

Successful FTTH Systems Can Be Built in Rural Areas – Without Government Subsidies

It's actually cheaper to build in rural than in urban areas, and FTTH systems in rural areas can be profitable even with very few subscribers.

By Timothy and Leslie Nulty / *Mansfield Community Fiber*

The article “To Stack or Not to Stack” (July 2020) asserted that 50 premises per mile is the feasibility threshold for building broadband in rural areas. This simply is not borne out by our experience.

We have financed, overseen and built successful rural telecom systems all over the world for almost 40 years and have built successful fiber-to-the-home (FTTH) systems in the rural United States for 20 years – some with as few as six paying subscribers per linear mile of network – all with zero or negligible subsidies.

Instead, we financed with normal equity and debt financing on commercial terms, with audited accounts and equity/debt ratios in the 10 to 20 percent range. We proved that subsidies absolutely aren't necessary to build rural broadband infrastructure.

RURAL SUCCESS STORIES

Vermont is the most rural state in the United States (as measured by the lowest percentage of its population that lives in any standard metropolitan statistical area) and has an average density outside its few “metropolitan-ish” towns of 12 people per mile. The state also has serious geographic challenges: Its population is not concentrated in villages or towns like many rural areas elsewhere in the world but is scattered all

over the countryside – often on long sparse lanes and “driveways.” The countryside is mountainous and heavily forested and has very rocky terrain; steep, narrow valleys; and severe winters. In other words, if building broadband infrastructure without subsidies in rural Vermont is possible, it's possible anywhere.

Two examples prove this point. If subsidies were the only option, East Central Vermont Communications District (ECFiber), one of the oldest municipal rural FTTH projects in the United States, and Mansfield Community Fiber (MCFiber), a private corporation in another part of rural Northern Vermont, would be economically impossible! ECFiber was formed in 2008 and now has 12 years under its belt. MCFiber, founded in 2016, is still new and small but growing rapidly and meeting all its covenants and business plan targets.

Both projects were financed initially by a relatively small amount of equity from small local partners and quickly reached scale and performance sufficient to attract commercial debt. Both are profitable, and both have received negligible government subsidies, which weren't necessary or instrumental in their success.

ECFiber is formally a municipality under Vermont's Communication Utility District statute, and MCFiber is a private, for-profit

corporation with a strong social responsibility ethic. The legal structures of these two ventures do not greatly affect the economics of their operations.

We managed ECFiber for the first eight years of its existence and founded MCFiber three years ago. In both cases, we invested our own funds. We know from these two experiences that successful FTTH systems can be built anywhere in Vermont – and, we believe, virtually anywhere else in the rural United States – without any taxpayer subsidies, “stacked” or “unstacked.”

The total cost to build FTTH systems in rural Vermont was about \$26,000 per mile, which included absolutely everything (NOC, main pass, laterals, drops and customer installs for six customers per mile) and a 12 percent contingency cushion. Just six paying customers per mile can be profitable: Vermont’s density averages 12 people per mile, so six paying customers means a 50 percent take rate, which we always achieved by the end of the third year – even in places where an incumbent (usually the local telco) sells DSL for much less than our FTTx.

Our excellent service is one reason we were successful. Satellite and fixed wireless don’t stand a chance against us – their service and reliability are too poor. Customers abandon them in droves the minute there is a workable alternative. DSL is a tougher competitor, especially if it comes from local, respected independent telcos.

SURPRISE! BUILDING IN RURAL AREAS IS CHEAPER

Rural Vermont should not be viewed as a rare exception. The surprising fact is that it is usually much *cheaper* to build in rural areas than in urban areas – even taking into account the greater density of urban settings. Urban downtowns are the most difficult and expensive of all. Dense suburbs dominated by single-family homes are the cheapest, especially those with pole-mounted instead of underground utilities.

On the few occasions when we were in a position to build in an area with 50-plus premises per mile, it was very

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expensive. In Burlington, Vermont, for instance, we actually gave up building in the downtown business district. Underground conduit infrastructure was too old and difficult to access, robots to pull fiber through water pipes didn’t work because the pipes into the buildings were too small for a robot, there were no poles, wireless mesh network produced too much lag, and there were more problems.

Cities and large towns abroad mostly don’t have poles at all, and the underground infrastructure is often like Burlington’s. In American cities that do have poles (small cities sometimes do) the poles are ridiculously crowded and difficult to access, especially if (as often is the case) it’s necessary to replace many of them with larger poles to make room for new wires. In short, city and town centers often are too difficult and, when possible at all, are extremely expensive. Simple, tract-housing suburbs are the ideal, which is why Verizon Fios, Google Fiber, and other large players have seized the opportunity to build in those markets.

In the Great Plains of the United States and in rural areas in other countries, including the Australian Outback, Argentina, Uruguay, parts of Brazil, Russia, and central Asia, it is even cheaper to build FTTx than in the rural Northeastern United States. In these places, poles are relatively empty, and it is relatively easy and inexpensive when crews need to go underground because they usually can simply run a plow down the sides of the roads, avoiding the single most difficult thing in many rural U.S. areas: obtaining pole attachment licenses.

Population density measured per square mile technically is very low in these places, but many people live along very few roads. That means “effective density” (premises per mile of network) is usually higher than in the Northeastern United States. Furthermore, more people there are clustered in small towns and villages, which are more like suburbs than the “real” rural areas that exist in Vermont and other rural areas of the Northeast. Therefore, effective density in the desert of Western Australia (an area not much smaller than Texas with a total population of about 150,000) and on the flat plains of Northwestern Minnesota or Eastern Washington, for instance, is significantly higher than in Vermont. This helps make a business case for FTTx broadband in these areas.

NO SUBSIDIES REQUIRED

We know from decades of on-the-ground experience that broadband ventures in rural areas certainly don’t require 50 premises per mile, and that figure should *not* be used to secure massive taxpayer subsidies. Our view is that the substantial public subsidies given to large companies (at least in Vermont) underwrote bloated costs, deficient deployments and poor service.

We’ve proved that building successful rural FTTH without subsidies and with commercial financing is entirely feasible, so claims by carriers that they cannot do so raises numerous questions:

- 1 Do managers really know the business well enough to be trusted with anyone’s money (let alone taxpayers’)?

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- 2 Are carriers captives of their contractors and equipment suppliers and thereby unable or unwilling to squeeze out excess costs?
- 3 Are managers unable to make an effective business case to lenders?
- 4 Do carriers simply want a free lunch by “socializing” the costs of a new business through taxpayer handouts while “privatizing” profits for themselves?

We understand that for large, publicly traded companies answerable

to Wall Street with large administrative overheads, rural broadband deployment is unattractive without public subsidies. These companies are driven to deploy their investible funds to areas, such as suburbs, where they can maximize the rate of return. That’s why those firms will never meet the desperate need for broadband in rural areas unless the government gives them “free” taxpayer money.

Most readers of this magazine likely recognize that the United States has been afflicted with underinvestment in

broadband – a condition magnified by the impact of the current pandemic. Under such circumstances, we hope to see a call for more prudent and careful use of scarce public monies. Subsidies given to large companies with ample access to commercial capital is a waste of taxpayer money. It’s as simple as that.

We are uplifted by the significant advances in building out rural broadband by cooperatives, municipalities and locally based independents, which have lower cost structures and whose interest is in supporting their communities. These groups are setting a positive example and should be the way of the future. ❖

Timothy Nulty is the CEO and Leslie Nulty is the CFO of Mansfield Community Fiber, which provides FTTH service in rural Northeastern Vermont. Contact leslie.nulty@mcfiber.vt.com.

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