Final Report

Washtenaw County Board of Commissioners

Broadband Equity Sub-Committee

November 29, 2018
TABLE OF CONTENTS
Broadband Sub-Committee
Washtenaw County Board of Commissioners
FINAL REPORT

Executive Summary.................................................................................................................. Pages 2-3

Sub-Committee Findings ........................................................................................................ Pages 4-15

Recommendations to Achieve Broadband Equity................................................................. Pages 16-18

Appendices
Appendix A - Sub-Committee Members
Appendix B - Guest Panelist Roster
Appendix C - Panel Discussions Summary
Appendix D - Sub-Committee Work Plan and Timeline
Appendix E - Overview, Washtenaw County Broadband Coverage & Township Activities
Appendix F - MAP Washtenaw County Broadband Coverage
Appendix G - MAP Washtenaw County Economic Opportunity w/Broadband Overlay
Appendix H - Template Resolution: Broadband Support
Appendix I - Template Resolution: Feasibility Study Support
Appendix J - Representative Donna Lasinski: Legislative Update and House Bill Status
Appendix K - Description: Digital Equity Staff Position
Appendix L - Equitable Access to Broadband in Michigan

Resolutions
- Resolution to establish a Digital Equity Staff Position
- Resolution to continue the work of the Broadband Subcommitteee
- Resolution supporting the Lyndon Township Broadband project
- Resolution supporting the Michigan Broadband Cooperative
Executive Summary

Broadband access is no longer a luxury, and is essential for participation in modern society. About 20,000 residents (about 8,000 households) in Washtenaw County currently do not have access to broadband as defined at the 25 megabit download speed threshold\(^1\). The primary cause of this lack of access is the fact that market forces leave broadband providers with a higher profit margin in more populated areas than in rural areas. In some areas, the return on investment for providers is low enough that it is likely that these areas will remain unserved for the foreseeable future. This lack of access is impacting this group of residents in the following ways:

- **Education:** Students without broadband at home are at a significant disadvantage versus their peers. There are students lacking access in all Washtenaw County school districts, but the two worst impacted are Chelsea School District (40.6% or 2,836 households unserved\(^2\)) and Manchester School District (69.5% or 2,327 households unserved\(^3\)).
- **Economic development:** Lack of broadband hampers entrepreneurship, job seeking, and attraction of both businesses and talent.
- **Property value:** Studies show that homes without broadband access are on average worth 3.1% less than comparable homes with broadband, and the gap rises to 7.1% when faster fiber optic broadband is considered\(^4\).
- **Personal prosperity:** Having broadband access enables cost savings in many areas of personal commerce, yielding hundreds or thousands of dollars each year that those without broadband are overspending.
- **Health and safety:** Communities without broadband experience higher rates of lost lives, injury, and crime, and residents in these communities have difficulty leveraging new capabilities like electronic medical records and e-Visits.
- **Quality of life:** Broadband enables people to communicate more freely with friends and family, leverage new technologies like smart home features, use modern entertainment services like streaming video, and generally participate in modern society.

Therefore, we recommend that the County takes the leadership role in coordinating the efforts required to achieve the goal broadband access for all. This coordination could take many forms, but its success will rely on dedicated effort and expertise. Suggesting where this coordination would be established is beyond the committee’s purview.

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\(^1\) https://connectednation.org/michigan/wp-content/uploads/sites/13/2018/07/Mi-July-2018_Table-5.pdf
\(^2\) Connect Michigan coverage data, September 2016 data set
\(^3\) Connect Michigan coverage data, September 2016 data set
The Committee has three primary recommendations for the Washtenaw County Board of Commissioners to consider:

1. Develop a stated goal and plan to achieve 100% county-wide broadband access by 2022.
2. Establish staff capacity within Washtenaw County to carry out and coordinate the workplan outlined in this report.
3. Renew the Broadband Equity Subcommittee to ensure continuity in pursuit of these goals.

Based on the advice of experts who addressed the committee and research into best practices, the Broadband Subcommittee recommends the following activities to accomplish the goal of achieving 100% county-wide broadband access by 2022:

- **Further Define/Refine the Need and Share the Story**
  - Conduct a feasibility county-wide broadband feasibility study.
  - Build county-wide demand aggregation map.
  - Collect and map available fiber in the county.
  - Raise awareness of the problem of limited broadband access and its impact on residents and local businesses.

- **Support Best and Emerging Practices**
  - Support the Lyndon Township initiative.
  - Distribute a “community broadband playbook”.
  - Raise awareness of the incumbent providers’ low income rates/plans.
  - Seek out and support discussion and opportunities for partnerships.

- **Seek Funding**
  - Provide grant identification, writing, and aggregation resources for Washtenaw County communities.
  - Identify and pursue private investments and other funding sources to help subsidize and incentivize broadband expansion.

- **Change or Update Policy**
  - Require disclosure of broadband access in real estate listings and sales agreements.
  - Support Public-Private partnership enabling legislation for broadband projects.
  - Formally make existing fiber assets owned by the public entities available for municipalities to use for backhaul connections.

- **Coordinate with Local Governments**
  - Help minimize or eliminate barriers that discourage broadband providers from expanding their services areas
  - Enact a county-wide “dig once” policy.
  - Include achievement of 100% broadband access in Washtenaw County’s Master Plan
This document details the findings that led to these recommendations as well as details regarding the recommendations themselves.

Sub-Committee Findings

Broadband Defined

The definition of broadband has evolved over the years, but the current colloquial definition is an internet connection sufficient to support modern networked applications. From a quantitative perspective, there are three attributes that are important: 1) bandwidth, 2) latency, and 3) data caps. When visualizing bandwidth (or broadband speed), it may help to think of an internet connection as a tube and each bit of data as a grain of sand. If you pour a large amount of sand into a skinny tube, it will take a long time for the sand to flow through it. If you pour the same amount of sand through a wide tube, the sand will finish flowing through the tube much faster. Broadband speed is defined by the FCC as 25 megabits per second download and 3 megabits per second upload.\(^5\) Latency is a different kind of speed – this is the amount of time it takes a single grain of sand (or piece of data) to get from the source to the destination. When it takes too long, real time applications (such as a voice conversation) become delayed and problematic. Latency and data cap metrics are defined by the FCC in their recent reverse auction program:\(^6\) For latency, broadband connections must remain below 100 milliseconds to support real-time applications. For data caps, the analog is that the amount of sand a user is allowed to transfer in a single month is limited. It is important to note that this is only an analogy, because there is no incremental cost for transferring data over a broadband connection. The standard for data caps from the Reverse Auction is to allow at least 150 gigabytes of data transfer before additional fees are levied or speeds are reduced. This combination of attributes can serve to define the minimum connection needed by a household to sufficiently support modern networked applications. It should be noted that the majority of households in Michigan that do have broadband access are receiving levels of service that far exceed this minimum threshold - almost 91% of Michigan households have access to service at 100 megabits per second or more,\(^7\) and have connections significantly below the 100 millisecond latency threshold, with data caps of 1 terabyte (or unlimited data).

Another set of terms that are often used are “unserved” and “underserved”. While these words can be used in various ways, most commonly “underserved” refers to households that have some access to the internet that does not reach the threshold to be considered broadband, while “unserved” means they have no access at all, or access that is below an even lower threshold. It should be noted that all, or nearly all households in Washtenaw County have some access to the internet – but as anyone who has used a dial-up modem in recent years can attest, many of these options are inadequate. Since there is no consensus on the definition of “underserved”, for the purposes of this document all households without access to service reaching the threshold of broadband will be referred to as “unserved”.

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\(^6\) https://www.fcc.gov/auction/903#technology

\(^7\) https://connectednation.org/michigan/wp-content/uploads/sites/13/2018/07/Mi-July-2018_Table-1.pdf
Current Situation in Washtenaw County

Washtenaw County is an important and diverse region of Michigan. Home to the #1 public research university in the country, it is Michigan’s 6th largest county with Michigan’s 5th largest city, the 3rd largest state park in Michigan, and robust urban and rural communities; Washtenaw County represents some of the best that Michigan has to offer. Given the County’s robust knowledge-economy, it often comes as a surprise that almost 8,000 households (about 20,000 people) in Washtenaw County do not have access to broadband at their homes\(^8\). It was in response to citizen demand for help with this issue that the Washtenaw County Board of Commissioners created the Broadband Sub-Committee.

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\(^8\) https://connectednation.org/michigan/wp-content/uploads/sites/13/2018/07/Mi-July-2018_Table-5.pdf
The lack of broadband is also not evenly distributed throughout the County. By percentages, rural municipalities are much more lacking in broadband than urban ones. But, some urban and suburban municipalities still have significant numbers of unserved households. Following is a breakdown of broadband coverage for each Washtenaw County municipality\(^9\):

\(^9\) Connect Michigan coverage data, September 2016 data set
Causes of the Broadband Gap

Problems are often simple, even when the solutions are not. In this case, the simple problem is that areas of Michigan with low population densities do not enable fast enough returns on investment to motivate for-profit providers to invest in infrastructure. This leaves these rural areas with slow DSL over aging copper telephone lines, underpowered wireless solutions, or inadequate cellular and satellite services. To solve the problem, significant capital investments need to be made to build infrastructure: whether this is fiber, wireless, or a hybrid solution, the root problem is the same: someone needs to pay for it.

Another simple problem is that it’s difficult to know how many people in Michigan are lacking broadband access. Connect Michigan stewards the FCC’s Form 477 data, which is arguably the best current source available, but it is known to contain inherent inaccuracies in both reported data and methodology. Without a basic understanding of the scope of the broadband gap, it is difficult to have further conversations of how to address it.

At the end of the day there are only three possible sources of funds for broadband infrastructure investment:

- Private companies, or
- The people themselves, or
- A combination of the two (public-private partnerships).
For private for-profit companies, the barrier to infrastructure investment is slow returns on investment in low density areas. In short, if there were a business case to be made here, the problem would not exist. There may be some small opportunities to reduce costs of deployment or make the case for increased population density in areas with new development, but on the whole there is no way to motivate for-profit companies to expand infrastructure (without external sources of funds, such as public-private partnerships).

Private non-profit companies are well positioned to undertake longer returns on investment, but often lack sufficient equity to build significant infrastructure (again without external sources of funds). One exception to this has been non-profit electric and telephone cooperatives, who in some cases have sufficient member equity to build broadband infrastructure, but generally only for their own members.

The only other option is for some or all of the money to come from the people themselves. This can take a number of forms:
Each approach has its own set of challenges:

- **Local tax revenue:** Property taxes are the main instruments for municipalities, and millages require a ballot vote that can be contentious. Special assessment districts can serve more targeted areas with arguably more equitable distribution of the levy, but these are not currently allowed to be used for broadband in Michigan (see HB4162).
- **Private investment from consumers:** There are a significant number of individuals who are ready and willing to write substantial checks to a provider who will provide them with broadband service, but in most cases there is no one to whom they can write the check, and these efforts are uncoordinated and inefficient.
- **Private donations:** Further, there are some individuals willing to make donations (or pay significant non-equity connection fees) to get a broadband connection, though these numbers are smaller than the amounts individuals might be willing to invest.
- **State grants:** To date, Michigan has not issued any grants for broadband, but this will change with the upcoming Connecting Michigan Communities (CMIC) grant program. However, the proposed $20M falls significantly short of needed funding.
- **Federal grant programs:** The federal government has had several broadband infrastructure grant programs over the years, but many have not had the intended results or have been underfunded. The upcoming e-Connectivity Pilot Program funded with $600M and administered by the USDA is promising, but if they move ahead with an eligibility threshold that excludes households with 10Mb cellular service, current FCC maps would exclude all areas in Washtenaw County.

**Challenges with Adoption**

Much of the Subcommittee’s findings focus on the lack of broadband availability. However, availability is only one part of the process toward digital inclusion – adoption of available services is also needed. Part of adoption is choice or perceived value: “I don’t want the internet” or “I get what I need from my phone”. The other part is economic: “I can’t afford it”. Digital inclusion can address both. In our discussions and research, the Subcommittee has focused mostly on availability. This focus allows for more targeted efforts. However, the adoption portion of this issue should not be ignored. According to the U.S. Census Bureau’s American Community Survey, in Washtenaw County 88.6% of households say they have a broadband internet subscription.\(^\text{10}\) **This means that nearly 8,000 households have access to a broadband connection but do not subscribe to it** – and when combined with the households lacking access at all leaves nearly 16,000 Washtenaw County households without a broadband connection. In Washtenaw County, for-profit carriers are working to address the adoption issue with low-cost home internet programs such as Comcast’s Internet Essentials, AT&T’s Access, and Charter’s Internet Assist. However, the number of households that remain unconnected indicates that challenges still exist.

**Challenges caused by Current Situation**

Broadband is no longer a luxury in our society. Robust internet connectivity has become essential for information access and communication, not only where we work and learn, but also where we live.

\(^\text{10}\) [https://www.census.gov/acs/www/about/why-we-ask-each-question/computer/](https://www.census.gov/acs/www/about/why-we-ask-each-question/computer/)
Access to broadband is not just about access to entertainment services – on the contrary, it has become the primary way we communicate with family and friends, consume and participate in educational resources, access medical and government services, and engage in commerce. Ubiquitous broadband access is foundational for the overall prosperity of any region. Residents with access to broadband can participate in online adult education and training, leverage online resources for job seeking, take jobs that require working from home, and engage in entrepreneurial activities. Washtenaw County residents who do not have access to broadband at home face significant economic and quality of life challenges, as well as basic challenges with communications and access to information. Following are several categories of challenges these residents face.

**Education**

Home broadband access is critical for modern educational programs, and students living in homes without access are at a disadvantage. A national survey in 2015 found that 50% of K-12 students say they haven’t been able to complete a homework assignment due to lack of internet access at home, and 42% received a lower grade because of lack of access.¹¹ This education gap was a consistent theme throughout the subcommittee’s conversations. Mike Lott from Chelsea Middle School reported that while Chelsea has a one to one technology program, students who do not have broadband at home cannot utilize their devices in the same way that their peers with broadband can. Jaime Woodring from Manchester Schools reported a similar situation with their one to one technology program, and added that her in-class time is impacted for all student due to the need to use time in school for students without broadband at home to complete certain functions. Dawn Putnam from Chelsea High School added that parents without broadband access become frustrated because they may not be able to check grades, see assignments or just keep up on the class in general. Washtenaw County’s rural school districts are most impacted¹²:

- Chelsea School District is 40.6% unserved (2,836 households lack access)
- Manchester School District is 69.5% unserved (2,327 households lack access)

Urban and suburban districts are less impacted, but it is important to note that broadband access is an issue that affects students in every Washtenaw County school district¹³:

- Ann Arbor School District is 2.7% unserved (1,877 households lack access)
- Dexter School District is 10% unserved (888 households lack access)
- Lincoln Consolidated is 4% unserved (484 households lack access)
- Milan School District is 19.7% unserved (1,171 households lack access)
- Saline School District is 11% unserved (1,189 households lack access)
- Whitmore Lake is 1.8% unserved (74 households lack access)
- Ypsilanti School District is 5.2% unserved (1,021 households lack access)

¹¹ [https://www.fosi.org/documents/142/Taking_the_Pulse_Phase_1_Research_Findings_FINAL.pdf](https://www.fosi.org/documents/142/Taking_the_Pulse_Phase_1_Research_Findings_FINAL.pdf)
¹² Connect Michigan coverage data, September 2016 data set
¹³ Connect Michigan coverage data, September 2016 data set
**Economic Development**

The areas of Washtenaw County without broadband access are generally rural, as such the economic development opportunities in these areas are focused around employment and entrepreneurship for the residents of these areas rather than brick and mortar businesses. The Subcommittee heard from Kathy Spiegel, a certified medical writer working from home in Grass Lake. She reported that she pays $450/month for a cellular internet connection that is still not adequate for her needs, but has no other choice. Len Chockly, a home-based computer consultant from Northfield Township reported that he has also resorted to an expensive and inadequate cellular connection after being quoted $42,000 by the local cable provider to extend service to his home (this is likely the provider’s “real” cost to extend service to this individual household). Mr. Chockly went on to say that he often has to visit the library or the local Panera Bread to use their connectivity when he has something big to do for work. Finally Amy Cell is a talent attraction and retention consultant working with clients in Washtenaw County, and she reported that for job seekers looking to improve their situations, lack of internet access is a barrier in the job search and application process. Amy also stated that most jobs postings now require online application and skills assessment.

Lack of robust broadband affects the attraction of brick and mortar businesses as well. Ray Berg, former Manchester Chamber & DDA President told the Subcommittee that he has personally experienced businesses walk away from locating in the Manchester area because fiber optic connectivity was not available, and the current fixed wireless solutions were not adequate for their needs.

**Property Values**

Homes that do not have access to broadband are more difficult to sell. Increasingly many home buyers require a home to have broadband access to consider it for purchase, and will walk away from a home that they discover does not have broadband access. This situation results in lower property values from homes without broadband access. A 2015 study from the University of Colorado and Carnegie Melon states that homes with access to broadband have a 3.1% greater value than similar homes without broadband, and that homes with access to gigabit fiber-optic based broadband have a 7.1% greater value than similar homes without broadband.

The Subcommittee also heard reports from residents who purchased a home under the assumption that all homes in Washtenaw County have access to broadband, only to discover after moving in that no broadband was available. There is currently no mandatory real estate disclosure regarding broadband access.

**Personal Prosperity**

Having a broadband connection yields significant economic benefit for consumers, in areas such as shopping, groceries, apparel, news, entertainment, insurance, and others. Attempts to quantify these savings have yielded estimated savings for broadband connected homes of $750 to $9,000 annually.
versus their unconnected counterparts. Examples of this lost benefit are using expensive satellite television instead of inexpensive streaming services, missing out on online shopping when making purchases, and not being able to use online banking and bill payment. For the 8,000 Washtenaw County households lacking access, this adds up to between $6M and $72M annually in lost consumer benefit.

**Health and Safety**

Broadband has also become essential for health and safety. A Sharon Township resident reported that when an ambulance arrived to provide emergency treatment for her daughter who was having a seizure, they were unable to use their digital devices to access medical resources due to lack of broadband at the home. A recent study from the National Telecommunications & Information Administration showed that communities without access to broadband experience 25% higher rates of lost lives, injuries, and crime. Additionally, without broadband, residents are impeded in using electronic medical records and telehealth services such as the “eVisits” and “Video Visits” now offered by Michigan Medicine. Finally, residents without broadband cannot utilize modern safety and security services such as streaming security cameras and cloud-based security systems.

**Quality of Life**

Lack of broadband access has a detrimental effect on general quality of life. Households without broadband at home are more limited in their abilities to communicate with family and friends. They are less able to leverage emerging smart home technologies. Their access to entertainment options is more limited. The subcommittee even heard from parents and grandparents that their children and grandchildren visit less frequently due to a desire to stay connected with their social circles and complete college coursework. Finally, residents without broadband access are significantly limited in their ability to age in place, which is especially important to the older populations of rural Washtenaw County.

**Current Efforts to Address Broadband Challenges**

A number of groups around the state and around the country are working to address the lack of broadband coverage. While none of these efforts are poised to provide a ubiquitous solution, it is nonetheless important to be aware of these efforts and leverage or complement them where possible.

- Connect Michigan. This non-profit organization is a subsidiary of Connected Nation. Amongst other things, they are the stewards of the coverage data provided to the FCC using form 477 data, which requires broadband providers to report their speeds and coverage areas. Connect Michigan also works with communities to perform community assessments and plans to help communities understand their broadband situations and options for moving forward. Dan

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14 https://aede.osu.edu/sites/aede/files/publication_files/Connecting%20the%20Dots%20of%20Ohio%20Broadband_0.pdf
16 https://www.uofmhealth.org/virtualcare
Manning from Connect Michigan presented a summary of Washtenaw County broadband coverage before the Subcommittee at their December 2017 session.

- The State of Michigan. In January of 2018, Governor Snyder issued an executive order that created the Michigan Consortium of Advanced Networks (MCAN). The Consortium was tasked with creating a Michigan Broadband Roadmap, which they released in August of this year\(^\text{17}\). Amongst other things, the Roadmap lays of goals for the State including achieving “fixed, or comparable, affordable broadband service to all residents and businesses at a speed of at least 25 Megabits per second download and 3 Megabits per second upload by 2022” and accomplishing “speeds of 1 Gigabit per second to all residents and businesses by 2026.” The report goes on to describe a number of useful actions and steps toward these goals, but at this time it is still unclear whom will execute these goals and how much (if any) state funding is available. Legislation has been proposed (HB 5670) that would establish a Michigan “Broadband Board” and “Broadband Fund”, but the bill has various provisions that have been contested and has been stalled in committee.

- The Federal Government.
  - CAF: The current Federal Communications Commission has a program called the Connect America Fund, which is an evolution of the Universal Services Fund, that is a program to expand broadband coverage in the U.S. Historically, this program has not provided significant benefit to Washtenaw County – although two carriers received subsidies for expansion in areas including Washtenaw County, this has not resulted in any additional coverage meeting the threshold of broadband. However, it has resulted in some additional homes receiving upgraded service at the 10 megabit level. The recent Connect America Fund Reverse Auction provided almost $35M to provide service to 21,451 households in Michigan, but none in Washtenaw County. Without a concerted effort to seek these funds, it is unlikely that Washtenaw County will benefit from future programs either.
  - USDA: The USDA has long administered a Connected Community broadband grant program. This program has been underfunded such that the limited funds have gone only to the most remote regions of the U.S. This year the USDA is launching a $600M e-Connectivity pilot program, though the current application parameters exclude most Washtenaw County communities.

- The Michigan Broadband Cooperative. This not-for-profit cooperative was formed by residents of Washtenaw and Jackson Counties to address the lack of broadband in the rural areas of these counties. This group of volunteers helped lay the groundwork for Lyndon Township’s municipal broadband success, and with a grant The Greater Ann Arbor Area Prosperity Initiative worked together with the University of Michigan Ginsberg Center and Poverty Solutions Center to create the Community Broadband Framework.

- Local municipalities:

- Lyndon Township completed a broadband feasibility study in 2016, and in August of 2017 voted by a two to one margin to approve a 20-year property tax of 2.8 mils to fund a $7M bond funding the construction of a fiber optic network reaching every home in the township. Construction is scheduled to start in October of 2018, and Lyndon Township has partnered with Midwest Energy and Communications who will be providing service for the township residents - $35/month for 25Mb, $45/month for 100Mb, and $70/month for 1Gb. These monthly fees, even when considering the average $23/month Lyndon property owners will pay in taxes, are significantly better than any service currently available – such as a private fixed wireless service at 4 Mb for $80/month, or the data-capped AT&T fixed wireless solution at 10 Mb for $60/month.

- Sharon Township completed a broadband feasibility study in early 2017, and in a May of 2018 vote defeated a similar proposal as that in Lyndon Township by a margin of two to one. The future of Sharon Township’s broadband situation is now uncertain – a recent inquiry to AT&T to obtain a high speed wireline connection for the township hall only was scuttled after a connection fee of $187,000 was quoted to provide a 20 Mb level of service. This offer was subsequently withdrawn by AT&T. As a result, the Township has switched their ISP to Verizon Wireless, purchased an upgraded router and is currently receiving better and faster service, albeit not broadband.

- Dexter and Webster Townships have both completed broadband feasibility studies, but the results are not currently actionable because these townships have significant existing service. Current statute does not allow townships to use special assessment districts, for broadband. District 52 State Representative Donna Lasinski has introduced HB 4162 which would enable this, but this bill has been stalled in committee.

- Manchester Township is reviewing their feasibility report. CCG consulting was asked specifically to explore all options that would provide broadband access to the Township, with a priority on alternative funding mechanism (besides a millage), as the Village of Manchester is included within the boundaries of Manchester Township and the Village elected leadership has repeatedly expressed concern that paying a broadband millage for duplicative services would negatively impact their quality of life. In the future, the Manchester Township Board of Trustees will hold a public town hall meeting to review the findings and recommendations of the feasibility study. The Board will then propose next/best steps at a subsequent public meeting.

- Ann Arbor Township is in the midst of broadband feasibility study to understand how best to improve broadband for their residents.

Expansion of Coverage in the Next Two to Five Years

It is important to understand the broader technology landscape in the context of broadband coverage in the coming years. After all, efforts toward closing the broadband gap would be unnecessary if new technologies and initiatives from the private sector are poised to close the gap.
Improvements in Fixed Wireless Technologies
A popular way to provide coverage in low population density areas is by using fixed wireless technologies. These technologies have the advantage of low cost and relatively easy deployment, but the resulting level of service generally leaves these technologies wanting, especially in geographies with diverse topography and ample foliage, such as Washtenaw County. Multiple “fixed wireless” providers currently serve Washtenaw County, but most do not provide broadband speeds, and those that do can only do so for a subset of subscribers who are near a tower with no obstructions. All the fixed wireless providers we have spoken with have expressed a desire (but no plans) to replace their wireless network with fiber optic cable over time, as they recognize that consumer demands for broadband have outpaced the ability of wireless to keep up. However, wireless may still be a useful stepping stone for some unserved areas, assuming that it can be part of a plan to build long term wireline solutions.

5G Wireless
5G wireless is shorthand for the fifth generation of cellular mobile communications. Targeting outdoor speeds of 100Mb (as opposed to faster in-building targets), this technology will be an important piece of our infrastructure as more and more devices are demanding high speed mobile connectivity. However, to accomplish these speeds, 5G wireless towers need to be closer to the endpoints (generally 1000’ or less), and require fiber optic connections. As such, 5G wireless does not significantly change the financial equation for low density rural areas\(^\text{18}\), and is not likely to solve Washtenaw County’s broadband gap.

Low Earth Orbit Satellite
Current satellite based internet connectivity is widely available, but is not an adequate home broadband solution due to limited data capacity and high latency. In recent years, companies such as SpaceX and OneWeb have proposed launching large numbers of low earth orbit satellites to address these issues. These ambitious projects require the launching of many times the number of satellites that are currently in orbit. They may yet be successful, but such success would still be years away, and the projected speeds would still leave rural residents an order of magnitude or more behind their neighbors with wireline access.

TV White Space
Microsoft (amongst others) has proposed that the FCC allow the use of “whitespace” spectrum between television channels to expand rural broadband. While this may be promising for very low density areas, the concept still has significant uncertainty due to funding and FCC approval. In additional, Washtenaw County television spectrum is more crowded due to our proximity to transmitters in Detroit, Lansing, and Jackson, and this technology would suffer from the same issue as leaving rural communities an order of magnitude behind the level of service their neighbors with wireless access can leverage.

Projected Demand
As we consider the future trajectory of technology, it is also important to consider the future trajectory of demand for broadband. The measures to quantify broadband as “a connection sufficient to support modern networked applications” is a moving target – ten years ago, streaming video services and video

chat were a niche market, while today video accounts for 73% of all internet traffic\textsuperscript{19}. Today virtual and augmented reality devices are a novelty, while these technologies are projected to command a $200B market by 2022. The growth of bandwidth demand over time has been studied and quantified in “Nielsen’s Law of Internet Bandwidth” which states that a users’ bandwidth grows by 50% each year, and is consistent with data from 1983 to the present.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{internet_bandwidth_growth.png}
\caption{Internet Connectivity (Bits Per Second) from 1983 to 2018.}
\end{figure}

Today, the average for well-connected consumers is 300 Mb, which far exceeds the minimum threshold of 25 Mb. Assuming this trend continues as it has for the past 35 years, by 2022 the average speed for well-connected consumers will be 1.5 Gb (1,500 Mb). This trend is important to note when considering how to solve the broadband gap. While it is important to get all residents access at least the minimum broadband threshold, it is equally important to ensure that solutions deployed today are designed to scale to future demand to ensure that the broadband gap is not simply kicked down the road and perpetuated.

Subcommittee Recommendations

The Broadband Equity Subcommittee has met 13 times, listened to 29 experts and stakeholders about broadband access and has researched best practices from other communities. While the issue of access to broadband is simple to define at its basic level, the problem defies simple solutions. It is noteworthy that the sub-committee did not spend any of the $10,000 allocated for its work.

The consensus goal from the committee reflects the simplicity:

**Recommendation #1: Develop a stated goal and plan to achieve 100% county-wide broadband access by 2022.**

Specifically, this goal is to provide access to service with 25 megabit downstream / 3 megabit upstream speeds, data caps of at least 150 gigabytes (or the national median, whichever is greater), and latency less than 100 milliseconds to all households in the County by 2022. Furthermore, this goal should support the long term State of Michigan goal of providing ubiquitous access to gigabit service by 2026.

Action steps towards that goal are outlined below and reflect a need to both gather additional information and develop and support multiple approaches to work towards achieving the lofty goal.

In developing the list of recommendations, it became clear that creating a coordinated approach was a key factor to future success. Simple sounding things like “apply for grants” or “distribute action plans” were missing an actor or agent to carry them forward. Setting up a coordination point for the work of achieving digital equity will be essential to coordinating action and measuring of results. To that end, the second recommendation is to establish a point of coordination:

**Recommendation #2: Establish and fund a digital equity staff position within Washtenaw County government for a period of 2 years.**

This digital equity role would establish relationships, build coalitions and develop a plan to achieve 100% county-wide broadband access by 2022. This position would be established for a two year period with renewal dependent on an evaluation of efficacy and in time to ensure continuity of the work.

**Recommendation #3: Renew the Broadband Equity Subcommittee to ensure continuity in pursuit of these goals.**

This committee is scheduled to sunset on 12/31/18. The committee has achieved its goal of reporting on the current state of broadband availability and developed recommendations to work towards the goal of 100% broadband access by 2022. The work to achieve the goal will require oversight and partnerships and the Broadband Subcommittee is the natural place for this oversight and partnership.
Strategies to Further Define/Refine the Need and Share the Story

- **Conduct a feasibility county-wide feasibility study.** To date, six Washtenaw County townships have completed or are completing broadband feasibility studies. Conducting a study at the county level can build upon the work of existing studies to enable a better understanding of the overall scope of the issue and recommend targeted solutions based on the needs identified in each community or region.

- **Build county-wide demand aggregation map.** Such a tool would enable residents/consumers to express interest in subscribing to and/or investing in broadband service. This kind of actionable data would not only help to better quantify the problem, but would enable providers to identify areas for investment that were previously thought to be financially unviable.

- **Collect and map available fiber in the county.** Many entities own fiber assets within the County that could be leveraged for community broadband, including Merit Network, the Washtenaw Intermediate School District, individual school districts, local municipalities, and the County itself. Identifying these assets would help identify both opportunities and gaps.

- **Raise awareness of the problem of limited broadband access and its impact on residents and local businesses.** A consistent theme throughout the subcommittee’s conversations has been a lack of common understanding of the problem – many people simply do not realize that 20,000 residents of Washtenaw County do not have access to broadband. Raising awareness of the issue will contribute positively toward addressing it.

Support Best and Emerging Practices

- **Support the Lyndon Township initiative** and other communities that the Michigan Broadband Cooperative has been working with to bring locally-managed broadband service to under and un-served communities. While the strategy used in Lyndon Township may not be a ubiquitous fit for other Washtenaw County municipalities, Lyndon Township currently best represents successful engagement to address the issue in Washtenaw County.

- **Distribute a “community broadband playbook”** to Washtenaw county residents/consumers to assist them in identifying ways to address their unique situations and circumstances. This playbook is currently under development from the Michigan Committee on Advanced Networks.

- **Promote incumbent providers low income rates/plans.** Many Washtenaw County residents with physical access to broadband infrastructure still go without service due to economic limitations. Low income plans from Comcast, Charter, and other can help address this gap, but many households are still unaware of these options.
• **Seek out and support discussion and opportunities for partnerships** with broadband providers to encourage expansion of their existing network infrastructure. Many internet service providers are currently operating in Washtenaw County and would be more than willing to provide service, if the issue of capital investment can be addressed. Seeking out public-private partnerships to can contribute to jointly addressing the broadband gap.

### Seek Funding

• **Provide grant identification, writing, and aggregation resources for Washtenaw County communities.** State and federal grants may provide future opportunities to address the broadband gap, but the rural municipalities who would most benefit from these programs are not equipped to seek this funding. The County is well positioned to help these municipalities seek these external funding sources.

• **Identify and pursue private investments and other funding sources to help subsidize and incentivize broadband expansion.** There are many residents in the County who would be more than willing to invest significant funding in order to achieve service at their own homes, but today there is no way to facilitate or coordinate those investments. The County could provide a mechanism to aggregate these private investments to achieve additional coverage.

### Change or Update Policy

• **Require disclosure of broadband access in real estate listings and sales agreements.** A consistent problem has been a lack of awareness of the broadband gap, especially by home buyers. Surfacing this in real estate disclosures would help ensure that home buyers in the County are not surprised when buying a home without broadband access.

• **Support Public-Private partnership enabling legislation for broadband projects.**

• **Formally make existing fiber assets owned by the county and WISD available for municipalities to use for backhaul connections.** These existing fiber assets in the County can help contribute to the solution, but today access to these assets for community broadband is murky. Clarifying this access would help Washtenaw County communities solve at least the backhaul piece of the broadband access challenge.

### Coordinate with Local Governments

• **Help minimize or eliminate barriers that discourage broadband providers from pursuing new infrastructure projects** – Incumbent carriers report difficulty in working through permitting, access rules, and fees related to expanding broadband infrastructure. A thorough understanding of these issues an potential solutions could encourage private sector build out.

• **Enact a county-wide “dig once” policy.** Such policies require that when there are new development projects that are opening the road bed or areas near the road bed, that conduit be installed in the ground to support future broadband expansion. The vast majority of the expense
of constructing fiber optic networks is placement of the conduit in the ground, so these projects can greatly reduce future costs and enable projects not previously viable.

- **Include achievement of 100% broadband access in Washtenaw County’s Master Plan** and encourage local units of governments to do so as well in their Master Plans, Ordinances and Zoning decisions.
APPENDIX A
Broadband Equity Sub-Committee
Washtenaw County Board of Commissioners
12 MEMBERS
(Alphabetical by last name)

Andy Brush - Washtenaw County IT; Manager of Innovation & Process Improvement

Hon. Michelle Deatrick – County Commissioner Dist. 2 (NE Washtenaw County)

Karen Domino – Education/Technology Expert; Chief Information Officer Washtenaw Intermediate School District

Ben Fineman – Sub-Cmte Vice-Chair; Broadband Expert; Chair, Lyndon Township Broadband Implementation Committee; President, Michigan Broadband Cooperative; Lyndon Township resident

Barb Fuller – Sub-Cmte Chair; Citizen Representative; Vice-President, Michigan Broadband Cooperative; Sharon Township resident

Teresa Gillotti – Interim Director, Washtenaw County OCED (Office of Community & Economic Development)

Theresa Herron – Educator, Secondary Education; Manchester Community Schools, Special Education

Hon. Kent Martinez-Kratz – County Commissioner Dist. 1 (NW Washtenaw County)

Kyle Mazurek – Corporate Representative; Comcast Governmental & Community Liaison

Hon. Alicia Ping – County Commissioner Dist. 3 (SW Washtenaw County)

Hon. Conan Smith – County Commissioner Dist. 9 (Ann Arbor City)

Scott Wooster – Secondary School Education IT Expert; IT Director, Chelsea Community Schools

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Zach Neal – Administrative Support
APPENDIX B
Broadband Equity Sub-Committee
Washtenaw County Board of Commissioners
29 GUEST PANELISTS
(Alphabetical by last name)

Ray Berg – CEO, Manchester Victorians, LLC, Freedom Township resident and former Manchester Chamber & DDA President

Amy Cell, CEO, Amy Cell Talent, talent attraction and retention consultant

Len Chockly, CEO, Data StrataGems, LLC, home based computer consultant, Northfield Township

Karen Coronado, SE Michigan Region Manager, State Government Affairs, Charter Communications

Sally Elminger, AICP, LEED AP, Planning Consultant, Principal, Carlisle Wortman Associates

Ben Fineman, Chair – Lyndon Township Broadband Implementation Committee

Tom Frazier, MTA Legislative Liaison (Michigan Townships Association)

Ed Goliembiewski, Deputy Chief Clerk/Register, Washtenaw County

Jim Haeussler, President, Peters Building Company, Saline, MI

Dave Halteman, Director of Emergency Services, Washtenaw County Sheriff’s Office

Matt Harshberger, Chief, Pittsfield Township Department of Public Safety

Meg Ivey, Deputy Court Administrator/IT Manager, Washtenaw Trial Court

Hon. Donna Lasinski, State Representative 52nd District

Mike Lott, Educator, Chelsea Middle School, Social Studies 6-7-8th Grades

Matt MacDonnell, P.E., Senior Project Manager, Permits & Construction, Washtenaw County Road Commission

Dan Manning, Community Technology Advisor, Southern Lower Peninsula, Connect Michigan

Hon. Mike Moran, Supervisor – Ann Arbor Township

Hon. Lisa Moutinho, Manchester Township Trustee & Township Broadband Subcommittee Member
Brian C. Norman, Director of External Affairs, AT&T Michigan

Marilyn J. Passmore, Government Affairs Director, Charter Communications

Hon. Peter Psarouthakis, Supervisor – Sharon Township

Dawn Putnam, Educator, Chelsea High School, English Department Head

Hon. Harley Rider, Supervisor – Dexter Township

Phil Santer – Ann Arbor SPARK, Senior Vice-President & Chief of Staff

Melissa Seifert, AARP Michigan, Associate State Director of Governmental Affairs (American Association of Retired Persons)

Matt Shane – Michigan State University Extension

Kathy Spiegel – Ph.D. Certified Medical Writer, President American Medical Writers Association, Grass Lake resident

Robert Stewart, Government Affairs Manager, Frontier Communications

Jaime Woodring, Educator, Manchester Middle/High School, German language Grades 9-12, English Grade 10

###
Established: Res #17-112 /July 12, 2017 sunsets December 31, 2018

Mission: Assess Washtenaw County’s disparate broadband coverage and make recommendations about how to achieve county-wide broadband equity.

Panelist Discussions

December 18, 2017 – Overview of Broadband Coverage in Washtenaw County

Dan Manning, Community Technology Advisor, Southern Lower Peninsula, Connect Michigan

Connect Michigan is a nonprofit group that facilitates expansion of broadband access. Connect Michigan focuses on three things: access, adoption and use. Dan identified key drivers for broadband access, which includes home based workers and the needs of students. Connect Michigan’s project focus is exploring partnerships, pursuing other sources of funding, soliciting new providers to come to western Washtenaw County and trying to understand local laws and ordinances. Dan stated that if one person in a census block had service then on maps it would show that the entire census block has access to broadband. He stated that maps are not 100% reflective of service provided. Some of the challenges that Dan sees are it is tough for providers to justify the cost of going into rural areas, small providers do not want to be too aggressive in expansion and there has not been a lot of government direction. He noted that incumbent carriers are increasing speeds in existing service areas but are not expanding their footprints. Dan recommended tighter relationships between county government and local municipalities and developing relationships with the major players who are involved.

January 8, 2018 – Incumbent Carriers’ Perspective Discussion

Marilyn J. Passmore, Government Affairs Director, Charter Communications

Karen Coronado, SE Michigan Region Manager, State Government Affairs, Charter Communications

- Charter is a wired/cable operation providing serving over 800 communities with a large percentage being communities of 2000 people or less.
- They pass 1M customers realizing 800k subscribers.
- At this time, Charter is focused on upgrading its existing network rather than expanding its footprint.
- Charter does not receive any Federal or State funds and in 2016 Charter purchased TIME Warner Cable.

Robert Stewart, Government Affairs Manager, Frontier Communications

- Frontier runs by 87% of homes but the “take rate” of service is less than 15%. Bob believes “build it and they will come” does not apply to broadband coverage.
- Washtenaw County is a difficult county in which to do construction because of the permitting process.
• Frontier does not “build” on a speculative basis because the cost is too high. Bob referenced a recent survey of small businesses that 47% of them do not see a need for internet.
• Bob expressed his opinion that the WCRC’s (Washtenaw County Road Commission) permitting is too expensive and onerous. Frontier therefore does not do new construction in Washtenaw County.
• Frontier makes its grant decisions in August. Conversations about expansion or partnerships should proceed with that in mind.

Brian C. Norman, Director of External Affairs, AT&T Michigan

• AT&T believes that the future is wireless. Wireless high speed is the most wanted service right now.
• AT&T isn’t going to build something if it doesn’t provide multiple services.
• The state of Michigan has received $0 in federal money for AT&T and Frontier expansion since 1988.

February 12, 2018 – Economic Development & Talent Attraction/Retention

Ray Berg - Manchester Victorians, LLC, Freedom Township resident and former Manchester Chamber & DDA President

• Ray lobbied for Manchester to be the pilot for Wireless Washtenaw and was successful. Around this time Wireless Washtenaw began declining new customers. Ray stayed with Wireless Washtenaw for 9 years which is now Air Advantage.
• Washtenaw County IT used to support and help with web sites for local units of government.
• As the President of the Manchester Chamber of Commerce Ray pointed out that it is a totally volunteer organization with no office. All the Chamber business is transacted online. Not surprisingly the uneven internet access makes it challenging to promote the Village and the greater Manchester area, coordinate activities and keep members updated. He has personally experienced businesses walk away from considering locating in Manchester because fiber is not available despite the availability of fixed wireless service.

Amy Cell – Amy Cell Talent, talent attraction and retention consultant

• Amy has a consulting business that assists employers in finding talent for their companies.
• Amy’s biggest concern is for low income people who don’t have access to broadband.
• For job seekers looking to improve their situations, lack of internet access is a barrier in the job search and application process. Amy also stated that most jobs postings now require online application and skills assessment.

Len Chockly – Data StrataGems, LLC, home based computer consultant, Northfield Township

• Formerly a Pittsfield Township resident, Len now lives in Northfield Township where he runs his IT consulting business from home. In 1997 Len moved to Northfield Township counting on Wireless Washtenaw coverage in the near future.
• Had he known there would be no high speed internet access, he would not have moved to Northfield Township.
• After 6-8 months of trying, he finally got a representative from Charter to tell him the cost to run fiber to his home would be $42,000. Len now uses Verizon 4G for internet. Len has to go to the library or the local Panera if he has something big to do for work.
Phil Santer – Ann Arbor SPARK, Senior Vice-President & Chief of Staff

- SPARK has done work with ACM (American Center for Mobility) to help turn Willow Run into a test facility for autonomous cars.
- Aside from ACM, SPARK has seen in the site selection process that the issue of broadband coverage is right there with the questions on sewer and water availability.
- He made the observation that people often don’t realize how much they need high speed internet access until they have it and discover what they had been missing.

Kathy Spiegel – Ph.D. Certified Medical Writer, President American Medical Writers Association, Grass Lake resident

- Kathy is a former Pfizer employee. Currently she is employed by AMGEN and works from home as a Medical Regulatory Writer. Until recently she had to do a majority of her work away from home at café’s where she could access a broadband connection. Her work day can span from 8 am to 10 pm because AMGEN is in California with clients in the UK, India, Australia and China.
- Kathy currently uses Verizon 4G for her at home internet connection and her bill is around $450 per month. She stated that she has better service at her cabin on the Au Sable River in Northern Michigan.

Matt Shane – Michigan State University Extension

- Matt stated that the Government Public Policy team could help local units of government shape policies about broadband.
- MSU extension has not spent a lot of time on the issue of Broadband coverage.

April 16, 2018 – Education and the Impact of Broadband Access on Classroom Instruction

Dawn Putnam, Chelsea High School, English Department Head

- In addition to being a high school teacher Dawn is also a parent of 6th and 8th grade students in the Chelsea school district. She stated that she has internet access at home but spends time troubleshooting if it does not work properly.
- Her home internet access is unreliable and the bandwidth results in family members getting “kicked off” if too many of them are trying to work at the same time.
- Dawn stated some of the assignments such as “I-Movie” projects are assigned but not all features can be accessed without broadband.
- About half of her students from her last class of the day had some sort of internet issue (No access, bad signal, lack of bandwidth.)
- Parents without broadband access get frustrated, because they may not be able to check grades, see assignments or just keep up on their children’s classes in general.

Mike Lott, Chelsea Middle School, Social Studies 6-7-8th Grades

- Chelsea has 1:1 ratio for students and iPads. Middle School age and older gets to take these devices home with them.
- Students who do not have internet access at home cannot do everything that other students are able to do on the iPads.
• The school has changed immensely in the last 5 years and the amount of technology being used is normal and students are used to it.

Jaime Woodring, Manchester Middle/High School, German language Grades 9-12, English Grade 10

• Manchester has a 1:1 ratio for students; iPads K-4th and Chromebooks 7th-12th. The older students can take them home but they must pay for insurance to be able to do so. In Manchester, the annual insurance costs $35 each / $100 max per family. In Chelsea the annual premium is $20 with a $25 deductible.
• Those students eligible for the Federal free school lunch program are exempt from having to purchase insurance. If the student doesn’t pay for the insurance they must check the device out each day at school and use it on campus.
• Jamie stated that she ends up using class time for the students to use the Chromebooks and she estimated that between 1/3-1/2 of the students aren’t able to take them home or don’t have Wi-Fi access.
• Teachers expect parents to monitor their children’s grades, attendance, completion and submission of classroom assignments and test/quiz scores via the internet. When parents do not or cannot, it creates tension and frustration between the teachers and the parents.

May 21, 2018 – Zoning, Permitting, Master Plans and Ordinances

Sally Elminger, AICP, LEED AP, Principal, Carlisle Wortman Associates

• Sally noted that government’s authority to regulate private companies is limited and relies heavily on corporations to put a philosophy of civic responsibility and public service into their practice.
• She observed that broadband providers act as utilities but are not regulated by the Michigan Public Service Commission as are DTE and Consumers Energy. Furthermore, she remarked that government cannot require broadband service expansion and local governments in underserved areas may need to get together to identify and implement a solution.
• She proposed creating a model “Dig Once” ordinance for adoption by local units of government.

Jim Haeussler, President, Peters Building Company, Saline, MI

• His company specializes in constructing residential sub-divisions, condominiums and commercial/office buildings. Jim acknowledged that broadband and cable providers often come in after the development is completed and the subscriber base is established.
• His company doesn’t build a housing development without including broadband and works to partner with providers on the front end to include communication infrastructure. His projects place water, sewer, electrical and broadband infrastructure in a “utility right-of-way” that is separate from the road ROW.

Matt MacDonnell, P.E., Senior Project Manager, Permits & Construction, Washtenaw County Road Commission

• Matt observed that road ROW’s (Right-Of-Way) are becoming ever more crowded in urban areas (water, sewer, gas, electrical and cable service.)
• He suggested exploring a Public-Private-Partnership (P3) arrangement to incent incumbent carriers to expand into under and un-served communities.
• The permitting process is in place to safe-guard the motoring public and ensures the integrity of the existing infrastructure occupying the road ROW.

June 18, 2018 – E-Government Services

Ed Goliembiewski, Deputy Chief Clerk/Register, Washtenaw County

• People utilize the services of the clerk’s office more than they realize. People interact with the Clerk’s office when they are born, when they marry, when they buy a house and eventually when they die.
• Today, 50% of the filings handled by the Clerk’s office are completed online. The reduction in foot traffic has resulted in cost savings because fewer employees are needed and less paper is involved.
• While digitization and online services have improved convenience for some, Ed acknowledged that there are still customers that have to come into the office because they do not have online access.
• The fees generated by online public access to public records and the recording of documents support technology upgrades and the digitizing of archived and newly filed documents and vital records.

Meg Ivey, Deputy Court Administrator/IT Manager, Washtenaw Trial Court

• In 2018, the Court instituted a new web site, a new system for jury selection and an online payment system that eliminates the need to make in-person visits to the Court. Public kiosks located in courts and libraries allow people to submit required documents via e-filing regardless of the court involved.
• E-filing is a mandated state initiative. Broadband access impacts the equitable availability of this innovation for rural, indigent and low income individuals.
• Hearings and visitations can be conducted via Polycom or Skype rather than visitors having to come to the lobby of the jail. Expert testimony from anywhere in the world is also possible.
• While it is regrettable that there is broadband inequity, Meg pointed out that technology continues to evolve regardless and we shouldn’t attempt to hold back progress until everyone catches up – we should not let the perfect be the enemy of the good.

Dave Halteman, Director of Emergency Services, Washtenaw County Sheriff’s Office

• One way Dave’s department utilizes technology is with Nixle. Nixle enables his department to send alerts to local residents (who have voluntarily signed up) via phone, email and web.
• The Emergency Operations Center (EOC) has two options for Broadband. It has the County’s infrastructure as well as Comcast as a backup.
• There are a lot of new ideas of what will be done in the future with Emergency Services. One of those ideas is Next Gen 911 where citizens will be able to text in additional information about a current emergency situation.
• Dave suggested a that a future exercise would help create a long range plan for maximizing the benefits of technology in emergency response.
Matt Harshberger, Chief, Pittsfield Township Department of Public Safety

- Matt pointed out that the difference between 15 years ago and today is like night and day. He noted that Pittsfield Township Government laid fiber to connect their government buildings, improve response times and enhance service to residents.
- Pittsfield Township strives to maximize features such as safety alerts, requests for service, crime mapping, awareness of online scams, and community policing.
- The Township Board recently approved funding for Phase III of their fiber build out to further improve the services and online experiences for their residents. He acknowledged that not everybody has the same access to the internet and that equity is a concern.
- The fiber network built by Pittsfield Township services and connects their buildings. It is not a residential service.

July 16, 2018 – Local Broadband Initiatives

Hon. Lisa Moutinho, Manchester Township Trustee & Township Broadband Subcommittee Member

- Manchester Township is about a year into their broadband research.
- Early in 2018, the Township Board voted unanimously to proceed with a feasibility study. CCG has been selected to conduct the feasibility study.
- Broadband access has become a contentious issue in the Manchester community. Village residents are served by Comcast. Township residents are largely without broadband access. This creates an opportunity gap for students, businesses, seniors and homeowners living in the Township.

Hon. Mike Moran, Supervisor – Ann Arbor Township

- Two-three years ago, Ann Arbor Township started their conversation about broadband. Mike has not been able to get much information from AT&T and does not have and cannot get broadband coverage numbers for the township.
- Ann Arbor Township has contracted with CTC out of Maryland for their broadband feasibility study at a cost of $70,000. CTC will calculate the cost to reach every township residence. CTC has experience with public/private partnerships that may prove helpful. The Township meets every two weeks by telephone with CTC. It is anticipated that the feasibility study will be completed by the end of 2018.
- CTC does not build out broadband systems so as the contractor for the feasibility study, there is no conflict of interest.

Hon. Harley Rider, Supervisor – Dexter Township

- In September 2016, Dexter Township chose Pulse Broadband for their feasibility study. The Pulse study estimated that a township-wide broadband build out would cost between $3-6 million.
- In May of 2017, the Township Board established a 3-member Broadband Research Committee; comprised of a board member, a citizen with broadband access and a citizen without broadband access.
- The Committee’s first charge was to identify who does and who doesn’t have access. As a result of a survey sent with the property tax bills, it was determined that 77% of the township
residents had high speed broadband. 82% of the 77% use Charter Spectrum. 74% of said they would a like a choice of providers. Most who don’t have it said they don’t because it is not available.

- Charter is looking for a certain number of subscribers per mile. Harley was told that Charter needs 22 people per mile to extend coverage.
- There is significant resistance from private providers to government stepping in to expand broadband coverage. Harley cannot see people voting for a millage for a service that they already have. He remarked that the biggest obstacles to achieving township-wide broadband are; incumbent providers’ business model; SAD (Special Assessment District) legislation that is stalled and difficulty passing a millage when 77% of the residents are already served.

Hon. Peter Psarouthakis, Supervisor – Sharon Township

- Lack of broadband access is the number one complaint from township residents.
- The May 2018 broadband millage failed by a 2:1 margin.
- A very vocal but small number of opponents led voters to believe that there would be alternatives available if the millage was defeated. This was a false claim that has residents continuing to ask about the back-up plan that currently doesn’t exist.
- Air Advantage just completed a study (that they paid for) to evaluate the feasibility of providing a wireless service to the Township. Their model relies on Air Advantage leasing towers that are built by somebody else. It is important to acknowledge that wireless service cannot reach all township residents because wireless depends on line of sight for signal transmission.
- As a stop-gap measure, Peter has looked into bringing broadband solely to the Township Hall. ATT will provide broadband service to the Township Hall, at a cost of $400-$850 per month.
- Lack of broadband coverage resulted in the Township Clerk being without an internet connection on election night at the Township Hall. She manage to find a work-around to upload election results electronically as required by the state.
- There are no companies willing to provide broadband service in Sharon Township unless the Township pays to build the infrastructure. There are many other townships in the state experiencing the same problem.
- Peter concluded his remarks by expressing his frustration that a broadband fiber line runs right in front of his house and directly down M-52 but the incumbent providers refuse to provide access. He wants the BOC to know that this corporate policy holds back his township residents when compared to most residents in the rest of Washtenaw County.

Ben Fineman, Chair – Lyndon Township Broadband Implementation Committee

- Beginning about 5 years ago Lyndon became a part of local broadband conversations. Lyndon was the first township in Washtenaw County to do a broadband feasibility study. Broadband supporters spent a year conducting Town Hall informational sessions. Subsequently, the Township Board placed a millage on the August 2017 ballot. It passed 2:1.
- Due to unforeseen challenges and unanticipated potential cost savings, the Implementation Committee is considering pushing timeline for completion to end of summer of 2019.
• There are other challenges post-funding such as securing private easements from property owners. This added about a $15,000 expenditure item to the budget. Working with the Road Commission has been a learning experience as well; this being the first time for both parties doing this type of project.
• Without SADs (Special Assessment Districts) enabled for communication infrastructure, a township-wide millage is tough to pass because the voters are a mixture of those with and without broadband access.
• Fineman observed that public/private partnerships offer an interesting approach to funding, building and service provision for communities that cannot come up with all of the money for a fiber build. He commented that a multiple funding source model is needed. He remarked that it would be interesting to see what a county wide initiative would look like such as a County funded “matching grant program” where the township contribution is matched in some way with County dollars.

August 20, 2018 — Legislation, Policies Impacting Broadband Access

Hon. Donna Lasinski, State Representative 52nd District

• A small group of people opposing broadband expansion have become familiar faces at her coffee hours and community forums.
• Representative Lasinski has spent a lot of time looking into public/private partnerships as a way to achieve broadband equity in her district.
• Governor Snyder appears to prefer to continue studying who is unserved or underserved within the state before putting money towards expanding broadband access.
• It has been reported with increasing frequency, that people buy a house believing they will have internet access and are shocked when they do not. With home values rising once again, people are moving to the more rural and largely unserved townships.
• Home values could be depressed by up to 30% without broadband access. Broadband availability is not required nor routinely disclosed on purchase agreements or real estate listings. Rather it is considered a home “feature” and may or may not be noted.
• Representative Lasinski implored the County Board of Commissioners to resist ignoring the needs and circumstances of residents outside of Ann Arbor and Ypsilanti. While the lack of broadband access is unique to the less densely populated areas of the county, digital inclusion should be a priority to achieve equity of opportunity regardless of where you live.

Tom Frazier, MTA Legislative Liaison (Michigan Townships Association)

• The incumbent broadband providers hold the perception that enabling the use of Special Assessment Districts for communication infrastructure will create unfair competition between government owned vs public companies.
• Next to roads, broadband access is the number 1 issue within the county.
• The MCAN Report (Michigan Consortium of Advance Networks) states that 9.9% of Michigan households do not have access to broadband. Michigan Ranks 30th in the country for broadband adoption.
• Numerous bills have been introduced around broadband expansion. Resistance from the telecommunication providers has successfully blocked HB 4162 (would provide for SADs to fund
communication infrastructure) and has advanced measures to favor the corporate interest in unfettered access to the road ROW.

- MTA favors creating P3s (Public Private Partnerships) as an alternative to no broadband services because it offers a way to support both increased access and profitability

Melissa Seifert, AARP Michigan, Associate State Director of Governmental Affairs (American Association of Retired Persons)

- AARP is working to show cause and effect of lack of Broadband on senior citizens
- Broadband access helps Michigan seniors with job searches, staying connected with others and avoiding the isolation that often leads to depression, supports tele-medicine services that make it easier for closely monitoring health conditions and reducing the necessity of in office visits that are difficult for seniors with transportation challenges
- AARP is disappointed that Governor Snyder’s MCAN Report doesn’t address the aging population and the benefits of broadband coverage to Michigan’s coming “silver tsunami.”
### APPENDIX D

**Broadband Equity Sub-Committee**  
Washtenaw County Board of Commissioners  
**Work Plan and Timeline**

<table>
<thead>
<tr>
<th>Day</th>
<th>Date</th>
<th>Time</th>
<th>Focus/Topic</th>
</tr>
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<tbody>
<tr>
<td>Mon</td>
<td>September 18, 2017</td>
<td>2:00 PM</td>
<td>Organizational, Elect Officers, Approve By-Laws</td>
</tr>
<tr>
<td>Mon</td>
<td>October 16, 2017</td>
<td>2:00 PM</td>
<td>Round Table on Misc. Topics</td>
</tr>
<tr>
<td>Mon</td>
<td>November 20, 2017</td>
<td>2:00 PM</td>
<td>Review and Approve Workplan &amp; Timeline</td>
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| Mon | December 18, 2017 | 2:00 PM | Special Presentation: Broadband Coverage in Washtenaw County  
Speaker: Dan Manning, Connect Michigan |
<p>| Mon | January 8, 2018   | 2:00 PM | Topic: Incumbent Carriers                                                   |
| Mon | February 12, 2018 | 2:00 PM | Topic: Economic Development &amp; Talent Attraction/Retention                   |
| Mon | March 19, 2018    | 2:00 PM | Working Session                                                            |
| Thurs | April 5, 2018    | 6:30 PM | Present Status Report to BOC Working Session                                |
| Mon | April 16, 2018   | 2:00 PM | Topic: K-12 Education &amp; the Impact of Broadband Access on Classroom Instruction and Student Success |
| Mon | May 21, 2018     | 2:00 PM | Topic: Broadband Expansion: Zoning, Permitting, Master Plans and Ordinances |
| Mon | June 18, 2018    | 2:00 PM | Topic: E-Government Services                                                 |
| Mon | July 16, 2018    | 2:00 PM | Topic: Local Broadband Initiatives: Lyndon Twp, Dexter Twp, Ann Arbor Twp, Sharon Twp, Manchester Twp |</p>
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<tr>
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<td>2:00 PM</td>
<td>Topic: Legislation Impacting Broadband</td>
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<td>September 19, 2018</td>
<td>3:00 PM</td>
<td>Focus: Working Session to draft recommendations</td>
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<tr>
<td>October 17, 2018</td>
<td>5:00 PM</td>
<td>Submit Final Report to BOC</td>
</tr>
<tr>
<td>November 19, 2018</td>
<td>3:30 PM</td>
<td>Sub-Committee Celebration of Project Completion</td>
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<td>November 29, 2018</td>
<td>6:30 PM</td>
<td>Present Final Report to BOC Working Session</td>
</tr>
<tr>
<td>December 17, 2018</td>
<td>2:00 PM</td>
<td>Review BOC's Response to Bband Equity Report</td>
</tr>
<tr>
<td>December 31, 2018</td>
<td>2:00 PM</td>
<td>Bband Equity Sub-Committee Sunsets</td>
</tr>
</tbody>
</table>
### Percentage of 25Mbps coverage by area

Data from Connected Nation/Connect Michigan  
[www.connectmi.org](http://www.connectmi.org)

<table>
<thead>
<tr>
<th>Area</th>
<th>Coverage Percentage</th>
<th>Households without Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>State of Michigan</td>
<td>90%</td>
<td>381,000</td>
</tr>
<tr>
<td>Washtenaw County</td>
<td>91%</td>
<td>12,795</td>
</tr>
<tr>
<td>18 State Senate District</td>
<td>89.14%</td>
<td></td>
</tr>
<tr>
<td>22 State Senate District</td>
<td>49.50%</td>
<td></td>
</tr>
<tr>
<td>52 State House District</td>
<td>41.19%</td>
<td></td>
</tr>
<tr>
<td>53 State House District</td>
<td>91.05%</td>
<td></td>
</tr>
<tr>
<td>54 State House District</td>
<td>88.28%</td>
<td></td>
</tr>
<tr>
<td>55 State House District</td>
<td>86.13%</td>
<td></td>
</tr>
</tbody>
</table>

**HB 4162**  Continuing former State Representative Gretchen Driskell’s efforts, Representative Donna Lasinski re-introduced Driskell’s legislation to allow the creation of SADs (Special Assessment Districts) for communications infrastructure including broadband and high-speed internet. Currently, private funding, loans, bonding and millages are the only funding mechanisms for this purpose.

**HB 5099**  Prohibits federal, state and local funds to pay for the cost of providing qualified internet service. Withdrawn.
Lyndon Township Feasibility Study completed ($16K)
High Speed Optical Fiber Build Out
Millage approved 2:1 on August 2017 ballot
2.91 mills / 20 years $7M project

Sharon Township Feasibility Study completed ($15K)
High Speed Optical Fiber Build-Out
Ballot Language being drafted
Millage proposal defeated 2:1 on May 2018 ballot
3.3 mills / 20 years $4.9M project

Dexter Township Feasibility Study completed ($15K)
High Speed Optical Fiber Build-Out
Committee established to explore how to build out the un-served areas of the Township

Webster Township Feasibility Study completed ($15K)
High Speed Optical Fiber Build-Out
Considering how to provide service to un-served areas

Manchester Township Feasibility Study completed ($20k)
Next steps uncertain

Ann Arbor Township Feasibility Study underway ($70k)
layers in the order presented below. Providers offer service, this platform Symbology guaranteed. Satellite broadband services may also be available. Broadband availability at an exact address location cannot be dent research conducted by Connect Michigan. As such, 477 filings, State Broadband Initiative datasets, and indepen-

direct provider outreach and data collection, FCC Form Data displayed on this map is developed from a combination

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Ann Arbor
Manchester
Chelsea
Saline
Ypsilanti
Dexter
Milan

* Unserved broadband areas have a broadband speed of less than 25 mbps download, 3 mbps upload
Sources: Washtenaw Opportunity (2017); ConnectedNation, Michigan (2017)

Legend
Very Low Opportunity
Low Opportunity
Moderate Opportunity
High Opportunity
Very High Opportunity
Low Number of Households
Unserved Broadband Areas
Lack of Broadband Access
Washtenaw County, MI
Across Opportunity
RESOLUTION TO __________________________________________

At a ____________ meeting of the [Township Name] Board, [County Name], Michigan, held at the [Township Hall Address], on the ______ of ________________, 2015, at ________ p.m.

PRESENT:__________________________________________________________________________

ABSENT: ________________________________________________________________

The following preamble and resolution were offered by ____________________________ and seconded by ________________________________.

WHEREAS, access to high-speed broadband service is critical to the township’s mission of supporting the health, safety, well being, quality of life and productivity for all residents, educational pursuits, not-for-profits, medical services, and businesses throughout the township.

WHEREAS, access to high-speed broadband for many residents and businesses in the township is unavailable or prohibitively expensive; and

WHEREAS, the Michigan Broadband Cooperative is a not-for-profit organization whose mission is to build fiber infrastructure to bring broadband to un-served and underserved areas of Michigan.

NOW, THEREFORE, BE IT RESOLVED, that [Township Name] Board of Trustees, operating within their normal business statutes, will strive to create an environment that is conducive to the development and implementation of a robust, affordable and sustainable high speed broadband service for [Township Name].
BE IT FURTHER RESOLVED, that [Township Name] will support the Michigan Broadband Cooperative in their mission to bring affordable high-speed broadband to [Township Name].

A vote on the above Resolution was taken and was as follows:

ADOPTED:

YEAS: ________________________________________________

NAYS: ________________________________________________

STATE OF MICHIGAN )
) ss.
COUNTY OF [County Name] )

I, the undersigned, the duly qualified and acting Township Clerk of the Township of [Township Name], [County Name], Michigan, CERTIFY that the foregoing is a true and complete copy of certain proceedings taken by the Township Board of said Township at a __________ meeting held on the ________ day of ________________, 2015.

_______________________________________
[Clerk Name], Township Clerk
APPENDIX I

TEMPLATE RESOLUTION TO AUTHORIZE A FEASIBILITY STUDY

Broadband Equity Sub-Committee
Washtenaw County Board of Commissioners

_________ Township
Washtenaw County Michigan
Res #XXX-XXX

Resolution to Authorize Funding for a Broadband Feasibility Study

At a Regular Meeting of the Township Board for _________ Township, Washtenaw County, Michigan, held at the __________________, located at ______________________ in said Township on (day) __________ (date) __________ (time) ______________

WHEREAS, There is a widespread lack of affordable and reliable internet access in _____________ Township; and

WHEREAS, Access to affordable and reliable high speed broadband is as necessary today for full participation in society as electricity was in the 1930’s; and

WHEREAS, School children are disadvantaged because of the lack of affordable and reliable internet access to complete and submit homework assignments; and

WHEREAS, Home based businesses require affordable and reliable high speed broadband to be competitive in today’s world economy; and

WHEREAS, Distance learning for self-improvement, job readiness and professional development demands access to affordable and reliable high speed broadband; and

WHEREAS, The desire to age in place and the ability to take advantage of telemedicine technology by individuals residing in _____________ Township will be significantly enhanced by affordable and reliable high speed broadband access; and

WHEREAS, High speed fiber optic broadband will enhance residents’ quality of life by enabling them to maintain contact with family and friends around the world; and

WHEREAS, High speed fiber optic broadband will reduce traffic congestion on roadways by supporting telecommuting; and

WHEREAS, High speed fiber optic broadband will make living and working in _____________ Township attractive to Millennials and foster a vibrant and diverse community; and
WHEREAS, High speed fiber optic broadband will encourage entrepreneurs and businesses to locate in ______________ Township enabling them to be competitive in and connected to the global market place; and

WHEREAS, High speed fiber optic broadband has been shown to increase the value of a home by 20% because it is the most highly prized amenity in a home today; and

WHEREAS, A ____(year)___ survey of ______________ Township residents revealed that ___% of respondents want alternative broadband choices, ___% ranked broadband as very important while only ____% said that their current internet access needs are being met; and

WHEREAS, Telecommunication companies refuse to extend broadband service to rural areas because doing so does not satisfy their for-profit business motive; and

WHEREAS, High speed fiber optic broadband is future-proof and will meet the demands of emerging technologies for decades to come; and

WHEREAS, A feasibility study will provide the cost analysis to inform decisions about whether, how and when to proceed with a fiber optic broadband build-out in ___________ Township,

NOW THEREFORE BE IT RESOLVED that the ______________ Township Board of Trustees authorizes the Supervisor, in consultation with the Michigan Broadband Cooperative Evaluation Team, to select a vendor to conduct a high speed fiber optic broadband feasibility study and execute a contract for such services in an amount not to exceed $__________________.

ROLL CALL VOTE
Ayes:
Nays:
Absent:
Abstain:

RESOLUTION DECLARED ADOPTED

______________________________  ______________________________
Supervisor                             Clerk
____________________ Township              _____________ Township

DATED: __________________________  DATED: __________________________
Appendix J – Broadband Legislative Summary

Snyder’s 2016 Commission Recommendations

Estimated investment needed: $50 million of state funding, annually over ten years.

Michigan’s position as a top-five state for broadband access availability for residents, businesses, and institutions means that:

• All residents and businesses have access to a fixed broadband connection with a download speed of at least 25 Mbps and an upload speed of 3 Mbps by 2020 and a download speed of at least 100 Mbps by 2024.
• All community anchor institutions8 have access to a fixed broadband connection with download and upload speeds that meet the minimum recommended speeds for their sector by 2024.
• All areas of the state (geographic) have access to a mobile broadband connection with a download speed of at least 10 Mbps by 2020 and at least 25 Mbps by 2024.

As a top-five state for broadband adoption—where residents, businesses, and institutions have the opportunity and ability to fully engage in digital society and the digital economy—Michigan will achieve the following goals:

• 95 percent of residents have adopted a fixed and mobile broadband connection at home by 2024.
• 95 percent of Michigan businesses have a Web presence by 2020.
• All community anchor institutions have adopted a fixed broadband connection by 2024.

2018-2019 Budget for Broadband Infrastructure

General Budget-Broadband: $0—There is not an appropriation.

All appropriations have been postponed until MCAN comes out with their recommended roadmap. That may not be the only reason, but it is one big one.

Proposed: $20 million was proposed earlier this year.
HB 5670 would create the broadband development fund which I think was rumored to get $30 million - or a large sum - appropriated to it. Nothing’s been appropriated yet though
Boilerplate:
• Sec. 983 -- Broadband Bond Restriction. Senate added as new section to restrict the Department, MSF, and MSHDA from issuing or refinancing any bonds relating to broadband. Conference concurs.

• Sec. 834a -- Broadband Access Expansion. Added new language specifying that the one-time funding for Broadband Access Expansion shall be used for a pilot program to expand broadband service to residential or commercial premises within geographic areas that are unserved or underserved by broadband service. First priority shall be given to unserved areas. Conference does not include.

State Level Bills:
HB 4162 (Lasinski):
Status: Awaiting a hearing in House Communications and Technology Committee Summary: House Bill 4162 would amend the Public Improvements Act to allow townships to use special assessments to fund broadband and communications projects in their areas that still need high speed internet. House Bill 4162, would add the construction, improvement and maintenance of communications infrastructure, including broadband and high-speed internet, to the list of public improvements for which townships may use special assessment districts. Michigan’s current statute does not allow this, but changing the statute could help residents who still need broadband service and whose property values would benefit from it.

HB 5670 (Whitford):
Status: Awaiting a hearing in House Communications and Technology Committee Summary: House Bill 5670 would create the Michigan Broadband Investment Act to establish the Demand for Broadband Board and the Broadband Development Fund for the purpose of expanding broadband service to underserved and unserved areas of Michigan. Broadband service would be defined under the bill as a service capable of delivering high-speed internet access at speeds of at least 10 megabits per second downstream and 1 megabit per second upstream. The bill would further define underserved areas as areas of Michigan where households or businesses have access to internet service, but lack access to broadband service, while unserved areas would refer to areas of Michigan where houses and businesses do not have any access to internet service.

Of Note: This bill is tie-barred/connected with House Bill 6399.
HB 6399 (Hoitenga):
Status: Awaiting a hearing in House Communications and Technology Committee
Summary: This bill would create the partnership for broadband advancement board, provide its powers and duties, and provide for the powers and duties of certain state agencies, departments, and officials relating to the broadband advancement board.

HB 5099 (Hoitenga):
Status: Awaiting a hearing in House Communications and Technology Committee
Has been dismissed by the chair. However, House Bill 5099 won't get a hearing. Rep. Hoitenga cannot withdraw the bill, but has stated she has no intention of letting her own bill proceed.
Summary: This bill would prohibit local governments from using any federal, state, or local funds or loans in order to pay for the provision of qualified internet service. This bill has been marked as concerning by local governments and organizations such as the Michigan Township Association.

Local Area Updates:

Sharon Township: Broadband millage failed
Lyndon Township: Broadband millage passed, engineering and implementation is imminent.
Manchester Township: Still working on path forward to develop a broadband millage that could exclude the Village of Manchester as they already have access in the Village borders.
APPENDIX K
Digital Equity Staff Position
Proposal
Broadband Equity Sub-Committee
Washtenaw County Board of Commissioners

Vision: 100% affordable, reliable broadband access in Washtenaw County by 2022.

Description: The Digital Equity staff person will be responsible for establishing relationships, building a coalition and developing a plan to achieve 100% county-wide broadband access by 2022. This position would be established for a two year period with renewal dependent on an evaluation of efficacy and in time to ensure continuity of the work.

Rationale: Access to high speed Broadband is no longer a luxury in our society. Robust internet connectivity has become essential for information access and communication, not only where we work and learn, but also where we live. Access to broadband is not just about access to entertainment services – on the contrary – it has become the primary way we communicate with family and friends, consume and participate in educational resources, access medial and governmental services, and engage in commerce. Many Washtenaw County residents are severely limited in these aspects of life due to a lack of or a total absence of broadband service. Many Washtenaw County residents are unserved or underserved by broadband. Data collected by Connect Michigan indicates that approximately 20,000 Washtenaw County residents do not have access to broadband. Additionally, many households with broadband find that it does not meet their needs. In 2014 survey of Washtenaw County residents, 9% of respondents indicated that they had no access to broadband at all. Of those with broadband access, 48% indicated that their current service was inadequate to meet their needs. Finally, 92% of responding residents indicated that they would like to see more choices for broadband access. There is a clear desire in this community and throughout the state to expand and improve broadband access.

With the incumbent broadband providers refusing to expand their coverage into the more rural and less densely populated areas of Washtenaw County (because these projects would not achieve returns-on-investment fast enough for their business models) un-served communities are taking the initiative to pursue alternative ways to achieve coverage for their residents.

Staffing:
2-Year Commitment - Renewable upon demonstration of efficacy
1 FTE ($76,076.15 - $110,463.20 [34, 35, 40]
Reports to the County Administrator
Scope of Responsibility:
Establish relationships, build a coalition and develop a plan to achieve 100% county-wide broadband access by 2022 by identifying un-served areas of Washtenaw County, providing informational support to those seeking innovative ways to achieve broadband access, assisting with finding funding options for expanding broadband access, promoting policies that encourage broadband expansion and coordinating with governmental entities to catalyze ubiquitous broadband access.

The Need and the Story

- Conduct a county-wide feasibility study to quantify the areas in Washtenaw County that are without broadband access and recommend targeted solutions based on the identified unserved areas.
- Build a county-wide demand aggregation map to elicit and enable residents/consumers to express interest in subscribing to and/or investing in broadband service.
- Identify and map the existing high speed fiber optic cable in Washtenaw County.
- Raise awareness of the disparities and inequities that result from limited broadband access and their impact on residents and businesses.

Best and Emerging Practices

- Express support for the Lyndon Township broadband project initiative the goals of the Michigan Broadband Cooperative to bring broadband service to un-served communities.
- Distribute a “community broadband playbook” to Washtenaw county residents/consumers to assist them in identifying ways to address their unique situations and circumstances related to broadband deficits in their communities. This playbook is currently being developed by the Michigan Consortium for Advanced Networks (MCAN) and Connect Michigan/Connected Nation.
- Raise awareness of incumbent providers’ low income rates/plans.
- Pursue partnerships with broadband providers to achieve expansion of their broadband infrastructure into unserved areas.
- Engage librarians and educators at every level to generate innovations that will expand the opportunities and benefits of broadband to without access.

Funding

- Assist with grant identification, writing, and aggregation of resources for Washtenaw County communities.
- Identify and pursue private investments and other funding sources to help subsidize and incentivize broadband expansion into unserved areas.
- Apply for Connect America grants and other current and future grant dollars (USDA $600M) - help locals take advantage/be eligible.
- Explore the feasibility of utilizing Urban County dollars to expand broadband access.
Policy

- Require disclosure of broadband access in real estate listings and sales agreements; defining broadband as no less than 25Mbps up / 3 Mbps down (applies to both residential and commercial properties) – similar to other required disclosures in real estate listings.
- Pursue legislation that will encourage and support affordable, reliable broadband expansion (e.g. Special Assessment District and Public-Private Partnership enabling legislation.)
- Formally make existing fiber assets owned by the county, WISD, and other public entities available for municipalities to use for backhaul connections

Coordination with Government

- Identify policies to mitigate or eliminate barriers that discourage or interfere with broadband provision in the course of constructing new infrastructure projects
- Adopt and enforce a Dig Once policy that minimizes ROW disruption, requires fiber conduit installation during road projects and encourages broadband expansion
- Include achievement of 100% broadband access in Washtenaw County’s Master Plan and encourage local units of governments to do so as well in their Master Plans, Ordinances and Zoning decisions
- Establish and maintain a rapport with Washtenaw County’s state legislators to generate and capitalize on policies and programs that will help achieve 100% statewide access to affordable and reliable broadband access
- Direct the County’s Lansing lobbyist to strategize and actively pursue legislative policies that will support achieving 100% county-wide broadband access by 2022
- Support the recommendations outlined in Governor Synder’s Michigan Broadband Roadmap
- Appeal to the Governor for a commitment to achieve 100% statewide access to affordable and reliable broadband by 2022
- Seek appointment of a Washtenaw County resident from an unserved area to board of the Michigan Partnership for Broadband Advancement (MBPA) within the MI Department of Agriculture and Rural Development (MDARD) as recommended in Governor Snyder’s Michigan Broadband Roadmap
- Connect with the offices of United States Senators Stabenow and Peters to maintain an awareness of opportunities at the federal level to expand broadband access and to share local concerns and initiatives regarding broadband equity

###
EQUITABLE ACCESS TO BROADBAND IN MICHIGAN

By Sruthi Naraharisetti

AUGUST 2018

INTRODUCTION
Reliable and high-speed broadband access is increasingly necessary as vital services become more reliant on the internet. When completing everyday tasks, like completing homework, filing taxes, paying bills, and applying for college or jobs, those without access to internet are becoming further left behind. In Michigan, 9.8% of residents do not have high-speed broadband access at home compared to the national rate of 7.7%. Of those residents without access, the burden falls disproportionately on residents in rural regions (88.5% without access) and residents with low-incomes. Additionally, this disparity may be understated as the Federal Communications Commission (FCC) only collects data on the availability of high-speed broadband. This means that even in communities where broadband is available, individuals with a low-income may still be unable to afford and access services.

In this brief, the policy landscape for equitable broadband access in Michigan is discussed at the federal, state, and local levels. At the federal and state level, the approach to equitable access to broadband is encouraged through state regulations and private sector implementation. At the local level, some municipal governments seek to address inequalities in broadband access through municipal-owned broadband. Further resources are offered.

2 Ibid.
3 Ibid.

POLICY LANDSCAPE
FEDERAL
Equitable access to broadband is encouraged through incentives that stimulate competition, like the decrease in regulations on communications companies and the administration of subsidies to private companies to expand access to underserved areas.

• In 2015, broadband internet was classified as a public utility under net neutrality regulations by the Federal Communications Commission (FCC), and, in 2018, this decision was withdrawn. The implication of this decision is that state governments and local municipalities face greater barriers in implementing publicly owned broadband services.

• Regarding municipal broadband regulations, the Federal Appeals Court ruled in 2016 that the FCC cannot prevent states from enacting laws that limit municipal broadband, maintaining a state-power to influence broadband access as a private good.

• The FCC has also proposed limitations to the Lifeline program that provides low-income households with a small amount of funds towards broadband access.

• Recently, a House and a Senate Bill have been proposed related to broadband access,

Community Broadband Act of 2017 (S.B. 742) and Community Broadband Act of 2018 (H.R. 4814). Both bills seek to remove legislative barriers for public entities seeking to implement and provide publicly-owned broadband services.

**STATE**

Access to broadband is largely determined by Michigan’s state government and regulations, and the private sector.

Policies that influence the access to broadband in Michigan are the Michigan Telecommunications Act and the Metro Act, and more recently, Executive Order 2018-2. Additionally, two Michigan House Bills were recently introduced to the Committee on Communications and Technology.

- The Michigan Telecommunications Act (PA 179 of 1991) states that a public entity may provide telecommunication services within its boundaries after issuing a request for competitive sealed bids to provide telecommunication services and receiving less than 3 qualified bids from private providers. Receiving less than 3 qualified bids from private providers is a mechanism to ensure that a public entity is providing a good that cannot otherwise be competitively provided by the private sector.

- In 2002, the METRO Act (PA 48 of 2002) added restrictions to municipal broadband and outlines further requirements for implementation, such as having at least one public hearing before the passage of any ordinance or resolution, preparing at least a 3-year cost-benefit analysis, preparation and maintenance of accounting records, among other requirements.

- Recently in January 2018, Michigan Governor, Rick Snyder, signed Executive Order, No. 2018-2, which established the Michigan Consortium for Advanced Networks to “establish a roadmap to help strengthen statewide broadband access and connectivity.” The Executive Order charges the Consortium to “identify gaps in broadband service coverage and capacity, current efforts underway to address connectivity issues, and key strategies and recommendations for the state and private sector to pursue to achieve enhanced connectivity.” The Executive Order does not make mention of municipal broadband.

- In addition to previously implemented legislation, two related bills have been presented to the House Committee on Communications and Technology that conflict with one another, HB 5099 and HB 4162. HB 5099 seeks to greatly limit governments from using federal, state, or local funding for broadband infrastructure development. HB 4162 seeks to allow townships to use special assessments to fund broadband and communications efforts for areas that lack service.

**LOCAL**

Many communities are seeking municipal-owned broadband as a solution to private-sector challenges in broadband provision.

Michigan’s state government and the private sector seek one approach to addressing equitable broadband access; however, some municipalities seek to offer an alternative — publicly owned broadband. Municipalities point to research and case studies conducted by foundations and non-profits, as there is little empirical evidence that is peer-reviewed and published by academics. Based on the available literature, research suggests that municipal broadband can have promising results for communities through more equitable access to high-speed internet, lower market prices for broadband, a high return on investment, and increased home value, among others. For opponents of the repeal of net neutrality, municipal broadband is also a means to create greater competition and net neutrality on a local level, as it would allow local governments to have control of the internet speed and prices of their services. On the other hand, some literature presents mixed results based on different economic, geographic,  


and infrastructure characteristics of communities. As such, greater research and empirical evidence about the effects of municipal-owned broadband needs to be conducted to develop a more holistic understanding of the service.

Many communities in Michigan have already been actively engaged in implementing community owned broadband networks, including Coldwater, Crystal Falls, Holland, Marshall, Negaunee, Norway, Sebewaing, Traverse City, and Wyandotte. Most recently, in August 2017, Lyndon Township successfully received approval from residents for the funding and implementation of a community owned fiber optic broadband network. Throughout the implementation process, Lyndon Township residents and local leaders have been involved through an implementation committee and sub-committees.

CONCLUSION
For Michigan residents, a lack of broadband access falls disproportionately on individuals with a low-income and in rural areas. Federal and state policy restrictions limit broadband expansion to private sector companies, however, more local communities are seeking to increase access through municipal-owned broadband. From case studies across the country, research suggests that municipal broadband can have promising results for communities through more equitable access to high-speed internet, lower market prices for broadband, a high return on investment, and increased home value, among other benefits. However, foundations and non-profits conduct much of this research and there is a need for greater evidence that is peer-reviewed and published by academic institutions. Prominent examples of publicly owned broadband in Michigan can be found in several communities, including Coldwater, Crystal Falls, Holland, Marshall, Negaunee, Norway, Sebewaing, Traverse City, Wyandotte, and Lyndon Township.

RESOURCES

2018 Broadband Progress Report
Federal Communications Commission (2018)

American Mobility
The Atlantic (2017)

Digital Gap Between Rural and Nonrural America Persists
Pew Research Center (2017)

Internet/Broadband Fact Sheet
Pew Research Center (2018)
http://www.pewinternet.org/fact-sheet/internet-broadband/

Community-Owned Fiber Networks: Value Leaders in America
David Talbot, Kira Hessekiel, Danielle Kehl, Berkman Klein Center for Internet and Society, Harvard University (2018)

Public Investment in Broadband Infrastructure: Lessons from the U.S. and Abroad
Scott Wallsten, Lucia Gamboa, Technology Policy Institute (2017)

Development of High Speed Networks and the Role of Municipal Networks
http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DESTI/ICCP/CISP%282015%291/FINAL&docLanguage=En

Communities Can’t Afford to Wait for the Federal Government to Obtain Next Gen Broadband

Christopher S. Yoo, Timothy Pfenninger, Center for Technology, Innovation and Competition, Penn Law School (2017)
A RESOLUTION TO ESTABLISH A WASHTENAW COUNTY
DIGITAL EQUITY STAFF POSITION TO ACHIEVE
COUNTY-WIDE BROADBAND ACCESS EQUITY IN WASHTENAW COUNTY AS
DESCRIBED IN THE FINAL REPORT OF THE
BROADBAND EQUITY SUB-COMMITTEE

WASHTENAW COUNTY BOARD OF COMMISSIONERS

NOVEMBER 29, 2018

WHEREAS, the 12-member Broadband Equity Sub-Committee of the Washtenaw County Board of Commissioners was established July 12, 2017 Res. No. 17-112 to assess Washtenaw County’s disparate broadband coverage; and

WHERERAS, the Broadband Equity Sub-Committee of the Washtenaw County Board of Commissioners was directed to make recommendations about how to achieve county-wide broadband equity; and

WHEREAS, the Broadband Equity Sub-Committee of the Washtenaw County Board of Commissioners met 13 times and convened eight panel discussions with 29 experts, elected officials, stakeholders and community leaders to listen and learn about the disparate broadband access and the adverse impact on the residents and businesses in under and un-served areas of Washtenaw County; and

WHEREAS, broadband is defined as 23Mbps upload and 3Mbps download; and

WHEREAS, broadband access in Washtenaw County ranges from zero% to 100% of households and zero to 1,335 households; and

WHEREAS, incumbent internet service providers refuse to expand their coverage in areas that do not support their for-profit business models; and

WHEREAS, students without broadband access at home are disadvantaged in their ability to complete assignments and thereby fall behind their peers with broadband access; and

WHEREAS, parents of students without broadband access at home are denied the opportunity to fully participate in their children’s education because they cannot meet today’s expectations for monitoring homework, attendance and student performance via the internet; and

WHEREAS, educators are constrained in their classroom instruction and parental communication because of their students’ unequal access to broadband at home; and

WHEREAS, home-based businesses are unable to compete in today’s marketplace without affordable, reliable broadband access; and
WHEREAS, Clerks in under-served and un-served areas of Washtenaw County are unable to comply with State mandated electronic filing of election results; and

WHEREAS, State statute prohibits local governments from negotiating the terms of franchise agreements and utilizing Special Assessment Districts to fund communications infrastructure; and

WHEREAS, government increasingly relies on the internet for provision of and access to services, distribution of information and compliance with required transactions; and

WHEREAS, employment opportunities, skills enhancement and online education are closely tied to broadband access; and

WHEREAS, talent attraction and retention is thwarted by lack of broadband access; and

WHEREAS, economic development is stymied in smaller and rural communities due to lack of broadband access; and

WHEREAS, the success and competitiveness of agricultural operations benefit from broadband access and holds back those farmers without it; and

WHEREAS, Senior citizens experience an enriched quality of life with broadband access at home; enabling a means for staying in touch with family and friends, communicating easily with their health care providers from home and avoiding unnecessary office visits; and

WHEREAS, property values and adversely impacted by as much as 3.1% representing a depressed home value that aggregates to about $60M; and

WHEREAS, Wireless internet service cannot reach everyone, lacks the bandwidth of broadband, is less secure and involves prohibitively expensive data caps and throttling; and

WHEREAS, For-Profit internet service providers are operating as unregulated monopolies, with unlimited pricing authority and protection from competition;

NOW THEREFORE BE IT RESOLVED, that the Washtenaw County Board of Commissioners supports the expansion of affordable, reliable high speed broadband to all Washtenaw County residents; and

BE IT FURTHER RESOLVED, that the Washtenaw County Board of Commissioners hereby directs the County Administrator to establish a Digital Equity staff position to develop a plan to achieve affordable and reliable 100% county-wide broadband access by 2022

AND BE IT FURTHER RESOLVED, that the Digital Equity staff person will implement the goals described in the Final Report of the Broadband Equity Sub-Committee.
A RESOLUTION TO CONTINUE THE WORK OF THE
BROADBAND SUBCOMMITTEE

WASHTENAW COUNTY BOARD OF COMMISSIONERS

NOVEMBER 29, 2018

Whereas, the Washtenaw County Board of Commissioners approved the creation of the Broadband Subcommittee on July 12, 2017 (Res #17-112) to explore immediate and long term countywide broadband access and equity; and

Whereas the Broadband Subcommittee met, deliberated as directed and made recommendations to achieve 100% broadband coverage in Washtenaw County by the year 2022; and

Whereas there remains task and activity to be accomplished to complete this mission; and

Whereas the Broadband Subcommittee has recommended the creation of a Digital Equity staff position to ensure dedicated time and attention to this objective; and

Whereas guidance and oversight by the Subcommittee will contribute to the success of the Digital Equity staff person in reaching the goal; and

WHEREAS the subcommittee representation shall consist of 4 Commissioners and 8 stakeholders or experts; and

WHEREAS the County Administrator shall provide administrative support;

NOW THEREFORE BE IT RESOLVED that the Washtenaw County Board of Commissioners hereby extends the term of the Broadband Subcommittee for two years, sun setting on December 31, 2020; and

BE IT FURTHER RESOLVED that the Washtenaw County Board of Commissioners hereby appoints the following members to the Broadband Subcommittee:

1. County Commissioner Dist. 1
2. County Commissioner Dist. 2
3. County Commissioner Dist. 3
4. County Commissioner Dist. 6
5. Citizen Representative, Barb Fuller
6. Broadband Expert, Ben Fineman
7. Washtenaw County IT, Andy Brush
8. Washtenaw County OCED, Teresa Gillotti
9. Secondary Education/Technology Expert, Scott Wooster (Chelsea Schools)
10. Educator Practitioner, Theresa Herron (Manchester Schools)
11. Industry Representative, Kyle Mazurek (Comcast)
12. Township Representative, Lisa Moutinho (Manchester Township)
BE IT FURTHER RESOLVED that within 60 days of this appointment, the Broadband Subcommittee shall meet, elect officers, adopt bylaws and establish a meeting schedule; and

BE IT FURTHER RESOLVED that the Broadband Subcommittee shall report back to the Board of Commissioners in June 2019 and submit a final report in November 2019.
WHEREAS, Lyndon Township is a rural western Washtenaw community with less than 3000 residents; and

WHEREAS, Lyndon Township is located only twenty miles from a world class university and a renowned high tech city; and

WHEREAS, many Lyndon Township residents struggle to connect to the internet at home and keep within the data cap of their services plans; and

WHEREAS, by necessity Lyndon Township families have resorted to driving their children to the Chelsea District Library to use the library’s Internet service to upload, complete and turn in homework assignments – sometimes at night after hours while sitting in their cars in the library parking lot; and

WHEREAS, incumbent internet providers refused to extend their coverage to 100% of Lyndon Township homes and businesses; and

WHEREAS, Lyndon Township residents packed the Township Hall during a regular 2017 Board meeting to express their frustration with the lack of broadband access at their homes and to implore the Board to explore a millage to fund a high speed fiber build out; and

WHEREAS, on August 8, 2017 Lyndon Township voters approved a 20-year, 2.9 mill tax increase, by a 2:1 vote, to fund a township-wide high speed fiber optic broadband build out at a cost not to exceed $7M; and

WHEREAS, Lyndon Township is blazing a new path to achieve 100% broadband access for its residents and businesses; and

WHEREAS, the Lyndon Township broadband project will encompass acquisition, construction, furnishings and capital improvements to provide broadband internet service in the Township; and

WHEREAS, the Lyndon Township broadband project will include but not be limited to fiber optic backbone, service lines, necessary electronics, rights-of-way, accessories, attachments and any other related components or equipment necessary to place the improvements into service; and
WHEREAS, Lyndon Township established a Broadband Implementation Committee with six Sub-Committees populated by volunteer Township residents with valuable expertise in the areas of legal issues, public relations, internet service provision, engineering, permitting and project management;

NOW THEREFORE BE IT RESOLVED, that the Washtenaw County Board of Commissioners applauds Lyndon Township’s leadership and initiative to undertake and fund a high speed fiber optic broadband build-out to achieve broadband access for 100% of their residents and businesses.

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A RESOLUTION IN SUPPORT OF THE PURPOSE
OF THE MICHIGAN BROADBAND COOPERATIVE

WASHTENAW COUNTY BOARD OF COMMISSIONERS

NOVEMBER 29, 2018

WHEREAS, the Michigan Broadband Cooperative was established in March 2015; and

WHEREAS, the Michigan Broadband Cooperative is a grass-roots, not-for-profit 501c12 organization created and maintained by volunteer community members; and

WHEREAS, the purpose of the Michigan Broadband Cooperative is to achieve affordable, reliable broadband internet access for 100% of Michigan’s citizens and businesses; and

WHEREAS, incumbent internet providers refuse to extend their coverage to un-served communities thereby depriving at least 1,200,000 Michiganders of access to high speed broadband internet; and

WHEREAS, there are 16 Michigan counties where at least 50% of residents have no access to broadband, and

WHEREAS, approximately 20,000 Washtenaw County residents (about 8,000 households) do not have access to broadband, and

WHEREAS, 100% digital inclusion would enable all Michiganders to telecommute/work from home, close the homework gap that is caused by lack of broadband access at home, help senior citizens stay in touch with their loved ones thus combatting isolation and depression, provide access to tele-health applications for people living in remote areas and for senior citizens who require frequent contact with their health care providers; and

WHEREAS, the internet provides a convenient means for workers to prepare themselves for the jobs of tomorrow, maintain their professional certifications, upgrade their skills and take advantage on online learning; and

WHEREAS, disparate levels of internet connectivity relegate people living in under-served and un-served areas to a digital ghetto and put them at risk of falling behind in digital literacy, competitiveness and experience sinking property values;

NOW THEREFORE BE IT RESOLVED, that the Washtenaw County Board of Commissioners supports the purpose of the Michigan Broadband Cooperative to achieve affordable, reliable, ubiquitous broadband access to 100% of Michiganders.

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