



WiredWest Financial Modeling Process

WiredWest's leadership team has been refining financial modeling for our towns' cooperative fiber network since our first feasibility study in 2010. It has been a valuable, iterative process that has subjected the model to exhaustive due diligence and modification by credible industry and local sources. The model today represents conservative, yet accurate projections for the construction and sustainable operation of a regional municipal fiber-optic network in the consortium of WiredWest member towns that are looking to invest in robust and affordable broadband infrastructure for their residents.

CONTRIBUTORS

Input into the model and its assumptions have come from extensive work with the following:

- Nationally-recognized telecommunications network consultants
- Operating fiber-to-the-home networks, both municipal and private
- Fiber network engineers and builders
- Massachusetts Broadband Institute and its consultants
- Telecommunications industry analysts

WiredWest's Finance Chair, Jim Drawe, has overseen the financial model work on behalf of the towns. Drawe had a career in the finance industry, and is currently a Hampshire County Commissioner and a 25-year veteran of his town's Select Board, as well as a past member of his Finance Committee. To supplement his existing knowledge, Jim has spent the last five years in discussions with municipal fiber network financial and operational professionals, on best practices, budgeting and forecasting considerations, as well as network assumptions, to build a credible financial model for WiredWest.

Additionally, feedback on the latest version of the model was solicited from WiredWest member town Select Boards, Finance Committees and other institutional stakeholders.

MODEL FORMAT, INPUTS AND REFINEMENT

The model has evolved from a collection of excel spreadsheets into a comprehensive, dynamic model that accounts for the complexities of operating a municipal fiber-optic network and enables robust testing of various scenarios.

The current model utilizes [Quantrix software](#), a sophisticated, corporate cloud-based tool for integrated budgeting, planning and financial forecasting. The model was built in Quantrix by Massachusetts Broadband Institute (MBI) consultant, [Civitium](#), who compiled inputs from various sources, including their own extensive knowledge of municipal fiber network financial modeling, before presenting the first draft to WiredWest in 2014.

Background work that contributed to the Quantrix model included an exercise with WiredWest and MBI, with MBI consultant, [Communications Media Advisors](#), that compared each group's models, discussed and resolved differences, and created a consensus model.

That consensus model became part of the next last-mile modelling exercise pursued by MBI, known as the “Kitchen Cabinet.” With this next effort, a group that included several nationally-renowned consultants on various aspects of building and/or operating fiber networks, that included WiredWest, worked on finalizing estimates for the last-mile model, comparing and / or using estimates from the various MBI consultants. The estimates used from this group included: costs for construction of fiber networks in the towns; estimated subscription rates; and costs for construction and operation of a modern TV/video component of the system. Most of these estimates were included in the current model in Quantrix.

In 2014, WiredWest worked closely with MBI’s consultant, Civitium, and with municipal financing expertise to refine the model’s assumptions as follows:

- Better represent construction costs for a rural build in our region specifically (as opposed to the urban assumptions the model was previously based upon) and matched with engineering information WiredWest had collected in its comprehensive GIS map database.
- Capture economies of scale of a regional build (as opposed to the aggregate cost of each town building independently as previous estimates were based upon)
- Accurately represent town household counts, which impacts cost per town (note that those household counts towns submitted in March have not been made available by MBI, so are not yet reflected in the model and per town cost estimates)
- Include pricing, product mix and take rates that were supported by:
 - o WiredWest’s market research study
 - o WiredWest’s two demand aggregation efforts
 - o Pricing, product mix and take rates in areas with similar competition
 - o The model’s financial sustainability
- Reflected an optimal financing strategy municipal financial advisors would likely employ, including planning timing of bonding and types of financial instruments used to ultimately reduce interest costs and defer the onset of maximum town borrowing to better close the gap between the time of borrowing and when revenues from service would be generated.

The revised model was presented to Finance Committees and Select Boards in late 2014 and early 2015. Although the MBI temporarily suspended modelling work with their consultant in early 2015, WiredWest continued working on it with input from WiredWest member town Select Boards, Finance Committees and other stakeholders. Some revisions were made based on their feedback.

The model has also been evaluated by [CTC Technology & Energy](#), arguably the foremost national consultants in the municipal fiber network space. In their report introduction, they summarized with, *“Based on our high-level analysis—which included only the financial documents provided by WiredWest, and did not include an engineering review or any additional research—we did not find anything “show-stopping.” The financial model has been generally well designed and depicts a business that may be sustainable over the long term, given the model’s underlying cost and revenue assumptions.”*

CTC made a number of recommendations to make the model more sustainable, and we are in the process of making those modifications, and will have a complete report to our towns shortly.

MODEL ASSUMPTIONS

Pricing

Initial price ranges were developed by the MBI Kitchen Cabinet, and then modified in conjunction with projected take rates by Civitium and WiredWest Chair Monica Webb, who has extensive market analysis experience. The basis for pricing included a market study that used [conjoint analysis](#) for pricing optimization and determination of corresponding subscription rates. The study was conducted by the nationally-renowned market research firm, [Market Street Research](#), on behalf of WiredWest.

Take Rates

Take rates for fiber networks in areas with similar types of competition (i.e., rural areas without cable), were compared and found to be in the 70% range. Additionally, our market research projected take rates in the same range, and the demographics of the region indicate take rates would likely be higher than the average. However, to be conservative, WiredWest opted to stick with a long-term take rate of 48% in the model, which is well under what we expect, but still ensures sustainability of the regional network.

Product Mix

The product mix again relied on our market research, as well as the tallies of requested services from residents in WiredWest's two demand aggregation efforts - the Support Card campaign and the Fiber Town campaign. Additionally, operating fiber networks were consulted on their product service levels and types of products offered. Statistics on pricing and product mixes were reviewed from all local broadband service providers as well as municipal fiber networks around the country.

We were strongly advised by cable industry consultants and successful fiber networks that provide television service, that although the margins were low, TV was a necessary offering in order to capture higher take rates and get more subscribers to internet services. Additionally, large private sector fiber network providers such as Verizon FiOs, and new entrants Google Fiber and Ting Internet, are, or will be offering TV products. Now is the best possible time to be developing customized TV bundles, as video is increasingly being delivered online, offering greater choice for consumers.

Internet speed tiers were based on what other networks around the country were offering, as well as analysis by WiredWest into projected bandwidth demands by U.S. in the [Cisco Visual Networking Index projections](#). Graduation of customers to higher tiers of service over time was calculated by Civitium.

The resulting price points, product mix and take rates were plugged into the model to determine which combinations ensured network sustainability, in order to minimize any risk to our communities.

Vertically-integrated business model

The vast majority of municipal fiber networks in the United States operate as their own internet service providers, meaning they provide broadband services directly to their customers. The advantage of that model is that it enables networks to utilize the higher margins from providing internet service to repay the debt on the network, or for expansion. When a municipality partners with a private provider, particularly in a rural area with higher capital costs, it means the town typically forgoes being able to access revenues to pay the debt, but rather allocates that margin to the private sector partner, who has no stake in debt repayment.

IN SUMMARY

WiredWest was formed by the towns, for the towns, to ensure the best interests of the towns were represented in the financing, construction and operation of a municipal fiber network. Consequently, WiredWest's goals with the financial modeling have been to control or reduce capital and operational costs to mitigate the financial risk to towns, and make fiber to the home networks accessible to as many of our small towns as possible. WiredWest has continually advocated for specific cost-control strategies, including:

- Creating a locally-operated, regional cooperative to capture economies of scale and aggregate a large group of subscribers to support costs
- Designing the network to share fixed assets more efficiently
- Pushing for cost assumptions relevant to our region, instead of standard urban cost assumptions

- Reducing the number of unnecessary connections to the MB123 network to reduce backhaul cost
- Proposing legislation and regulation to streamline make ready costs
- Advocating for state funds to be spent first, to reduce interest expense to towns
- Advocating for strong local oversight of state expenditure of town funds during construction
- Developing the most cost-effective model to operate, and to return profits to towns

QUESTIONS?

If you have further questions about WiredWest's financial modelling, please contact Jim Drawe at jim@wiredwest.net. You can also find additional project reference information at www.wiredwest.net.