

No Municipal Utility? No Problem

Until recently, most municipal fiber networks were built by existing municipal utilities. Experience with outside plant, billing and customer service gave them a head start toward providing broadband. But today, cities without utility departments are forging new paths to build and operate broadband networks.

By Bruce Patterson / *City of Ammon, Idaho*; Jeremy Pietzold / *City of Sandy, Oregon*; Robert Wack / *City of Westminster, Maryland*

For a local government contemplating a municipal broadband project, the complexity and variety of models can be bewildering and daunting. Add in the generally unfamiliar terrain of telecom terminology, the rapidly changing landscape of data services and the regulatory uncertainty in some states, and it's no wonder many municipalities are waiting on the sidelines to see how the game plays out.

Every community is unique, but those determined to forge ahead should look at models that best approximate the characteristics of their community. Enough communities have

undertaken fiber builds and deployed gigabit services that good data is now available.

Some high-profile community broadband success stories, such as Chattanooga, Tennessee; Lafayette, Louisiana; and Wilson, North Carolina, had pre-existing electric utilities that provided stable bases from which to deploy fiber networks. Electric utilities have several inherent advantages, such as ownership of poles, an existing customer base, dual use of fiber for grid management and pre-existing customer service infrastructure.

That takes nothing away from their success –

THREE MODELS FOR COMMUNITY BROADBAND			
	Sandy, Oregon	Ammon, Idaho	Westminster, Maryland
Population	10,000	14,500	18,000
City owns fiber and OSP	Yes	Yes	Yes
City operates network	Yes	Yes	No
City provides retail services	Yes	No	No
Retail Open Access (multiple providers)	No	Yes	**
Debt financing	Yes (revenue bond)	No	Yes (general obligation bond)
Incumbents	Frontier, Wave	CenturyLink, Cable One	Verizon, Comcast

** Currently, Ting is the sole provider on the Westminster Fiber Network, but it is contractually required to migrate to a structurally separated model and bring on additional retail service providers.

but when communities without electric utilities look for models that may be replicable, those examples aren't helpful.

Our municipalities embarked on fiber builds without the advantages of an electric utility, and each took a different approach. Together, they provide a manageable set of examples that municipalities without utilities can study.

Ammon, Idaho; Sandy, Oregon; and Westminster, Maryland, have several characteristics in common. Foremost, each community was frustrated with the inadequacies of the status quo for broadband services, and each determined to solve that problem on its own.

All three projects had very strong public and political support. The importance of this cannot be overemphasized. Fiber networks are expensive, complicated and difficult to build. No matter how carefully municipalities plan, they will encounter unforeseen problems. A motivated voter base and elected officials determined to see the project through to successful conclusion, no matter the bumps along the road, are critical to success.

All three projects used an incremental build approach to minimize financial risk, and all three used some form of demand identification and aggregation as part of initial and expansion planning. All three projects also started by connecting business customers.

GETTING STARTED

Sandy started reselling DSL to local subscribers in 2001 and then gradually migrated to wireless, creating a municipal ISP utility called SandyNet. Eventually, city officials realized the wireless service wasn't going to meet the needs of many residents, so they began exploring, then investing in, fiber infrastructure. In 2012, they took down \$7.5 million in new debt to finance a major expansion.

The take rate for the network is meeting the city's expectations, and it recently added a tax increment financing district to build out another business area. The pricing and service levels have garnered praise and prompted price cutting by the

incumbents, which provide services in separate, parallel infrastructures.

Ten years ago, Ammon started researching how it could improve broadband access in its community. City officials applied for federal broadband stimulus money in 2009 but were unsuccessful, so they began to look at bootstrapping their project with only local resources. They started by connecting city buildings after receiving extremely high quotes from incumbent providers for private circuits. Cost avoidance alone justified the initial expenditures, and the internal network expanded gradually, always including extra fiber strands for future growth.

In 2012, Ammon began offering service to business customers in the downtown area with great success. That service was expanded in 2016 to residential customers, but with a twist: The software-defined networking technology provided by EntryPoint allows multiple providers, sharing the same infrastructure, to sell services to customers. Retail service providers

are responsible for obtaining their own backhaul, and the city provides the retailers with access to customers through its services portal. Once connected to the network, subscribers can compare service offerings, select one and subscribe. Service is provisioned automatically without a service call to the location. Fiber construction and expansion is now funded solely through fees paid by subscribers.

Westminster had the same problem as the other two cities – a lack of interest from incumbents to provide better services – and the same concerns about the long-term impact on economic health of being a broadband backwater. Unlike the other two cities, Westminster had no interest or ability, for a variety of political, economic and operational reasons, to develop a municipal telecom utility as Sandy had or a citywide municipal network as Ammon had. There was also no realistic prospect for an outsider such as Google to build out a citywide fiber network. After several years of research, RFIs, feasibility studies and business model

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Ammon took a risk on new technology, Sandy took on operational risk and Westminster bet that its private partner would deliver enough customers to cover the city's debt service.

analysis, the city undertook a public-private partnership with Ting.

Under their agreement, Ting is responsible for all lit components of network, and the city is responsible for all the outside plant (fiber, conduit, handholes and enclosures), including drops. A critical prerequisite for the Westminster project was a countywide dark fiber ring financed and constructed by Carroll County. This dark fiber is leased at very reasonable rates and provides the path out to the internet. The Westminster project became possible only with the construction of that county-owned, middle-mile network.

FINANCING

The financing of the three projects varied but also shared some features. Ammon and Sandy were able to finance the initial build by cost avoidance, and Sandy was able to realize early revenue when it started selling DSL services. That revenue allowed gradual growth to continue.

In Ammon, city officials saw the long-term opportunity in continuing to expand their initial internal network and justified the expenditures through short-term cost avoidance by replacing leased lines with city infrastructure. The Carroll County middle-mile network that Westminster uses was also constructed based on the significant cost savings the county realizes by replacing leased lines.

So far, Westminster's network realizes sufficient revenue from the gradual acquisition of customers to more than offset the debt service of the project financing. From the outset, that was the primary financial objective of the project, which determined everything from take-rate assumptions

in the financial model to lease rates agreed to in the contract with Ting.

Once they decided to proceed, each community made decisions based on the specific circumstances at the time, the skills and experience of the leaders associated with the project, and the constraints of the local environment. Although there was a common goal, each community took different paths to realizing that goal.

Sandy started by addressing a specific need for access to DSL service. It had the staff expertise and political will to make that happen, solving a problem for its community. That set the city on a path of gradual growth and expansion of its utility, aided at each step by supportive staff, elected officials and the public.

Ammon had a different but analogous problem: the need to connect city facilities in a cost-effective manner. At the time, it already had a larger vision of enhanced broadband in the community, so it built extra capacity, knowing that someday that extra capacity would prove valuable. At each step of the expansion, the city leveraged either cost avoidance, existing assets or a new revenue stream to help defray the cost of the expansion and minimize its financial risk.

RISK MITIGATION

Risk mitigation is probably the most important lesson to take away from these three examples. Each project matched the different kinds of risk inherent in a fiber project to the strengths and weaknesses of the municipality. From an operational and market risk perspective, SandyNet could be viewed as the riskiest approach – building a full-service ISP, with all the operational, technological and financial

risk that entails. The unique capabilities of the staff and elected officials in Sandy, and its incremental approach, make this strategy work.

From another perspective, Westminster's approach could be considered high risk. Allocating all operational responsibilities to the private partner and predicating the rate structure on debt service makes the city entirely dependent on the partner to deliver sufficient customer acquisition to generate the necessary revenue. If the private partner doesn't deliver, the financial risk, and therefore political risk, of the project falls squarely on the city. On the other hand, the city had no capacity to develop the operational capabilities necessary to support a successful ISP, so in a sense it had no other choice but to focus solely on fiber construction and ownership.

Ammon splits the difference by taking on some of the network operations risk but leaves customer acquisition and service risk to the individual service providers. By using a novel technology to administer the network, it takes on some technology risk, but the reward is drastically lowering the barrier to entry to multiple service providers, improving customer choice, increasing competition and boosting take rate. In addition, financing fiber construction through subscriber fees eliminates the financial risk of the network expansion.

In summary, the paths to a successful municipal broadband project are as numerous as there are unique communities. The common elements for success are community support, political will, an incremental approach and careful matching of the different types of project risk to the unique capabilities of the community. It's not easy or quick, but it can be done. ♦

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