

WiredWest Business Model Review and Potential Options for Unserved Towns in Western Massachusetts

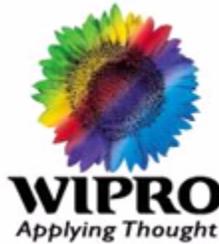
December 10, 2015

Background

There are currently 44 communities in Western Massachusetts that do not have access to “last mile” broadband services for their residents and businesses. A significant amount of state and municipal investment is proposed to remedy this problem by funding the construction of advanced broadband technologies in these communities. The Massachusetts Broadband Institute at MassTech (MBI) has been designated as the state agency charged with managing “last mile” projects and associated state bond funds. One approach to regional network operation and ownership is proposed by the WiredWest Fiber Cooperative Corporation through their Business Plan, dated June 12, 2015. To ensure that public funds are used prudently and responsibly, and as the steward of Commonwealth’s bond funds set aside for this purpose, the Massachusetts Broadband Institute at MassTech (MBI) has hired Wipro to develop an evaluation of this project proposal.

Wipro interviewed several industry subject matter experts to evaluate the WiredWest Business Plan and synthesized comments and feedback into a consolidated document. Consultants that reviewed the WiredWest Business Plan were:

- Michael Morgenstern, Consulting Partner, Wipro (extensive communications service provider advisory experience)
- Josh Brodeur, CEO, Tilson (information technology professional services and network construction experience)
- Alan Davis, CEO, Capenet (network operation experience)
- Phil Wagschal, CEO, SLIC Communications (rural network operation experience)
- Mark Cornett, VP, SLIC Communications (rural network operation experience)
- Greg Richardson, Partner, Civitium (extensive communications service provider advisory experience)
- Peter d’Errico, Leverett Broadband Committee (launched broadband services in an unserved town in MA)
- Greg Sandomirsky, Mintz Levin (counsel to MBI, as to legal matters only)



Introduction

The “Business Plan for WiredWest Fiber Cooperative Corporation” dated June 12, 2015 and accompanying financials dated July 24, 2015¹ present a specific business approach to operating and managing a consumer fiber to the home network. The plan outlines WiredWest’s approach and expectations to establishing and operating a fiber-based communications service provider. On November 11, 2015, WiredWest issued a supporting document, titled “WiredWest Financial Modeling Process”² which provides additional background on the sources that were consulted in the construction of WiredWest’s business plan.

WiredWest proposes to “own and operate a regional fiber-to-the-premises [sic] ‘last-mile’ network to deliver broadband internet, voice, video and other telecommunications services to residences, businesses and other private and public organizations in up to 32 towns in western Massachusetts which currently lack broadband service.”³ The plan also includes information on products, staffing, revenue and cost expectations, and forecasts a potential profit. WiredWest attests that “this plan ... is based on extensive and thorough financial, technical and market analysis, and is a synthesis of work done by WiredWest and by nationally-recognized industry experts consulting to MBI.”⁴

The business plan states that WiredWest will provide all functions associated with residential and commercial customers receiving internet, voice and television services. WiredWest proposes to start a new business, build a customer base and extensive broadband operations by receiving \$30M-\$40M in state-funded capital investment and tens of millions of dollars of town funds. These public funds, currently designated for network design and construction, are the only two sources identified to pay for all start-up operating expenses and working capital (including fiber network planning and construction, salaries, equipment, office space, marketing, etc.). In exchange for these funds, WiredWest proposes to own and operate the business as a cooperative of Municipal Light Plants (MLPs) with a permanent professional staff.

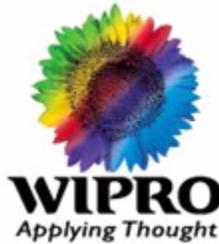
To enable MBI to best guide the communities in Western Massachusetts, Wipro has interviewed several subject matter experts to solicit feedback and perspectives on the viability of WiredWest’s plan. Reactions were then categorized into 6 general areas: issues related to operating costs, operating experience and capabilities, product, pricing, penetration, and legal. Overall reactions generally expressed awareness at how much effort had been put into the plan, but skepticism about its accuracy or potential for success. Several contributors expressed significant skepticism and belief that the business plan is overly optimistic and perhaps unachievable. WiredWest asserts that “a rural fiber-to-the-premises network is viable when based on an appropriate financing and business model.” While there have been a few rural fiber builds in the U.S. over the past decade, most have not demonstrated long-term viability, requiring very detailed inspection of all inputs and costs.

¹ Attached as Exhibits 1 and 2.

² Attached as Exhibit 3.

³ WW June 12, 2015. p 3.

⁴ WW June 12, 2015. p. 4.



WiredWest states that “financial planning for the network has been extensive and thorough. WiredWest has worked with industry consultants and with operating fiber networks to build and vet its financial plan”⁵; however, WiredWest provides no references. (It should be noted that if Civitium and Wipro, both consultants to MBI that conducted modelling for MBI, are included in WW’s unreferenced industry experts, neither company was directly involved in the creation or vetting of the WW Business Plan (until now) and, further, believe that their modeling analyses were misused by WW.) Civitium is also extensively referenced in the Financial Modeling Process document, but was not involved in its drafting or release.⁶

WiredWest argues that fiber networks are the de-facto choice for Western Massachusetts. “In much of the rest of the world, and in urban and suburban areas of the U.S., fiber networks to the home have become the **deployed medium of choice**.”⁷ Though fiber to the home may be a desirable technology, it is not what most of the world uses. ABI research projects 265M worldwide fiber subscribers by 2019 out of 1.72B TV households and out of 3.9B Internet users (15% and 7% respectively).⁸ Subject matter experts concurred that fiber networks are robust and desirable but may not be the only solution for all communities.

WiredWest indicates that a 47% take rate will be a break-even point on profit. (This take rate has since been publically updated to 55%). While WiredWest does not promise to repay any principal or interest unless they are profitable, they do represent that exceeding that break-even point will initiate repayment. A detailed analysis of operating sustainability expressly refutes that as a sufficient take rate. Therefore, analysis indicates this proposed plan would not provide towns with any debt service repayment.

Experts with experience running rural networks indicated that the phone and television content costs were materially underestimated, and that staffing levels appear insufficient. Seven customer service reps for 15,000 subscribers seemed insufficient to industry experts. MLP costs are also not included. As listed below, there are over a dozen categories of costs for which WiredWest has not accounted.

Most significantly, the WiredWest Business Plan assumes that the network will be owned by the WiredWest Cooperative⁹ despite an MBI Board vote indicating that “last mile local and regional broadband networks...will be owned by their respective municipalities.”¹⁰ It is likely that the WW Business Plan was developed before the MBI Board vote; however, WW has recently released a draft Operating Agreement that continues to assert that WW will own the network.¹¹

⁵ WW June 12, 2015. p. 22.

⁶ WW September 5, 2015. Pp. 1, 2 & 3.

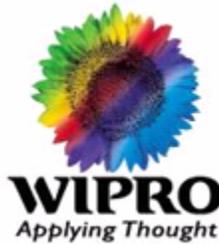
⁷ WW June 12, 2015. p. 14. Emphasis added.

⁸ <https://www.abiresearch.com/press/worldwide-fiber-optic-broadband-subscriptions-to-d/>

⁹ See section “VI. Legal” below for further discussion.

¹⁰ Policy statement approved by both the MBI Board and the MassTech Executive Committee on July 30, 2015.

¹¹ Provided to towns in October and November 2015. No public record available at this time.



I. Operating Costs

Many operating costs are missing or understated. As a result their profit is overly optimistic. General and administrative expenses (G&A) and marketing are noticeably absent. Insurance (and other costs) are underestimated. WiredWest also gives no indication of how it will fund start-up costs to pay expenses prior to generating revenue. For example, there are substantive revenues associated with set-top-boxes every month, but no associated costs to purchase and provide that equipment. Thirty-six month straight line amortization of a \$300 cost would add \$8 of costs to each monthly bill (or to the operator if no charges were passed through to the customer). There are also a variety of sales and marketing costs entirely left out (such as those required to acquire subscribers). In each major category of costs (administration, sales and marketing, onboarding, installation, provisioning, service delivery, billing, support) the plan is missing substantive costs associated with operating the business. Only in the administration and installation categories, when considering salaried executives and fees associated with drop construction, do they potentially appear to be over-estimating. These overestimations, however, do not offset the deficits caused by the remaining errors and omissions.

The examples below are intended to be illustrative, not exhaustive:

a. Administration

Salaried Executives: WiredWest's cost expectations for staffing levels (as expressed by the financial statement) do not match its business plan. In the one identified area of potential over-estimation, there are executive overhead costs that are far in excess of what any similarly scaled operator has in the U.S. "Twelve months prior to the first town being lit, WiredWest will retain a Chief Executive Officer [sic], and six months prior begin hire a full staff, including sales and marketing professionals and general and administrative personnel."¹² Typically start-ups hire as demand requires, rather than starting with "a full staff" with all the resultant expenses.

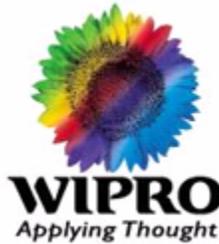
Office Space: "WiredWest will rent office space for personnel, the network operations center, and a testing lab for new equipment, as well as warehouse space for spare equipment. WiredWest will also rent garage space for the technical support vans and their equipment."¹³ Only \$4,200 per month is represented in the financial model to cover both space needs, which experts considered to be low, indicating appropriate space often costs more than \$15,000 per month.

Insurance: "WiredWest will maintain the following insurance policies: Pole Bond required by Verizon and the power companies, Directors' insurance, General Liability insurance, Business Interruption insurance, Natural disaster insurance for the outside plant, Vehicle insurance, Workmen's Compensation, Health insurance for employees, Bonding insurance for Sales personnel, Customer Service personnel, Finance and Bookkeeping personnel".¹⁴ Of these costs, the Pole Bond is explicitly modeled. The other insurance plans are not explicitly modeled, though they

¹² WW June 12, 2015. p. 8.

¹³ WW June 12, 2015. p. 17.

¹⁴ WW June 12, 2015. p. 37.



could possibly be contained in the salary overhead line item, which would almost certainly be insufficient to cover the cost of these policies.

b. Sales and Marketing

WiredWest indicates that it anticipates “having one full time commercial sales person and three full time residential sales personnel. The residential sales personnel will be employed during startup and for a short time after.”¹⁵ No sales support related expenses at all (personnel, marketing, etc.) are represented in the WW financial model. WiredWest also suggests that “orders taken by direct sales personnel will be entered into their secure laptops at the customers’ premises”.¹⁶ No laptop costs are represented in the WW financial model. Experts indicated these expenses needed to be factored into cost modeling, and that start-up staff-related IT expenses could reach \$1,000 per staff member.

c. Customer Onboarding

No costs related to signing up customers (IT, etc.) are represented in the WW financial model, other than sales personnel.

d. Installation

“A premise that subscribes after construction will have to pay an additional fee to cover the cost of sending a crew out to install the drop for that premise.”¹⁷ Typically carriers do not force subscribers to ‘cover the [entire] cost of sending a crew out to install the drop’, which could range from \$200-\$1,000 per subscriber.

e. Provisioning

“All new service orders or changes in service will be entered into a provisioning system that will create a provisioning ticket for the technical staff.”¹⁸ No costs associated with provisioning (management software, etc.) are represented in the WW financial model.

“All new equipment will be tested in the lab prior to deploying it to the field”.¹⁹ No costs associated with testing or operating a lab are represented in the WW financial model. Presuming existing staff had the capabilities to conduct such testing and space was available, the equipment costs of such a facility could be another \$10,000 at a minimum.

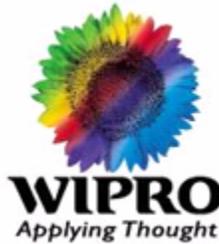
¹⁵ WW June 12, 2015. p. 17.

¹⁶ WW June 12, 2015. p. 18.

¹⁷ WW June 12, 2015. p. 23.

¹⁸ WW June 12, 2015. p. 17.

¹⁹ WW June 12, 2015. p. 16.



f. Service Delivery

WiredWest vastly underestimates the cost of actually providing services to its customers. “Retail customers are served on a best effort basis so there will be some fluctuation in the perceived bandwidth for each individual customer, usually plus or minus 20% of their state bandwidth contract.”²⁰ While it is true that retail customers are most often served on a best effort basis, carriers do not suggest ranges of service around their contract. If WiredWest attempted to guarantee service levels within 20% of the bandwidth levels demanded, it would require purchasing at least 10 times more backhaul than is currently modeled. Phone operating costs are likely to be at least 20-30% higher than WiredWest forecasts (\$10-\$12 minimum vs. \$8)²¹ based on current market rates.

Additionally, many capital-related expenses not included in the initial network build are entirely absent from the financial model.

- WiredWest contends that the network huts “will be the consolidation points for local traffic to feed into the backhaul network to Springfield, MA, Albany, NY and Greenfield, MA”.²² However, the capital costs of routes to these three cities have not been factored into either MBI’s capital model or WiredWest’s operating model.
- There do not seem to be any line items associated with vehicles, maintenance – outside plant. Phoenix charges \$1000/month per guaranteed bucket truck, and Ockers has a similar price.
- In a major discrepancy with the WiredWest forecast, other regional operators have routine maintenance (including line maintenance) expenses averaging \$3/month/subscriber. This implies \$45,000/month for 15,000 subscribers rather than the \$4,200/month represented in the WiredWest financials.²³ As an example, Leverett assigns \$32,000 annually for line maintenance for less than 1,000 subscribers.
- WiredWest states that “access to the servers will be limited ... through a secure Virtual Private Network tunnel...physical access to the server room will require fingerprint identification.”²⁴ Neither the capital nor operating costs of these security measures are represented in the financial model. The capital costs of such a server room with biometric sensors could be up to \$50,000, with some additional minimal ongoing operating costs.
- “WiredWest will purchase and maintain email servers for use by its customers”.²⁵ Neither the capital nor operating costs of these basic customer requirements are represented in the financial model. These servers would cost a few thousand dollars.

²⁰ WW June 12, 2015. p. 17.

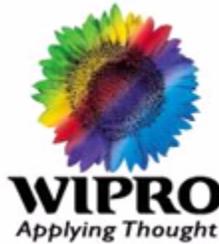
²¹ WW Financials.

²² WW June 12, 2015. p. 18.

²³ WW Financials.

²⁴ WW June 12, 2015. p. 21.

²⁵ WW June 12, 2015. p. 16.



g. Billing

Collecting revenue is a core function of any ISP. The business plan indicates that “billing software, [will] be purchased by WiredWest”.²⁶ No costs associated with billing (software, credit card or ACH fees) are represented in the financial model. Credit card transaction costs alone could result in 3% of fees. BSS/OSS costs could also reach 5% of total revenue, not including credit card clearing house fees.

h. Support

“WiredWest will establish and maintain a network operations center (NOC) that will monitor the performance of each of the network components 24/7/365”.²⁷ Neither the capital nor operating costs of this NOC are represented in the financial model.

“WiredWest will maintain a service contract with an out of state vendor for line maintenance in the event of a natural disaster.”²⁸ The operating costs of this maintenance contract is not represented in the financial model.

The feasibility of the entire operating plan is entirely in doubt due to the significant amount of missing and understated costs.

II. Operating Experience / Capabilities

The WiredWest plan indicates a desire to build a network operator and ISP from scratch. It lists initial potential staff members as well as board members in an effort to demonstrate operating experience and capability. Interviewees, however, were not swayed by the provided documentation. Several experts noted that WiredWest’s documents did not present a compelling example of business competency. While there have clearly been huge strides in advocacy and demand aggregation, the specifics laid out demonstrate a lack of experience owning and managing a network operator and ISP.

Given the nationwide evidence that operation of rural fiber-to-the-home networks are very difficult and prone to failure, it is concerning to all of the industry experts that WiredWest intends to start up and run the business on their own rather than to rely on or partner with established and experienced operators and other vendors.

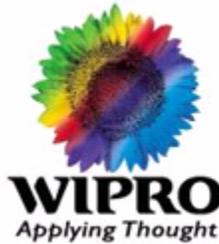
III. Product

WiredWest forecasts a product mix based on their initial presubscriptions – which, significantly, did not present pricing, terms, channel lineups, etc. That assumed product mix is then assigned pricing and multiplied by the number of subscribers to determine revenue. The ‘product mix’ assumptions used in the model – that is, the forecast for how

²⁶ WW June 12, 2015. p. 17.

²⁷ WW June 12, 2015. p. 17.

²⁸ WW June 12, 2015. p. 37.



many customers subscribe to the various products to be offered – may substantially overstate the revenue that is achievable by the enterprise. This is primarily due to assumptions in the model that a large percentage of customers will subscribe to higher speed internet products, and add-ons for cable TV service. The mix of services is different from what other rural carriers have experienced.

The industry experts expressed concern that the product mix WiredWest used to model revenues is over-inflated, especially given existing television options and the socioeconomics of the region, which includes many seasonal homes.

IV. Pricing

WiredWest has publically indicated its service pricing – beginning with Internet-only packages for \$49/month.²⁹ The business plan asserts that: “The average Western Massachusetts household pays about \$3,000 annually for internet, phone and television”.³⁰ This “average” equates to \$250 per month and entirely neglects seasonal homes and homes that currently do not have internet. The Pew Research Center states “Those who live in rural areas are less likely than those in the suburbs and urban areas to use the internet. Still, 78% of rural residents are online.”³¹ (Given that 28% of homes in Western Massachusetts are not occupied all year, that implies a maximum expected penetration of 50-70%.) One rural carrier suggested that an average revenue per unit (ARPU) of \$111 is reasonable. Several others indicated that the proposed pricing for the various products to be offered is too low. It appeared to one interviewee that although pricing for services is routinely “derived” based on the revenue requirements of the business, the operating costs and debt service that must be covered, the tolerance for risk, and the overall sustainability requirements, WiredWest and its members have not done this, but instead, they created and socialized a pricing structure that is based primarily on customer desires in the market. Consumers in unserved towns have clearly articulated a desire to obtain similar services to their neighbors at equal (or lower) prices. Market dynamics and costs, however, make such desires difficult or impossible to meet (hence the lack of existing competition in these areas).

The industry experts expressed concern that the prices suggested by WW will not generate nearly enough revenue to break even and are significantly below what other monopoly operators charge. There is a tension between lower pricing and repayment of debt service (or profitability) and this business plan fails to achieve either in a sustain way.

V. Penetration

To properly forecast revenues, WiredWest must first forecast subscribership. Typically carriers identify how many homes their network can reach (homes passed) and then what percentage of those homes sign up for service (penetration rate). WiredWest asserts that there will be “**19,707** residential premises and 179 business not located in residences” in the footprint.³² Elsewhere, WiredWest indicates **20,840** homes, of which 1,171 are vacant and 5,702 are seasonal (averaging 5 months per year).³³ With the 5 months / year seasonal expectation, that equates to a seasonally

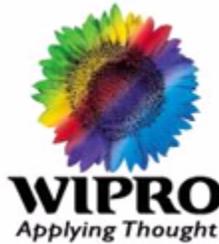
²⁹ <http://wiredwest.net/get-the-facts/>

³⁰ WW June 12, 2015. p 13.

³¹ Pew Research Center. <http://www.pewinternet.org/2015/06/26/americans-internet-access-2000-2015/>

³² WW June 12, 2015. p. 11. Emphasis added.

³³ WW June 12, 2015. pp. 23, 24 & 44.



adjusted market size of 16,343 full time home equivalents in the footprint.³⁴ However, experts indicated that seasonal premises typically take service 3 months per year, not 5. Experts also indicated that weekend-only occupied premises typically do not take services at all. Some carriers offer 6-month packages, however, penetration rates are exceedingly low – even among seasonal residents.

WiredWest states that “breakeven is defined as generating sufficient revenue to cover Cost of Goods Sold, Operating Expenses, Depreciation Reserves, and reimbursement to the towns for the debt service on their borrowings. The current financial model is projecting that breakeven occurs at a 47% subscription rate for the 19 towns that have currently passed their debt authorization votes. Subscription rates above 47% will generate profits.”³⁵

Another area of concern raised by experts is the proposed pace of development and construction. The modeled take rate contemplates assumptions that the network will be built much faster than it actually will be. Their revenue is thus also too optimistic for this reason.

WiredWest’s financial projection indicates 15,000 subscribers.³⁶ But, when applied to the seasonally adjusted market size of 16,343 homes, the implied take rate is 92%, not 47%. The National Cable & Telecommunications Associations (NCTA) notes in a recent survey that 30% of households in rural areas did not take any internet package.³⁷ Indeed, WiredWest’s acknowledges this, stating that “in other similar community fiber networks, where there are no viable competitors, the percentage of residents becoming subscribers has increased to 70% or more.”³⁸ WiredWest’s forecast of 15,000 subscribers is thus impossibly aggressive.

Industry expert concerns related to WW’s penetration expectations include:

- An over-estimation of seasonal home subscription rates and duration of subscriptions
- An over-estimation of the rate at which the 47% subscription rate is achieved
- Inconsistent data used to forecast revenue

VI. Legal

The Business Plan has now been further elaborated on by the circulation in October and November of a draft Operating Agreement for WW reconstituted as an LLC, but still operating as a Coop under MGL 164: 47C. Another document still to be released will spell out the financial and governance issues between towns and their MLPs. WiredWest makes several assertions about asset ownership that have not yet been validated or have been expressly rejected by MBI.

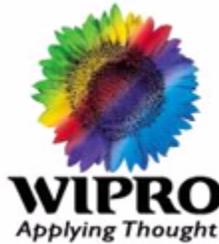
³⁴ $16,343 = 20,840 - 1,171 - (7/12) * 5,702$

³⁵ WW June 12, 2015. p. 23.

³⁶ WW Financials.

³⁷ <http://www.telecompetitor.com/ntca-rural-fiber-deployments-fueling-dramatic-increases-in-higher-speed-broadband-take-rates/>

³⁸ WW June 12, 2015. p. 23.



For example:

WiredWest indicated “[MBI] will be responsible for the construction of the network with oversight by WiredWest Fiber, which will assume ownership of the network upon its completion.”³⁹ The level and nature of oversight, if any, over design and construction has not been agreed to between MBI and WW. MBI’s policy on broadband project grants contemplates ownership by towns or their MLPs, with leases or other access rights used to facilitate common operation by an entity such as WW. WW, on the other hand, is committed to permanent ownership by the Coop.

WiredWest claims that “Its membership will be comprised solely of MLPs in those towns which commit to contributing financing to the project, and which will own the regional network in common through an undivided interest in the whole.”⁴⁰ WW proposes that the network will be owned by the Coop. They do not appear to be willing to pre-set clear terms on how other MLPs might join in after initial formation. Each member of the LLC will have an ownership interest in the Coop, but not literally an “undivided interest” in assets owned by the Coop. The language “undivided interest in the whole” implies some sort of direct joint ownership of assets (for example as tenants in common).

WiredWest claims that “Unlike a private-sector company, as an MLP Cooperative it does not pay federal or state income taxes.”⁴¹ The Coop, if set up successfully, as contemplated under MGL 164:47C, would not be liable for income taxes. However, it would be liable for PILOT payments (Payments in Lieu of Taxes), on account of the real estate and personal property it owns. Taxation of personal property of certain communications companies can be substantial.

“WiredWest will be cash negative in years two and three; this cash shortfall will be covered by a set-aside from town note proceeds”.⁴² The use of proceeds of town notes and bonds for working capital is, at best, unusual. It is, unsettled whether such use is permitted at all under the language of MGL 44:8(8) which would apply to this debt, although WW has raised this issue with bond counsel. Bond counsel and financial advisers in MA have **not** been comfortable that working capital may be financed under most sections of Chapter 44. Also, even if state law allows such use, federal tax law would tightly restrict the amount of any tax-exempt debt issue which could be used for working capital to 5% of each bond issue.

WiredWest claims that “The state funds (approximately 40% of the total investment) are the initial equity.”⁴³ WW appears to be treating the grant proceeds like gifts from the State (through MBI) to the towns. They seem to then intend to treat the grant proceeds as part of the contributions by the towns (or their MLPs) to the Coop which factor into their capital accounts, but they have not shown exactly how the member contributions are to be calculated. WW may intend to treat the grant amounts as if they had been further “gifted” to the Coop, and not consider them in the member capital accounts.

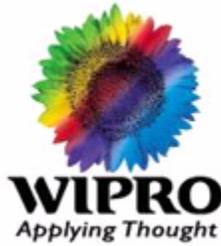
³⁹ WW. June 12, 2015. p. 3.

⁴⁰ WW. June 12, 2015. p. 3.

⁴¹ WW. June 12, 2015. p. 4.

⁴² WW. June 12, 2015. p. 8.

⁴³ WW. June 12, 2015. p. 21.



Conclusion

WiredWest states that “with the anticipated initial service mix, a gross profit margin of 80% is expected once the network is fully operational in year five”.⁴⁴ This review indicates that this projection is not accurate.

Perhaps the most significant risk to the state and local governments contemplating this investment is expressed on page 24 of the business plan. “If at some future time expenses should increase unexpectedly and exceed revenue, then the board will have several choices: cutting expenses, increasing subscribers, raising rates, or expanding the business by offering additional profitable services.”⁴⁵ Most boards strive to cut expenses, increase subscribers and offer all relevant profitable services. When expenses do increase (as is inevitable in a sub-scale operator), those are not viable options to improve the financial condition. Raising rates is often the only option, but runs counter to the current WiredWest community message and rate expectation setting that has occurred.

As a result of all these errors, there was unanimous agreement among all interviewed 3rd party industry experts that the WiredWest Business plan is not viable as it is currently defined.

⁴⁴ WW June 12, 2015. p. 22.

⁴⁵ WW June 12, 2015. p. 24.