

Small Cities Can Do This:

How Windom, MN Built a Fiber-to-the-Home Network

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Bringing fiber to the home is a major financial and technical undertaking. While many communities recognize the economic and social benefits these projects can bring, they also view the obstacles and challenges as daunting barriers. This article examines the journey to broadband taken by one small community, Windom, Minnesota. Windom's success proves that it is possible to rollout a next-generation broadband network on time and within budget.

When smaller communities compare their resources and budgets with these larger efforts, they often experience "sticker shock" and delay making decisions and taking action. However, smaller communities can and have successfully built and deployed FTTH networks with limited budgets and resources.

The City of Windom has shown that through effective planning, research and education, and by working closely with carefully selected vendors, smaller communities can successfully roll out the kinds of advanced communications services required to support economic growth and enhance the lifestyles and well-being of their residents.

We describe how Windom's project began, whom Windom selected as vendor partners, issues faced and results achieved. Included is first-hand advice from city leaders on what other cities should consider before starting their own broadband projects.

Introducing the City of Windom

Windom is a regional transportation hub in southwestern Minnesota 135 miles from St. Paul. It has a diverse economic base that includes manufacturing, agriculture, medi-

cal, and adult care facilities. Its population, however, is only 5,000. For over 100 years, Windom Municipal Utilities (WMU) has provided the City of Windom with electric, water and wastewater services. For the past twenty years WMU has also operated and maintained a cable television system, Windom Cable Communications (WCC).

Last month, Windom launched a new citywide fiber-to-the-home network. The process took less than a year from the decision to start. The entire journey to broadband, however, took far longer. In the late 90s, Windom officials began investigating options for upgrading the city-owned and operated cable television system. Initial investigations suggested that new technologies would enable the city to not only upgrade its cable system, but to also provide voice communications and much-needed high-speed data and Internet access services.

Before Windom could formally dedicate resources to addressing its communications challenge, however, the city was required by state law to obtain a two-thirds majority vote of approval from its citizens. Largely due to the incumbent telecommunications operator's announcement that it would upgrade its infrastructure and roll out digital subscriber line (DSL) services in Windom's area, the initial vote in 1999 on a new city-owned network failed. But after the incumbent cancelled its plans for DSL, a citizens group petitioned Windom's city council to put the telecommunications project back on the ballot. In spring 2000 Windom received approval by the voters to begin work on a next-generation broadband communications infrastructure project.

Getting Started by Getting Educated

According to Dennis Nelson, Windom City Administrator, the first challenge the community faced was getting educated about available technologies and about the options that would work best for Windom. "My advice to other communities investigating a community network," said Mr. Nelson, "is to get educated!"

So, in early 2001, Windom's city council formed a telecommunications committee made up of community residents. The council had two mandates: First, to understand and educate residents of the community about available options for upgrading the existing cable television system; and second, to investigate the feasibility of offering additional communications services to the community.

The committee hired Vectren Communications Services to do a feasibility study. In addition to evaluating the existing cable infrastructure, Vectren evaluated the strength of the community's willingness to pay for new voice, data and video services.

Findings of the study, which were based on focus groups and surveys as well as economic and financial analysis, suggested the following:

- Residents and business owners believed that their current telecommunications services were not adequate.
- The community supported the city's decision to improve the local network.
- Residents and business owners expressed trust and confidence in city management and the telecommunications committee.
- Financial and economic analysis supported the objectives of the project.

Based on the favorable results of the study, the telecommunications committee

Key Vendors, Windom FTTH Rollout

Partner Vendor Name	Headquarters	Solutions Focus
Vectren Communications Services	Evansville, IN	Feasibility studies
Finely Engineering	St. Paul, MN	Network design and project management
Optical Solutions, Inc.	Minneapolis, MN	FTTH network supplier
Scientific Atlanta	Lawrenceville, GA	Digital video headend supplier
Metaswitch	Reston, VA	VoIP telephone soft switch supplier
Primal Solutions, Inc.	Irvine, CA	Community broadband customer care and billing solutions supplier
Technology Solutions & Consultants (TSC)	Windom, MN	Systems infrastructure design and project management vendor

commissioned a second study to evaluate deployment options. Twelve scenarios were considered, and a fiber-to-the-home solution was recommended. Once the city understood what it wanted to build, it could address the challenge of funding.

Funding without Taxes

Windom chose to fund its FTTH project with municipal revenue bonds. Windom's plan is to repay these bonds from revenues generated by the new services it will provide, rather than from tax revenues.

"Our timing was perfect," said Mr. Nelson. "When our bonds were issued, interest rates were at near-historical lows."

Windom received \$9.4 million from its bond issue, of which \$800,000 was used to pay the first two years of interest, leaving \$8.6 million available to fund the project. Based on financials and projections that

were audited and verified by an outside third party, the City of Windom expects to be profitable within seven years.

Critical Process of Partner Selection

After feasibility, the next step was network design. For this task, Windom selected Finely Engineering of St. Paul. Finely's design was completed and approved by the communications committee in the summer of 2003.

With the network design complete, Windom's telecommunications committee began selection of other partners who would be needed to build and run the network.

"Choosing the right mix of vendor partners is a crucial step in the process," said Mr. Nelson. In addition to a standard RFP process, the committee relied heavily on vendor interviews, evaluation of vendor

backgrounds and customer references to ensure that the city would select capable and trusted partners. The table lists the vendors Windom selected.

To efficiently and effectively service 2,000 homes and 300 businesses with electricity, water, wastewater, cable television, Internet and telephone, the city's support systems needed to be upgraded.

Windom chose Technology Solutions & Consultants (TSC), a local professional services organization, to help identify and select critical operations support infrastructure, including a customer care and billing (CCB) solution.

"Finding a single CCB solution that could manage the city's traditional utility services along with its new telecommunications services was a challenge," said Jody Crowell of TCS. The city chose Connect CCB from my firm, Primal Solutions.

Staffing, Launch and Take Rates

To run its new operations, Windom added four positions to its telecommunications staff, bringing the total to six – a modest size considering the value of the new services the city can now offer, including next generation triple-play combinations of voice, digital cable and high speed Internet. Windom began building its new network last June. By last month buildout was complete with no delays and no cost overruns. Launch was a few weeks ago.

Windom's fiber network, which runs entirely through underground conduit, passes 2,000 homes and 300 businesses. Of the 2,300 structures passed, only five declined hookup to the new network.

Based on feasibility studies, connection rates and additional market research, Windom city officials expect to see service take rates outlined in the accompanying table. ♦

Expected Service Take Rates

Service	Estimated Take Rate
Digital Cable	80% through conversion of existing customers
Internet	40% after 2-3 years
Telephone	40% after 2-3 years

About the Author

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