

**Rural Broadband Task Force  
Findings and Recommendations**

**Draft—August 12, 2019**

## **Rural Broadband Task Force Members**

**Ed Toner, Task Force Chair**, Chief Information Officer, State of Nebraska and Chair, Nebraska Information Technology Commission

**Senator Curt Friesen**, Chair, Transportation and Telecommunications Committee, Nebraska Legislature

**Senator Bruce Bostelman**, Nebraska Legislature

**Mary Ridder**, Commissioner and Chair, Nebraska Public Service Commission

**Director or Designee**, Nebraska Department of Economic Development

**Steve Wellman**, Director, Nebraska Department of Agriculture

**Zachary Hunnicutt**, Farmer, Hunnicutt Farms

**Isaiah Graham**, Vice-President, Homestead Bank

**Tom Shoemaker**, President, Pinpoint Communications

**Daniel Spray**, Owner, Precision Technology, Inc.

**Timothy Lindahl**, CEO/General Manager, Wheat Belt Public Power District

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## Executive Summary

The Rural Broadband Task Force was created to “review issues relating to availability, adoption, and affordability of broadband services in rural areas of Nebraska” by LB 994, which was passed by the Legislature and signed by Governor Ricketts on April 17, 2018.<sup>1</sup> The bill was introduced by Senator Curt Friesen, Chair of the Transportation and Telecommunications Committee. The task force is chaired by Ed Toner, CIO for the State of Nebraska and Chair of the Nebraska Information Technology Commission. This report presents the findings and recommendations of the task force as required by LB 994.

## Recommendations

*Recommendations will be included here*

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<sup>1</sup> See Appendix 1 for the text of the statutes pertaining to the Rural Broadband Task Force.

# Introduction

*Broadband and telecommunications service in rural areas of the state should be comparable in download and upload speed and price to urban areas.*

--Vision of the Rural Broadband Task Force, adopted September 24, 2018

The Rural Broadband Task Force was created to “review issues relating to availability, adoption, and affordability of broadband services in rural areas of Nebraska” by LB 994, which was passed by the Legislature and signed by Governor Ricketts on April 17, 2018.<sup>2</sup> The bill was introduced by Senator Curt Friesen, chair of the Transportation and Telecommunications Committee. The task force is chaired by Ed Toner, CIO for the State of Nebraska and Chair of the Nebraska Information Technology Commission. This report presents the findings and recommendations of the task force as required by LB 994.

**Importance of Broadband.** Rural broadband is important to Nebraska’s economy and to the state’s businesses, consumers, agricultural producers, students, educators, patients and health care providers. Rural broadband availability and adoption are associated with:

- Attraction and retention of millennials
- Greater economic growth
- Attraction of new firms
- Higher household incomes
- Small business growth<sup>3</sup>

**Definitions and Prioritization.** In order to clarify terms and prioritize those areas in most need of assistance, the task force adopted the following definitions and priorities:

**Rural areas** are defined as open countryside with population densities less than 500 people per square mile or places with fewer than 2,500 people.

**Unserved areas** are defined as areas with internet service at less than 10 Mbps down/1 Mbps up.

**Underserved areas** are areas which have internet service at 10 Mbps down/1 Mbps up or greater but less than 25 Mbps down/3 Mbps up.

The task force recommends that policies and available funding target areas based on the following prioritization:

1. Unserved Areas Outside City/Town/Village Limits
2. Unserved Areas Within City/Town/Village Limits
3. Underserved Areas Outside City/Town/Village Limits
4. Underserved Areas Within City/Town/Village Limits

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<sup>2</sup> See Appendix 1 for the text of the statutes pertaining to the Rural Broadband Task Force.

<sup>3</sup> Gallardo, R., Whitacre, B. and Grant, A. (January 2018). Research and Policy Insights: Broadband’s Impact. Available at <https://www.pcrd.purdue.edu/files/media/Broadbands-Impact-Final.pdf>

# Findings and Recommendations

## Broadband Availability in Nebraska

*Determine how Nebraska rural areas compare to neighboring states and the rest of the nation in average download and upload speeds and in subscription rates to higher speed tiers, when available.*

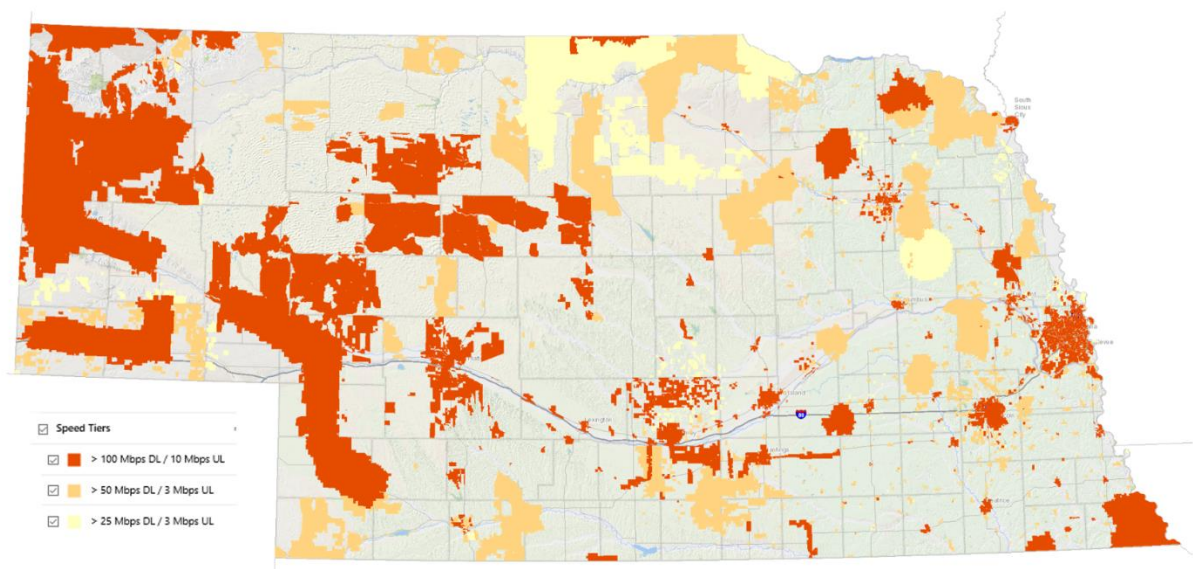
—Nebraska Revised Statutes 86-1102(3)(a)

### Findings

- **Rural Nebraskans are less likely to have broadband available.** Eighty-seven percent of Nebraskans—but only 58% of rural Nebraskans—have fixed broadband of at least 25 Mbps down/3 Mbps up available.<sup>4</sup> The map below shows where providers reported broadband being available as of December 2017.

## Broadband Availability in Nebraska

December 2017



Nebraska Broadband Map using Dec. 2017 FCC Form 477 data, [broadbandmap.nebraska.gov](http://broadbandmap.nebraska.gov)

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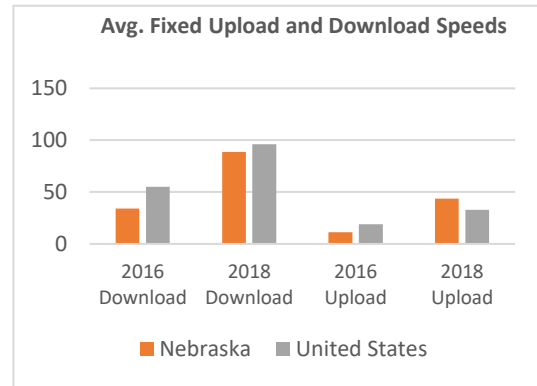
<sup>4</sup>Source: 2018 FCC Communications Marketplace Report Appendix D-1 available at <https://docs.fcc.gov/public/attachments/FCC-18-181A9.pdf>. More information is available in Appendix 2: Nebraska Broadband Availability, Download and Upload Speeds, and Subscription Rates .



- **Broadband availability in Nebraska varies by incumbent local exchange carrier.** Broadband is available to over 90% of households in the exchanges served by 11 incumbent carriers, but is available to less than 25% of households in the exchanges served by eight incumbent carriers.<sup>7</sup>

- **Average fixed download and upload speeds increased dramatically from 2016 to 2018.**

The average fixed download speed in Nebraska increased from 34 Mbps in 2016 to 89 Mbps in 2018. Average fixed upload speeds in Nebraska increased as well from 11 Mbps in 2016 to 44 Mbps in 2018. Nebraska ranked in the middle of our neighboring states in average download speeds, but behind the U.S. average of 96 Mbps in 2018. Nebraska ranked second among neighboring states in average upload speeds and was above the U.S. average of 33 Mbps.<sup>8</sup> Unfortunately, recent data on average download and upload speeds in rural areas is not available.



- **Average mobile broadband speeds in Nebraska lag behind U.S. average and neighboring states except Iowa and Wyoming.** The average mobile download speed in Nebraska is 20.8 Mbps, compared to 27.3 in the U.S.<sup>9</sup>

- **Nebraska lags the U.S in broadband subscriptions to 25 Mbps or greater service, but leads neighboring states in subscriptions to 100 Mbps service, resulting in a speed divide.<sup>10</sup>**

- Just over half (51%) of fixed terrestrial connections in Nebraska had speeds of at least 25 Mbps down in December 2017. Nebraska lags the U.S (60%), Colorado (68%), South Dakota (64%), and Wyoming (55%) in the percent of connections at 25 Mbps down or greater.

#### Key Findings

- Rural Nebraskans are less likely to have broadband available
- Nebraska lags the U.S. and neighboring states in fixed and mobile broadband availability
- Broadband availability in Nebraska varies by incumbent local exchange carrier.
- Average fixed download and upload speeds increased dramatically from 2016 to 2018.
- Rural consumers are likely to pay more for broadband.

<sup>7</sup> Based on June 2017 FCC Form 477 data. More information is available in Appendix 7.

<sup>8</sup> 2016 and 2018 Ookla Speed Tests available at <https://www.speedtest.net/reports/united-states/2016/>; ; <https://www.speedtest.net/reports/united-states/2018/fixed/>. More information is available in Appendix 2.


<sup>9</sup> 2016 and 2018 Ookla Speed Tests available at <https://www.speedtest.net/reports/united-states/2016/>; <https://www.speedtest.net/reports/united-states/2018/mobile/>. More information is available in Appendix 2.

<sup>10</sup> 2018 FCC Communications Marketplace Report, Appendix D-8 available at <https://docs.fcc.gov/public/attachments/FCC-18-181A9.pdf>. More information is available in Appendix 2.








- Twenty-nine percent of fixed connections in Nebraska and the U.S. are at least 100 Mbps down. Nebraskans subscribe to broadband of at least 100 Mbps at a higher rate than all of our neighboring states.
- **Rural consumers are likely to pay more for broadband.** U.S. households in zip codes in the bottom 10 percent of population density pay up to 37 percent more on average for wired broadband than those in the top 10 percent. <sup>11</sup>

## Metrics

Fixed Broadband Availability	
Measure	2019 Most Recent Data 25 Mbps down/3 Mbps up December 2017, FCC Form 477
The percent of Nebraskans with access to fixed broadband	87%
The percent of rural Nebraskans with access to fixed broadband	58%
How Nebraska compares with neighboring on fixed broadband availability	6 <sup>th</sup> out of 7
How Nebraska compares with the U.S. on fixed broadband availability	 Nebraska lags the U.S. 94% of Americans and 76% of rural Americans have access to fixed broadband.
Mobile Broadband Availability	
Measure	2019 Most Recent Data 10 Mbps down/3 Mbps up December 2017, FCC Form 477
The percent of Nebraskans with access to mobile broadband	83%
The percent of rural Nebraskans with access to mobile broadband	56%

<sup>11</sup> Based on data collected from October to December 2018 and reported in Broadband Research's Digital Divide: Broadband Pricing by State, Zip Code and Income Level (January 2019). Available at <https://broadbandnow.com/research/digital-divide-broadband-pricing-state-zip-income-2019>

How Nebraska compares with neighboring on mobile broadband availability	6 <sup>th</sup> out of 7
How Nebraska compares with the U.S. on mobile broadband availability	 Nebraska lags the U.S. 89% of Americans and 69% of rural Americans have access to broadband.
<b>Average Fixed Speeds</b>	
<b>Measure</b>	<b>2019 Most Recent Data</b> 2018, Ookla
Average fixed download speed in Nebraska	89 Mbps
How Nebraska compares with neighboring states on average fixed download speeds	4 <sup>th</sup> out of 7
How Nebraska compares with U.S. on average fixed download speeds	 Nebraska lags the U.S. U.S. average fixed download speed of 96 Mbps.
Average fixed upload speed in Nebraska	44 Mbps
How Nebraska compares with neighboring states on average fixed upload speeds	2 <sup>nd</sup> out of 7
How Nebraska compares with U.S. on average fixed upload speeds	 Nebraska beats the U.S. average upload speed of 33 Mbps.
<b>Average Mobile Speeds</b>	
<b>Measure</b>	<b>2019 Most Recent Data</b> 2018, Ookla
Average mobile download speed in Nebraska	20.8 Mbps
How Nebraska compares with neighboring states on average mobile download speeds	5 <sup>th</sup> out of 7
How Nebraska compares with U.S. on average mobile download speeds	 Nebraska lags the U.S. average mobile download speed of 20.8 Mbps
Average mobile upload speed in Nebraska	7.72 Mbps

How Nebraska compares with neighboring states on average mobile download speeds	5 <sup>th</sup> out of 7
How Nebraska compares with U.S. on average mobile download speeds	 Nebraska lags the U.S average mobile upload speed of 8.63 Mbps

*Additional Findings and Recommendations will be inserted here*

*Note: The following sidebars can be placed throughout the document to provide additional information and break up text:*

### **Broadband, Precision Ag Technologies Would Add \$47 to \$65 Billion to U.S. Economy**

Broadband and precision agricultural technologies are becoming increasingly important for agriculture. The USDA estimates that fully utilizing precision agricultural technologies would generate approximately \$47-\$65 billion annually in additional gross benefit for the U.S. economy.

The USDA identified the following economic and environmental benefits of precision agriculture:

- 40% less fuel burned due to variable rate technologies.
- 20% or greater reduction in water usage
- Up to 80% reduction in chemical application

Precision agriculture is in use by the early majority of row crop producers, with guidance systems used on approximately 50% of the planted acres of some row crops in the United States. The use of precision agriculture in specialty crops and livestock is still in the early stages of adoption, however.

Precision agricultural equipment requires both GPS and mobile broadband connectivity. Wired broadband can facilitate the transfer of the vast amounts of data generated by precision agricultural equipment from the field to the cloud where the data can be stored and analyzed. Currently 75% of agricultural producers in Nebraska have internet access. Many of these producers may lack sufficient upload speeds to transfer large amounts of data, necessitating the transfer of data via sneakers or the mail.

#### **Sources:**

USDA. (April 2019). A Case for Rural Broadband: Insights on Rural Broadband Infrastructure and Next Generation Precision Agriculture Technologies. Available at <https://www.usda.gov/sites/default/files/documents/case-for-rural-broadband.pdf>

USDA. (August 2017). Farm Computer Usage and Ownership. Available at <https://usda.library.cornell.edu/concern/publications/h128nd689>

### **Broadband Impacts Rural Health Care**

Broadband connectivity is playing a greater role in healthcare, with more than three-fourths of U.S. hospitals connecting with patients and consulting practitioners through video and other technology.

With broadband service, rural residents can:

- Research health topics online
- Access electronic health records
- Make appointments and communicate with health care providers
- Access health primary and specialty care via telemedicine
- Participate in home monitoring telehealth services

#### **Sources:**

Statement of the American Hospital Association for the Energy and Commerce Subcommittee on Communications and Technology of the U.S. House of Representatives: Realizing the Benefits of Rural Broadband: Challenges and Solutions. (July 2018). Available at <https://www.aha.org/system/files/2018-07/180717-statement-rural-broadband.pdf>

## Key Definitions and Acronyms

**Broadband**—High-speed internet access at 25 Mbps down and 3 Mbps up or greater.

**Connect America Fund (CAF)**—The FCC’s universal service high cost program which provides support to carriers for broadband.

**Competitive Local Exchange Carrier (CLEC)**—A telecommunications provider competing with the incumbent local exchange carrier (ILEC).

**Fixed Broadband**—Any broadband transmission method to a home or business including Digital Subscriber Line (DSL), cable modem, fiber, fixed wireless, and satellite. Fixed broadband does not include mobile (cellular) broadband.

**Fixed Terrestrial Broadband**— Any broadband transmission method to a home or business including Digital Subscriber Line (DSL), cable modem, fiber, and fixed wireless. Fixed broadband does not include mobile (cellular) broadband and satellite.

**Incumbent Local Exchange Carrier (ILEC)**—A local telephone company which provided landline service before the market was opened to competitive local exchange carriers.

**Price Cap Carriers**—Include the three largest incumbent exchange carriers in the state: CenturyLink, Windstream, and Frontier (also known as Citizens Telecommunications of Nebraska).

**Rate of Return Carriers**—Smaller, rural incumbent local exchange carriers.

**Rural Area**—Open countryside with population densities less than 500 people per square mile or places with fewer than 2,500 people.

**Terrestrial Broadband**—Land-based methods of broadband transmission (DSL, cable modem, fiber, fixed wireless and mobile wireless). Terrestrial broadband does not include satellite.

**Unserved Areas**—Areas with internet service at less than 10 Mbps down/1 Mbps up.

**Underserved Areas**—Areas which have internet service at 10 Mbps down/1 Mbps up or greater but less than 25 Mbps down/3 Mbps up.

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Copies of the executive summary, full report, and appendices are available at <https://ruralbroadband.nebraska.gov>

# Rural Broadband Task Force Report Change Log

## June 2019

Added the following paragraphs to the side bar on broadband and health

*Connected care projects utilizing remote patient monitoring and virtual doctor visits across the United States have resulted in significant cost savings and improved health outcomes for patients. The widespread use of these technologies could save \$305 billion annually.*

*Inadequate broadband connectivity due to either a lack of availability, affordability, or other factors is a barrier to the adoption of connected care technologies. In order to better understand the relationships among affordable broadband service, connected care technologies, and patient outcomes, the FCC has proposed establishing a three-year \$100 million pilot program which would defray the costs of broadband service to enable low-income patients and veterans to access telehealth services.*

Added the following paragraph to the sidebar on broadband and agriculture

*On June 17, 2019, the Federal Communications Commission (FCC) announced the establishment of a new federal advisory committee to advise the Commission on policies to improve agricultural connectivity. Task Force for Reviewing the Connectivity and Technology Needs of Precision Agriculture in the United States develop policy recommendations to promote deployment of broadband service on unserved agricultural land, with a goal of achieving reliable capabilities on 95 percent of agricultural land in the United States by 2025.***July 30, 2019**

Added metrics to the broadband availability findings.

## July 30 added Key Findings

- Rural Nebraskans are less likely to have broadband available
- Nebraska lags the U.S. and neighboring states in fixed and mobile broadband availability
- Broadband availability in Nebraska varies by incumbent local exchange carrier.
- Average fixed download and upload speeds increased dramatically from 2016 to 2018.
- Rural consumers are likely to pay more for broadband.

## August 12

Deleted Dave Rippe as a task force member.