

# North Dakota Broadband Report

*Connecting the World to North Dakota*

# Internet

connecting our homes, our businesses, our lives

At its best, **human connection** is what the Internet is all about. *It's the video that goes viral* that you can't wait to share with your friends. It's sending *photos of your kids* to your parents, who won't believe how they've grown. It's *catching up with old friends* on Facebook. It's sending that email at work that *helps your business grow*. It's *streaming that movie online* on a Saturday night with your kids and your spouse. It's the attachment that *makes the whole office cheer*. It's the *article* you send to a friend who has just been diagnosed. It's the *video chat* with your son overseas in the military. The Internet is woven into the fabric of our days, and *we can't imagine life without it*.

This North Dakota Broadband Report shares the *good news*: the availability of high-speed broadband Internet and fiber-to-the-home technology is *booming* in North Dakota. The report also tells the stories of *people like you*—businesswomen and men, people working from their homes, people trying to make their lives work, people looking for a *human connection*—and how North Dakota's Internet infrastructure has *changed their lives for the better*. In every case, *the story is the same*: individuals and businesses throughout North Dakota are thriving because of the connection broadband offers.

Your Internet connection isn't something you should have to worry about, or even think about. It should be there for you, like a *reliable friend*. This report shows that, without a doubt, *you have a friend in North Dakota's broadband networks*.

## From the Acting Administrator of USDA Rural Utilities Services



We are fortunate to live in a country that has always believed that to have a United States of America, we must have a connected America. Policies have been adopted to join rural and urban areas together through telephone, electricity and interstate highway systems. That tradition continues today in a 21st century context, with the deployment of high-speed broadband Internet.

Substantial investments have been made during the past five years to build out North Dakota's broadband network. The USDA Rural Utilities Service, with our partners, has positioned North Dakota as the leading state in coverage, speeds and fiber-to-the-home access. This cutting edge network doesn't happen alone; it takes a team of partners. As featured in this report, the vision and leadership of the North Dakota Telecommunications providers has prepared the state well for a prosperous future.

Access to a high-speed connection will fundamentally change the way we live, work, and do business. It opens up opportunities to telework or start a business. Our farmers and ranchers have access to real-time market information. Distance learning offers students access to more classes and the chance to obtain a degree from home. The high-speed connection also opens the door to telemedicine opportunities that never existed before. Of course, there are also the social benefits—staying connected to their friends and loved ones.

Please enjoy this North Dakota Broadband Report, which highlights the substantial work already done and the work left to do. Once again, North Dakota is leading the way.

**Jasper Schneider**  
Acting Administrator  
USDA Rural Utilities Service

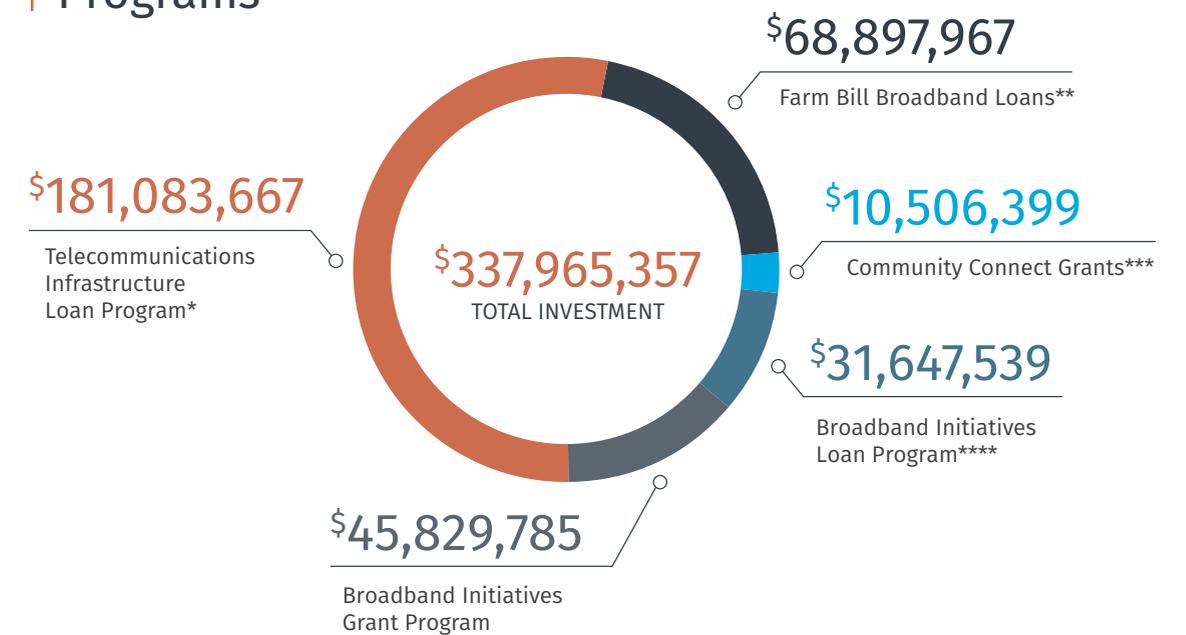
“To have a United States of America, we must have a connected America.”

“Access to a high-speed connection will fundamentally change the way we live, work, and do business.”

## Broadband Investments in North Dakota

Broadband is the infrastructure of the 21st century. Since 2009, USDA has invested more than \$330 million in North Dakota telecommunications and broadband projects, of that total investment, more than \$56 million was granted and \$281 million was loaned to local North Dakota Internet service providers to help build out and provide better service to their customers. These investments provide economic development, educational, health care, social and public safety benefits to improve the quality of life for North Dakotans.

### USDA Telecommunication Programs



\* The Telecommunications Infrastructure Loan Program makes long-term direct and guaranteed loans to qualified organizations for the purpose of financing the improvement, expansion, construction, acquisition, and operation of telephone lines, facilities, or systems to furnish and improve telecommunications service in rural areas.

\*\* The Farm Bill Broadband Program is designed to provide loans for funding, on a technology-neutral basis, for the costs of construction, improvement, and acquisition of facilities and equipment to provide broadband service to eligible rural communities.

\*\*\* The Community Connect program serves rural communities where broadband service is least likely to be available, but can make a tremendous difference in the quality of life for citizens. The projects funded by these grants will help rural residents tap into the enormous potential of the Internet.

\*\*\*\* The Broadband Initiatives Program (BIP) was established in response to the American Recovery and Reinvestment Act of 2009 (Recovery Act). The primary goal of the Recovery Act was to provide a fiscal boost to the nation during the economic crisis. Providing access to broadband services will increase economic development and improve the quality of life for all Americans. BIP funding for loans, grants, and loan/grant combinations will help address the challenge of rapidly expanding the access and quality of broadband services across rural America and meeting the objectives of the Recovery Act.

## From the Chief Executive Officer of Dakota Carrier Network



Dakota Carrier Network's fiber optic network promotes business opportunities. Dakota Carrier Network (DCN) and its 15 independent rural telephone companies are committed to serving the citizens of North Dakota—it's the reason we have collectively invested more than \$100 million per year in fiber infrastructure for the last decade. This \$1.3 billion investment to put 40,000 miles of fiber optics in the ground extends ultra-high-speed broadband capabilities to every corner of the state. DCN's high-speed network enables businesses to compete on a worldwide stage as data travels across North Dakota or around the world.

The State of North Dakota recognizes this investment in technology and deploys DCN's network to bring gigabit-capable broadband services to 300+ locations across the state including state agencies, higher education institutions, and K-12 school districts.

DCN's fiber optic network is supported 24 hours a day, seven days a week by industry-certified, highly skilled technicians in a state-of-the-art Network Operations Center in Bismarck. DCN's carrier-grade-hardened facility is engineered to meet and exceed high availability standards. This is crucial since DCN provides network connectivity to North Dakota's most critical institutions, including health care, public safety, state government, schools, and financial organizations among others relying on broadband service to perform their daily business activities.

DCN and its member companies will continue to invest, upgrade and provide world-class broadband service to North Dakota consumers.

### **Seth Arndorfer**

**Chief Executive Officer**

Dakota Carrier Network (DCN)

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*“DCN's high-speed network enables businesses to compete on a worldwide stage as data travels across North Dakota or around the world.”*

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*“DCN provides network connectivity to North Dakota's most critical institutions.”*

## From the Executive Vice President of the North Dakota Association of Telecommunications Cooperatives



The 18 independent telecommunications companies in North Dakota have long demonstrated a commitment to meeting the evolving needs of their members and customers. In the past, the telecom cooperatives and small commercial companies satisfied all of their consumers' needs by providing quality, affordable phone service. Those days have long passed—today's rural customer requires an array of sophisticated offerings to access the entertainment, educational and economic opportunities others in the world enjoy.

The challenge is huge—cooperative and small commercial members serve 96 percent of the state's geographic territory—and the investment is substantial. Yet there are no alternatives to this investment: in the past, telecom companies offered a menu of services from which customers could pick and choose. Today, that same consumer determines the services they want and how much they are willing to spend for speed, capacity and content.

North Dakota independent telecom companies have responded aggressively, in many cases with the assistance of USDA Rural Development offices. Each company in the state is committed to building out fiber-to-the-home in the shortest time possible. Several telcos have a 100% fiber network and more will be added each year until—we predict—every rural North Dakotan will have access to gigabit speed by 2019.

Today, our customers hold online livestock auctions, watch movies, participate in classes at top universities and send vast amounts of research data across our networks. We don't know how they will use our network in the future, but we are committed to building the infrastructure that allows them to meet their needs.

### **David Crothers**

**Executive Vice President/General Manager**

North Dakota Association of Telecommunications Cooperatives (NDATC)

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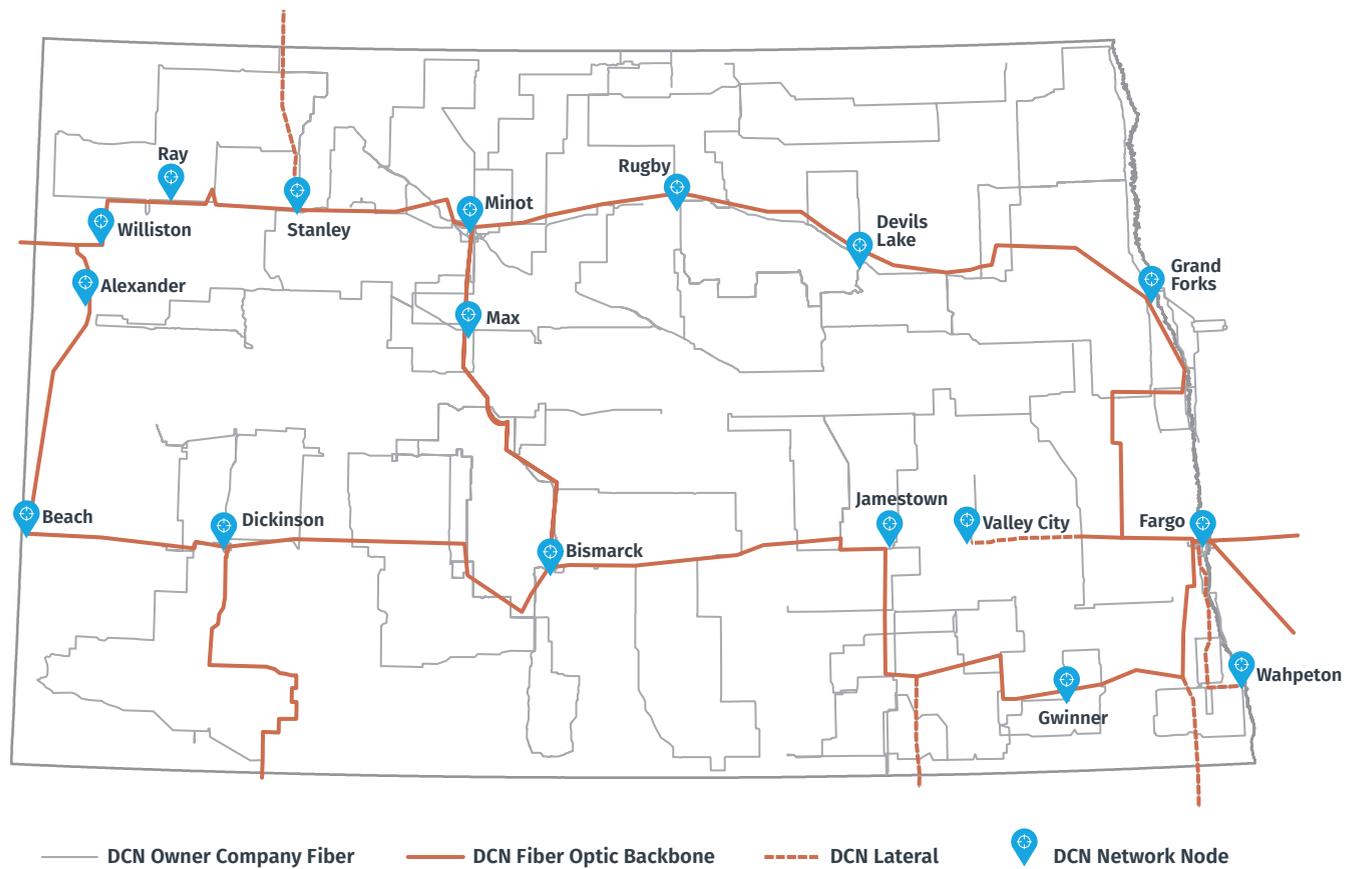
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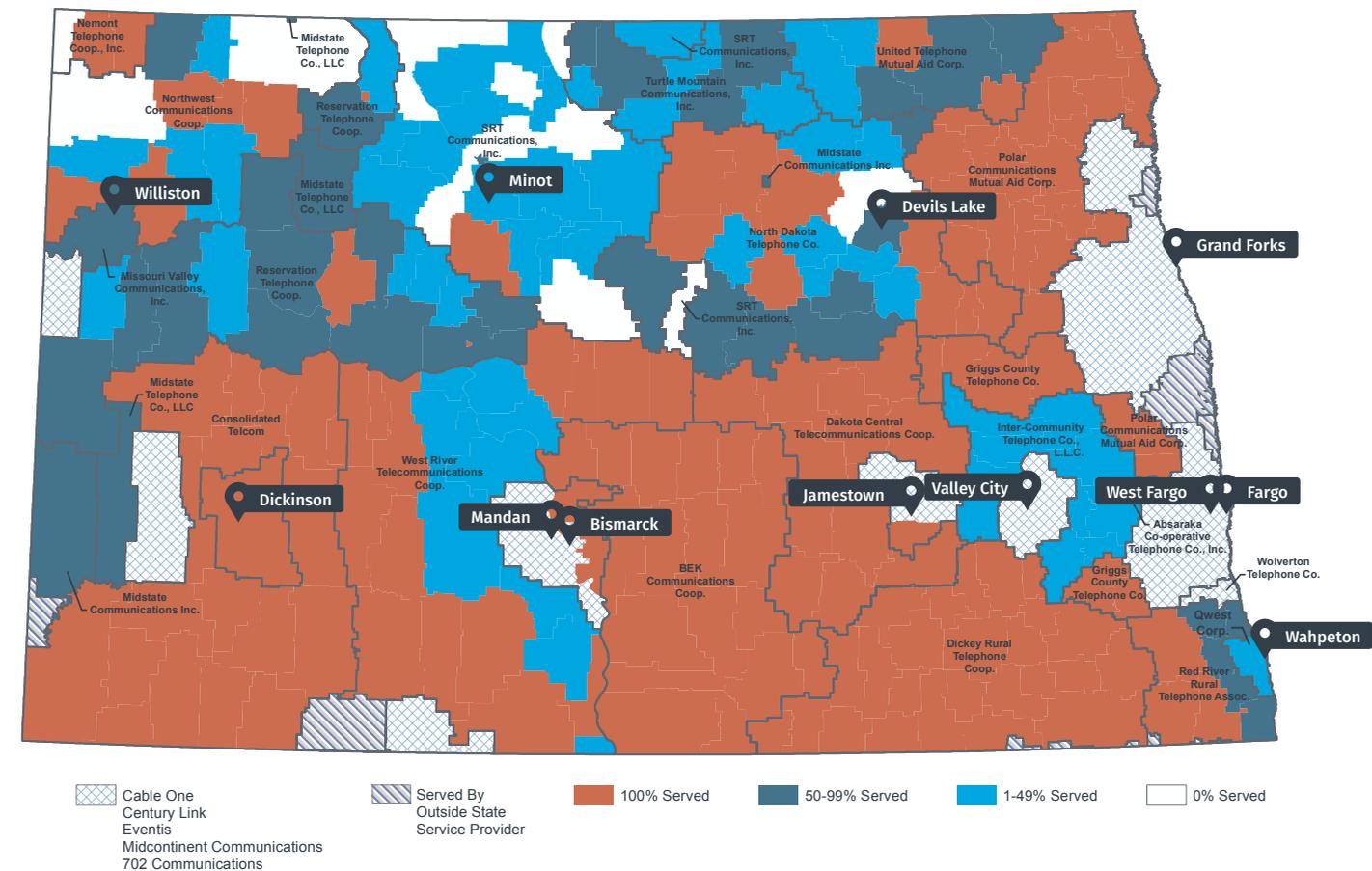
# Broadband Capacity Maps

On average in the United States, only 5% of households have fiber Internet, but the maps below illustrate the remarkable coverage of fiber in North Dakota. As the coverage map shows, local telcos provide fiber to most of our state's rural areas, in many areas offering 100% coverage. In other words, in these communities 100% of homes and businesses are fiber-ready. The fiber backbone map reveals the immense network created by these telcos, which branches off the Dakota Carrier Network.

## North Dakota- Backbone Fiber



## North Dakota- Exchanges Served by Fiber



\*Fiber To The Home (FTTH) deployed by end of year 2015. Map data based on area served.

# How Broadband *Connects Our Lives*

## Connecting to nature: *where the song birds sing and the data streams*



Perched atop 16,000 acres of rolling hills and lush wetlands, the visitors center at the Arrowwood National Wildlife Refuge hosts thousands of schoolchildren, hikers, bird watchers and nature enthusiasts every year. Wetland district manager Stacy Whipp has the best of both worlds: a rewarding career in the great outdoors and a fiber connection to help her track species, report data and preserve natural resources. “Having a broadband connection has been fantastic,” Stacy says, “It’s enabled us to get data from a wide variety of places. Before we had to ship CDs, and now they can drop it right onto our server.” The connection Arrowwood enjoys allows them to link sister stations within the Refuge grounds while connecting beyond its boundaries.

## Connecting through education: *head of the class*



The mission of the K-12 Ellendale Public School is to develop adaptive citizens for an ever-changing world by providing challenging opportunities to reach or exceed expectations.

Technology is fully integrated into the learning process, with all levels using tablet computers and programs such as Learn 360, Brain Pop and Ellendale Webcasts. Jeff Fastnacht, Superintendent, says, “We are very proud of our technology integration in our school... Our daily life is filled with the Internet and technology just as much as California or New York, and we have better access.” Even though the median household income of the student population is only \$35,500, these children are using advanced technologies to further their education.

## Connecting to new industry: *North Dakota’s black gold*



Enduro Operating, LLC is an oil and gas exploration and acquisition/exploitation company near the town of Newburg, population 100. Their previous T1 connections were costing the company thousands of dollars per month and providing minimal speeds. To conduct their day-to-day operations more efficiently and maintain constant communication with their headquarters in Fort Worth, they upgraded to fiber. “Our entire operation is dramatically faster,” said Rob Braun, Director of Information Technology. “We recently ran speed tests and are showing speeds of up to 300 Mbps – something we’d never seen prior to fiber, nor would we have ever been able to get.” Braun attributes running successful off site backups to fiber.

## Connecting to grow: *harvesting the fruits of fiber*



Wade Hohertz’s company in Mott switched from copper cable to fiber optics in June 2010. Previously, with a satellite Internet connection, the company experienced service disruptions on rainy or cloudy days due to weather-related outages. As a crop insurance adjuster, Wade’s work depends on a reliable Internet connection. “We have not had one outage since fiber was installed. All my work is on the Internet uploading and downloading claims. Sending files was so frustrating, because I would try for hours and hours to send my files. My company offers many online training classes, but before fiber it would take forever to participate. Having fiber has changed my life, and I love it!”

## Connecting from the home: *international businesswoman and local mom*



North Dakota is the main sunflower-growing region for Technology Crops International, a supply chain management firm for the global distribution of seed oil. As General Manager of the North American Division, Sara Anderson’s job occasionally takes her to South America, Europe, Asia and Africa. However, most of her work is done in her home in Carrington over a fiber connection. “Fiber optics allow me to be on the phone with South Africa or Scotland or Prince Edward Island—the technology allows you to be anywhere,” Sara says. For this mother of two, the ability to telecommute is an ideal solution for staying connected both to her work clients and her most important clients: her family.



### Connecting systems: *Internet through the pipes*



BakkenLink Pipeline LLC has worked with their provider to establish fiber connections along their pipeline systems. This connection works through the Dakota Carrier Network, which connects BakkenLink to the world. Darren Snow, Vice President of BakkenLink, says, “These circuits tie into our supervisory control and data acquisition system, which provides oversight of our pipeline. The circuits enable us to run the most current versions of pipeline leak detection software, which allows us to see real-time data on the pipeline and run transient models to look for leaks in real time.”

### Connecting for health: *the hospital of the future*



Oakes Community Hospital is a 24-Hour, Emergency Level V Trauma Center, serving approximately 14,000 people in southeastern North Dakota. The medical staff consists of providers who are multi-specialists in family practice, internal medicine, cardiology, sports medicine and geriatrics. The hospital uses fiber optic broadband and other advanced technologies to diagnose conditions and provision services. Oakes Community Hospital was the first North Dakota hospital to roll out and utilize e-emergency—which allows doctors to video conference with other doctors and specialists directly in the treatment room—and other technologies like e-Consultation and PADNet.

### Connecting small to large: *big business in a town of 427*



Basin Service Company Inc., located south of Westhope (population 427), is an oil field service company providing a variety of services to the oil industry. The company, founded as Ward Williston in the 1950s, has remained a constant in the small community through the years. Basic switched from copper to fiber, allowing them to have faster Internet speeds than ever, clearer phone calls, and a new way of doing business. Jean Brandt, Human Resources Administrator, says, “In the past, it could take days to do bookkeeping. Some of our employees could only do certain functions at the same time or we’d have too many people on the system and it wouldn’t work.” She noted that though this company chose to locate their office near a small town, they can still conduct business like companies in major cities.

### Connecting for livelihood: *three businesses from one home office*



Laura Shipley lives in Kidder County, where she and her family run three businesses from their home: a farm/ranch operation, an electrical contracting business called Shipley Electric, and a small photography business called Snap Shots Photography. Given harsh winters and road closings, being able to work from home is, as Laura puts it, “an awesome benefit – we rely on our high speed Internet for our livelihood. It puts us on a level playing field with cities that have the advantage of advanced technology. We have access to everything they do and we’re able to keep up with them and be competitive!”

### Connecting to build: *Bobcat spotted in North Dakota*



A giant animal has been spotted in Gwinner! But don’t worry, it won’t bite. This animal is Bobcat Company, North Dakota’s largest manufacturer, with the most extensive compact equipment distribution network in the world. The low cost of living, abundant community resources and access to a dedicated labor force of more than 1,500 employees are ideal conditions for Bobcat’s production facility in Gwinner to thrive. Their fiber connection links them to other company locations around the world. “We were on copper, and when we switched to fiber the problems went away,” says Tony Barker, Maintenance Manager at Bobcat.



**Connecting for our lives:  
mixing office and home to make things work**



Mary Jo Wicks, a nurse practitioner at the women’s clinic of St Joseph’s hospital, was thrilled to get fiber installed in her Richardton home. Before the fiber installation, Mary Jo would stay late at the clinic to finish paperwork because she had no reliable Internet at her home to complete the day’s paperwork. Leaving the clinic around 8 p.m. each evening, Mary Jo would miss dinner with her husband and kids. With fiber-to-the-home, she enjoys a family meal, spends the evening with her husband and children and then takes care of paperwork after the kids are asleep. “Fiber has improved our quality of life 100%!”

**Connecting to family:  
from Brazil, with love**



Ultimately, the Internet is about connecting not only our businesses, but our lives as well. When Soraia Henson moved to Carrington, North Dakota from Brazil, she left behind a large circle of family and friends, not to mention the tropical weather. Adjusting to the winters, though, has been easy compared to life without her social network. But today, Soraia sees her friends and family daily using a webcam over a fiber connection. She even organizes video chat rooms, filled with familiar faces, all gabbing together in Portuguese! “It’s the best thing that’s ever happened in our life,” Soraia says, “because it’s easy and you can see just like you’re in the next room.”

**Connecting ecommerce:  
business that keeps on truckin’**



RealTruck.com is an online retailer in Jamestown, for aftermarket truck accessories, on a mission to make lives and vehicles better. Along with his crew, owner Scott Bintz strives to keep the workplace fun and exciting, while practicing the six guiding principles of the business: deliver more, transparency rocks, improve, take risks, include fun, and be humble. High-speed broadband and phone service allows RealTruck.com to keep up with the high demand of the industry. As Chief People Officer Lucy Geigle says, “Technology is critical to the success of our ecommerce company. It is important to have reliable and dependable cutting-edge Internet and telephone services. We value having a partner we know and trust.”

# Thank You to Our Sponsors

Thank you to the sponsors of the North Dakota Broadband Report—**USDA, NDATC, DCN** and the telecommunications companies that make North Dakota a leader in Internet connectivity.

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