection, LLC	Fixed Wireless	www.cherrycapitalconnection.com	
COLI, Inc.	Fixed Wireless	www.colicom.com	
DISH Network Corporation	Satellite	www.dishnetwork.com	
Gaslight Media	Fixed Wireless	www.gaslightmedia.com	
Great Lakes Comnet	Fiber	www.glcom.net	
Hughes Network Systems, LLC	Satellite	www.hughesnet.com	
Iserv	DSL	www.iserv.net	
Lighthouse.Net	Fixed Wireless	www.lighthouse.net/highspeed	
Michigan Bell Telephone Company	DSL/Fiber	www.att.com	
Parish Communications	Cable	www.parishonline.net	
RACC Enterprises, LLC	Fixed Wireless	www.racc2000.com	
SpeedConnect	Fixed Wireless	www.speedconnect.com	
StarBand Communications	Satellite	www.starband.com	
Verizon Wireless	Mobile Wireless	www.verizonwireless.com	
ViaSat, Inc.	Satellite	www.viasat.com	



Below is a list of community websites (sorted by category) designed to share and promote local resources.

Organization Name	Website	Website Category
Northern Lakes Economic Alliance	www.northernlakes.net	Business
Harbor Springs Public Schools	www.harborps.org	Education
North Central Michigan College	www.ncmich.edu	Education
City of Harbor Springs	www.cityofharborsprings.com	Government
Cross Village Township	www.crossvillage.info	Government
Emmet County	www.emmetcounty.org	Government
Friendship Township	www.harborinc.org/ftwp.asp	Government
Harbor Area Regional Board of Resources, Inc. (H.A.R.B.O.R., Inc.) Little Traverse Bay Band of Odawa	www.harborinc.org	Government
Indians	www.ltbbodawa-nsn.gov/index.html	Government
Little Traverse Township	www.harborinc.org/lttwp.asp	Government
	www.msue.msu.edu/portal/default.cfm?p	
MSU Extension	ageset_id=27232	Government
Pleasantview Township	www.harborinc.org/pvtwp.asp	Government
Readmond Township	www.harborinc.org/rtwp.asp	Government
West Traverse Township	www.harborinc.org/wttwp.asp	Government
Bay Bluffs Emmet County Medical Care Facility	http://baybluffs.org	Healthcare
Health Department of Northwest		
Michigan	www.nwhealth.org	Healthcare
Little Traverse Primary Care	http://littletraverseprimarycare.com	Healthcare
Perry Farm Villages	www.pvm.org/index.php?option=com_content&view=article&id=40&Itemid=81	Healthcare
United Way of Northwest Michigan	www.unitedwaynwmi.org	Healthcare
Harbor Springs Library	www.harborspringslibrary.org	Libraries
Harbor Springs Area Chamber of	, .	
Commerce	www.harborspringschamber.com	Tourism
	www.harborspringschamber.com/index.p hp?catid=17&member_id=19526&catid=1	
Harbor Springs Area Historical Society	7&category_id=1810&side=visitor	Tourism

Below is a list of local technology companies that are providing technical services or distributing/selling technical resources.



Company Name	Website	Provider Type
Harbor Springs Computers	http://harborspringscomputers.com	Hardware Provider
Insite Technology	www.insite-tech.com	Hardware Provider
Alphageek Web Design	www.alphageekwebdesign.com	Network Integrator
Donnelly Strough CO	http://donnelly-strough.com	Network Integrator
MERIT Network	http://merit.edu	Network Integrator
Watshall Computer	http://watshall.com	Network Integrator
Nito Programs	No website	Software Provider
Mintaka Design	http://mintakadesign.com	Web Developer

Below is a list of organizations that are making technological resources available to the community. These include organizations that provide videoconferencing, public computing, and wireless hotspots.

Organization Name	Resource Type	
Cross Village Township Office	Public Computer Facility	
Harbor Springs Library	Public Computer Facility	
NCMC Learning Support Services (LSS)	Public Computer Facility	
North Central Michigan College SCRC Concourse	Public Computer Facility	
North Central Michigan College-Library	Public Computer Facility	
Boyne Highlands Resort	Wireless Hotspot	
Harbor Springs Airport	Wireless Hotspot	
Northern Lights Recreation	Wireless Hotspot	
Nubs Nob	Wireless Hotspot	
Pellston Regional Airport	Wireless Hotspot	
Wolly Bugger Roaster of Fine Coffee	Wireless Hotspot	



# **Connected Summary**

# **Community Technology Scorecard**

Community Champion: Rachel Smolinski Community Advisor: Tom Stephenson

FOCUS AREA	ASSESSMENT CRITERIA	COMMUNITY SCORE	MAXIMUM POSSIBLE SCORE
	Broadband Availability	4	10
	Broadband Speeds	3	5
ACCESS	Broadband Competition	2	5
ACCESS	Middle Mile Access	6	10
	Mobile Broadband Availability	8	10
	TOTAL ACCESS SCORE	23	40
	Digital Literacy	8	10
	Public Computer Centers	10	10
ADOPTION	Broadband Awareness	8	10
	Vulnerable Population Focus	10	10
	TOTAL ADOPTION SCORE	36	40
	Economic Opportunity	10	10
	Education	10	10
USE	Government	8	10
	Healthcare	4	10
	TOTAL USE SCORE	32	40
COMMUNITY ASSESSMENT SCORE 91 120		120	





**Broadband Availability** (4 out of 10 Points Possible) – is measured by analyzing provider availability of 3 Mbps broadband service gathered by Connected Nation's broadband mapping program. In communities that may have broadband data missing, community teams were able to improve the quality of data to ensure all providers are included.

 According to the October 2012 data collected by Connect Michigan, 83.59% of HARBOR, Inc. area residents had access to broadband speeds of 3 Mbps or greater.

**Broadband Speed** (3 out of 5 Points Possible) – is measured by analyzing the speed tiers available within a community. Connected Nation will analyze broadband data submitted through its broadband mapping program. Specifically, Connected Nation will break down the coverage by the highest speed tier with at least 75% of households covered. In communities that may have broadband data missing, community teams were able to improve the quality of data to ensure all providers are included.

 According to the October 2012 data collected by Connect Michigan, 75.21% of HARBOR, Inc. area residents had access to broadband speeds of 10 Mbps.

**Broadband Competition** (2 out of 5 Points Possible) – is measured by analyzing the number of broadband providers available in a particular community and the percentage of that community's residents with more than one broadband provider available. Connected Nation performed this analysis by reviewing the data collected through the broadband mapping program. In communities that may have broadband data missing, community teams were able to improve the quality of data to ensure all providers are included.

 According to the October 2012 data collected by Connect Michigan, 74.55% of HARBOR, Inc. area residents had access to more than one broadband provider.



**Middle Mile Access** (<u>6 out of 10 Points Possible</u>) – is measured based on a community's availability to fiber. Three aspects of availability exist: proximity to middle mile points of presence (POPs), number of POPs available, and available bandwidth. Data was collected by the community in coordination with Connected Nation.

• Emmet County is served by 4 or more middle mile fiber providers.

**Mobile Broadband Availability** (8 out of 10 Points Possible) – is measured by analyzing provider availability of mobile broadband service gathered by Connected Nation's broadband mapping program. In communities that may have mobile broadband data missing, community teams were able to improve the quality of data to ensure all providers are included.

 According to the October 2012 data collected by Connect Michigan, 98.87% of HARBOR, Inc. area residents had access to mobile broadband service.





#### **ADOPTION Score Breakdown**

**Digital Literacy** (8 out of 10 Points Possible) – is measured by first identifying all digital literacy programs in the community. Once the programs are determined, a calculation of program graduates will be made on a per capita basis. A digital literacy program includes any digital literacy course offered for free or at very low cost through a library, seniors center, community college, K-12 school, or other group serving the local community. A graduate is a person who has completed the curriculum offered by any organization within the community. The duration of individual courses may vary. A listing of identified digital literacy offerings is below.

Organization Name	Program Description	Number of Grads
North Central Michigan College	Business and Community Outreach	58
Total Graduates		58

**Public Computer Centers** (10 out of 10 Points Possible) – is measured based on the number of hours computers are available each week per 1,000 low-income residents. Available computer hours is calculated by taking the overall number of computers multiplied by the number of hours open to a community during the course of the week. A listing of public computer centers available in the HARBOR, Inc. area is below.

Organization Name	Number of Open Hours per Week	Number of Computers	Available Computer Hours per Week
North Central Michigan College	1,079	20	21,580
Cross Village	56	1	56
Emmet County Office	45	1	45
Harbor Springs Library	160	4	640

**Broadband Awareness** (8 out of 10 Points Possible) – is measured based on the percentage of the population reached. All community broadband awareness programs are first identified, and then each program's community reach is compiled and combined with other campaigns. A listing of broadband awareness programs in the HARBOR, Inc. area is below.



Organization Name	Campaign Description	Community Reach
North Central Michigan College	Business and community outreach	78%
	Weekly technology class (iPads, e-mail,	
Harbor Springs Library	computer usage)	95%
	Technology class (iPads, e-mail, computer	
The Village of Hillside	usage)	17%

**Vulnerable Population Focus** (10 out of 10 Points Possible) – A community tallies each program or ability within the community to encourage technology adoption among vulnerable groups. Methods of focusing on vulnerable groups may vary, but should explicitly encourage technology use among vulnerable groups. Example opportunities include offering online GED classes, English as a Second Language (ESL) classes, video-based applications for the deaf, homework assistance for students, and job-finding assistance. Communities receive points for each group on which they focus. Groups may vary by community, but include low-income, minority, senior, children, etc. A listing of programs focusing on vulnerable populations in the HARBOR, Inc. area is listed below.

Organization Name	Program Description	Vulnerable Group
North Central Michigan		Low-income and
College	Business and community outreach	Elderly
		Low-income, Youth,
Harbor Springs Library	Technology training	Seniors
The Village of Hillside	Technology training	Seniors
MiWorks	Job-finding assistance	Unemployed
	Adult learning labs - GED, GED or high school	
MiWorks-Adult Learning	diploma, prepare for college, or improve reading,	
Labs	writing, math, and keyboarding skills	Low-income Adults
MiWorks-Youth Services	Youth skills training	Youth





#### **USE Score Breakdown**

**Economic Opportunity** (10 out of 10 Points Possible) – A community receives one point per basic use of broadband and two points per advanced use of broadband. Categories within economic opportunity include: economic development, business development, tourism, and agriculture. Identified uses of broadband in the area of economic opportunity are listed below and identified as basic or advanced.

Application Provider	Description	Basic / Advanced
MiWorks - virtual	Virtual employment assistance programs and	
employment	individualized job training	Advanced
	Michigan, Get Your Business Online – Program that	
Michigan Small Business	provides businesses with free tools and resources to	
Technology and	establish a website, find new customers, and grow their	
Development	businesses	Advanced
	Availability of free online banking for consumers and	
Online banking	businesses	Basic
Northern Lakes Economic		
Alliance-Business	Business resource centers (10) in the libraries to help	
Resource Centers	start and expand business	Basic
1 free publicly accessible		
wireless hotspot available	Free hot spots (4) – Cross Village Township Hall, Harbor	
per 5,000 residents	Springs Library, Nub's Nob, and Boyne Highlands	Basic
Harbor Chamber of		
Commerce	100% of local attractions online	Basic
Visit Harbor Springs	Presence of an online tourism portal for the promotion	
Michigan	of local tourism attractions and events	Basic
Service Core of retired		
executives SCORE/Harbor	Program to help small and medium businesses with	
Springs	technology	Basic
	Lab offering 12 computers for use by job-seekers and	
MiWorks - Computer Lab	local businesses	Basic

**Education** (10 out of 10 Points Possible) – A community receives one point per basic use of broadband and two points per advanced use of broadband. Categories within education include K-12, higher education, and libraries. Identified uses of broadband in the area of education are listed below and identified as basic or advanced.



Application Provider	Description	Basic/ Advanced
Char-Em ISD	Availability of online courses for K-12 students	Advanced
Initiatives focused on elevating STEM (Science, Technology, Engineering, &	The school districts located in Emmet County are partners with the Michigan STEM Partnership, a statewide collaboration of leaders from PK–20 education, as well as business and industry, philanthropy, economic development, government, military, and other organizations dedicated to elevating STEM literacy in order to increase Michigan's economic strength to retain and attract desirable jobs. The districts are represented through the Great Lakes Math & Science Center, a subdivision of the Charlevoix-Emmet ISD, and comprising the Straits Hub of the	
Mathematics) literacy	Michigan STEM Partnership.	Advanced
Harbor Springs Schools- Power School Harbor Springs Schools- Power School	75% of schools with online interaction with parents 75% of K-12 classes with online access to curricula, homework, and grades	Advanced Advanced
Harbor Springs Schools	100% of classrooms connected to Internet via broadband	Basic
Harbor Springs Schools- Destiny Online	Presence of library automation system	Basic
Harbor Springs Schools	100% of libraries connected to Internet via broadband	Basic



**Government** (8 out of 10 Points Possible) – A community receives one point per basic use of broadband and two points per advanced use of broadband. Categories within government include general government, public safety, energy, and the environment. Identified uses of broadband in the area of government are listed below and identified as basic or advanced.

Application Provider	Description	Basic/ Advanced
CCE 911 system	Availability of ubiquitous, interoperable wireless public safety network	Advanced
City of Harbor Springs	Applications for Zoning and Business permits, as well as zoning codes, city budgets and maps are online	Advanced
City of Harbor Springs/Police Department	Public safety answering points with broadband	Advanced
HARBOR Inc. website - plus 5 township websites	Presence of a local community website	Basic
City of Harbor Springs	Energy Smart Program - replacing old equipment with high efficiency equipment	Basic

**Healthcare** (4 out of 10 Points Possible) – A community receives one point per basic use of broadband and two points per advanced use of broadband. Entities within healthcare can include, but are not limited to, hospitals, medical and dental clinics, health departments, nursing homes, assisted living facilities, and pharmacies. Identified uses of broadband in the area of healthcare are listed below and identified as basic or advanced.

Application Name	Description	Basic/ Advanced
NCM Hospital	Availability of telemedicine (send or receive)	Advanced
NCM Hospital - website		
listing all the medical		
health providers	Online listing of healthcare professionals within community	Basic
Computer access for	2 computers at Perry Farms, 1 computer at Village of	
those living in nursing	Hillside, 1 computer at Harbor Springs Friendship Center, 2	
homes and assisted	computers at Bay Bluffs-Emmet County Medical Care	
living facilities	Facility	Basic



# **Current Community Technology Developments**

- In November of 2011, the voters of the Harbor Springs Public School approved a \$3.9 million technology and transportation bond allowing the school to install Wi-Fi in all the school facilities this fall and to launch a 1:1 iPad Initiative learning program.
- As of the writing of this document, 77 iPads have been issued to all administrators and teachers in the Harbor Springs School District, and iPads are targeted to be issued to 300 students by the end of 2012. By the fall of 2013, all 875 students will receive iPads.
- Digital Literacy classes at the Harbor Springs Library and community centers. The Harbor Springs Library, in partnership with the Perry Farm Villages senior center, launched a Summer Technology Series and iPad User Group where they will be hosting a series of classes about operating and maintaining computers as well as hosting a monthly iPad User Group.
- The Harbor Springs area broadband survey was launched in July 2012 in an attempt to facilitate the expansion of reliable, affordable high-speed Internet to residents, businesses, and visitors to the HARBOR, Inc. service area that is currently unserved or underserved as a long-time initiative of HARBOR, Inc. A small subcommittee has been meeting over the past few years to work on the initiative, and most recently has been working with the HARBOR, Inc. Broadband Committee to facilitate the process through the Connect Michigan Connected community engagement program. One of the projects implemented to address access is a broadband survey for residents in the service area in order to provide more information to the Team and to attract potential service providers to the area. The survey was launched in July via a mailing to over 5,000 full and seasonal residents.
- Increase access to broadband in the unserved area such as Good Hart. The HARBOR, Inc.
  Broadband Committee facilitated discussions and helped to foster a collaborative project
  among a technology service provider and Good Hart community members to bring highspeed Internet service to the Good Hart area.
- Members of the HARBOR, Inc. Broadband Committee are working with the Emmet County Planning and Zoning Department and the region's tower leasing companies to help facilitate the erection of a new tower, thereby increasing cell phone coverage in the northern region of their service area.
- The HARBOR, Inc. Broadband Committee is supporting the use of the region's 911 Emergency Tower Network by private broadband providers.
- In working with the Emmet County Planning and Zoning Department, the HARBOR, Inc. Broadband Committee is helping to examine the community's zoning ordinances for any unnecessary local regulatory barriers that would inhibit the expansion of broadband.



# **STATEWIDE PERSPECTIVE OF BROADBAND**

#### **Statewide Infrastructure**

As part of the Michigan State Broadband Initiative (SBI) and in partnership and at the direction of the Michigan Public Service Commission (MPSC), Connect Michigan produced an inaugural map of broadband availability in spring 2010. The key goal of the map was to highlight communities and households that remain unserved or underserved by broadband service; this information was essential to estimating the broadband availability gap in the state and understanding the scope and scale of challenges in providing universal broadband service to all citizens across the state. Since the initial map's release, Connect Michigan has collected and released new data every six months, with updates in October and April annually.

The most current statewide and county-specific broadband inventory maps released in the fall of 2012 depict a geographic representation of provider-based broadband data represented by cable, DSL, fiber-to-the-home, fixed wireless, and mobile wireless services. These maps also incorporate data such as political boundaries and major transportation networks in the state. Statewide maps can be found at <a href="http://www.connectmi.org/mapping/state">http://www.connectmi.org/mapping/state</a>. And the county maps can be found at

http://www.connectmi.org/ecommunity strategies/find your county/michigan/emmet.

654

3,873

Table 1: Estimate of Broadband Service Availability in the State of Michigan -By Speed Tier Among Fixed Platforms **Percent of Served** SBI Download/Upload **Unserved Households Served Households** Households by Speed **Speed Tiers** ('000)('000)Tier At Least 768 Kbps/200 Kbps 50 3,823 98.71 At Least 1.5 Mbps/200 Kbps 63 3,810 98.38 At Least 3 Mbps/768 Kbps 137 3,735 96.45 3,554 At Least 6 Mbps/1.5 Mbps 319 91.77 At Least 10 Mbps/1.5 Mbps 342 3,530 91.16 At Least 25 Mbps/1.5 Mbps 534 3.339 86.22 At Least 50 Mbps/1.5 mbps 652 3,220 83.15

3,219

0

Source: Connect Michigan, November 2012

At Least 100 Mbps/1.5 Mbps

At Least 1 Gbps/1.5 Mbps

83.12

0



Table 1 reports updated summary statistics of the estimated fixed, terrestrial broadband service inventory (excluding mobile and satellite service) across the state of Michigan; it presents the number and percentage of unserved and served households by speed tiers. The total number of households in Michigan, based on the 2010 Census, is 3,872,508, for a total population of 9,883,640 people. Table 1 indicates that 98.71% of households are able to connect to basic broadband at speeds of at least 768 Kbps download/200 Kbps upload. This implies that the number of households originally estimated by Connect Michigan to be unserved has dropped from 121,701 households in the fall of 2010 to 49,916 households in the fall of 2012. Further, approximately 96.45% of households across Michigan have broadband available of at least 3 Mbps download/768 Kbps upload speeds. The percentage of Michigan households having fixed broadband access available of at least 6 Mbps download/1.5 Mbps upload speeds is estimated at 91.77%.

Taking into account both fixed and mobile broadband service platforms, an estimated 99.91% of Michigan households have broadband available from at least one provider at speeds of 768 Kbps download/200 Kbps upload or higher. This leaves 3,652 households in the state completely unserved by any form of terrestrial broadband (including mobile, but excluding satellite services).

As differences in broadband availability estimates between the fall of 2010 and the fall of 2012 show, additional participating broadband providers can have a large impact upon Michigan broadband mapping inventory updates. Further, the measured broadband inventory provides an estimate of the true extent of broadband coverage across the state. There is a degree of measurement error inherent in this exercise, which should be taken into consideration when analyzing the data. This measurement error will decrease as local, state, and federal stakeholders identify areas where the displayed coverage is underestimated or overestimated. Connect Michigan welcomes such feedback to be analyzed in collaboration with broadband providers to correct errors identified in the maps.

In addition, the broadband availability data collected, processed, and aggregated by Connect Michigan has been sent on a semi-annual basis to the NTIA to be used in the National Broadband Map, and comprises the source of Michigan's broadband availability estimates reported by the NTIA and the FCC in the National Map. The National Broadband Map can be found here: <a href="http://www.broadbandmap.gov">http://www.broadbandmap.gov</a> and the specific page for analyzing Michigan's data can be found here: <a href="http://www.broadbandmap.gov/summarize/state/michigan">http://www.broadbandmap.gov/summarize/state/michigan</a>.

Connect Michigan also maintains an interactive version of their broadband inventory maps, My ConnectView<sup>TM</sup>, available at: <a href="http://www.connectmi.org/interactive-map">http://www.connectmi.org/interactive-map</a>.



# **Business and Residential Technology Assessments**

To complement the broadband inventory and mapping data, Connect Michigan periodically conducts statewide residential and business technology assessments to understand broadband demand and trends across the state. The purpose of this research is to better understand the drivers and barriers to technology and broadband adoption and estimate the broadband adoption gap across the state of Michigan. Key questions the data address are: who, where, and how are households in Michigan using broadband technology? How is this technology impacting Michigan households and residents? And, who is not adopting broadband service and why? What are the barriers that prevent citizens from embracing this empowering technology?

Through Connect Michigan's research, many insights are able to be collected. The most recent residential technology revealed the following key findings:

- Across Michigan, nearly four out of five adults (79% or approximately 5.9 million residents)
  have a computer, and more than three out of five adults (61%) subscribe to home
  broadband service. This includes 3.6 million "Power Users" who go online every day from
  home
- Only 35% of Michigan residents with annual household incomes below \$25,000 subscribe to home broadband service, far below the state average.
- Over one-third of Michigan adults (36%) use mobile broadband, representing approximately
   2.7 million mobile users statewide.
- One-half of Michigan households with children report that their children use home Internet service for schoolwork.
- About 869,000 adults who are not employed in Michigan use the Internet to search or apply for jobs online.
- Approximately 451,000 Michigan residents with a high school diploma or less use the Internet or mobile devices to take online classes or conduct research for schoolwork.
- Altogether, 47% of employed Michigan adults say that they either telework now or would be willing to do so if given the opportunity by their employers.
- 46% of minority adults in Michigan use mobile broadband to stay connected.
- Over one-quarter of residents age 65 or older (26% or approximately 349,000 adults) use the Internet to search for medical information or communicate with doctors or other healthcare professionals.
- Approximately 807,000 Michigan adults (28%) cite cost as their main barrier to adopting broadband service, including 169,000 rural Michiganders.
- Approximately 976,000 non-adopters would subscribe to home broadband service if given a
  price they consider reasonable.

For more information on the statewide information described, visit the Connect Michigan website at <a href="https://www.connectmi.org">www.connectmi.org</a>.



Additionally, an assessment on technology in businesses released in the fall of 2011 revealed in a report titled *Technology Adoption Among Michigan Businesses* revealed the following key findings:

- Broadband-connected businesses bring in approximately \$300,000 more in annual median revenues than non-broadband adopting businesses.
- 74,000 Michigan businesses use the Internet to advertise job openings or accept job applications.
- Over one-half of home-based businesses in Michigan (53%) advertise and sell their products
   online
- Two out of three minority-owned businesses in Michigan (67%) use the Internet to stay in touch with their customers.
- 70,000 businesses in Michigan are still not using broadband and are unable to actively participate in the digital global economy.

# Analyzing Michigan's Broadband Infrastructure and Business and Technology Assessments

Michigan broadband availability and adoption estimates were analyzed and presented as part of an initial working report titled *Broadband Infrastructure*, *Adoption*, *and Technology Usage in Michigan: First in a Series of Working Reports on the State of Broadband in Michigan* which was released in June 2011. This report analyzes this complementary demand- and supply-side research and explores external factors, such as the impact of the federal Universal Service Fund (USF) and the policy implications of the Federal Communication Commission's (FCC) National Broadband Plan (NBP). Following the spirit of the NBP and based on the broadband availability and adoption data collected by Connect Michigan, the report proposes a series of policy recommendations aimed to spur discussion and feedback among key stakeholders across Michigan. This report is available at:

http://www.connectednation.org/sites/default/files/bb pp/first mi planning report web wappendix a1.pdf

Other reports that have been compiled by Connect Michigan include:

Broadband Infrastructure in Michigan. Update to First Working Report on the State of Broadband in Michigan, September 2011

http://www.connectmi.org/ documents/MIPlanningReportUpdate final.pdf



Broadband in the Upper Peninsula of Michigan, February 2011 <a href="http://www.connectmi.org/sites/default/files/connected-nation/Michigan/miupbroadbandbriefingdocument\_final.pdf">http://www.connectmi.org/sites/default/files/connected-nation/Michigan/miupbroadbandbriefingdocument\_final.pdf</a>

Broadband and Business. Leveraging Technology in Michigan to Stimulate Economic Growth, May 2011

http://www.connectmi.org/sites/default/files/connectednation/Michigan/mi biz whitepaper final.pdf

Teleworking in Michigan – Empowering Workers Through Broadband, December 2011 <a href="http://www.connectmi.org/sites/default/files/connected-nation/Michigan/files/mittelework.pdf">http://www.connectmi.org/sites/default/files/connected-nation/Michigan/files/mittelework.pdf</a>

Broadband: Empowering Small Businesses to Grow and Thrive, May 2012 <a href="http://www.connectmi.org/sites/default/files/connected-nation/Michigan/files/mi">http://www.connectmi.org/sites/default/files/connected-nation/Michigan/files/mi</a> small biz final.pdf

Broadband: Creating Educational Opportunities across Michigan, September 2012 <a href="http://www.connectmi.org/sites/default/files/connected-nation/Michigan/files/mi\_elearning\_final.pdf">http://www.connectmi.org/sites/default/files/connected-nation/Michigan/files/mi\_elearning\_final.pdf</a>

Mobile Broadband Usage in Michigan, December 2012 <a href="http://www.connectmi.org/sites/default/files/connected-nation/Michigan/files/mi">http://www.connectmi.org/sites/default/files/connected-nation/Michigan/files/mi</a> mobile usage final.pdf



## **RECOMMENDED ACTIONS**

This project has culminated in the outlining of projects to close the gaps to becoming a certified technology Connected community. Connect Michigan recommends the following actions:

#### **Access: Recommended Actions**

#### **Broadband Availability**

#### 1. Apply to USDA for Funding Support to Build out Broadband in Community

The USDA, through its Rural Development mission area, administers and manages housing, business, and community infrastructure and facility programs through a national network of state and local offices. Rural Development has an active portfolio of more than \$165 billion in loans and loan guarantees. These programs are designed to improve the economic stability of rural communities, businesses, residents, farmers and ranchers, and improve the quality of life in rural areas.

#### Farm Bill Loan Program - USDA

This program is designed to provide loans for funding, on a technology neutral basis, for the costs of construction, improvement, and acquisition of facilities and equipment to provide broadband service to eligible rural communities.

#### Additional Information:

 Direct loans are in the form of a cost-of-money loan, a 4-percent loan, or a combination of the two.

#### Eligibility:

Must be a rural area. Rural area means any area, as confirmed by the latest decennial
census by the U.S. Census Bureau, which is not located within: (a) A city, town, or
incorporated area that has a population of more than 20,000 people; or (b) An urbanized
area contiguous and adjacent to a city or town with a population of more than 50,000
people. An urbanized area means a densely populated territory as defined in the latest
decennial census.



- To be eligible for a broadband loan, an applicant may be either a nonprofit or for-profit
  organization, and must take one of the following forms: (1) Corporation; (2) Limited Liability
  Company (LLC); (3) Cooperative or mutual organization; (4) Federally recognized Indian tribe
  or tribal organization; or (5) State or local government, including any agency, subdivision, or
  one of their units.
- A service area may be eligible for a broadband loan if all of the following are true: (1) The service area is completely contained within a rural area; (2) At least 25 percent of the households in the service area are underserved households; (3) No part of the service area has three or more incumbent service providers; (4) No part of the funded service area overlaps with the service area of current RUS borrowers and grantees; (5) No part of the funded service area is included in a pending application before RUS seeking funding to provide broadband service.

**Contact Information:** 

Point of Contact: Ken Kuchno Telephone: (202) 690-4673

E-mail: kenneth.kuchno@wdc.usda.gov

Website: http://www.rurdev.usda.gov/utp\_farmbill.html

#### **Community Connect Program – USDA**

Provides community access to broadband services in unserved areas through a one-time grant to such organizations as tribes, cooperatives, private companies, and universities, and uses the infrastructure built by the grant to create opportunities for continued improvement.

Additional Information:

- The funding will support construction, acquisition, or lease of facilities, including spectrum, to deploy broadband transmission services to all critical community facilities and to offer such services to all residential and business customers located within the proposed service area.
- The funding can be put towards the improvement, expansion, construction, acquisition, or leasing of a community center that furnishes free access to broadband Internet service, providing that the community center is open and accessible to area residents before, during, and after normal working hours and on Saturday or Sunday.
- All equipment purchases with grant and/or matching funds must be new or nondepreciated.



# Eligibility:

- Must be single community with a population of less than 20,000 that does not have Broadband Transmission Service.
- Applicants must be organized as an incorporated organization, an Indian tribe or tribal organization, a state or local unit of government, or other legal entity, including cooperatives or private corporations or limited liability companies organized on a forprofit or not-for-profit basis.
- The project must deploy Basic Broadband Transmission Service, free of all charges for at least 2 years, to all Critical Community Facilities located within the proposed Service Area. Additionally, it should offer Basic Broadband Transmission Service to residential and business customers within the proposed Service Area.

# **Contact Information:**

• Point of Contact: Thera Swersky or Steven Levine

Telephone: (202) 690-4673

E-mail: <a href="mailto:community.connect@wdc.usda.gov">community.connect@wdc.usda.gov</a>

Website: http://www.rurdev.usda.gov/utp\_commconnect.html

# Distance Learning and Telemedicine Loans and Grants Program - USDA

Provides loans and grants to rural community facilities (e.g. schools, libraries, hospitals, and tribal organizations) for advanced telecommunications systems that can provide healthcare and educational benefits to rural areas.

### Additional Information:

• The Distance Learning and Telemedicine Loans and Grant Program (DLT Program) provides three kinds of financial assistance: a full grant, grant-loan combination, and a full loan.

### Eligibility:

To be eligible for a grant, your organization must:

- Currently deliver or propose to deliver distance learning or telemedicine services for the
  term of the grant. To receive a grant, the purposes must meet the grant definition of
  distance learning and telemedicine. The DLT program is focused on sustainability. Planning
  studies, research projects, and short-term demonstration projects of less than two years
  will not be considered.
- Be legally organized as an incorporated organization or partnership; an Indian tribe or tribal organization; a state or local unit of government; a consortium; or other legal entity, including a private corporation organized on a for-profit or not-for-profit basis with the legal capacity to contract with the United States Government.



Operate a rural community facility or deliver distance learning or telemedicine services to
entities that operate a rural community facility or to residents of rural areas at rates
calculated to ensure that the benefit of the financial assistance passes through to such
entities or to residents of rural areas.

**Contact Information:** 

Point of Contact: Sam Morgan Telephone: (202) 720-0665 E-mail: <a href="mailto:dltinfo@wdc.usda.gov">dltinfo@wdc.usda.gov</a>

Website: <a href="http://www.rurdev.usda.gov/UTP">http://www.rurdev.usda.gov/UTP</a> DLT.html

Universal Service Rural Health Care Program – Universal Service Administration Company
The Rural Health Care program supports healthcare providers serving rural communities by
funding telecommunications services necessary for the provision of healthcare. The program is
intended to ensure that rural healthcare providers pay no more for telecommunications in the
provision of healthcare services than their urban counterparts.

### Additional Information:

- Public and non-profit healthcare providers in rural areas can receive discounts on
  installation and monthly charges for telecommunications and Internet access service used
  for the provision of healthcare by using one of two methods: a mileage-based calculation,
  or a calculation of the "urban rate" to receive support equal to the difference between
  what they pay and what they would pay if they were receiving the service in any city in their
  state with a population of 50,000 or more.
- The rural healthcare provider must submit a form requesting services to the Universal Service Administrative Company (USAC). Once the form is approved, it is posted on USAC's website seeking bids from telecommunications companies interested in providing the requested services. After the rural healthcare provider selects a provider from qualified bidders and USAC has approved the funding request, the services may begin. Support from the USF is then used to help pay for eligible services provided to the rural healthcare provider.

### Eligibility:

Eligible organizations include:

- post-secondary educational institutions offering healthcare instruction, including teaching hospitals and medical schools;
- community health centers or health centers providing healthcare to migrants;
- local health departments or agencies;
- community mental health centers;
- not-for-profit hospitals;
- dedicated emergency departments in rural for-profit hospitals;



rural healthcare clinics;

part-time eligible entities located in facilities that are ineligible; and

groups of healthcare providers consisting of one or more entities described above.

**Contact Information:** 

Telephone: (800) 229-5476 E-mail: rhc-admin@usac.org

Website: http://www.universalservice.org/rhc/default.aspx

# 2. Develop & Issue an RFP for Build-out

An RFP (request for proposals) is a widely used technique for establishing a selection of qualified responses for which to choose when contracting for services. The RFP should provide a guidance and due diligence framework for interested broadband providers and vendors. Furthermore, the RFP should request that interested parties provide plans for cost-effective community broadband networks, including equipment lists, locations, and itemized engineering cost estimates. In addition, the completed design should also include what technology will be needed at customer premises, the performance that can be expected, and recurring costs associated with operating and maintaining the system once it is in place.

# Benefits:

- After completing an RFP, your community will have a good handle on the potential project risks, as well as benefits, associated with build out.
- An RFP lets providers know that the situation will be competitive. The competitive bidding scenario is often the best method available for obtaining the best pricing and, if done correctly, the best value.

# **Broadband Competition**

### 3. Develop Public-Private Partnerships to Deploy Broadband Service

Public-private partnerships take many forms, limited only by the imagination and legal framework in which the municipality operates. Some communities issue municipal bonds to fund construction of a network, which they lease to private carriers, with the lease payments covering the debt service. Others create non-profit organizations to develop networks in collaboration with private carriers or provide seed investment to jumpstart construction of networks that the private sector is unable to cost-justify on its own.



A public-private partnership should not be simply seen as a method of financing. The strength of these partnerships is that each party brings something important to the table the other doesn't have or can't easily acquire. The community can offer infrastructure (publicly-owned building rooftops, light poles, towers, and other vertical assets for mounting infrastructure) for the deployment of the system, as well as committed anchor tenants. Private-sector partners bring network-building and operations experience.

# 4. Study and Possibly Reassess Major Telecom Purchase Contracts

Demand for broadband capacity across community institutions represents a key segment of the overall demand for broadband in many communities. The purchasing power of this collective should be leveraged to help promote greater competition in the broadband market and drive increased investment in backhaul and last mile broadband capacity.

# **Mobile Broadband Availability**

# 5. Identify, Map, and Validate Broadband Demand

Develop a team to conduct research surveys and market analyses to validate a business case. A market analysis includes research on the existing and potential service offerings and the respective rates to determine the levels of interest in the services and rate plans offered by the client. The team should provide accurate, timely, and thorough solutions, accompanied by personalized service to meet the needs of communities or broadband providers.

### 6. Perform a Broadband Build-out Analysis in Unserved Areas

Conduct an onsite visual assessment of the defined geographic area seeking broadband coverage. The assessment determines the feasibility of deploying various Internet systems in a defined area. You should gather site-specific information required for (i) determining use of existing infrastructure, (ii) designing wired and wireless Internet system using these assets, and (iii) expanding the broadband coverage in the defined area.

Wireless may be the best likely solution. To assist with that, a visual assessment of the vertical assets (broadcast towers and water tanks) should be conducted to determine the feasibility of deploying a fixed wireless broadband Internet system in the unserved community and to gather site-specific information required for that purpose.



# 7. Complete a Vertical Assets Inventory

Wireless communications equipment can be placed in a wide variety of locations, but ideally, wireless providers look for locations or structures in stable condition, with reasonably easy access to electricity and wired telecommunications, and with a significant height relative to the surrounding area. "Vertical assets" are defined as structures on which wireless broadband equipment can be mounted and positioned to broadcast a signal over as much terrain as possible. These assets include structures such as cell towers, water tanks, grain silos, and multistory buildings.

The lack of easily accessible and readily usable information regarding the number and location of vertical assets prevents the expansion of affordable, reliable wireless broadband service. Wireless broadband providers must determine if it is worth the effort and expense to collect and analyze this data when making investment decisions. Public sector organizations are faced with the same challenges. A centralized and comprehensive vertical assets inventory can help wireless broadband providers expedite decisions regarding the deployment of affordable, reliable broadband service in rural areas.

# 8. Perform Analysis of Local Policies and Ordinances

High capital investment costs, including permit processing, pole attachment costs, and lack of effective planning and coordination with public authorities, negatively impact the case for deployment. For example, the FCC's National Broadband Plan concludes that, "the rates, terms, and conditions for access to rights of way [including pole attachments] significantly impact broadband deployment." The costs associated with obtaining permits and leasing pole attachments and rights-of-way are one of the most expensive cost functions in a service provider's plans to expand or upgrade service, especially in rural markets where the ration of poles to households goes off the charts. Furthermore, the process is time consuming. "Make ready" work, which involves moving wires and other equipment attached to a pole to ensure proper spacing between equipment and compliance with electric and safety codes, can take months to complete.

Community and provider collaboration to problem solve around local pole attachment and other right of way issues is one of the most effective opportunities to encourage faster, new deployment of infrastructure.



**ADOPTION: RECOMMENDED ACTIONS** 

# **Digital Literacy**

# 9. Distribute Digital Literacy Content

Leverage the abundant digital literacy content available online to distribute to local trainers. Currently numerous non-profit organizations and for-profit corporations provide curriculum that can be adapted for classroom or self-paced study. Some organizations also provide additional resources for instructor use, including classroom setup information, teaching tips for each course, additional practice, test item files, and answers to frequently asked questions. Digital literacy content can be deployed via local websites (a community portal), print material, podcasts, blogs, and videos.

Additionally, your community could create a partnership between libraries, school systems, computer suppliers, and broadband providers to provide free training and discounted computers and broadband service to low-income community members who are not participating in the digital age. An example of such a program is Connected Nation's Every Community Online program. This is an innovative program that is providing free digital literacy training, access to low-cost computers, and discounted broadband access to communities across the country.

#### **Broadband Awareness**

### 10. Facilitate a Technology Summit

Develop and host a technology summit for residents and businesses to increase awareness of broadband value, service options, and the potential impact on quality of life. The technology summit should facilitate community partnerships between leaders in local government and the private sector, including non-profits and private businesses in the education, healthcare, and agriculture sectors with the goal of ensuring that residents have at least one place in the community to use powerful new broadband technologies, and that this asset will be sustained over time. Further, the technology summit should highlight success stories as evidence of the impact of technology.



# 11. Develop or Identify a Broadband Training and Awareness Program for Small & Medium Businesses

Methods of implementing a small and medium business broadband awareness program include, but are not limited to, facilitating awareness sessions, holding press conferences led by community leaders, inviting speakers to community business conferences or summits, and public service announcements. It is also important to educate local businesses about Internet tools that are available at minimum or no cost to them.

A training program, or entry-level "Broadband 101" course, could be utilized to give small and medium businesses an introduction on how to capitalize on broadband connectivity, as well as more advanced applications for IT staff. In addition, training should include resources for non-IT staff, such as how to use commerce tools for sales, streamline finances with online records, or leverage knowledge management across an organization. Additional training might include:

- "How to" training for key activities such as online collaboration, search optimization, cybersecurity, equipment use, and Web 2.0 tools.
- Technical and professional support for hardware, software, and business operations.
- Licenses for business applications such as document creation, antivirus and security software, and online audio- and videoconferencing.
- Website development and registration.
- Basic communications equipment, such as low-cost personal computers and wireless routers.

# 12. Initiate a Community Computer Refurbishment Program

The first step in establishing computer refurbishing is recruiting community members to sanitize old computers and install new software. There are several target groups for performing refurbishments: community volunteers, high school and college students, and prison inmates. Community computer refurbishing provides an opportunity for volunteers and students to gain valuable new skills and training that can be used for career enhancement, and in some cases earn credits for school or college, while reinvesting in their community. Communities also have the option of using prison inmates to refurbish computers so that they leave prison with some valuable job skills.

There are also established residential recycling programs that your community can take advantage of. For example, <u>Dell's Reconnect program</u> is a residential computer recycling program that offers a convenient way to recycle your used computer equipment. You can drop off any brand of used equipment at participating Goodwill donation centers in your area. It's free, and participants receive a receipt for tax purposes. To view a full list of acceptable products and locations, visit the <u>Dell Reconnect</u> website.



Computer recycling is also good for the environment. Explore these additional resources for computer recycling and refurbishment.

# Earth 911

Earth 911 is a comprehensive communication medium for the environment. Earth 911 has taken environmental hotlines, websites, and other information sources nationwide, and consolidated them into one network. Once you contact the Earth 911 network, you will find community-specific information on eCycling and much more.

<u>Electronic Industries Alliance's Consumer Education Initiative</u>
 The Electronic Industries Alliance's eCycling Central website helps you find reuse, recycling, and donation programs for electronics products in your state.

# 13. Implement a Community-Based Technology Awareness Program

Conduct an extensive advertising campaign to raise awareness about the benefits of broadband and related technology. Develop a strategy to help the community become more aware of the benefits associated with Internet and computers adoption in their daily lives and activities. Methods of delivery include, but are not limited, to classroom style awareness sessions, press conferences led by community leaders, having a speaker at a community event, posting community posters, handouts, and public service announcements.

Additionally, the campaign should specifically target technology non-adopters. By using established media, the campaign reaches non-adopters where they are. Public radio, broadcast and cable TV, utility bill stuffers, and print newspapers have been utilized to reach households of many types. The public awareness campaign should focus on helping residents, particularly those from underserved communities, understand the personal value they can derive from an investment in information technology.

There are also opportunities to leverage existing resources to expand and enhance workforce training programs, encourage more post-secondary education, and create additional awareness within the community in regards to global resources. It is important to support the outcomes of awareness training with the development of technology training programs that will then teach community members how to use the technology.



# 14. Procure a Multipurpose Mobile Technology Center

Partner with the public library or school system to acquire a bus (or equip a bookmobile) with laptop computers and wireless Internet service to deliver technology access and programs to unserved residents in remote areas in the community. Equipped with an instructor, the mobile technology center should provide digital literacy classes, job search assistance, e-learning programs, information during community events, and emergency assistance. Beyond training and education, the mobile technology center should be utilized to target and reach unserved or underserved members of the community and to provide them a medium for participating in the community's technology-planning process. Examples of existing mobile technology centers include:

- St. Louis Community College Mobile Tech Center
- El Paso Public Library Tech-Mobile
- State Library of Ohio Mobile Technology Training Center
- Pike County Public Library District Mobile Technology Center

### **USE: RECOMMENDED ACTIONS**

### **Education**

# 15. Improve Education through Digital Learning

Several digital learning platforms are available for K-12 implementation. For example, <u>CFY</u> is a national education nonprofit that helps students in low-income communities, together with their teachers and families, harness the power of digital learning to improve educational outcomes. The organization is unique in that it operates both "in the cloud" (through PowerMyLearning.com, a free K-12 online learning platform) and "on the ground" (through its Digital Learning Program, a whole school initiative that works hands-on with all three of the constituents that impact student achievement: teachers, parents, and students).

<u>PowerMyLearning.com</u> is a free online educational tool that helps students, teachers and parents locate and access over 1,000 high-quality online digital learning activities — videos, simulations, and other educational software — to propel student achievement in subjects including math, English, science, and social studies. The platform has a kid-friendly design. There is a playpoint/badge feature to help motivate students. In addition, students can rate digital learning activities and share them with friends via e-mail, Facebook, and Twitter. CFY also provides onsite training to teach instructors how to integrate PowerMyLearning into their classrooms.



### Government

### **16.** Perform a Community IT Assessment

Conduct a Community IT Assessment of current environment performed through an interview process (onsite, video conferencing, e-mail/web based) to determine overall IT operational efficiency. Once complete, an end deliverable provides detailed assessment results including a relative "grade" in each area as well as suggested action plans for any areas that are found to be below standards.

# 17. Improve the Online Presence of Government

The government's website must meet the needs of the citizen; should equal or exceed the standards of private company websites; design must be uncluttered, informative, and easy to navigate; and website best practices must be continuously monitored and implemented. Further, website administrators should be funded and required to follow the latest best practices in design and web search optimization. They should have a process for archiving content that is no longer in frequent use and no longer required to be posted on the website. In addition, the local government should regularly solicit public opinion and analyze citizens' online preferences before making changes to their website or before launching a new website.

### **18.** Improve Online Business Services Offered by the Government

Developing more e-Government applications not only provides value to businesses, but also allows the government to realize cost savings and achieve greater efficiency and effectiveness. Examples of activities include paying for permits and licensing, paying taxes, providing services to the government and other operations.

### 19. Seek Funding for Improving the Public Safety Network

Seek grant funding to improve public safety network by developing an interoperable network. Interoperability gives public safety personnel and first responders the ability to communicate across state and local agencies, on demand and in real time. Interoperability is essential in order to reduce the risks to law enforcement and emergency services personnel, alert first responders to any immediate hazards, and support decision-making at an individual level or as a collective group. Relevant funding opportunities include:



# Assistance to Firefighters Grants (AFG)

The primary goal of the AFG Program is to meet the firefighting and emergency response needs of fire departments and non-affiliated emergency medical service organizations. AFG funds have helped firefighters and other first responders to obtain critically needed equipment, protective gear, emergency vehicles, training, and other resources needed to protect the public and emergency personnel from fire and related hazards.

# Community Connect Grant Program

The Community Connect Grant Program provides financial assistance to furnish broadband service in unserved, often isolated, rural communities. The grants are used to establish broadband service for critical facilities such as fire or police stations, while also providing service to residents and businesses.

• First Responder Network Authority (FirstNet)

FirstNet is as an independent authority established within the National Telecommunications and Information Administration (NTIA) to ensure the establishment of a nationwide, interoperable public safety broadband network. Funds of up to \$135 million are available to assist states and localities identify and plan the most effective way to use and integrate the infrastructure, equipment, and architecture associated with the nationwide network. In total, \$7 billion will be available to construct a nationwide network. Subject to the activities of FirstNet, NTIA anticipates that it will release in 1Q2013 a Federal Funding Opportunity (FFO) notice that will provide information on grant implementation rules including the amount of funding available for award and an application process.

### Healthcare

# 20. Facilitate a Technology Summit

Develop and host a technology summit of residents and businesses to increase awareness of broadband value, service options, and the potential impact on quality of life. The technology summit should facilitate community partnerships between leaders in local government and the private sector, including non-profits and private businesses in the education, healthcare, and agriculture sectors with the goal of ensuring that residents have at least one place in the community to use powerful new broadband technologies, and that this asset will be sustained over time. Further, the technology summit should highlight success stories as evidence of the impact of technology.



### **21.** Promote Telemedicine in Remote Areas

Promote the delivery of healthcare services from a distance using video-based technologies. Telemedicine can help to address challenges associated with living in sparsely populated areas and having to travel long distances to seek medical care - particularly for patients with chronic illnesses. It also addresses the issue of the lack of medical specialists in remote areas by awarding access to specialists in major hospitals situated in other cities, states, or countries. While telemedicine can be delivered to patient homes, it can also be implemented in partnership with local clinics, libraries, churches, schools, or businesses that have the appropriate equipment and staff to manage it. The most critical steps in promoting telemedicine are ensuring that patients and medical professionals have access to broadband service, understand the main features of telemedicine, are aware of the technologies required for telemedicine, and understand how to develop, deliver, use, and evaluate telemedicine services. Relevant Funding Opportunities Include:

<u>Distance Learning and Telemedicine Loans and Grants Program</u> – USDA provides loans and grants to rural community facilities (e.g. schools, libraries, hospitals, and tribal organizations) for advanced telecommunications systems that can provide healthcare and educational benefits to rural areas. Three kinds of financial assistance are available: a full grant, grant-loan combination, and a full loan.



# **APPENDIX 1: PARTNER AND SPONSORS**

Connect Michigan, in partnership with the Michigan Public Service Commission, supports Michigan's reinvention and technological transformation through innovation, job creation, and entrepreneurship via the expansion of broadband technology and increased usage by Michigan residents. In 2009, Connect Michigan partnered with the Michigan Public Service Commission to engage in a comprehensive broadband planning and technology initiative as part of the national effort to map and expand broadband. The program began by gathering provider data to form a statewide broadband map, and has progressed to the planning and development stage. At this point the program is expanding to include community engagement in local technology planning, identification of opportunities with existing programs, and implementation of technology projects designed to address digital literacy, improve education, give residents access to global Internet resources, and stimulate economic development. http://www.connectmi.org

Michigan Public Service Commission (MPSC) is the lead Michigan agency for the State Broadband Initiative that is responsible for working with Connect Michigan, overseeing the Michigan initiative, and providing direction of the project. The MPSC facilitates interactions with other state government entities, broadband providers, and other Michigan stakeholders. It views promoting Connect Michigan activities as complementary to its mission to "grow Michigan's economy and enhance the quality of life of its communities by assuring safe and reliable energy, telecommunications, and transportation services at reasonable rates." http://www.michigan.gov/mpsc

Connected Nation (Connect Michigan's parent organization) is a leading technology organization committed to bringing affordable high-speed Internet and broadband-enabled resources to all Americans. Connected Nation effectively raises the awareness of the value of broadband and related technologies by developing coalitions of influencers and enablers for improving technology access, adoption, and use. Connected Nation works with consumers, community leaders, states, technology providers, and foundations, including the Bill & Melinda Gates Foundation, to develop and implement technology expansion programs with core competencies centered on a mission to improve digital inclusion for people and places previously underserved or overlooked.

http://www.connectednation.org



National Telecommunications and Information Administration (NTIA) is an agency of the United States Department of Commerce that is serving as the lead agency in running the State Broadband Initiative (SBI). Launched in 2009, NTIA's State Broadband Initiative implements the joint purposes of the Recovery Act and the Broadband Data Improvement Act, which envisioned a comprehensive program, led by state entities or non-profit organizations working at their direction, to facilitate the integration of broadband and information technology into state and local economies. Economic development, energy efficiency, and advances in education and healthcare rely not only on broadband infrastructure, but also on the knowledge and tools to leverage that infrastructure.

NTIA has awarded a total of \$293 million for the SBI program to 56 grantees, one each from the 50 states, 5 territories, and the District of Columbia, or their designees. Grantees such as Connect Michigan are using this funding to support the efficient and creative use of broadband technology to better compete in the digital economy. These state-created efforts vary depending on local needs but include programs to assist small businesses and community institutions in using technology more effectively, developing research to investigate barriers to broadband adoption, searching out and creating innovative applications that increase access to government services and information, and developing state and local task forces to expand broadband access and adoption.

Since accurate data is critical for broadband planning, another purpose of the SBI program is to assist states in gathering data twice a year on the availability, speed, and location of broadband services, as well as the broadband services used by community institutions such as schools, libraries, and hospitals. This data is used by NTIA to update the National Broadband Map, the first public, searchable nationwide map of broadband availability launched February 17, 2011.



# **APPENDIX 2: WHAT IS CONNECTED?**

The goal of Connect Michigan's Connected program is to certify that each community that participates in the program has, in some relevant manner, addressed their community's need for improved Access, Adoption, and Use of technology by assessing community technological resources, identifying gaps, and working to fill those gaps:

- Access Is Broadband infrastructure available to all residents?
- ADOPTION Do residents use the technologies?
- USE Are residents using technology to improve their quality of life?

# **Connected Certification Process**



The Connected certification process consists of a 4-step process to community certification:

**Step 1: Create a community technology team.** Facilitate kickoff meetings and program orientation with regional leaders and community champions. Provide them with tools and resources to form a community team. This team will be represented by local leaders from key community sectors, including:



- Broadband Provider Community
- Government: General, Public Safety, Energy and Environment
- Economic Opportunity: Economic Development, Business Development, Tourism
- Agriculture
- Education: K-12, Higher Education
- Libraries
- Healthcare

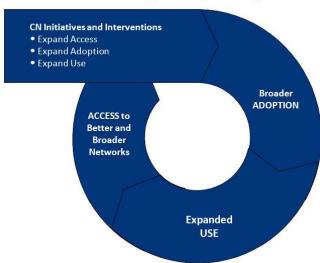
Step 2: Perform a technology assessment. With support provided by a planning specialist, Connect Michigan will provide communities with tools (electronic or print depending on the community needs) to benchmark local community technology. Bolstered by benchmarking data that had been gathered through Connect Michigan's mapping and market research, the HARBOR, Inc. Broadband Committee will work with community members to determine their overall broadband and technology grade on a 13-point "community certification AAU" model:

- 1. Broadband Availability
- 2. Broadband Speeds
- 3. Broadband Competition
- 4. Middle Mile Access
- 5. Mobile Broadband Availability
- 6. Digital Literacy
- 7. Public Computer Centers
- 8. Broadband Awareness
- 9. Vulnerable Population Focus
- 10. Economic Opportunity
- 11. Education
- 12. Government
- 13. Healthcare

Step 3: Action Planning & Implementation. Following Community Assessments, the data is analyzed, gaps will be determined, and recommended actions to help to fill gaps will be identified. After successful execution of projects, the community will be certified as a Connected Community.

**Step 4: Project Success and Expanded Local Empowerment.** Once a community is certified, the community will have an avenue to discuss its success and pursue opportunities as a recognized, technologically advanced community.

# **Broadband Catalysts for Change**





# **APPENDIX 3: LINKS TO MAPS AND REPORTS**

Creating accurate broadband maps is one of the first steps to promoting access, adoption, and use of broadband across the state. The Connect Michigan mapping initiative is working closely with multiple broadband providers from across the state to develop a variety of broadband inventory maps. Currently, broadband is defined as Internet service with advertised speeds of at least 768 Kbps downstream and 200 Kbps upstream.

These maps, which contain data in beta version, highlight where broadband is and is not available in the state, a key component in promoting access, adoption, and use of broadband.

# Map Title: Broadband Service Inventory for the State of Michigan, Advertised Speeds of at Least 768 Kbps Downstream and 200 Kbps Upstream

This map depicts a geographic representation of provider-based broadband data represented by cable, DSL, wireless, fiber-to-the-home, fixed wireless, and mobile wireless services. This map also incorporates data such as political boundaries and major transportation networks in the state.

http://www.connectmi.org/connectednationftp/michigan/Statewide Maps/MI Statewide Broadband.pdf

# Map Title: Broadband Service Inventory for the State of Michigan, Advertised Speeds of at Least 3 Mbps Downstream and 768 Kbps Upstream

This map depicts a geographic representation of provider-based broadband data represented by cable, DSL, wireless, fiber-to-the-home, fixed wireless, and mobile wireless services with advertised speeds of at least 3 Mbps downstream and 768 Kbps upstream. The advertised speed threshold is the closest match to the threshold presented in the National Broadband Plan.

http://www.connectmi.org/connectednationftp/michigan/Statewide Maps/MI Statewide Broadband3M.pdf

### Map Title: Density of Households Unserved by a Broadband Provider, by Census Block

This presentation of data uses the smallest geographic region that the U.S. Census acknowledges, the Census Block, and the broadband data to create a representation of how many households per square mile do not have service available in any give Census Block. <a href="http://www.connectmi.org/connectednationftp/michigan/Statewide Maps/MI Statewide Density.pdf">http://www.connectmi.org/connectednationftp/michigan/Statewide Maps/MI Statewide Density.pdf</a>



# Map Title: Maximum Residential Broadband Download Speed

This map depicts providers' maximum advertised download speed, by speed tier, across the state. The inclusion of maximum advertised speed data is a refinement made possible to the state by its participation in the SBI program.

http://www.connectmi.org/connectednationftp/michigan/Statewide Maps/MI Statewide Maps/DownloadSpeed.pdf

# **County Maps**

The following maps are available at

http://www.connectmi.org/ecommunity\_strategies/find\_your\_county/michigan/emmet for all Michigan counties. Select the county name from the drop-down list.

- Broadband Service Inventory
- Broadband Service Inventory with Township Boundaries
- Broadband Service Inventory (Advertised Speeds of at Least 3 Mbps Downstream and 768
  Kbps Upstream)
- Broadband Service Inventory (Advertised Speeds of at Least 3 Mbps Downstream and 768
   Kbps Upstream) with Township Boundaries
- Density of Households Unserved by a Broadband Provider
- Maximum Advertised Download Speed
- Density of Providers
- Multiple/Single Platform

For additional maps and other related information, visit: http://www.connectmi.org/broadband-landscape.

### **Interactive Map**

Connect Michigan provides My ConnectView<sup>TM</sup>, an interactive mapping application, developed and maintained by Connected Nation, intended to allow users to create completely customized views and maps of broadband infrastructure across the state. The self-service nature of this application empowers Michigan's citizens to take an active role in seeking service, upgrading service, or simply becoming increasingly aware of what broadband capabilities and possibilities exist in their area, city, county, or state.

http://www.connectmi.org/interactive-map



# Studies and Reports prepared by Connect Michigan

Broadband Infrastructure in Michigan. Update to First Working Report on the State of Broadband in Michigan, September 2011

http://www.connectmi.org/ documents/MIPlanningReportUpdate final.pdf

Broadband in the Upper Peninsula of Michigan, February 2011 <a href="http://www.connectmi.org/sites/default/files/connected-nation/Michigan/miupbroadbandbriefingdocument-final.pdf">http://www.connectmi.org/sites/default/files/connected-nation/Michigan/miupbroadbandbriefingdocument-final.pdf</a>

Broadband and Business. Leveraging Technology in Michigan to Stimulate Economic Growth, May 2011

http://www.connectmi.org/sites/default/files/connectednation/Michigan/mi biz whitepaper final.pdf

Teleworking in Michigan – Empowering Workers Through Broadband, December 2011 <a href="http://www.connectmi.org/sites/default/files/connected-nation/Michigan/files/mi\_telework.pdf">http://www.connectmi.org/sites/default/files/connected-nation/Michigan/files/mi\_telework.pdf</a>

Broadband: Empowering Small Businesses to Grow and Thrive, May 2012 <a href="http://www.connectmi.org/sites/default/files/connected-nation/Michigan/files/mi">http://www.connectmi.org/sites/default/files/connected-nation/Michigan/files/mi</a> small biz final.pdf

Broadband: Creating Educational Opportunities across Michigan, September 2012 <a href="http://www.connectmi.org/sites/default/files/connected-nation/Michigan/files/mi">http://www.connectmi.org/sites/default/files/connected-nation/Michigan/files/mi</a> elearning final.pdf

Mobile Broadband Usage in Michigan, December 2012 <a href="http://www.connectmi.org/sites/default/files/connected-nation/Michigan/files/mi">http://www.connectmi.org/sites/default/files/connected-nation/Michigan/files/mi</a> mobile usage final.pdf

To view 2011 Business Technology Survey results, featuring data from 800 businesses across the state, visit: <a href="http://www.connectmi.org/survey-results/business">http://www.connectmi.org/survey-results/business</a>

To view 2011 Residential Technology Survey results, featuring data from 3,600 residents across the state, visit: <a href="http://www.connectmi.org/survey-results/residential">http://www.connectmi.org/survey-results/residential</a>



# **APPENDIX 4: GLOSSARY OF TERMS**

# #

**3G Wireless - Third Generation -** Refers to the third generation of wireless cellular technology. It has been succeeded by 4G wireless. Typical speeds reach about 3 Mbps.

**4G Wireless - Fourth Generation -** Refers to the fourth generation of wireless cellular technology. It is the successor to 2G and 3G. Typical implantations include LTE, WiMax, and others. Maximum speeds may reach 100 Mbps, with typical speeds over 10 Mbps.

# <u>A</u>

**ARRA** - American Recovery and Reinvestment Act.

**ADSL** - **Asymmetric Digital Subscriber Line** - DSL service with a larger portion of the capacity devoted to downstream communications, less to upstream. Typically thought of as a residential service.

**ATM - Asynchronous Transfer Mode -** A data service offering by ASI that can be used for interconnection of customer's LAN. ATM provides service from 1 Mbps to 145 Mbps utilizing Cell Relay Packets.

# <u>B</u>

**Bandwidth** - The amount of data transmitted in a given amount of time; usually measured in bits per second, kilobits per second, and megabits per second.

**BIP** - **Broadband Infrastructure Program** - Part of the American Recovery and Reinvestment Act (ARRA), BIP is the program created by the U.S. Department of Agriculture focused on expanding last mile broadband access.

**Bit** - A single unit of data, either a one or a zero. In the world of broadband, bits are used to refer to the amount of transmitted data. A kilobit (Kb) is approximately 1,000 bits. A megabit (Mb) is approximately 1,000,000 bits.

**BPL** - **Broadband Over Powerline** - An evolving theoretical technology that provides broadband service over existing electrical power lines.

**BPON - Broadband Passive Optical Network -** A point-to-multipoint fiber-lean architecture network system which uses passive splitters to deliver signals to multiple users. Instead of running a separate strand of fiber from the CO to every customer, BPON uses a single strand of fiber to serve up to 32 subscribers.

**Broadband** - A descriptive term for evolving digital technologies that provide consumers with integrated access to voice, high-speed data service, video-demand services, and interactive delivery services (e.g. DSL, cable Internet).



**BTOP** - **Broadband Technology Opportunities Program** - Part of the American Recovery and Reinvestment Act (ARRA), BTOP is the program created by the U.S. Department of Commerce focused on expanding broadband access, expanding access to public computer centers, and improving broadband adoption.

### C

**Cable Modem** - A modem that allows a user to connect a computer to the local cable system to transmit data rather than video. It allows broadband services at speeds of five Mbps or higher.

**CAP - Competitive Access Provider -** (or "Bypass Carrier") A company that provides network links between the customer and the Inter-Exchange Carrier or even directly to the Internet Service Provider. CAPs operate private networks independent of Local Exchange Carriers.

**Cellular** - A mobile communications system that uses a combination of radio transmission and conventional telephone switching to permit telephone communications to and from mobile users within a specified area.

**CLEC - Competitive Local Exchange Carrier -** Wireline service provider that is authorized under state and federal rules to compete with ILECs to provide local telephone and Internet service. CLECs provide telephone services in one of three ways or a combination thereof: a) by building or rebuilding telecommunications facilities of their own, b) by leasing capacity from another local telephone company (typically an ILEC) and reselling it, or c) by leasing discreet parts of the ILEC network referred to as UNEs.

**CMTS - Cable Modem Termination System -** A component (usually located at the local office or head end of a cable system) that exchanges digital signals with cable modems on a cable network, allowing for broadband use of the cable system.

**CO** - **Central Office** - A circuit switch where the phone and DSL lines in a geographical area come together, usually housed in a small building.

**Coaxial Cable** - A type of cable that can carry large amounts of bandwidth over long distances. Cable TV and cable modem broadband service both utilize this technology.

**Community Anchor Institutions (CAI)** - Institutions that are based in a community and larger users of broadband. Examples include schools, libraries, healthcare facilities, and government institutions.

**CWDM - Coarse Wavelength Division Multiplexing -** Multiplexing (more commonly referred to as WDM) with less than 8 active wavelengths per fiber.

# D

**Dial-Up** - A technology that provides customers with access to the Internet over an existing telephone line. Dial-up is much slower than broadband.

**DLEC - Data Local Exchange Carrier -** DLECs deliver high-speed access to the Internet, not voice. DLECs include Covad, Northpoint, and Rhythms.

**Downstream** - Data flowing from the Internet to a computer (surfing the net, getting e-mail, downloading a file).



**DSL - Digital Subscriber Line -** The use of a copper telephone line to deliver "always on" broadband Internet service.

**DSLAM - Digital Subscriber Line Access Multiplier -** A piece of technology installed at a telephone company's CO and connects the carrier to the subscriber loop (and ultimately the customer's PC).

**DWDM - Dense Wavelength Division Multiplexing -** A SONET term which is the means of increasing the capacity of Sonet fiber-optic transmission systems.

### Ε

**E-rate** - A federal program that provides subsidy for voice and data lines to qualified schools, hospitals, Community-Based Organization (CBOs), and other qualified institutions. The subsidy is based on a percentage designated by the FCC.

**Ethernet** - A local area network (LAN) standard developed for the exchange data with a single network. It allows for speeds from 10 Mbps to 10 Gbps.

**EON - Ethernet Optical Network -** The use of Ethernet LAN packets running over a fiber network.

**EvDO - Evolution Data Only -** A new wireless technology that provides data connections that are 10 times faster than a regular modem.

# F

**FCC - Federal Communications Commission -** A federal regulatory agency that is responsible for, among other things, regulating VoIP.

**Fixed Wireless Broadband** - The operation of wireless devices or systems for broadband use at fixed locations such as homes or offices.

**Franchise Agreement** - An agreement between a cable provider and a government entity that grants the provider the right to serve cable and broadband services to a particular area - typically a city, county, or state.

**FTTH** - **Fiber To The Home** - Another name for fiber to the premises, where fiber optic cable is pulled directly to an individual's residence or building allowing for extremely high broadband speeds.

**FTTN** - **Fiber To The Neighborhood** - A hybrid network architecture involving optical fiber from the carrier network, terminating in a neighborhood cabinet that converts the signal from optical to electrical.

**FTTP - Fiber To The Premise (Or FTTB – Fiber To The Building) -** A fiber optic system that connects directly from the carrier network to the user premises.

#### G

**Gbps - Gigabits per second -** 1,000,000,000 bits per second or 1,000 Mbps. A measure of how fast data can be transmitted.

**GPON - Gigabyte-Capable Passive Optical Network -** Uses a different, faster approach (up to 2.5 Gbps in current products) than BPON.



**GPS - Global Positioning System -** A system using satellite technology that allows an equipped user to know exactly where he is anywhere on earth.

**GSM - Global System for Mobile Communications -** This is the current radio/telephone standard in Europe and many other countries except Japan and the United States.

# H

**HFC** - **Hybrid Fiber Coaxial Network** - An outside plant distribution cabling concept employing both fiber optic and coaxial cable.

Hotspot - See Wireless Hotspot.

Ī

IEEE - Institute of Electrical and Electronics Engineers (pronounced "Eye-triple-E.").

**ILEC** - **Incumbent Local Exchange Carrier** - The traditional wireline telephone service providers within defined geographic areas. They typically provide broadband Internet service via DSL technology in their area. Prior to 1996, ILECs operated as monopolies having the exclusive right and responsibility for providing local and local toll telephone service within LATAs.

**IP-VPN - Internet Protocol - Virtual Private Network -** A software-defined network offering the appearance, functionality, and usefulness of a dedicated private network.

**ISDN** - **Integrated Services Digital Network** - An alternative method to simultaneously carry voice, data, and other traffic, using the switched telephone network.

**ISP** - **Internet Service Provider** - A company providing Internet access to consumers and businesses, acting as a bridge between customer (end-user) and infrastructure owners for dialup, cable modem, and DSL services.

J

#### K

**Kbps - Kilobits per second -** 1,000 bits per second. A measure of how fast data can be transmitted.

<u>L</u>

**LAN - Local Area Network -** A geographically localized network consisting of both hardware and software. The network can link workstations within a building or multiple computers with a single wireless Internet connection.

**LATA - Local Access and Transport Areas -** A geographic area within a divested Regional Bell Operating Company is permitted to offer exchange telecommunications and exchange access service. Calls between LATAs are often thought of as long-distance service. Calls within a LATA (IntraLATA) typically include local and local toll telephone services.

**Local Loop** - A generic term for the connection between the customer's premises (home, office, etc.) and the provider's serving central office. Historically, this has been a wire connection; however, wireless options are increasingly available for local loop capacity.



**Low Income** - Low income is defined by using the poverty level as defined by the U.S. Census Bureau. A community's low-income percentage can be found at <a href="https://www.census.gov">www.census.gov</a>.

# M

MAN - Metropolitan Area Network - A high-speed date intra-city network that links multiple locations with a campus, city, or LATA. A MAN typically extends as far as 50 kilometers (or 31 miles).

**Mbps** - **Megabits per second** - 1,000,000 bits per second. A measure of how fast data can be transmitted.

**Metro Ethernet** - An Ethernet technology-based network in a metropolitan area that is used for connectivity to the Internet.

**Multiplexing** - Sending multiple signals (or streams) of information on a carrier (wireless frequency, twisted pair copper lines, fiber optic cables, coaxial, etc.) at the same time. Mutiplexing, in technical terms, means transmitting in the form of a single, complex signal and then recovering the separate (individual) signals at the receiving end.

# Ν

**NTIA** - National Telecommunications and Information Administration, which is housed within the United State Department of Commerce.

NIST - National Institute of Standards and Technology.

# <u>O</u>

**Overbuilders** - Building excess capacity. In this context, it involves investment in additional infrastructure projects to provide competition.

**OVS** - **Open Video Systems** - A new option for those looking to offer cable television service outside the current framework of traditional regulation. It would allow more flexibility in providing service by reducing the build-out requirements of new carriers.

#### P

**PON** - **Passive Optical Network** - A Passive Optical Network consists of an optical line terminator located at the Central Office and a set of associated optical network terminals located at the customer's premises. Between them lies the optical distribution network comprised of fibers and passive splitters or couplers.

# Q

#### R

**Right-of-Way** - A legal right of passage over land owned by another. Carriers and service providers must obtain right-of-way to dig trenches or plant poles for cable and telephone systems and to place wireless antennae.



**RPR - Resilient Packet Ring -** Uses Ethernet switching and a dual counter-rotating ring topology to provide SONET-like network resiliency and optimized bandwidth usage, while delivering multi-point Ethernet/IP services.

**RUS - Rural Utility Service -** A division of the United States Department of Agriculture, it promotes universal service in unserved and underserved areas of the country with grants, loans, and financing.

# <u>S</u>

Satellite - Satellite brings broadband Internet connections to areas that would not otherwise have access, even the most rural of areas. Historically, higher costs and lower reliability have prevented the widespread implementation of satellite service, but providers have begun to overcome these obstacles, and satellite broadband deployment is increasing. A satellite works by receiving radio signals sent from the Earth (at an uplink location also called an Earth Station) and resending the radio signals back down to the Earth (the downlink). In a simple system, a signal is reflected, or "bounced," off the satellite. A communications satellite also typically converts the radio transmissions from one frequency to another so that the signal getting sent down is not confused with the signal being sent up. The area that can be served by a satellite is determined by the "footprint" of the antennas on the satellite. The "footprint" of a satellite is the area of the Earth that is covered by a satellite's signal. Some satellites are able to shape their footprints so that only certain areas are served. One way to do this is by the use of small beams called "spot beams." Spot beams allow satellites to target service to a specific area, or to provide different service to different areas.

**SBI** - State Broadband Initiatives, formerly known as the State Broadband Data & Development (SBDD) Program.

**SONET - Synchronous Optical Network -** A family of fiber-optic transmission rates.

**Streaming** - A Netscape innovation that downloads low-bit text data first, then the higher bit graphics. This allows users to read the text of an Internet document first, rather than wait for the entire file to load.

**Subscribership** - Subscribership is the number of customers that have subscribed for a particular telecommunications service.

**Switched Network** - A domestic telecommunications network usually accessed by telephones, key telephone systems, private branch exchange trunks, and data arrangements.

### T

**T-1** - **Trunk Level 1** - A digital transmission link with a total signaling speed of 1.544 Mbps. It is a standard for digital transmission in North America.

**T-3 - Trunk Level 3 -** 28 T1 lines or 44.736 Mbps.

# U

**UNE** - **Unbundled Network Elements** - Leased portions of a carrier's (typically an ILEC's) network used by another carrier to provide service to customers.



**Universal Service** - The idea of providing every home in the United States with basic telephone service.

**Upstream** - Data flowing from your computer to the Internet (sending e-mail, uploading a file).

# V

**VDSL (or VHDSL) - Very High Data Rate Digital Subscriber Line -** A developing technology that employs an asymmetric form of ADSL, with projected speeds of up to 155 Mbps.

**Video On Demand** - A service that allows users to remotely choose a movie from a digital library and be able to pause, fast-forward, or even rewind their selection.

**VLAN - Virtual Local Area Network -** A network of computers that behave as if they were connected to the same wire even though they may be physically located on different segments of a LAN.

**VoIP - Voice over Internet Protocol -** A new technology that employs a data network (such as a broadband connection) to transmit voice conversations.

**VPN - Virtual Private Network -** A network that is constructed by using public wires to connect nodes. For example, there are a number of systems that enable one to create networks using the Internet as the medium for transporting data. These systems use encryption and other security mechanisms to ensure that only authorized users can access the network and that the data cannot be intercepted.

**Vulnerable Groups** -Vulnerable groups will vary by community, but typically include low-income, minority, senior, children, etc.

### W

**WAN** - **Wide Area Network** - A communications system that utilizes cable systems, telephone lines, wireless, and other means to connect multiple locations together for the exchange of data, voice, and video.

**Wi-Fi - Wireless Fidelity -** A term for certain types of wireless local networks (WLANs) that uses specifications in the IEEE 802.11 family.

**WiMax** - A wireless technology that provides high-throughput broadband connections over long distances. WiMax can be used for a number of applications, including last mile broadband connections, hotspots, and cellular backhaul and high-speed enterprise connectivity for businesses.

**Wireless Hotspot** - A public location where Wi-Fi Internet access is available for free or for a small fee. These could include airports, restaurants, hotels, coffee shops, parks, and more.

**Wireless Internet** - 1) Internet applications and access using mobile devices such as cell phones and palm devices. 2) Broadband Internet service provided via wireless connection, such as satellite or tower transmitters.

**Wireline** - Service based on infrastructure on or near the ground, such as copper telephone wires or coaxial cable underground, or on telephone poles.