ASHTABULA COUNTY

Connectivity Plan

Prepared By: Ashtabula County | October 31, 2024

Contributors to the Plan:

This plan was developed by the following individuals:

- Jake Brand, AC Planning and Development
- Sarah Jammal, AC Planning and Development
- Katie Lamson, AC Commissioners
- J.P. Ducro, Ashtabula County Commissioner

Additional Contributions:

The development of this plan also benefited from the insights and expertise of:

- J.P. Ducro, Ashtabula County Commissioner
- Mark Ragozine, Eastgate COG
- Steve Kristan, Eastgate COG
- Bill Callahan, President and Director, Connect Your Community

Acknowledgments:

This plan was created as part of the Appalachia Digital Accelerator, a Connect Humanity program funded by the Appalachia Regional Commission with additional support from Truist Foundation, and the Ford Foundation.

Table of Contents

Executive Summary

Ashtabula County conducted the following Connectivity Plan assessment to gather the information needed to analyze, select, and implement the best solutions to improve broadband connectivity and affordability locally, and prepare the County for the upcoming implementation of the Broadband Equity, Access, and Deployment (BEAD) and Digital Equity Act (DEA) federal funding programs.

Broadband networks are community assets that enhance the quality of life for residents and catalyze economic growth in the 21st century global marketplace. It facilitates e-commerce, remote work, distance learning opportunities, telehealth, entrepreneurial innovation, and more, all of which contribute to societal progress.

Today's broadband users expect a connection that is accessible, affordable, and reliable, which was amplified by the COVID-19 pandemic and its impact on day-to-day lives.

While we have detailed recommendations within this plan, the biggest need identified is infrastructure enhancements. As outlined above the majority of Ashtabula County is still running off a cable network and has no access to a fiber network. Once a fiber network is installed this will increase accessibility to broadband dramatically.

This infrastructure will also aid in workforce development, educational access for low to moderate income individuals, and will develop positive competition in the internet service provider and cellular provider markets. This will enhance the sustainability and decrease costs for these services to the residents of Ashtabula County.

Ashtabula County has also indicated a strong interest in realizing digital equity within the county. To this end, decrease service costs by increasing competition amongst internet service providers will ease access to high internet aiding school age children to enhance their literacy skills and further their academic careers.

A competitive broadband market in Ashtabula County can ultimately lead to a more connected and technologically advanced society. We would like to thank the Ashtabula County Commissioners and the Eastgate Regional Council of Government for their guidance, assistance, and support in the development of this plan.

Section 1

Preliminary Research and Readiness

A. Geographic and Demographic Profile

General Community Demographic Information

Ashtabula County utilized demographic data from the 2022 Census and the 2022 American Community Survey 5-Year Data to obtain the following information:

Demographic	Demographic Data
Total Population Number	97,869
Square Miles Covered	702.6
Number of People per Square Mile	72
Number of Residents Who Identify as White	86,419
Total Minority	57,757
Number of Residents Who Identify as Black	3,469
Number of Residents Who Identify as Hispanic or Latino	4,447
Number of Residents Who Identify as Indigenous	902
Number of Residents Who Identify as Other	258
Total Number of Households	38,332
Number of Households That Are Owner Occupied	27,446
Average Household Size	2.47
Mean Household Income	65,004
Median Household Income	49,680
Mean Family Income	77,741
Median Family Income	62,752
Per Capita Income	26,777
Number of People Living Below the Poverty Line	17,898
Number of Low to Moderate Income Residents	49,913

Observations

Below is a table of social determinants to consider when observing a service area and they can vary significantly from one community to another. Addressing these determinants is crucial for promoting equity and improving the overall well-being of historically marginalized or underinvested communities.

Social Determinant	Description
Economic Factors	
Income Inequality	Disparities in income distribution within the community.
Unemployment Rate	High rates of unemployment, especially among minority groups.
Poverty Levels	A significant proportion of the population below the poverty line.
Lack of Economic Opportunities	Limited access to quality jobs, education, and career advancement.
Education	
Educational Attainment	Low levels of educational attainment and high dropout rates.
School Funding	Insufficient funding for schools, resulting in lower quality education.
Access to Quality Education	Limited access to quality schools and educational resources.
Healthcare	
Healthcare Access	Limited access to healthcare facilities and services.

Health Disparities	Health disparities, including higher rates of chronic illnesses.
Food Deserts	Lack of access to fresh and nutritious food options.
Housing	
Affordable Housing	A shortage of affordable and safe housing options.
Housing Segregation	Historical and ongoing segregation in housing patterns.
Homeownership	Low rates of homeownership and high rates of rental housing.
Criminal Justice	
Over-Policing	Excessive police presence; targeting of marginalized communities.
Mass Incarceration	High rates of incarceration, particularly among minority populations.
Criminalization of Poverty	Laws and practices that criminalize poverty-related issues.
Infrastructure and Environment	
Infrastructure Investment	Lack of investment in infrastructure like roads, public transit, etc.
Environmental Hazards	Presence of environmental hazards and pollution in the community.
Transportation Access	Limited access to affordable and reliable transportation options.

Social Support	
Community Resources	Limited access to social services and support networks.
Social Capital	Weakened social bonds and trust within the community.
Discrimination	Experiences of discrimination and bias, limiting social mobility.

Based on social determinants, geographic, and demographic information of the Ashtabula County, the following observations can be made:

- Residents in the more rural areas in the southern part of the County have limited access to internet in homes and businesses
- Lack of accessible public transportation limits connectivity access to those without their own transportation who might otherwise visit sites with internet connection like local libraries or community centers
- High cost of rentals and housing may limit a household's ability to afford internet without financial support through programs like the FCC's Affordable Connectivity Program
- With an increasingly aging population, technical support to teach individuals to use the internet for essential activities like accessing online health care or banking will be critical, especially given the distances required to travel for services due to the County's large footprint
- Immigrants arriving in the County to work may be distrustful of government programs supporting connectivity or suffer from a language barrier that limits access to support and services
- Low levels of education and limited school funding may result in individuals lacking appropriate levels of computer literacy

Community Income Data that Supports Eligibility for Federal Funds (e.g. CRA eligibility)

According to the Federal Reserve Bank of Dallas' report, "*Closing the Digital Divide: A Framework for Meeting Community Reinvestment Act Requirements*", the Community Reinvestment Act (CRA) is a law that encourages banks to make loans and investments and provide services to low- and moderate-income (LMI) communities. The report notes that each

year, the CRA catalyzes more than $100 billion in capital to LMI communities throughout the United States and provides an opportunity to help address the digital divide.

As recommended in the report, the Ashtabula County identified the following additional supporting documentation outlining the eligibility and the benefits to the community for CRA investment:

- State of Ohio CRA Requirements
- Partnerships and Opportunities for Rural Community Reinvestment
- Federal Reserve CRA building Stronger Communities

Documented Presence of Covered Populations

Specific to both the Digital Equity and Broadband Equity, Access, and Deployment (BEAD) programs, the Ashtabula County has identified the following impact to covered populations, as defined in the Infrastructure Investment and Jobs Act (IIJA), as a result of the proposed project(s):

Covered Population	Presence in Ashtabula County (Scale 1 to 5, i.e. 1 = Low)	Potential Impact (i.e., Low, Moderate, High)
Individuals who live in covered households	1 16,183 (16.5%)	High Impact
Aging individuals	1 19,178 (20.4%)	High Impact
Incarcerated individuals, other than individuals who are incarcerated in a Federal correctional facility	1 1,837 (1.9%)	Low Impact
Veterans	1 7,158 (7.4%)	High Impact
Individuals with disabilities	1 16,336 (17.2%)	High Impact
Individuals with a language barrier	1 6,500 (6.7%)	High impact

Individuals who are English learners	1 2,080 (2.1%)	High Impact
Those with low levels of literacy	2 21,531 (22%)	High Impact
Individuals who are members of a racial or ethnic minority group	1 5,835 (5.99%)	High Impact
Individuals who primarily reside in a rural area	3 52,849 (54%)	High Impact
School aged children	1 17,955 (18.3%)	High Impact

In general, Ashtabula County's proposed project(s) will create a high impact on the County's aging, rural, and individuals with low levels of literacy population by enhancing access, which will increase competition and decrease costs. The increase and enhancement of access through a competitive bid process will increase competition amongst internet service providers (ISPs), which will decrease the service costs associated with internet access. Decreasing the service costs will increase digital equity in Ashtabula County due to the significant aging population and low to moderate-income individuals. Ashtabula County will continue to engage and seek feedback and participation from the covered populations with the greatest impact to ensure that the proposed project creates positive and measurable outcomes.

General Community Economic and Workforce Status

The Ashtabula County utilized additional data resources from the U.S. Census[1] and Appalachian Regional Commission[2] to further identify current and past economic drivers for Ashtabula County.

Data made available from the Appalachian Regional Commission regarding Economic Distress in Appalachian counties and other economic reports indicate that:

- Ashtabula County's Economic Status for the Fiscal Year 2024 was rated as "At-Risk."

[1] https://www.census.gov/library/stories/2023/05/persistent-poverty-areas-with-long-term-high-poverty.html
[2] https://www.arc.gov/classifying-economic-distress-in-appalachian-counties/

- The County has nine identified “Distressed Areas.”
- Many workers leave the County, while 20,400 people live and work in Ashtabula County, and an additional 18,500 leave for employment in other counties. This could indicate the opportunity to earn higher wages outside Ashtabula and a partial mismatch between skills and available jobs.
- Manufacturing is the greatest employment industry in the County above Health Care and Social Assistance, however, the percent of employment by manufacturing is predicted to fall - Ashtabula County- Ohio Department of Job and Family Services Office of Workforce Development, July 2021
- Despite employing a small percentage of County workers, agriculture will continue to play a role in Ashtabula’s economy. Ashtabula has the third highest farmland value in the State of Ohio. Furthermore, given the area’s natural beauty and the presence of specialty farms like wineries, the County’s agritourism growth potential is high.

B. State Data

Previous Broadband Studies

The proposed project area, which consists of Ashtabula County and the Eastgate COG region, has been included in following broadband studies. The previous studies relate to the proposed project in that they intend to identify current demographics and inventory assets, ultimately showcasing potential broadband projects in the study area.

Broadband Plan/Study Name	***Date Completed***	***Relation to Ashtabula County’s Proposed Project***
Eastgate Regional Broadband Feasibility Study	June 2021	Identifies assets, demographics, implementation strategies
Eastgate Lake to River Implementation Plan	July 2023	Identifies assets, demographics, implementation strategies

Identify and Document State Priorities

According to the State of Ohio’s BEAD Five-Year Action Plan and the BEAD Volume 1 and Volume 2 Initial Proposals, the following priorities are being implemented:

Priority	Description
Bring reliable, affordable, high-speed internet to every Ohioans in their homes and communities	• Invest in last-mile infrastructure deployment • Expand middle mile network to facilitate last mile deployment • Remove barriers to broadband deployment and maximize asset reuse
Promote the creation of world-class broadband networks throughout the state via the use of best-in-class technologies	• Keep pace with changing technology and demand • Connect community anchor institutions to serve as digital hubs
Enable participation in the modern economy	• Expand telehealth access and usage via targeted programming • Expand access to remote education opportunities • Support Ohio's farmers to improve productivity by enabling digital agriculture uptake • Enable safe and easy movement of people and goods via foundational investments to enable intelligent transportation systems
Empower Ohioans through training, device access and digital skills	• Support workforce development initiatives that connect Ohioans to broadband deployment and digital jobs • Accelerate adoption, usage and economic empowerment via Regional Digital Inclusion Alliances

Connect Ashtabula is Ashtabula County's initiative to establish a high-speed broadband network, implemented in phases according to priority. This plan will prioritize areas based on household density and population centers. The resulting projects will align with the State's BEAD Five-Year Action Plan to build a comprehensive high-speed broadband network. This network is expected to trigger a positive domino effect, significantly improving literacy, education, and workforce development in Ashtabula County by providing residents with access to digital resources that are currently unavailable.

Additionally, the State's BEAD Five-Year Action Plan and BEAD Volume 1 and Volume 2 Initial Proposals further describe how broadband connectivity impacts the following:

Workforce Development	Expanding digital equity and inclusion through the installation of broadband infrastructure across Ashtabula County will enable the growth of new industries and support the development of a hybrid or remote workforce. Additionally, widespread access to high-speed internet will enhance educational and literacy standards for both the current and future workforce in the county. In alignment with the State of Ohio's BEAD Five-Year Action Plan, the goal is for the establishment of a high-speed broadband network to foster investment in digital agriculture.
Economic Development	Improving broadband access in Ashtabula County will support the State of Ohio's goals for attracting a skilled workforce and enhancing livability. As Ohio emphasizes infrastructure development to attract top talent and support major industries and large-scale sites, Ashtabula County's broadband upgrades will play a crucial role in these efforts. By advancing broadband infrastructure, the county will align with the state's focus on livability and remote work, while also fostering the growth of non-traditional businesses, like digital storefronts, through access to high-speed internet.
Aging in Place	The State of Ohio has prioritized expanding healthcare access for all residents. However, in areas like Ashtabula County, physical healthcare facilities are scarce. Once broadband infrastructure is established in the county, residents will gain access to Telehealth services, aligning with the goals outlined in the State's BEAD Five-Year Action Plan.
Educational Attainment	The State of Ohio aims for 65% of residents aged 25 and older to earn a degree or post-secondary certificate. In contrast, 2023 census data shows that only 15.7% of adults in Ashtabula County hold a bachelor's degree or higher, significantly lower than the state average. Additionally, Ashtabula County currently lacks the digital infrastructure necessary for widespread access to online academic institutions and hybrid education options.

Method for Determining Eligibility

The State of Ohio's BEAD Initial Proposal Volume 1 describes the process being undertaken to identify eligible locations for funding, as shown below:

1. **Identification of Existing Broadband Funding (Requirement 3)**
    - The State identified the existing broadband funding allocated within Ohio, including funding sources, description of the funded activities, total funding, amount expended, and remaining funding available. This step was necessary to prevent any locations with existing broadband funding from being eligible to receive BEAD funding.

2. **Identification of Unserved and Underserved Locations (Requirement 5)**
    - The State identified unserved locations as those with service below 25 Megabits per second (Mbps) download and 3 Mbps upload speeds, and underserved locations as those with service below 100 Mbps download and 20 Mbps upload speeds. This identification utilized FCC National Broadband Map data collected through the Broadband Data Collection process, with data as of December 31, 2022.

3. **Identification of Community Anchor Institutions (Requirement 6)**
    - The State identified the types of Community Anchor Institutions (CAIs) eligible to receive BEAD funding within the state, including schools, libraries, public safety entities, Public housing, health clinics, higher education institutions, and community support organizations.

4. **Adoption of the BEAD Model Challenge Process (Requirement 7)**
    - The State confirmed that it will [or will not] adopt the NTIA's BEAD Model Challenge process (Requirement 7), which will allow for all identified eligible locations to be reviewed and challenged ahead of the BEAD Subgrantee selection process.

5. **Reports and Data Indicating Eligibility**
    - Any reports or data that indicate eligibility as defined by the State, including confirmed challenges or speed test data and any corresponding maps, would be included as applicable.

Further details regarding the State's Deployment Subgrantee Selection process (Requirement 8) can be found in Volume 2 of the BEAD Initial Proposal. According to the State's plan, the application, review, and prioritization process would involve a competitive grant process to extend the reach of Ohio's network through unserved areas, increase competition, and improve affordability. The State will accept BEAD proposals geographically based on collections of census block groups. Analysis demonstrating eligibility based on the stated criteria, including citations of challenges or alternative sources for speed test data, would be provided as necessary.

For Specific details and further information, refer to the sources provided:

- Ohio BEAD Initial Proposal Volume I
- Ohio BEAD Initial Proposal Volume II
- Ohio Five-Year Action Plan BEAD

Summary of the State Digital Equity Priorities

According to the State of Ohio's BEAD Five-Year Action Plan and Digital Equity Plan, the following priorities are being implemented across both the BEAD and Digital Equity Act programs:

Priority	Description	Mitigation Approach
Bring reliable, affordable, high-speed internet to all, in their homes and communities	Enhance broadband access through a major fiber infrastructure expansion. Ashtabula County intends to partner with a private internet service provider to increase competition within the broadband sector of the market.	This priority will be addressed through a phased approach that will begin with high density streets and expand outside of population centers following major roadways. The final phases will expand from major roadways into rural parts of Ashtabula County.
Promote the creation of world-class broadband networks throughout the state via the use of best-in-class technologies	Ashtabula County would like to partner with a private internet service provider (ISP) to build out a state-of-the-art fiber infrastructure in combination with other broadband systems to deliver high speed internet for all.	This priority will be addressed through a phased approach that will begin with high density streets and expand outside of population centers following major roadways. The final phases will expand off major roadways into rural parts of Ashtabula County.
Enable participation in the modern economy	The installation of a high speed broadband network would allow residents to partake in digital ecommerce which has the potential to decrease cost of living in the area. The high speed network would enhance businesses access to digital resources such as digital marketing, POS, and digital storefronts.	This priority will be achieved through prioritizing population center and economic hubs in the installation of the high speed broadband network.
Empower Ashtabula through training, device access, and digital skills	Digital equity and inclusion is a crucial component of this project. Increasing competition within the broadband market will help to reduce costs to all residents. Then, utilizing supplement programs the County aims to make internet access affordable for all.	This priority will be achieved through driving down the cost of internet services. Once internet services become affordable for all of Ashtabula County the County will shift focus to device access. Through supplemental programs the County will work with other agencies and apply for grants to get refurbished electronic devices for distribution for individuals of low to moderate income.

The priorities identified above align directly with the State of Ohio's Five-Year Action Plan BEAD. Ashtabula County's entire project is based upon the goals outlined in the BEAD's Plan, which states promoting the creation of a world-class broadband network. Through the installation of proper fiber infrastructure, the county will develop a state-of-the-art broadband network in partnership with the various ISP's that will lift Ashtabula County into the digital era.

Connect Ashtabula, aims to create sustainable broadband access by building out the fiber infrastructure across Ashtabula County. The project will span a period of time and the infrastructure will be built out in a phased approach. The plan has identified target areas based upon the percentage of population classified as low-to-moderate income and the density rate of housing. Prioritizing the high-density areas was done to increase the attractiveness of the project to the ISP's in the hopes that it will increase participation. Once the population centers have been serviced the project will utilize major roadways to reach rural parts of the County. This approach will hopefully reduce the costs to Ashtabula County, ISP's, and the residence of the county.

C. Applicant Grant Readiness

Ashtabula County has obtained the following federal registrations and information, as required to apply federal funding programs:

- Assigned and active Federal Tax ID: 34-6000128
- Assigned and active Unique Entity Identification (UEI) number: RM9CH33J2GL5
- Completed entity registration in SAM.gov

D. Current Internet Adoption and Use

This section aims to provide Ashtabula County with a diagnosis of the current health of broadband infrastructure and services in the community. The results of this Connectivity Plan will enable Ashtabula County to strategically target and prioritize areas to bridge the digital divide and offer equitable broadband opportunities to all residents and businesses, while minimizing risk and amplifying the likelihood of success.

Currently Available Internet Services

To perform the analysis of currently available internet services, the Ashtabula County's project team collected and evaluated data from publicly available broadband data sources and local datasets, and then compiled these sources to reflect the competitive landscape, including:

- An inventory of existing fiber networks within the county, including ownership and availability for use by other network providers;

- An overview of current broadband providers' services, pricing strategies and coverage areas;
- To the best extent possible, the investment and deployment plans of incumbent providers;
- To the best extent possible, the locations of existing fiber and broadband-related electronics; and
- The available broadband speeds by provider.

In the sections that follow we identify current ISP service offerings and pricing, existing broadband networks, and priority areas within Ashtabula County Community for additional broadband infrastructure investment.

Data Sources and Purpose:				
Source Name	**Source Type**	**Source Description**	**Data Collected & Analyzed**	**Purpose**
Federal Communications Commission (FCC)	Public	Federal Agency responsible for implementing and enforcing America's communications law and regulations (Federal Communications Commission (2022). About the FCC. Available at: https://www.fcc.gov/about/overview)	FCC Form 477	Determine broadband incumbents and technology penetration
BroadbandNow & BroadbandSearch	Private	Online databases of internet service options available in each area (BroadbandNow (2022). About BroadbandNow's Team. Available at: https://broadbandnow.com/about; Broadbandsearch (2022). About. Available at: https://www.broadbandsearch.net/about)	Advertised internet service offerings including providers, speed, price and technologies	Determine broadband speed and corresponding price
FiberLocator	Private	Online telecommunications database of fiber infrastructure (FiberLocator (2022). Resources: Available at: https://www.fiberlocator.com/)	Existing fiber infrastructure in the County	Define metro fiber networks (regional level - middle mile; local level - last mile) to evaluate network redundancy. Define long haul fiber networks (national level) to be leveraged by the County to connected middle mile

Truth on the Ground

The FCC Broadband Deployment Data identifies the following ISPs in Ashtabula County with the corresponding broadband technology and speeds they are currently providing.

County Name	Unified Rating	Technology	Provider ID	Provider Name	Max Download Speed (mbps)	Max Upload Speed (mbps)
Ashtabula	6	50	470022	Brightspeed	500	100
Ashtabula	6	50	131413	Windstream Western Reserve, Inc.	2000	2000
Ashtabula	6	50	131332	GreatWave Communications	500	500
Ashtabula	5	40	160157	Zito Media	1000	25
Ashtabula	5	40	130235	Charter Communications Inc	1000	35
Ashtabula	5	40	130071	ArmstrongUtilitiesInc	1000	20
Ashtabula	5	71	130403	T-Mobile US	100	20
Ashtabula	5	71	131425	VERIZON	300	20

According to this table, there are currently 3 technologies deployed in the Ashtabula County, both for residential and business purposes, which can be categorized as follows:

1. Wired Broadband: Asymmetric DSL, Cable, and Fiber
2. Wireless Broadband: Fixed Wireless and Satellite
3. Unsure what to classify

8 providers offer broadband speeds equal to or higher than 100 Mbps download and equal to or higher than 20 Mbps upload in the Ashtabula County.

Available Broadband Speeds & Price per provider:

Provider:	Plan Name:	Price:	Download speed:	Upload Speed:	Data Cap
Armstrong Utilities Inc.	Zoom Extreme	$74.95	1 Gbps	20 Mbps	Unlimited
CenturyLink	Simply Unlimited Internet	$55.00	140 Mbps	140 Mbps	Unlimited
Consolidated Communications	Unknown	Unknown	Unknown	Unknown	Unknown
Greatwave Communications	Unknown	Unknown	Unknown	Unknown	Unknown
Spectrum	Spectrum Internet Gig	$59.99	1 Gbps	1 Gbps	Unlimited
Windstream	Internet 1 Gig	$69.99	1,000 Mbps	1,000 Mbps	Unknown
Zito Media LP	Light Speed	$49.95	1 Gbps	1 Gbps	Unknown

Internet Affordability

The Ashtabula County also collected broadband usage data from the ACS 5 Year specific to the community, which illustrates the overall profile of internet affordability and adoption percentages:

PROVIDER	ASHTABULA COUNTY		
	CABLE	DSL	FIBER
AT&T Ohio			
Armstrong Utilities, Inc.	x		
CableSuite 541, Inc.	x		
CenturyLink		x	
Consolidated Communications	x	x	
Delta Telecom Inc			
Greatwave Communications		x	x
RAA Services			
Spectrum	x		
Suddenlink Communications			
Windstream		x	x
Xfinity			
Zito Media LP	x		

Internet/Usage Statistic	Number/Percentage per Household
Number of Total Households	38,898
Percentage of Households with Broadband of Any Kind	87.90%
Percentage of Households with DSL	15.89%
Percentage of Households with Cable	86.63%
Percentage of Households with Fiber	8.93%
Percentage of Households with Fixed Cellular	68.70%
Percentage of Households with Satellite	6.30%
Percentage of Households with Mobile (Cellular) Internet Only	14.60%
Percentage of Households without a Device	8.70%
Percentage of Households with One or More Devices	91.30%
Percentage of Households with a Desktop or Laptop Computer	73.10%
Percentage of Households with a Smartphone	84.50%

Percentage of Households with Only a Smartphone	11.20%
Percentage of Households with a Tablet	56.80%
Percentage of Households with Only a Tablet	0.80%

Observations

Based on the internet usage and median household income information of the Ashtabula County, the following observations can be made:

- Approximately 12% of households have no broadband of any kind, this is likely due to geographic difficulties and lack of infrastructure as much as, or more than inability to pay
- The County still largely relies on cable internet.
- The County has a lack of variety in service providers and types of broadband limited competition in the market. Which could be indicative of higher prices for service.

Statement of Connectivity Need

The following broadband speed map is based on the FCC Broadband Deployment data representing the highest ISP-reported speed per census block. The maps that follow, illustrating the claimed upload speed and technology delivering service allow us to better target and prioritize the census blocks in need of enhanced broadband.

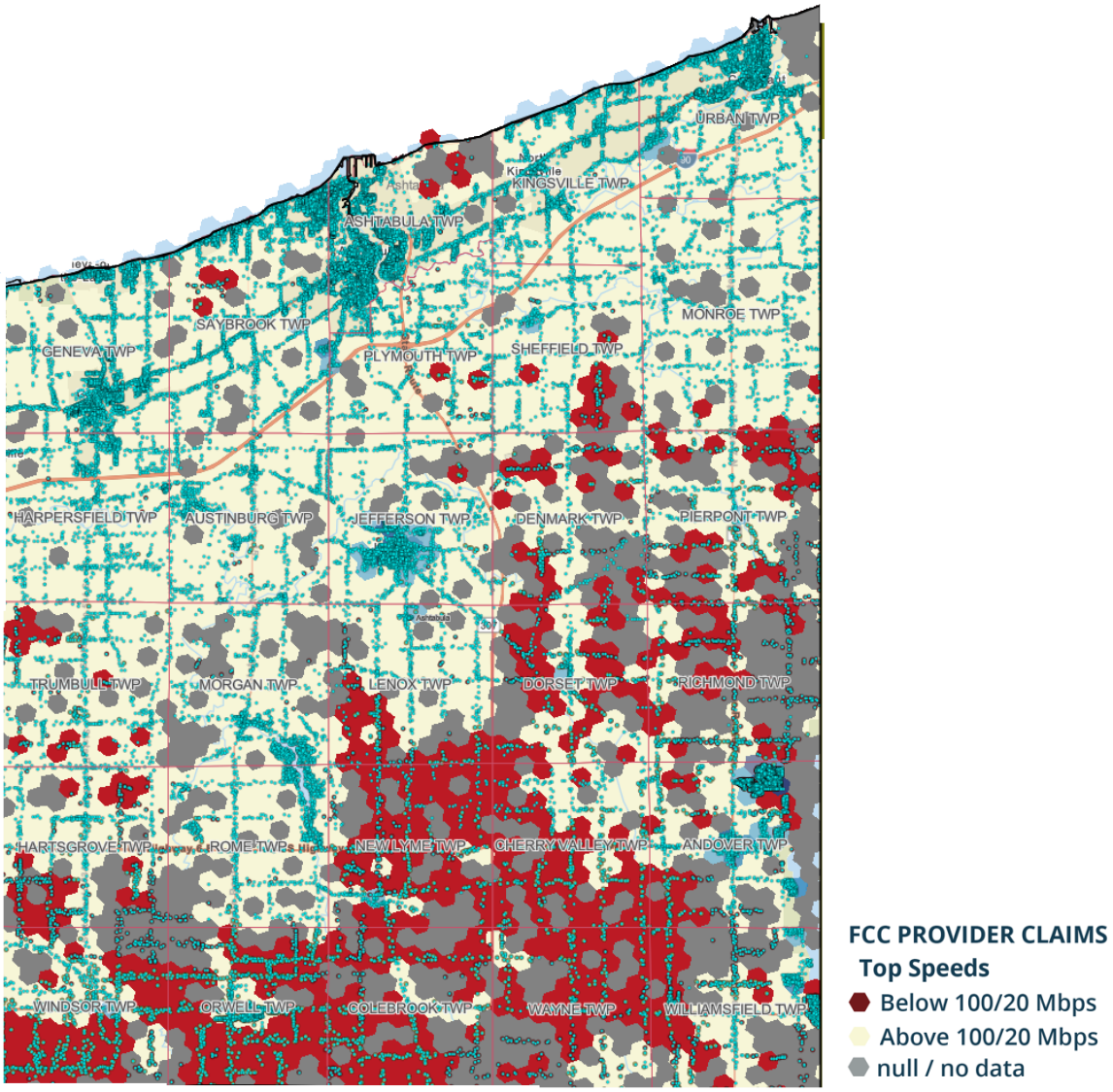


Figure 1: Top claimed Speeds above and below 100/20 Mbps based on FCC claims

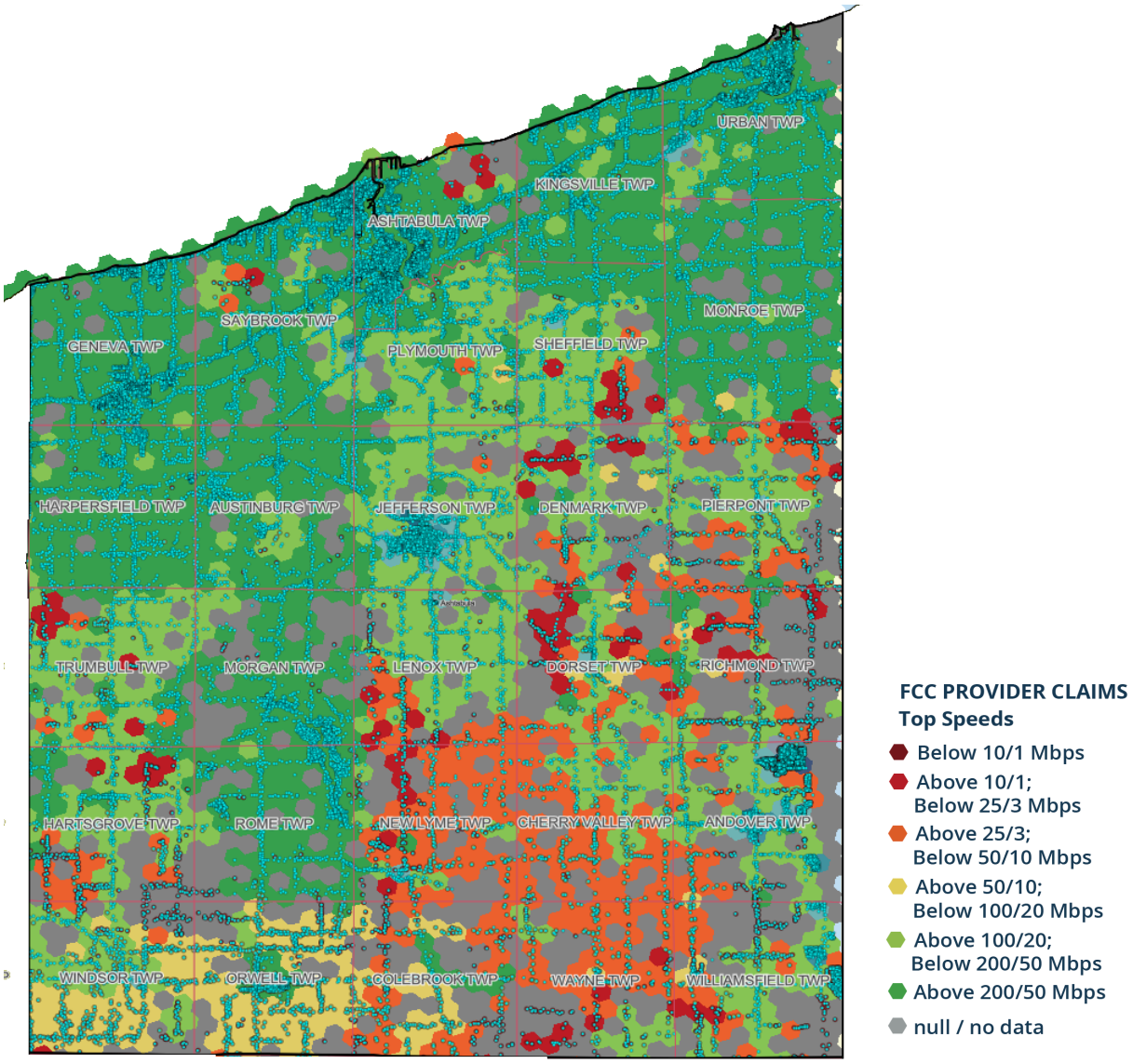


Figure 2: FCC Provider Claimed speeds based on version 3.1 of the Fabric (7/21/23)

The map above depicts claimed speeds above 100/20 north of SR90, along with a corridor buffering from SR45 from Lake Erie to US RT6. Ashtabula County's population center lies heavily in this area, which aligns with current service levels. Areas below that benchmark, colorized orange and red, along with unreported (gray), are more clustered in the south central and southeastern areas of the county.

According to carrier reports, the predominant technology delivering the highest speed in the southeast quadrant of Ashtabula County is fixed wireless, with fiber being prevalent only in high-density areas (Figure 2). Cable TV-based internet services have good download capacity, with many providers offering 1 Gbps and 2 Gbps packages; however, upload capacity can be a problem. Even the fastest cable download packages can struggle to exceed 10 Mbps upload. Thus, areas with existing cable infrastructure may meet current download demand, but the

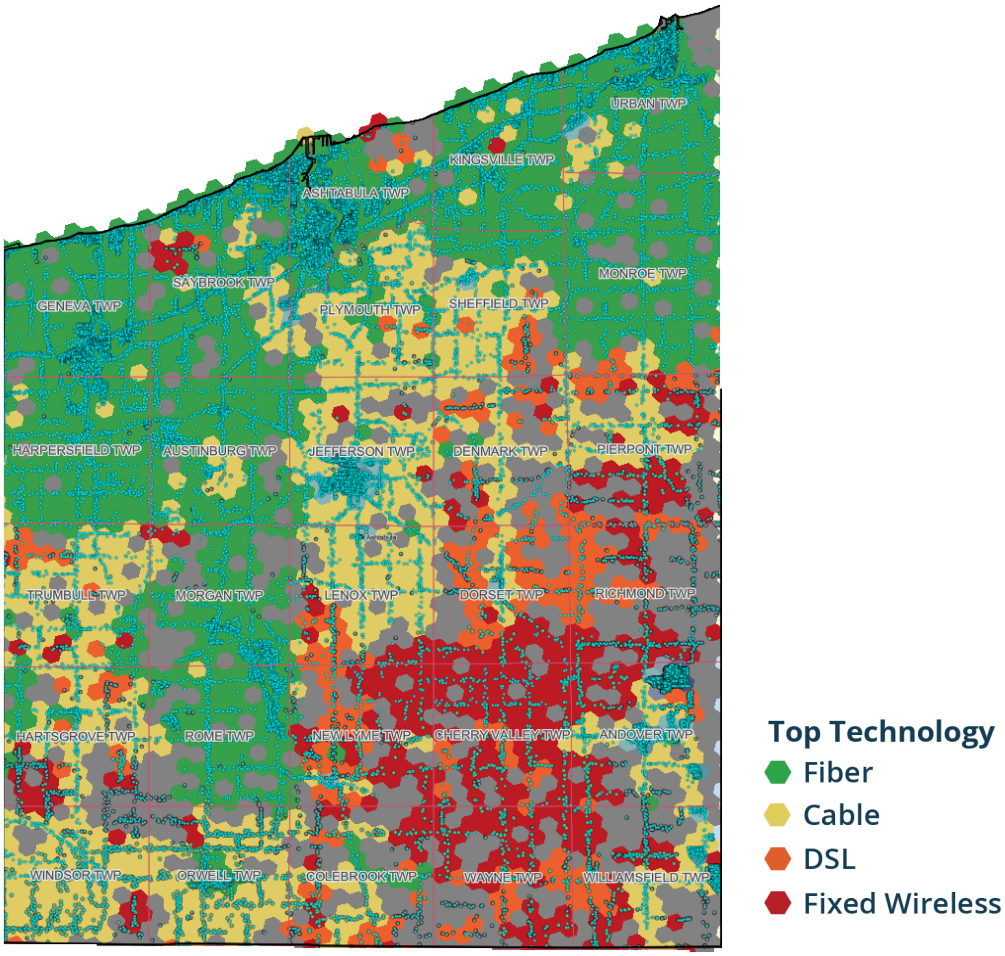


Figure 3: Top Technology based on FCC provider claims

technology will increasingly show its limitations as video conferencing and virtual reality sessions become more common this technology will no longer meet the demands of a digital society.

Fiber optic cabling is the only technology available today that can meet the 100 Gbps speed threshold predicted for 2055. In fact, 10 Gbps fiber-to-the-home deployments are becoming increasingly common in affluent communities. Fiber does have significant up-front capital costs, but those costs are balanced by low ongoing maintenance and excellent longevity. Researchers have yet to discover an upper speed limit for fiber, meaning that high-quality fiber installed today can support ever-increasing speeds simply by replacing the electronics on each end of that cable. We recommend that these areas are particularly targeted for future intervention and broadband expansion efforts in the Ashtabula County.

Section 2

Digital Equity

Section 2. Digital Equity

A. Introduction and Vision for Digital Equity

Ashtabula County has developed a vision for achieving Digital Equity through increased broadband access as shown below:

Problem Statement	Large portions of Ashtabula County's rural areas currently are unserved or underserved. Areas that do have a provider often find that provider to be unreliable and expensive for the quality and level of service received. In our more populous city areas, we also have an adoption issue most likely due to affordability. There are opportunities to expand service throughout the county through various programs, partnerships, and collaborative efforts. We are committed to making that happen. Our plan will focus primarily on getting access first with secondary priorities being affordability and digital literacy solutions.
Vision Statement	The delivery of high-speed fiber into the area will allow our County to compete for new businesses, support and grow existing businesses, ensure the future sustainability of County growth, and allow key business sectors like Agriculture and Recreational Tourism businesses to increase visibility through eCommerce and web marketing. We also hope to take advantage of our plentiful land, low cost of living, and abundant natural resources in attracting residents to our community that would have the opportunity to work, learn, and communicate virtually from their residence in the county if they had reliable and affordable internet, allowing Ashtabula County to grow its population and tax base.
Mission Statement	Ensure every business and residence in Ashtabula County has access to at least one affordable and reliable provider. While broadband expansion projects increase connectivity, Ashtabula County believes that improving access to high-speed internet only solves one of the barriers to long-term improvements in our economy, health, and education system. Deployment must be accompanied by affordability, access to connected devices, and improving the digital literacy of all our populations.
Values	Ashtabula County is generous and supportive. We value our diverse economy led by the sectors of agriculture, tourism, healthcare, and manufacturing. Our communities and residents are generous, supportive, and willing to come together to collaborate on big issues when there are opportunities to overcome adversity. Lack of broadband is a big issue, and our community values will shine as we work together to meet the needs of our community.

Broadband Infrastructure Relationship

Ashtabula County does not intend to own or operate any of its own broadband infrastructure. Through public/private partnerships and building close relationships and collaborations with our county ISPs, we expect to be actively involved in the development and expansion of broadband services to reach every business and resident in the county. Not being the experts in the field or having the capacity to manage a broadband network, this relationship should provide for best quality of service to the residents of the county and allow us to hold the providers accountable for the promises they make to the community. We will continue working with all technologies and providers to seek grants and overcome obstacles to expand services in Ashtabula until all residents have multiple providers, affordable options, and appropriate training to access the internet. Current providers in our community include Spectrum/Charter, Brightspeed, Windstream/Kinetic, GreatWave Communications, Armstrong, Telsco, Ohio TT, HughesNet, ZITO, as well as cellular options through AT&T and Verizon, and satellite service from StarLink.

See table below for common broadband infrastructure relationship types

Desired Relationship with Broadband Infrastructure	
Public Ownership: *The community relies on private ISPs to provide broadband services. This option offers convenience but may result in limited competition, varying service quality, and higher costs.*	***Municipal Broadband:*** *The community owns and operates its broadband network through a local government entity. This option provides direct community control and can prioritize affordability and service quality. It may require public investments and partnerships.*
Cooperative: *Community members collectively own and manage the broadband infrastructure, sharing the benefits and responsibilities. This option promotes local decision-making and community engagement.*	***Public-Private Partnership:*** *The community partners with a private company to build and manage the network while maintaining certain control and regulatory oversight. This option combines public interest and private expertise.*

Alignment with Existing Goals

Ashtabula County's Digital Equity vision, mission, and values support and are aligned with the following existing goals:

- Affordable and reliable broadband access for all county residents and businesses.
- Available training that enables any county resident to take advantage of and learn the tools to access available internet and online services.

- Seeking options and opportunities through organizations such as PC's for People to make computer equipment available at little or no cost, removing access to proper equipment as a barrier to using the internet.
- Educate community members more about the resources available through our community partners such as Community Action, the Farm Bureau, and our Library systems to help them access and utilize the internet to improve their quality of life.

Additionally, Ashtabula County's goals are aligned with the State of Ohio's Digital Equity priorities and goals in the following ways:

- All of our Ashtabula County goals are consistent and aligned with the State of Ohio's Digital Equity Priorities. We want no one overlooked in having access to reliable, affordable high-speed internet to allow for participation in the modern economy as it relates to employment, telehealth, and education. Seeking training on and access to the proper equipment to utilize broadband services is critical so no individual or entity is overlooked, regardless of race, religion, education, or employment.

- State of Ohio's Goals:
    - Connectivity: Reliable, affordable, and high-speed internet for all Ohioans in their homes and communities.
    - Digital participation: Use of best-in-class technologies to promote broadband networks throughout the state.
    - Modern economy participation: Enable participation in the modern economy.
    - Digital skills: Empower Ohioans through training, device access, and digital skills.
    - Equal opportunity: Access quality education, healthcare, job opportunities, government services, and cultural resources online.

Planning Process Summary

Ashtabula County's development of its Digital Equity vision, mission, goals, and values involved participation from the following stakeholders:

- Ashtabula County Farm Bureau
- Ashtabula County Community Action Agency
- Ashtabula County Libraries: Ashtabula Co. District Library (Ashtabula and Geneva), Henderson Library (Jefferson), Andover Library, Grand Valley Library (Orwell), Kingsville Library, Conneaut Library, Harbor Topky Library (Ashtabula); Rock Creek Library
- Oak Hill Collaborative (Mahoning County looking to expand into Ashtabula Co.)
- Eastgate Regional Council of Governments
- Ashtabula County Broadband Taskforce
- Ashtabula County Metropolitan Housing Authority
- Ashtabula County Medical Center/University Hospitals
- Ashtabula County Senior Centers in Ashtabula, Conneaut, Geneva, Jefferson, Andover, and Orwell (Country Neighbor)

Each stakeholder coordinated with Ashtabula County and the respective stakeholders to identify and create the digital equity planning components. We will work together to be responsible for implementing the respective strategies to achieve its vision.

We have economic challenges common to most rural areas, but we also have assets including outdoor recreation areas and partnerships, relatively low cost of living and low taxes compared to neighboring communities, plentiful and affordable land, four wild and scenic rivers (only county in Ohio with this), Lake Erie and Pymatuning Lake, two State Parks, extensive park systems, extensive rail infrastructure with 3 major rail companies, major highway infrastructure with both North/South and East/West routes, a fully compliant C-2 Airport, two deep water ports, beautiful beaches, and a tremendous collection of giving, caring human beings always willing to help their neighbor in times of need. In spite of all these assets, it still is difficult to convince young people to stay in our community, for example to take over the family's agri-business when they feel like the business won't be able to grow without accessing technology tools, and they would be living in a place that doesn't offer telehealth for their aging parents or on-line education for their future kids. Slow unreliable or simply unavailable internet access restricts our economic growth in the southern portions of our county. In addition, because of the large tracts of undeveloped land, there are opportunities for businesses to acquire land and locate at very affordable costs as well as remote workers and home-based businesses to flourish with proper internet service, creating opportunities to reverse the trend of population decline and retain our best and brightest high school and college graduates who have been fleeing for communities with more technological amenities.

B. Community Digital Equity Asset Mapping

As part of the Ashtabula County's Digital Equity planning process, a Digital Equity Asset Mapping tool was developed, consisting of the following:

- Digital Equity organizations
    - Nonprofit device refurbishing experts
    - Digital inclusion coalitions
    - Community technology centers
- Organizations running digital inclusion programs
    - Public libraries
    - Senior and community centers
- Organizations serving covered populations
    - Public housing authorities
    - Returning citizen programs
    - University agricultural extension programs
- Anchor institutions
    - Municipally owned buildings (city, village, and township halls)
    - Libraries
    - Schools (K-12 and higher education)

    - Police/Fire Stations
    - Community Centers
    - Community Churches
- Other community assets
    - ISPs
    - Gathering spaces
    - Policymakers

Asset Mapping Tool Development, Data Collection, and Dissemination

To develop the Digital Equity Asset Mapping tool, Ashtabula County worked with our stakeholders to identify the potential assets in our community. We have worked with many community partners, several through the Ashtabula County Broadband Taskforce such as Community Action and the Ashtabula County Farm Bureau, over last few years to identify assets in the community and have been working with them or plan to work with them in the future. We have water towers, silos, MARCS towers, cell towers, and buildings that can all be used as potential assets to assist in expanding broadband infrastructure.

Throughout the Digital Equity planning process, Ashtabula County leveraged partnerships with the OSU Extension and Ashtabula County Farm Bureau as we worked with BroadbandOhio as one county in the second Community Accelerator Cohort in an effort to establish and implement a full-scale broadband connectivity vision. The partners contributed significantly by identifying digital equity barriers for priority populations, assisting with community engagement convenings, and being actively involved with the plan implementation phase.

C. Meaningful Community Engagement

Our engagement focused on connecting with numerous members of our agricultural community and rural residents. We acquired over 50 letters of support from residents, businesses, local governments and organizations in support of grant applications that also gave these entities an opportunity to tell their story on how the lack of reliable and affordable internet has negatively impacted their quality of life. Visits to township trustee meetings seeking feedback from the community and discussing available options and solutions, concerns and limitations, and encouraging active engagement with reporting inaccuracies in FCC maps that misrepresent levels of coverage in areas has been and will continue to be an important part of our process. Assistance from Bill Callahan who is a part-time Senior Policy Advisor with the National Digital Inclusion Alliance (NDIA) and Director of Connect Your Community, a local NDIA affiliate focused on Northeast Ohio, has also been impactful helping with his knowledge and connections in this space.

Identify Priority Populations

Based on demographics and internet usage data in Ashtabula County, the following covered groups have been identified as priority populations most at risk for being impacted by the digital divide:

- Agricultural businesses and their rural families
- Low income/working poor in more densely populated areas
- Senior citizens not familiar with technology
- Residents of areas that have limited or no options for service

The Agricultural Community will become more engaged as quality, reliable service becomes available to them. Working with our Farm Bureau and Ohio State University Extension Service, we continue to bring awareness of improved internet locations in the county and the options available in precision agriculture to help improve efficiency and productivity. Through a grant, we have helped fund a Rural and Ag Business Technology Consultant that works with farm bureau members to assist with awareness and training on these available services. Working with the director of AMHA, we are seeking opportunities to establish free or low-cost wireless internet service access at various properties under their management, starting with the two high rise towers in Ashtabula City, then moving onto their other remote satellite development also within the city of Ashtabula. Through partnership with our libraries and senior centers in Conneaut, Ashtabula, Geneva, Orwell, Jefferson, and Andover, computer access, training, and education is more readily available. We also are working to establish funding for regularly scheduled classes that help seniors with the basics to get set up and become familiar with using email, chat features, apps, and internet navigation to assist with shopping, telehealth, communication, recreation, and administrative tasks such as online bill pay, banking, and applications for benefits. All this will come with training to identify scams and red flags from predatory entities using the internet so new users can avoid being taken advantage of or having their identity stolen. It is critical that we train new users of the dangers involved with the internet to protect them and their assets from nefarious individuals looking to take advantage of them.

Community Churches will also play a key role as we would seek to engage churches with large congregations, those that serve large portions of the target priority populations, and those with larger ethnic minority populations (primarily African-American and Hispanic).

Local governments will also play a role as we seek to work with leadership of cities, villages, and townships to encourage the establishment of dig once policies to evaluate the feasibility of placing conduit in the ground anytime a construction project happens on a right of way for a road, water, wastewater or other utility for areas that are unserved or underserved to reduce the cost of future placement of fiberoptic infrastructure.

Stakeholder Engagement and Collaboration

As part of an inclusive Digital Equity planning process, Ashtabula County understands that it must work collaboratively with additional stakeholders, including Community Anchor Institutions,

to ensure that identified priority populations are engaged throughout the process, especially during the planning and implementation phases, to ensure that equitable internet for all is achieved.

Priority Population	Stakeholder Name	Role(s)	Data Collected
Low income Families	Community Action, Country Neighbor, GO Ministries	Obtain data from clients	Numbers of clients without connectivity and identification of barriers
Low Income Families	Metropolitan Housing Authority (AMHA)	Identify housing units without internet	Number and percentage of units without service
School Aged Children	Headstart	Identify those lacking service in their homes	Counts on Headstart families without internet
School Aged Children	Dragon Empowerment Center (DEC)	Get more internet access and training for students	Identify number of students lacking internet access at home
Senior Citizens	County Senior Centers	Work with seniors on access and digital literacy	Number of seniors using these facilities without access at home and why
Rural residents/Ag Community	Farm Bureau OSU Extension/4-H	Provide resources for digital literacy and to enable precision ag usage	Farmers lacking access to adequate internet, estimated savings/efficiencies better internet would provide
Unhealthy residents with limited transportation	County Health Departments and Hospital Systems	Identify patients that could be served with telehealth options if internet was available	Statistics on current patient load using telehealth and projections on usage if internet was available to all
People without internet access	County Libraries	Provide access options and digital literacy training	Numbers using loaned hotspots, training programs, and computer time

Through a diverse and collaborative approach, Ashtabula County will have the capacity to utilize participation, feedback, and data from each of the priority populations to measure efficacy and progress towards meeting digital equity targets and complementing overall State Digital Equity goals. In August 2024, county libraries shared needs and usage data for loaned hotspots that provide residents access:

- Conneaut had to eliminate their hot spots loan program due to the $40 monthly fee plus replacement cost of $79 for non-returned hot spots. They would like to have 7 hot spots available.
- Harbor Topky pays $40/month per hot spot and would like to expand the program to include 3-5 more units.
- Rock Creek originally had 7. They now have 3 available and could use a few more.
- Ashtabula had as many as 80 hotspots at one point. Currently, they have 60 with a waiting list of 15-20. They would like to have a few more to reduce the wait time. Each unit costs $40 per month.
- Andover had 18, now down to 6 with a waiting list of 6-10. Cost per unit is $40/month.
- Jefferson currently has 17 units. They had 15 during COVID but added two during their last renewal due to the ending of the connectivity act. Ongoing costs are $30 per unit per month. Would love to add more and have been tracking the Wi-Fi, computer and DVD check outs since April 30 and have noticed an increase in visits. April 665, May 729, June 757, July 892.
- Kingsville – Had 20 now down to 7 with two different providers: AT&T at $18/mo and Verizon at $30/mo.

Create Outreach and Engagement Plan

Ashtabula County understands that it must utilize a variety of outreach strategies and methods to facilitate participation and engagement from the community's Digital Equity planning and priority population stakeholders. Ashtabula County values the feedback, engagement, support and buy-in from the community, especially from trusted partners who represent the covered populations that are most impacted by the digital divide.

Ashtabula County's Digital Equity Outreach and Engagement Plan begins with accessibility. While there is no single solution that will be practical to resolving all accessibility needs, we believe the best strategy to eliminate access concerns involves placing accessible fiber on all the main north-south (SR 7, Stanhope-Kelloggsville Road, SR 193, SR 11, Lenox-New Lyme Road, SR 46, SR 45, and SR 534) and east-west routes (Lake Road, SR 167, SR 307, SR 6, and SR 322) in Ashtabula County. Fiber buildout on secondary roads should follow and fixed wireless solutions can be used to fill in connectivity deserts on tertiary roads that may have very few residents over miles of roadway. We reached this conclusion through utilization of the Tri-County Broadband Feasibility Study with Trumbull and Mahoning Counties as well as active engagement with the Eastgate Council of Governments, former broadband coordinator for

Eastgate Steve Kristan, Reid Consulting Group (current broadband consultant for Eastgate), BroadbandOhio, and numerous local partners.

Conduct Community Survey

Ashtabula County has developed a Digital Equity Community Survey to seek direct feedback from identified stakeholders and priority populations to capture needs, unique challenges, and recommended engagement strategies to increase broadband access and adoption. This survey was developed in conjunction with OSU Extension as a part of our work in the second cohort of the BroadbandOhio Community Accelerator Program. While the survey did not get the volume of responses we had hoped, we find all information valuable and will look to gathering additional data and seeking more respondents. This survey was weighted towards agriculture due the involvement of OSU extension and the active roles played by Julie Wayman with our local OSU Extension office and Mandy Orahood with our County Farm Bureau, but the instrument could be adapted to a different target audience if necessary.

In general, the Digital Equity Community Survey responses indicated that rural internet service, when available, is too costly and poor quality in most areas.

Carry Out Community Engagement Activities

In addition to the Digital Equity Community Survey, Ashtabula County engaged the local community to obtain feedback and encourage participation in the digital equity plan development process. In total, 20 engagement activities were conducted in the community across a 12 month period:

Community Engagement Activities for Digital Equity	Description	Objective/ Outcome	Date/ Time	Location/ Venue	Lead/ Coordinator	Resources Needed	Notes
1. Community Meeting	Held broadband discussions at 5 rural township trustee meetings	Get feedback on need, determine community support for expansion, seek matching funds for grants	Various	Pierpont, Richmond, Cherry Valley, Lenox, and New Lyme Townships	County Commissioner J.P. Ducro	Presentation materials, Informational handouts, heat maps	
2. Stakeholder Roundtable	Zoom meetings with ISP's	Discuss strategies and partnerships and plans for expansion and grant applications	Nov and July	Virtual	Commissioner J.P. Ducro and Regional Broadband Coordinator Steve Kristan	Meeting agenda, invitees	Stakeholders confirmed to attend
3. Teleheatlh	Virtual meeting with leadership from Ashtabula Regional Medical Center on Telehealth needs and opportunities/virtual clinics	Discuss innovative options to bring telehealth access to rural residents and those with transportation needs	Various	Zoom	J.P. Ducro Bill Callahan	agenda	Discussed hurdles such as insurance reimbursements being so different for telehealth
4. Public Awareness Campaign	Promote ACP Program and Community Action ACP Outreach Specialist Ann Stranman	Raise awareness and promote utilization of the program while in effect	Various	Used social media and Ashtabula County Township Trustees Assn meetings	J.P. Ducro Ann Stranman	Marketing materials, media outreach	Social media content planned
5. Focus Group Discussions	Ashtabula Co Broadband Taskforce meetings	Gather feedback from diverse community representation for feedback and implementation of strategies	Various as called	Ashtabula County Commissioners meeting room with virtual option	J.P. Ducro, Bill Callahan, and Eastgate Rep.	Facilitators, discussion, agenda, guest speakers	Regular updates on community projects, feedback, and strategies

Aggregate Community Engagement Findings

The following key findings and observations resulted from the community engagement process:

- The ACP Program was very popular in Ashtabula County with over 12,000 subscribers in January of 2024, six weeks before the program ended. This was 36% of county households and 78% of all eligible households. We need a replacement program.
- For telehealth, there are challenges in the system that disincentivize hospitals from encouraging telehealth options, mainly insurance reimbursement rates. Hospitals may be more inclined to help invest in infrastructure to promote virtual clinics and virtual visits if reimbursement was similar to an office visit.
- ISPs for the most part seemed to appreciate the grant funds available through BroadbandOhio and other sources, but not all seemed interested in applying for those funds, mostly due to restrictions and administrative/reporting responsibilities associated with the grants.
- Townships very much want more service but have few resources to commit to help leverage funding. The responsibility is going to fall on Counties, State and Federal funding/grants, and private matching investment from ISPs.

D. Understanding Barriers to Digital Equity

Ashtabula County's Digital Equity planning process has contributed to its understanding of unique barriers to achieving digital equity across a wide range of covered populations. The table below summarizes the respective unique barriers for each of the covered populations present in the community:

Covered Population	Description
Individuals who live in covered households	While service may be available, it may not be affordable and there may be a lack of knowledge of how to use it.
Aging individuals	Cost may be a factor for those on fixed income and there may also be some digital literacy challenges.
Incarcerated individuals, other than individuals who are incarcerated in a Federal correctional facility	Cost is an issue for anyone without a stable income and internet may be very important to them getting back in the workforce. Also access to equipment and knowing how to use it.
Veterans	Potential mental health challenges from PTSD, lack of training, homelessness, addiction. Great potential opportunities for veterans also if more access was available.

Individuals with disabilities	Access to specialized equipment that connects with their disability, cost for those on fixed incomes, communication challenges between trainers and the individual.
Individuals with a language barrier	Availability of bilingual trainers and resources in one's native language.
Individuals who are English learners	Availability of trainers, need for patience as learning English, slower learning curve.
Those with low levels of literacy	Slower learning curve, may have lower income levels and limitations to access service (financial, housing, transportation.)
Individuals who primarily reside in a rural area	Lack of multiple or at times even one reliable and/or affordable provider.
Other priority populations	All of the above

E. Developing Implementation Strategies

Existing Programs

Based on the unique barriers to achieving Digital Equity identified in the previous section, Ashtabula County identified the following existing programs that address the respective needs/barriers of the applicable covered populations:

Covered Population	Lead Entity/Organization of Existing Program	Needs/Barriers Addressed	Funding /Sustainability
Individuals who live in covered households	AMHA – Housing Authority may make plans available to assist	ACP expired; costs may be a factor	Need to partner with providers for large quantities of pkg service at reduced costs
Aging individuals	Senior Centers	Staff resources and equipment for training	Senior Levy may be able to fund programs
Incarcerated individuals, other than individuals who	Second Chance Citizens Circle	Provide resources upon reentry	Can use existing resources such as libraries for training

are federally incarcerated			
Veterans	Ashtabula County Veterans Service Commission, Ash Co Veterans Task Force, Local Veterans Organizations	Access to telehealth, job and training resources	Veterans Service Commission has funding available for new programs if needed from their county appropriation
Individuals with disabilities	Ash Co Board of DD, Third Party DD Caregiving Organizations	Access to accessible content for individuals who are visually or hearing impaired, customized assistive technology, social and emotional support	Board of DD levy dollars
Individuals with a language barrier	HOLA	Multilingual access to information	Philanthropic contributions
Individuals who are English learners	HOLA, English as a Second Language teachers in the schools	Access to education and training to improve language skills	Philanthropic contribution
Those with low levels of literacy	Ashtabula County Department of Job and Family Services, Ashtabula Co Community Action Agency	Access to education, GED, online school and training programs	Unknown funding source
Individuals who are members of a racial or ethnic minority group	NAACP, Clergy of Minority Community Churches	Access to resources, connections to community	Membership contributions
Individuals who primarily reside in a rural area	OSU Extension, Ashtabula County Farm Bureau	Access to basic internet where it currently does not exist	State subsidy, general operating funds from membership contributions

Implementation Strategies and DEA Measurable Objectives

Ashtabula County's Digital Equity Plan includes implementation strategies to address the following needs for each of the covered populations in the community:

- **Broadband Access Expansion:**
  Objective - Increase the availability of affordable high-speed internet access.

  On the adult side of career tech, A-Tech has partnered with the Fiber Optic Association and Youngstown State University as part of the statewide 5G project. A-Tech has a grant to start a new **Certified Fiber Optic Technician program.** We are in the early stages of this - right now they are trying to identify an instructor - and may have someone after meeting with Greatwave Communications. Once they have an instructor, they will seek approval to spend the grant money to purchase equipment to begin the program. This is important as we desperately need more trained labor in this field to meet the demands of increased broadband construction to deliver it to our communities as quickly as possible

- **Awareness and Use of Cybersecurity and Online Privacy Tools:**
  Objective - Empower individuals, organizations, and communities to protect their digital assets, personal information, and online activities from cyber threats and privacy breaches.

  The high school IT Academy through A-Tech explores cybersecurity. Students have participated in cybersecurity contests sponsored by the US Navy. This is a unique and beneficial program in our community. We need more like it.

- **Availability and Affordability of Consumer Devices:**
  Objective - Ensure access to affordable devices and software.

  By opening an office for the Oak Hill Collaborative and replicating its successful Mahoning County Program in Ashtabula County, we hope to connect our target populations to offer free computers to participants that complete a series of 4 classes on digital literacy.

  Additionally, as referenced on page 33, in August 2024, county libraries shared needs and usage data for loaned hotspots that provide residents' access. It is the intent of the Ashtabula County team to identify funds to help the county-wide library system to increase the number and therefore availability of loaned hotspot devices for public use. Considering the varied number and related costs/subscriptions/materials associated with each device, it is unclear how many devices we would be able to purchase.

- **Community Technology Hubs:**
  Objective - Establish community centers equipped with technology resources.

  Our libraries already offer robust resources to aid our residents with access to technology. We will encourage them to seek grants and other resources to expand those offerings where there is a shown demand.
  Senior Centers need more resources with current technology and access to people with the knowledge and time to provide training and guidance to seniors looking to use these resources.

- **Public-Private Partnerships:**
  Objective - Foster collaboration between government, businesses, and nonprofits.

  Ashtabula County must continue maintaining regular contract and open dialogue with all local ISPs to seek opportunities to partner on expansion projects, discuss participation in using infrastructure that could be put in place from Dig-once policies, and evaluate support for initiatives they may wish to pursue that could benefit from matching funds or letters of support.

Timeframes for Implementation Strategies

To fund, develop, and implement the respective digital inclusion strategies detailed above, Ashtabula County anticipates that it can achieve the following milestones and timeframes over the next five years:

Date	Description of Digital Equity Milestone(s) Completed
Q1 2025	1. Find a provider to agree to terms with ARC $2.5 mil POWER Grant for fiber expansion in unserved/underserved areas. 2. Evaluate updated maps and cross reference with ORBEG/RDOF awards to identify remaining areas of need.
Q2 2025	1. Begin buildout for POWER Grant. 2. Work with ISPs to target remaining areas of need and support/encourage/facilitate efforts to build out independently or apply for BEAD, ORBEG, or other grant funding.
Q4 2025	Assess projects awarded through BEAD/ORBEG funding and watch for next round of potential grant opportunities.
Q3 2026	Identify small pockets of addresses still left without service and work with ISPs to target those areas through investment or grant assistance.
Q1 2027	Revisit the Lake to River Middle Mile Fiber Project along the SR 11 corridor if not yet funded and work towards completion to provide redundancy and an open network for future expansion and development.

Section 3

Broadband Infrastructure

Section 3. Broadband Infrastructure

A. Service Area GIS

Through the development of the Ashtabula County's Connectivity Plan, it has defined a proposed project service area as shown below. The Project Team coordinated with Ashtabula County to collect Geographic Information System (GIS) data to create a last-mile broadband network connecting residents and businesses.

The following GIS maps were obtained, analyzed, and utilized by the Ashtabula County to develop the design, technical details, and specifications of the proposed network infrastructure:

- Ashtabula County Auditor GIS data
- To the extent available, maps of existing infrastructure including water, sewer and conduits
- To the extent available, existing fiber infrastructure in the Community
- To the extent known to the public or from providers willing to share
- To the extent known, already-funded broadband expansion projects in the community (confirm any overlap with the proposed project area)
- Vertical infrastructure, such as towers, water towers, tall buildings/rooftops
- In some rural areas this could include grain silos, some larger barn rooftops or other privately owned structures
- Address list for all homes and businesses
- Planned/ phased broadband expansion routes
- Rights-of-way and easements
- Broadband Serviceable Location Fabric data points from the FCC

B. Network Architecture, Design, and Topology

Ashtabula County intends to partner with existing Internet Service Providers (ISPs) in the region to address the broadband infrastructure needs of our citizens. To be clear, the intent is to deliver Fiber-to-the-Home (FTTH) connectivity to every household, as well as all Community Anchor Institutions and businesses. The FTTH builds will ideally also address backhaul needs for mobile connectivity through access to fiber connectivity to towers. The financial lift will be addressed by the ISPs with support from relevant grant programs. Ashtabula County recognizes that investment in identified areas to date have not been feasible due to the low population densities, thus the importance of the grant funding.

With the assistance of the Eastgate Council of Governments, Ashtabula County has and will continue pursuing local, state, regional, and federal grant funding to help offset the cost of partnerships with capable ISPs to address our citizens' needs.

As discussed in this section, with the assistance of Reid Consulting Group, a gap analysis was conducted for Ashtabula County. This analysis resulted in the identification of five areas of the county where a noticeable need for fiber-to-the-home investment exists. This gap analysis identified the geographic areas in need of fiber to the home as well as the infrastructure assets included within those areas. These include residences, small businesses, and other community anchor institutions. Along with the identification of the infrastructure assets, the gap analysis included a financial pro forma estimating the fiber build necessary to pass and to serve these locations. Cost to pass and cost to serve were based on a blend of both aerial and underground cost projections. The investment estimates include consideration of the number of households and small businesses per fiber mile, the anticipated rate of subscription (take-rate) and an estimation of the ISP investment thus providing the gap we need to fill with grant funding.

The financial assumptions of the gap analysis are detailed in the next section as well as included in the appendices as part of the full gap analysis period.

Before the commencement of any new construction activities, Ashtabula County will complete all applicable environmental screening, including those outlined in the National Environmental Policy Act (NEPA), the National Historic Preservation Act, the Endangered Species Act, and other applicable environmental regulations.

Ashtabula County is the northeastern most County in the State of Ohio, with Lake Erie to its north and the State of Pennsylvania to its east. It is also within an hour's drive of the Cleveland metro area and is the largest by land area in Ohio. Its population of just under 100,000 has remained relatively stable for decades, although it has been aging consistent with regional and state trends.

With abundant natural resources, the County prides itself on its "small town" feel and rural landscape. These attributes provide a solid foundation for a high quality of life. Lake Erie, wineries, trailways, and recreational opportunities attract visitors to the County, especially in the summer months. At the same time, the County has significant untapped economic potential and has been hampered by factors such as limited broadband internet access and challenges to coordinate data and collaborate strategically to support investments.

Ashtabula County is known for its rich, abundant natural resources that include lakefront amenities, Metroparks and rural landscape. Three-quarters of the County’s existing land cover is dedicated to natural resources and/or agricultural use. Forty-one percent of the County is forested land cover, while thirty-four percent is combined agricultural land cover. The remaining twenty-five percent encompasses the County’s developed areas

The County’s abundant recreational and natural resource assets include 26 miles of Lake Erie coastline on its northern border and four of Ohio’s 15 “wild and scenic” rivers.

Lake Erie and the Pymatuning State Park and Lake draw many people in the warmer months for boating, swimming, and more. The County's ten Metroparks cover over 1,200 acres and include 30 miles of paved greenway and bike trails and more than 15 miles of additional trails. With the help of the Ashtabula County Metroparks Levy, the County has opened seven new parks since 2014 and resurfaced 28 miles of trail used mainly for recreation, fishing, kayaking, and birdwatching. The County is also home to a wide variety of covered bridges, which are notable for their contributions to its scenic beauty along roadways and trails.

The County benefits from significant infrastructure assets that provide an opportunity for economic investment. These include the County's rail corridors, deep water ports, raw water access, and airport. This competitive advantage can be protected if incompatible land uses are not permitted within and adjacent to those assets.

C. Areas of Potential Investment

The gap analysis has identified the following areas (figure 1) where further investment and build is necessary to address current FTTH gaps:

1. NEO Airport
2. Central Ashtabula
3. Southern Ashtabula

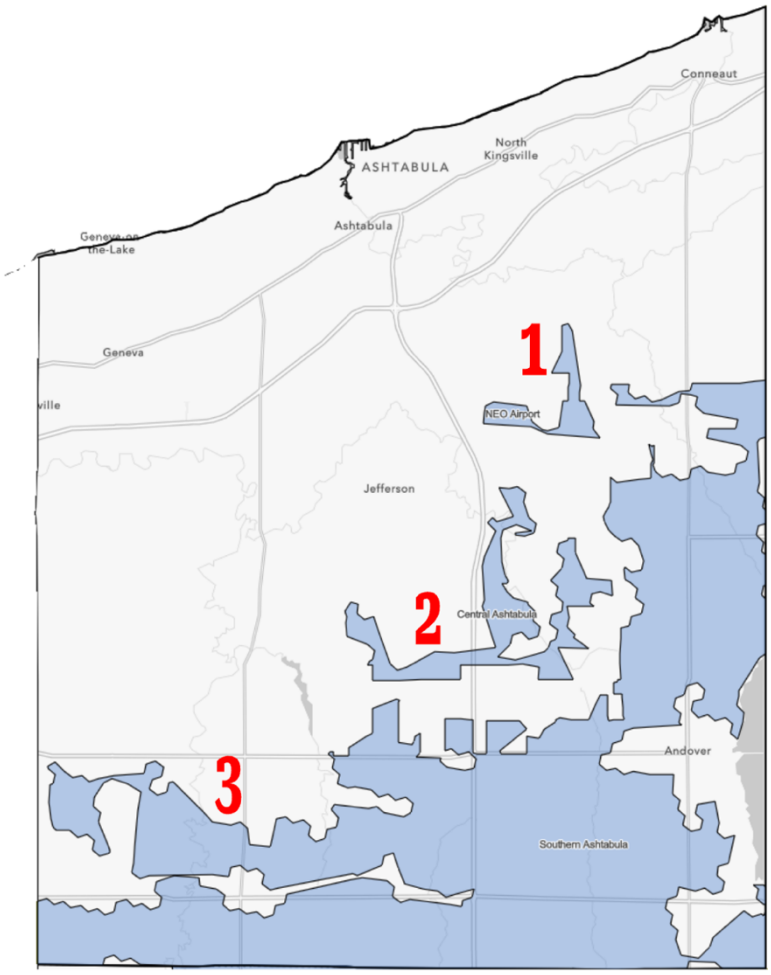


Figure 4: Areas of Potential Investment

1. NEO Airport

	Aerial	Underground
Fiber Cost	$104,000	$156,000
Cost to Pass	$624,000	$936,000
Cost per Location	$9,905	$14,857
ISP Investment per location	$2,000	$2,000
TOTAL ISP investment	$126,000	$126,000
ISP Percentage	20%	13%
Gap	$498,000	$810,000

63	54	6	6	4	11
Locations	Unserved	Underserved	Fiber Miles	Area (Sq Mi)	Locations per Mil

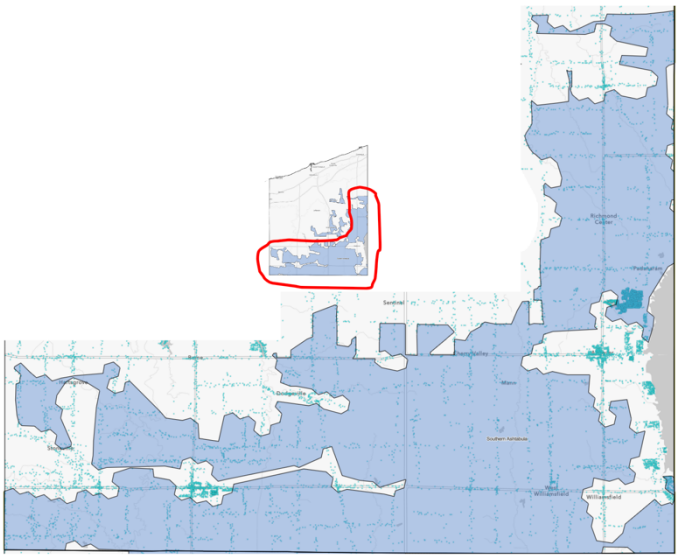
2. Central Ashtabula

	Aerial	Underground
Fiber Cost	$104,000	$156,000
Cost to Pass	$2,496,000	$3,744,000
Cost per Location	$9,043	$13,565
ISP Investment per location	$2,000	$2,000
TOTAL ISP investment	$552,000	$552,000
ISP Percentage	22%	15%
Gap	$1,944,000	$3,192,000

276	193	36	24	14	12
Locations	Unserved	Underserved	Fiber Miles	Area (Sq Mi)	Locations per Mile

3. Southern Ashtabula

	Aerial	Underground
Fiber Cost	$104,000	$156,000
Cost to Pass	$33,280,000	$49,920,000
Cost per Location	$5,970	$8,954
ISP Investment per location	$2,000	$2,000
TOTAL ISP investment	$11,150,000	$11,150,000
ISP Percentage	34%	22%
Gap	$22,130,000	$38,770,000



5,575	2,378	1,438	320	183	17
Locations	Unserved	Underserved	Fiber Miles	Area (Sq Mi)	Locations per Mile

To address the FTTH need in these areas, Ashtabula County proposes to issue RFP/RFQ documents in search of an ISP partner. To best ensure that we are partnering with the right ISP for the county's needs, we have established the following baseline of questions for response. We strongly believe that the below qualifications, network requirements and design, and pricing information will allow the Ashtabula County team to efficiently and effectively evaluation potential ISP partners and match areas of need within the county to the professionals who are best capable of meeting those needs.

D. Work Plans for Implementation and Operation

There are several approaches that a community can utilize to ensure that its residents and businesses have access to affordable broadband service. In the following section we provide general information about such owner-operation models and advantages and disadvantages of the models.

Owner-operator business models include:

1. Infrastructure Provider

- The local government provides middle mile conduit and/ or dark fiber to local organizations and strands on the network are made available for use by Internet Service Providers ("ISPs") through lease/ indefeasible right-to-use (IRU) agreement.
- The local government does *not* provide service/ "light" the network.
- **Example:** Dublin, Ohio's "Dublink" is a municipal-owned middle mile fiber/ conduit

system that is leased to telecommunications providers/ private entities through IRU agreements.[3] The City of Dublin has experienced commercial and residential growth and economic development since launching its future-proofed networking infrastructure.

- **Applicability to the Ashtabula County:** One approach to facilitating deployment is to reduce the cost to ISPs through access to middle mile/ backhaul fiber networks.[4]

  If the Ashtabula County was to consider this model and deploy middle mile conduit and/ or dark fiber throughout the community in key areas of need, we would recommend that such a network be created in a ring fashion so as to provide redundancy and reduce the risk of signal interruption - should a network interruption occur on a closed-ring middle mile fiber network, the signal will seamlessly reroute itself in the opposite direction, ensuring ongoing connectivity. Such redundancy is highly important when connecting anchor institutions. Once constructed, Ashtabula County could lease conduit and/ or fiber on the network to local organizations, public or private, for their use, as well as to area ISPs in order to facilitate last-mile expansion.

  As it pertains to the ISP leases, the Ashtabula County could charge a flat-rate monthly IRU fee. However, some ISP partners may be willing to engage in a revenue-share model in which the community would receive more fees as more users sign on to the last-mile network.

2. Middle Mile Fiber Service Provider

- The local government owns and provides service via a middle mile fiber ring that connects public organizations and/ or commercial organizations to ensure competition, potentially monetize excess capacity, and proactively connect vital local institutions.
- Organizations on the network are generally limited to community anchor institutions including local governments, school districts, libraries, public safety and utility providers, but may be made available to commercial organizations to attract and retain local investment.
- Residential and small/ medium business retail services continue to be provided by private ISPs through traditional deployment approaches; however, last-mile service providers can be encouraged to connect into the Ashtabula County's middle mile network to expedite their build-out and reduce their costs to doing so.
- **Example:** Hudson, Ohio offers high-speed fiber broadband to local businesses through its City-owned and operated network, "Velocity Broadband." Velocity Broadband was conceptualized in 2014 and deployment to business and commercial zones began in 2015, providing speeds up to 10 Gbps.[5]

---

[3] EASTGATE REGIONAL BROADBAND FEASIBILITY STUDY (2021), *available at* https://eastgatecog.org/media/a4a249ae-ca98-4b69-aedd-f4d16ed96c4f/4jf12A/Broadband%20Lake-to-River%20Backbone%20Fiber%20Expansion/eastgate-regional-broadband-feasibility-study-final-version.pdf?download=false.

[4] In addition to expedited permitting, access to rights-of-way, and/ or easements.

[5] EASTGATE REGIONAL BROADBAND FEASIBILITY STUDY (2021), *available at* https://eastgatecog.org/media/a4a249ae-ca98-4b69-aedd-f4d16ed96c4f/4jf12A/Broadband%20Lake-to-River%20Backbone%20Fiber%20Expansion/eastgate-regional-broadband-feasibility-study-final-version.pdf?download=false.

- **Applicability to the Ashtabula County:** There are 50 community anchor organizations in Ashtabula County education, healthcare, emergency services, and more. In this model, instead of local anchor institutions leasing dark fiber from the community (as in the model above), the Ashtabula County would directly provide connectivity to those anchor institutions. As a result, instead of a monthly "lease" fee, the anchor institutions would pay a monthly "service" fee to the Ashtabula County, similar to any other broadband internet subscriber.

  If the Ashtabula County was to pursue this model, our same recommendations regarding ring structure and redundancy as provided above would apply.

3. Public-Private Partnership (P3)

- A traditional P3 model would fall on the "design-build-finance-operate-maintain" (DBFOM) spectrum. The private partner can be tasked with doing as much (or as little) along that spectrum as necessary for the project to be successful. For example:
  - the local government could be responsible for network financing and ownership, but contract with one or more private entities to design, build, operation, and maintain the network to reduce risk and cost; or
  - the private partner could be tasked with designing, building, financing, operating, and maintaining the network subject to clear key performance indicators; or
  - the private partner could be tasked with designing, building, and financing the network and would own the network and lease it back to the Ashtabula County (typically for a period of time aligning with the project financing); at such time network ownership would revert to the Ashtabula County and would be responsible for ongoing network operation and maintenance, typically through a third party contractor. The network could also revert back to the Ashtabula County in the instance that the private partner does not perform in accordance with the project schedule.
- P3s provide the local government with more control than traditional broadband network deployment approaches by tying lease and availability payments to clearly defined metrics, without the full project risk.
- P3s also leverage private sector capital *and* the public sector's ability to finance broadband projects with patient capital at low, long-term interest rates not traditionally available to private entities, which can make the network more affordable for local taxpayers.
- **It is important to note that there is no "one size fits all" P3 model; however, the distribution of risk and control between the public and private parties is of utmost importance.**

Additional options not listed here, but could be explored by the Ashtabula County, include municipal FTTH last mile providers, Cooperatives, and networks operated by non-profit organizations. A high-level legal review of any model being considered should be conducted to confirm compliance with any state or local laws. A comparison of these models is provided below:

	City-provided FTTH Network	City-provided Middle Mile Network	Open Access Network	Public-Private Partnership
Access to private capital for last-mile deployment				
Access to public finance tools (including bonding)				
Access to grant dollars				
City control last-mile deployment				
City control CAI deployment				
User revenue opportunity for City				
City bears reduced project risk				
Less capital investment required from the City				

Green = Pro
Red = Con
Yellow = Neutral

In summary

Ashtabula County is actively seeking partnerships with internet service providers (ISPs) to enhance broadband access across the region. Our approach will involve a phased deployment of broadband infrastructure, guided by available external funding opportunities and their respective timelines. Each phase will outline network route locations, targeted areas, lengths, and the number of unserved and underserved locations, along with data on household demand, results from community engagement, and planned digital literacy initiatives for the communities served in each phase.

Section 4

Financial Plan

Section 4. Financial Plan

Ashtabula County acknowledges that the BEAD program requires certification from a professional engineer confirming that the proposed network can meet performance standards for all served locations at the time of application. However, the County is not pursuing a municipal network; instead, we aim to partner with an Internet Service Provider (ISP) to identify key development areas and support them in meeting broadband delivery requirements. Our future plans focus on a fiber-to-the-home network with adequate capacity for the next 30 years. We recognize that investment needs and funding gaps will vary based on factors such as service area, population density, existing service availability, and distance to the middle mile, all of which are evolving as ISPs expand in their markets. We will work with the partner to ensure network feasibility, technical requirements, and reasonableness of costs based on the methodology outlined below.

The county does not intend to build, own, operate or maintain a municipal network, the budget projections for the areas of potential investment identified in section 3 were projected using the methodology outlined in this section.

A. Building for the Future

For planning purposes, broadband deployments must be treated like infrastructure projects. Much like water, sewer, and roads, broadband networks should be designed to last decades rather than years. Networks installed today should utilize technologies, materials, and design specifications that will deliver 30-to-40-year longevity. Networks also should have sufficient capacity to meet not only current needs but also those of 2055.

Given the capital costs and construction requirements for broadband, we recommend a planning window that starts in 2025 and continues through 2055. This timeline assumes a three-to-four-year deployment window which will vary based on project size, supply chain complexities and labor availability.

When home internet first became common, most households connected using landline modems that operated at 56 Kbps (0.056 Mbps). By 2000, speeds had increased to 1 Mbps. A decade later, a well-served household could expect 10 Mbps. The FCC's current 25/3 Mbps threshold was last relevant in 2012, when the average download speed reached 25 Mbps. Currently, someone living in a well-served area can expect at least 100 Mbps down/20 Mbps up. With remote work and learning, telehealth, and virtual reality quickly becoming mainstream, it is not difficult to imagine the average speed reaching 1,000 Mbps (1 Gbps) ten years from now. In fact, many internet providers already offer 1 Gbps and 2 Gbps plans with business connections and some residential connections routinely operating at 10 Gbps. Some backbone and middle mile networks already operate on 100 Gbps and 400 Gbps connectivity.

B. Budget Considerations

Building a fiber network involves three basic expenses: preparing utility corridors to support fiber optic cables for aerial installation (make-ready), installing fiber along those corridors, whether aerial or underground (cost-to- pass), and connecting individual homes and businesses to the new fiber (cost-to-serve).

1. Make-Ready

As part of any broadband deployment, electric utilities must modify or replace at least some of their poles to accommodate increased cable weight, wind and ice loads, and limited clearance between power lines and aerial communications cabling. These costs vary based on electric provider and the kind of cable being installed. A heavier cable may require more make-ready than a lighter one.

Make-ready costs can vary significantly from one utility provider to another. In this report, we assume a make-ready of $25K to $55K per mile to accommodate high strand count cables that require strand-and-lash support. This figure is approximately what it would cost to build an independent communications pole network as a last resort, should ISPs and local utilities be unable to reach an acceptable agreement.

2. Cost-to-Pass

Fiber optic comes in a wide range of styles, from lightweight household drop lines to high-capacity, armored cable sheaths that bundle hundreds of fiber strands together to carry massive amounts of data. Household drop fiber is inexpensive and puts less strain on utility poles, but it has limited capacity. Broadband speeds have increased 10-fold every decade since 1990. To ensure that a fiber network built today remains useful 40 years from now, this report assumes the use of high strand count cables.

While a provider could deliver rural broadband that meets current state and federal speed requirements using only low strand-count household drop cable, such a network would offer little flexibility to expand services or increase speeds as demand rises. Material and labor costs for high strand-count fiber are estimated at $60K to $65K per mile.

3. Cost-to-Serve

Cost-to-Serve is the end cost of connecting an individual home or business to the nearest utility pole. This is a cost that is typically absorbed by ISPs and is not included in budget estimates.

C. Cost Estimates

Cost estimates in the areas for potential development in section 3 were calculated using a variety of metrics to determine the investment needed to serve the homes in the project area.

- **Fiber Miles:** Fiber distance is based on the number of unserved state, county, local municipal and unincorporated road miles within the county.
- **Locations per Mile:** Total number of unserved households divided by the number of unserved state, county, township, and unincorporated road miles.
- **ISP Investment:** This is the total an internet provider can spend to install fiber and still make a profit, estimated between $1000 and $4000 per household. As population density goes down, costs go up while expected investment remains the same
    - Calculated: *Households in Service Area * Investment per household*
- **Investment Range:** The Project area Investment Range represents the lowest cost to the highest cost of to serve the total number of locations that are identified as below 100/20 Mbps the entire Project area. In most cases the lowest cost represents aerial fiber deployment and the highest cost represents underground fiber deployment. For the individual counties, it is the average of the lowest and cost of each project area.
    - The total cost for each project area is the sum of make-ready and cost-to-pass multiplied by the number of unserved state, county, township, and unincorporated road miles.
    - Calculated: *Unserved Miles * (Make-Ready + Cost-to-Pass) + (Number of locations * Network electronics)*
        - *Fiber Miles to Reach Target * Cost per Mile = Cost to Pass*
- **Funding Gap:** The funding gap is the difference between the total cost of the project and the available or anticipated private investment. For an internet service offering to be sustainable, grant or other public funding must be used to close this gap.
    - Calculated*: Funding Gap = Total Projected Cost - ISP Investment*

Appendix

Appendix

A. Eastgate Regional Broadband Study, June 4 2021

B. OSU Extension Broadband Survey, 2024

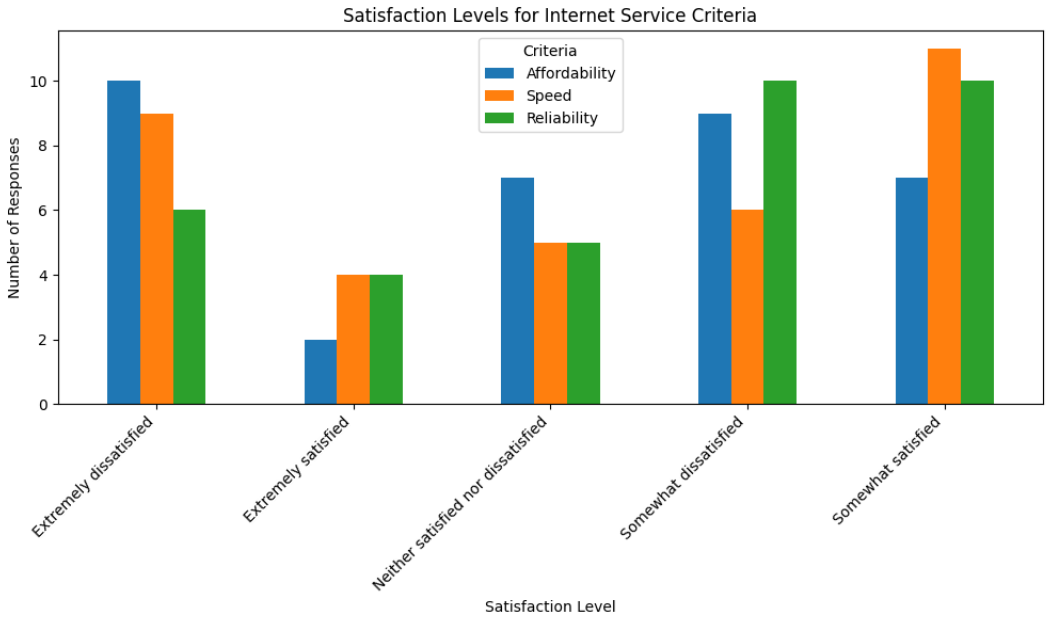
C. Ashtabula County Community Health Report, 2022

D. Ashtabula County Community Needs Assessment, 2023

E. Broadband Infrastructure Survey July 19, 2024 Results

The survey conducted in Ashtabula County concluding in July of 2024 reveals a diverse range of internet service providers and a significant number of connected devices in households. **Spectrum** emerges as the most common primary internet provider, serving 17 respondents. Other notable providers include **Windstream** with 7 users, **Brightspeed (formerly CenturyLink)** with 4 users, and **AT&T** and **Starlink**, each serving 2 respondents. Additionally, there are a few users of **Zito** and **Verizon** fixed home internet services, along with some respondents indicating other providers or uncertainty about their provider.

In terms of connected devices, households report a variety of gadgets that rely on internet connectivity. The majority of respondents have multiple devices, with many homes having **2 to 4 working computers, tablets, or iPads**. Smart phones are also prevalent, with most households owning **2 to 3 smart phones**. Beyond these, other internet-connected devices such as TVs, gaming consoles, smart home devices, and medical equipment are common, with several households reporting **3 to 6 such devices**. Some homes even have a higher number of connected devices, indicating a significant reliance on internet connectivity for various aspects of daily life.
Overall, the survey highlights the critical role of internet service providers in supporting the connectivity needs of Ashtabula County residents, who utilize a wide array of devices for communication, entertainment, education.



F. Oak Hill Collaborative Digital Equity Connectivity Grant Program, Project Proposal for Connect Humanity, 2024

Project 3 (Oak Hill)

Main Objective: The main objective of Project 3 is to leverage connectivity, digital skills, and device access to bridge the digital divide for Covered Populations in Mahoning, Trumbull, and Ashtabula Counties in Ohio. Oak Hill Collaborative, through its Oak Hill Digital Advantage Initiative, will conduct the following activities:

Activity 1: Digital Literacy Skills Training - Oak Hill Collaborative will provide at least 6,000 classroom hours of digital skills training annually throughout the grant period, plus 500 hours of Digital Navigation training, which will be implemented through conducting 30 classes per week from 15 sites located strategically to maximize geographic accessibility for participants. The 15 class sites involve three (non-federal) prisons and a community corrections agency, community action agencies and housing authorities, a network of primarily inner-city churches, local senior citizen centers, veteran's organizations, and a number of local non-profit organizations' offices. The digital skills training classes will cover basic through advanced computer use, including online safety and security, as well as, introduction to Chat GPT and AI, website creation, programming, and Excel. The curricula will also incorporate workforce development/job readiness training.
Timeframe: Ongoing, Years 1-4.

Activity 2: Device Distribution - Oak Hill Collaborative will provide at least 1,000 computers for covered populations each year for 4 years. Some computers will be provided for free after participants have successfully completed certain quantity and coursework level milestones, while other computers will be sold at deeply discounted prices ($200 or less) to provide broader access to affordable computing and connection devices. **Timeframe:** Ongoing, Years 1-4.

Project 3 will address the following **barriers to digital equity**:

Digital Literacy. Among unemployed individuals in Mahoning, Trumbull, Ashtabula Counties, nearly 1/2 lack foundational digital literacy skills (National Digital Inclusion Alliance, 2024). In 2019, Ohio had one of the highest adult imprisonment rates among all 50 states, ranking 39th with 430 adults per 100,000 population serving sentences in state or federal prisons. The State Digital Opportunity Plan notes that there is a need for in-prison and reentry digital skills and literacy programming to navigate life upon reentry, particularly to find employment and access other support services that may only be available via a long drive or remotely.

Awareness of, and the use of, measures to secure the online privacy of, and cybersecurity with respect to, an individual. This is of particular concern among Aging Individuals; based on feedback from listening sessions conducted by Broadband Ohio, older Ohioans and the organizations representing them indicated a sense of fear or mistrust with technology and engaging online, especially around becoming the target of scams.

The availability and affordability of consumer devices and technical support for those devices. Mahoning, Trumbull, Ashtabula Counties are part of Appalachian Ohio where only 69.7% of households have access to a laptop or desktop (compared to 72.9% across the US and 78.1% in non-Appalachia Ohio) and where 11% of residents lack any computing device at all, including a smartphone (compared to 6% across the US and 6.5% in non-Appalachia Ohio) (Appalachian Regional Commission, 2023). This barrier number is even higher for Covered Households (Benton Institute for

Broadband, 2023). According to the Ohio Digital Opportunity Plan, many individuals within covered populations report that they cannot afford a device, and those who have devices say they are old or unreliable, but they are unable to afford to upgrade them. This is of particular concern among English Language Learners: "The majority of English language learners who responded to Ohio's Internet Access Survey (79%) prioritize having access to a device where they live, yet only 48% believe they have sufficient device access in their homes. When English language learners don't have access at home, they feel uncomfortable going to places for support that don't speak their language."

The Oak Hill Collaborative and Project 3 will promote **(1) economic stability**, with a focus on digital skills building, **workforce development**, and 1:1 Digital Navigator counseling. By facilitating and leveraging device connectivity as well as digital navigation skills, it will also provide more Ohioans with greater **(2) access to quality education**; increased **(3) access to healthcare**; and **increased (4) opportunities for social and civic engagement.**

Near-term outcomes: The anticipated near-term outcome of Project 3 is a measurable and significant increase in digital skills, digital literacy, and connectivity for Covered Populations.

Long-term outcomes: The intended long-term outcome of Project 3 is the placement of the project's participants in well-paying jobs, leading to greater economic mobility and stability.

1) Proposed data collection and analysis procedures: Data will be collected using pre- and post-training tests and surveys. Data will be securely collected and entered into Connect Humanity's DITTO data management platform. Survey data will be analyzed using sentiment analysis and word clouds methodologies.

2) Evaluation frequency and scope: Evaluation will be conducted quarterly and annually, in alignment with trainings' start and end dates. The scope of the testing will cover all the main skills relating to basic through advanced computer use skills, Chat GPT and AI, website creation, programming, and Excel skills. The scope of the surveys will cover issues relating to employment success and the training experience. The number of Internet connectivity devices/computers provided will also be measured against a target of 4,000 over the four-year grant period.

3) Plan for continuous improvement: The thoroughness and frequency of surveys will provide ongoing input and feedback from training participants and other stakeholders to inform continuous improvement and customization of this project, thereby maximizing its effectiveness and sustainability.

Project 3 aligns directly with **Ohio's Digital Opportunity Plan**, specifically regarding:

Goal 1: Continued Stakeholder Engagement, specifically addressing the following **Strategy: Support sustainable, effective digital inclusion programs, services, and other resources, with a special emphasis on the Covered Populations.** Project 3 (Oak Hill) addresses this Strategy via *Activity 1: Digital Literacy Skills Training* and *Activity 2: Device Distribution*. To support the related Objectives, Project 3 (Oak Hill) commits to sharing data on Ohioans engaged by digital opportunity outreach efforts. Another Objective for the State to include at least one digital inclusion asset in each of Ohio's 88 counties listed in Ohio's FINDER tool. Project 3 commits to engaging the State to list the training and device distribution assets.

Goal 4: Increase Access to Digital Skills Training and Technical Support, including Training and Support around Privacy, Security & Safety, specifically addressing the following **Strategy: Support sustainable, effective digital skills training programs, with a special emphasis on Covered Populations.** Project 3 (Oak Hill) supports this via *Activity 1: Digital Literacy Skills Training.* To help ensure that Ohio meets its objectives, Project 3 (Oak Hill) commits to engaging BroadbandOhio and the Regional Digital Inclusion Alliance (Northeast Ohio, led by The Cleveland Foundation) to inform the ongoing alignment of activities and support.

Goal 5: Increase Access to Affordable Devices, specifically addressing the following **Strategy: Develop a statewide device ecosystem to ensure that low- or no-cost devices are available to community organizations to meet the needs of Ohioans statewide.** Project 3 (Oak Hill) addresses this Strategy via *Activity 2: Device Distribution*. The State Plan includes a key objective of increasing the percentage of Ohioans with access to enough devices to meet household needs from 66% to 83% by year five. To support this objective, Project 3 (Oak Hill) will provide data and insights around its device distribution program and will participate in a State-led refurbished device effort.

It is worth noting that the Ohio Digital Opportunity Plan includes reference to Oak Hill Collaborative as a "scalable solution," noting that the "Digital Advantage Initiative provides critical resources for closing the digital divide in a one-stop shop in this otherwise under-resourced region."

The geographies to be served include Mahoning County (Transitional), Trumbull County (At-Risk), and Ashtabula County (At-Risk), Ohio, and particularly distressed areas in the urban centers of Youngstown, Campbell, Girard, Niles, Warren, and Ashtabula, Ohio. Per the Appalachian Regional Commission: "Transitional counties rank between the worst 25 percent and the best 25 percent of the nation's counties. At-Risk counties are those at risk of becoming economically distressed. They rank between the worst 10 percent and 25 percent of the nation's counties. ARC assigns the "distressed area" designation to census tracts in at-risk and transitional counties that have a median family income no greater than 67 percent of the U.S. average and a poverty rate 150 percent of the U.S. average or greater."

Outputs will include:

Overall Project: 5,000 participants will be enrolled and supported.

Activity 1: Digital Skills Training – 5,000 clients will be served with 24,000 hours of training in digital skills and 2,000 hours of digital navigation counseling over the four years.

Activity 2: Device Distribution – At least 4,000 connectivity devices will be distributed to participants over the four years, of which some will be free based on completed coursework milestones, while others will be sold at deeply discounted prices ($200 or less) to provide access to affordable computing and connection devices.