

TESTIMONY OF LESLIE E. NULTY, CHIEF FINANCIAL OFFICER, MANSFIELD
COMMUNITY FIBER, INC.

Before the Vermont House Committee on Energy and Technology
with respect to H.19-1206 1.3 Omnibus Telecommunications bill as submitted 02.22.19

February 26, 2019

Honorable Members of the Committee:

I have been involved in telecommunications development and operations in Vermont for over 14 years, currently with Mansfield Community Fiber, Inc. (“MCF”; www.mcfibervt.com). MCF is a new company building and operating a fiber-to-the-home network in rural northwestern Vermont. We connected our first customers in October 2017 and are continuing to build out our network in underserved areas of rural northwestern Vermont. Prior to that I was Project Coordinator for East Central Vermont Telecommunications District (ECFiber) in Windsor and Orange Counties, working through ValleyNet.

MCF now offers symmetrical connections of 25/50/100 Mbps plus free voice service and a small video package that includes local news stations not usually available live on the Internet. Our network is capable of offering up to 1 Gigabit, which we intend to do as soon as there is effective demand for such speeds in our service area. As a fiber-to-the-home network, our business can be easily, continuously and affordably upgraded as connectivity needs and demand increase over time.

To start with, I, and our company, applaud the Committee’s bill and its focus on accelerating the development of “real” broadband Internet service in our state.

I believe that the uneven access to state-of-the-art broadband communications is and will continue to be a serious obstacle to the stability and prosperity of Vermont’s rural communities. Telecommunications is a rapidly growing and evolving sector of our economy and it is vital that rural communities not be left behind. Distance learning, distance medicine, distance working are all enabled by robust broadband Internet. All help reduce our carbon footprint and make rural life more attractive and productive – far beyond access to Netflix or NESN! (And I say this as a devoted Red Sox follower). But the bandwidth and other technical requirements of those applications continue to escalate rapidly, and *it is important to assure that public subsidies for development, support implementations that will not be obsolete soon after their deployment, if not immediately.*

In this regard, we support the increase in funding for broadband development included in the proposed legislation. However, we believe that the terms of that support can and should be improved substantially. As written, it is not clear to me, that despite the best of intentions, this legislation will actually be ***effective and successful***, in delivering its intended outcomes.

The legislation proposes increased funding for existing programs but accepts the eligibility criteria and inadequate deliverables in those programs. We consider this unfortunate...and, in our judgment, will significantly inhibit the effectiveness of the legislation. As one example: I urge the committee to reconsider whether the current 3 Mbps is an acceptable standard for “upload” connectivity (even if it is an improvement over the current 1 Mbps standard). In our view it is not. If Vermont is going to support distance medicine, distance professional and skill development, or Vermont-based research and engineering, or developing a national market for Vermont’s small and household-based business community, we need to provide those sectors with robust “upload” capacity. Any 2-way application is constrained by the slowest speed. That means that the upload speed becomes, in fact, the actual speed of most 2-way communication. For example, Vermont musicians living in rural villages could develop a national market for music lessons IF they had adequate upload capacity. That door is now, for the most part, closed to them. This inadequacy will only grow—probably at an accelerating rate. Please bear in mind when thinking about this issue that typically 13% of Vermont rural households have a business in the home for most of which 2-way interactions are essential. This has been borne out in both our ECFiber and MCFiber developments. If public monies are to be spent on new broadband deployment, the delivery standard should anticipate the rapid growth of demand for much greater upload service.

With these concerns in mind and to assist you in your deliberations, I would like to offer my perspective on the specifics of the proposed legislation in the order presented in the Omnibus draft together with suggestions for improvement.

- I. **Additional funding for the “High Cost Program.”** We support this provision and are pleased to see an improvement from prior bills, in the required delivery standard. However, as discussed above, we would encourage a more ambitious service delivery standard than the 25/3 now incorporated in the current draft.
- II. **Additional funding for the Connectivity Initiative.** While our concerns about grants versus revolving loan funds is pertinent here and discussed below, we are more concerned about the unbalanced appropriation request between monies that can be put to work immediately through the CIG program, compared to the feasibility studies and undefined “pilot projects” introduced into this legislation. If the Committee insists on funding both, the amounts awarded to each should be reversed.
 - a. **Eligibility concerns:** This provision relies on the current standards for identifying eligible projects based on flawed data. I attach for the Committee’s review and consideration a recent article on the subject by one of the nation’s leading experts on this industry, Doug Dawson of CCG Consulting, Inc. Specifically, Dawson points out the fact that “unserved” and “underserved” are essentially defined by data submitted by incumbent carriers who have a vested interest in “walling off” their

service areas from potential competitors or who may actually not know what service levels their customers actually experience. They will assert service availability even if only one location experiences the claimed service.

In the case of DSL, actual bandwidth enjoyed by a customer varies depending on their distance from the nearest switch, the age and condition of the copper line, and the number of connections provisioned by the utility on a single port.

In the case of fixed wireless, two customers served by the same equipment on the same tower will get different bandwidth if one is in a wooded valley and the other is on an exposed hilltop. But these providers will measure their bandwidth at the most optimal point and claim a “served” area far beyond the true reach of their services.

Recently the DPS made national news with their effort to verify mobile wireless service, and found huge discrepancies between truly accessible service and claimed service. The same will be true with many forms of terrestrial fixed service. In Section VII below we offer several ways to improve this provision of the bill.

- b. **Grant funding:** We *strongly* prefer revolving loan funds rather than grants as a vehicle of taxpayer support for broadband or other forms of economic development. Loan funds enable greater use of appropriated funds as opposed to a one-time appropriation and disbursement. The funds are continuously recycled and not dependent on the state budget every single year. Revolving loan funds also create a motive for discipline for both the awarder and the recipient - discipline that has been lamentably absent in many previous grants.
- c. **Appropriation request** : \$700,00 for feasibility and planning grants and pilot projects. Funding “feasibility studies” is a slippery slope. “Feasibility studies” is an undefined term. The hefty funding for this purpose opens the door to a lot of wasted time and sham effort. If funding were provided to “implementable business plan development” rather than “feasibility studies” those who receive such monies would be more likely to have a useful action-ready product at the end of any such effort. Supporting “feasibility studies” also postpones broadband deployment by introducing an additional unnecessary step into the process. Tools for building implementable telecom business plans are readily available from reputable sources on the Internet.
- d. **Appropriation request:** \$205,000 for Connectivity Initiative Grants:

- i. We strongly support the Committee's increasing the delivery requirement for CIGs to 25Mbps/3Mbps and, as explained above, urge consideration of even more robust standards.
- ii. We have already discussed our preference for revolving loan funds rather than grants, and urge the Committee to consider this revision favorably.
- iii. The Connectivity Initiative Grant program as it now exists requires delivery of new connections within one year of grant approval. That requirement is unrealistic, because it can take more than one year just to get pole attachment licenses, before any construction work can be done for line extensions. Requiring rapid, concrete, verifiable action by any recipient is a highly laudable goal...but it needs to be set in the context of reality. Further, the requirement could be seen as a disguised effort to discriminate against fiber-to-the-home as opposed to wireless technologies. While wireless is far less capable, reliable and economically upgradeable than FTTx, it can be deployed more quickly. We hope that this is not the intention of the Committee. If the Committee wants legislation to be truly "technology neutral," this provision of the existing program should be revised to reflect reality.
- iv. The CIG awards grants for connections to specific identified eligible locations. As discussed above, the data upon which that eligibility is based is seriously flawed and needs to be revised. Unless this matter is addressed and the eligibility criteria adjusted the whole program will fall into the same bottomless pothole that swallowed many previous programs and there will only minimal progress toward providing true broadband to rural Vermont.
- v. The CIG program requires the recipient to submit speed test evidence to assure compliance with delivery requirements. However, there is no definition of how such speed tests should be conducted. Hypothetically a recipient could produce speed test evidence from the most optimal location, which is not necessarily the speed experience by a final user. DPS should be instructed to tighten these requirements.
- e. **Appropriation Request:** \$50,000 to fund DPS feasibility studies of broadband delivery using electric utility infrastructure.

Rural electric utilities have access to a wide range of affordable, subsidized federal funding sources through the U.S. Department of Agriculture. It is not clear why they need additional grant funds from Vermont taxpayers. Since this amount is barely sufficient to fund even

one such study, this provision looks like a special interest “gambit” that is a poor use of scarce resources. Previous iterations of this legislation envisioned funding an additional broadband technical assistance and support person at DPS without restricting their responsibilities. We strongly supported this proposal. Recently DPS staff have shown themselves to be enterprising and aware of many of the complexities and hurdles to providing better broadband to rural Vermont. Adding to their numbers will be a true asset to the state. However, restricting their activity to electricity infrastructure is misguided and detracts from time and effort that needs to be devoted to improving the state’s approach to broadband development in general. The fact that this committee draft includes several “carve outs” for electricity infrastructure studies and support belies the stated intention to be “technology neutral.”

In conclusion, while we support enhanced funding for broadband development, we believe the additional funds should be subject to improvements to the proposed Connectivity Initiative program.

- III. **Think Vermont Innovation Fund:** additional \$45,000 for Think Vermont Innovation Fund for technical assistance to municipalities.
 - a. We support this appropriation. However, it is not clear how it works with the additional technical support funding proposed for the DPS, since Think Vermont is housed in the Agency of Commerce. For a municipality, it is more helpful to be able to go to one portal for guidance and funding.

- IV. **Department of Public Service: Grants for Studies and Pilot Projects:** This section again encourages undefined “feasibility studies” and undefined “pilot projects.” Without any taxpayer money, MCFiber has undertaken a successful fiber-to-the-home development, using local citizens’ hard-earned savings. We are meeting our business plan targets (except for a pole attachment glitch described below – outside of our control) and have a fully-articulated business plan for moving forward over the next 5-10 years. This is the kind of effort the state should be supporting – not financing consultants and bureaucrats who have no “skin in the game.”

Further, this section has yet another “carve out” for electric utility infrastructure – another diversion into unproductive effort. Right now there is an explosion of rural electric utility broadband development across the country. It’s being done in large part with federal and co-op funds as mentioned earlier. VIRTUALLY NONE OF IT IS BEING DONE WITH ELECTRICITY INFRASTRUCTURE. Those projects are universally fiber-to-the home, deployed de novo by free-standing subsidiaries devoted to that undertaking. There’s a reason for this. Everyone in the business knows that electricity infrastructure designed for internal electric service data transfer is not engineered to reach other final users. Re-designing and restructuring it for that

purpose is more costly than building new FTTx deployment. To understand this, the committee should envision the challenge of re-building interstate highways with their limit on and off ramps, into local road systems. Vermont should not be “re-inventing” non-functional “wheels” with scarce and limited state taxpayer funds.

- V. **VEDA Broadband Expansion Loan Program:** Telecom development is a capital-intensive undertaking in which capital is tied up often for over a year during the pole attachment licensing process, before one dollar of customer revenue comes in. Then it typically takes another four to five years before a given project returns net profits. Making financing more affordable will help accelerate broadband deployment.

We support this proposal. This provision recognizes the financial hurdles for new companies like ours and would enable us to expand our network faster, thereby reaching more needy customers and strengthening our company for the long haul. The funding proposed for this initiative is robust, and the loan loss reserve and 90% loan financing would be very helpful – moving us closer, faster to eligibility for conventional bank financing. However, our concerns stated above with respect to identifying “eligible areas” also apply here.

Using VEDA as the administrative vehicle makes sense, as they have a good track record as a custodian of taxpayer dollars. However, they do not yet have a track record in supporting telecommunications development. Indeed, VEDA has been explicitly and overtly unwilling in the past to expand their operations into this sector. VEDA needs to be told that broadband is an important State goal and that they should adjust their own priorities accordingly.

As a result of VEDA’s testimony on February 20, the Committee should be aware that up to now VEDA has not looked favorably at broadband proposals, does not even mention telecommunications as an area of interest on its website, and has no in-house capacity to evaluate broadband proposals. They continue to characterize broadband as a “high-risk” sector without any documentation or evidence to that effect. They will need to acquire such expertise. The Committee’s draft language again uses the “unserved/underserved” language and requires borrowers to certify availability from the same inaccurate data set used by PSD’s Connectivity Initiative Grant program. This should be amended along the lines suggested in our Section VII below.

- VI. **Pole attachments:** The current pole attachment rules and process in Vermont, while better than in some states, are a MAJOR impediment to both the cost and rate of deployment of new infrastructure. Delays in “make-ready” increase the cost and viability of any project – since a provider such as we, has to spend considerable sums and then wait a year or more before deploying infrastructure

that connects customers and generates revenue. As a write this, MCFiber has one set of pole license applications that has been pending for 20 months – far longer than the rules supposedly stipulate. Customers on the route have been asking for service for months and are beginning to lose faith in the integrity and efficacy of the entire system for bringing broadband to “the back roads”. We are unable to tell them when we can deliver because the pole-owner has not done the work that we have already paid for. If this committee and/or the Legislature really wants to make an impact on broadband deployment, it must INSTRUCT the Public Utilities Commission to adopt “one-touch make ready” and to audit and verify the discrepancy in tariffs it has approved between various utility pole owners. Simply asking them to “consider” doing so is asking them to do nothing about this urgent matter. FURTHER: the PUC and/or DPS *should be required to develop and implement an effective enforcement mechanism*—otherwise the existing practice of systematically and consistently ignoring the requirements of the pole attachment law—while keeping the make-ready payments already made by applicants--will continue and worsen.

- VII. How to improve this legislation:** MCFiber generally approves and supports the thrust of this legislative effort. But we would like to see the legislation made truly effective, rather than a collection of gestures that have limited impact. Thus, we recommend the following amendments to the Committee’s draft:
- A. **Use loans, not grants.** While grants certainly enhance the financial viability of any undertaking more so than loans, they also include a risk that the money will be disbursed but the recipient will not deliver on its commitment. If a project is not sufficiently economic to succeed with loans it is probably not sufficiently economic to deserve subsidy from taxpayer funds. Agencies do not have the staff, time or resources to truly evaluate the awardees—and if there is no requirement to repay the funds, they don’t have an incentive to do so either. A revolving loan fund spreads the funds over more projects and enables better oversight from the state agencies and more discipline on the part of recipients.
 - B. **Require consistency in requirement for both eligibility and deliverables (definition of “broadband”) across all programs and all agencies.**
 - C. **Minimize silos and fractioning of funding:** trying to fund too many initiatives with token amounts of money simply assures that bureaucracy eats up dollars that could be put to actual customer broadband connections.

D. Improve methods for determining eligibility based on alleged service availability. Right now, both federal programs and Vermont’s programs depend on seriously flawed “ Broadband Maps.” I attach to this testimony a recent trenchant description of the source of these flaws written by one of the most prominent national broadband consultants, Douglas Dawson, CCG Consulting Inc. I have highlighted his most pertinent comments that apply equally to Vermont’s programs as well as to federal programs. They also give no indication of how or whether their current speeds can be easily increased as the need accelerates. In fact, in many cases the ability to upgrade continuously is severely limited, both technically and economically. In providing any new funding of Vermont’s existing programs (and new ones – see below), I urge the legislature to require a change in methods used to determine eligibility. There are a number of ways to do this:

- a. The provision of additional funds needs to come with some obligation on the part of PSD or ACCD to verify existing service data submitted by incumbents independently and make it available to applicants.
- b. Alternatively, it can largely be assumed that virtually all sparsely populated areas of Vermont (i.e. those with fewer than, say, 12 premises per mile of class 1,2 and 3 roads) are, ipso facto, “underserved” by broadband. If that were taken as the initial criteria and the burden of proving that not to be so placed on those who wish to oppose state assistance for areas which meet that criteria, the effect would be to discourage frivolous efforts to stop otherwise promising projects. This gambit is, unfortunately, all too common. The primary goal should be enhancing the prospect of effective projects being undertaken—while ensuring that the basic commercial risk is borne by the project owners and not Vermont taxpayers.

There has been widespread news coverage of the PSD’s effort to verify wireless access – a laudable and heroic effort on their part...with the unsurprising result that the claims of incumbents proved to be wildly optimistic and inaccurate. But no similar effort has been made with respect to fixed terrestrial broadband service. Despite the importance of wireless service for other purposes, fixed, wired, terrestrial broadband Internet is the core, meat-and-potatoes engine essential to the future economic and social sustainability of rural Vermont¹.

¹ In the 30’s, 40’s and 50’s the USA mandated wireline telephone infrastructure be built to every premise in America—despite the fact that wireless radio technology was available and in use for many applications. The reason was simple: wireline is much better and more reliable for

- c. The legislature could require the disbursing agencies to develop, accept and adhere to a speed testing process conducted by and submitted by municipalities or groups of citizens attesting to sub-standard connectivity, in support of funding applicants. The burden of proof challenging these would be on the incumbents in the service area.
- d. The committee should take note of a recent legislative initiative at the federal level by Senator Leahy. That proposal seeks to “free up” geographic areas that, at the federal level, have been funded by truly huge sums of tax dollars but where the promised connectivity has simply not been delivered. The same could be applied to the state².

essential services. The same is true today. Indeed, the gap in capability and reliability between hardwired fiber networks and wireless is even greater today than it was between copper telephone and 2-way radio 60 years ago.

² A very large % of Vermont has been ruled ineligible for Federal and State funding as a result of the VTel award made almost 9 years ago...and which the recent drive-around test by the PSD proved to be non-functional in many of those areas that are still off-limits for other projects.

POTs and PANs

Pretty Advanced New Stuff from CCG Consulting

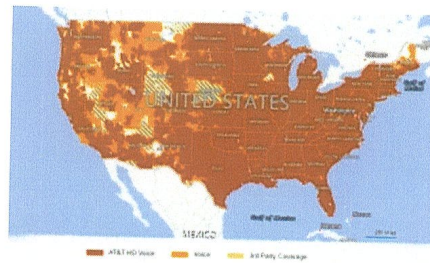
February 11, 2019

We Need a Challenge Process for Broadband Maps

2 Comments

<https://potsandpansbyccg.com/2019/01/10/trusting-big-isp-data/att-coverage-map/#main>

We all know that the broadband maps maintained by the FCC are terrible. Some of the inaccuracy is due to the fact that the data in the maps come from ISPs. For example, there are still obvious examples where carriers are reporting their marketing speeds rather than actual speeds, which they might not know. Some of the inaccuracy is due to the mapping rules, such as showing broadband by census block – when a few customers in a block have decent broadband it's assumed that the whole census block has it. Some of the inaccuracy is due to the vagaries of technology – DSL can vary significantly from one house to the next due to the condition of local copper; wireless broadband can vary according to interference and impediments in the line-of-sight. The maps can be wrong due to bad behavior of an ISP who has a reason to either overstate or understate their actual speeds (I've seen both cases).



None of this would matter if the maps were just our best guess at seeing the state of broadband in the country. Unfortunately, the maps are used for real-life purposes. First, the maps are used at the FCC and state legislators to develop and support various policies related to broadband. It's been my contention for a long time that the FCC has been hiding behind the bad maps because those maps grossly overstate the availability of rural broadband. The FCC has a good reason to do so because they are tasked by Congress to fix inadequate broadband.

Recently the maps have been used in a more concrete way and are used to define where grants can or cannot be awarded. Used in this manner the maps are being used to identify groups of homes that don't already have adequate broadband. The maps were the basis of determining eligible areas for the CAF II reverse auction and now for the e-Connectivity grants.

This is where bad mapping really hurts. Every rural county in the country knows where broadband is terrible or non-existent. When I show the FCC maps to local politicians they are aghast at how inaccurate the maps are for their areas. The maps often show large swaths of phantom broadband that doesn't exist. The maps will show towns that supposedly have universal 25/3 Mbps broadband or better when the real speeds in the town are 10 Mbps or less. The bad maps hurt every one of these places because if these maps were accurate these places would be eligible for grants to help fix the poor

broadband. A lot of rural America is being royally screwed by the bad maps.

Of even more dismay, the maps seem to be getting worse instead of better. For example, in the CAF II program, the big telcos were supposed to bring broadband of at least 10/1 Mbps to huge swaths of rural America. A lot of the areas covered by the CAF II program are not going to see any improvement of broadband speeds. In some cases, the technology used, such as AT&T's use of fixed cellular can't deliver the desired speeds to customers who live too far from a tower. I also believe we're going to find that in many cases the big carriers are electing to only upgrade the low-hanging fruit and are ignoring homes where the CAF upgrade costs too much. These carriers are likely to claim they've made the upgrades on the maps rather than admit to the FCC that they pocketed the subsidy money instead of spending it to improve broadband.

There have been a few suggested fixes for the problem. A few states have tried to tackle their own broadband maps that are more accurate, but they can't get access to any better data from the ISPs. There are a few states now that are asking citizens to run speed tests to try to map the real broadband situation, but unless the speed tests are run under specific and rigorous conditions they won't, by themselves, serve as proof of poor broadband.

The easiest fix for the problem is staring us right in the face. Last year the FCC got a lot of complaints about the soon-to-be-awarded Mobility Fund Phase II grants. This money was to go to cellular carriers to bring cell coverage to areas that don't have it. The FCC maps used for those efforts were even worse than the broadband maps and the biggest cellular companies were accused of fudging their coverage data to try to stop smaller rival cell providers from getting the federal money. The outcry was so loud that the FCC created a challenge process where state and local governments could challenge the cellular coverage maps. I know a lot of governments that took part in these challenges. The remapping isn't yet complete, but it's clear that local input improved the maps.

We need the same thing for the FCC broadband maps. There needs to be a permanent challenge process where a state or local government can challenge the maps and can supply what they believe to be a more accurate map of coverage. Once counties understand that they are getting bypassed for federal grant money due to crappy maps they will jump all over a challenge process. I know places that will go door-to-door if the effort can help bring funds to get better broadband.

Unfortunately, only the FCC can order a challenge process, and I don't think they will even consider it unless they got the same kind of outcry that came with the Mobility II Funding. It's sad to say, but the FCC has a vested interest in burying their head in the sand and pretending that rural broadband is okay – otherwise they have to try to fix it.

I think states ought to consider this. If a state undertakes a program to allow challenges to the map, then governors and federal legislators can use the evidence gathered to pressure the USDA to accept alternate maps for areas with poor broadband. These challenges have to come from the local level where people know the broadband story. This can't come from a state broadband mapping process that starts with carrier data. If local people are allowed to challenge the maps then the maps will get better and will better define areas that deserve federal grants. I believe a lot of county governments and small towns would leap at the opportunity to tell their broadband story.

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