Annual Report of the
Governor's Task Force on Broadband

This document contains the Task Force's 2020 Annual Report with recommendations for policy makers and stakeholders to consider in the 2021 legislative session.

December 2020

Contents

Letter from the Chair

December 30, 2020

Governor Tim Walz
Speaker of the House Melissa Hortman
House Minority Leader Kurt Daudt
Senate Majority Leader Paul Gazelka
Senate Minority Leader Susan Kent
MMB Commissioner Jim Schowalter

Cc:
Senator Torrey Westrom
Commissioner Steve Grove
Representative Gene Pelowski
Members of the Governor's Taskforce on Broadband

We are pleased to submit the 2020 report of the Minnesota Governor's Task Force on Broadband.

Governor Walz created the Task Force to put forward recommendations and policies to help ensure all Minnesotans have access to high-speed broadband, no matter their zip code. The blend of background, knowledge, and passion of the members of the Task Force made for a perfect mix of individuals to analyze the current state of broadband in Minnesota and make recommendations, as necessary.

The Task Force began monthly meetings in December 2019 and have continued through December 2020. The group divided itself into three sub-committees to tackle specific issues, hear from experts and recommend topics to the larger Task Force so we were efficient with our time. The three sub-committees included the Minnesota Model sub-committee focused on evaluating funding and policies, the Barriers and Technology sub-committee focused on investigating current barriers to deployment and the various technologies and the Economic Development and Digital Inclusion sub-committee focused on illuminating the economic and social benefits available to communities with good broadband access and adoption, and the challenges of those without. In March of 2020, the team was forced to switch to virtual meetings after the pandemic became a serious threat to all. However, I am proud to report that the team worked through the issues and continue to maintain a monthly cadence despite missing the face to face interactions.

During the last several months, we have heard from various speakers including broadband providers, technology experts, mayors, analysts, legislators, and the Governor. We are extremely thankful to all that took the time to address the group and share their knowledge, expertise, and expectations.

As you read through this report, I want you to know that members spent considerable time listening to each other to formulate robust points of view. You will find a series of recommendations and considerations around funding, mapping, speed goals, barriers to remove, and practices that can be implemented in the near future to accelerate broadband deployment in the great State of Minnesota. I would be remiss not to call out the support that enabled the Task Force to do its work efficiently and effectively. The chair recruited a Task Force member and two additional volunteers from the private sector to act as writers for each of the subcommittees and the full council report. The addition and integration of these three has helped bring together the collective ideas of the Task Force allowing the group to focus on content versus writing and recording. Many thanks to Steve Fenske, Cassie Lovelle and Ann Treacy for their countless hours and tireless work. The Broadband Task Force also benefited from its administrative support within DEED. Many thanks to Diane Wells, Angie Dickison, Deven Bowdry, and DEED Commissioner Steve Grove.

Should any of you or your committee members have questions about the report, please let us know. We look forward to seeing the recommendations adopted.

Respectfully submitted,

Teddy Bekele
Chair, Governor's Taskforce on Broadband

Task Force Members and Report Vote

Member Name	Company or Association	Vote
Teddy Bekele (Chair)	Land O'Lakes	Yes
Yvonne Cariveau	Minnesota State Mankato	Yes
Nolan Cauthe	CenturyLink; CWA Crew Steward	Yes
Dale Cook	Learn to Live	Yes
Steve Fenske	Minnesota Association of Townships	Yes
Steve Giorgi	Range Association of Municipalities & Schools	Yes
Marc Johnson	East Central Minnesota Educational Cable Cooperative	Yes
Bernadine Joselyn	Blandin Foundation	Yes
Brian Krambeer	MiEnergy Cooperative	Yes
Micah Myers	City of St. Cloud	Yes
James Weikum	Arrowhead Library System	Yes
Paul Weirtz	AT&T Minnesota	Yes
Jason Hollinday	Fond du Lac Band of Lake Superior Chippewa	Absent
Theresa Sunde	Mediacom	Absent
David Wolf	Gardonville Coop Telephone Association	Absent

Executive Summary

Minnesota's approach to broadband infrastructure development and deployment is regarded by many as best in class and considered as a model to follow. The key components that make it so successful are the Border to Border grant matching program, the mapping capabilities, the realistic and forward-looking internet speed goals, and the Office of Broadband Development (OBD). To maintain the leadership position Minnesota has created for itself, the Task Force has evaluated the effectiveness of the program and recommends a number of adjustments to ensure continued progress and guarantee that all Minnesotans have access to adequate broadband service in this new digital age.

The Broadband Grant Program should maintain priority on the 157,000 unserved households as they are unlikely to get service without the grant program. After careful review of the estimated cost to serve those households and applicable federal programs, the Task Force has found that it would be best to continue to fund the Broadband Grant Program at a biennial amount of $120 million. The State should fund the Border-to-Border Broadband Grant Program as a part of the base budget each year to ensure continued progress unhindered by surpluses or deficits which have caused inconsistent funding. The Task Force has also determined that all future awards and expenditures must be on service that meets or exceeds the 2026 speed goal of 100 Mbps download and 20 Mbps upload.

Recent analysis has shown that the State is narrowing in on achieving the 2022 goal and as of October 2020, 92% of Minnesotans have access to broadband at speeds of 25/3 Mbps. More importantly, Minnesota has also made great progress toward its 2026 goal with 88% of Minnesotans having access to broadband speeds of 100/20 Mbps. Rural broadband connectivity has also increased in the last five years. Access to speeds of 25/3 Mbps broadband has increased 21% since 2015. Access to 100/20 Mbps increased 124% as internet service providers are installing services that exceed the 2022 speed goal. While progress continues toward the 2022 goal, rural broadband availability is still 9% below the statewide percentage and the data continues to show a stark 'digital divide' when statewide broadband availability data is compared to rural data. Furthermore, the pandemic has revealed that 3 Mbps upload speed is inadequate to support remote business and education needs and can no longer be considered high-speed broadband. The increase in demand for broadband services during the global COVID-19 pandemic suggest that it is time again to revisit the state's broadband goals. In the coming year, the Task Force intends to study the extent to which current upload speeds meet the demands of internet users, the cost and infrastructure required to deploy symmetrical service, potential changes to the mapping process, and overall future speed goals for the State.

The Office of Broadband Development (OBD) administers the Border to Border Broadband Grant Program and works with partners on mapping broadband availability to more effectively direct state investment. The Office is a key resource for broadband providers and community leaders. The Taskforce recommends the Office of Broadband Development receive an appropriation of $700,000 per biennium from the base budget. This figure is needed to secure sufficient and ongoing funding for consistent operations and establishment of long-term partnerships and initiatives. Providing OBD with full funding, on an on-going basis is critically important to improving broadband infrastructure in Minnesota. In addition to the operations budget, the Task Force also recommends the creation of an operating annual fund of $1.5 million to promote digital literacy, provide affordable broadband access and improve the fluency of small businesses. Research shows that investing in broadband adoption is just as critical and ensures that communities maximize the benefits of the available broadband infrastructure.

Finally, the Minnesota Broadband Task Force along with the Office of Broadband Development encourages the engagement of state agencies to develop a strategy that will improve communications between the agencies and private internet service providers, eliminate or minimize cable cuts or disruption, and also consider a plan to connect the more challenging rural locations of Minnesota to assure Minnesota is truly a "connected state".

Broadband connectivity has become a necessity in our everyday lives. Minnesota families find themselves working from home, their children participating in distance learning by connecting and completing assignments virtually, interacting with healthcare professionals digitally and finding new ways to connect with loved ones online. For Minnesotans

struggling to keep pace with the virtual world, it has been a sprint to increase their digital literacy and discover what options were available to them. The Task Force believes that the recommendations set forth in this document will help expedite broadband deployment to those who are currently un-connected as well as improve the service of those who are currently experiencing inadequate service. The Task Force has also included a comprehensive overview of all the different broadband technologies currently available in the market. A description of these technologies is included in the last section of this report.

We urge the Governor and the Legislature to carefully review the information submitted in this document and adopt the recommendations presented for consideration.

List of Recommendations

The Minnesota Governor's Task Force on Broadband views all recommendations as important for consideration. The following recommendations appear throughout the report, in line and with relevant context. They are listed here, without context, for easy reference.

Recommendation #1   Continue to fund the Broadband Grant Program at a biennial amount of $120 million from the base budget each year and ensure that all future expenditures must be on service that meets or exceeds the 2026 speed goal of 100 Mbps download and 20 Mbps upload.

Recommendation #2   The Taskforce recommends the Office of Broadband Development receive an appropriation of $700,000 per biennium from the base budget. That figure is OBD's estimate of funding needed to maintain current operations.

Recommendation #3   Create an Office of Broadband operating annual fund of $1.5 million to promote broadband adoption and use and redress digital inequity.

Recommendation #4   Given the condensed construction season in Minnesota, it is critical that permits are issued promptly. The state should convene a working group comprised of all state agencies relating to broadband construction permitting to streamline the process, both in time to issue the permits as well as the permit application process.

Recommendation #5   There needs to be more oversight of railroad facilities by the Office of Pipeline Safety. Railroads need to be required to locate their own facilities and need to be encouraged to issue permits promptly.

Additional Considerations

The Minnesota Broadband Task Force recognizes that broadband access and adoption is foundational to many public policy goals and to our state's overall health and prosperity into the future. Broadband is a necessary (but not sufficient) means to the end of a better, stronger, One Minnesota. Therefore, the Task Force lends its support to the following recommendations from other state agencies and entities that will further Minnesota's efforts to meet our state's statutory broadband goals:

1. Fully fund the Telecommunications Access Equity Aid (TEA) program (by raising the funding cap to at least $9 million) in order to allow school districts to equitably procure the Internet and network bandwidth needed to fully support digital learning. This state aid benefits school districts by making access to broadband more affordable by fully funding the eligible costs of the federal E-rate program.

2. Ensure adequate continued funding for the Regional Library Telecommunications Aid (RLTA) program. Under the RLTA program, Minnesota public libraries receive state support to help pay for high-speed Internet services and related equipment. Internet access is mission critical for public libraries.

3. Establish a $1M grant program that incentivizes counties and municipalities to make their websites accessible. Accessibility Grant Advisory Council, in partnership with the Minnesota Council on Disability, would award grants to cities and counties to make websites and digital content accessible for all. Accessible websites allow for transparency in government and enable Minnesotans with disabilities to have equal access to vital services and employment opportunities from local government.

4. Participate in efforts underway by health care leaders across the state to develop a public-private, statewide telepresence strategy to maximize telehealth resources, support systems integration and collaboration, reduce spending, advance health equity, and improve population health.

5. Support the work of the Connected and Automated Vehicles (CAV) Office of the Minnesota Department of Transportation to develop a strategy, in partnership with telecom providers, to advance CAV innovation in the state. Wired fiber installation is key to CAV and could help leverage public and private expansion into underserved areas.

Introduction

Minnesota has established itself as a national leader and model for broadband infrastructure development. Minnesota's legislatively created broadband goals, development office, mapping and grant program are frequently referenced as "the Minnesota Model" by other state and federal policy makers looking to assure the needs of their citizens in the ever-burgeoning connected world. Minnesota's leadership is characterized by a statutory framework, key components of which include (1) realistic, forward-looking internet speed goals; (2) an Office of Broadband Development (OBD) within the Department of Employment and Economic Development charged with numerous broadband planning and coordination responsibilities, including supporting the Governor's Task Force on Broadband; (3) broadband deployment mapping capabilities to accurately plan, monitor and track broadband infrastructure; and (4) the Border-to Border Broadband Development Grant Program to provide matching funds for broadband infrastructure deployment in unserved and underserved areas.

The model is technology-neutral, allowing broadband service providers and communities choice in the means of delivering broadband services. The model strives for geographic equity, distributing funding throughout the State.

The Minnesota Model is successful enough to be imitated, but its success depends on funding. Many states have adopted a state broadband program, and many of those followed the Minnesota Model. To maintain the leadership position Minnesota has created for itself, the Task Force must continue to evaluate the effectiveness of the model, new challenges presented, and make necessary adjustments to the model to ensure continued progress toward the State's broadband goals.

Border-to-Border Broadband Development Grant Program

Created by the Minnesota Legislature in 2014, the Minnesota Border-to-Border Broadband Development Program funds the expansion of broadband service to areas of Minnesota that are unserved or underserved. An underserved area is an area "of Minnesota in which households or businesses lack access to wire-line broadband service at speeds of at least 100 megabits per second download and at least 20 megabits per second upload." Minn. Stat. § 116J.394(h). An unserved area is one in which households or businesses lack access to wire-line broadband service with transmission speeds of at least 25 Mbps download and 3 Mbps upload. Minn. Stat. § 116J.394(i) (2017); see Minn. Stat. § 116J.39. subd. 1(b) (2017).

The Border-to-Border Broadband Development Grant Program can pay up to 50 percent of the broadband development costs for a qualifying project[1], including the acquisition and installation of middle-mile and last-mile infrastructure that support broadband service scalable to speeds of at least 100 Mbps download and 100 Mbps upload. Each grant is capped at $5 million per project.

Last mile infrastructure is broadband infrastructure that serves as the final leg connecting the broadband service provider's network to the end-use customer's on-premises telecommunications equipment. Middle mile infrastructure is broadband infrastructure that links a broadband service provider's core network infrastructure to last-mile infrastructure.

Construction of broadband infrastructure may include any of the following: project planning; obtaining construction permits; construction of facilities, including construction of both "middle mile" and "last mile" infrastructure; equipment; and installation and testing of the broadband service.

---

[1] During the first four years of the Broadband Grant Program, $85.2 million in funding was awarded, in turn leveraging $110.6 million in matching local and/or private investments. The investment provided service to more than 34,000 households, 5,200 businesses, and 300 community institutions across Minnesota.

The grant program is designed to foster collaboration between public and private organizations and the leveraging of public funds. Eligible organizations include:

1. Incorporated businesses or partnerships
2. Political subdivisions
3. Indian tribes
4. Minnesota nonprofit organizations organized under chapter 317A
5. Minnesota cooperative associations organized under chapter 308A or 308B; and
6. Minnesota limited liability corporations organized under chapter 322C for the purpose of expanding broadband access.

While the program is set up to provide dollar-for-dollar matching funds to grant recipients, it is not uncommon for grant recipients to commit more than 50 percent of the total project cost thereby further leveraging state dollars. Appendix F includes a map of all projects funded by the Program from 2014 to 2019.

Recommendation #1   Continue to fund the Broadband Grant Program at a biennial amount of $120 million from the base budget each year and ensure that all future expenditures must be on service that meets or exceeds the 2026 speed goal of 100 Mbps download and 20 Mbps upload.

- The $120 million is based on the Task Force's estimate of the State funding that will be required to achieve its 2022 goal as set forth on the table below:

Estimated Cost to Achieve 2022 Goal of 25/3 Service

Unserved households	157,000
Ave. Cost of Connection	$ 5,527
Total Cost	$ 867,739,000
State's share of cost (50%)	0.5
States total cost to connect unserved homes	$ 433,869,500
Number of years to achieve 2022 goal	2.00
States annual cost to connect unserved households	$ 216,934,750
Remaining CAF II Funding (2020)	$ 2,896,571
ACAM (2020) (.667)	$ 43,355,000
ACAM 2021	$ 65,000,000
RDOF[2]	$ 32,652,059
Total Federal Funds	$ 143,903,630
State's annual cost for unserved homes	$ 73,031,120
Admin Cost factor (.03)	$ 75,222,053
Biennial amount (2x)	$ 150,444,107

- The State should fund the Border-to-Border Broadband Grant Program as a part of the base budget each year. Past allocations to the Border-to-Border Program have been from surplus funds, which caused inconsistent (or no) funding year-to-year.
- There is continuing need for funding from the Border-to-Border Broadband Grant Program, as requests for funding have exceeded funds available each year. It is a successful program, increasing broadband deployment in places where ISPs cannot do it alone. The chart below details the history of applications for Broadband Grant Program awards in each year in which funding was provided. The funding amounts requested consistently exceeds the amount available in the program, demonstrating the interest in the Program by ISPs.

---

[2] Amount listed here is 80% of the total RDOF funding awarded in the first round of funding to account for the possibility that the some of the preliminary grants will not be awarded after the final applications have been reviewed.

Year	Applications Received	Applications Awarded	% of Applications Funded	Amount Requested	Amount Awarded	Locations Served
2014	40	16	40%	$44,215,664	$18,670,337	6,333
2015	44	15	34%	$29,063,436	$11,008,366	4,098
2016	57	40	70%	$54,228,825	$29,040,896	16,708
2017	70	39	56%	$50,348,055	$26,475,556	12,202
2019	80	30	37%	$67,809,312	$23,270,933	10,938
2020	64	TBD	TBD	$42,038,096	TBD	TBD

- The Broadband Grant Program should maintain priority on the 157,000 unserved households, as they are unlikely to get service without the grant program. All future expenditures must be on service that meets or exceeds the 2026 speed goal of 100 Mbps download and 20 Mbps upload.

Mapping and Progress Toward Speed Goals

The Office of Broadband Development has contracted with Connected Nation for the development of broadband service maps. The accuracy of the broadband service maps is of the utmost importance to the Broadband Development Grant Program, communities, and industry. There are significant challenges in accurately mapping broadband service at the address level, in part because of the way in which ISPs are asked to report their services[3]. The Minnesota Broadband Task Force recommends no action on mapping changes and will reassess mapping when the Connected Nation contract is up for renewal next year

State Speed Goals and Their Availability

In 2016, the Minnesota Legislature established a two-pronged state goal for broadband access. Minn. Stat. §237.012. First, the Legislature established a near-term goal that by no later than 2022 all Minnesota businesses and homes have access to high-speed broadband that provides minimum download speeds of at least 25 megabits per second and minimum upload speeds of at least 3 megabits per second (25/3 Mbps). A longer term goal was also established – that by no later than 2026, all Minnesota businesses and homes have access to at least one provider of broadband with download speeds of at least 100 megabits per second and upload speeds of at least 20 megabits per second (100/20 Mbps). We are narrowing in on achieving the 2022 goal and as of October 2020, 92% of Minnesotans have access to broadband at speeds of 25/3 Mbps. Minnesota has also made great progress toward its 2026 goal with 88% of Minnesotans having access to broadband speeds of 100/20 Mbps.

Minnesota has progressed toward the 2022 speed goal of 25/3 Mbps in rural areas at a rate of about 4.2% per year compared to 1.48% statewide. Progress toward the 2026 goal of 100/20 Mbps is faster, at a rate of 15.54% per year since 2015 in rural areas compared to 24.78% statewide. The annual growth rate toward the 2022 goal is lower than the growth rate for the 2026 goal. As the state closes in on achieving the 2022 goal, the growth rate naturally is decelerating. The rural growth rate toward the 2022 goal exceeds the growth rate for the rest of the state as unserved areas in Minnesota are concentrated in rural parts of the state. The annual growth rate toward the 2026 goal in rural areas lags behind the statewide growth rate. Additional investment in the Minnesota Model will accelerate progress toward the 2026 goal and minimize the lagging growth rate in rural areas.

Progress toward the 2022 speed goal of 25/3 Mbps does not necessarily lead a community closer to the 2026 goals of 100/20 Mbps because there are technologies that meet the 2022 goals but do not scale to the 2026 goals of 100/20 without significant additional investment. Kanabec County is one example.

Kanabec County broadband advocates have been active in trying to improve broadband access; their efforts have not been rewarded. The county has seen some improvement over the years; it is evident that some CAF II investments made after 2017 increased access to 25/3 Mbps but not to 100/20 Mbps.

Kanabec County	2020	2019	2018	2017
100/20 (2026 goal)	26.41%	26.93%	38.54%	26.07%
25/3 (2022 goal)	60.75%	66.05%	67.07%	34.04%

---

[3] The FCC Form 477 requires providers report service area by census block, and many providers report the census block as being served by whatever top speed they can deliver in the census block. If one location in the census block is served, then the current FCC policy allows the whole census block to be reported as served. This produces inaccurate mapping at the Federal level. For state mapping, providers participating in the mapping effort generally identify the boundaries of where they can serve and at what speeds. For fiber and cable service, the speed does not vary so the mapping and speeds reported tend to be accurate. For DSL service, a broadband signal degrades the longer it travels over the copper wire. Addresses with a shorter copper wire will report higher service speeds, whereas those addresses with longer copper wire will report lower service speed. Because of the variability in DSL service speeds, some DSL-providers use "rules of thumb" to report the speed available. A "rule of thumb", for example, may be the fastest speed they can offer in the census block or a radius from the neighborhood fiber node. This may also lead to inaccurate or less reliable mapping data.

Supporting maps are located in Appendix 'D' and illustrate[4]:

1.   The areas of the state that are unserved, underserved and served
2.   The % of households served by wireline broadband service by county at speeds of 25 Mbps/3 Mbps
3.   The % of households served by wireline broadband service by county at speeds of 100 Mbps/20 Mbps.
4.   The % of households served by wireline broadband service by school district at speeds of 25 Mbps/3 Mbps

The chart below, based on Office of Broadband Development (OBD) historical data, shows how much progress has been made in Minnesota toward narrowing the 'digital divide'.

Historical Estimate of Wireline Broadband Service Availability Statewide and in Rural Areas of Minnesota

Date	25 Mbps / 3 Mbps (2022 Goal)		100 Mbps / 20 Mbps (2026 Goal)	
	Statewide	Rural	Statewide	Rural
February 2015	85.83	68.08	39.14	40.68
July 2016	87.72	72.24	68.45	48.93
October 2016	87.53	72.03	68.53	49.33
April 2017	87.94	73.07	69.86	52.46
October 2017	88.11	73.45	70.04	52.88
April 2018	90.77	79.26	73.66	58.99
October 2018	91.13	80.07	74.11	60.05
April 2019	92.70	83.71	85.98	68.43
October 2019	92.79	83.92	86.10	68.74
April 2020	92.19	82.39	87.64	72.28
October 2020	92.47	83.10	87.75	72.53

Rural broadband connectivity has increased in the last five years. Access to speeds of 25/3 Mbps broadband has increased 21% since 2015[5]. Access to 100/20 Mbps increased 124% as internet service providers are installing services that exceed the 2022 speed goal. While progress continues toward the 2022 goal, rural broadband availability is 9% below the statewide percentage[6] and the data continues to show a 'digital divide' in Minnesota when statewide broadband availability data is compared to rural data. The numbers of "unserved" and "underserved" in rural Minnesota are greater.

OBD also measures the availability of one speed tier of service higher than the 2026 broadband speed goal – symmetrical 1Gbps service. While deployment of 1Gbps broadband service is limited, OBD historical data shows that it is available to 25% of the state. The Task Force considers this a positive sign for the future of broadband deployment.

Deployment of 1Gbps service is not geographically uniform and generally depends on several factors, including consumer demand for the service and the available capital of the local provider. The Task Force recommends OBD continue to monitor deployment of 1Gbps services in Minnesota.

Rural Digital Opportunity Fund

On December 7, 2020, the FCC announced the intended allocation of $9.2 billion to providers to serve rural areas through the Rural Digital Opportunity Fund (RDOF). More than $400 million was allocated for distribution in Minnesota

---

[4] Additional maps can be found at: https://mn.gov/deed/programs-services/broadband/maps/general-maps.jsp
[5] Historical Estimate of Wireline Broadband Service Availability in MN; Connected Nation; Apr. 2020 (https://mn.gov/deed/assets/historic-targeted-speed-tiers_tcm1045-190761.pdf).
[6] Id. (https://mn.gov/deed/assets/historic-targeted-speed-tiers_tcm1045-190761.pdf).

over the next 10 years. The RDOF program is a major Federal investment in rural broadband infrastructure development, but it cannot yet be considered an investment in Minnesota's rural broadband infrastructure. The initial awards were allocated using a short-form application, but winning providers must produce adequate long-form applications and proofs of their ability to deliver adequate service to receive the funding. The long-form applications and proofs are not due until January 29, 2021 and the FCC is likely to take months to review the applications.

At this time, the RDOF awards are preliminary awards only, and there is concern some providers will not be able to secure the funds awarded to them in the initial grant allocation. Because of the uncertainty of the preliminary awards in the RDOF program, the Task Force urges OBD to move forward with the process of awarding state grants despite the FCC's announcement. Given the uncertainty in the RDOF program, that ISPs have shovel-ready projects, Minnesota has a brief construction season, and the commitment to delivering broadband service to all Minnesotan's as described in statute, the State should continue to move forward with its successful infrastructure development program.

Other Federal Investments in Rural Broadband

Federal funding from the Connect America Fund (CAF II program) is coming to an end in 2020, but funding from the Alternative Connect America Cost Model (ACAM) will continue through 2026. We estimate the annual amount coming into Minnesota from this program at approximately $65 million per year. It should be noted that CAF II funding is not guaranteed to provide broadband infrastructure at state speed goals, as the CAF II program allows deployment of broadband service at speeds as low as 10/1 Mbps[7].

Federal funding was also provided by the Coronavirus Aid, Relief, and Economic Security (CARES) Act, passed by Congress and signed into law in March 2020, which provided more than $2 trillion in economic stimulus to address the pandemic. Among its provisions, the Act created the Coronavirus Relief Fund (CRF), designating $150 billion for payments "to state, local, and tribal governments navigating the impact of the COVID-19 outbreak." Minnesota received $1.87 billion in direct appropriation from Congress, with the stipulation that any money not spent on pandemic related costs before December 30 must be returned to the U.S. Treasury.

According to a study by Pew Research, some states chose to use these funds to organize state-wide investments in broadband access and adoption. Those that did so focused on four specific needs:

- increasing access to online learning for K-12 and postsecondary students (Alabama, Connecticut, Idaho, Maryland, Maine, Michigan, Mississippi, Missouri, Nevada, North Carolina, Ohio, and Tennessee)
- supporting telehealth services (Idaho, Iowa, Missouri, Oregon, and Vermont)
- deploying more public Wi-Fi access points (Idaho, Arizona, Missouri), and
- investing in residential broadband infrastructure (Delaware, Idaho, Kansas, Mississippi, New Hampshire, and South Carolina started new programs. Vermont and Tennessee expanded programs).

Minnesota allocated $841 million of its CARES Act funds to local governments (counties, cities, and townships). Though the end-of-year deadline for using the money made funding infrastructure projects challenging, several counties used

---

[7] In 2015, the following providers accepted CAF II funding to improve broadband in Minnesota to speeds of at least 10/1 within six years: CenturyLink accepted $54 million annual support, Windstream accepted $1.5 million annual support and Frontier accepted $25.5 million annual support. In January 2020, two of those national providers that serve areas of Minnesota reported that they "may not have met" broadband buildout milestones in 13 states, including Minnesota. In October 2020, the FCC extended CAF II deadlines by a year, and two of the recipients that serve Minnesota – CenturyLink and Frontier – opted to accept additional funding for all of the states they serve. A 2018 Blandin Foundation study of the footprint of two CAF II-funded exchanges in the field concluded that the CAF II-funded network deployments in those exchanges do not meet Minnesota speed goals. The study found that even after CAF II investment, the vast majority of land within these two exchanges lies more than 3,000 feet from a fiber-fed DSL node, thus limiting the bandwidth available to those customers to something less than Minnesota's 2022 state broadband goal of 25 Mbps/3 Mbps. https://blandinfoundation.org/learn/broadband-resources/broadband-initiative/impact-of-caf-ii-funded-networks/introduction/

their funds to support local broadband access and adoption efforts, especially in light of the need to support students and their families in succeeding during the shift to online distance learning. Some examples include:

1. Le Sueur County gets Fiber from MetroNet thanks to CARES
2. Itasca County Approves CARES Act Funding for Broadband
3. Dakota County approves $800,000 in CARES Act funding for broadband
4. 46 percent of MN school CARES funding so far going to technology
5. Mille Lacs County looks at CARES funding for wireless broadband
6. Alexandria, most of the $1.05 million the city received in CARES Act money will be spent on technology upgrades
7. Moorhead's $3.28 million includes some telework equipment
8. Otter Tail County reserved some cash for high-speed internet projects
9. Crow Wing County puts $1.5M of CARES funds into broadband & CTC
10. FCC Announces 77 More CARES Act Telehealth Awards: 2 are in MN (Rochester and Onamia)
11. HBC Expands Broadband in Rural Winona and Dakota Counties with CARES
12. Bevcomm gets CARES funding to improve broadband in Faribault County
13. CTC recently received CARES Act funds to deploy better broadband to serval areas, including Cass County

In late December 2020, Congress approved a second $900 billion coronavirus relief package that includes $7 billion for broadband access. State efforts to use federal dollars from the CARES Act to redress the digital divide offer a rich learning field for Minnesota policy makers as they determine how to maximize public benefit from the second round of federal pandemic crisis funding. The Pew study offers these recommendations:

- Prioritize connecting more residents to existing infrastructure
- Invest in planning and oversight for long-term (not just short-term) solutions
- Coordinate across levels of government to support broadband deployment.

Speed Goal Reassessment

Minnesota's broadband speed goals should be reviewed next year to ensure the goals remain appropriate to pursue with public funds in the Broadband Grant Program and that goals meet the many demands we place upon broadband service. The State's speed goals must reflect the changing needs of broadband users, the capabilities of technology, and the affordability of delivering service. Historically, Minnesota has revisited broadband speed goals about every 5 years. The first speed goals were set in 2010; the second were changed in 2016, following changes in Federal Broadband speed goals in 2010 and 2015. It is important to note that service providers are already routinely exceeding the 2022 goal of 25/3 Mbps in their infrastructure development.

Minnesota must emphasize improvement of upload speeds. The COVID-19 pandemic in 2020 revealed the importance of upload speed to residential, business, education, medical care, and other institutions. As many Minnesotans are working from home due to the pandemic, ISPs responded by adding support and services as quickly as possible and finding new ways to support communities to the extent the broadband infrastructure allowed. The pandemic revealed that 3 Mbps upload speed is inadequate to support remote business and education needs and can no longer be considered high-speed broadband. The increase in demand for broadband services during the global COVID-19 pandemic, along with increasingly urgent questions of equity suggest that it is time again to revisit the state's broadband goals. The State's Broadband goals already require all projects funded by the Broadband Grant Program be scalable (capable of being improved) to speeds of 100 Mbps download and 100 Mbps upload. However, there is no mechanism (or funding) to ensure the infrastructure is scaled to meet that standard. The Task Force will continue to study the extent to which current upload speeds meet the demands of internet users in Minnesota as well as review technologies and frameworks to ensure those needs are met.

Symmetrical service is service that has download and upload speeds that are the same. Literature on symmetrical speeds indicates that the benefit of symmetrical service is faster internet speed, whereas the benefit of asymmetrical service tends to be price. Users who upload files (teleworkers, home-based businesses, students, video-producers, and others) benefit from symmetrical broadband. While users who generally consume information (watch streaming video services, send emails without large attachments, read social media) do not require symmetrical services and may benefit from lower prices. An increase in home-based working and education has increased the upload needs of many consumers. It is important to note that symmetrical and asymmetrical services are not different versions of the same service and are not interchangeable. They offer different uses and capacities to the consumer and those who connect to that consumer. Users with high upload needs, like a small business, content producer, or quarantined family may need symmetrical service or other high-speed upload service to meet their broadband needs. New speed goals that include symmetrical service have been advocated to this Task Force by groups such as MN Mayors Together, found in Appendix E. The Task Force intends to further study symmetrical service. Information about the cost, appropriateness, and scalability of broadband infrastructure to symmetrical service is needed to fully understand any speed goal reassessment.

LaunchMN, a new initiative spearheaded by Minnesota's Department of Employment and Economic Development (DEED) and supported by legislators of both parties, seeks to accelerate start-up growth, and amplify Minnesota as a national leader in innovation. States that enable innovation are quickly outpacing the economies from those that do not. We must be competitive in the new digital economy across all sectors of the state or we risk further concentration of economic opportunity for young people in urban areas only. Startups need broadband now more than ever, to reach suppliers, find employees and communicate with customers.

Funding for Office of Broadband Development

The Office of Broadband Development (OBD), part of the Department of Employment and Economic Development (DEED), was established in 2013 by the Legislature. OBD administers the Border to Border Broadband Grant Program and works with partners on mapping broadband availability to more effectively direct state investment. OBD also assists the Governor's Task Force on Broadband. The OBD has fourteen statutory duties related to education, public safety, and health; driving job creation, promoting innovation and expanding markets for Minnesota businesses.

The OBD has been an integral part of the Minnesota Model. Their design and management of the Border to Border Grants have garnered attention, replication and national awards. They have become a resource for broadband providers and community leaders; they are the first and last call people make to get better broadband. Securing sufficient and ongoing funding for their work would ensure their consistent quality and allow them to seek long-term partnerships and invest time confidently in long term initiatives.

Recommendation #2   The Taskforce recommends the Office of Broadband Development receive an appropriation of $700,000 per biennium. That figure is OBD's estimate of funding needed to maintain current operations.

Planned and unplanned changes in OBD Funding

Department budgets have shifted at the State, which means changes need to be made in OBD funding to maintain the same service and staffing currently available. Since 2013, most of OBD operations have been funded through a $500,000 per biennium appropriation from the state's General Fund, through the Department of Employment and Economic Development. However, one position was funded by Commerce in part through a $200,000 per biennium appropriation for broadband through an interagency agreement with the Department of Commerce. That position has been transferred to DEED. The transfer of that position permanently to OBD in 2020 would require at a minimum $700,000 per biennium to support its staff and operations.

Part of OBD's operational budget usually comes from a budget overhead that is part of the Broadband Grant Program. When the Broadband Grant Program is funded, OBD may use up to three percent of the grant appropriation for grant administration, mapping, data acquisition, and analysis. Currently two grant administration staff positions are funded using that three percent, as well as OBD's vendor contract for broadband data collection and mapping. When the Grant Program is not funded, OBD is left to scramble to make up the difference elsewhere.

Creating Consistent Funding Supports Broadband Goals

Maintaining the volume and quality of work provided by OBD requires sufficient funding from the Legislature. While OBD has generally received sufficient funding in the biennial budget for OBD and for the grant program from one legislative session to the next (there was no grant funding provided in 2018), the uncertainty of biennial and annual funding decisions hinder long-term planning and could impair continued successful implementation of the Border-to-Border Broadband Development Grant Program.

The success of the Border-to-Border Broadband Development Grant Program is in large part tied to the ability of OBD to ensure the state meets its broadband goals. Providing OBD with full funding, on an on-going basis, is critically important to improving broadband infrastructure in Minnesota.

Digital Inclusion

The Minnesota Legislature set out fourteen stated duties for OBD including the encouragement of public-private partnerships to increase deployment and adoption of broadband services and recommending funding options and possible incentives to encourage investment in broadband expansion. The office cannot perform these duties without funding. Adoption-promotion, which is needed more than ever, remains an unfunded mandate. Yet, encouraging greater use (and adoption) of the network ensures return on investment for residents and increases revenue for broadband providers, which accommodates future investment in the network.

Recommendation #3   Create an Office of Broadband operating annual fund of $1.5 million to promote broadband adoption and use and redress digital inequity.

With an annual budget of $1.5 million, OBD could create the following digital equity programs:

- Digital literacy: ($500,000) Via a modest grant program, state resources will be aimed at populations known to have barriers to digital literacy (including low-income individuals, rural and minority populations) to provide training opportunities related to digital skills. This funding would be competitively awarded to community-based organizations with demonstrated experience working with target populations on digital literacy issues. By launching a grant program to address these needs, OBD would have the opportunity to coordinate digital literacy efforts, curricula, and best practices on a statewide basis.
- Low-income broadband access: ($500,000) Similar to the Border-to-Border Broadband Infrastructure Grant Program, this program will award targeted grants to assist providers in developing low-income service models that are financially sustainable and facilitate providers and communities to work together toward additional solutions.
- Small Business Digital Fluency: ($500,000) OBD will launch a matching grant program to provide support directly to businesses in need of digital fluency training. A well-established small business digital fluency assessment will be used the help target support to highest value skills development. To protect state resources, all grants would have a match requirement and would be awarded in partnership with philanthropic, communities, and other organizations.

Adoption is a three-legged stool comprised of access to broadband, a device to use it and the skills to make use of the tools. Research shows that investing in infrastructure is not enough. Public investment in broadband adoption is also critical to ensuring that communities maximize the benefits of the infrastructure. Like that exercise bike in your basement, a broadband network does your community no good unless you get on it and use it.

Increasing broadband adoption in a community increases likelihood of residents getting a home connection (by 2 percent). The State can encourage that through broadband adoption programs; research shows that such investments work. They improve broadband adoption (or take rate aka subscription rate). In other words, coordinated effort to improve broadband use in a community results in greater use and greater home subscriptions. Recent studies show that this holds at local and state-level funding programs. Broadband adoption is an investment that shows results.

Increasing broadband adoption also maximizes the return on investment in broadband deployment for broadband providers. More adoption means more customers and/or higher speed tier customers, which creates an improved market case for continued private investment.

Increased broadband adoption also benefits the end user. The Ohio State University Swank Program found that households with broadband reaped an annual economic benefit of $1,850, and the Bureau of Economic Analysis found that increased adoption could grow annual revenues of rural small businesses by more than 21 percent over the next 3 years, the equivalent of $84.5 billion per year. Using the Swank formula and data indicating the value of houses with broadband increased 3.1 percent, the Blandin Foundation looked at five counties in Minnesota and compared public investment to community return on that investment. The chart below indicates annual ROI far surpasses original

investment within a year in three counties, almost surpasses in a year in one and surpasses investment in 7 years for the final county.
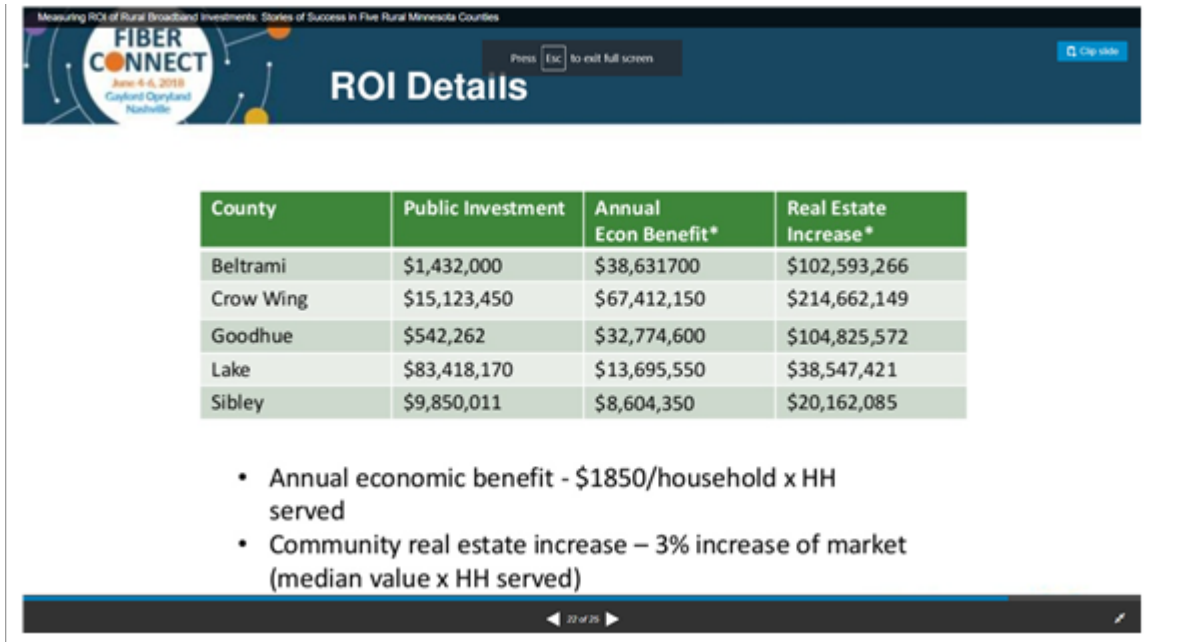
Improving digital equity might be a way to reduce Minnesota's achievement gaps. Minnesota Schools report some of the largest gaps in the nation on these measures by race and socioeconomic status. Lack of access to broadband and the skills to use it is both a cause and effect of inequity, but it's one we can turn around with investment in technology and people.

POTENTIAL Side Bar

Rural Telehealth for Better Mental Health

Direct Assessments and Counseling is a tele mental health portal that connects patients from Blue Earth, Brown, Faribault, Le Sueur, Martin, Nicollet, Sibley, Waseca and Wantonwan (Region) to health services they need. The portal facilitates referrals and access to mental health services to health care providers across the state.

There are not enough providers in those counties to meet the need. This tool is a lifeline to area patients with enough broadband to access tele mental health sessions. It allows people to get the health care they need.

Barriers

The COVID-19 pandemic has brought to the forefront just how essential having reliable broadband access is to succeed within our new ways of interacting with the world. In an instant, our lives moved from in-person to virtual. Broadband connectivity became a necessity in our everyday lives. Minnesota families found themselves working from home, their children participating in distance learning by connecting and completing assignments virtually, interacting with healthcare professionals digitally and finding new ways to connect with loved ones online during the quarantine. For Minnesotans struggling to keep pace with the virtual world, it was a sprint to increase their digital literacy and discover what options were available to them. For a portion of our population, the cost to obtain the appropriate amount of bandwidth came at a substantial price tag that was unaffordable without a full income.

Retail sales instantly went online as businesses were either forced to close to foot traffic or people were not comfortable visiting them in person. Medical appointments, church services, social activities and much more were, and still are, being conducted in online environments that require high-speed broadband connectivity. While some of these activities existed pre-COVID-19, it very quickly became clear that while the 2026 speed goal of 100/20 Mbps may have seemed like a stretch, it is already essential in 2020 to host multiple users within a household simultaneously.

There is an increased urgency to bring broadband access to the 157,000 rural households that are unserved in Minnesota while making an equivalent effort to move the needle closer to the 2026 speed goal of 100/20 Mbps to all households as the need for broadband has proven itself a basic necessity to Minnesotans during this pandemic. Minnesota communities are rallying to deploy innovative, but temporary solutions to the situation by distributing hot spots to students, parking school busses with Wi-Fi signals in neighborhoods and working with businesses to offer parking spots in their lots for members of their community to access online resources. A few communities have embarked on wireless solutions to bring marginal service to unserved areas.

These temporary efforts to connect the "unconnected" cannot be considered a solution. Minnesota needs to re-evaluate its approach to truly becoming a "connected" state and a new strategy must be developed that will accelerate deployment of quality high-speed broadband to the most remote, the less fortunate and our aged population to assure they have the essential connections needed to thrive and succeed in our new digital, distanced society. There is no deadline for this pandemic. Minnesota needs a deadline for connecting everyone.

As evidenced by many successful broadband deployments across the state, leadership is a key component. Conversely, a lack of strong leadership at various levels can provide hurdles in the path of a broadband project. Leadership must be present in multiple layers that may include the state, county, and local levels as well as within the provider community.

During the COVID-19 pandemic, community leaders' ability to respond was constrained by whether or not their residents and businesses had access to quality broadband: communities with good broadband had an advantage, with more options at their disposal and more success in mitigating COVID-related harms. By contrast, communities without access to quality broadband are hurting, and are being left further and further behind. As more people are asked to work from home, students are asked to learn online, healthcare moves online -- and as we are asked to socially distance -- access to online community becomes more than a luxury; it is a prerequisite to mental health and to the ability to participate in the larger world.

At the state level, the Office of Broadband Development administers the Border to Border Infrastructure Grant Program and helps to connect communities, policy-makers, providers, regional support organizations, and state and federal programs with each other and the resources they need to improve broadband access and use in Minnesota. While the office provides quality leadership to many stakeholders, a small staff, high workload and limited broadband leadership within other state organizations limits the reach of the Office. While the State Legislature has provided $125 million over the past seven years for broadband expansion programs, this falls well short of the $35 million yearly that previous Task Force reports have indicated would be necessary to bring high speed broadband to all Minnesotans that meets the state

speed goals. In recent years, county and township governments, cities, EDA offices and other stakeholder groups have come to the table to work with providers bringing creative financial and deployment solutions.

Example: Rock County (99.93 percent access to 100/20 Mbps – ranking # 1 amongst MN counties) leaders have worked with providers and state and federal partners to finance and build a ubiquitous fiber network that connects every resident in the county. This network – along with a leadership team focused on closing the county's digital divide – proved to be key assets among the responses available to county residents and leaders. For example, because the county and the school district were able to solve connectivity for every single student in the county, county schools were able to prepare and offer online-only distance learning. The county's ubiquitous fiber network also allowed county leaders to be innovative in how they engage their constituents: all county public meetings are now conducted virtually, resulting in more people attending the County Commission meetings than before the pandemic.

> *"When you think of what we were collectively tasked to do…during this pandemic, to make sure every student had the opportunity to learn… there was only one student that didn't have some type of connectivity, and that was because they were transitioning and moving, and the library bailed them out with a hotspot. We had some essential workers move in this spring…one is a traveling nurse living out of their camper while remote working. They log on every night through that Wi-Fi and…she is able to conduct that (tele-health) in a campground…because of the backbone that's provided… They are conducting essential work out of the campground. We were able to do this because of broadband and because of the team that was put together."*

~Kyle Oldre, Rock County Administrator

Unfortunately, not all areas of the state have experienced this kind of regional and local government leadership. Too many localities see broadband deployment as someone else's problem and continue to wait for something to happen rather than work on proactive solutions.

The Minnesota Broadband Task Force along with the Office of Broadband Development encourages the engagement of state agencies to develop a strategy that will improve communications between the agencies and private internet service providers, eliminate or minimize cable cuts or disruption, and will also consider a plan to connect the more challenging rural locations of Minnesota to assure Minnesota is truly a "connected state".

Obtaining proper permits and easements are necessary for the deployment of fiber throughout Minnesota. State permitting may be required from the following state agencies for public Right-of-Way:

1. Department of Transportation
2. Department of Natural Resources
3. Department of Public Safety – Office of Pipeline Safety
4. Private Railroads that cross public Right-of-Way

Recommendation #4   Given the condensed construction season in Minnesota, it is critical that permits are issued promptly. The state should convene a working group comprised of all state agencies relating to broadband construction permitting to streamline the process, both in time to issue the permits as well as the permit application process.

Aligning permits from all the necessary state agencies with a project timeline has its challenges. In addition to permitting, potential broadband construction can also be subject to a Minnesota State Historical Preservation Office (SHPO) study if there are concerns about disturbing a historical site. SHPO studies have historically taken up to a year given the unique skill set required to conduct the assessment.

The Task Force expects to further explore opportunities with Minnesota's electric cooperatives that have the infrastructure in place and are equipped to bridge the urban-rural divide in the challenge for the delivery of broadband

to all corners of our state. Electric cooperatives have existing rights-of-way that could be utilized for broadband infrastructure, which may lower some of the burdens and costs of meeting the State's broadband service goals.

Since its inception, the Office of Broadband Development has facilitated conversations between state agencies and providers to work to shorten the application process; however, as Minnesota narrows in on connecting the unserved it will be critical that all parties are aligned.

In 2016, the Governor signed into law a standardized procedure and pricing for utilities crossing railroad facilities. Chapter 237.045 specifies one-time fees that can be charged by a railroad to a utility for crossing railroad property, both in a public right-of-way and on property wholly owned by the railroad. Anecdotal information from broadband providers suggest that the length of time to receive a permit from a railroad has increased since this law was enacted. In addition, some railroads are not locating their own facilities, which has an adverse effect on broadband construction. State Law allows utility construction to commence after 35 days from the date of application if the utility has not heard from the railroad.

Recommendation #5   There needs to be more oversight of railroad facilities by the Office of Pipeline Safety. Railroads need to be required to locate their own facilities and need to be encouraged to issue permits promptly.
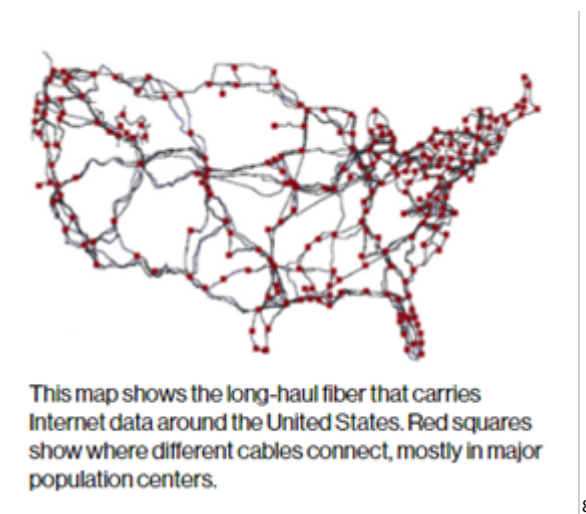
Technology

In this section we review broadband services available to consumers (residents and businesses) across Minnesota as the technologies continue to progress in the ways they are delivering high speed internet with improved connectivity. The technologies delivering broadband possess their strengths and limitations depending on the technology used for delivery, consumer's geographic location (urban, suburban, rural), surrounding terrain, consumer's financial means to acquire the connection and the devices to connect with as well as the digital literacy to understand their options.

It is likely that multiple technologies will need to be deployed for the 256,000 people in Minnesota who are underserved to reach the 2026 statutory speed goal of 100 Mbps download and 20 Mbps upload (100/20 Mbps). It is also important to note that both aspects of the speed goal need to be examined as the upload speed represents productivity (participating in video calls, sharing work products, sending data for home healthcare monitoring, etc.) while download speeds are consumption (streaming video, downloading online coursework, conducting research, etc.). The 2020 pandemic has drawn great attention to the productivity side of broadband and highlighted the differences between upload capabilities in the various broadband technologies.

Connecting the "last mile"

There are a variety of technologies that are made available to consumers to connect the "last mile" from the fiber internet backbone that exists.

This map shows the long-haul fiber that carries Internet data around the United States. Red squares show where different cables connect, mostly in major population centers. [8]

INTERNET BACKBONE
• Fiber

LAST MILE
• Fixed Wireless
• Cable • DSL • Fiber [9]

Cable

Cable broadband internet services are most commonly provided over hybrid fiber coaxial (HFC) networks. An HFC network is comprised of a fiber portion which connects a regional hub to an optical node in a neighborhood. The coaxial portion then connects the neighborhood optical node to each home receiving cable broadband internet service.

---

[8] United States fiber map:https://www.techrepublic.com/article/first-map-of-us-fiber-infrastructure-reveals-potential-network-redundancy-issues/

[9] Connecting the last mile: https://broadbandnow.com/Fiber

The Data Over Cable Service Interface Specification (DOCSIS™ technology) is the international telecommunications standard that enables broadband service provision over an HFC network. First released in 1996, the DOCSIS technology has evolved and continues to be updated and advanced to deliver ever increasing broadband performance. Currently, DOCSIS 3.1 is the most common and widely deployed version, which includes optional features that could enable capacities of up to 10 Gbps downstream and up to 2 Gbps upstream, and today, commercially available DOCSIS 3.1 modems and gateways have a downstream capacity of 5 Gbps and an upstream capacity of 1.5 Gbps. The cable industry continues to advance the DOCSIS technology with the release of DOCSIS 4.0, which will support 10 Gbps of downstream capacity and 6 Gbps of upstream capacity.[10]

DSL (Digital Subscriber Line)

DSL technology is an asymmetrical service delivering internet by using existing copper telephone lines for the "last mile". Since the foundation of this technology is the legacy telephone infrastructure covering the continental United States, it is the most widely available wired technology to connect homes, especially in rural areas. As an asymmetrical service, DSL speeds in either direction (download or upload) vary greatly with the upload speeds, needed for productivity, usually much lower than download speeds. Additionally, distances from the telecommunications companies digital subscriber line access multiplexer (DSLAM) equipment greatly affect the broadband speeds that can be attained at end user locations. High speeds meeting the statutory speed goals are only available to customers very close to a DSLAM with speed degrading quickly after approximately 1-2 miles.

Fiber-Optic

Fiber-optic technology delivers high-speed internet using light through transparent glass fibers to transmit data from fiber broadband. The download and upload speed for fiber depends on the electronics attached to the fiber and ranges widely from 250 Mbps to 5 Gbps, far exceeding the needs of the typical user. The speed experienced by the user depends on a multitude of factors including transmitters, receivers and amplifiers used in route to connect the "last mile" as well as the location of your computer in proximity to those devices. Fiber-optic is accessible to only 48.1% of Minnesotans. Fiber broadband continues to evolve, however, the high cost of laying fiber optic cable as well as the delays in sourcing equipment has proven to be a barrier in exponential expansion.

Fixed Wireless
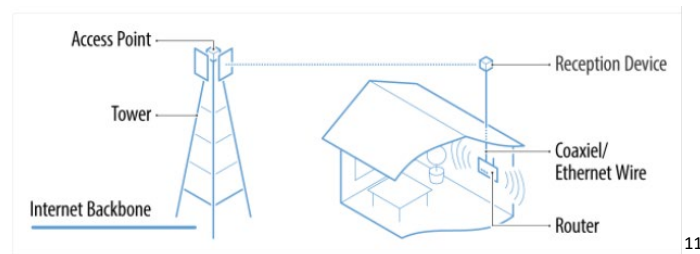
Fixed wireless enables two fixed locations to communicate with each other. Instead of a physical connection like you would have with a fiber connection from a traditional broadband provider, service is delivered over airwaves between the two locations.

Since fixed wireless does not require a physical transport to the end location, it can be faster to deploy and has a lower "last mile" installation cost compared to other traditional broadband offerings. However, the end user equipment necessary to receive the signal can be significantly more costly than other technologies. Service speeds and latencies are generally comparable to traditional DSL offerings.

---

[10] CableLabs, *10G: Enabling Future-Ready Networks* (Spring 2020), https://www.cablelabs.com/10g-enabling-future-ready-networks.
[11] Fixed Wireless simplified: https://broadbandnow.com/Fiber

Fixed wireless requires line of sight between the access point and the end location. This can limit its availability in certain locations with obstructions such as trees, hills (terrain) or buildings, during periods of atmospheric ducting, or under certain weather conditions. Wireless services delivered from a tower can be limited by distance from the tower, and the distributed density of connected customers. There are also concerns about the lack of available spectrum needed to reduce the risk of interference.

Mobile Wireless

Mobile wireless delivers broadband to devices through cell towers. It can be used for many traditional broadband uses like checking emails, watching a movie or creating mobile hotspots to share broadband access across multiple devices in a home or school but is not a viable option for serving a household or business. Mobile wireless standards have evolved from 2G (2nd Generation) in 1991 to 5G (5th Generation) which launched this year. 5G coverage is still very limited and will likely take time for it to be available in rural areas of the country. It is expected that 5G technology will offer speed and performance similar to wired broadband services.

A potential issue with mobile wireless is that customers often run into strict data cap issues. This means either an additional charge or a reduction in speeds once a specific capacity has been reached. This can make mobile wireless an expensive option if it is used as an individual or family's primary broadband solution.

Satellite

Traditional satellites are positioned in geostationary orbit around 22,300 miles above the Earth's equator and act as connection pathways between the remote site (physical antenna on a home or business) and the network operations center (service provider location). There are two traditional satellite providers available to Minnesota residents. Both offer download speeds of up to 25Mbps and upload speeds of up to 3Mbps, though actual attained speeds will vary. All satellite traffic needs to travel nearly 100,000 miles (two trips up to and two trips down from the satellite). The distance introduces a high amount of latency which can impact applications like video conferencing.

Satellite broadband is a viable option for users who are outside the coverage area of traditional broadband and wireless providers, however, it comes with significant limitations. The cost of this technology increases in relation to the speeds it offers (for faster speeds and the ability to host multiple devices the average household will need to purchase the most expensive package). Upload, or productivity, speed is limited to a maximum of 3Mbps. Also, the antenna mounted at the consumer's property can be costly and must have a line-of-sight connection with the satellite. This means customers who live in mountainous or heavily wooded areas are not eligible for this service and those who are may experience delays with weather conditions such as rain or snow.

Another limitation that continues to impact adoption of satellite technology are data caps. Some traditional broadband and fixed wireless providers also apply data caps, but satellite capacity limitations require satellite providers to utilize lower data caps. These limits can come in the form of hard or soft caps. With hard caps, if you have reached your data limit before the end of your coverage month, your connection is cut off with the option to purchase more data. Soft caps provide the customer a data limit that you could encounter significant overage charges or your bandwidth is reduced significantly. For example, HughesNet's website informs customers that while there may be no cost to exceed the cap, after exceeding the cap speeds may go down from 25 Mbps to less than 3 Mbps, which is barely enough speed to check your email. The size of the satellite caps range from 10-50 GB per month. The "median monthly usage by broadband subscribers in 2020 is on a trajectory to surpass 250 GB for the first time, according to the Q4 2019 OVBI (OpenVault Broadband Industry) report issued today by OpenVault".[12]

Over the past year or two, there has been significant growth in low-earth orbit (LEO) satellite deployment. SpaceX's Starlink project has deployed over 900 LEO satellites designed to deliver high speed, quality broadband to the millions of Americans who are underserved. Plans are to deploy thousands of satellites to provide global coverage. Orbiting at 340

---

[12] https://openvault.com/ovbi-median-broadband-usage-on-pace-to-surpass-250-gb-per-month-in-2020/

miles above the earth, latency is greatly reduced compared to traditional geostationary satellites. Starlink is currently providing service to a limited number of customers in the Northern tier of the United States including Minnesota. Initial tests show improved speeds over traditional satellite services.

TV White Spaces

Telecommunication broadcasters are required to obtain a license which enables them to broadcast at a particular frequency over a specific distance. TV white spaces are frequencies that are reserved to prevent interference between broadcasts. With the move to High Definition Television, there are now unused frequencies available for use.

 The Task Force heard from Microsoft who is partnering with Internet Service Providers (ISPs) to deploy Airband which utilizes unused television white space. Airband is a fixed wireless technology solution that can increase bandwidth and geographic coverages – providing reliable, affordable high-speed internet service to rural areas. High speed internet is broadcast over unused frequencies for a specific range from the antenna, often with coverage up to 6 miles in all directions. The deployment of the solution can take as little as 12 weeks with internet download speeds up to 100 Mbps. While this technology holds some promise, this solution is in its infancy stage, and currently, no ISP in Minnesota has elected to partner with Microsoft in an Airband initiative.

Appendix A: Task Force Virtual Meetings

A screen shot example of how of the Task Force conducted meetings in 2020:
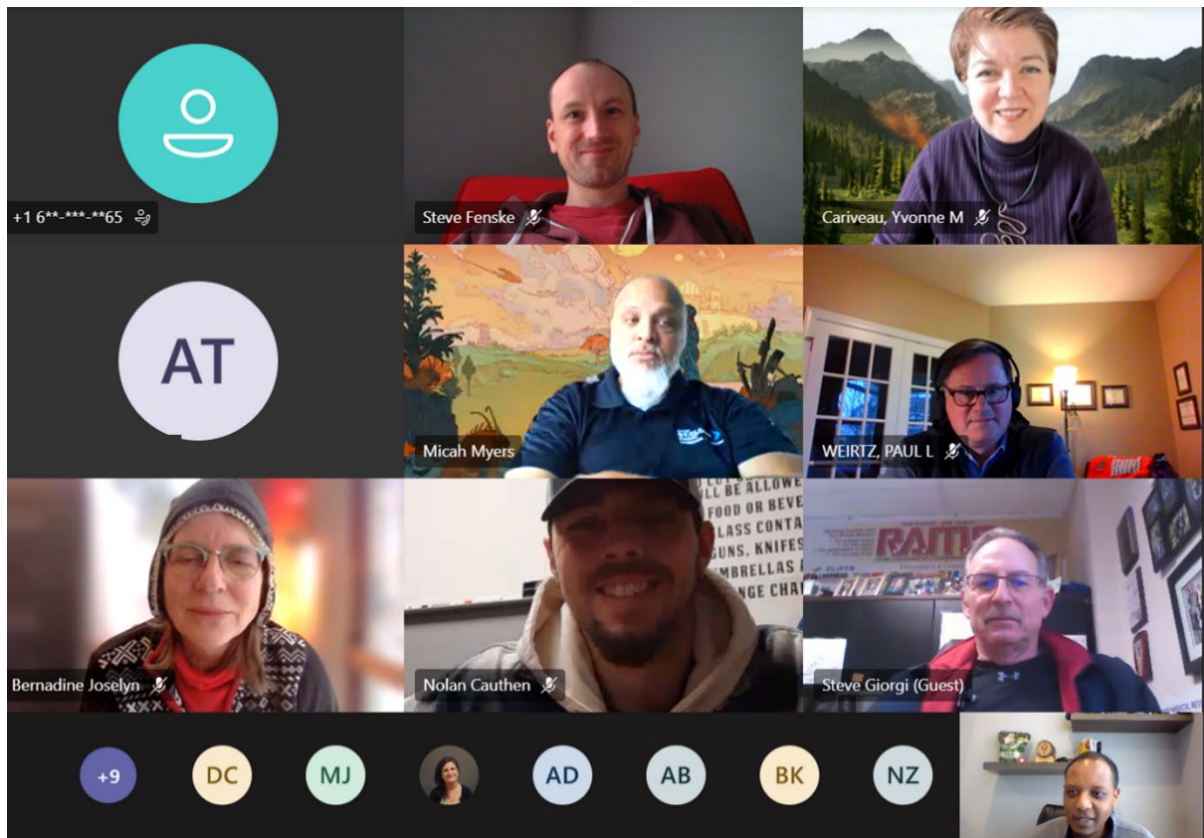
Appendix B: County Examples

The pandemic is shining a bright light on Minnesota's persistent and growing gaps in broadband access and adoption. Focus groups conducted during the COVID summer of 2020[13] with eight counties document the transformational impact that ubiquitous world-class broadband has on a community's ability to mitigate the worst impacts of the pandemic response on its most vulnerable residents. These snapshots illustrate how broadband has become indispensable infrastructure for an equitable One Minnesota future.

Top 10 MN Counties for Speeds of 100/20

1.   Rock 99.93
2.   Ramsey 99.84
3.   Lac qui Parle 99.57
4.   Swift 99.5
5.   Beltrami 99.25
6.   Hennepin 98.97
7.   Big Stone 98.6
8.   Dakota 97.42
9.   Anoka 97.14
10.   Pennington 96.95

Bottom 10 MN Counties for Speeds of 100/20 (starting with worst)

1.   Kanabec 26.41
2.   Redwood 36.48
3.   Yellow Medicine 37.71
4.   Pine 39.13
5.   Lincoln 40.42
6.   Faribault 40.56
7.   Aitkin 46.66
8.   Isanti 48.63
9.   Todd 49.12
10.   Traverse 50.97

(see full list)

Rock County (99.93 percent access to 100/20 Mbps – ranking 1) leaders have worked with providers and state and federal partners to finance and build a ubiquitous fiber network that connects every resident in the county. This network – along with a leadership team focused on closing the county's digital divide – proved to be key assets among the responses available to county residents and leaders. For example, because the county and the school district were able to solve connectivity for every single student in the county, county schools were able to prepare and offer online-only distance learning. The county's ubiquitous fiber network also allowed county leaders to be innovative in how they engage their constituents: all county public meetings are now conducted virtually, resulting in more people attending the County Commission meetings than before the pandemic.

---

[13] https://blandinonbroadband.org/tag/covid-chat/

"When you think of what we were collectively tasked to do…during this pandemic, to make sure every student had the opportunity to learn… there was only one student that didn't have some type of connectivity, and that was because they were transitioning and moving, and the library bailed them out with a hotspot. We had some essential workers move in this spring…one is a traveling nurse living out of their camper while remote working. They log on every night through that Wi-Fi and…she's able to conduct that (tele-health) in a campground…because of the backbone that's provided… They're conducting essential work out of the campground. We were able to do this because of broadband and because of the team that was put together."

~Kyle Oldre, Rock County Administrator

In contrast, Kanabec County (26.41 percent access to 100/20 Mbps – ranking 87) scrambled to meet the needs of their unserved students during the pandemic shutdown. Data collected by school districts indicated that 6-12 percent of students did not have access to broadband at home; however, follow-up revealed that 20-30 percent of the households that reported having access to broadband at home said the quality (speed) of their broadband service was not adequate to support online learning. That meant inequality: students with adequate broadband were able to participate in distance learning online; those without could participate in distance learning only via paper packets.

Proposed Side Bar from FCC https://www.fcc.gov/consumers/guides/household-broadband-guide

	Light Use (Basic functions: email, browsing, basic video, VoIP, Internet radio)	Moderate Use (Basic functions plus *one* high-demand application: streaming HD video, multiparty video conferencing, online gaming, telecommuting)	High Use (Basic functions plus *more than one* high-demand application running at the same time)
1 user on 1 device	Basic	Basic	Medium
2 users or devices at a time	Basic	Medium	Medium/Advanced
3 users or devices at a time	Medium	Medium	Advanced
4 users or devices at a time	Medium	Advanced	Advanced

Basic Service = 3 to 8 Mbps*

Medium Service = 12 to 25 Mbps

Advanced Service = More than 25 Mbps

In Chisago County[14] (71.92 percent access to 100/20 Mbps – ranking 52), the quality of available broadband was both a help and a hindrance, depending: some areas had adequate access but others didn't. For example, Dan told interviewers that his family's connectivity is only 25/1 Mbps, which means that he and his wife cannot work from home while their son is logged into his classroom online. Their experience is confirmed by the FCC chart (shown above). The upload speed is the real hindrance. Reliability is another. Dan experienced nine outages during the pandemic, which resulted in missed classes and counselor sessions for his son.

Koochiching County (68.8 percent access to 100/20 Mbps – ranking 59) formed an Emergency COVID response team, which was able to meet online thanks to broadband. But many of the team's options were limited because large parts of the county lack adequate broadband service. Top concerns were access to health care, both for the sake of better health but also because healthcare is a main industry in the county. County officials worked with willing provider partners to create a mobile emergency network – a redundant network that could be used in a healthcare facility if there was an unexpected outage. While better connected counties are innovating to create new services, Koochiching is innovating to try to circumvent lack of adequate access.

---

[14] Chisago County is a recipient of the Blandin Foundation Courageous Leadership award
https://blandinonbroadband.org/2019/10/23/chisago-county-broadband-advocate-receives-courageous-leadership-award/

Lac qui Parle County[15] (99.57 percent access to 100/20 Mbps – ranking 3) experienced the benefits of the county's nearly ubiquitous fiber network, built in 2010 when local leaders, in partnership with a local cooperative provider, were awarded funding from the American Reinvestment and Revitalization Act to build a fiber-to-the-home to most of the county. (Madison, the county seat, was unable to benefit from the upgrade because their broadband speeds were deemed too fast to qualify for federal funding.) County staff reports that the county's high-quality fiber network has enabled them to access CARES fund forms and upload responses quickly, expediting assistance relief. Local healthcare facilities have been able to hire via online interviews. Schools were able to move online with no hiccups because all of the families they serve had access to broadband at home.

Sherburne County (73.66 percent access to 100/20 Mbps – ranking 49) had difficulties providing equitable services to residents because of uneven broadband service across the county. These inequities were experienced by county employees themselves: some county workers have good enough broadband service at home to be able to work remotely; some don't. This impacts scheduling and work assignments for individual employees, and staff efficiencies as a whole.

> *"So many people I've met said they'd move here but they don't have the connectivity. I met a fishing guy that has a website…that said he'd move here permanently, and so would a couple of his friends, if there was connectivity. I met an architect, who is semi-retired who lives in the cities; he won't move here because he can't get connectivity. But he would if he could. The other day a friend of mine had to go to the dermatologist and it was going to be virtual, but he couldn't connect. So, they had to cancel the appointment and he had to go down during COVID to the hospital, and he didn't like that too much."*

~John Bassing, member of a broadband leadership team from the City of Tower, St. Louis County, MN

---

[15] Lac qui Parle County is a recipient of the Blandin Foundation Courageous Leadership award
https://blandinonbroadband.org/2019/10/08/blandin-broadband-awards-presentation-pt-2-mnbroadband-conference/

Appendix C: Additional Testimonials from Minnesotans
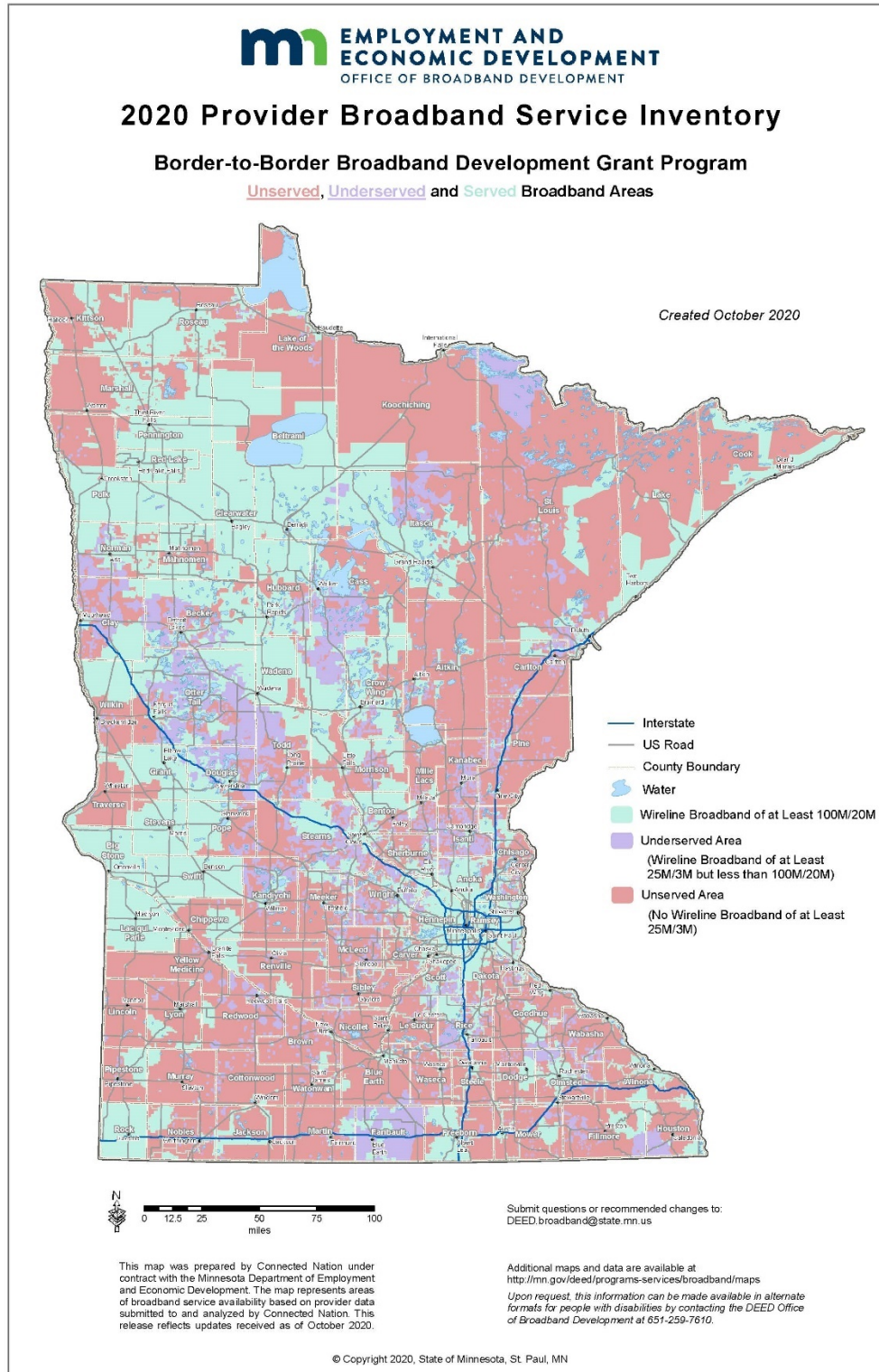
Role of Broadband in their lives:

"Thank god for broadband in Aitkin County! Honestly, we've really relied on virtual medicine and we've served over 900 people in the first few weeks since the pandemic shutdown. We've been able to serve over 900 people with virtual appointments, and if it wasn't for broadband that, obviously, wouldn't be possible." ~ Health Care provider in Aitkin County

"It's been so important for us to be able to connect with webinars and attend trainings, and its reduced our travel time and travel cost. People were able to see, hear, and it was just a much better experience." ~ Staff, Birch Street Center, Aitkin

"What we've found with the whole Covid-19 is that it's more critical than ever for folks to have digital literacy skill sets, particularly in finding on-boarding and developing employees, whether they're working onsite or working remotely." ~ Ely Chamber of Commerce

"My hope is that the State of MN recognizes that broadband is a utility, like electricity was a utility for my great-grandparents and grandparents…that there is an investment that needs to happen here from the state - because this is even exacerbating a much bigger equity issue than we ever knew we had. We have the technology at school to support students, but when we go home and we send this home with families they may not have what they need to be able to educate their students in the way that is going to keep them on track…" ~ Cannon Falls School District employee

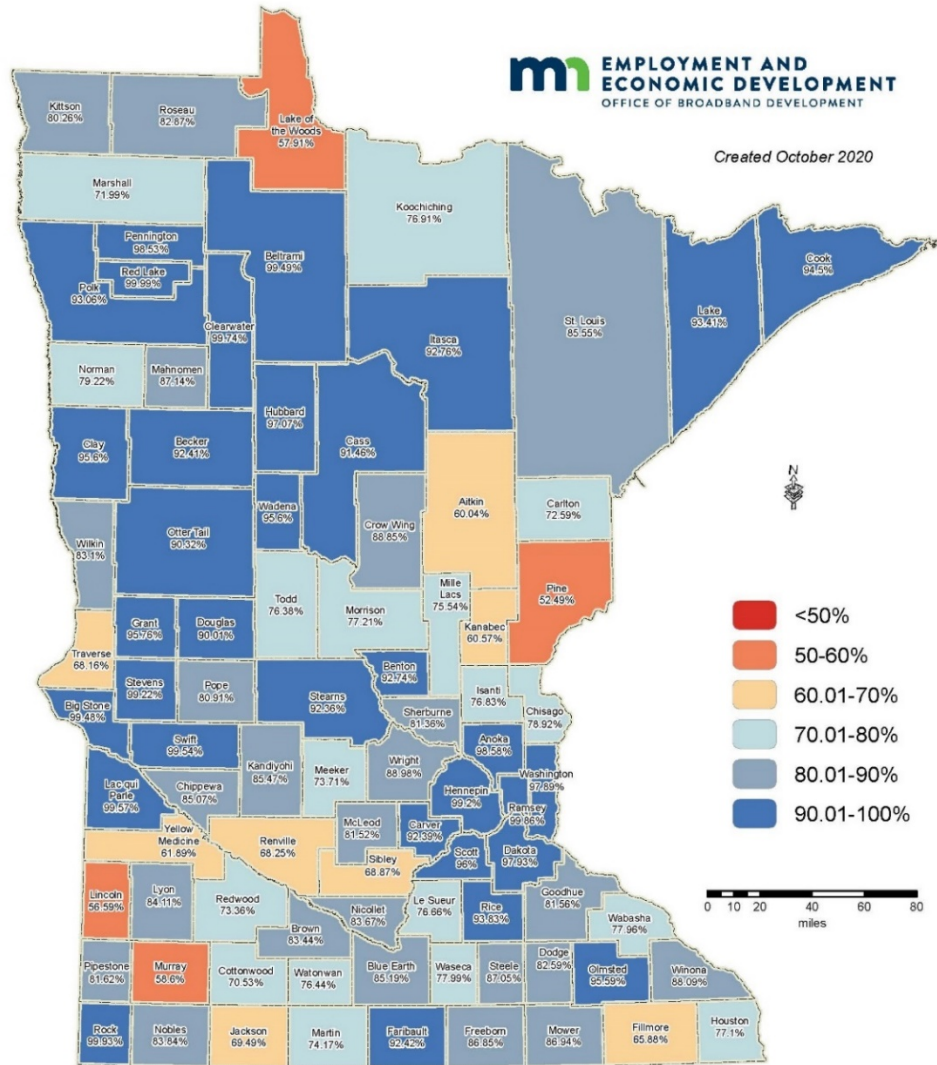# Appendix D: Service Inventory Maps

Border-to-Border Broadband Development Grant Program
Unserved, Underserved and Served Broadband Areas

Created October 2020

Legend:
- Interstate
- US Road
- County Boundary
- Water
- Wireline Broadband of at Least 100M/20M
- Underserved Area (Wireline Broadband of at Least 25M/3M but less than 100M/20M)
- Unserved Area (No Wireline Broadband of at Least 25M/3M)

Submit questions or recommended changes to:
DEED.broadband@state.mn.us

Additional maps and data are available at
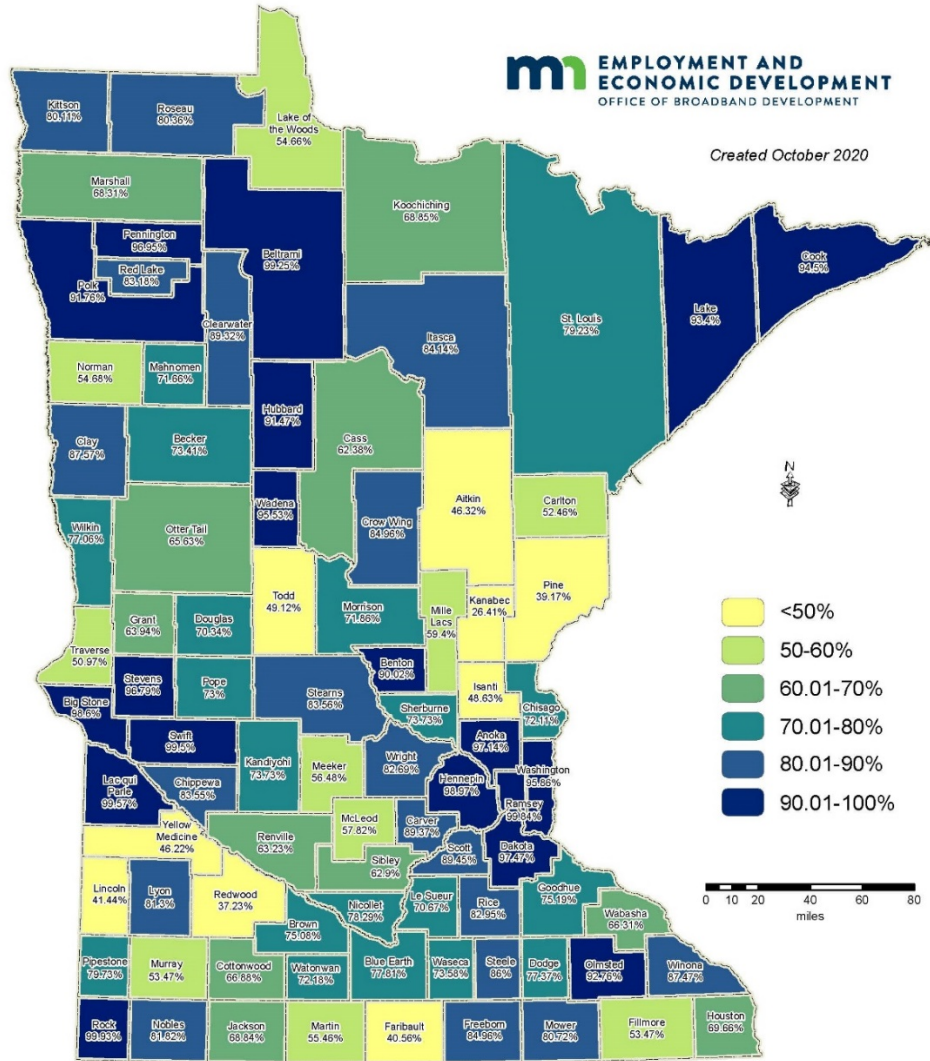http://mn.gov/deed/programs-services/broadband/maps

Upon request, this information can be made available in alternate formats for people with disabilities by contacting the DEED Office of Broadband Development at 651-259-7610.

This map was prepared by Connected Nation under contract with the Minnesota Department of Employment and Economic Development. The map represents areas of broadband service availability based on provider data submitted to and analyzed by Connected Nation. This release reflects updates received as of October 2020.

© Copyright 2020, State of Minnesota, St. Paul, MN

---

[16] The areas of the state that are unserved, underserved and served.

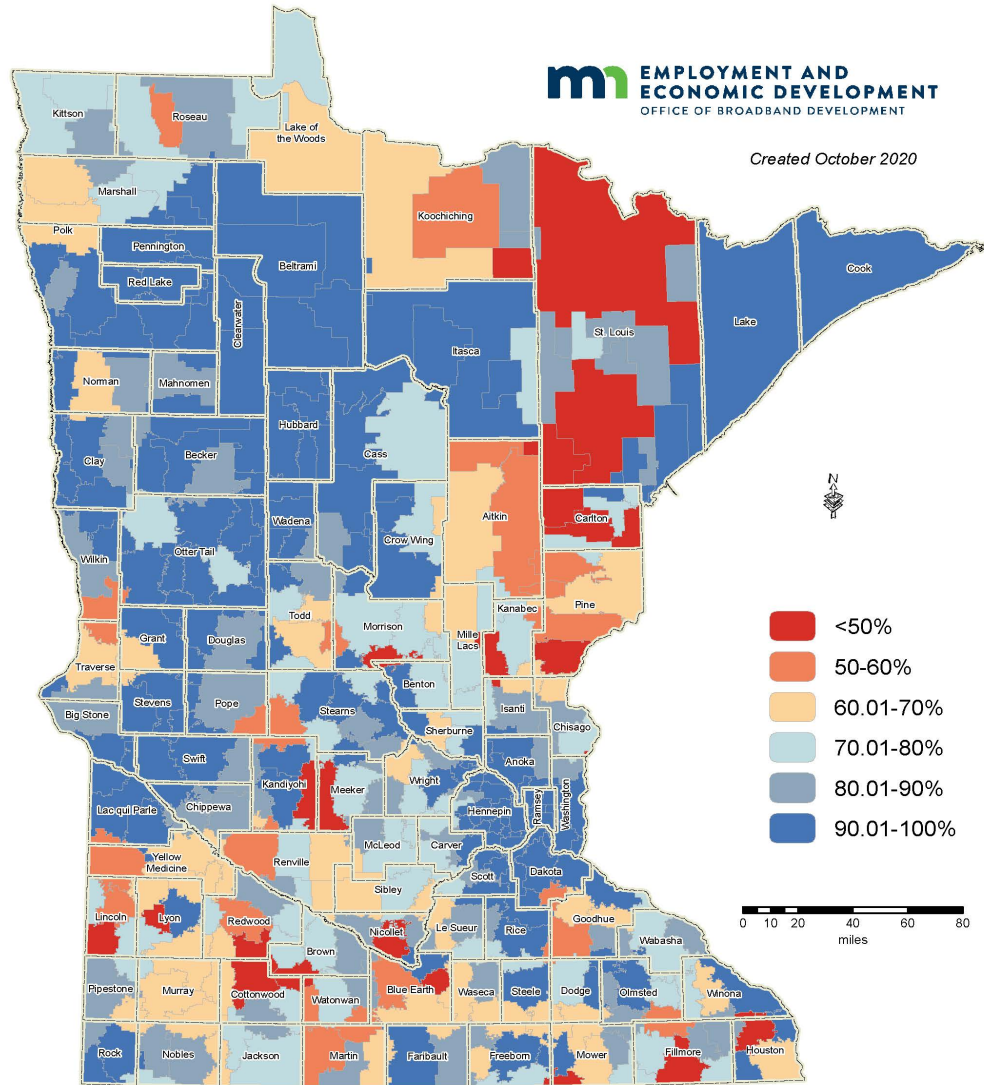# 2020 Broadband Availability in the State of Minnesota

Percentage of Households Served by Wireline Broadband Service by County
At Least 25 Mbps Download/3 Mbps Upload Speeds
Statewide Availability: 92.47%, Rural: 83.10%

EMPLOYMENT AND ECONOMIC DEVELOPMENT
OFFICE OF BROADBAND DEVELOPMENT

Created October 2020

County	Percentage
Kittson	80.26%
Roseau	42.87%
Lake of the Woods	57.91%
Marshall	71.99%
Koochiching	76.91%
Cook	94.5%
Pennington	98.53%
Beltrami	99.49%
Red Lake	99.99%
Polk	93.05%
Lake	93.41%
Clearwater	99.74%
Itasca	92.76%
St. Louis	85.55%
Norman	79.22%
Mahnomen	87.14%
Hubbard	97.07%
Clay	95.6%
Becker	92.41%
Cass	91.46%
Aitkin	60.04%
Carlton	72.59%
Wadena	65.6%
Crow Wing	88.85%
Wilkin	83.1%
Otter Tail	50.32%
Mille Lacs	75.54%
Pine	52.49%
Todd	76.38%
Morrison	77.21%
Kanabec	60.57%
Grant	95.76%
Douglas	90.01%
Traverse	68.16%
Benton	92.74%
Stevens	99.22%
Pope	80.91%
Stearns	92.36%
Isanti	76.83%
Sherburne	81.36%
Chisago	78.92%
Big Stone	99.48%
Swift	99.54%
Anoka	98.55%
Kandiyohi	85.47%
Meeker	73.71%
Wright	88.98%
Washington	97.89%
Lac qui Parle	99.57%
Chippewa	85.07%
Hennepin	99.2%
Ramsey	99.86%
Yellow Medicine	61.89%
Renville	68.25%
McLeod	61.52%
Carver	92.39%
Sibley	68.87%
Scott	96%
Dakota	97.93%
Lincoln	56.59%
Lyon	84.11%
Redwood	73.36%
Nicollet	83.67%
Le Sueur	76.66%
Rice	93.63%
Goodhue	81.56%
Wabasha	77.96%
Brown	83.44%
Dodge	82.59%
Pipestone	81.62%
Murray	58.6%
Cottonwood	70.53%
Watonwan	76.44%
Blue Earth	85.19%
Waseca	77.99%
Steele	87.05%
Olmsted	95.59%
Winona	88.09%
Rock	99.93%
Nobles	83.84%
Jackson	69.49%
Martin	74.17%
Faribault	92.42%
Freeborn	86.85%
Mower	86.94%
Fillmore	65.88%
Houston	77.1%

Legend
Color	Range
	<50%
	50-60%
	60.01-70%
	70.01-80%
	80.01-90%
	90.01-100%

0 10 20 40 60 80 miles

This map was prepared by Connected Nation under contract with the Minnesota Department of Employment and Economic Development. The map represents areas of broadband service availability based on provider data submitted to and analyzed by Connected Nation. This release reflects updates received as of October 2020.

Submit questions or recommended changes to:
DEED.broadband@state.mn.us

Additional maps and data are available at
http://mn.gov/deed/programs-services/broadband/maps

Upon request, this information can be made available in alternate formats for people with disabilities by contacting the DEED Office of Broadband Development at 651-259-7610.

© Copyright 2020, State of Minnesota, St. Paul, MN

17

---

[17] The percentage of households served by wireline broadband service by county at speeds of 25/3 Mbps.

2020 Broadband Availability in the State of Minnesota

Percentage of Households Served by Wireline
Broadband Service by County
At Least 100 Mbps Download/20 Mbps Upload Speeds
Statewide Availability: 87.75%, Rural: 72.53%

EMPLOYMENT AND ECONOMIC DEVELOPMENT
OFFICE OF BROADBAND DEVELOPMENT

Created October 2020

Legend:
- <50%
- 50-60%
- 60.01-70%
- 70.01-80%
- 80.01-90%
- 90.01-100%

0 10 20 40 60 80 miles

This map was prepared by Connected Nation under contract with the Minnesota Department of Employment and Economic Development. The map represents areas of broadband service availability based on provider data submitted to and analyzed by Connected Nation. This release reflects updates received as of October 2020.

Submit questions or recommended changes to:
DEED.broadband@state.mn.us

Additional maps and data are available at
http://mn.gov/deed/programs-services/broadband/maps

Upon request, this information can be made available in alternate formats for people with disabilities by contacting the DEED Office of Broadband Development at 651-259-7610.

© Copyright 2020, State of Minnesota, St. Paul, MN

18

---

[18] The percentage of households served by wireline broadband service by county at speeds of 100/20 Mbps.

2020 Broadband Availability in the State of Minnesota

Percentage of Households Served by Wireline Broadband Service by School District
At Least 25 Mbps Download/3 Mbps Upload Speeds
Statewide Availability: 92.47%, Rural: 83.10%

EMPLOYMENT AND
ECONOMIC DEVELOPMENT
OFFICE OF BROADBAND DEVELOPMENT

Created October 2020

Legend:
- <50%
- 50-60%
- 60.01-70%
- 70.01-80%
- 80.01-90%
- 90.01-100%

0 10 20   40   60   80
miles

This map was prepared by Connected Nation under contract with the Minnesota Department of Employment and Economic Development. The map represents areas of broadband service availability based on provider data submitted to and analyzed by Connected Nation. This release reflects updates received as of October 2020.

Submit questions or recommended changes to: DEED.broadband@state.mn.us

Additional maps and data are available at http://mn.gov/deed/programs-services/broadband/maps

Upon request, this information can be made available in alternate formats for people with disabilities by contacting the DEED Office of Broadband Development at 651-259-7610.

© Copyright 2020, State of Minnesota, St. Paul, MN

19

---

[19] The percentage of households served by wireline broadband service by school district at speeds of 25/3 Mbps.

Appendix E: Letters to the Task Force

October 27, 2020

Tewodros Bekele
Senior Vice President / Chief Technology Officer
Land O'Lakes Inc.
4001 Lexington Avenue North Arden Hills, Minnesota 55126-2998

Dear Chairman Bekele and Members of the Governor's Broadband Task Force:

Access to universal, high quality broadband services is essential for our residents and businesses to thrive. While we generally understood this prior to the pandemic, COVID-19 has driven this fact home. Robust broadband is essential to learning and working from home and to support whole new methods of service delivery – from health care to retail sales.

We are writing to urge the task force, as it finalizes its report to the Legislature, to make two clear recommendations:

- The first of these is speed. The 2026 goal of 100 Mbsp download and 20 Mbsp upload, while it may have seemed aggressive when it was adopted, now looks somewhat modest. Why not recommend what the Border-to-Border grant has enabled in some areas of the state: 100 and 100?
- Second, we would urge the task force to tell legislators that this is an ongoing challenge, that having good access and speed is vital to all Minnesotans. As such, this investment should be a regular and recurring feature of the state's operating budget. So, we would ask you to say that the Legislature consider the $35-50 million as an annual expenditure – for many years.

With so many users now using broadband as an essential infrastructure, with multiple home users simultaneously using videoconferencing, cloud file storage and other collaboration tools, we now realize that many existing broadband services are not up to the task, especially upload speeds. Many broadband networks, especially those of traditional phone and cable companies, are designed to deliver content to end-users. Today's world requires high-speed networks that support two-way symmetrical capacity.

Federal and state public policy goals and programs need to recognize this new reality. For example, the 3 Mbps standard expressed in both FCC standards and Minnesota goals fails to meet this reality impinging on Minnesota families and households – urban, suburban, and rural– to effectively use the Internet. Even Minnesota's 2026 goal ignores the trends in Internet use.

We the undersigned, Minnesota Mayors from rural, urban, and suburban cities, encourage the Task Force to reconsider this outdated paradigm. We urge our state broadband leaders to adopt a more future-oriented perspective that recognizes the importance of symmetrical network design and deployment that will support current and future two-way broadband- dependent applications. Our state goals and practices should ensure that our broadband networks enable rather than hinder community vitality.

Thank you.

Cc: Governor Walz
        Lt. Governor Flanagan
        Commissioner Steve Grove
        Angie Dickison
        Diane Wells

Minnesota Mayors Together was launched in 2017 to build trusted relationships across the state and catalyze hopeful conversations based on common ground, not divided politics.

MN Mayors Together Executive Committee

Mayor Rita Albrecht	City of Bemidji	rita.albrecht@ci.bemidji.mn.us
Mayor Doug Anderson	City of Lakeville	danderson@lakevillemn.gov
Mayor Tracy Bertram	City of Becker	tbertram@ci.becker.mn.us
Mayor Marvin Calvin	City of Willmar	mcalvin@willmarmn.gov
Mayor Jim Hovland	City of Edina	jhovland@hovlandrasmus.com
Mayor Johnathan Judd	City of Moorhead	Johnathan.judd@ci.moorhead.mn.us
Mayor Elizabeth Kautz	City of Burnsville	Elizabeth.Kautz@burnsvillemn.gov
Mayor Tom Kuntz	City of Owatonna	mayor@ci.owatonna.mn.us
Mayor Emily Larson	City of Duluth	Elarson@duluthmn.gov
Mayor Mike Maguire	City of Eagan	mayor.mike.maguire@gmail.com
Mayor Chuck Novak	City of Ely	mayorchucknovak@ely.mn.us
Mayor Rhonda Pownell	City of Northfield	rhonda.pownell@ci.northfied.mn.us
Mayor Ben Schierer	City of Fergus Falls	ben.schierer@ci.fergus-falls.mn.us
Mayor Jake Spano	City of St. Louis Park	mayorjakespano@gmail.com
Mayor Dave Smiglewski	City of Granite Falls	smiglewski@mchsi.com
Mayor Janet Williams	City of Savage	jwilliams@ci.Savage.Mn.us

Appendix F: Map of Border-to-Border Broadband Grant

Letter from Commissioner Steve Grove

January 8, 2021

Governor Walz and Members of the Legislature:

In March 2019, recognizing the importance of broadband deployment and use, Gov. Walz issued Executive Order 19-10 to continue the Governor's Task Force on Broadband. This multi-stakeholder body was tasked with advising the executive and legislative branches on broadband policy, including strategies for achieving the state's broadband goals in Minn. Stat. 237.012, assessing digital inclusion issues and gaps, and suggestions for unlocking the benefits of universal broadband access for all communities in Minnesota. Less than a year after the Executive Order was issued, the public interest in broadband for economic development, healthcare, education, manufacturing, agriculture, public safety and participation in government and society became a public necessity when the pandemic struck.

This report is the result of the work of the Task Force including its dedicated chair, Teddy Bekele, and fourteen hard-working members. I would like to take this opportunity to thank the Task Force for the comprehensive report that they have compiled while largely being unable to meet in person for most of the year. The Office of Broadband Development at the Department of Employment and Economic Development was privileged to provide administrative support to the Task Force.

Task Force members represent a cross-section of broadband interests, from providers to users in the education, healthcare, government, library, tribal, agricultural, labor, business and consumer sectors. As the use of broadband has become a necessity, it is more important than ever for policymakers to review the information provided in this report and consider the recommendations put forth. Having the perspectives of the Task Force to consider will be very beneficial as the Governor and Legislature discuss broadband policies to implement.

DEED looks forward to those discussions and continuing input from the Task Force in the months ahead.

Sincerely,

Commissioner Steve Grove

Cc:
    Senate Majority Leader Paul Gazelka
    Senate Minority Leader Susan Kent
    Senator Torrey Westrom
    Speaker of the House Melissa Hortman
    House Minority Leader Kurt Daudt
    Representative Gene Pelowski