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

Before the Vermont Senate Finance Committee
with respect to H.513

Honorable Members of the Committee:

I have been involved in telecommunications development and operations in Vermont for over 14 years, currently Chief Financial Officer of Mansfield Community Fiber, Inc., "MCFiber," www.mcfibervt.com). MCFiber is a new company in which my husband, local partners and I, have invested personal savings. We are building and operating a fiber-to-the-home network in rural northwestern Vermont. Prior to that I was Executive VP of the team that organized and built ECFiber, now East Central Vermont Telecommunications District in Windsor and Orange Counties. From 1994-1998 I served as Controller for Central European Telecom Investments, a venture capital fund investing in start-up telecom companies in Central Europe. As I hope you can see, I have deep background both in fiber-optic business development and financial management. It is from that perspective that I offer these comments on the telecom legislation before you.

MCFiber is a mission-driven company dedicated to bringing state-of-the-art connectivity to underserved areas of rural northwestern Vermont. We hope to be viewed as a model of how state-of-the-art broadband can be deployed relatively quickly and efficiently. We connected our first customers in October 2017. We now offer 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.

I am here today to urge you to act promptly to move this legislation forward. When the bill was originally introduced in the House, we were quite elated, as it seemed to hold the promise of enabling much more rapid deployment of real broadband, than previous state efforts. Now momentum seems to have slowed and we are concerned.

If we do not pick up the pace of true broadband deployment, Vermont risks becoming an economic backwater with declining communities and an even more rapidly aging population. Broadband is the engine of economic development and community sustainability that electricity was in the 1940s and 1950s. 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. If the purpose of public policy and the proposed legislation is to enhance the

economic and social vitality of the state, and not merely facilitate private entertainment, ***it is vitally important to assure that public subsidies for broadband development support implementations that have been proven in the field and that will not be obsolete soon after their deployment, if not immediately.*** Scarce and valuable public funds should be directed to activities with the greatest promise of achieving fundamental development.

In this regard, we support the increase in funding for broadband development included in the proposed legislation. However, we believe that the allocation of these additional funds will be more ***effective and successful*** in delivering the bill's stated goals, if redirected to some extent. Here are my suggestions for improving the provisions of the current bill:

I. **Additional funding for a broadband technical assistance and support person at DPS**. We strongly support this proposal. 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. The department has shown that it now has the knowledge and capacity to provide effective support into the future. Our only regret is that only one new position has been funded, at the same time that the bill substantially increases demands on the Department far beyond what one new position will be able to handle. If the Department is overburdened, its ability to oversee the programs under its jurisdiction will be compromised, and risk a continuation of the past failure of many of Vermont's telecom development attempts.

II. **Connectivity Initiative**

a. We are pleased that the legislation recognizes that any service receiving state funds must provide at least a minimum of 25Mpbs download and 3 Mbps upload, the current FCC definition of broadband and also allows for improvements in this standard as and when the FCC upgrades its definition. This will avoid some of the past errors in which public funds supported deployment of technology that quickly became obsolete.

b. We strongly support the additional funding for the Connectivity Fund, both with respect to the proposed FY2019 $955,000 general fund transfer as well as the increase in USF-generated funds. However, we think the specific FY 2019 proposed allocation of $700,000 for feasibility studies under the "Broadband Innovation Program" and only $205,000 for Connectivity Initiative Grants ("CIG"), with a $50,000 carve-out for an electric distribution feasibility study specifically, is severely unbalanced and will both inhibit and delay implementation of actual customer connections to real functional broadband.

In this regard, it is important to recognize that after a "feasibility study" or "business plan" has been done, *a network design has to be engineered and*

completed, and the pole attachment licensing process begun. From that point it will take a minimum of a year before construction can start, and oftentimes much longer than that. If we are intending to promote economic sustainability and development in rural Vermont, it is in everyone's interest to facilitate the most rapid deployment that can meet the minimum connectivity standards embodied in this legislation.

We are pleased to see that the Energy and Technology Committee incorporated our recommendation that any feasibility studies funded under Section 10 result in an actionable business plan. However, the $60,000 cap per grant for a total $700,000 allocation for these studies, anticipates 11 or more such studies – a very large number for our small state, given that significant areas (Burlington, ECFiber Territory, Vermont Telephone service area, and town centers) are already "served." A more reasonable amount - say half that - redirected to Connectivity Initiative Grants could bring faster deployment to more communities.

c. Connectivity Initiative Grants: We strongly support robust funding for this program, but we strongly prefer revolving loan funds to grants as a vehicle for 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. In addition, having to pay back taxpayer-sponsored funds under a loan scenario imposes a significant degree of discipline both on the recipient AND on the funding entity—discipline that often is not present with grants. By contrast, grant programs are an open invitation to sloppy practices in the award and oversight roles of the government, and in execution practices by the recipient. The track record in Vermont with broadband grants - both Federal and State - is not encouraging.

As discussed above, the $205,000 for "operating grants" with the possibility that a significant proportion of that gets carved out for electric companies, is paltry in the extreme. In prior years appropriations for this program exceeded $500,000. It is not clear why the legislature would want to go backwards, when this is the program that actually enables connections of customers in hard-to-reach/higher cost areas. Further, there are provisions in the current program that could be improved, to provide better assurance that any funds appropriated for this purpose are used well. Specifically:

i. 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.

ii. The CIG awards grants for connections to specific identified eligible locations, deemed to be "unserved" or "underserved." The

data on which that eligibility is based is seriously flawed and needs to be revised. Specifically:

1. Incumbent providers often assert that adequate service is available in a given area irrespective of how many premises can actually access the specified service. In the case of fixed wireless, for example, a location not blocked by trees or hills will get many times better connectivity than one in a wooded valley, even if both are "served" by the same equipment on the same tower.

2. Incumbent providers have an incentive to exaggerate the extent and quality of the service they offer as a means of restricting potential competition. It is not uncommon for them to receive public funds to bring service to the "unserved" and then only do a partial or token job. The state administrative agencies managing these programs do not have the resources to monitor or "audit" what has actually been delivered to customers. I attach for the Committee's information a recent discussion of this issue by one of the industry's most respected consultants.

In summary, even if we cannot get the Connectivity Initiative Grant program converted to a revolving loan program, we believe the requested appropriation needs to be increased substantially and be tied to reform of the eligibility standards. We offer a list of suggestions as to how to do that in Section V below.

e. Carve-outs for feasibility studies on using electric utility infrastructure:

Many rural electric utilities have access to a wide range of affordable, subsidized federal funding sources through the U.S. Department of Agriculture, specialty Co-op Banks, etc. And our largest distribution utility has ready access to public markets. Therefore, there needs to be some kind of "means test," to discriminate between utilities who can find funds elsewhere and those that cannot.

The utility poles that are part of "electric utility infrastructure" are already being used for connectivity via the pole attachment/licensing process. Thus the only electric utility infrastructure in question is the transmission and distribution lines. ***This infrastructure has for the most part been rejected by the telecommunications industry as unsuitable for that purpose***. That is because even those lines used by electric utilities for their internal telecommunications have to be reengineered at considerable cost in order to deliver connectivity to end users. An electricity distribution system is much

more like an interstate highway with few and far between off-ramps than the kind of system of local roads required to bring Internet connectivity to businesses and households. Further, maintenance of that infrastructure requires highly specialized and certified labor to work in the high-risk electricity space. This adds cost and delay to maintenance of telecommunications networks and will expose those networks to the risk of labor shortages.

The committee should be aware that across the country the many municipal electric companies and rural electric co-ops that have undertaken broadband development are almost exclusively using ***new*** fiber-to-the-home technology and not their existing electricity infrastructure, for the reasons described. Since this is well-known within the telecom industry, it is not clear to me why taxpayer funds should be expended on a study whose outcome is well-known and whose result has been demonstrated multiple times in the field.

III. **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 or surplus that can be reinvested in further development. Making financing more affordable will help accelerate broadband deployment and relaxing underwriting rules to conform to the reality of this sector is very helpful.

We support this proposal and urge its adoption. 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, 90% loan financing and 2-year payment holiday are all extremely helpful and recognize the economic reality of broadband deployment. This will help Vermont start-ups like ours us move 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…and, indeed, have been unwilling in the past to expand their operations into this sector.***

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…especially in comparison to many other

sectors whose risks are at least as great (if not greater) but which VEDA regularly finances. This language has unfortunately been included in the current bill. VEDA needs to be told that broadband is an important State goal and that they should adjust their own priorities and their staff skills accordingly. In their February 20 testimony before the House Energy and Technology Committee, VEDA stated their intention to rely on the expertise of the staff of the Public Service Department. We think that is wise - but we are concerned that this imposes yet another set of duties on the DPS in addition to the electric utility feasibility study, potentially 11 grant programs for other feasibility studies, and the increased needs of municipalities setting up Communications Utility Districts. If we want DPS staff to do their work well, and to be responsible custodians of taxpayer funded grant programs, we should not be adding to their workload to the degree the current bill anticipates.

IV. **Section 19. Pole attachments**:

We strongly approve of this language. The Public Utility Commission has opened a "rule-making proceeding for revision of Rule 3.700 that establishes pole attachment procedures and regulations. 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. One month ago MCFiber had one set of pole license applications that had been pending for 20 months – with customers on the route already asking for service. And we were unable to tell them when we could deliver because the pole-owner had not done the work for which we had already paid. When we were told that it might be another month or two(!) - nearly 2 years since we applied - we had our lawyer send a letter. The work got done within a week.

This legislation provides some specific guidance to the PUC with respect to desirable revisions to Rule 3.700. There are many other improvements to the rule that need to be made, but we prefer to submit those suggestions to the PUC, rather than delay enactment of this legislation.

V. **How to improve this bill.** The single most important "improvement" you can make is to **pass the bill !!** It is more than a little alarming that the Senate is taking this up so late and has moved so slowly.

That said, in closing, in addition to the reallocation of funds described above, we offer the following specific suggestions for improving grant and loan eligibility requirements for these new funds:

Right now, both federal programs and Vermont's programs depend on seriously flawed " Broadband Maps." As referenced above, I attach to this testimony a recent trenchant description of the source of these flaws written by one of the most prominent and respected national broadband consultants, Doug Dawson, CCG

Consulting Inc. I have highlighted his most pertinent comments that apply equally to Vermont's programs as well as to federal programs. In particular, I ask the Committee to take note of the fact that carriers often provide their "marketing" speeds (usually announced as "up to" some broadband standard) rather than delivered speeds. They regularly assert or imply that an entire census block is "served" when the actual capacity of the equipment in place (whether fixed or wireless) - which is often shared amongst multiple customers - is far less than is needed to supply even a majority of the potential customers in the target area. 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:

i. The provision of additional funds needs to come with some obligation on the part of DPS or ACCD to verify existing service data submitted by incumbents independently and make it available to applicants. One way to do this is to allow grant/loan applicants including municipalities, to certify and provide evidence of lack of service in their grant/loan applications. The burden of proof that an area is "served" should be on the party challenging any such data.

ii. 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 DPS'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 of rural Vermont[1].

[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 essential services. The same is true today. Indeed, the gap in capability and reliability between

iii. The legislature could require the disbursing agencies to develop, accept and adhere to a defined speed testing process conducted by and submitted by municipalities or groups of citizens attesting to sub-standard connectivity, in support of funding applicants. While the CIG does require a speed test to verify work completion by an awardee, it does not define how or where the speed test should be conducted. Thus, for example, a provider could run a speed test at the most favorable location, rather than at potential customers' actual premises. The burden of proof challenging these would be on the incumbents in the service area.

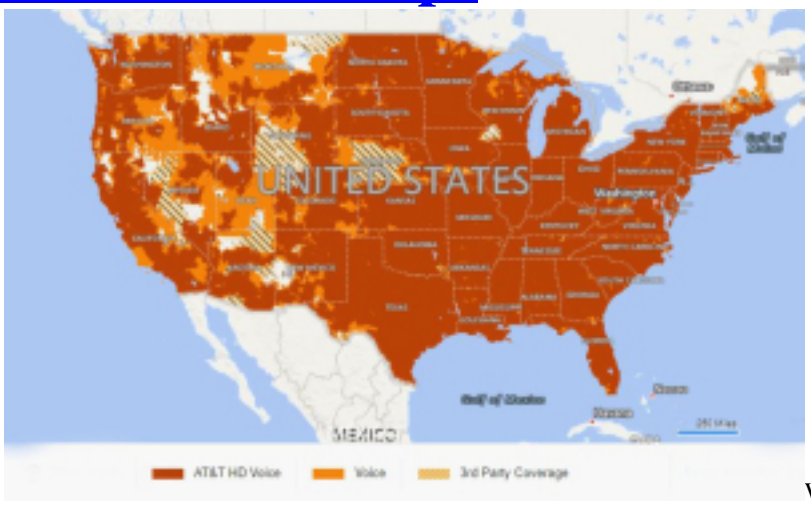
iv. The committee should take note of a recent legislative initiative at the federal level by Senator Leahy. That proposal seeks to "free up" geographic areas that, at the federal level, have been funded by truly huge sums of tax dollars but where the promised connectivity has simply not been delivered. These areas continue to be considered "served." The same approach could be applied to the state[2].

hardwired fiber-to-the-premises 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 DPS proved to be non-functional in many of those areas that are still off-limits for other projects.

February 11, 2019, POTs and PANs from CCG Consulting, https: //potsandpansbyccg.com/2019/02/11

We Need a Challenge Process for Broadband Maps



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 or 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 speeds 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.