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Nebraska Broadband

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Lincoln Leverages Partnerships, Becomes Smart Gigabit Community

By Anne Byers, Nebraska Information Technology Commission

The City of Lincoln has accelerated the deployment of broadband through the innovative use of public-private partnerships. Within 5 years, the City of Lincoln has parlayed a \$700,000 investment to build a fiber conduit system downtown into an additional \$600,000 a year in revenue, over 400 new jobs with \$20 million in new annual salaries, over \$200 million in private investment, and over 1,000 miles of public and private fiber installed. The number of carriers has grown from two to eleven. Support from Mayor Beutler, the city council, and the business community has been critical to the project's success.

“Public-private partnerships are the best model to attract new carriers and investment.”

—David Young
City of Lincoln

“Public-private partnerships are the best model to attract new carriers and investment,” said David Young, Fiber Infrastructure and Right of Way Manager for the City of Lincoln.

The Lincoln Broadband Project initially addressed business class services. The lack of affordable access to business class broadband as well as the lack of competitive access to regional and international broadband providers led the City of Lincoln to partner with the Lincoln Partnership for Economic Development (LPED), Downtown Lincoln Association (DLA), Lincoln Chamber of Commerce and Unite Private Network to invest \$700,000 in a downtown broadband conduit system.

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When the project was announced in February of 2012, Mayor Chris Beutler stated:

"In this century, telecommunications fiber has taken its place next to roads as key infrastructure for the promotion of economic growth and job creation. As Mayor, my goal is keep Lincoln among the most competitive economies not only in Nebraska, not only in the United States, but the entire world. Today's announcement will stamp Lincoln, Nebraska as a national leader in critical communication infrastructure and further our goal of being a city that can compete with anyone, anytime, anywhere. It will be a game changer."

The City of Lincoln has partnered with private companies to invest in competitive broadband services with Nebraska-Link signing the first contract to utilize the city's conduit system in February of 2013. The City also partnered with local engineering firms and contractors to connect every downtown building to the conduit system, with expected completion of the project in 2018.

The City's investments in business class broadband led to investments in residential broadband in 2015 with Allo Communication's agreement to lease space in the city-owned conduit network to provide residential service. As part of the agreement, Allo Communications agreed to make service available to every resident by 2019 and to provide broadband service at a minimum speed of 100 Mbps. The agreement also prohibited blocking, throttling, paid prioritization or data caps.

On November 29, US Ignite announced that Lincoln has been recognized as a Smart Gigabit Community, joining approximately 30 other progressive communities across the United States.

The City is investing \$500,000 per year over four years to fund maintenance and upkeep on the city-owned conduit system. The conduit lease agreement stipulates that Allo will pay an infrastructure support fee of \$3 per customer per month. The agreement will not result in increased taxes or a bond to cover the costs.

According to the agreement, government buildings will receive service of 1-10 Gigabits per second at no charge. ALLO will also provide 1 Gbps service to 500 traffic lights for a one-time installation charge and no recurring charge.

The agreement also includes provisions to address the digital divide with Allo agreeing to offer a low cost service of 20 Mbps for \$45 per month and a 15% discount off this service for those who meet the requirements of the FCC's Lifeline program. A broadband adoption grant awarded to Allo and Lincoln Public Schools (LPS) from the Nebraska Public Service Commission will further discount the low cost service to between \$10 and \$15 per month for low-income families with children in LPS who are receiving a digital device from LPS. Additionally, Allo has agreed to provide service to up to 75 non-profits for free.

Three contracts govern the construction of the system: a broadband franchise (the first of its kind in Nebraska), a cable franchise and a conduit lease agreement. The contracts are available from the City of Lincoln's website at Lincoln.ne.gov (keyword: fiber).

Improving wireless broadband is the third leg of the Lincoln Broadband Project. The City of Lincoln in partnership with Allo, will install free public Wi-Fi in the downtown area. The City is also working with carriers on plans for small cell light pole placements to increase cellular network capacity, quality and resilience. In December 2016, Verizon and the City of Lincoln reached an agreement that Verizon will place 30 small cells on specially made poles that will hide the equipment. Verizon will pay a \$1,500 permit fee per pole to cover city review expenses and will pay \$1,995 per pole annually. Two additional carriers, Mobility and Extenet, have also entered into similar agreements. The city anticipates having 100 small cell light pole placements by 2018 and 400 placements by 2022. Backhaul will be provided by one of the carriers utilizing the city's conduit system.

Smart Gigabit Community and Beyond

The City of Lincoln has also been focusing on applications that run on gigabit networks. On November 29, US Ignite announced that Lincoln, Nebraska has been recognized as a Smart Gigabit Community, joining 23 other progressive communities across the United States. Smart Gigabit Communities have invested in gigabit infrastructure and are focused on developing smart gigabit applications that address local and community needs in areas such as education, agriculture, workforce development, public safety,

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“Bold ideas, like Ignite-Lincoln and the Lincoln Broadband Project, are fuel for innovation and progress. This public-private partnership creates the digital infrastructure that gives our entrepreneurs and students high-speed internet, supercomputer access to researchers and other innovators across the nation to build next-generation technology.”

— Chris Beutler
Mayor
City of Lincoln

community health, energy and transportation. The project is funded via a three-year, \$6 million grant from the National Science Foundation (NSF) to create a network of cities employing a common approach to foster a gigabit application ecosystem.

“Bold ideas, like Ignite-Lincoln and the Lincoln Broadband Project, are fuel for innovation and progress,” said Lincoln Mayor Chris Beutler. “This public-private partnership creates the digital infrastructure that gives our entrepreneurs and students high-speed internet, supercomputer access to researchers and other innovators across the nation to build next-generation technology.”

The grant will provide access to a 10 Gbps network to allow researchers and developers to access supercomputer resources at the Holland Center from the Fuse co-working center and set up Gig applications. Grant partners include UNL, the City of Lincoln and four other partners.

Other projects are in the works, including grant applications for a wireless sensing project and the development of an autonomous vehicle test bed in downtown Lincoln. For more information about the Lincoln Broadband Project, please email: dyoung@lincoln.ne.gov.

New Benton Foundation Report Examines Public-Private Partnerships for Broadband

Public-private partnerships can be an effective way for communities to attract new broadband carriers and investments. [The Emerging World of Broadband Public-Private Partnerships: A Business Strategy and Legal Guide](#), a recent publication from the Benton Foundation and Coalition for Local Internet Choice, discusses three models for public-private partnerships. The three models included are:

- Public Facilitation of Private Investment
- Public Funding and Private Execution
- Shared Investment and Risk

Brief case studies are also included for each model. Lincoln, Nebraska is profiled as a case study for the Shared Investment and Risk model.

The report also examines legal issue in broadband public-private partnerships, including confirmation of authority, pre-negotiation project planning, and negotiating the agreement.

Report Looks at Economic Impact of Broadband

What is the economic impact of broadband? [Broadband's Impact: A Brief Literature Review](#), a new report from Purdue University's Center for Regional Development, summarizes the most recent research related to the impact of broadband. A few of the findings include:

- Broadband availability is positively correlated with economic growth as well as high housing prices.
- Rural broadband availability and adoption is related to greater economic growth, attraction of new firms, higher household incomes, as well as and growth in annual payroll and number of business establishments.

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Hartington, Hartelco Receive Smart Rural Community Recognition

By Anne Byers, Nebraska Information Technology Commission

On Friday, November 17, Hartelco and the community of Hartington celebrated being named one of 13 Smart Rural Communities in the United States by NTCA—The Rural Broadband Association. Hartington is the first Nebraska community to receive this recognition. Hartelco is one of the first telecommunications providers in Nebraska to provide 100% fiber optic, gig-capable service to all of its customers.

What makes us smart? A smart community has broadband that connects all facets of a community to support its citizens. That includes health care, schools, the medical facilities, businesses, economic development and local government.

*—Mike Becker
Hartelco*

Over 200 people, including Lieutenant Governor Foley, attended the celebration. Foley praised Hartington for being the kind of community in which people want to live.

“What makes us smart?” said Mike Becker, general manager for Hartelco. “A smart community has broadband that connects all facets of a community to support its citizens. That includes health care, schools, the medical facilities, businesses, economic development and local government. Thank you to our progressive board, our employees, and our community members who made this award possible. It has been an 8-year project to bring broadband to everyone and eliminate the digital divide.”

Hartington has a long history of accomplishments in the area of economic development, winning the 2014 Governor’s Showcase Community Award for outstanding community development accomplishments during a five-year period in which the community revitalized the downtown with infrastructure improvements, developed a Westfield Acres housing development project that encompassed 19 lots for

the construction of homes, and also assisted in the start-up of Trail Manor Manufacturing Company. In those 5 years, over \$1.7 million was received through local, state, and federal grants through the City of Hartington.

Broadband has played a role in Hartington’s success.

“The community of Hartington is fortunate to have many volunteers, businesses, organizations, and community leaders all working for the betterment and growth of our community,” said Carla Becker, economic development coordinator for the City of Hartington. “In today’s economy, it is vital to have great connectivity and having 100% fiber availability is not only a great service to the people who live in Hartington and the area, but also plays a critical part in helping our businesses and farming community grow. It is also necessary in attracting businesses. Hartelco’s investment into the community and area was substantial and its commitment to providing 100% fiber demonstrates that they understand the need and demand for this great service to everyone. The community is extremely fortunate to have fiber where other communities are struggling for basic internet connectivity. Hartelco has been a major supporter of community growth, and we are fortunate to have them as a



Lieutenant Governor Mike Foley and Hartington community members enjoy the Smart Rural Community celebration at Hartelco on Nov. 17.

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utility in Hartington and as a business supporter in economic development.”

The Hartington Public Library also plays an important role in providing access to computers and the internet as well as training and one-on-one assistance. The library offers 5 or 6 classes a year on topics like creating a photobook on Shutterfly or digital photography through Northeast Community College. The library just finished digitizing the archive of the local newspaper to facilitate genealogical and historical searches. The library also hosts a variety of programs, including six art shows a year and monthly programs in conjunction with University of Nebraska Extension.

Congratulations, Hartington and Hartelco, on your accomplishments!



Hartington Public Library director Tami Anderson (right) and children’s librarian Kim Emanuel (left) show the digitized newspaper archive during a tour of the library.

Broadband Videos Help Community Leaders Understand Technology

Do you want a crash course on broadband technologies or broadband policy? Or are you looking for ways your community could partner with telecommunications providers? If so, then check out the [Broadband 101 and 102 videos](#) which were recorded during the Nebraska Broadband Today Conference on Oct. 26, 2017. The conference was sponsored by the Nebraska Telecommunications Association in partnership with the Nebraska Broadband Initiative.

The Broadband 101 session featured presentations on broadband technologies and policy by two rock star presenters: Jason Axthelm, NebraskaLink and Doc Winger, Pinpoint Holdings.

The Broadband 101 videos have been broken up into 8 segments:

Broadband 101

Broadband Technologies
Jason Axthelm, Vice-President of Business Development NebraskaLink

Telecom Policy in Nebraska
Doc Winger, Pinpoint Holdings

- What is broadband?
- Bits, Bytes, and Other Important Terms
- Broadband Technologies—Overview and DSL
- Broadband Technologies—Cable Modem
- Broadband Technologies—Fiber
- Broadband Technologies—Wireless and Satellite
- Telecom Policy in Nebraska
- Questions and Answers

The Broadband 102 session brings together two representatives of the telecommunications industry and a local economic developer to discuss how communities and providers can work together to improve broadband services. The session is moderated by Cullen Robbins, Nebraska Public Service Commission and features three panelists: Tom Shoemaker, Pinpoint Holdings, Brad Moline, Allo Communications, and Jonathan Jank, Seward County Chamber & Development Partnership.

Thanks to OCIO employees, Nancy Taylor and Sam Fifer, for their help in recording and editing the videos!

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Gov. Ricketts Unveils Library Innovation Studios Makerspace Partnership

This fall Governor Pete Ricketts announced that 18 Nebraska libraries will be the initial local participants in Nebraska's Library Innovation Studios: Transforming Rural Communities project to create library makerspaces. The Nebraska Library Commission was recently awarded a National Leadership Grant of \$530,732 by the Institute of Museum and Library Services (IMLS) for this partnership project with the University of Nebraska Lincoln (UNL), Nebraska Innovation Studio, Nebraska Extension, Regional Library Systems, and local public libraries.

"This partnership demonstrates how our Nebraska communities can use technology and education to empower community residents to create, learn, and invent," said Governor Ricketts. "By expanding the skills of the workforce in our communities, supporting entrepreneurs, and encouraging lifelong learning, this partnership reinforces our vibrant business climate and supports community development."

The project uses Library Innovation Studios makerspaces hosted by public libraries to support community engagement and participatory learning experiences by providing access to technology and innovative learning tools not readily accessible locally. This is expected to stimulate creativity, innovation, and the exchange of ideas to facilitate entrepreneurship, skills development, and local economic development.

The Nebraska Innovation Studio—the UNL makerspace—is the creative and collaborative hub of UNL's Nebraska Innovation Campus, where makers and builders team up to conceptualize, prototype, and iterate projects that solve problems and influence change. The primary focus is on creativity, interdisciplinary collaboration, entrepreneurship,



Nebraska Innovation Studios, Instructional Designer, Max Wheeler trains library staff and community members on the Universal Laser Systems Laser Cutter and Graphtec Vinyl Cutter at a Training Session in Lincoln. From left to right: Terry Moran of Ashland; Tim Renker of Crete; Max Wheeler; Kirk Steib and Jennifer Smydra of Loup City; Tracy Ensor, Extension Office; Mary Jo McCall, Ainsworth Extension Office.

and education.

Nebraska Extension is one of three components of UNL's land-grant mission. It is a dynamic educational organization that puts research to work in local communities, businesses, and individuals' lives. Extension professionals are recognized for subject matter competence, excellent teaching skills, and community presence. They live and work in Nebraska communities across the state and engage with local and state partners in educational program delivery to address critical issues identified by constituents.

The initial local library partners that will host one of the four rotating makerspaces are:

- Ainsworth Public Library
- Ashland Public Library
- Bridgeport Public Library
- Broken Bow Public Library

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- Central City Public Library
- Crete Public Library
- Geneva Public Library
- Loup City Public Library
- Nebraska City, Morton-James Public Library
- Neligh Public Library
- Norfolk Public Library
- North Platte Public Library
- Plattsmouth Public Library
- Ravenna Public Library
- Scottsbluff, Lied Scottsbluff Public Library
- Sidney Public Library, Special Model Program Partner
- South Sioux City Public Library
- Wayne Public Library

Twelve additional libraries will be selected in 2018 to host makerspaces in 2019/20. This project began July 1, 2017 and will conclude June 30, 2020. For more information about the project or equipment that will be featured in the rotating makerspaces, see <http://nlc.nebraska.gov/grants/InnovationStudios>.

“Nebraska’s public libraries are the natural gathering points for people to come together to share materials, knowledge, and experiences,” said Nebraska Library Commission Director Rod Wagner. “Whether the materials and tools are high tech or low tech, digital or analog, art or science, the focus is to create, invent, tinker, explore, and discover using the tools, materials, and knowledge available. Libraries have always been dedicated to community partnership, collaboration, and the free exchange of ideas—makerspaces are the next step in that progression.”

“UNL and Nebraska Innovation Studio are extremely excited to be partnering with the Nebraska Library Commission and libraries across the State of Nebraska to help bring hands-on learning experiences to Nebraskans of all ages,” said UNL Nebraska Innovation Studio Founder Shane Farritor. “I think it is very important to provide the opportunity to be creative and this partnership is going to create new opportunities.”



Terry Moran learns how to use the new BERNINA bernette Chicago 7 embroidery/sewing machine in Ashland’s newly installed Library Innovation Studios makerspace.



Nebraska Library Commission’s JoAnn McManus teaches Plattsmouth Public Library staff and community members about the materials used in the makerspace and how to use a button maker. From left to right: Ben Broshar, Santrese Montgomery, JoAnn McManus, Lyn Belitz.

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Sidney Create! Celebrates with Open House

By *Connie Hancock, Nebraska Extension*

Creating a community of makers is becoming a reality for the Sidney community with the opening of Sidney Create! Sidney was selected as the one community in the state to host a permanent MakerSpace in conjunction with Nebraska 4-H and a grant funded by the National Science Foundation. The point of making is not to have an abundance of tools in one space but it is about helping participants create personally meaningful projects with periodic help of mentors, experts, and peers in learning communities. The Maker Movement has been successful in urban centers, but what does that look like in rural settings? This exploratory project has two strategies: 1) to provide opportunities for teams of youth and mentors to collaborate regardless of geographic location and to creatively problem solve and innovate, 2) to utilize telepresence robotics for more focused one-on-one collaboration with experts and mentors in the physical Makerspace.

From what we learn in this model, we hope to replicate in other remote locations across Nebraska. The intent is to prove this as an economical and sustainable delivery vehicle that enables the formation of learning communities regardless of distance and encourages innovation in youth and community. The greatest benefit will be in helping youth find a place in their community using their creativity and innovation.



During the recent open house where over 100 people had the opportunity to view and learn about what Sidney Create! has to offer and to consider ways they might contribute utilizing their expertise in training others as well as creating.

The local partnership has made this effort successful, including the Cheyenne County Chamber of Commerce, City of Sidney, Cheyenne County Economic Development, Sidney Public Schools, Sidney Public Library, ESU #13, NebraskaLink, Nebraska Extension located in Cheyenne County, and Cheyenne County Commissioners.



75% of Nebraska Farms Subscribe to Broadband

USDA's [Farm Computer Usage and Ownership \(August 2017\)](#) report found that 75% of Nebraska farms had internet access. Nebraska has a greater percentage of farms with Internet access than four of our neighboring states (Iowa, Kansas, Missouri, and South Dakota) and the U.S. average (71%). Wyoming is the leader in the highest percent of farms with Internet access (83%).

State	% Using Computers for Farm Business	% Using smart phone/ tablet for farm business	% with Internet Access
Colorado	54	41	78
Iowa	55	43	74
Kansas	47	41	71
Missouri	43	32	66
Nebraska	56	48	75
South Dakota	50	34	75
Wyoming	58	42	83
United States	47	39	71

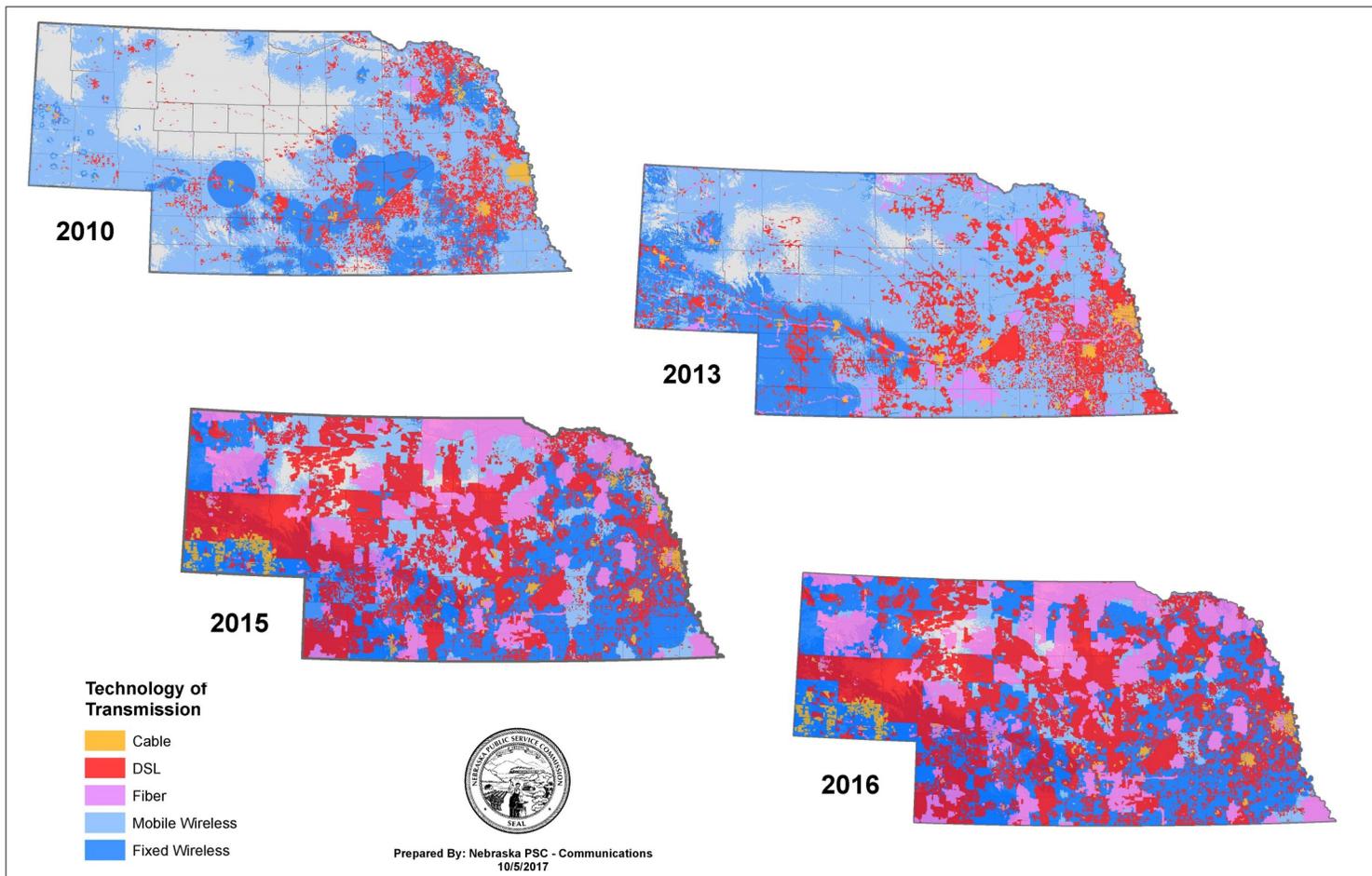
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Public Service Commission Updates Nebraska Broadband Map

The Nebraska Public Service Commission has updated the state broadband map (broadbandmap.nebraska.gov) with data from 2016 Form 477 reports. An analysis of the data found that as of 2016, 83% of households in Nebraska had broadband service of at least 25 Mbps down and 3 Mbps up available to them, up from 74.9% in 2013. Nearly 50% (49.7%) of Nebraska households had service of at least 100 Mbps up available.

An updated map showing changes in broadband availability between 2010 and 2016 is shown below.

To view broadband availability by speed tiers or technology, go to broadbandmap.nebraska.gov. Click on the Menu button and select Change Visible Map Layers. You can also view areas eligible for funding from the Connect America Fund and exchange boundaries.



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Transportation and Telecommunications Committee Holds Broadband Hearings

The Nebraska Legislature's Transportation and Telecommunications Committee held three hearings as part of the interim study (LR 176) to examine the provision of broadband telecommunication services within the state. Nearly 30 individuals representing the Nebraska Public Service Commission, telecommunications industry, public power, agricultural producers, small businesses, local government, and the State of Nebraska's Office of the CIO testified at the hearings in McCook, Central City and Lincoln the week of Nov. 27.

Several themes emerged from the hearings:

Broadband is critical for businesses, health care providers, and agricultural producers in Nebraska, as well as citizens seeking online educational opportunities.

Broadband availability in Nebraska is improving, but some rural areas remain underserved. Several providers testified about recent infrastructure upgrades that have been made and plans for future improvements. A number of providers have deployed or are planning to deploy fiber to the premise. Nevertheless, 17% of Nebraskans cannot get broadband of 25 Mbps down/3 Mbps up and are considered unserved or underserved according to Cullen Robbins, Director of Communications and NUSF, Nebraska Public Service Commission.

Cost is the biggest barrier to the deployment of broadband services especially in sparsely populated rural areas.

Support from the Nebraska Universal Service Fund (NUSF) and the federal Connect America Fund is making it possible for telecommunications providers to deploy fiber further out in their networks. However, support from the NUSF has been declining. Providers voiced support for the Nebraska Public Service Commission's efforts to modernize and stabilize the NUSF. The need for greater accountability from providers for the use of NUSF funds was also mentioned by several testifiers.

The current definition of broadband as service of at least 25 Mbps down and 3 Mbps up reflects the needs of consumers who are primarily downloading content. The current definition doesn't reflect the needs of small businesses and agricultural producers who need to upload very large files.

This definition will also likely not be adequate for future needs.

Agricultural producers will likely require both mobile and fixed broadband. The spectrum manager for John Deere testified that John Deere tractors have an AT&T modem installed and require mobile broadband coverage. A farmer near Giltner shared how he is using aerial and video imaging to manage his operations. The files are huge. He currently has to download them to a flash drive and mail them to have them analyzed.

Public-private partnerships may facilitate the deployment of broadband. Several representatives of the public power industry testified about their willingness to partner with the telecommunications industry. David Young from the City of Lincoln also testified about the value of public-private partnerships.

PSC Commissioner Mary Ridder recommended convening a statewide task force to address the 17% of Nebraska households who do not have broadband and develop a statewide broadband plan. She also recommended that the plan include a biennial reporting requirement designed to provide updates for continual broadband growth.

Broadband Nebraska is produced by the NITC Community Council in partnership with the Nebraska Broadband Initiative. To subscribe go to: <http://nitc.ne.gov/news/community/index.html>



The **Nebraska Information Technology Commission (NITC) Community Council** (nitc.ne.gov) promotes the adoption and utilization of broadband technologies in Nebraska and provides recommendations to the NITC.

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The **Nebraska Broadband Initiative** (broadband.nebraska.gov) promotes the adoption and utilization of broadband in Nebraska. Project partners include the Nebraska Public Service Commission, University of Nebraska-Lincoln, Nebraska Information Technology Commission, Nebraska Department of Economic Development, and AIM.