



Broadband Association of North Dakota (BAND)

How Local Providers Built the Nation's Best Internet Access in Rural North Dakota

By Katie Kienbaum, Ny Ony Razafindrabe,
Michelle Andrews, and Christopher Mitchell
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About the Authors

Katie Kienbaum is a Research Associate with the Community Broadband Networks initiative at the Institute for Local Self-Reliance (ILSR) where she researches and writes about community owned networks and rural cooperatives.

Ny Ony Razafindrabe is a GIS and Data Visualization intern with the Community Broadband Networks initiative team where she creates informative data visualizations and maps.

Michelle Andrews is a GIS and Data Visualization Researcher with the Community Broadband Networks initiative at ILSR where she performs data analysis and generates maps.

Christopher Mitchell is the Director of the Community Broadband Networks initiative at ILSR. His work focuses on telecommunication policy and advocating for local Internet choice in communities.



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Executive Summary

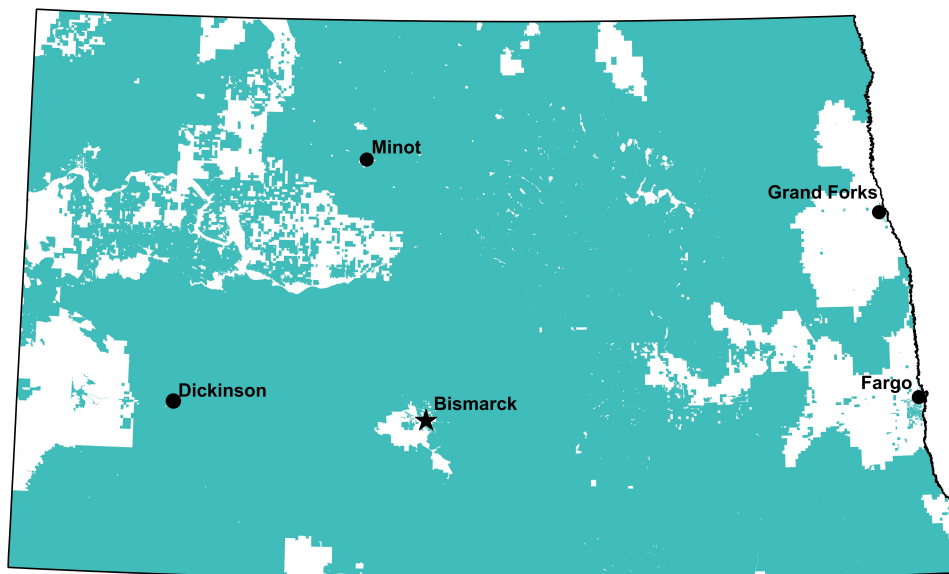
For great Internet connectivity, don't look to California or New York – go to North Dakota, where local providers have criss-crossed the state with high-quality fiber optic networks. View the map below to see how widespread fiber is in the state. According to federal data, rural North Dakotans are actually more likely to have access to fiber broadband and gigabit speeds than urban Americans. Even more surprisingly, this world-class connectivity predates the state's shale oil boom.

North Dakota's unparalleled rural networks trace back to the 1990s, when 15 local companies and telephone cooperatives came together to acquire territories of regional provider US West (now CenturyLink). Though US West wanted out of these high-cost exchanges, the North Dakota independent telephone companies and co-ops saw an opportunity for growth, and they united to purchase most of US West's rural properties in the state.

Because they're serving their neighbors and not just faceless customers, the local providers have since invested in world-class fiber optic networks across the state, largely in low-density areas. Thanks to the independents' foresight and commitment, rural North Dakota is now home to outstanding connectivity.

With national monopolies like AT&T, CenturyLink, and Frontier refusing to upgrade their rural networks, communities should look to the example set by North Dakota's local companies for a path to better connectivity. Despite receiving billions in federal subsidies from programs like the Connect America Fund, the national companies have consistently invested the bare minimum in rural areas while small, locally-rooted companies have leveraged similar programs to invest in maximum community benefit.

North Dakota Fiber Coverage



Data: FCC Form-477 June 2019

Ny Ony Razafindrabe | Institute for Local Self-Reliance

Map 1: Fiber networks cover the majority of North Dakota, especially in rural parts of the state.

Introduction

When I spoke with Bill Patrie, he and his wife were driving out to visit his parents' old farmhouse. I had called Patrie, a North Dakota native and experienced cooperative developer, to learn more about the growth of telephone co-ops in the region.

"I remember when we got phone service," he shared. "My mom paid 5 dollars to join the Wells County Telephone Association."

Our call dropped out a few times as they navigated their pickup truck through the small town of Carrington, population 2,000, in the central part of the state.

Patrie continued, "The house we're going to now, in the ruralest of rural North Dakota, has fiber optic cable to the door. That phone company never quit."

The Patrie family farmhouse and its high speed connectivity isn't an oddity in North Dakota. In quiet defiance of those who say fiber optic broadband is "too expensive," "cost prohibitive," or "not economically feasible" in rural areas, North Dakota Internet access providers have blanketed the state with some of the most extensive fiber networks in the nation. In fact, according to Federal Communications Commission (FCC) data, rural North Dakotans are more likely to have access to gigabit speeds and fiber broadband than the state's urban residents – even more likely than urban Americans in general. View the graphs on page 7 to see how broadband in rural North Dakota stacks up.

North Dakota's top-notch rural connectivity is a result of aggressive investment in fiber by the state's telephone cooperatives and other

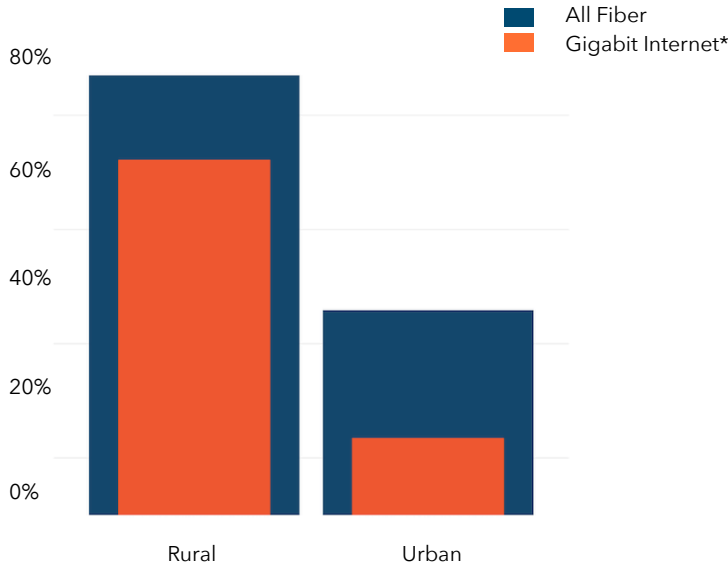
community-minded companies. Compared to cable or DSL, fiber networks not only have higher speeds and lower operating costs, but they're also much more "future-proof" and can easily be upgraded as technology improves.

Today, the local providers serve nearly all of North Dakota and have connected the vast majority of the state's expanse to high-speed fiber networks. According to FCC data, 83.5 percent of North Dakota by area is covered by fiber.

The origins of this story trace back to 1996 when a group of 15 telephone co-ops and independent companies came together to purchase regional telephone company US West's rural territories in North Dakota. Though the rural lines weren't profitable enough for US West, the group of local providers saw in those territories the potential both to expand their own telephone operations and to lay the foundations for statewide fiber connectivity.

Large telecom monopolies, like AT&T, CenturyLink, and Frontier, are abandoning rural communities across the country. Cooperatives and locally-owned companies should see the monopoly providers' decline not as an existential threat to their communities but as an opportunity to take inspiration from the North Dakotan providers and be relentlessly creative in finding ways to meet local needs.

Urban and Rural Access to Fiber and Gigabit Service in ND



By Ny Ony Razafindrabe | Institute for Local Self-Reliance

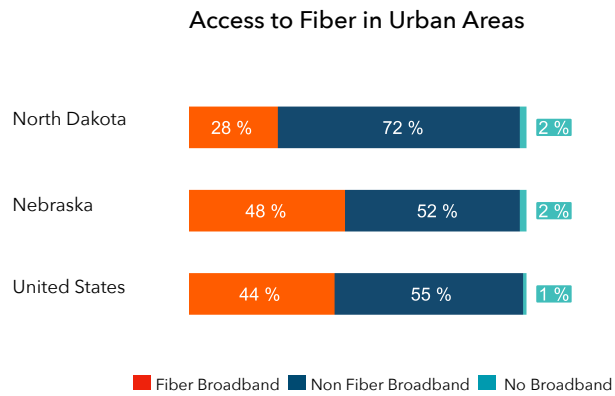
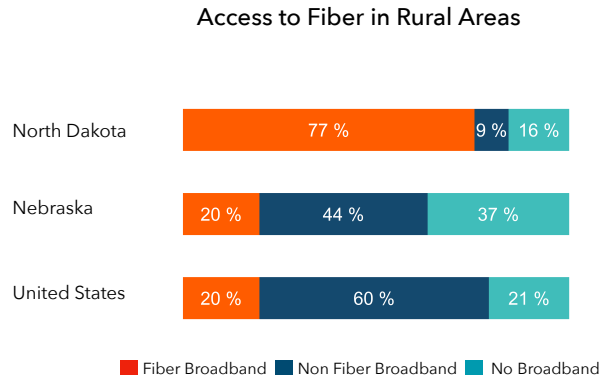
Graph 1: Rural residents in North Dakota are more likely to have fiber optic Internet access than their urban counterparts. 89% of urban North Dakotans have access to cable services that advertise gigabit download speeds but with very slow upload speeds (often <100 Mbps) that limit its utility. *In this analysis we considered gigabit to be 1,000 Mbps down and at least 500 Mbps up. Data: FCC Form 477 June 2019; FCC 2018 Population Staff Block Estimates

A Coalition Forms

The early 1990s launched a period of upheaval for the telecommunications industry. Over the course of the next decade, major regulatory changes and the rise of the World Wide Web would fundamentally change how telephone and cable companies operate.

It was during this time of transition that the local providers first expressed interest in US West's North Dakota territories. US West had been created during the breakup of AT&T, making it the

North Dakota Compared to Others in Fiber Access



By Ny Ony Razafindrabe | Institute for Local Self-Reliance

Graph 2: North Dakota is off the charts for high-quality rural broadband access because of its homegrown providers. Its urban areas, which are more dependent on regional or national companies, lag behind peer cities.

dominant phone carrier in western states. The company had not yet decided to sell many of its rural North Dakota exchanges, but soon would.

The group of local providers got in before US West went public with the sale because of Dan Wilhelmson, former general manager of Consolidated Telecom, a telephone co-op in southwestern North Dakota. "Dan was just a confident person," described Patrie. "He had a little bit of a swagger to him."

Participating Parties

Most North Dakota telephone cooperatives and local providers took part in the acquisition from US West. One cooperative, SRT Communications, engaged with the group initially, but the company decided to purchase the independently-owned telephone exchange in their hometown of Minot instead of directing resources toward the US West acquisition.

The 15 North Dakota companies involved in the 1996 US West acquisition were*:

- BEK Communications Cooperative
- Consolidated Telephone
- Dakota Central
- Dickey Rural Telephone Cooperative
- Griggs County Telephone Company (now MLGC)
- Inter-Community Telephone Company (now ICTC Communications)
- Midstate Communications and Telephone
- Moore and Liberty Telephone Company (now MLGC)
- North Dakota Telephone Company
- Northwest Communications Cooperative
- Polar Communications Mutual Aid Corporation
- Red River Rural Telephone Association
- Reservation Telephone Cooperative
- United Telephone Mutual Aid Corporation
- West River Telecommunications Cooperative

**Sourced from "Co-ordination Among Co-operatives" by Susan Davis and Bill Patrie*

Before joining Consolidated, Wilhelmson had worked for Northwestern Bell for almost three decades. Originally part of AT&T's national network of phone companies, Northwestern Bell was transferred to US West after the breakup and later consolidated with the company's other holdings. Wilhelmson's tenure at Northwestern Bell earned him insider knowledge about the track US West was taking. "I was ahead of their plan on that," he explained over a phone call.

From friends and acquaintances, Wilhelmson heard that the company was considering selling some rural territories, and he watched as they sold small exchanges in nearby states in order to focus on more heavily populated towns and cities. "All of a sudden, I'm starting to hear about [US West] in different states selling off small properties," recounted Wilhelmson. "They were not doing it in North Dakota at the time, but Minnesota was and so was the rest of US West."

"They could see how bad those US West exchanges were being served – no investment, virtually nothing."

Long before any official announcement, Wilhelmson gathered other co-ops and independent providers in North Dakota to discuss whether they were interested in US West's rural exchanges. Almost all were, and they formed a group to pursue it.

There were several reasons that these territories attracted the local providers even as US West was retreating from rural service.

"The US West exchanges were interspersed amongst us," explained David Crothers, executive

director of the Broadband Association of North Dakota. "They could see how bad those US West exchanges were being served – no investment, virtually nothing."

Primarily, the additional exchanges would increase the scale of each of the co-ops and local companies. Wally Goulet, attorney for the group, said, "The carrot for everybody was growth in their own area." Many of the US West telephone exchanges in question served small towns, so while they weren't urban enough for US West, they would add essential density to the independent providers' territories, which were even more sparsely populated.

At the time of the acquisition, North Dakota was experiencing heavy outmigration, reported Patrie, who chronicled the independents' 1996 acquisition with Susan Davis in a chapter for the book *A Co-operative Dilemma*. The added territory and density of the US West exchanges could help shore up the local providers' declining subscriber base. "They didn't intend to go out of business," he said during our phone call. "They intended to find a new way of doing business."

This new way of doing business wasn't apparent to everyone yet, but some of the participants had a greater vision for the group and the future of telecommunications in rural North Dakota. Wilhelmson and others could sense the growing importance of broadband access, and they saw the opportunity that the US West exchanges would offer to build a statewide fiber network to connect the independent companies and telephone cooperatives in North Dakota.

Negotiating With US West

Despite the co-ops' and independents' early interest in US West's rural exchanges, the company

Gaining Public Approval

After coming to an agreement with US West, the group of co-ops and independents sought approval for the acquisition from the North Dakota Public Service Commission (PSC), and they faced some initial resistance from the regulatory agency. According to Dan Wilhelmson, then-general manager of Consolidated Telecom, this was due to concerns about the loss of regulatory power over those exchanges. The PSC did not have jurisdiction over the independent companies' and cooperatives' telephone rates, under the presumption that the locally- and member-owned providers have checks and balances built into their structures.

Wilhelmson remembered one commissioner in particular who didn't support the group's plan, but he had a sense of humor about it. "I had some conversations with her," he recounted. "At the announcement of the acquisition in Fargo, she looked at me and said, 'See, I told you it'd be alright.'"

turned them down when Wilhelmson first reached out.

Over the next few years, the group of providers organized themselves, hiring an attorney and cost consultant to advise and represent the group. The group selected attorney Wally Goulet, who had previously represented several telephone co-ops in a different purchase. They "couldn't have gotten a better person to serve as legal counsel," according to Patrie. As cost consultant, the group chose James Howard of John Staurulakis, Inc. to

help determine the value and revenue potential of the US West exchanges.

Once US West finally agreed to consider selling some of its North Dakota territories, negotiations proceeded jerkily. At one point early on, Wilhelmson described how US West practically laughed the providers' representatives out of the room after hearing their offer. Later, US West broke off communications entirely for several months, threatening to put the North Dakota exchanges on the national market. Until then, the group had felt they had exclusive right to purchase the US West properties, and they weren't aware of any other potential buyers.

"We always felt we were kind of just bidding against ourselves," said Keith Larson, current CEO of Dakota Central Telecommunications.

Wilhelmson agreed with that assessment. "That was part of my reason for making probably half a dozen trips to Fargo to meet with the [US West] VP," he said. "They just wanted to play the game."

"At that time, prior to the Bakken [oil fields] . . . that was the largest asset transaction ever in the state."

Despite US West's negotiating ploys, the independent providers were the most logical buyers, for both the companies and consumers. Wilhelmson explained that to US West representatives during his numerous trips to Fargo, saying, "If you had intentions of selling this property to somebody else it would be a hard move for you because we'd fight you all the way through the Public Service Commission."

The group of North Dakota telephone companies and co-ops reached a compromise with US West in 1996, agreeing to a price of \$136 million for 68 rural exchanges with 48,000 lines. (View the map on page 11 to see the modern boundaries of the acquisition participants and the locations of the US West exchanges.) Before agreeing to that number, the group completed thorough due diligence. Though US West and the local providers treated the acquisition as a single deal during negotiations, each transaction was technically separate, Goulet explained, and they negotiated some issues with specific properties, such as hazardous materials or outdated facilities, on an individual basis.

In 1997, the sale officially went through for \$137 million to account for some last minute add-ons (equivalent to about \$220 million today). "At that time, prior to the Bakken [oil fields] . . . that was the largest asset transaction ever in the state," shared Goulet.

Making Sausage, Making Magic

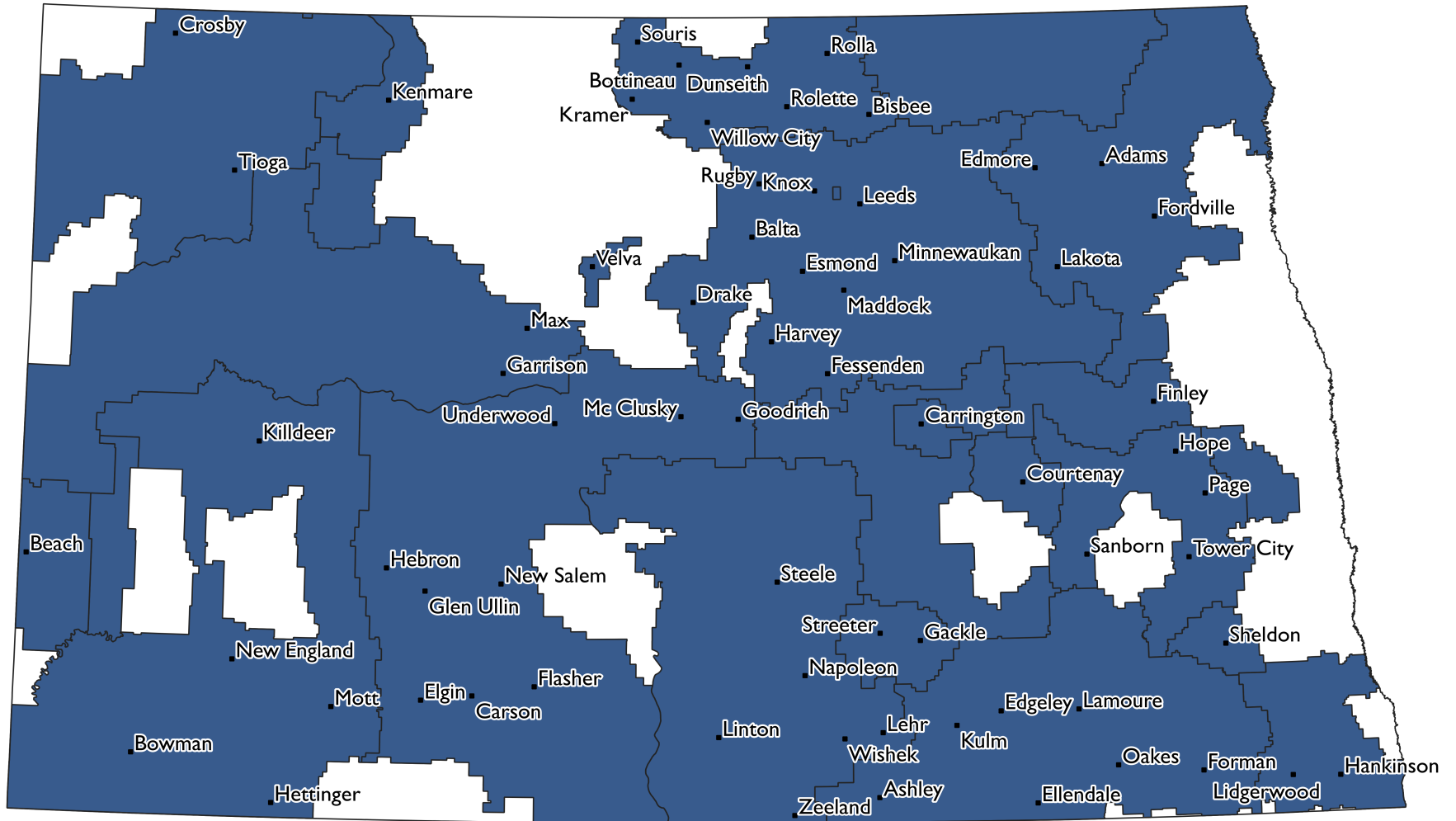
While their representatives were negotiating with US West, the North Dakota co-ops and independents had to negotiate among themselves as well.

Meetings of the group commonly had more than 40 people, Wilhelmson reported. Each of the 15 companies and cooperatives would bring along their general manager and board chair as well as a lawyer and other executives. Goulet compared the gatherings to the United Nations. Wilhelmson had a different way to describe their meetings – it was "like making sausage," he said.

The group of providers developed rules on how to conduct meetings and divvy up the US West territories once the purchase went through. They

Current Territories of US West Acquisition Participants

- Exchange Purchased from US West
- Current Service Territory



*shows location of the community the exchange is named for, not the boundaries of the exchange

Data: FCC Form - 477 June 2019
 Ny Ony Razafindrabe | Institute for Local Self-Reliance

Map 2 : The cooperatives and independent telephone companies that bought the US West exchanges cover most of the state. The locations of the exchanges from the purchase are noted by squares.

established a system of bidding to distribute the exchanges, granting preferred status to companies with bordering territory. Prices varied, based on the value of individual exchanges and the amount that bidders were willing to pay. “No company paid the same price for an access line. They all were measured on different cost principles,” said Goulet.

Though this process caused some contention, the group was able to reach an agreement and all participants walked away with new territory.

Ultimately, the collaboration among the 15 cooperatives and companies was essential to closing the sale. “The magic of this whole thing,” Patrie explained, “is those 15 different companies with 15 general managers [and] probably 11 different attorneys were able to cooperate and enter one bid.”

Success Builds a Fiber Legacy

“I think most people will tell you that it was an amazing feat,” Goulet correctly surmised. Everyone interviewed for this piece agreed, crediting the group’s success to not only good timing, but also the remarkable abilities and dedication of all involved.

The acquisition created wide-ranging implications for today. Not only did it prevent the entrance of another national monopoly, but the new territories strengthened the North Dakota providers, helping them grow and achieve new economies of scale. Some were even able to leverage the expansion to expand into areas served by other incumbents, creating choice for local businesses and families.

For example, Consolidated Telecom “picked up 5 [exchanges] which created a 7,000 line company rather than 3,500,” shared Wilhelmson, the general manager at the time. “By the time I left it in 2003,

we had over 30,000 subscribers,” he added, describing the co-op’s continued growth following the acquisition.

Rural North Dakotans, both in US West’s former territories and throughout the state, benefitted from the acquisition. “The socio-economic benefits of this conversion have been lopsidedly positive

Local Advantages

Compared to large monopolies like US West in the ‘90s or CenturyLink today, cooperatives and other locally-rooted companies offer many more advantages to rural communities.

Local providers are usually more responsive to a community’s needs than out-of-state companies because their customers are their neighbors, not just spreadsheet inputs. As a result, they’re more likely to upgrade broadband networks and expand to less profitable rural areas. This is particularly true for cooperatives since they are owned by their members and can be held accountable by them, unlike companies like CenturyLink and Frontier, which have a history of charging deceptive fees, neglecting rural subscribers, and lying to customers.

In addition, community-based companies often have much better customer service than large national providers and are quicker to respond to subscriber complaints. They also help keep more money and jobs in the local economy.

A Changing Subsidy Landscape

At the time of the 1996 acquisition, rural cooperatives and independents that bought properties from larger companies, like US West, were able to get the same FCC subsidies for those new territories that they received for the rest of their service area. "Generally speaking, the Commission permitted those companies to get support for those areas as if it had always been [their] areas," said Michael Romano, senior vice president at NTCA-The Rural Broadband Association.

Later, the FCC adopted the "Parent Trap" rule, which restricted the amount of subsidies that small, rural providers could obtain in an acquired territory. "You basically were limited to whatever the other incumbent had been getting in the area prior to the sale," Romano explained.

The FCC adopted the rule for fear of over-investing in networks and increasing the size of the universal service fund. At the time, the agency even referred to fiber as "gold-plating networks," said Romano. "I would contend that's not exactly what happened," he argued. "Instead . . . you get North Dakota, which is relatively fibered up."

Now, the "Parent Trap" rule is a moot point for most companies, as the FCC has transitioned more universal service support toward competitive auctions.

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for North Dakota," Patrie and Davis explained in their chapter on the 1996 purchase. "Millions of dollars of new revenue have been generated in the state, as have hundreds of jobs."

Furthermore, the expansion of the telephone cooperatives put more North Dakotans in control of their own connectivity. After an introductory period, all of the participating co-ops made their new subscribers members of the cooperative, making them eligible to vote in board elections and receive capital returns. Crothers said the acquisition "took North Dakota residents from 68 exchanges and made them owners of their own telephone company, so the investment decisions for those people . . . were now going to be made locally."

Most notably, the acquisition laid the foundation for the future of high-speed rural connectivity in the state.

"My goodness, for 230 miles of fiber we could connect all these companies together and create a statewide [broadband] network."

Within a year, the co-ops and their partners created the Dakota Carrier Network (DCN), a statewide fiber network that connects its member companies to each other and to the broader Internet. To this day, DCN remains the backbone of the independent companies' rural broadband networks, in addition to providing Internet access directly to large businesses, schools, and government buildings.

Though many of the partners originally conceived of DCN as a long-distance telephone network, others, like Wilhelmson and Goulet, believed the

leap into the broadband business was inevitable. Goulet said of the situation:

I think in their minds they wanted to be a long-distance company, but when they did buy all of that rural property, they were surprised. They looked around and said, "My goodness, for 230 miles of fiber we could connect all these companies together and create a statewide [broadband] network" . . . It would have been thousands of miles of fiber if you didn't have all these connecting hubs.

With DCN providing the connection to the rest of the Internet, the individual cooperatives and companies set to work building high-speed fiber networks in both their existing and newly acquired territories. The support from federal broadband subsidies was essential for their efforts.

"You look back on your career ... and if you had to name a handful of things that you were proud you were involved in, this certainly would have been one of them."

Today, the [FCC's universal service program](#) awards subsidies to providers that promise to build out future broadband networks, but at the time, rural telephone companies only received support after they had upgraded telecommunications networks. "The legacy [universal service support] mechanisms only paid you in arrears for the network you had already built, so you didn't get paid unless you invested," explained Michael Romano, senior vice president at NTCA-The Rural Broadband Association, over a phone call.

Once the North Dakota companies purchased the US West exchanges and upgraded the networks,

A Changing Subsidy Landscape

(continued from previous page)

Available funding will now be determined by a competitive process in which incumbent providers have to compete against any other entity wishing to provide service in the area. Acquired territories that are auction-subsidized will receive the same amount of funds whether they're owned by a large national carrier or a small rural co-op.

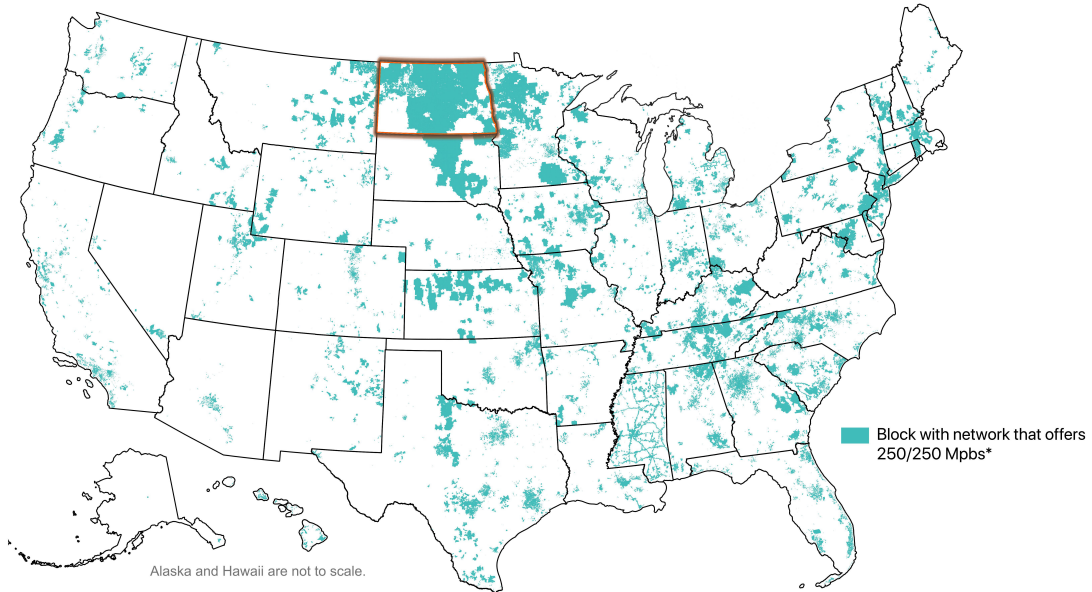
It's not yet clear whether the FCC's new method of auctioning off subsidies will lead to the same widespread connectivity found in rural North Dakota. Although local telcos and rural cooperatives made a big showing in the FCC's Connect America Fund II reverse auction, a significant amount of the funds went to a [geostationary satellite company](#) and a few rapidly-growing companies that may have overestimated the capability of fixed wireless technologies.

they were able to access these additional federal subsidies. This "gave them the incentive and the ability to invest in those areas," said Romano.

"The states that have had generally better results in terms of rural broadband tend to be those states where there are more independents and cooperatives," noted Romano, and it certainly holds true for North Dakota. As a result of the 1996 acquisition and the aggressive investment by the telephone cooperatives and local companies, North Dakota arguably has the best rural connectivity in the country. [According to PCMag](#),

Access to Broadband at 250 Mbps Download/250 Mbps Upload

By Census Blocks (June 2019)

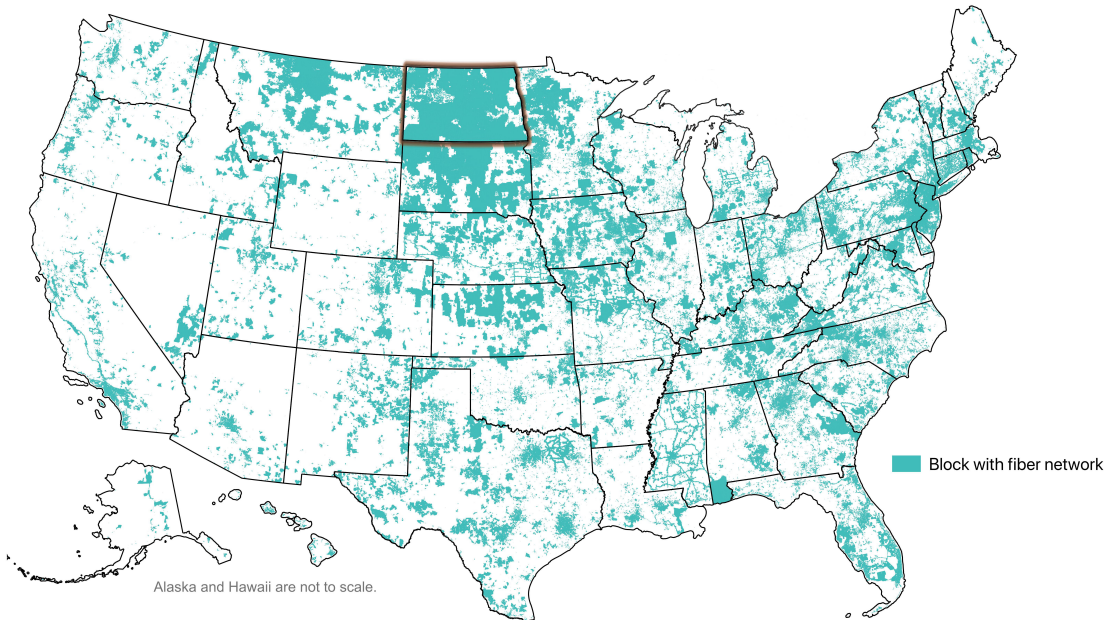


* Offered by all types of technology of transmission

Data: FCC Form-477 June 2019
Ny Ony Razafindrabe | Institute for Local Self Reliance

Access to Fiber Networks

By Census Blocks (June 2019)



Data: FCC Form-477 June 2019
Ny Ony Razafindrabe | Institute for Local Self Reliance

Map 3 & 4 : Compared to other states, more of North Dakota is covered by fiber and high-speed broadband networks that offer at least 250 Megabits per second (Mbps) download and upload. High upload speeds are important for quick file uploads, telehealth services, video conferencing, and other applications, and they ensure subscribers can take full advantage of their connectivity.

the state has the fourth fastest Internet speeds in the nation. See the maps on page 15 to see how North Dakota stands out.

“You look back on your career,” said Goulet, “and if you had to name a handful of things that you were proud you were involved in, this certainly would have been one of them.”

Lessons for Today

Though most rural North Dakotans today have access to high-quality Internet access, many rural areas across the United States still lack adequate connectivity. According to the most recent FCC data, more than one fifth of rural Americans don’t have access to even basic broadband, much less the gigabit-capable fiber networks found throughout North Dakota, and that figure is probably understated. A recent analysis by BroadbandNow found that 42 million Americans likely don’t have broadband access – nearly twice as many as the FCC claims lack access.

Instead of meeting that need, big telecom monopolies are refusing to invest in rural communities while letting their existing rural networks rot. For instance, Frontier Communications’ poor service quality has been the subject of numerous investigations, citations, and complaints leveled by state regulators, including in Connecticut, Ohio, Minnesota, New York, and West Virginia. The company has already started to sell off territories and recently filed for bankruptcy. Another national company, CenturyLink, has indicated that it’s shifting its focus from rural residents entirely to target urban businesses.

As large rural telcos enter a death spiral, their decline creates an opportunity for community-minded cooperatives and companies to not just acquire their territories outright, like the group of

providers in North Dakota did in 1996, but to expand into the vacuum created by their departure. Most major telcos’ degraded copper networks are now nearly worthless, though there may be fiber assets and pole attachment possibilities that could lower the cost for new rural upgrades. But even if an acquisition is not worthwhile for local providers today, the retreat of monopoly companies still offers an opportunity for expansion.

While it might not be possible to replicate entirely the 1996 acquisition and subsequent growth of high-quality rural connectivity in North Dakota, it sets an example for local Internet access providers across the country. The independent companies’ success in the state proves that the solutions for better rural broadband already exist.

“Rural America needs a shot of inspiration. It needs to be reminded that you can do this and you’ve done it before,” Patrie said near the end of our call, his truck’s motor audible in the background. “Rise up, and get to work.”

Resources

Much of the information for this case study came from interviews with David Crothers, Wally Goulet, Keith Larson, Bill Patrie, Michael Romano, and Dan Wilhelmson, conducted in May 2019, June 2019, and January 2020. Further details were found in “Co-ordination Among Co-operatives: Dakota Carrier Network” by Susan Davis and Bill Patrie, a chapter from the book, A Co-operative Dilemma: Converting Organization Form, published by the Center for the Study of Co-operatives at the University of Saskatchewan and edited by Jorge Sousa and Roger Herman.

Other resources referenced in the case study and reading suggestions are as follows:

- Cooperatives Fiberize Rural America: A Trusted Model for the Internet Era, Institute for Local Self-Reliance (ILSR)
- Community Broadband Bits Podcast 288: North Dakota’s Exceptional Fiber Networks, Institute for Local Self-Reliance
- Community Broadband Bits Podcast 369: South Dakota Fiber All About the Local, Institute for Local Self-Reliance
- “Frontier Has Failed Rural America” fact sheet, Institute for Local Self-Reliance
- “How Did North Dakota Become the Crown Jewel of the Internet in the Midwest?” New America
- Broadband Association of North Dakota
- Paul Starr, “The Great Telecom Implosion,” The American Prospect
- Doug Dawson, The Frontier Bankruptcy, POTs and PANs blog