

The Power of Partnerships: Scott County, Minnesota

With dark fiber and a series of partnerships, Scott County laid the groundwork for an economic boom.

By Masha Zager / *Broadband Communities*

Just southwest of Minneapolis is Scott County, home to 140,000 residents and growing rapidly. An important factor in its recent prosperity is the 1,000-mile dark fiber network that the county built with the help of a number of partners.

According to Perry Mulcrone, the county's business relationship director, Scott County's fiber journey began in 2002, when it collaborated with the school district and the county seat of Shakopee to build a hub-and-spoke network connecting public facilities. Five years later, when the Minnesota Emergency Safety Board decided to upgrade the county 911 system, the county saw an opportunity to extend that network. The county asked the safety board whether it could use fiber for its 911 upgrade, and, after some initial hesitation about whether its technology was compatible with fiber, the safety board agreed.

Using public-safety grant money in combination with tax-levy dollars, Scott County implemented a countywide fiber ring in 2008. The ring extended through seven cities and connected to an 800 MHz tower in each city. Working with the Scott County Association for Leadership and Efficiency, an interlocal organization that represents cities, schools, townships, and the Shakopee Mdewakanton Sioux Community, as well as the county government, the county developed a plan to connect all seven city libraries, five school

district offices, police stations and city halls in a wide area network. It began by connecting to the seven city libraries to further leverage federal E-Rate funding. Later, a consortium of school districts built laterals from the fiber network to their schools, again leveraging E-Rate funding. To avoid raising school taxes, the county does not charge the school districts for transport. "We believe a rising tide floats all boats," Mulcrone says.

At the time of this first expansion, the county decided against becoming a network operator or service provider, even though there were no legal prohibitions against doing so. Rather, the county aimed to improve connectivity for both public institutions and residents through a series of partnerships.

When the county was planning its 2008 seven-city fiber ring and the laterals expansion to the public institutions, it issued a request for proposals (RFP), asking for responses to build the ring and laterals. The RFP encouraged creative responses, and the county contracted with the only bidder to submit a creative response of a proposed joint build. A network operator later acquired by Zayo proposed that in addition to the 72 strands of fiber for the county, it would lay 72 strands for its own use. (The county retained ownership of all conduits, as it has in subsequent builds.) Zayo is now responsible for maintaining, locating and repairing fiber breaks in all 144 strands at zero cost to the county, and

splits the costs of relocates evenly with the county. This yields a significant cost savings annually for the county.

CONNECTING TO THE INTERNET

The county realized, once the Scott County Regional Fiber Network was active, that an internet connection would make it far more useful. After exploring options, the county leased a redundant metropolitan fiber ring from Windstream to connect the Scott County fiber ring to a carrier hotel in Minneapolis and then partnered with a state agency, Minnesota IT Services (MNIT), to light and manage the fiber ring and internet backhaul, offering extra fibers in exchange for these services. “The state leveraged our fiber for connectivity, and we leverage their network expertise and management,” Mulcrone explains. MNIT is responsible for arranging internet service with carriers operating at the Minnesota carrier hotel.

Pleased with these early experiments in partnering, Scott County began to look for other opportunities to expand its network with a minimum of buildout and maintenance costs. Its next project, to enable distance learning at its regional training facility and in its high schools, was a fiber route to Mankato, a nearby city that is home to a state university and three colleges. The construction contract, with the same partner that constructed the base fiber ring, followed the same principle as the first one, with the operator installing fiber strands for its own use. The county also built an extra conduit along the route; it hopes to populate the second conduit later this year.

The broadband stimulus program enacted in 2009 presented still more opportunities for Scott County to improve connectivity. Nearby Carver County used stimulus money to construct a fiber ring, so Scott County expanded westward to join the Carver County network and swapped two fibers for two of Carver County’s fibers, giving each network a broader reach. (Scott County also partners with Dakota County, its eastern neighbor, for fiber collaboration.)



Zayo contractors repair a fiber cut.

During this time, Scott County also acquired two fiber strands from Zayo as a diverse redundant route to Minneapolis, adding resilience to its network. Hiawatha Broadband Communications, under contract to Jaguar Communications (both companies are competitive providers in southeastern Minnesota), implemented coarse wave divisional multiplexing (CWDM) and manages this route for Scott County; part of the deal, again, was a fiber swap with Jaguar, which built additional fiber off this backbone.

Mulcrone explains, “The benefit to the county was that we got someone to manage the redundant fiber route, the benefit to the state was that it brought broadband to rural areas and serves

county facilities and police departments in southwestern Minnesota, and the benefit to Jaguar was that it got new areas to serve.”

By this time, Scott County was becoming known as a creative and cooperative partner, and other carriers began calling Mulcrone to propose partnerships. Neutral Path Communications (yet another operator eventually acquired by Zayo) proposed a fiber swap giving Neutral Path a connection to the carrier hotel in Minneapolis in exchange for a route to Omaha. The route to Omaha provides the county with a diverse path to the internet as well as access to several carriers that are not available at the Minneapolis exchange.



An Arvig fiber technician examines the outside of a fiber splice enclosure.

To manage this connection, the county sent out a solicitation and selected Arvig Enterprises, a carrier that operates throughout much of Minnesota and elsewhere in the Midwest. Arvig needed a connection to Omaha for its own use; it installed a 64-channel CWDM system capable of providing 300 Gbps per channel and allocated certain wavelengths for the state of Minnesota and Scott County for redundancy and economic development.

Finally, in 2015, Scott County entered into a joint-build partnership with the Shakopee Mdewakanton Sioux Community that saved hundreds of thousands of dollars for both parties. The Sioux Community installed fiber for the county in exchange for being able to use the county's fiber backbone to support its FTTH project.

BUSINESS AND RESIDENTIAL CONNECTIONS

Providing public institutions in Scott County with abundant fiber and a choice of internet providers isn't the only outcome of this history. In addition, the county leverages some of its fiber capacity as middle-mile transport for wireline and fixed-wireless providers. It partnered with another Minnesota internet provider, Access Networks, to oversee all day-to-day fiber construction, requests and maintenance planning and to manage the leasing of middle-mile fiber to ISPs. In exchange, Access Networks uses the fiber to bring fixed wireless to rural and underserved residents through its subsidiary, Netwave

Broadband. This has brought broadband availability to southern rural areas of the county that franchise providers do not serve.

Another, more important result of the agreements with providers is that the county is now "broadband rich" with privately owned fiber constructed or leased by its partners. The private providers and fiber owners have further invested to connect to businesses near their and the county's fiber routes or to deliver FTTH or fixed-wireless internet service to residential customers.

The first commercial economic development connection actually made use of the Scott County Regional Fiber Network rather than a partner's fiber. It came about in 2009 when Emerson, a large technology and engineering company, was considering relocating to Mexico to expand. Gary Shelton, then the county administrator, wanted the company to stay in Scott County and expand into a vacant building in Shakopee. Fortunately, the building was close to the county fiber route. Ultimately, the county built laterals to all local Emerson facilities, including the new one, saving Emerson nearly \$6 million over a 20-year period. Five years later, Emerson announced an even larger expansion in Scott County.

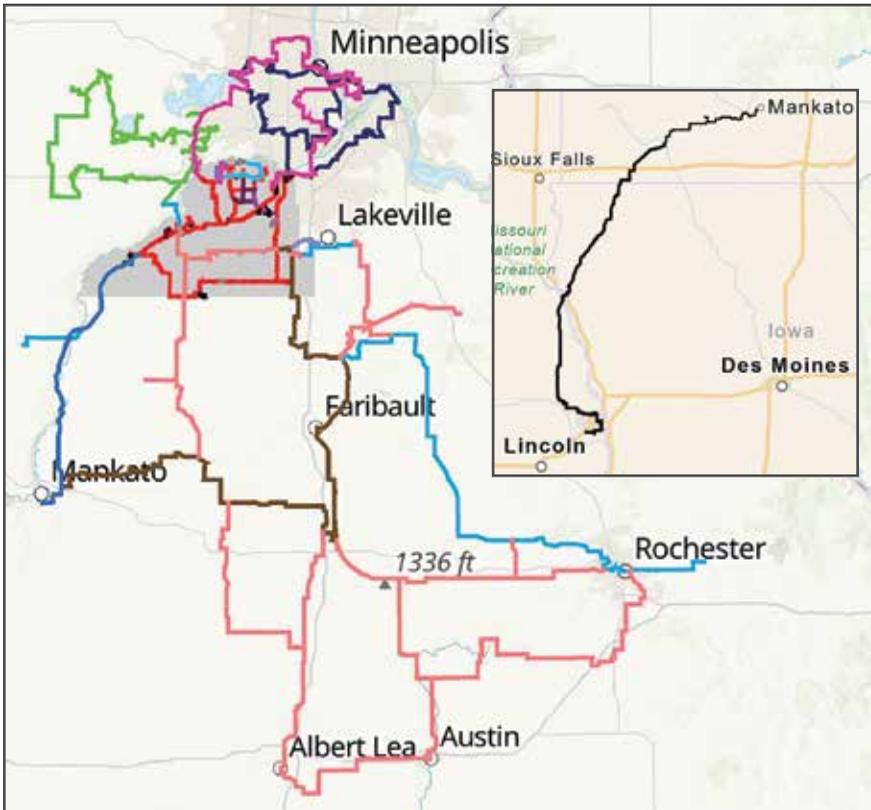
Except for Emerson, the county has directed business requests for fiber to its partners. Fiber has played a major role in several big economic development wins. For example, Datacard, which manufactures credit card printing machines, moved its operations to Shakopee in 2014. Shutterfly, an internet publishing company that requires a 5-gigabit connection, opened a new manufacturing plant and customer care facility in Shakopee in 2014 because it could get a diverse connection to California. Amazon opened a distribution center and a satellite facility along the fiber route. These and other enterprise customers can contract with any internet provider in the Minneapolis or Omaha points of presence, and Zayo manages the physical fiber to their sites.

Mulcrone stresses that Scott County is well located in the southwestern metropolitan area of the Twin Cities, has good highway access, has relatively low land prices and offers other incentives, so fiber is only one piece of the puzzle. However, it's an important piece, and it always gets "major credit for helping win those opportunities."

Fiber has certainly contributed to the county's economic growth, Mulcrone says – and that growth has been outstanding. Since the fiber network became available in 2008, the county has added 11,500 jobs, many of them during a period in which employment was falling. Year after year, it has been the first- or second-fastest-growing county in Minnesota and one of the fastest-growing in the United States. The proportion of the workforce employed within the county rose from 35 percent to 41 percent between 2010 and 2016, furthering the county's goal of having half the workforce employed in-county by 2030 rather than commuting outside the community.

MORE WORK AHEAD

Despite these successes, work remains to be done. "We still get calls from small and home-based businesses as well as



After many partnerships, collaborations and fiber swaps, Scott County (gray area) now has diverse connections to the internet and throughout southeastern Minnesota.

residents who are struggling with their internet service,” Mulcrone says. “A lot of the time, when they call me, I’m their last resort. They say no one is planning to come to their area anytime soon.”

The county’s role in such situations is to facilitate broadband deployment where possible. Mulcrone works with planners and staff on certain road construction projects to lay conduit for fiber in unserved and underserved areas. He alerts the county’s carrier partners to commercial and residential areas where demand for better broadband is intense, and he puts citizens in touch with carrier executives to request and help encourage service in their underserved areas. Likewise, the county works to help providers when it can. When the telco Nuvera acquired a small ISP that served the city of Prior Lake, county staff worked with it and the state on waiving the relocation of its copper network related to a

road construction project and instead allowed it to deliberately plan its upgrade of the network at that location over the coming five years. That saved Nuvera approximately \$500,000 in unplanned relocation costs.

Reflecting on the lessons learned since Scott County started its fiber journey, Mulcrone says, “Everybody needs broadband – you don’t realize that until you don’t have it. Education needs it, hospitals need it, even the weekend cabins need it. To encourage broadband service to everyone, we look for good public-private partnerships. Each of our partnerships has been a win-win. For all the providers we deal with, we want to make sure they’re positioned to do well.” ❖

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