VERMONT

DEPARTMENT OF PUBLIC SERVICE

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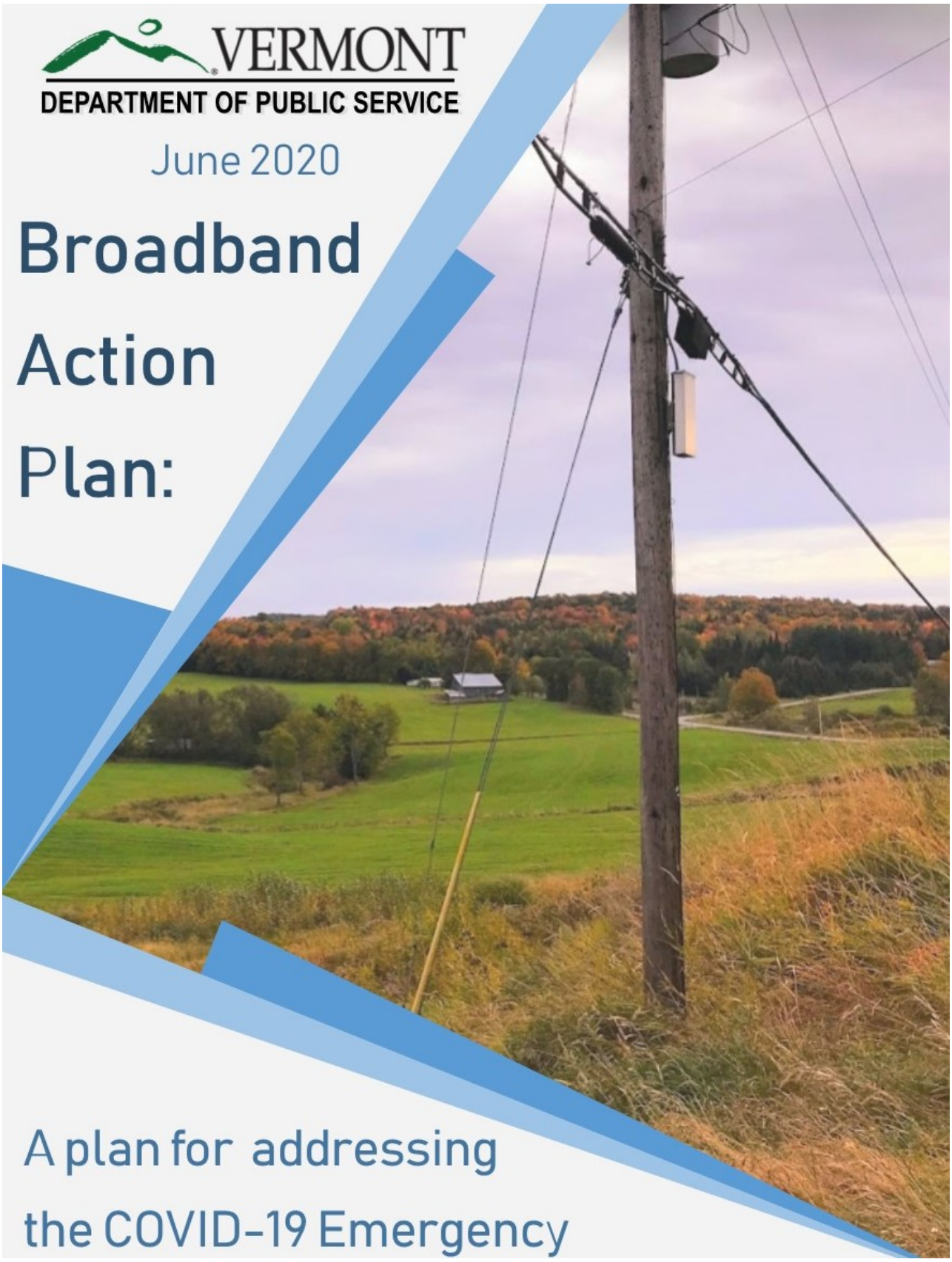
Broadband Action Plan:



A plan for addressing the COVID-19 Emergency

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Executive Summary

This is an Emergency Broadband Action Plan (EBAP). It was prepared by the Vermont Department of Public Service in response to the COVID-19 pandemic.[1]

The internet has become the highway to essential everyday services. It is also key to a vibrant economy. And now the COVID-19 pandemic has forced this new clarity about the internet: it can keep people safe during a public health emergency.

On March 25, 2020, Governor Scott issued an executive order directing Vermonters to stay home and stay safe. The EBAP seeks to ensure that all Vermonters have access to the internet at home when a public emergency requires that we shelter in place, whether during the on-going COVID-19 pandemic, or during a natural disaster such as Tropical Storm Irene.

Today, 23% of the state -- comprising 69,899 business and residential locations -- presently does not have access to broadband at 25/3 Mbps – the service speed that defines "broadband" under federal law.[2]

At this time, nobody knows when the public health threat of the COVID-19 virus will be suppressed, if not defeated. It is unclear when a vaccine will become available, or whether we will face yet new waves of contagion and mass illness that will force more sheltering at home and again shut down the public square and our economy. What we do know is that universal broadband access can provide the flexibility to meet this uncertainty with confidence that no one will be left behind for want of access to the internet.

[1] The Vermont Department of Public Service ("Department" or "PSD") has developed and published this emergency plan pursuant to 30 V.S.A. § 202e(b)(6) and as required by this statute sought advice and assistance from the parties listed therein.. It constitutes an emergency update to the annual Broadband Action Plan that the Department last issued on April 19, 2019.

[2] At least 6.8% of Vermont's business and residential locations lack basic broadband service of at least 4/1 Megabits per second ("Mbps"). At least 23% (69,899) of Vermont's business and residential locations lack broadband of 25/3 Mbps or better.

The EBAP has one objective: to connect the unconnected to the internet in Vermont. The "unconnected" is anyone at a location in Vermont that does not have access to broadband at 25/3 Mbps. The EBAP's fundamental premise is that locations presently lacking access to broadband at 25/3 Mbps must be prioritized to connect the unconnected. **The EBAP is directed at bringing access to fiber-based broadband service at 100/100 Mbps to all 70,000 locations in Vermont that presently lack access to 25/3 Mbps service.** If the EBAP's objective is realized, Vermont will have achieved universal access to broadband at the speed of at least 25/3 Mbps.

The EBAP funding assumes that Vermont will receive an additional infusion of federal aid to support recovery from the COVID-19 pandemic. The estimated amount of public funding necessary to achieve the goal of the EBAP is $42 million to $296 million, depending on the method used to disburse the awarded bid funding. The EBAP proposes two options for disbursing the funding awarded to the auction's winning bids. The first method simply awards to recipients the full value of their winning bids. The estimated auction cost for this disbursement method is $296 million. The second method leverages the state's lending resources through bid award packages that combine 10% grants administered through the Connectivity Fund and 90% loans issued via the Vermont Economic Development Authority. The estimated auction cost for this disbursement option is as low as $42 million.

The EBAP lays out a strategy with action steps. It details immediate measures to improve broadband accessibility (Section I). It also proposes a path to achieving universal broadband by 2024 using a reverse auction model in comparatively short order (Section II).

- Section I: Immediate Actions to Improve Broadband Availability in Vermont

1. Establish a line-extension fund to defray the residential customer share of the cost of line extensions.
2. Establish a program that provides affordable internet access to students, workers, and patients in unserved locations during the pandemic.
3. Pass legislation to facilitate fast-tracking or waiver of Act 250 and Section 248a processes for installing wireless facilities that will serve locations identified as needing broadband or commercial wireless connectivity.
4. Pass S.301 or H.682 to ensure Section 248a continues the rapid deployment of telecommunications facilities.
5. Establish a program to accelerate make-ready surveys and build a database of pole sets within the territories of Communications Union Districts ("CUDs").
6. Provide financial assistance to consumers to support past-due and on-going utility costs. This includes a lifeline-style program to make broadband service affordable during the COVID-19 Emergency.
7. Provide grant funding to carriers able to extend service to unserved addresses to provide access to broadband for telehealth, education, and remote working.

8. Convene a working group of public and private sector stakeholders to collect data and coordinate efforts to support the professional needs of healthcare workers and educators.

- Section II: Universal Broadband Access Deployment by 2024

1. Fully fund a broadband access-deployment program for unserved towns through a reverse auction format. Needed funding ranges from $42 million to $296 million, depending on the design of the award-disbursement methodology.
2. Consider adopting an exception to the statutory 100/100 Mbps state-wide goal to facilitate deployment of other high bandwidth services at lower speeds. With this greater speed flexibility, the amount of an auction funding award could be tied to the actual speeds provided by the carrier.
3. Modify 30 V.S.A. § 8091 to provide open access to middle-mile fiber owned by Vermont's electric distribution utilities.
4. Provide direct financial support to communications union districts ("CUDs") through the state's Broadband Innovation Grant Program for administrative and grant-writing support.
5. Provide direct financial support to CUDs to meet the Letter of Credit obligations imposed by the FCC's Rural Digital Opportunity Fund ("RDOF") program.

This EBAP is not a substitute for the State's Telecommunications Plan. Nor is the EBAP intended to comprehensively address all of the statutory requirements for a broadband action plan.[3] Rather, this emergency plan constitutes a rapid response measure to the COVID-19 crisis.

Since the draft EBAP was published on May 5th, the Department has received and reviewed over 280 pages of public comments on the plan. The Department has also held extensive discussions with numerous stakeholders, including the legislative committees of jurisdiction, the Vermont Telecommunications & Connectivity Advisory Board, community action groups, business leaders, the Vermont Economic Development Authority, CUD leadership representatives, connectivity industry representatives, state agencies, telecommunications consultants, utility executives, former government executives, federal congressional delegation staff, and present cabinet members in the Scott Administration. These discussions have provided the Department with informative and valuable feedback, much of which is reflected in this revised version of the EBAP. In short, the draft EBAP proved effective in setting the table for a wide-ranging and focused discussion about how to address Vermont's pressing need to connect the unconnected to the internet.

[3] See Section 202e(a). The EBAP is principally directed at 30 VSA § 202e(a)(1): promote "access to affordable broadband service to all residences and businesses in all regions of the state." This plan only partially addresses 30 VSA § 202e(a)(2) promote "universal availability of mobile telecommunications services, including voice and high-speed data along roadways, and near universal availability statewide".

Section I. Immediate Actions to Improve Broadband Availability in Vermont

This section details the immediate measures that would improve consumer access to broadband service in Vermont.

a. Data Collection regarding Broadband Needs; Creation of a Remote Learning/Telehealth Working Group

The Department is presently working with the Vermont Agency of Education and individual school districts to identify students without adequate connectivity. The survey information that is being collected will be aggregated and used to identify where needs could be met with solutions such as cable line extensions and new wireless deployments.

A working group is needed of public and private sector stakeholders to collect data and coordinate efforts to support the professional needs of healthcare workers and educators. Convening this group would serve to standardize and focus efforts within state government in response to the needs of students and patients. Given the number of federal programs and the different amounts of money available for telehealth and education, the state must act quickly to most effectively draw down these federal resources. Such a working group has already taken shape as staff from several executive branch agencies have organized collaboratively around these subjects and are managing projects to address these concerns.

b. Line Extensions

There are thousands of underserved Vermonters who live within a mile of existing cable lines that could be extended to provide broadband service at 25/3 Mbps, which meets the federal law definition of broadband service. A fund could be created to defray the consumer portion of the line-extension cost to expedite the expansion of advanced telecommunications. Such line-extension subsidies would be an effective way to quickly reach students, patients, and workers with broadband access who are living through the COVID-19 emergency without the internet at home.

Unlike broadband service, the state has jurisdiction to regulate cable video service. The Vermont Public Utility Commission has a cable service line-extension rule pursuant to which the cost of a line extension is allocated between the consumer and the cable video provider.[4] Vermont residents who are located in proximity to cable plant can collectively approach their neighborhood cable provider with a joint request to extend cable service to their homes that is also capable of providing them with broadband service. Residents who need to assess their proximity to an existing cable line can contact the Department for assistance with to determine how far

[4] Public Utility Commission Rule 8.313.

the resident's location is from accessible cable lines and to provide an estimate of the number of addresses between the resident's location and existing cable lines.

While cable line extensions are typically arrangements made directly between residents and cable companies, the capital cost-sharing mechanism in the PUC's extension rule allows for other actors to participate in an extension project, such as the state, CUDs, regional planning commissions, municipalities, healthcare service providers, electric utilities, or other organizations.

Any public funding made available for line extensions should be applied toward the customer portion of the project using a mechanism that is modeled on and consistent with the PUC rule on cable line extensions. The program should be open to all providers that agree to adhere to this mechanism modeled after the PUC rule. The state support for each customer should be capped, for instance at $3,000 per customer.

c. Emergency Connectivity Initiative designed to provide short-term broadband during the pandemic.

The COVID-19 Emergency has highlighted the connectivity divide. While Vermont's long-term goal is universal FTTP coverage, short-term measures should be undertaken with federal emergency response funding. Wireless projects have the greatest potential to cover underserved locations with meaningful broadband service. The use of Citizen Broadband Radio Spectrum ("CBRS") provides new potential for high-speed wireless connectivity. Such projects can be stood up quickly for use during the 2020-21 school year. Wireline projects currently in design could be deployed this year if measures are taken to fast-track pole licensing.

Other measures can and should include subscription vouchers program for low-income individuals and those financially harmed by the COVID-19 Emergency. The closure of schools, libraries, and restaurants have meant a loss broadband access for those who do not have it at home. Should a second wave of the virus causing COVID-19 cause closure of schools and other public places, equal internet access for all will be an important factor in keeping residents safe and informed. It will also be important to ensuring the continuation of education and healthcare. For this reason, a program geared toward affordability and arrearage support between now and the end of December 2020 should be adopted. The state could enact a lifeline-style support program for broadband service that provides subscription vouchers for qualifying participants.

d. Emergency PUC Powers to Expedite Section 248a and /or Act 250 Permitting for Telecommunications Infrastructure.

One of the existing impediments to deploying cable, fiber, and wireless solutions to bring the internet to Vermonters at home with no access is the absence of express authority for the PUC

to expedite site permitting on an emergency basis for telecommunications facilities. The General Assembly should pass legislation to authorize emergency permitting that fast tracks or waives Act 250 and Section 248a processes to expedite the roll out of projects to bring internet service to locations in need of broadband or commercial wireless connectivity now.[5]

Wireless broadband can be effective as a short-term solution. However there have often been concerns about the ability of wireless service to live up to promised coverage and throughput expectations. Therefore, any wireless deployment will require speed test verification at each funded location, regardless of whether the consumer subscribes. In addition, the location will neither be recognized nor classified as served at 25/3 in the Department annual broadband deployment survey until the speed test is supplied.

e. Fast-Tracking Pole License Applications

Another means to support expeditious deployment of needed cable, fiber, and wireless solutions would be to fund pole make-ready survey work use the data to create a pole-database. Existing PUC Rule 3.700 requires pole-owning utilities to process and grant licenses for all attaching entities. For every license application, the pole-owning entities (POE) must conduct a make-ready survey and complete make-ready work before the licensee can attach. These actions are costly and can be a financial deterrent to applying for a pole attachment license. State and federal funding could be used to support a fast-track effort to conduct these surveys on the top 2,000 miles that CUDs intend to build to in the next 24 months.

Processing time is also a hurdle that could be overcome through a funding solution. The current time for processing a pole attachment license application is generally over six months. Typically, most POEs are staffed to process 100-300 miles per year in pole applications. If the state were to fund the rapid deployment of wired broadband facilities, such a database would allow construction work to commence much sooner than would otherwise be possible under the make ready rules.

e. Extension of 30 V.S.A. Section 248a

Before the onset of the COVID-19 emergency, the Department supported the passage of either S.301 or H.682. Both bills would extend Section 248a to ensure the continued rapid deployment of telecommunications facilities. As is discussed later in this plan, fixed wireless service potentially has a role to plan in delivering universal broadband access at 25/3 Mbps.

[5] The General Assembly enacted legislation of this type for purposes of siting energy infrastructure in the wake of Tropical Storm Irene (see 30 V.S.A. Section 248(l)).

That said, immediate action is needed by the General Assembly on either bill as Section 248a is critical for expanding wireless cell-service coverage in Vermont.

f. Workforce Considerations

Implementing the EBAP will require a significant increase in the number of utility workers in the region. This represents a significant job creation opportunity for the Vermont economy. Both POEs and internet service providers hire contractors (and usually the same contractor) to complete make-ready and cable-line construction. Vermont's existing workforce development programs should be bolstered to ramp up Vermont's workforce to handle this construction load. One way to ensure that Vermont has sufficient connectivity construction contractors would be to bring strong focus to bear on workforce training and economic growth incentives in this part of Vermont's labor sector. Beginning in the construction season of 2021, Vermont may be competing with states nationwide that are likely to also be recruiting for connectivity construction labor, given the funding auction the FCC will be conducting in October of 2020 for the Rural Digital Opportunity Fund (RDOF). Through the Department of Labor and other stakeholders, such as Vocational Rehabilitation (within DAIL) or the state colleges, Vermont should initiate a line worker and fiber technician training program.

g. The 10-Year Telecommunications Plan

In preparing the EBAP, the Department has sought to provide a rapid response for addressing connectivity access challenges posed by the COVID-19 Emergency. The EBAP was not offered as a substitute for the 10-year Telecommunications Plan that the Department is due to prepare pursuant to 30 V.S.A. § 202d. Recently, the Vermont House of Representatives has proposed appropriating $500,000 in CARES Act funding for purposes of preparing a "Telecommunications Recovery Plan." The purpose of the "Recovery Plan would be to reassess the State's critical connectivity needs in light of the COVID-19 public health emergency and to reevaluate broadband deployment objectives going forward."[6] The Department stands ready to execute on any such legislative directive. In order to inform the immediate connectivity needs facing Vermont in view of the COVID-19 pandemic, the work on the Telecommunications Recovery Plan would need to begin promptly and be concluded before the end of 2020.

[6] The Vermont Joint Fiscal Office ("JFO") hired the firm CCG Consulting to provide a review of the State's 10-year Telecommunications Plan and draft EBAP. CCG also made recommendations for use of Coronavirus Relief Fund established by the CARES Act, Pub. L. No. 116-136. The recommendations of CCG, including those on the Ten Year Telecommunications Plan, are largely consistent with measures proposed in the EBAP and merit further exploration and discussion. CCG's reports can be found of JFO's COVID-19 webpage. *See* *https://ljfo.vermont.gov/subjects/covid-19-documents/requested-briefs* (last visited 6/22/2020)

h. Action Steps

1. Establish a line-extension fund to defray the residential customer share of the cost of line extensions.
2. Fund a program aimed at delivering broadband service of 25/3 Mbps to students and patients identified through the state's mapping as unserved.
3. Provide financial assistance to consumers to support past-due and on-going utility costs. This includes a lifeline-style program to make broadband service affordable during the COVID-19 Emergency.
4. Pass legislation to facilitate fast-tracking or waiver of Act 250 and Section 248a processes for installing wireless facilities that will serve locations identified as needing broadband or commercial wireless connectivity.
5. Pass S.301 or H.682 to ensure Section 248a continues the rapid deployment of telecommunications facilities.
6. Convene a working group of public and private sector stakeholders to collect data and coordinate efforts to support the professional needs of healthcare workers and educators.
7. Through the Department of Labor and other stakeholders, such as Vocational Rehabilitation and the state colleges, Vermont should initiate a line worker and fiber technician training program.

Section II. Action Plan to Achieve Universal Broadband Availability in Vermont by 2024

The EBAP proposes a statewide program to bring broadband service by 2024 to all locations that presently lack broadband service at 25/3 Mbps. This broadband expansion would apply federal funding toward subsidies awarded through a "reverse auction" using a reserve price that is based on construction cost estimates that were developed in the fall of 2019.[7] As explained below in greater detail, a reverse auction is where the role of buyer and seller are reversed. It entails seeking bids from entities on a competitive basis to provide service to the areas of the state lacking service. For each specified area, the bidder who offers the lowest build price for a project wins the auction and is awarded the funding to build the project in the project's specific area.

The Department estimates that the cost of this reverse auction program would be $126 million to $296 million, depending on the method used to disburse the awarded bid funding. The

[7] These cost estimates were developed by Magellan Advisors, a consulting group retained by the Public Service Department to study the feasibility of Vermont electric utilities providing broadband. (The "Magellan Report"). This report was delivered to the General Assembly on December 31, 2019.

estimated amount of public funding necessary to achieve the goal of the EBAP is $42 million to $296 million, depending on the method of award funding used. As is explained below, the EBAP proposes two options for disbursing award funding to the auction's winning bids. The first method simply awards to recipients the full value of their winning bids. The estimated auction cost for this disbursement method is $296 million. The second method leverages the state's lending resources through award packages that combine 10% grants administered through the Connectivity Fund with 90% loans issued via the Vermont Economic Development Authority. The estimated auction cost using this option is as low as $ 42 million.

The FCC has made extensive use of the reverse auction model as a means of allocating funding for telecommunications and connectivity facilities construction that further federal policy.[8] The FCC adopted the reverse auction model because it has a track record of driving significant cost savings for these connectivity deployment projects. The competitive dynamic embedded in the reverse auction mechanism compels auction participants to engage in creative thinking and develop surprising solutions in order to achieve a cost-competitive edge in the auction. Significantly, the EBAP contemplates that Vermont's reverse auction program will provide for grass-roots Communication Union Districts to evaluate any auction proposals for their territories to ensure that the proposed connectivity solution is acceptable to that CUD.

The EBAP bases the reserve prices for the reverse auction on the cost estimates developed in the Magellan Report in the fall of 2019. The Magellan consultants estimated the cost to deploy service to the locations that lack access to service at 25/3 Mbps. The proposed reverse auction contemplates that service providers could employ a variety of technologies and solutions. Bidders would be required to provide service to all underserved locations. Bidders would of course be allowed, and even encouraged, to provide service to all locations they can.

a. Deployment Costs

The Magellan Report found that "the total costs to pass all 80,802 addresses that lack broadband service of at least 25/3 Mbps is estimated at $284 million."[9] Based on this factual finding, the estimated cost is $3,515 per location to build the backbone network.[10] In addition to this general cost, there are also variable costs, depending on the number of customers who sign up for service, i.e. the "take-rate". To estimate the total variable capital costs included in the cost analysis in the report, Magellan used an average of $1,610 for the per premises cost of

[8] It bears noting that Vermont utility regulators are experienced in conducting reverse auctions. To foster renewable energy development in Vermont, the General Assembly created the Standard Offer Program in 2009. Pursuant to 30 VSA 8005, the Standard Offer Program is administered through a reverse auction.

[9] Magellan Report at page 74.

[10] Magellan Report at page 76. The Magellan Report also employed a cost-per-mile for feeder distribution plant of $38,199 for aerial plant and $136,837 for underground plant, listed as cost per 250,000 ft in Appendix VIII. After analyzing the specific locations that lack access to 25/3 Mbps service, Magellan identified the road miles necessary for the fiber-feeder distribution deployment required to reach these locations. This includes 5,727 aerial miles and 328 buried miles, as calculated from table 3 on page 73.

a fiber-drop and home equipment. Magellan further estimated that the take-rates will vary from 30% to 60%. For the purposes of estimating the total deployment cost the Department has employed an estimated take-rate at the mid-point of this range, 45%. The drop costs for each subscribing location is still estimated to be $1,610 but considering the take rate this results in an estimated drop cost of $725 per eligible location. Thus, the total projected capital cost is $4,240 per eligible location.

To be clear, the costs identified in the Magellan Report were based on expected costs for Vermont's electric distribution utilities to do last-mile fiber buildout in their respective service territories. That said, it is highly likely that similar costs would be incurred, whether by an electric utility, incumbent local exchange carrier ("ILEC"), or a CUD. The Department's broadband statistics show that 77.3% of Vermont locations have access to 25/3 Mbps service. These locations are in the urban and suburban towns and the village centers. Areas that lack such access are in the more rural areas. There are pockets of these underserved areas in all towns around the state. Generally, these pockets are surrounded by other areas that are already served. Deploying service to these locations will often require either overbuilding existing service areas or extending service through these intervening served areas to reach the unserved areas. Thus, while the $4,240 per location cost is higher than other published costs, this higher amount reflects the nature of solely building to these outlying areas.

b. State-Wide Fiber Build

Under ordinary circumstances, it would make sense to prepare a broadband action plan that charts a course for achieving statewide deployment of 100/100 Mbps fiber-to-the-premises for all addresses in Vermont – an endeavor that is estimated to cost $1 billion.[11] However, the COVID-19 Emergency is an extraordinary circumstance that requires a rapid response to meet the compelling need to connect the unconnected in Vermont now so that all citizens can shelter in safety at home with access to the internet. As desirable as a state-wide, 100/100 Mbps fiber build may be, it is a public policy goal that will require long-term planning and execution, especially given the magnitude of financial investment that will need to be secured to realize this objective. Meanwhile, it bears noting that by implementing the EBAP, Vermont would take a significant step toward realizing the vision of universal fiber-based broadband access. Specifically, there will be 70,000 new locations in Vermont with access to fiber-based broadband at 100/100Mbps. This would represent the single largest fiber-based expansion seen to date in this state.

[11] Magellan report, page 96, lists the total fixed capital cost to be $809,454,290, not including customer drops. If drops at $1,610 are included at a take rate of 45% to the 308,082 locations in the state, this adds another $223,205,409, for a total of $1,032,659,699.

c. The Reverse Auction Proposal

The EBAP proposes that the General Assembly authorize the Department to conduct a reverse auction as a means of awarding funds to pay for realizing the objective of universal access to 25/3 Mbps broadband service in Vermont by 2024. This auction process would achieve this objective in a manner that best balances and promotes the connectivity policy goals and deployment funding and governance mechanisms that are codified in Vermont state law.[12] This mechanism has also been designed to provide a robust opportunity for Vermont's CUDs to play a decisive role in bringing their grassroots planning and community priorities to bear on the funding awards for projects in their district territories.

The reverse auction entails seeking bids from entities on a competitive basis to provide service to the areas of the state lacking service. For each specified area, the bidder who offers the lowest price for a project wins the auction and is awarded the funding to build the project in any specific area. Bidders would be obliged to submit proposals to offer service at the speed of 100/100 Mbps symmetrical on a town-basis. Successful bidders would be required to offer service capable of 100/100 Mbps service or better to all locations in a town, except to those that already have access to service at 25/3 Mbps.[13] Bids with costs above the "reserve price" would be rejected from participation in auction. The buildout would be regulated through a contractual relationship between the grantee and the state. The grant would include deployment requirements, with significant penalties for failure to deploy service within the specified timeframe, including potential forfeiture of the grant and of all funded assets. Grant funding should also be managed and paid in "milestone" payments to ensure that work is being properly done. Other measures could include a requirement for a construction or performance bond and annual certifications that service is being provided in compliance with the grant. Auction awards generally would be made based on the least cost, but other factors incorporated in Vermont's telecommunications policy as embodied in the Connectivity Initiative statute[14] should also inform the awards made. While least-cost is a very important consideration, the EBAP is directed at ensuring that all areas have access to at least 25/3 Mbps service and for no towns to be left behind. Bidders would therefore be encouraged to offer bids on a town-basis and also on a county- or regional planning commission ("RPC") territory-basis. Awards would be made on a town-basis unless there is a county with towns for which no bid is submitted. In that case, the bid award would be made on a county-basis (or RPC territory-basis) to ensure that broadband availability is realized for every town in the county, even if this would result in a higher per-town cost. If no bid were submitted on a county - or RPC-basis, no award would be made, and a new auction would be initiated. At the request of

[12] See, e.g., 30 V.S.A. §3051 et seq. (Communications Union Districts); §7515b (Connectivity Initiative), §7516 (Connectivity Fund).

[13] It should be recognized that an award to an entity other than the ILEC would likely lead to the ILEC seeking relief from the federal carrier of last resort obligation to provide voice service in that area. Therefore, successful bidders should be obliged to offer economical voice service on a stand-alone basis as a carrier of last resort.

14 30 V.S.A. § 7515b(b).

participants, accommodations could be made to develop alternative groupings of towns, so long as these groupings will still ensure that all towns receive bids.

Consistent with the statutory connectivity plan codified in the Connectivity Statute, decisions about reverse auction awards would be made by the Department in consultation with the Vermont Telecommunications & Connectivity Advisory Board ("VTCAB"). The VTCAB would play an important role in ensuring that the funds are disbursed with appropriate public oversight.

The reverse auction contemplated here is based on funding the capital costs to deploy a network. This was proposed primarily because the cost estimate from the Magellan report provides the basis for the reserve prices. This does not need to be the basis for the auction, however. Stakeholders have recommended an alternative approach for the auction based on a revenue-based support model instead. Such an auction could ensure consistent revenue for bidders (by augmenting subscription-based revenue) and enable them to secure financing and deploy the necessary network. This model could also lower the upfront costs to the state, by spreading out the support over many years. It could also provide an incentive to grant winners to increase adoption, as support would presumably be tied to take-rate.

d. The Role of the CUDs in the Reverse Auction Proposal

The Communications Union Districts (CUDs) could participate in the reverse auction in two ways. First, as competitive broadband service providers, CUDs could bid in the reverse auction. Second, alternatively, should CUDs choose not to participate in the auction they would have significant authority over the development of the auction for towns in their service territory, and a decisive role in determining whether bids for projects in their service territories would be awarded funding . This could include consideration of issues such as technology choice, required service offerings, pricing policies, and terms and conditions of service including issues such as Net Neutrality and billing practices. This Plan assumes that the most important concern for CUD residents is that service be deployed, and not necessarily that CUDs be the ones to do it. It should be noted that the auction contemplated here is not a simple grant of funds but includes stringent deployment obligations with significant penalties for failure to perform, issues which all entities, including CUDs, should carefully consider before bidding.

One concern that is associated with an upfront capitalization framework for the reverse auction is that new entrants may be disadvantaged in their ability to raise supplemental capital as competitive rates. Secure revenues, as through a revenue-based auction framework (see discussion above) holds the promise of providing default security on revenue bonds and loans and potentially levels the playing field between the ability of well-established actors and new entrants to raise capital. A revenue-based support system may help to neutralize one inherent disadvantage that CUDs might otherwise face in raising low-cost capital.

In developing the EBAP and reviewing the public comments, the Department has considered whether CUDs should simply be awarded block grants in lieu of holding an auction. This is a

public policy choice that the Legislature could consider as a way to further strengthen the ability of the CUDs to perform the function for which they were created. For instance, a CUD could be offered a right of first refusal for grants to serve towns in its service territory. In return, the CUD would assume the obligation to deploy a network capable of offering 100/100 Mbps fiber-based service to all eligible locations within three years. The upside of this approach is its simplicity and the market advantage that it affords the CUD. The downside is the absence of bid competition to ensure least-cost for the project covered by the grant, and, some would say, the advantage that is afforded to the CUD.

In the end, though, it bears remembering that the EBAP is designed to achieve a specific goal of connecting the unconnected at an affordable cost, within a comparatively short period of time. To be sure, as a matter of state law and policy, it is important to afford the CUDs a meaningful and substantial role in implementing the EBAP. However, the role of the CUDs in the EBAP should be tailored to be consistent with other public policy values, such as ensuring the efficient use of tax dollars. The Department has concluded that the proposed reverse auction process best balances the goals of affording the CUDs a substantial role in the EBAP and making efficient use of tax dollars.

e. The Two Proposed Methodologies for Disbursing Reverse Auction Awards

Under the EBAP's first proposed method for disbursing the funds for winning bids, the award recipients would receive the full value of their bids, subject to the terms of a grant agreement. The total cost of all reserve prices for the auction would be $296 million. This sum would be appropriated to the General Assembly's Connectivity Initiative, and the Department would disburse the awarded funds to the winning bidders.

Under the second disbursement method option, a structured mechanism could be used to disburse the bid awards that leverages state lending resources. This approach would entail disbursing the bulk of the award amounts as loans through a public-interest lender, such as the Vermont Economic Development Authority ("VEDA"). This would allow the project to proceed with a smaller appropriation. The fact that broadband service has not yet been deployed to these areas underscores the challenging business model afforded by such projects. The experience of Vermont companies such as MCFiber and ECFiber demonstrates that many projects can be completed without subsidized loans. Nevertheless, some projects may not be viable without a subsidized loan. Therefore, the Department recommends that the recipients receive awards consisting of both a grant and a loan.

For operational efficiency, the grants would be administered by the Department via the Connectivity Initiative because this is an established program that is subject to legislative oversight through existing statutory criteria. Grants from the Connectivity Initiative would be for 10% of the bid amount. Accordingly, the Department estimates an appropriation would need to be made to the Connectivity Initiative Fund of approximately $29 million. Connectivity Initiative awards have traditionally been grants for reimbursement of actual costs incurred.

The remaining 90% of a winning bid award would be funded through a 10-year public-interest loan from the Vermont Economic Development Authority (VEDA). Last year, through Act 79 the General Assembly appropriated $540,000 as a 5% loan-loss reserve fund for VEDA in administering up to $10.8 million in loans. The EBAP envisions that VEDA would offer loans totaling $267 million. Thus, to create a reserve fund of 5% for VEDA to use as part of the lending component of the EBAP would require an additional appropriation of $13 million.

The EBAP envisions that VEDA would grant loans without expectation that they would all be fully repaid. The loans would not be collateralized, and the General Assembly would direct VEDA to institute a simplified loan application review program. Grant recipients would be limited to using the funds for capital expenditures only. In the case of non-payment on the loan, the grantee would forfeit all connectivity facilities purchased or upgraded through the program, and the state would auction these built facilities off to a new service provider. In turn, VEDA's loan reserve fund would need to be increased by a material amount because the lending component of the EBAP would expose VEDA to shouldering the full $267 million in debt, with the accepted possibility that some or many loans will not be repaid. The Department underscores that VEDA's ability to absorb multiple loan defaults is limited. Losses beyond $13 million would exceed VEDA's loan loss reserves, which means additional appropriations from the Legislature would be needed to cover such losses. In addition, this activity will likely require a significant increase in Moral Obligation from the Treasurer in order to ensure that subsequent appropriations are made as. If this is not provided, VEDA identified that there is a risk that the legislature could fail to appropriate funds necessary to cover loan losses several years in the future.

Some portion of the loans may need to be subsidized. To summarize, under the alternative disbursement option of leveraging state lending resources, the total cost for implementing the EBAP would be $29 million to the Connectivity Initiative, $13 million to the loan reserve fund, for a total of $42 million. If it is determined that the interest for some of the loans must be subsidized in order for the project to be viable, some additional funding would be required to cover the interest costs.

f. Cost Implications of the FCC Rural Digital Opportunity Fund Auction

In October of 2020, the FCC intends to conduct a reverse auction for the Rural Digital Opportunity Fund (RDOF). The RDOF auction could have beneficial implications for the cost of the EBAP's proposed reverse auction in Vermont. In preparation for the RDOF auction, the FCC has identified 24,631 locations in Vermont that appear eligible to receive RDOF funding. The Department has reviewed the RDOF territory and has identified 23,810 Vermont E-911 locations in the territory, including 20,198 of the 69,899 locations identified as lacking 25/3 Mbps. This indicates that 29% of the locations that lack 25/3 Mbps are eligible for RDOF funding. If an RDOF award is granted for those eligible Vermont locations, the number of addresses lacking 25/3 Mbps service that need to be reached through the EBAP would go down from 69,899 to 48,701.

The cost implications of the RDOF auction for the EBAP's proposed auction are that the estimated cost of Vermont's auction would go down if it were designed to complement the FCC's RDOF auction. Specifically, the Department estimates that the $296 million "full value" disbursement option would drop to $204 million.

g. Timeline for Deploying Universal Broadband Access

Assuming adequate federal funding and the enactment of legislative changes detailed in the EBAP, the proposed reverse auction could commence as early as within 3 months. The per-location cost-estimate rationale detailed earlier in this EBAP affords the General Assembly a sound basis for assessing the merit of this proposal. The Department recommends giving the winning bidders three years to complete the grant deployments, with a demonstration of substantial progress within one year. The bid evaluation process should consider the proposed deployment period. If possible, the reverse auction should occur on or around the same time as the RDOF auction, which is scheduled to commence in October 2020.

h. High-Cost Area Program: An Alternative to the Reverse Auction Proposal

Achieving universal access to broadband in Vermont is an urgent matter owing to the COVID-19 pandemic and the attendant need to shelter at home now and possibly in the future until a vaccine is developed and administered on a widespread basis. Therefore, it is prudent to consider alternatives to the reverse auction model as well. One of the most expeditious ways of deploying broadband infrastructure would be to simply allocate any funding the EBAP may receive to Vermont's high-cost area support program.[15]

Under a high-cost area program approach, Independent Local Exchange Carriers (ILECs) would commit to building 100% of their territories at designated speeds in exchange for a pro-rata share of EBAP funds. Each ILEC's share would be determined by the number of unserved locations in each one of its wire centers. This would be an "all-or-nothing" offer and funds refused by an ILEC would be deposited into the Connectivity Initiative Fund or a similar grant program to serve the connectivity needs not met by that carrier. While the Department historically has not supported such a program approach, it is an option the General Assembly could consider given the exigencies of the COVID-19 emergency.

i. Bandwidth Considerations

This plan proposes deployment of fiber-based service at 100/100 Mbps, in compliance with Vermont statute. Given the urgency to achieve universal access to broadband at 25/3 Mbps in view of the COVID-19 pandemic, it is appropriate to consider whether it would make sense to adopt an exception in pursuing the state's policy goal of 100/100 Mbps.[16] The 100/100 Mbps goal essentially translates to a policy of preferring fiber-to-the-premises solutions above all

[15] 30 V.S.A. §7515(High Cost Area Program).

[16] 30 V.S.A. § 202c(b)(10).

others. However, "DOCSIS 3.1,"[17] which is the standard employed by nearly all of Vermont's cable video companies, provides data rates that generally meet or exceed the speeds demanded by customers and it is expected that DOCSIS will continue meeting that demand well into the future as new versions of the DOCSIS standard are issued.

Some consideration also should be given to the need for a carve out from the 100/100Mbps goal for those few locations that are so remote that the cost of provisioning service is excessive, as in, for instance, three or four times the average cost per address. Again, in the interest of making efficient use of tax dollars, it makes sense to consider alternative solutions for such remote locations.

Vermont's statutory 100/100 Mbps goal may also foreclose capable fixed-wireless networks from participating in the reverse auction program. Many fixed and mobile wireless services can be upgraded as the wireless industry applies a greater amount of available spectrum to 5G networks. Even though wireless technologies cannot realistically meet the 100/100 Mbps goal today, it not unreasonable to assume that wireless technology will be able to meet those standards in the near future. Moreover, CUDs may want to consider adopting fixed wireless as a solution. Both the DOCIS and fixed wireless options may provide cost-effective, quality solutions that are deployable under a quick timeline. Finally, willingness to make an exception to the statutory 100/100 Mbps goal would allow flexibility in the reverse auction awards: the amount of the funding could be reduced or increased depending on the speeds offered by the winning bidder.

In keeping with the statutory goal of promoting 100/100 Mbps deployment, the EBAP provides that grant recipients would be required to offer 100/100 Mbps service to all underserved addresses. The Department underscores, though, that the willingness to accept deployment of projects at lower speeds could make efficient use of existing infrastructure, thereby lowering the cost of the EBAP, and shortening the deployment period.

Finally, the Department notes that the EBAP was prepared with awareness of the anticipated deployment of low-earth orbit satellite networks ("LEOS"). These networks promise to offer broadband service worldwide. It remains to be seen whether these services ultimately live up to the representations about performance in terms of timing, service speed, availability, and cost. The Department will continue to monitor developments regarding this technology and will propose adjustments to the EBAP if LEOS materially change the considerations that went into formulating the EBAP.

[17] DOCSIS 3.1 stands for "Data over cable service interface specifications version 3.1." DOCSIS 3.1 provides theoretical downstream and upstream capacity well over the 100 Mbps threshold set by Section 202c. However, in practice this technology might not be offering the upstream capability contemplated by § 202c(b)(10) at this time. Future upgrades in DOCSIS standards will inevitably lead to greater throughput capability, but these increases will likely be driven by the market and not government intervention.

j. Action Steps

To implement Section II of the EBAP, the following next steps are necessary:

1. Fully fund a broadband access-deployment program that provides funding to unserved towns through a reverse auction format. Needed funding ranges from $85 million to $296 million, depending on the design of the award disbursement methodology.
2. Amend 30 V.S.A. § 7515b to allow the Department to conduct a reverse auction through the Connectivity Initiative.
3. Appropriate the necessary funds to the Connectivity Initiative.
4. Seek input from VEDA regarding size of the loan reserve fund.
5. Seek input from VEDA regarding funds required for debt service on interest-free loans.
6. Appropriate necessary funds to VEDA and amend the VEDA broadband loan program, as necessary.
7. Consider adopting a statutory exception to the 100/100 Mbps goal to permit cable video and fixed wireless services to submit bids for projects at lower speeds in the reverse auction. With this greater speed flexibility, the amount of an auction funding award could be tied to the actual speeds provided by the carrier.

Section III. Communications Union Districts ("CUDs")

CUDs are volunteer-run representative bodies authorized to bring high-quality broadband service to their member communities. Act 79 provided support for the creation of these entities and funding for planning and design work. These public entities have no professional or administrative staff and rely almost exclusively on volunteer support. While many representatives of CUDs have very deep knowledge about connectivity technology and the needs of their communities, the telecommunications industry is new terrain that they are working hard to come up to speed on quickly. This section makes specific recommendations on how the state can and should support CUDs.

a. Funding

CUDs lack funding because state law prevents them from drawing on the taxing authority of their member towns to support a communications plant. CUDs can be directly supported through grants from Department's Broadband Innovation Grant Program. Funding for CUDs would support a variety of activities, including but not limited to administrative support (grant-writing, RFP solicitations, bookkeeping, etc.) and design and construction of a network.

Another form of support other states are considering is funding to help Internet service providers meet the letter of credit obligation that the FCC is imposing for the RDOF auction program. CUDs have no credit history and will struggle to meet these requirements. Without such state support it is unlikely that CUDs will succeed in bidding in the RDOF auction, at least in the early rounds.

Lastly, CUDs are likely to struggle to make use of the VEDA Broadband Loan Program without funds to provide a 10% match as required. Again, CUDs and their members are expressly prohibited from using taxpayer funds to support the construction and operation of a municipally owned plant. While there are good arguments for and against such a prohibition easing such requirements could prove beneficial. Towns that collect special sales taxes for economic development purposes are foreclosed by 24 V.S.A. 1913 to fund a municipal telecommunications plant. CUD towns with special sales tax authority have argued that those funds would be well spent on developing broadband capable infrastructure.

b. Action Steps

1. Direct grant support through the BIG Program for administrative, grant writing, and public-private partnership support for CUDs.
2. Provide direct financial support to CUDs or their partners to meet the letter-of-credit obligations imposed by the FCC's RDOF program.

Section IV. Middle-Mile Transport

a. Electric Distribution Utility Middle-Mile Backhaul

The Magellan Report identified costs for last-mile fiber-to-the-premises deployment by Vermont's electric utilities, but the estimate did not include a capital cost component for middle-mile transport, also referred to as "backhaul." Generally, there is a robust market for middle-mile backhaul transport throughout Vermont. In the Department's view, state intervention in the middle-mile backhaul market is unnecessary to advance the goal of last-mile build out. Most towns have fiber backhaul service at the ILEC central office and in many cases, there are multiple carriers that can provide service at these locations.

However, there are instances, especially in rural areas, where access to middle-mile backhaul transport may be challenging. The Department is seeking to address this issue by exploring with the utilities how the existing fiber-optic facilities they own could be used to facilitate broadband deployment. Specifically, utilities could offer "backhaul" at a heavily discounted rate such as $1 per strand mile per year or lease their existing fiber facilities extending from substations in unserved areas to interconnection points with other broadband providers. Qualifying projects would need to serve underserved areas and would need to be deployed in areas where commercial backhaul opportunities are not available. The justifying factors for such below market-rates are that (1) the equipment to be leased was originally paid for by rate payers; (2) the lease rate would be heavily discounted for a temporary period and would serve to promote the obvious public good of deploying universal access to broadband service at 25/3 by 2024.

Such a discounted rate could lower the cost of deploying service in unserved areas, and thus improve the business model for these challenging projects.

Accordingly, the General Assembly should amend 30 V.S.A. § 8091 to include the following provisions applicable to Vermont distribution utilities[18]:

> *When presented with a qualifying request for access at a specific substation for backhaul service, the electric distribution utility shall inform existing broadband service providers to assess availability of competitive fiber services in the area. If alternative fiber access is not available within one mile of the substation, and the electric distribution utility has unused facilities serving that substation, the electric utility shall provide dark fiber from the substation to the nearest point of interconnection to an existing internet service provider. The support shall be in the form of an Indefeasible Right of Use (IRU) for a term of not less than five years.*
>
> *All Vermont electric distribution utilities shall adopt a uniform, nominal rate of charge for such IRUs of $1 per strand mile per year. This rate can be modified after five years by the Vermont Public Utilities Commission (PUC). The Service Level Agreement (SLA) in the IRU shall require the electric distribution utility to restore service to the provider at the same time it restores service to itself. In no case will this penalize the electric distribution utility. The provider shall be responsible for all maintenance costs directly associated with its fiber strands.*
>
> *Electric distribution utilities shall revise their rates to accept such interconnection requests by such date specified herein or per PUC order.*

b. State-Owned Fiber Networks

The Department owns or holds a license to roughly 340 route miles of open access dark fiber optic cable in Vermont. All Department-constructed cables contain 144 strands of fiber which allows the fiber to be used by multiple tenants. Some portions of the network were built to assist specific public/private partnerships such as ECFiber and Southern Vermont Cable. Other areas such as the Highgate-Newport Segment were not built for a specific partnership but were instead built to be utilized for diverse applications. The Department network currently supports a range of industries and applications for companies such as Consolidated Communications, ECFiber, VTel, Kingdom Fiber, FirstLight Communications, Vermont Electric Co-Op, Southern Vermont Cable, and the Vermont Agency of Transportation. The providers use the fiber network for different applications including Smart Grid, long haul data transmission, wireless backhaul,

[18] The proposed revisions to 30 V.S.A. § 8091 would not apply to the Vermont Electric Power Company is subject to the rate regulatory jurisdiction of the Federal Energy Regulatory Commission and its facilities are subject to the requirements of the rules of the Independent System Operators for New England governing pooled transmission facilities.

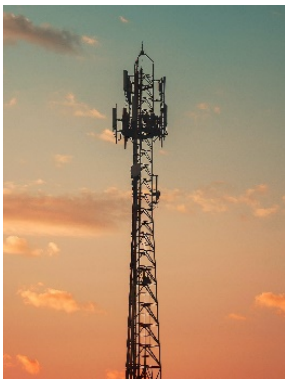
service to state and federal offices, and fiber-to-the-premises. Even with these different users and applications, more capacity is available.

Lastly, the state-owned fiber system is held out to the market on an "open access" basis. The state should end this practice and provide nearly free access or access at reduced cost to providers who can use the fiber. The Department acknowledges that entities holding existing licenses to use state-owned fiber are concerned that this policy change would undermine their business cases. These licensees have already paid a capital contribution or signed an agreement under the former Vermont Telecommunications Authority's standard offer. Still, with the passage of time it has become clear that a new approach is needed because the state-owned assets are not being used to their full potential. The Department has concluded that this is an appropriate moment to adopt a different approach by now making the state-owned assets available to all comers that the same terms. In addition, when designing any new fiber offer, the Department should take into consideration any existing licensee's interests and plans to use the state-owned fiber system to provision new fiber-to-the-premises services. The Department will consider the relative merits of such future plans, the timeline for deployment, and the probability of success. The Department would not be supportive of duplicate fiber-to-the-home networks in the same area.

c. Action Steps

1. Amend 30 V.S.A. § 8091 to provide open access to middle-mile fiber owned by Vermont's electric distribution utilities.
2. Offer all providers nominal lease rate on the Department-owned fiber network for five years if the provider can meet a predetermined number of premises reached per year.

Section V. Overview of Commercial Mobile Radio Service in Vermont



Vermonters also have a compelling need to see material improvement in access to robust and reliable cell service, which is referred to in the industry as Commercial Mobile Radio Service ("CMRS"). CMRS service – more familiarly called "cell service" -- is provided by three nationwide carriers: AT&T, Verizon, and T-Mobile.[19] Service is also available through a few regional carriers, such as U.S. Cellular and VTel Wireless, Inc. All five providers are facilities-based providers in that they own their own facilities. Some carriers "roam" with one another, where one carrier agrees to carry the traffic of another carrier for a fee. The Telecommunications Act of 1996 requires carriers to provide roaming at reasonable rates, but it does not provide a mechanism for state and local governments to require carriers to roam or share facilities. This national framework has created a market where

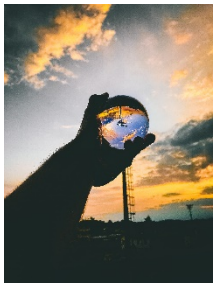
[19] Effective April 1, 2020, T-Mobile US Inc. completed its merger with Sprint Corporation, creating the "New T-Mobile."

three national carriers provide largely duplicative coverage in urban and suburban areas and spotty or no coverage in rural areas.

The EBAP is a rapid response plan with a focused objective: to connect the unconnected to the internet in Vermont. The Department acknowledges that Vermonters also have a compelling need for material improvement in their access to robust and reliable cell service. However, the EBAP is narrowly drawn to be achievable in terms of time and cost. The EBAP therefore does not look to CMRS as a principal means of deploying universal broadband access at 25/3 Mbps by 2024. That said, as noted earlier in the EBAP, wireless broadband projects would be welcome to participate in the reverse auction, and CUDs would have the option to integrate this technology solution as they see fit.

Another reason the Department sees enhanced CMRS deployment as a policy and infrastructure matter that lies beyond the scope of the EBAP is this: The expansion of CMRS infrastructure deployment is in rapid flux in the United States. There are several federal initiatives underway that will materially shape the future deployment of cell service in rural America, including Vermont. It is possible that, in due course, state funding will need to be invested to bring universal cell service to the state. However, before Vermont commits any substantial financial resources to the expansion of wireless services, it is prudent to await further development and deployment of the federal CMRS initiatives. What follows below is an overview of these federal CMRS initiatives. The FCC's development and adoption of final rules for the 5G fund and the determination of how 5G Fund resources will be allocated and deployed in Vermont.

a. The FCC 5G Fund



On April 23, 2020, the FCC voted to create the 5G Fund, which is designed to provide funding support through a reverse auction to upgrade rural areas to 5G. The 5G fund will be a 10-year program funded at $9 billion. The rules of this program are now in development. According to FCC staff, Vermont is slated to fare well geographically under the FCC's proposal. Under the program rules approach favored by the Commission's majority, 85% of the geographic area of Vermont would be eligible to receive 5G Fund funding. However, concerns remain as to whether the FCC's proposal will allow carriers to take federal support to upgrade 4G to 5G without addressing geographic areas with no cell service. The Department intends to continue advocating for the expansion of wireless voice services as a priority over the need for increased data speeds where 4G LTE services are already present.[20] Part and parcel of any expansion effort should be an effort to correct

[20] A significant number of comments received on the Draft EBAP expressed concern over the deployment of 5G services. Most of these comments raised health and environmental objections to the role out of 5G and small cell facilities. While this plan does not opine on the merits of those concerns, the plan does not actively call for the expenditure of state money for CMRS 5G deployment. Because 5G is in the early stages of development and

wireless mapping, which Congress has already deemed important by the passage of the DATA Act.[21] The state should join other states and industry participants in advocating for implementation of the DATA Act and other efforts that ensure accurate mapping before any money is spent on 5G services.

b. AT&T FirstNet

The second federal wireless initiative is FirstNet, an independent authority within the U.S. Department of Commerce. Its mission is to deploy and operate the first high-speed nationwide broadband network dedicated to public safety. The enabling legislation mandated a public/private partnership that would allow FirstNet to eventually become self-sufficient. In exchange for the spectrum access and financial resources brought by FirstNet, AT&T has committed to spending $40 billion over the life of the 25-year contract to build, operate and maintain the network. AT&T has started the buildout of the network in Vermont with the support of designated funding from FirstNet. AT&T will build 36 FirstNet sites.

Vermont's permitting statute for cell service, 30 V.S.A. § 248a, has helped streamline the permitting process for new installations. However, this law is set to expire July 1, 2020. There are two bills in the Legislature at this time – S.301 and H.682 – aimed at extending or eliminating the sunset provision. The Legislature should move quickly to pass one of these bills so that this important permitting provision can continue uninterrupted.

Section VI. Federal Broadband, Telehealth, and Distance Learning Programs

a. Federal Broadband Expansion Programs

Rural Digital Opportunity Fund – As described earlier, The Rural Digital Opportunity Fund ("RDOF") proposes to fund broadband service of at least 25/3 Mbps to 24,000 locations throughout Vermont. The program could bring up to $9 million per year through a reverse auction model.

USDA ReConnect - The U.S. Department of Agriculture ("USDA") Broadband ReConnect Program furnishes loans and grants to provide funds for the costs of construction, improvement, or acquisition of facilities and equipment needed to provide broadband service

because of the incredible amount of federal money available, this plan asserts that it is too early to assess the need for a state subsidy for 5G services.

[21] It has been suggested during the public comments that the state should not do anything without first producing detailed propagation mapping of wireless coverage. While such data could be useful for planning purposes, the cost of producing that data is substantial and time-consuming. Such costs are likely not reimbursable under federal emergency funding to the states. Given the FCC's new requirement to fix this problem, the state should see what data comes out of the DATA Act process and then assess what additional data the state will need to take action on wireless service deployment.

in eligible rural areas. The ReConnect program received $100 million in additional funding under the federal COVID-19 stimulus bill. Unfortunately, most of Vermont's geographic area is precluded from accessing these funds. As a result of a prior outstanding USDA loan that is still in repayment, the area included in that borrower's loan is classified as in "protected borrower status" and is thus excluded from additional USDA loans or grants to other providers until the loan is repaid in 2025.

FEMA Recovery Money – The state, through Vermont Emergency Management and the Department, is reviewing whether recovery dollars from the Federal Emergency Management Agency can be leveraged to assist with the expansion of temporary and permanent wired and wireless broadband funding. The Department has sought FEMA assistance for the installation of Wi-Fi Hotspots. This opportunity should inform the state as to how FEMA can assist with the deployment of emergency wireless facilities.

Non-Broadband Programs – The state continues to have success leveraging grant opportunities not specifically tailored for broadband deployment. These programs are administered through the Northern Borders Commission, the Economic Development Administration ("EDA"), and USDA programs. The EDA was specifically given $1.5 billion for COVID-19 Recovery efforts, which should be explored. CUDs and municipal projects have benefited immensely from these programs. The state should continue to look toward these programs to help support CUD and other broadband efforts.

FCC 5G Fund for Rural America - A proposed program to distribute up to $9 billion for 5G wireless broadband connectivity in rural America. The FCC adopted the Notice of Proposed Rulemaking on April 23, 2020. The FCC seeks comments on whether the reverse auction should be delayed until 2023 with more data collected through their Digital Opportunity Data Collection program, or to launch it in 2021 with existing data.

b. Federal Telehealth Programs

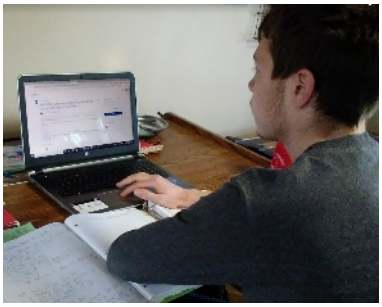
The following programs can be used to help advance telemedicine and telehealth. While our review of these programs did not yield funding for broadband deployment to patients' homes, these programs can be used to buy devices and internet subscriptions. The state should consider how to best leverage these programs to assist with patients' needs other than a physical connection.

FCC Rural Healthcare Program - This $571 million/year program helps rural healthcare facilities gain access to broadband and telecommunications services. The program supports the formation of regional healthcare networks and broadband connectivity and includes a 65% discount on costs associated with the purchase of dark fiber, business data, DSL, and private carriage lines. *This program is not designed to build broadband infrastructure.*

FCC COVID-19 Telehealth Program - This $200 million fund created by the CARES Act is open to nonprofit and public eligible health care providers and can be used to provide telecommunications services for patients. Eligible projects include the cost of internet connectivity for patients and connected devices (e.g. tablets, smartphones, data-enabled blood pressure monitors, etc.) used by those patients. These funds do not appear to be available for expanding broadband infrastructure. Projects can cost up to $1 million.

FCC Connected Care Pilot Program - This $100 million pilot program open to nonprofit and public eligible health care providers focuses on data collection and trialing healthcare delivery methods. The program does not fund the construction of broadband infrastructure but can be used to cover 85% of the cost of broadband connectivity for patients and network equipment.

USDA Telehealth and Distance Learning Program - Administered by the USDA, this program provides capital support for distance learning and telemedicine. Providers of education and healthcare, nonprofits, state, and local governments may use this fund to purchase audio, video and interactive video equipment, computer hardware, network components, and software. Broadband facilities, if owned by the applicant, are eligible but limited to 20% of the grant. Projects whose sole objective is to provide links between teachers and students or between medical professionals who are located at the same facility or campus environment are ineligible.



Department of Veterans Affairs - Funds for "Information Technology Systems" will remain in place until September 30, 2021 to prevent, prepare for, and respond to coronavirus, domestically or internationally. The Secretary of Veterans Affairs may enter into short-term agreements or contracts with telecommunications companies to provide temporary, complimentary or subsidized, fixed and mobile broadband services for the purposes of providing expanded mental health services to isolated veterans through telehealth or VA Video Connect during a public health emergency. Funding source and process for this program remains unclear as of this plan's writing.

c. Education Funding Opportunities

The programs described below could be leveraged to help students stay connected. These funds could be used for things like wireless devices, tablets, and software to aid in remote learning. At least one state has proposed using education funding for broadband deployment.

Elementary and Secondary School Emergency Relief (ESSER) Fund -- Under the CARES Act, $13 billion in grants from this program can be used for purposes that include purchasing educational technology in the form of hardware, software, and connectivity for remote learning.

Education Stabilization Fund, the Governor's Emergency Education Relief (GEER) Fund – makes approximately $3 billion in emergency block grants available to governors, with the request that governors seeking the funds outline how they will use the funds "to establish, develop, improve, or expand the availability, accessibility, capacity, and use of remote learning techniques and technologies," especially for students with disabilities and students from low-income families.

d. Broadband Affordability

Lifeline – the FCC's Lifeline program has long been the single most effective program for addressing affordability of telecommunications services for low-income residents. The Lifeline program can be used to purchase broadband services. The FCC recently relaxed income eligibility standards to include those who have become unemployed due to the COVID-19 Emergency.

Section VII. Technical Definitions

Bandwidth — Speeds are expressed in "download/upload Megabits per second ("Mbps")." For instance: 4/1 = 4 Mbps download / 1 Mbps upload. The speed categories include all available speeds up to the next category. Example: the 4/1 also includes 7/1 and 10/1. The State of Vermont categorizes internet service speeds in the following categories:

- **4/1 Mbps** — 4Mbps down/1 Mbps upload.
- **25/3 Mbps** — 25Mbps down/3 Mbps upload. This is the FCC's minimum standard for what is considered broadband.
- **100/100 Mbps** — 100Mbps down/100Mbps upload (100Mbps symmetrical). This speed level is available via Fiber to the home, theoretically available on some cable networks, and may be possible on 5G wireless networks. In this report 100/100 and FTTH are synonymous.

Broadband or Broadband internet – The FCC definition of broadband is internet service achieving a minimum of 25/3 Mbps. Broadband speeds can be achieved on cable, fiber, and some VDSL, wireless, or satellite networks.

Commercial Mobile Radio Service — ("CMRS"), otherwise known as "cell service." CMRS is the FCC designation for any carrier or licensee whose wireless network is connected to the public switched telephone network.

- 4G — 4G is the 4th generation of cellular technology used by most cell phones today and is widely deployed in Vermont. 4G networks carry both voice and data and real-world data speeds are typically 20/10Mbps. 4G LTE is a type of fourth-generation cellular network, "4th Generation Long Term Evolution."
- 5G — 5G is the fifth generation of cellular technology currently in deployment. The national 5G rollout started in 2019, but Vermont has not yet seen widespread 5G

deployment. 5G networks achieve higher bandwidth, typically using higher frequency radio bands. Real-world data speeds will vary greatly but should be significantly higher than 4G especially in close proximity to the towers. There is not yet a universal standard for 5G.

DOCSIS 3.1 — Data over cable service interface specifications version 3.1. DOCSIS 3.1 is the standard employed by nearly all of Vermont's cable video companies. It provides theoretical downstream and upstream capacity well over the 100 Mbps. DOCSIS 3.1 can also be combined with fiber for the last-mile solution to bring voice, data, and video to end-users.

Internet backbone/Core Network — Internet backbone refers to one of the data routes between large, strategically interconnected networks and core routers on the Internet. Internet backbones are the largest data connections on the Internet.

Backhaul — The backhaul portion of a network is intermediate links between the core network, or backbone network, and the small subnetworks at the edge of the network.

FTTH/FTTP — Fiber to the Home/Premise. FTTx refers to a provider network that brings the fiber optic cable directly to the consumer's home. In this report 100/100 and FTTH are synonymous. FTTH can be delivered using different standards and different speed levels. FTTH can include video and voice-grade services. FTTx is widely considered to be future proof.

Middle-Mile fiber — Middle-Mile fiber is the segment of a telecommunications network linking a network operator's core network to the local network or aggregation point. Examples: Connecting a Telephone Central Office or Cable Head-End office to a remote terminal/node/tower that serves a specific area.

Last-Mile fiber — Refers generally to the transport of data communications from the end user's home to the first point of aggregation in the carrier's network (such as a remote terminal, wireless tower location).

Fiber Splice Enclosures or Access Points — Fiber splice enclosures are splice cases installed on the fiber optic cable that allows access to the individual fibers bundled inside a cable. Once the case is installed, the fiber cable can be "opened" exposing the fiber strands. The fiber strands can then be cut and spliced to other fibers to complete network design.

Appendix: Maps

EBAP Reserve Prices

Vermont CUD Territories

Broadband Deployment 25/3 Mbps

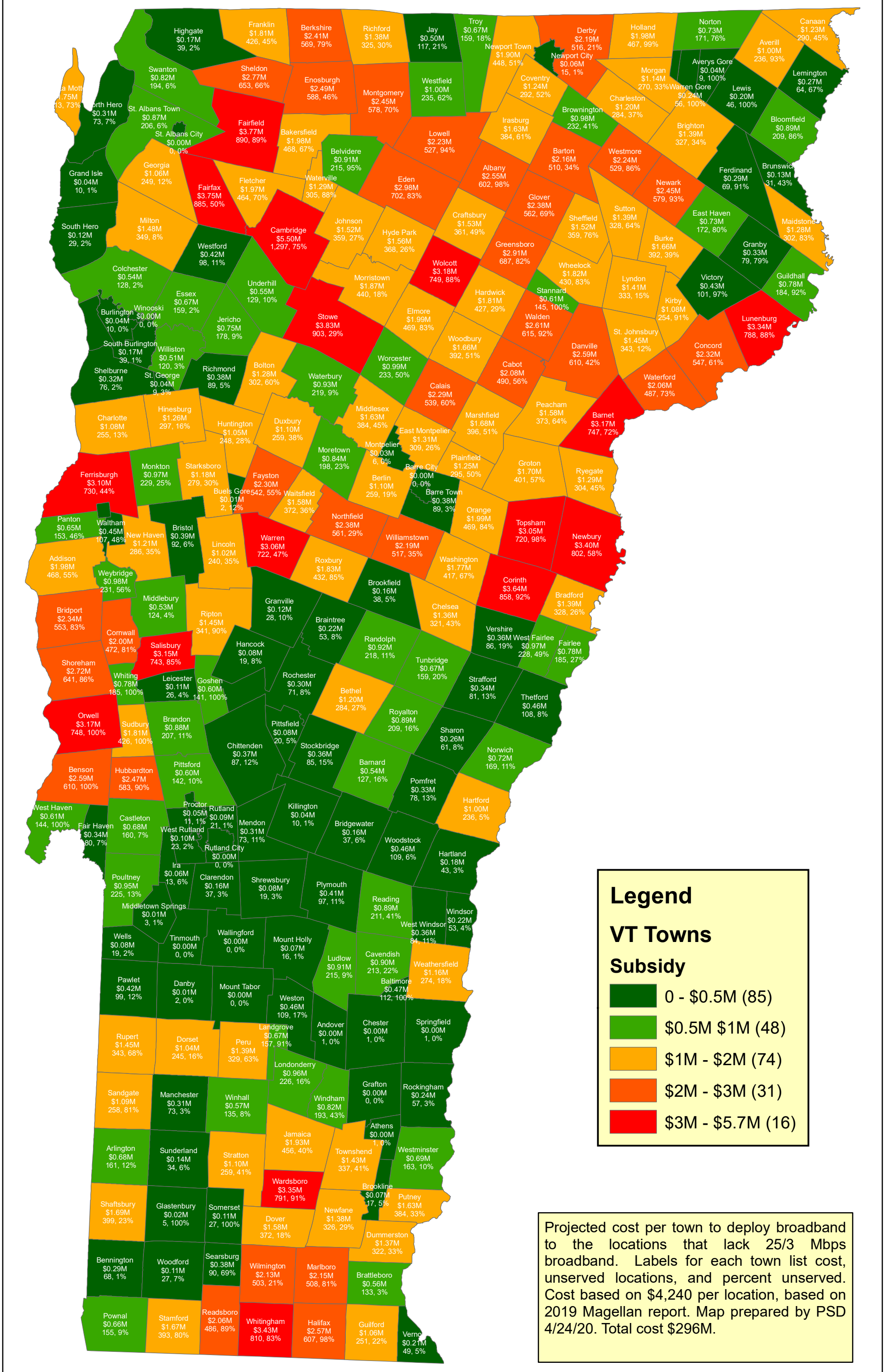
Mobile Wireless Drive Test

Vermont RDOF Territory

Vermont Electric Substations

EBAP Public Comments

Projected Broadband Deployment Costs

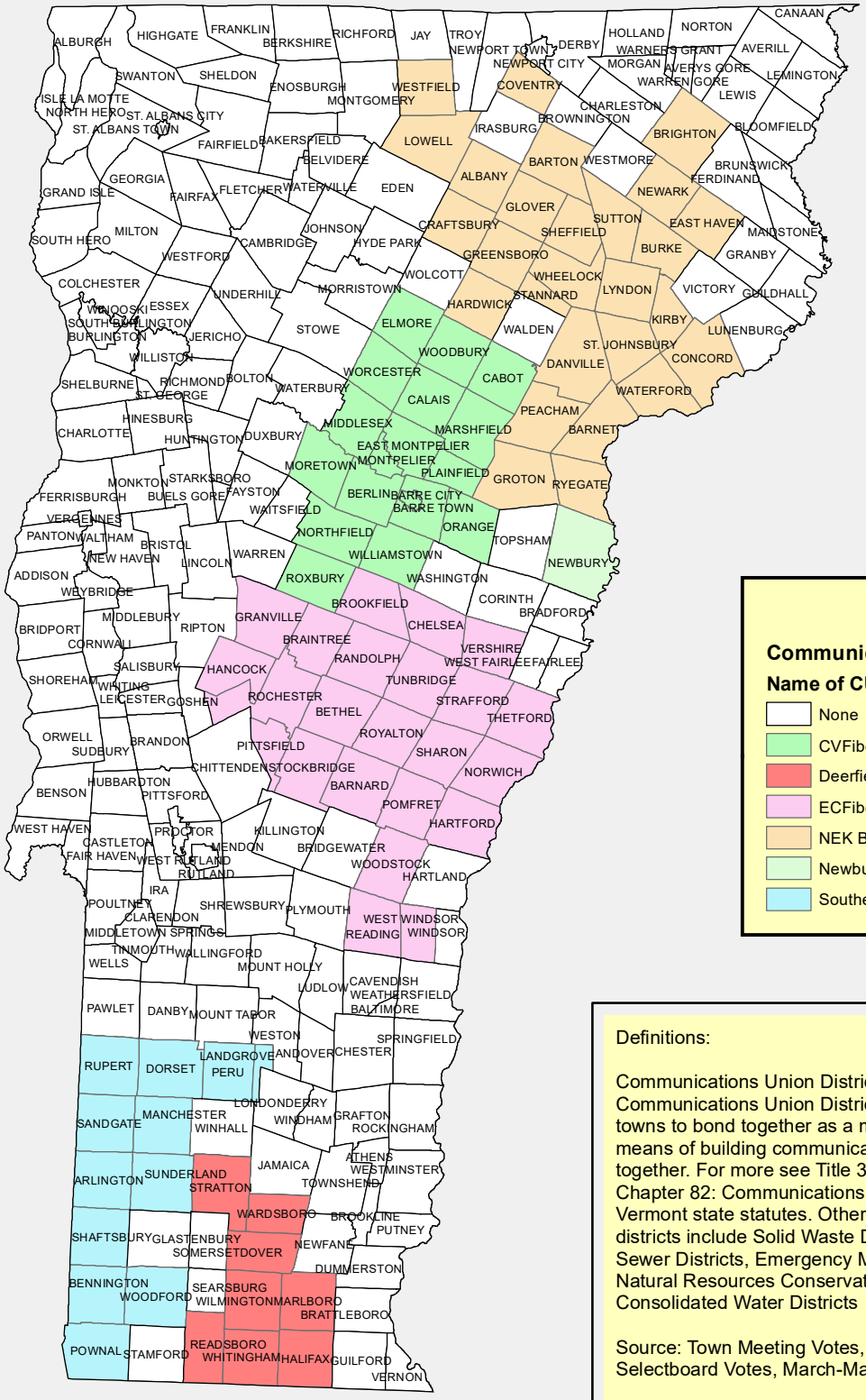


Projected cost per town to deploy broadband to the locations that lack 25/3 Mbps broadband. Labels for each town list cost, unserved locations, and percent unserved. Cost based on $4,240 per location, based on 2019 Magellan report. Map prepared by PSD 4/24/20. Total cost $296M.

Communications Union Districts

VERMONT
Department of Public Service

May 2020



Legend

Communication Union District

Name of CUD

- None
- CVFiber (2018)
- Deerfield Valley CUD (2020)
- ECFiber (2011)
- NEK Broadband (2020)
- Newbury REDINET (2017)
- Southern Vermont CUD (2020)

Definitions:

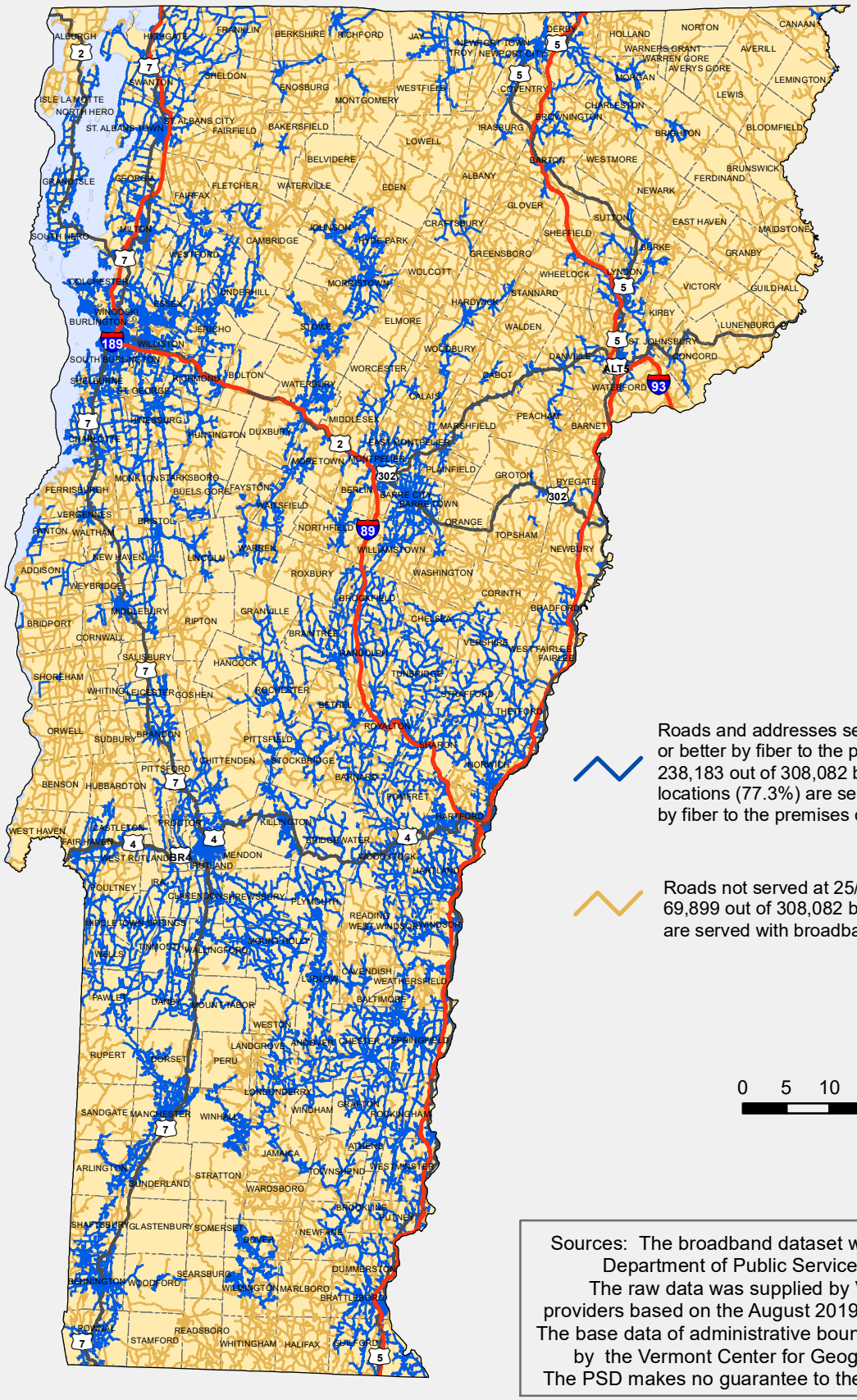
Communications Union District (CUD) - CUD is a Communications Union District, allowing two or more towns to bond together as a municipal entity for a means of building communication infrastructure together. For more see Title 30: Public Service, Chapter 82: Communications Union Districts in Vermont state statutes. Other types of municipal districts include Solid Waste Districts, Consolidated Sewer Districts, Emergency Medical Service Districts, Natural Resources Conservation Districts, Consolidated Water Districts

Source: Town Meeting Votes, March 2020, Selectboard Votes, March-May 4, 2020.

Broadband Availability by Road Segment
25 Mbps Down / 3 Mbps Up or Better

VERMONT
Department of Public Service

August 30, 2019



Roads and addresses served at 25/3 Mbps or better by fiber to the premises or cable. 238,183 out of 308,082 building locations (77.3%) are servicable at 25/3 Mbps or better by fiber to the premises or cable.

Roads not served at 25/3 Mbps or better. 69,899 out of 308,082 building locations (22.7%) are served with broadband less than 25/3.

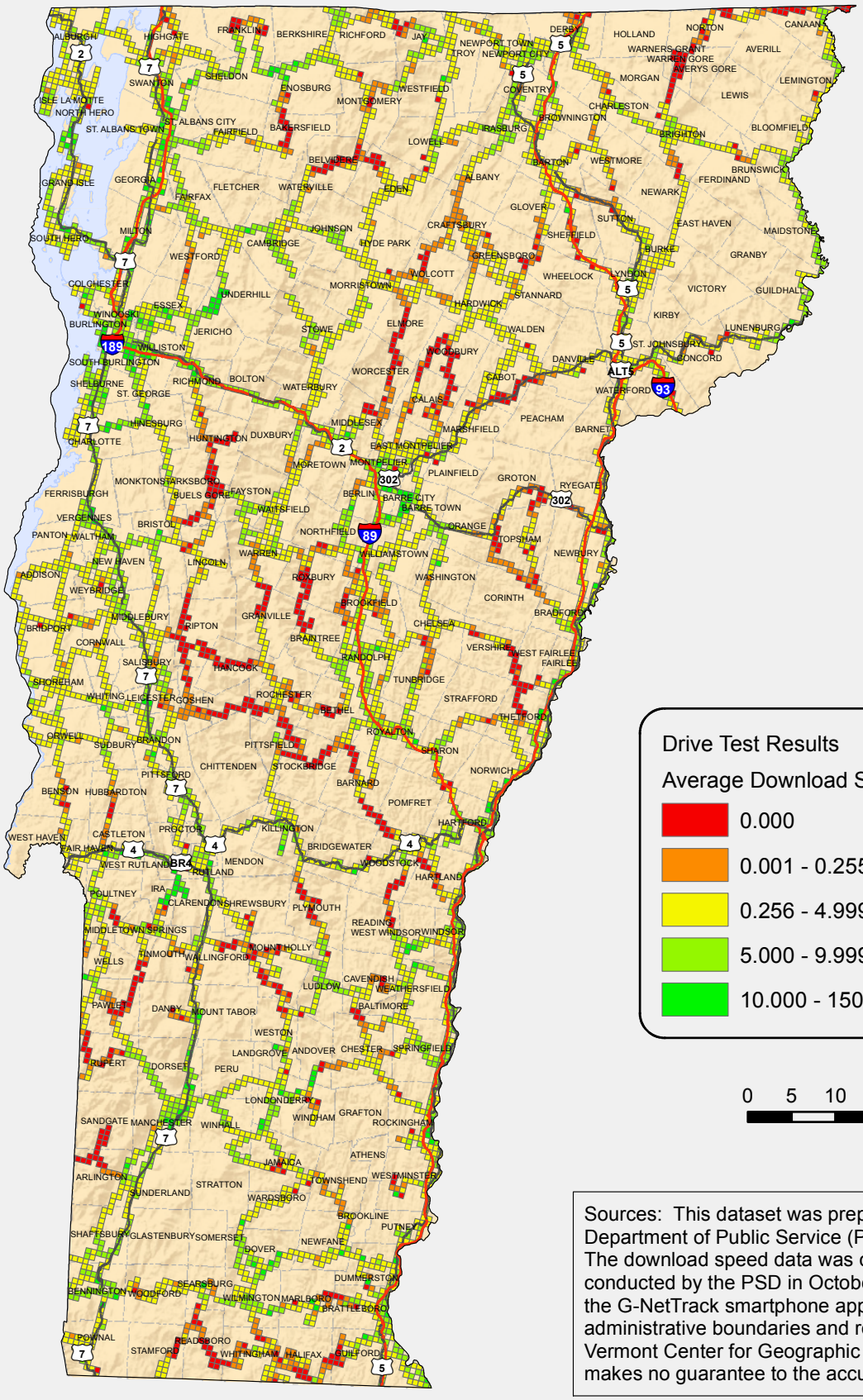
0 5 10 20 Miles

Sources: The broadband dataset was prepared by the Vermont Department of Public Service (PSD) on 2/21/2020. The raw data was supplied by Vermont internet service providers based on the August 2019 PSD request for information. The base data of administrative boundaries and roads are supplied by the Vermont Center for Geographic Information (VCGI). The PSD makes no guarantee to the accuracy of this information.

Mobile Wireless in Vermont
All Carriers 4G-LTE Data Coverage

VERMONT
Department of Public Service

December 31, 2018

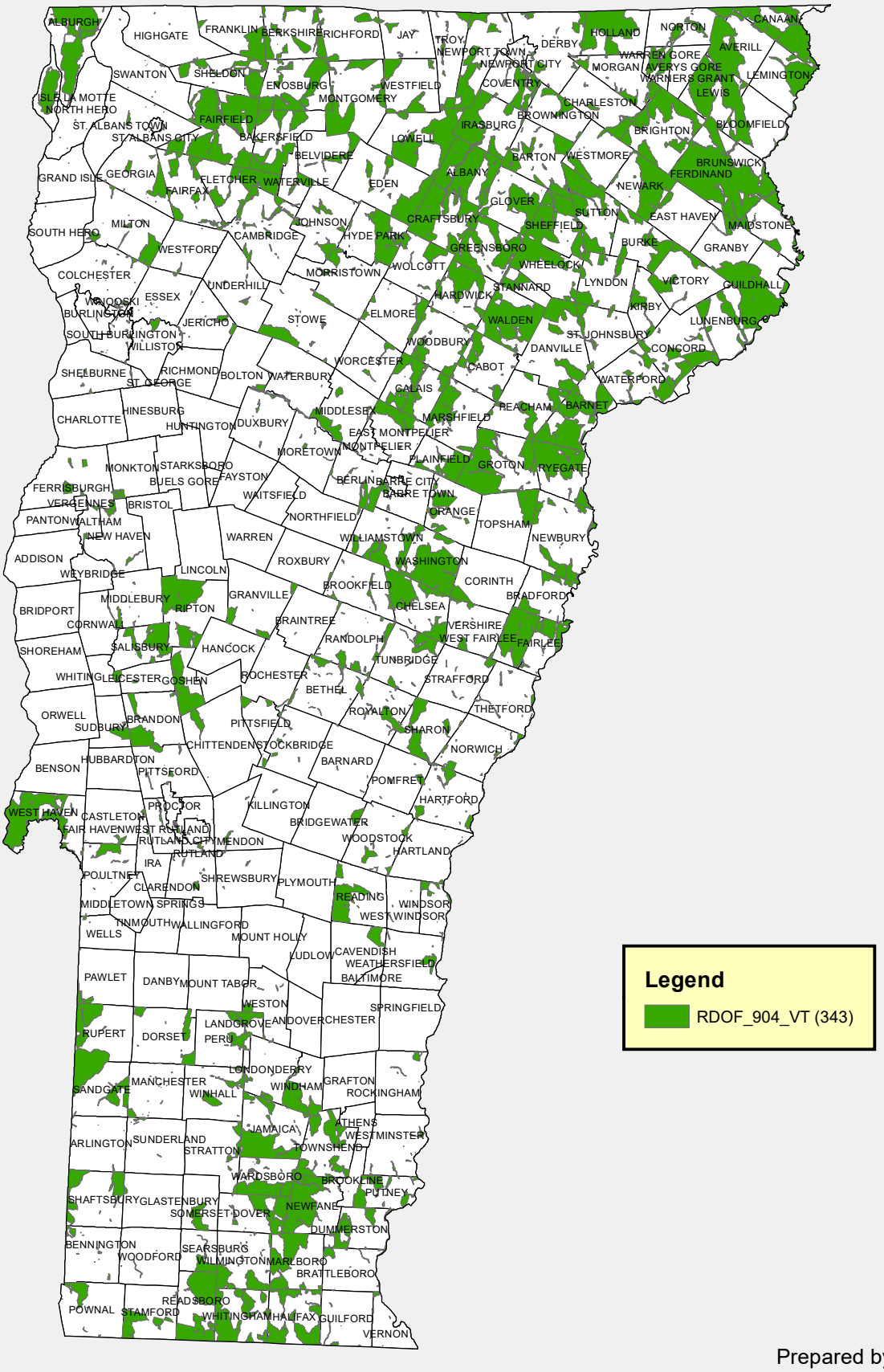


Sources: This dataset was prepared by the Vermont Department of Public Service (PSD) on 12/31/2018. The download speed data was collected during a drive test conducted by the PSD in October and November 2018 using the G-NetTrack smartphone application.The base data of administrative boundaries and roads are supplied by the Vermont Center for Geographic Information (VCGI). The PSD makes no guarantee to the accuracy of this information.

RDOF Initial Eligible Area in Vermont

VERMONT
Department of Public Service

April 28, 2020



Legend

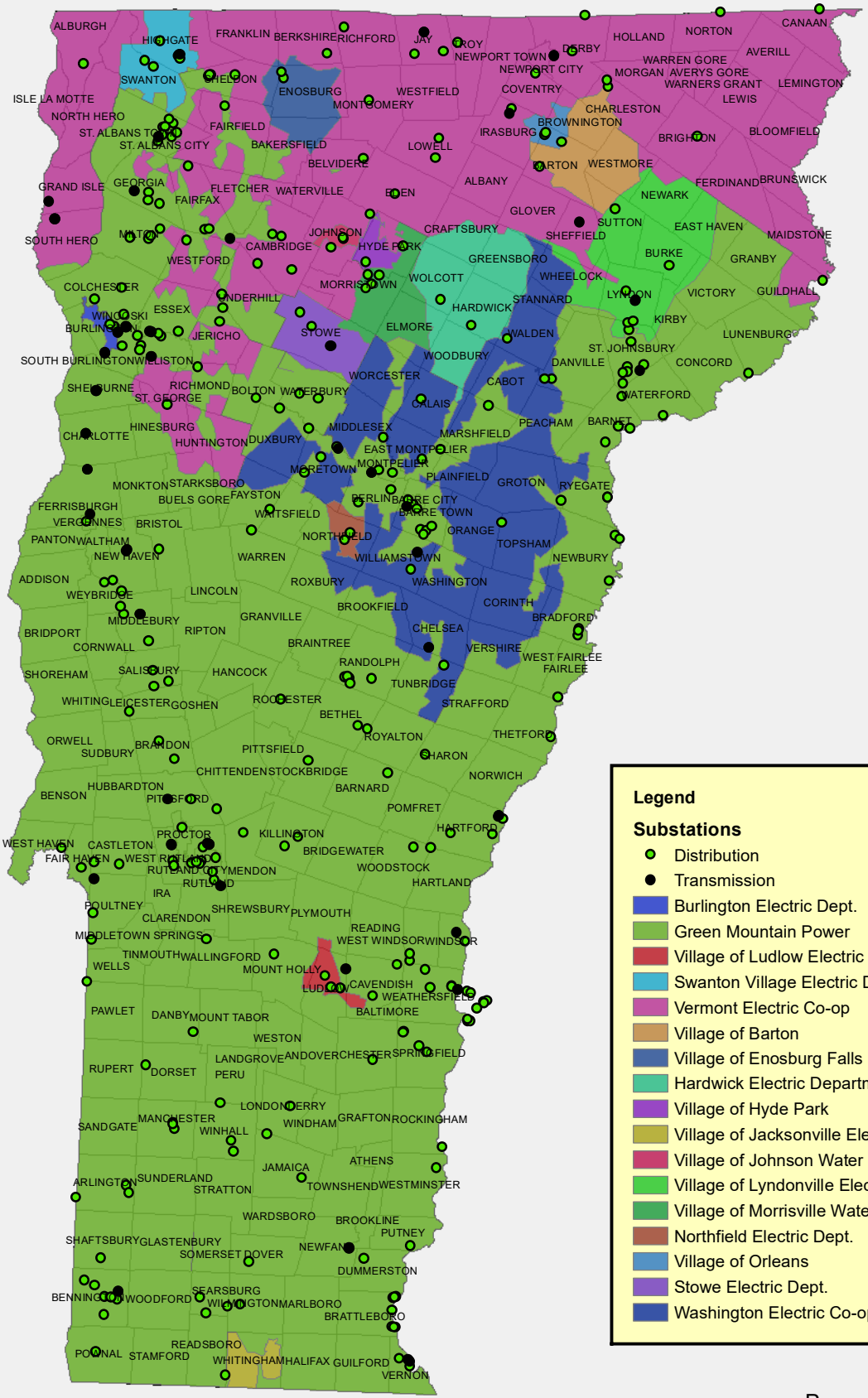
RDOF_904_VT (343)

Prepared by VT PSD

Vermont Electric Utility Territories and Substation Locations

VERMONT
Department of Public Service

April 28, 2020



Legend

Substations

- Distribution
- Transmission

- Burlington Electric Dept.
- Green Mountain Power
- Village of Ludlow Electric Dept.
- Swanton Village Electric Dept.
- Vermont Electric Co-op
- Village of Barton
- Village of Enosburg Falls
- Hardwick Electric Department
- Village of Hyde Park
- Village of Jacksonville Electric Co.
- Village of Johnson Water & Light Dept.
- Village of Lyndonville Electric Dept.
- Village of Morrisville Water & Light Dept.
- Northfield Electric Dept.
- Village of Orleans
- Stowe Electric Dept.
- Washington Electric Co-op

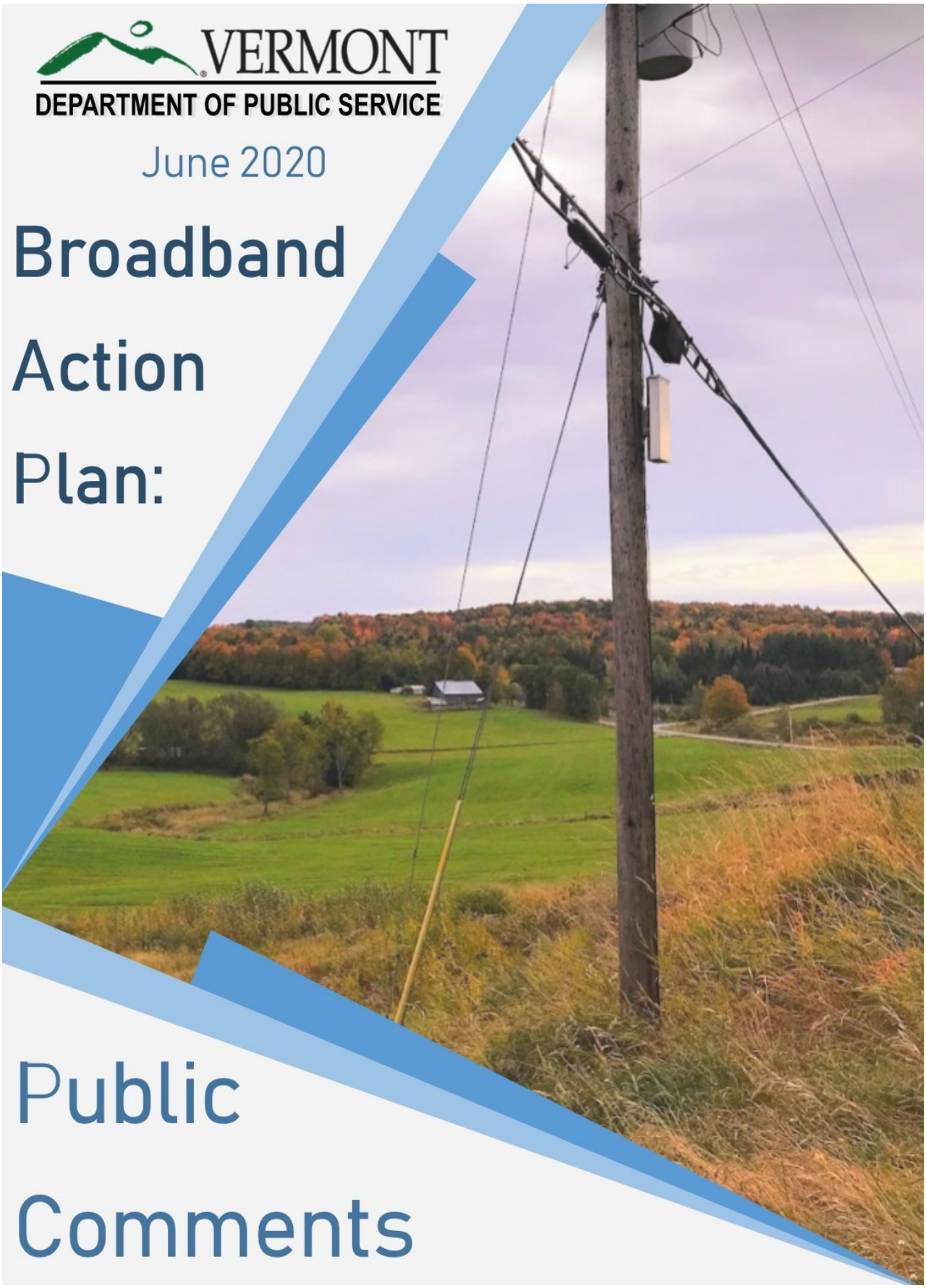
Prepared by VT PSD

VERMONT

DEPARTMENT OF PUBLIC SERVICE

June 2020

Broadband Action Plan:



Public Comments

Table of Contents

Individual Citizen Comments
Pages 5-175

Broadband deployment

Tuesday, May 26, 2020 10:45 AM

Subject	**Broadband deployment**
From	Derrik Jordan
To	PSD - Telecom
Sent	Wednesday, May 6, 2020 1:01 PM

I strongly urge the DPS to use this new money for Broadband deployment to install FIBER wherever possible to the rural areas. 5G and other wireless only serves the Telecoms and is much more costly in terms of energy use (up to 2x more energy consumed), lowers property values, is ugly and also has serious health consequences which has become an issue around the world for many people who are having health concerns related to wireless exposure.
Please install FIBER everywhere since it is more reliable and faster than 5G. It won't be affected by power outages. By this I mean FTTP or Fiber to the premises. I know the Telecoms have to install fiber to create the infrastructure to build the 5G from. Fiber should be running to every home, school and business in VT. We really need to think of the future for our state and provide ourselves with THE BEST options to connect people. Thanks.

Derrik Jordan
EMF Safety For Vermont
Host and Producer of The World Fusion Show
National Winner of the Best Entertainment and Arts Series 2019 on Public Access TV
http://www.derrikjordan.com
https://soundcloud.com/hilljoy

internet connection for all Vermonters

Tuesday, May 26, 2020 10:45 AM

Subject	**internet connection for all Vermonters**
From	Mary Stowe
To	PSD - Telecom
Sent	Wednesday, May 6, 2020 7:17 PM

I'm commenting on the DPS $300 million draft emergency broadband access plan. It is important for all Vermonters to have reliable internet access. It is safest if that access is through fiber optics and wire not through wifi. We do not want nor need any 5G in Vermont.

Mary Stowe
25 Chestnut Hill, #One Brattleboro, Vermont 05301

The future enters into us, in order to transform it self in us, long before it happens.

FW: Rural Internet service

Tuesday, May 26, 2020 10:45 AM

Subject	**FW: Rural Internet service**
From	Flint, Carol
To	PSD - Telecom
Sent	Thursday, May 7, 2020 7:17 AM

Hi,
Here is a comment for the Broadband Action Plan Best,
Carol

From: Tierney, June <June.Tierney@vermont.gov>
Sent: Wednesday, May 6, 2020 9:40 PM **To:** Flint, Carol <Carol.Flint@vermont.gov> **Subject:** Fwd: Rural Internet service

Sent from my iPhone

Begin forwarded message:

> **From:** VT Icarus <vticarus@outlook.com>
>
> **Date:** May 6, 2020 at 20:59:31 EDT
>
> **To:** "Tierney, June" <June.Tierney@vermont.gov>
>
> **Subject: Rural Internet service**
>
> **EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.**
> Ms. Tierney:
> I was glad to see news reports related to a push for more rural high(er) speed internet. But please do not assume all is well with the existing rural coverage.
>
> My only option is through Consolidated Communications here in Calais. I pay extra for service at 10 Mbps but almost never receive that service. But they are monitoring the line - guaranteed as every time I run a speed test the first try fails miserably. But a second and any following tests ALWAYS meet or exceed the target of 10. This has been the case during hundreds of speed tests. The only time I get the service I pay for is when they detect I am checking the line.

PLEASE also improve monitoring and policing of existing services as well, especially in these monopoly locations.

Charles Mayhood Calais, VT

Broad band for all

Tuesday, May 26, 2020 10:45 AM

Subject	**Broad band for all**
From	Sam Lewis
To	PSD - Telecom
Sent	Thursday, May 7, 2020 6:53 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

I suggest socializing the entire state for internet access and we the people can pay for it. Let Comcast etc... compete. It is an essential utility and this nonsense has gone on long enough, no business is going to do it because it's a loss.
If it can be done in cities in this country it can be done in this brave little state.

Howard Lewis Rutland town VT

Sent from my iPhone

Emergency Broadband action plan comments

Tuesday, May 26, 2020 10:46 AM

Subject	**Emergency Broadband action plan comments**
From	Patrick Zachary
To	PSD - Telecom
Sent	Friday, May 8, 2020 8:45 AM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Hi;

I looked at the plan and it is not clear whether our neighborhood in Duxbury is part of this plan. The neighborhood is Camels Hump Rd. We do not have cable. We have Fairpoint DSL which is not great. I pay for Bonded DSL and am supposed to get 20/2. I rarely see that - it is most likely 10/1 especially now with all my neighbors on it all day. Would like to see fiber to home option in this plan when it makes sense. Our neighborhood has fiber termination boxes approx. 1-2 miles from each home. Your plan depends on cable which historically is more expensive monthly than DSL or fiber to home. Spend the money now because we will need 100/100 before you know it. 25/3 is what was needed 5 years ago. Wifi internet service is too intermittent (weather) and mobile will be too expensive monthly (unless you follow the model of every other country where we are not tied to a provider).

--

Thanks

Patrick Zachary pz@bzvt.net

Emergency Broadband Action Plan

Tuesday, May 26, 2020 10:46 AM

Subject	**Emergency Broadband Action Plan**
From	Dave Carpenter
To	PSD - Telecom
Sent	Friday, May 8, 2020 2:25 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Thank you Commissioner Tierney and the Department for taking these steps. Frankly, rural broadband in Vermont has been in a state of "emergency" for a long time. Telecommuting has been a teeth- grinding exercise for years, as rural carriers have had little financial incentive and only aspirational regulatory and political pressure to convince them of the value of getting Vermont up to speed, so to speak.

The crisis perpetuated by COVID-19 has shown only too clearly that broadband access is not a luxury, it's a necessity. There are some obvious reasons:

1. This crisis has laid bare the fault lines that exist between the haves and have nots as kids in rural areas struggle to keep up with their counterparts in more densely populated areas. It's inequitable and infuriating.
2. This crisis has shown the futility of making high-quality telecommuting or virtual offices a reality in Vermont in current circumstances. I am the General Counsel and Director of Development for one of the premier solar developers in the state, Green Lantern Solar. We are a virtual office and conduct all but a small handful of our business over web meetings and telephone
   conferences. We conduct data-intensive internet-based research including mapping and other technical tasks. We live all over the state, from rural Orwell and Bristol to larger locales such as Brattleboro and Waterbury to densely populated South Burlington. Those of us in rural areas have had our internet speeds beaten down to a pathetic crawl, where, at my house for example, download speeds during busy times of the day often hover **below 1 Mbps**. When I and my wife (who both work from home) and our two kids are trying to perform internet-based tasks simultaneously, it's often impossible.
3. On the increasingly rare occasions when our speeds creep up to 2 Mbps we're all overjoyed. Ridiculous. Mind you this has been going on for YEARS and despite all of our complaining to OTT they have refused to upgrade. We are paying for a maximum speed of 5 Mbps which I suspect we have probably NEVER hit in my 13 years in this house. The download speeds on my Verizon iPhone hotspot are almost always faster, but data pricing is prohibitively expensive.
4. On our road alone, aside from us, are three separate successful home-based businesses - Milk & Honey Genetics, Singing Cedars Farmstead, and Singing Cedars Apiaries. Not to mention the school principal, and the five other school kids that live on the road. We're all getting clobbered.
5. I am the chairman of our local Fire Department and the download speed in the Town center itself is not much better. The Fire Station is the hub for Emergency Management Services as well as Fire and Rescue, and I have no confidence whatsoever that our internet speeds will

adequately support a full scale crisis event response such as widespread flooding and blizzards, or ice storms causing long term power outages or other such events, which are sure to become more serious and frequent as the impacts of climate change are felt.

6. I wasn't going to add this but figured what the hell. Our quality of life during the pandemic has totally suffered - streaming movies is a buffer-interrupted, low-quality nightmare; downloading videogames takes days; family video chats are freeze-frame, pixellated messes - you know, "first world problems." Still, if I am being honest, it totally sucks.
7. Whatever agency came up with the campaign to throw $10,000 to lure telecommuters to Vermont should be prosecuted for false advertising or forced to telecommute from rural Addison County for a year.
8. Telecommuting has obvious salutary environmental impacts as well. As the Department is well aware, transportation and heating are the State's biggest carbon offenders right now. When I started working in Green Lantern Solar's virtual office, I eliminated a 13,000 mile annual commute. It's no secret that with robust broadband, thousands of folks like me could leave our cars in our driveways while being equally or even more productive.

I hope Vermont does more than pay lip service to solving this festering problem and actually intends to rapidly and comprehensively address the problems with our rural broadband.

Respectfully submitted, Dave Carpenter
Orwell, Vermont

Broadband Action Plan from DPS

Tuesday, May 26, 2020 10:46 AM

Subject	**Broadband Action Plan from DPS**
From	John Burke
To	PSD - Telecom
Sent	Sunday, May 10, 2020 6:23 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Good afternoon,
I believe this is where residents can submit comments regarding broadbank plans. My wife and i recently moved up here to Vermont, we have been part time residence for many years. We really didn't understand just how bad the internet infrastructure was until a couple of years ago and now the COVID19 pandemic has literally "hit home" where we were forced to work from home.
I can't even begin to stress the difficulty and frustration trying to work from our house which is located the rural town of Cabot, right of Route 215. The Internet Infrastructure here in Vermont keeps alot of potential new residence from other states, as well as getting younger professionals and younger families moving up here. The state is losing alot unfortunately.
It is a serious problem. We have used Xfinity for years and not having access to that type of broadband is really disheartening. We were told 10 years ago it was going to be here and we are still waiting. Now they are saying 2 - 4 years, I do not believe the state of Vermont has the luxury to wait that much longer. Especially if the new norm is going to be remote working.
We do hope this will really and truly be addressed, because time is running out. Thank you
John

emergency broadband access proposal

Tuesday, May 26, 2020 10:46 AM

Subject	**emergency broadband access proposal**
From	Aaron Larsen
To	PSD - Consumer; PSD - Telecom; Purvis, Clay; Tierney, June
Sent	Monday, May 11, 2020 9:32 AM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Commissioner Tierney and Director Purvis,

My name is Aaron Larsen. I am a resident at 851 Dairninaka Drive in Derby. I am writing to support the Department of Public Services recent recommendation and emergency plan to use money from the CARES Act to expand the availability of quality and reliable broadband to the unserved and underserved areas of our state.

My family currently resides on Dairninaka Drive off of the Darling Hill Road in Derby. We are limited to DSL offered by Consolidated at a speed of 3mbps down and 1mbps up, although current speed tests would indicate that the actual speeds are much slower. I have contacted Consolidated about the poor internet speeds and the potential to upgrade the existing system. I was informed that there are no plans to upgrade the service to this area.

Comcast Xfinity has not offered service to this stretch of Darling Hill Road but recently extended service down Darling Hill Road stopping at our neighborhood. I spoke with their construction manager for our area, he said there was no plans to expand up Dairninaka Drive. I explained that conduit was pre-buried when our neighborhood was built, specifically to serve the 6 (soon to be 7) houses in our neighborhood with cable. Even after explaining that at least 5 of the houses would be willing to sign a service
agreement, he was very dismissive of my inquiry saying: “it isn’t worth it for us.” It is clear that the help we need is not coming from the for-profit providers in our area.

The lack of quality internet options is only compounded by the poor to nonexistent cell phone coverage in this area. We are clearly underserved in the context of telecommunications. If this feels hopeless for me, I’m sure that feeling is magnified for Vermonters living in even more remote areas than our location.

The matter of adequate internet access is one of great importance to the quality of life during the best of times. My wife, Lesley, and I, who are both professionals employed in the area, rely on the internet to do our jobs, not merely to stream movies or browse the internet. I am the Assistant Principal at Newport City Elementary School and Lesley is the Certified Nurse Midwife at North Country Hospital in Newport. Access to quality and reliable broadband is essential to both of us in order to do our job and serve our community.

While the lack of quality and reliable broadband has always been a major inconvenience, it has been

devastatingly disruptive to our family during the ongoing pandemic. With three school-aged children trying to access online education it has often resulted in my wife and I needing to leave home in order to work, solely due to the quality of our internet. This leaves our children home alone to navigate their new online based education without support. As a family that places a high value on education, it is crushing to leave them home to fend for themselves on our poor internet.

As a school administrator, I fully understand the limitations that exist in remote learning. Nothing about it is ideal. However, I see the inequities that are perpetrated on our children based on access to quality and reliable broadband and it makes me worry about the damaging effects of this disparity. Lack of access to quality and reliable broadband only widens the already present equity gap in our state.

Now more than ever, access to quality and reliable broadband is a necessity, not a matter of convenience. I fully support the Department of Public Services recent recommendation and emergency plan to use CARES Act money for the emergency expansion of quality and reliable broadband to the unserved and underserved areas of Vermont.

As a parent, school administrator, and the spouse of a health care provider, I welcome any chance to share my story and promote this project, including but not limited to testifying in front of legislature and in front of the Telecommunications and Connectivity Advisory Board.

Thank you for your work on behalf of all Vermonters and I look forward to hearing from you regarding this issue.

Thank you, Aaron R. Larsen 802-334-6802
851 Dairninaka Dr.
Derby, VT
Newport, VT 05855 (mailing)

Fwd: My notes and questions re: EBAP

Tuesday, May 26, 2020 10:51 AM

Subject	**Fwd: My notes and questions re: EBAP**
From	Fish, Robert
To	Purvis, Clay; PSD - Telecom
Sent	Wednesday, May 13, 2020 8:54 PM

Get Outlook for iOS

From: sbjohn <sbjohn@sover.net>
Sent: Wednesday, May 13, 2020 8:47:15 PM **To:** Fish, Robert <Robert.Fish@vermont.gov> **Subject:** My notes and questions re: EBAP

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the

sender. Hi Rob,

I was sorry I had to leave the EBAP meeting on Monday, but here my candid comments, concerns and questions.

Reverse Auctions: I have no confidence that this process will get CUDs what they need. It's likely to make it even more difficult for us to achieve our mission. Any cost efficiency purportedly achieved by reverse auctions is short-lived and has resulted in poor service to the customer. Apparently there is no accountability for the winning bidder to fulfill the terms of their winning bid.

p. 10 -The local CUD can veto the reverse auction bid winner. Good idea. Is this going to result in private vendors reaching out to form true partnerships with CUDs?

p. 11 - The oft quoted statistic - "77.3% of Vermont has 25/3 connectivity" is a fantasy. The coverage data (locations without customer names) provided by CCI was personally checked for accuracy by members of the MCUB. We found only two people who actually get 25/3 or anywhere near it. Stick to the 100/100 standard or at the least symmetrical broadband exceeding the Feds "up to 25/3" for all Vermonters. 25/25 should be the lowest permissible service. This Covid-19 emergency has clearly demonstrated how woefully inadequate the "up to 25/3 Mbps" standard is.

p. 12 The reverse auction requires county-wide bids. WRC is more than Windham County and DVCUD already has one member Stamford in Bennington County. Please revise.

We (a group of CUDs) need expert advice to prepare and engage effectively as potential bidders.

p. 14 (f) I suspect ILECs will take this money, but not significantly improve coverage despite claiming to provide 25/3.

p. 14-15 Settling for less than 100/100 service at this time will only perpetuate the inequity of

broadband access across our state. Without equal broadband access, the education, healthcare and economic divides between rich and poor will only increase.

#7 is a big “no" for me. Don’t compromise the economic future of Vermont to compete economically with the more populous cities and states nearby.

p.17 6(3) A local sales tax isn’t going to help our rural towns. What businesses are we going to tax? The “general stores” small towns no longer have? I’m pretty sure that with the exception of Wilmington and Dover, no other town in our CUD even has a traffic light!

p. 22 Telehealth Programs - nice list, but which ones are available to CUDs? to DVCUD?

p. 23 I’m all for coordinating our work with schools, but the schools are all going to be hurting financial now and in the future. All our schools have plenty of high-speed broadband via the FirstLight (Sovernet) fiber, but not residences have access to this asset.

I couldn’t get the maps to open. Check the link.

Thanks to you and Clay for working on this proposal. You explained it very well at the Senate Committee Meeting yesterday. We appreciate your advocacy and initiative.

Steven Steven John
DVCUD Vice Chair
Marlboro Representative

802-257-0810 (H)
802-258-0332 (C)

Williston, VT Resident with no Broadband access

Tuesday, May 26, 2020 10:51 AM

Subject	**Williston, VT Resident with no Broadband access**
From	Paco Sandoval
To	PSD - Telecom
Sent	Thursday, May 14, 2020 10:54 AM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

To whom it may concern, Hello,

My name is Francisco Sandoval. I'm a Software Engineer working remotely for a tech company with Head Quarters in Colorado. My ability to work depends on a fast and reliable internet connection.

I bought a house in Williston, VT last November, and to my surprise there is no way to get broadband service. My address is 2022 Governor Chittenden Rd, 05495

The best I could get, and what's keeping me from unemployment is VtelWireless.

I get speeds of ~5Mbps down and ~1Mbps, service caps at 100G per month, and it's not very affordable. I've spent countless of hours on the phone with multiple ISPs (from the huge Comcast to the smaller, local providers) and my frustration due to the inability to secure service is shared with my neighbors.

I understand the state is pushing to get tech workers from out of state to move to Vermont (as shown by the remote worker grant program) and it's disappointing to have to go through this type of hurdles. I read the EBAP document and I'm very interested in the Immediate Actions section. Here's a map of where my house is, and where the cable service stops:

1. What can I do to make sure my neighborhood is considered within the Immediate Action plan?
2. Could "removing the datacaps from current providers" be added while there's no better options?
3. Starlink (www.starlink.com) seems to be starting Beta service providing by the end of the year. Is this service (or similar) being considered? Securing early access for the state of VT could be a good alternative.

Thank you for your time,

--

Francisco (Paco) Sandoval

Internet speed

Tuesday, May 26, 2020 10:51 AM

Subject	**Internet speed**
From	William Orosz
To	PSD - Telecom
Sent	Thursday, May 14, 2020 10:22 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

I am sorry I can't be at the meeting today. I am one of the lucky ones that finally got to go back to work this week. My name is William Orosz I live in Georgia, Vermont. I have lived in Georgia since 2012. One of my biggest, and really only complaint about where I live is the internet. I live in one of the Vermont spots no cell coverage, and only one internet provider Consolidated Communications. They are the worst in service and customer service. I technically have broadband, but my speeds never reach the 25/3 to match the federal mandate. My fear and my neighbors fear is in a time when we are working from home, and kids are learning from home, that since we have bad DSL broadband we are going to be overlooked. To me the biggest issue in Vermont when it comes to internet out side of Burlington is lack of competition for the company's here. Consolidated Communication knows I have no other choice so they don't care if I have fast speeds. Like in your plan I live within a mile of Comcast lines but would need thousands of dollars to connect. My hope with this meeting would be that the state could entice competition to come to the state and make all the current companies invest in their network or lose customers. This makes better service and everyone wins. If this is not possible then please don't forget those of us that have horrible internet and give us the chance to better our lives in this times where we need more. Thanks for your time and have a great meeting. Bill

EBAP Comments/Questions

Tuesday, May 26, 2020 10:52 AM

Subject	**EBAP Comments/Questions**
From	CJ Jarvis
To	PSD - Telecom
Sent	Saturday, May 16, 2020 12:41 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

I love that this is the direction our state is moving as it is a much needed improvement but I can't help but wonder how exactly rural households, specifically those that are isolated from others, will receive the benefit of this plan. Whether they're near an existing cable line or not, how can we be sure this is going to benefit them in a timely manner when the battle between them and the ISP as been going on for years?

5G

Tuesday, May 26, 2020 10:52 AM

Subject	**5G**
From	Geneva Wilkin
To	PSD - Telecom
Sent	Monday, May 18, 2020 10:16 AM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Vermonters don't want 5G nor do we need it. Our internet works just fine. How much money does Telecom get to install this untested technology?

Sent from my iPhone

Emergency Broadband Action Plan

Tuesday, May 26, 2020 10:52 AM

Subject	**Emergency Broadband Action Plan**
From	Christine Hallquist
To	PSD - Telecom; Evans Sealander
Sent	Monday, May 18, 2020 11:24 AM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

To whom it may concern,

I just finished reading the Emergency Broadband Action Plan. Overall it is a very well thought out plan and kudos to all of those who were involved in the plan development. The cost figures appear to be realistic and line up with my analysis. Your penetration rate is realistic as well. While I continue to be an advocate for Fiber to The Premise as the ultimate infrastructure needed to help Vermont compete, the gap between where we are and the end goal is a wide one.

I only have three points to make:

1. Do not allow any twisted pair copper (POTS infrastructure) to qualify. I understand telecomm carriers have been presenting that they can achieve 25mps using twisted pair copper. Yes, the can achieve this. However it can only work within a few thousand feet of the service area interface that is connected by fiber. Additionally the copper is highly unreliable as the network is old, interface boxes are often filled with water during rainfall, and fails intermittently These are very unreliable networks. This is the reason we replaced these in the utility business with more reliable systems.
2. It is important to make sure the technical support is available to the CUD's as they work to deploy. We have learned a lot from the work of earlier CUD's and the state can be a central repository for best practices as well as provide design support.
3. Satellite has traditionally had too much latency to be effective. Latency should be below 50 milliseconds. In the past it has been close to 900 milliseconds, rendering it ineffective for interactive video communications.

With warm regards, Christine

Regarding Emergency Broadband Action Plan (EBAP)

Tuesday, May 26, 2020 10:52 AM

Subject	**Regarding Emergency Broadband Action Plan (EBAP)**
From	Mindy Barrick
To	PSD - Telecom
Sent	Monday, May 18, 2020 12:29 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Hello,

This comment is in regards to the Emergency Broadband Action Plan (EBAP).

My family and I have researched long and hard for a pristine place to live after seeing and experiencing negative effects with every technology upgrade in Pennsylvania. The more "connected" we have become, the more health issues people are having, the fewer species of birds come around, the less pollinators, less wildflowers, etc. We are under contract to purchase a home on a large acreage in Plymouth, VT and are excited to make a life there; coming to Vermont for the first time felt like coming home; a feeling we've had nowhere else. We are overjoyed at the pristine beauty and health of the forests, the abundance and diversity of wildlife, and the unique rural lifestyle that have faded in most other states. Once that character is gone, it will likely never return. Please do not turn Vermont into another Pennsylvania. Pennsylvania caved to industry pressures to "upgrade" this and that, and the result has been the devastation of the landscape, wildlife, and culture. You should treasure and preserve the land and protect the flora, fauna, and people who make Vermont a home.

There is nothing wrong with fiberoptic service and it does not have such massive negative effects like wireless. It is fast and efficient. There is no need for anything else. Newer does not equate to better. Surely you've experienced "upgrades" that were worse than what you had before. This upgrade will be worse. The effects are not instantaneous, but will happen like a moldering rot.

Before you move forward with your plans (especially 5G), consider what a growing number of scientists are saying about the negative impacts of wireless, especially 5G. If you decide to move forward, remember that once your landscape is covered in towers and your birds and pollinators are gone, you will regret your decision. Once the citizens begin suffering from a massive increase in chronic health conditions, you will regret your decision. In Vermont, we can breathe. Please don't choke the life out Vermont.

Telecom companies taking advantage of the current Covid-19 situation are utterly deplorable. They are using any leverage they can to increase their profits. That is what it comes down to; this is not a push for societal improvement out of the goodness of their hearts. This is about money and these companies will destroy anything to get it. It happened in PA and most other states, and if you fall for it, it will irrevocably change Vermont, too. The economy will recover without wireless connection just as it has after past downturns. Wireless connections have nothing to do with it. Expanding fiber optic would have the same benefits of connectivity without the destruction wireless causes.

Thank you for considering these points. I hope you choose Vermont over the telecom companies.

Respectfully,

Mindy Barrick

Comment on Emergency Broadband Action Plan

Tuesday, May 26, 2020 10:52 AM

Subject	**Comment on Emergency Broadband Action Plan**
From	Allison Teague
To	PSD - Telecom
Sent	Tuesday, May 19, 2020 4:30 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

I respectfully ask that Vermont's Dept. of Public Service seriously consider the following thoughts, concerns, and suggestions before approving this dangerous plan for ALL Vermonts and ALL life here. If we plan to hand over the State to our progeny to enjoy, the decisions we make now, are crucial, or we WILL be asked by our Grandchildren, "How could you let this happen?" And history will be the judge. There is NOTHING more important than the future for our children, and the health of Vermonters, nothing.

In an age when 'energy consumption' has been pushed on the consumers to solve, its time for the PUC to push back to industry with regard to their dirty energy schemes that, in fact, endanger all Vermonters because of the 'spillage' into our cells, DNA and children's brains.

I urge you to please consider:

-- Requiring all telecommunications providers to provide fibre to the premises (FTTP) that can connect to wireline equipment in the premises, and to not replace existing wired telephone and Internet services with wireless. Wireless technology is a poor investment for mountainous Vermont.

-- A direct physical connection with wires and in particular fibre optic cable (fibre), is the best means to fulfill this need. Fibre does not emit radiofrequency (RF) radiation that is harmful; fibre is at least 100 times faster, more reliable, secure and resilient (Wireless cell networks are constantly upgraded whereas cable or fibre is laid once) and is far more protective of privacy than wireless connectivity; wireless technologies have a much larger carbon footprint than wired technologies, rely on rare minerals, and the Institute of Electrical ad Electronics Engineers (IEEE) published that, “Wireless technologies will continue to consume at least 10 times more power than wired technologies”.

Make no mistake that this decision will decide the actual future of Vermonters because at its heart, it either decimates our health with one choice, or it preserves and protects it with another.

Which kind of person are you? Respectfully,
:Allison:Teague Brookfield Vermont

Sent with ProtonMail Secure Email.

5G Development Plans

Tuesday, May 26, 2020 10:53 AM

Subject	**5G Development Plans**
From	Jonathon Landell
To	PSD - Telecom
Sent	Tuesday, May 19, 2020 9:30 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Dear Government Representatives:

I am totally opposed to the development of a 5G system as it has been proposed and planned for the whole world. I was severely injured by a Radio Shack portable headset telephone about 20 years ago with the lifetime effects that it had on my body. I was found to have a ***shwarnoma*** tumor on the 4th cranial nerve, which was giving me double vision (my eyes don't align with each other). Thank God I found a wonderful surgeon at Mass General Hospital, who worked with his team of surgeons for 12 hours to remove most of the tumor, so I am still alive today. But the lasting effect of double vision will always be troublesome. I work as a craftsman on professional flutes, so my vision is essential to my work. The FCC is tasked with protecting American citizens from the dangers of high frequency radio waves, but this small Radio Shack invention passed inspection anyway, because the FCC uses an antiquated metric to determine the possible risks to human life, namely whether or not the energy causes heat in the body at certain power levels. There have been many peer reviewed studies by qualified scientists that show this method of determining the dangers of microwave energy is totally out of date and should be abandoned.

But the various members of the FCC have been industry advocates and employees of the telecommunications industry for many years, so the commission is now "captured" by the industry it is supposed to regulate. The dangers of 60+ gigahz radio are well documented even at the low power levels at given distances from the source. There is a new study from Spain that shows statistically a direct relationship between the incidence of COVID-19 deaths and the presence of 5G in all the parts of the world that have experienced very high death rates. Even the magazine **"Scientific American"** last October published an article saying we have "...no reason to believe that 5G will be safe". I have no reason to believe it, because I could have died from the tumor that grew on my brain stem and misaligned my eyes.

If we must have a faster Internet service, we should run the cables under ground where they will be safe for human health and for all living things. We know that the honey bees will die when they encounter 5G, because that's been documented in Australia and other places. We know that migratory birds will loose their ability to navigate when their system has encountered 5G radiation. We know that children will be seriously damaged when we place cell towers near homes or schools where they live. The commercial news broadcasters have been very quiet about the issues surrounding 5G development, because they see that money will be given only to information sources that support it.

I have no confidence in a government agency that looks the other way when all the evidence points toward a serious loss of life when our pollinators can't do their work to cause the food we eat to be pollinated. Yes, we may have such things as driver-less cars to ride in down the road, but we will certainly not be alive very long to enjoy the benefits of downloading feature length films for our

entertainment as we travel. I am very serious about this issue, but I'm not a wealthy man. So I cannot influence the corrupt government bureaucrats to change their plans by offering bribes of big donations to their election war chest. It is **your job** to protect us from this enticing threat to our lives, and tell the boss at AT&T, Bell labs, etc that we don't want to die in a **5G MICROWAVE OVEN**. We will be watching to see what you do with our hard earned tax money. **PEOPLE ARE AT RISK HERE.**
Sincerely,

Jonathon A. Landell 529 Williams Hill Rd. Richmond, VT 05477
802-434-4317
jonathon.landell@gmail.com

Emergency broadband action plan in VT

Tuesday, May 26, 2020 10:53 AM

Subject	**Emergency broadband action plan in VT**
From	Marki Webber
To	PSD - Telecom
Sent	Tuesday, May 19, 2020 9:32 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.
To the Public Service Department,

I am writing regarding the proposed Emergency broadband action plan. I have heard that the PSB is saying "everyone wants wireless- everyone wants 5G". I am one Vermonter who very strongly disagrees with this statement and I personally know many others who feel as I do. There are many many reasons why the wireless approach is a bad idea but perhaps the strongest and most indisputable reason is that it is vastly inferior in a number of ways to FTTP- fiber to the premises.

Wireless technology is not easily achieved in Vermont's mountainous terrain- the signal has too many obstacles to be readily sent to all of the places it needs to reach. Wireless technology consumes 10 times more energy while it is being utilized than FTTP. Wireless is less reliable and is not as secure in terms of data and privacy protection. In terms of 5G, the 5G signal does not carry far so requires a greatly increased number of closely spaced transmitters and is easily blocked by leaves or other natural obstacles which would require initial and ongoing trimming and removal of significant numbers of trees- harming not only the esthetics but also having a negative environmental impact and requiring ongoing costly maintenance.

Finally, but no less important, existing RF radiation from wireless technology has been linked to negative health effects and increased cancer rates as shown in many international studies. The newer, 5G technology has had no studies to date demonstrating safety for human and environmental health and the exposure would be ubiquitous and
unavoidable. We could be calling in a public health nightmare that might show up immediately, or 10 or 20 years down the road. We cannot afford to take this chance- especially now, in the midst of a public health emergency, it makes no sense to gamble with a factor that could contribute to negative health outcomes for any Vermonters. As an RN working in this state since 1988, aware of the combined factors of an aging population and pending increased shortage of medical providers I am very aware of the need to take steps to support public health and minimize any factors that could hamper future public health in any way.

In short, Fiber to the premises is vastly superior to wireless technology in every way. I cannot emphasize strongly enough how important it is that as we take steps to expand broadband access we do so in a way that will let Vermont take a leadership position by requiring FTTP be made available to the public from all telecom providers who are authorized to participate in any expansion of broadband in the state. We need to

maintain and expand wired connections for all telecom needs. It is faster, more reliable, more environmentally conscious and better for public health.

Sincerely,

MJ Webber RN M.Ed.

East Dummerston, VT

Love and compassion are necessities, not luxuries; without them, humanity cannot survive. HH Dalai Lama XIV

Broadband

Tuesday, May 26, 2020 10:53 AM

Subject	**Broadband**
From	Spoon Agave
To	PSD - Telecom
Sent	Wednesday, May 20, 2020 12:24 AM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

To the Dept of Public Service:

I cannot urge you strong enough to pursue a state owned fibre-optic system to bring broadband to every municipality in Vermont. In Brattleboro, where I live, we have been through four telecom corporations since I have lived here. The service is nothing to commend, plans are confusing and deceptive and the costs are very high. Commercial communications corporations are also strangling our local TV. The internet should be considered a public utility because at this point it is necessary to function in this society but privately owned communications are inadequate and expensive.

5G is not a good thing. It will immediately and primarily be used to create a total surveillance society. No person I have ever met is pleased with the extent of surveillance that already exists. 5G will create far more destructive social problems than the beneifts it might bring.

Thank you for your time.

Spoon Agave, Brattleboro

Former Selectboard member, Planning Çommission member, Development Review Board member

Connecting Vermont...

Tuesday, May 26, 2020 10:53 AM

Subject	**Connecting Vermont...**
From	J. Brook
To	PSD - Telecom
Sent	Wednesday, May 20, 2020 8:30 AM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Hi,

I WOULD LIKE FIBER OPTIC. I don't want 5G antennas all over the place.

Little Vermont Telephone was able to wire a large swath of the state with fiber optic without charging their customers an extra dime for service.

First Light is in my area. They are a NY fiber optic company, I think, but seem to have no real interest in servicing Vermont in any meaningful way. WHY?

Has anyone done any real testing of resonant effects and constructive interference with regards to having 5G antennas radiating all over the place?

Resonance is the foundation of old-fashioned radio. When there is resonance, voltage or current can be magnified ENORMOUSLY. Has anyone done extensive testing to find out if the new 5G frequencies resonate with pine needles, honeybee antennae, human kidney cells, smooth muscle cells, neurons...

Would there be harmonics with any other radiation currently blanketing the state (Doppler radar, WiFi...???) that would create constructive interference?

Please gather that information and make it publicly available, please, if the state is going to be blanketed with these antennas.

It would be good, would it not, to not throw another pandemic-type situation at our healthcare providers, who apparently missed the first SARS outbreak and the MERS outbreak and had no idea what coronavirus illness does and how to treat it. Western Medicine has barely any consciousness of the fact that we are electrical beings and that, for instance, "DNA FUNCTIONS AS AN ELECTRICAL WIRE IN A COMPLEX CIRCUIT." (http://jonlieffmd.com/blog/human-brain/electric-dna-mind)

Respectfully, Jacqueline Brook

———————-

"As soon as I started taking the [prescribed] medication, my symptoms got worse."

—Liu Qi, approx. 9:30, PBS's Nova program, "Decoding Covid-19"

Emergency Broadband Action Plan Public Comment

Tuesday, May 26, 2020 10:54 AM

Subject	**Emergency Broadband Action Plan Public Comment**
From	Aro Veno
To	PSD - Telecom
Sent	Thursday, May 21, 2020 12:18 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

To the Department of Public Service:

In response to the EBAP, I respectfully request that the DPS refrain from fast-tracking deployment of 5G wireless. Fiber-optic cable and Fiber-to-the-Premises (FTTP) is a much safer alternative. I do not believe it is appropriate to disregard Act 250 and other licensing requirements. Citizens and towns deserve the time they need to weigh-in on safety and privacy concerns inherent in 5G wireless deployment and consider the greater safety and increased speed offered by Fiber-to-the-Premises. Even though there is an economic and health crisis related to CoVid-19 which requires connectivity, that doesn't preclude the importance of making informed decisions that will impact our future. Making a hasty decision that enables the Telecom industry to deploy their 5G infrastructure when there are other options available is unwise and potentially detrimental to the future of Vermont.

Sincerely Yours, Carol Cannaveno East Montpelier

public comment on the Emergency Broadband Action Plan

Tuesday, May 26, 2020 10:54 AM

Subject	**public comment on the Emergency Broadband Action Plan**
From	jim kelty
To	PSD - Telecom
Sent	Thursday, May 21, 2020 1:49 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Dear Vermont Department of Public Service:

I am writing to express my support for broadening rural Vermont's Internet

accessibility. But I am vehemently opposed to the spread of the 5G and/or 4G

networks.

Let's be clear about what's at stake here. We could use the Emergency Broadband Action Plan to build out a statewide fiber optic cable network. Or we could use the plan
to introduce more and more radiofrequency (RF) radiation into the environment. There's a big difference between those two options. One choice would be good for rural Vermont, and the other would be tragic.

RF radiation is biologically harmful, and the evidence of that harm has existed for a long time. Thousands of peer-reviewed scientific studies report biological effects from exposure to non-thermal, non-ionizing RF radiation, the kind emitted by cell phones, wifi routers, smart meters, cell phone towers and other wireless transmitters.

In fact, more than 10,000 peer-reviewed scientific studies demonstrate harm to human health from RF radiation. Effects include:

- Alteration of heart rhythm
- Altered gene expression
- Altered metabolism
- Altered stem cell development
- Cancers
- Cardiovascular disease
- Cognitive impairment
- DNA damage

- Impacts on general well-being
- Increased free radicals
- Learning and memory deficits
- Impaired sperm function and quality
- Miscarriage
- Neurological damage
- Obesity and diabetes
- Oxidative stress

The telecommunications industry has already begun rolling out 5G at extremely high (millimeter wave) frequencies, and the proliferation of transmitters threatens plants and animals as well as humans.

If the industry's plans for 5G come to fruition, we will be exposed to levels of RF radiation that are tens to hundreds of times greater than what exists today. These 5G plans threaten to provoke serious, irreversible effects on humans and permanent damage to all of the Earth's ecosystems.
It is also important to note that wireless technologies have a much larger carbon footprint than wired technologies. According to the Institute of Electrical and Electronics Engineers, wireless technologies consume "at least 10 times more power than wired
technologies."
I urge you to give these facts serious consideration. Let's do the right thing and choose FTTP (fiber to the premises) connectivity over wireless. FTTP is faster, more reliable and much safer, with a much smaller carbon footprint.

Respectfully, Jim Kelty Hardwick, VT

Comments on draft emergency broadband plan

Tuesday, May 26, 2020 10:54 AM

Subject	**Comments on draft emergency broadband plan**
From	Thomas L Thomas
To	PSD - Telecom
Sent	Thursday, May 21, 2020 10:13 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

To whom it may concern,

As a business owner in the Northeast Kingdom I have extreme concerns about your emergency broadband plan.

First, I think your numbers are extremely optimistic there are probably twice or more than the number listed who cannot get broadband(25/3) in Vermont.

Second, I cannot see how you can procure the federal funds as planned as Consolidated Communications Inc. (CCI) among others providers have filed so many questionable FCC form 447s which claim for many census blocks in Vermont that “broadband” is available when in fact it is not available in said census block(s). This is fraud. This claim makes most if not all federal money unavailable to affected census blocks.

CCI like most incumbent carriers file the forms fraudulently as SOP to block other competitors from deploying in areas where they have land line assets. This insures for them virtual monopolies in many many rural areas. This
is the situation in my census block. My census block is listed by the FCC as having broadband available , when in fact there is no broadband deployed in it and CCI is not willing to upgrade to provide it even though there are ample fiber assets in place. The current DSL BLD is maxed out and there is not even anymore available copper pairs available in our township in spite of the fact we are experiencing some growth. But since CCI has filed a form 477 stating broadband is available (clear fraud) and there are no funds available for us to bring another service of any kind in even though they refuse to upgrade or even add new customers.

Add to this frustration is the substandard service currently provided is extremely unreliable and is often down for extended periods of time. It is unsuitable for video conferencing, distance learning, large file transfers etc. simply because of it’s inherent stability issues and incessant service drops. There are often multi-day/multi week waits for repairs.

So in closing I want to know up front what you plan on doing to address these issues otherwise this entire comment solicitation is a complete waste of time and another waste of my tax dollars.
I am hopeful something can be done to force providers to actually provide the service they claim to provide. The current deplorable internet service is significantly harming my business.

At least in the case if CCI and its forerunner Farpoint, a little litigation might go a long way. Vermont may be finding this out soon enough from jilted business owners such as myself.

Thank you Tom Thomas

Fwd: EBAP Comments from Thursdays meeting

Tuesday, May 26, 2020 10:55 AM

Subject	**Fwd: EBAP Comments from Thursdays meeting**
From	Fish, Robert
To	PSD - Telecom
Sent	Friday, May 22, 2020 4:16 PM

Get Outlook for iOS

From: Claude Phipps <here4now2@myfairpoint.net>
Sent: Friday, May 22, 2020 4:04 PM
To: Fish, Robert
Subject: EBAP Comments from Thursdays meeting

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Robert Fish,
Connectivity Advisory Board, meeting Thursday, May 21, 2020.
I was pleased to be able to participate and to hear comments by other attendees. As a result, I have some additional comments to the plan.

It appears that Section I needs more short term ideas to facilitate connectivity in the next 12 months and into the future. I heard a few ideas and there must be others.

1. "Hot Spots" developed to provide access to the network at public places.
2. Facilitating existing public spaces that have strong network connection to be available as hot spots such as Libraries and Schools.
3. Build temporary cell towers that can generate hot spot connectivity. I understand Burke Mountain is doing something of this kind.
4. Item d, Fast-tracking of Pole Licensing, is a good idea. Let's take it farther; have the state buy the licenses and do the make ready work. That could be much faster than waiting for all of the grants to be awarded to get to the same end.
5. Can AT&T FirstNet be incorporated into a solution to our short term needs?

I am concerned about the proposed take-rate of 45%. We have missed our primary goal, if only 45% of the students are connected. I propose that Section I include a take-rate study. Why is the proposed take –rate so low? What can CUDs and the state do to bring the take–rate closer to 90%. Can we devise programs to increase the take-rate. CUD's like ECFiber should be able to add to this body of information.

Luke Birch of Newbury REDInet expressed hope and concern about the work force needed to build this network. I would like to see a work-force meeting that brings together the various

players in this field. Unions, Colleges, Tech schools, . . .

Claude Phipps Newbury REDInet

5G = invisible assault like covid19!

Tuesday, May 26, 2020 10:56 AM

Subject	**5G = invisible assault like covid19!**
From	Lynn Russell
To	PSD - Telecom
Sent	Saturday, May 23, 2020 11:16 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Vermont State decision-makers:

Would you invite a known corona virus carrier into your home to live with you and your family? Allowing 5G into Vermont would be like inviting the corona virus to live with you and every other family in Vermont.

Reckless!

Self-defeating.

For a healthy future with full internet convenience and capability, hardwire physical cable to every home and business, sure-fire internet access quickly and safely. The promises of 5G safety are ill-conceived wishful thinking grounded in greed for dollars rather than in common sense for wellbeing, health and safety. Vermonters deserve healthful wellbeing.

Thank you for insisting on health and safety for all. Gratefully yours,

Lynn Russell, Voter in Vermont

Emergency Broadband Action Plan

Tuesday, May 26, 2020 10:56 AM

Subject	**Emergency Broadband Action Plan**
From	Emily Lanxner
To	PSD - Telecom
Sent	Sunday, May 24, 2020 11:10 AM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Dear Vermont Department of Public Service:

In response to Vermont's Emergency Broadband Action Plan, I want to say that while I am very much in favor of accessibility of internet access for all Vermonters, I am very much against the "technology neutral" approach mentioned in the EBA plan. I do not believe it is appropriate to fast-track 5G wireless infrastructure when this technology has not been proven to be safe. The FCC safety standards have not been updated in over twenty years. In contrast, there have been thousands of peer-reviewed studies that show the detrimental effects of small-wave high- frequency radiation on humans as well as plant and animal life. Vermont prides itself on promoting healthy life-style choices and being conscientious stewards of the environment. Ignoring all of that to bring 5G to our state would be a disastrous and quite unnecessary choice. Much of the mountainous terrain in the areas that need more internet access don't even support 5G technology. And the requirement of cutting down trees in some circumstances to allow more effective 5G transmission is an even more absurd choice during a time when trees are desperately needed to sequester carbon.

The idea of using 5G in schools as being proposed in Rutland is an especially disastrous health choice, when high-frequency RF radiation has been found to have neuro-psychiatric effects on children, among a host of other vulnerabilities.

Although there have been numerous articles in media sources such as the NY Times that discredit studies claiming that 5G is unsafe, it must be pointed out that there is a huge conflict of interest due to the fact that most mainstream media sources are heavily partnered with the Telecom industry and are now doing everything in their power to discredit opposition to 5G.

The option of fiber-optic wired internet access is safe, more secure against hacking, secure and a much better economic investment as well.

Thank you allowing public comment on these important decisions that have such a strong impact on Vermont.

Emily Lanxner Hardwick, Vermont

I Support Fiber Optic Cable - I am NOT a fan of 5G - I would rather Vermont spend $ on much more reliable Fiber Optic Cable

Tuesday, May 26, 2020 10:56 AM

Subject	**I Support Fiber Optic Cable - I am NOT a fan of 5G - I would rather Vermont spend $ on much more reliable Fiber Optic Cable**
From	Susan Bowen
To	PSD - Telecom
Sent	Sunday, May 24, 2020 1:51 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

To Whom it may Concern,
I support Fiber Optic Cable. I am not a fan of 5G. I do not want 5G - I want a more reliable wired network that does not come with the health risks of 5G.

Two of my main reasons for supporting Fiber Optic Cable and opposing the 5G Technology throughout Vermont are :

1) Health risks (see below for more info)
2) FIBER OPTIC CABLE IS BETTER (see below). :)

******(1)- The biggest reason to SUPPORT Fiber Optic Cable and to oppose 5G is that the Wireless Tech Industry has not given any proof that it is safe and the documents from Doctors, researchers and even our own military find that the wireless technology is not safe.

Dr. Sharon Goldberg, an internal medicine physician & professor gives her testimony to the United State Congress regarding 5g technology dangers specifically involving electromagnetic radiation. She says: "Wireless radiation has biological effects. Period." https://www.youtube.com/watch?v=1Qt5B39LB7c
U.S. - At Senate Commerce Hearing, Blumenthal Raises Concerns on 5G Wireless Technology's Potential Health Risks - Richard Blumenthal, 7th February 2019 Blumenthal criticizes the FCC & FDA for inadequate answers on outstanding public health questions Wireless carriers concede they are not aware of any independent scientific studies on safety of 5G technologies For more on 5G and the potential dangers surrounding this largely untested technology please visit: https://www.youtube.com/watch?v=tB2G06ijjhM

******(2)- Connectivity, with wires and in particular fibre optic cable (fibre), is the best

means to fulfill Vermont's desire for internet.
Fibre does not emit radio frequency (RF) radiation which is harmful.
Fibre is at least 100 times faster, more reliable, secure and resilient (Wireless cell networks are constantly upgraded whereas cable or fibre is laid once) and is far more protective of privacy than wireless connectivity; wireless technologies have a much larger carbon footprint than wired technologies, rely on rare minerals, and the Institute of Electrical ad Electronics Engineers (IEEE) published that, “Wireless technologies will continue to consume at least 10 times more power than wired technologies”

Thank you for taking time to consider my view, Susan Bowen

5G Rollout

Tuesday, May 26, 2020 10:56 AM

Subject	**5G Rollout**
From	Pamela Wilcox
To	PSD - Telecom
Sent	Monday, May 25, 2020 12:21 AM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

I am opposed to the 5G fast track rollout.
Connecting with wires, in particular, fibre optic cable, is the best means to fulfill this need.
Fibre does not emit radio frequency radiation that is harmful and fibre is at least 100 times faster, more reliable, secure and resilient.
All telecommunications providers should provide fibre to the premises (FTTP) that can connect to wireline equipment in the premises and do not replace existing wired telephone and internet services with wireless. Wireless technology is a poor investment for mountainous Vermont.
I would hate to move my business and my 2 homes here in Vermont because of the recklessness and carelessness of those in charge but I will in order for my family to be safe.
Sincerely, Pamela Wilcox
Brattleboro resident

Emergency Broadband Action Plan

Tuesday, May 26, 2020 10:57 AM

Subject	**Emergency Broadband Action Plan**
From	Mark Alexander
To	PSD - Telecom
Sent	Monday, May 25, 2020 6:41 AM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

To whom it may concern,

I'm a Rochester resident, and have some serious concerns about the Emergency Broadband Action Plan. In particular, the document seems to be promoting the use of 5G technology as a way to provide broadband in rural areas. I believe this is a serious mistake for a number of reasons.

First, there is the issue of health concerns from the widespread deployment of 5G transmitters. Because these devices uses much shorter wavelengths than even 4G cell service, their signals cannot travel nearly as far, which means that many more transmitters must be installed, at much closer spacing, and with much higher radiation power levels.

In a little town like Rochester, these 5G transmitters would need to be installed a block apart throughout the town. Because these microwaves have such short wavelengths, they are more hazardous than traditional cell phone radio waves. By blanketing the state with this microwave radiation, we would be subjecting Vermont residents to much higher levels of microwave power than has ever been known before, and without the ability of residents to block such unwanted radiation, or even to prevent it from being deployed in the first place.

I believe that the precautionary principle requires us to be much more careful about such new technologies, and that we should not embrace them unhesitatingly.

Then there is the issue of the power consumed by the huge numbers of 5G transmitters that would be required. They would need to be closely spaced, and would need to be placed near every home and business in the state. Because each one requires large amounts of electricity to operate, we would be requiring a huge increase in power consumption throughout the state. This makes no sense when it is clear that reducing our energy consumption is the best strategy in the effort to combat global warming.

It's not enough to dismiss the energy consumption concern by saying that we can mitigate the problem with, say, solar panels or wind farms. Each of these so-called renewable energy sources is highly dependent on fossil fuel consumption and large-scale mining for the production

of the required chips, turbines, and other materials. Furthermore,
these products are not designed for long-term reliability and have to be discarded and redeployed every couple of decades. Clearly, the best path forward is energy conservation, not increased consumption.

Finally, there is the question of need. Do Vermont residents really need 5G radiation blanketing the state, when far better technologies exist to provide broadband? Here in Rochester we are fortunate to have EC Fiber providing fiber to the home. This service provides very high speed internet service for both downloads and (importantly) uploads, without the need for untested and unsafe 5G technology, and with much lower power requirements.

Furthermore, fiber has the built-in capability of being easily
upgraded to even faster rates in the future without massive deployment of new facilities. As an example, in a two year period, EC Fiber
doubled the speed of their lowest cost service to 25 MBit/Sec, with no cost increase or equipment change required for their customers.

By contrast, radio technologies have very little room for improvement and have to be rebuilt and redeployed at huge cost for any significant speed improvements. We have seen this in the history of cellular technology. In the upgrades from 2G to 3G to 4G, and now to 5G, transmitters have had be upgraded each time. Each upgrade has forced users to discard their old, working devices and purchase new ones.
This is a hugely wasteful process, and 5G is yet another step on this wasteful path, and is certainly not going to be the last.

Proponents of 5G, which are largely companies that plan on making huge amounts of money from their projects, like to tell us that Vermont residents "need" this technology. But this is a highly questionable
claim. Mobile services like 4G are already fast enough for the requirements of users on the move. To take just one example, there is no reason why mobile users need to download entire movies in a few seconds, when streaming works well right now. And for those few instances when very high speed is required, fiber to the home is a far more sensible solution.

Please don't force dangerous and unwanted 5G technology onto Vermont
residents without our consent. Fiber to the home is clearly the answer to Vermont's need for reliable, fast broadband service, and should be supported to the fullest possible extent.

Thanks,
Mark Alexander Rochester, Vermont

my comments on 5G, wireless internet, and universal internet access.

Tuesday, May 26, 2020 10:57 AM

Subject	**my comments on 5G, wireless internet, and universal internet access.**
From	Heidi Henkel
To	PSD - Telecom
Sent	Monday, May 25, 2020 7:36 AM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Currently there's public wireless somewhere in most VT towns. I have a Republic Wireless cell phone. It can make regular phone calls, using a wireless internet signal. It's a great phone to have in VT because I can almost always make a phone call from next to the library or town hall, in most towns. I don't have a great ability to receive live incoming calls, but my phone takes a voicemail message and I return calls when I can stop at one of these places or I am home. I am happy with this way of using my cell phone. It works very well for me. I don't feel a need to have ubiquitous cell signals in every square mile of VT. I think mostly what that would accomplish is it would make people much more likely to talk on the phone and answer the phone while driving cars. It's better if the cell signal is NOT everywhere- then people have to stop driving, to talk on the phone- stop in a place with a good signal. That's MUCH better than having ubiquitous cell coverage!!

Backcountry travelers who need an emergency signal should use SPOT, not rely on a cell phone; this is true of lots of other reasons besides the unreliability of cell signals in VT. Making cell signals more ubiquitous would not improve rescue much. More widespread outdoor safety education would go a lot farther.

I would rather see different internet options for different situations, not universal cell signals everywhere. I think it would be great if the public sector helps to fund satellite internet for rural homes and businesses, or helps to bring the cost down by bulk buying. I think people should have a choice whether to get it and when to turn it on and off in their homes. I think there should be a public outdoor wifi signal in every town, such as near the library or town hall.

These signals do put a stress on the body. I have felt it when I had an ear infection. I don't normally feel it, but I believe that more vulnerable people do. I think people should be able to opt out, like we can opt out of smart meters. I don't think the economic goals of universal internet access can be met without universal exposure to a signal. In Ottawa they're rapidly laying down fiber optic cable. That could be a solution for some of Vermont. Making satellite internet affordable is another solution for another type of situation in Vermont. I think the economic goal can be met with these approaches, and that will be a better solution than jumping into 5G. I think it can be

more cost effective and better for health and safety.
My proposal is to facilitate universal high speed internet access in VT, but do it differently in densely populated vs rural areas. Everyone should be able to have it, but I think the best ways to do it are different in Burlington vs in Brookfield.
I think there should be a public outdoor wifi somewhere in each town, such as near the library or town hall. This is already true in many towns.
I think cell phone companies' coverage maps should be honest.
I would encourage Vermonters to get cell phones that can make phone calls from wireless signals.
I don't think we need ubiquitous cell phone coverage all over Vermont. I think it's better for health and for driving safety, if we do not.
I don't think we should try to achieve universal internet access via ubiquitous cell coverage.
I think we should make 5G available to households and businesses that want it, and make it possible for people to opt out of it if they don't want it. Anyone who does not want 5G at or near their residence, should be able to not have 5G near or at their residence. Especially in rural areas. People should be able to opt out, like with smart meters.
There could be a specific location in each town, that has 5G. This would be healthier, safer, and cheaper than making it ubiquitous. It would accomplish the economic goal of universal access, without constantly involuntarily exposing everyone to the signal 24/7 and without further facilitating cell phone use while driving cars.

--
Heidi Henkel 802-490-8190
Other email: heidikhenkel@yahoo.com

Broadband VT

Tuesday, May 26, 2020 10:57 AM

Subject	**Broadband VT**
From	Daniel James
To	PSD - Telecom
Sent	Monday, May 25, 2020 8:04 AM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Hello,
Many Vermonters have legitimate concerns regarding the safety of wireless technologies. The small cells that are required for 5g deployment emit Radiofrequency, a known carcinogen. Unlike my router at home, these cannot be turned off at will. Please consider that many Vermonters who want high speed internet have little understanding of this technology. However, if given adequate information they would opt for the safer Fibre to the Premises option.

We do not want 5g small cells in our communities. Please take this into consideration as you develop strategies for broadband in Vermont.

Thanks, Dan Harding Sent from my iPhone

5 G comment

Tuesday, May 26, 2020 10:57 AM

Subject	**5 G comment**
From	Davis and Gretchen .
To	PSD - Telecom
Sent	Monday, May 25, 2020 9:06 AM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

I am writing to ask that we put a moratorium on 5G and instead focus on all telecommunications providers putting fiber to Vermonters as opposed to focusing on wireless. I do not want to be harmed by RF radiation , especially when fiber optics are a safer for humans and our world and available.

Thanks you, gretchen gould

Emergency Broadband Action Plan

Tuesday, May 26, 2020 10:57 AM

Subject	**Emergency Broadband Action Plan**
From	Deb Moore
To	PSD - Telecom
Sent	Monday, May 25, 2020 10:47 AM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

To: Dept. of Public Service, Legislators, and Other decision-makers regarding broadband planning

Re: Emergency Broadband Action Plan From: Deborah E. Moore, PhD

Date: May 24, 2020

The Emergency Broadband Action Plan lays out needs, goals, and options, with an underlying subtext that presumes that the general public in Vermont wants, demands, and expects more accessible and increased wireless service throughout the state. The problem with this presumption is that it is just that, a presumption. I don't recall being asked if this is what I want, and I don't know anyone else who was asked their opinion on this matter, ahead of this request for comments on this Plan.

While I rely heavily each day on internet access, my computer is Ethernet wired, my phone is a land line, and I have no smart phone. This is all by choice. I am one of many Vermonters who do NOT want to see increased wireless services. More and better internet access, yes. More wireless, no.

Clearly, Fiber to the Home/Premise already is used and known to have the fastest speeds and clearest reception. In the words of your Plan, it "is widely considered to be future proof". It is SAFE, secure, resilient, and it is a known quantity. 4G wireless, which is already in use, is NOT safe, with radiation that has been making many people ill, but is already delivering what most people need for wireless use. 5G wireless radiofrequency/microwave radiation, orders of magnitude more intense than 4G, has been proven hazardous by approximately 25,000 independent, peer-reviewed scientific studies of RF/MW radiation bio-effects, but has escaped public scrutiny thanks to FCC "guidelines", which are now 24 years outdated, a situation that is obviously pro-industry all the way. And 5G wireless applied to populations is an unknown, making this a grand experiment on a large scale, world-wide. **Why would State agencies and legislators simply accept industry's word that 5G is "where it's at", end of story?**

The only reason you have not heard from many more citizens about this issue, is that 5G

rollout has been up until now conducted stealthily, without public input or any substantive discussion. People, including legislators and public servants, are simply uninformed. **Why would anyone want to inflict a known neurotoxicant, carcinogen, cardiovascular threat, immunosuppressant, etc. on a general population, including themselves?** Where is the backbone in State government that would at least invoke the precautionary principle WHILE more REAL study goes into this decision?

Please do your homework. There are plenty of good, scientific sources out there that can lead you to primary studies, if that is what you wish. I have suggested a few below for a start. **This plan for Vermont should be a long-range plan that should be extremely well vetted, and putting resources forward that will ensure a safe, privacy-secure, resilient, and environmentally intelligent option that will be around for a long time.** Vermont already has a good start on this project, with EC Fiber and other companies employing Fiber-to-the-Premises efforts. Please just help complete this project, rather than taking the 5G road that is fraught with corruption, potential health and environmental dangers, and a very uncertain future.

I do not consent to the development of 5G in this state. I do consent to the development of fiber optics to all premises.

Thank you for your consideration of my comments. Sincerely yours,

Deborah E. Moore, PhD Rochester, VT

Suggested references for a start:

REFERENCES:

1 https://www.5gspaceappeal.org/the-appeal
2 https://zero5g.com/
3 https://ehtrust.org/science/electromagnetic-sensitivity/
4 https://ehtrust.org/key-issues/cell-phoneswireless/5g-internet-everything/20-quick-facts-what-you-need-to-know-about- 5g- wireless-and-small-cells/
5 https://www.5gappeal.eu/
6 https://the5gsummit.com/
7 http://scientists4wiredtech.com/what-are-4g-5g/cell-tower-installation-plans-lower-property-values/
8 http://www.greenmedinfo.com/blog/20000-satellites-5g- be-launched-sending-focused-beams-intense-microwave-radiation
9 https://whatis5g.info/ethics/
10 https://www.irregulators.net
11 https://www.smart-safe.com/blogs/news/5g-class-action-lawsuit-filed-against-the-fcc-by-municipalities-across-the-usa

Need more public input

Tuesday, May 26, 2020 10:57 AM

Subject	**Need more public input**
From	m. underwood
To	PSD - Telecom
Sent	Monday, May 25, 2020 10:57 AM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Dear PSD: I'm concerned about the plans to use emergency funding for 5G to build out internet access throughout Vermont. It is my hope that public information sessions throughout the state (via Zoom) and a concerted effort to get informed public feedback be part of the development of the plan. It is my understanding that providing fibre to the premises (FTTP):

1. is safer (it does not emit radio frequency radiation which is harmful);
2. is more reliable in the mountains of Vermont;
3. is at least 100 times faster and is more secure than wireless;
4. is a better protector of privacy;
5. does not need constant upgrading;
6. does not use 10 times the energy or carve a much larger carbon footprint.

I want a chance to say that not everyone prefers wireless access and to ask that we do this thoughtfully, with the future in mind, rather than quickly. I ask that you seek significant, versus accidental (which is how I found out today), input from those of us directly affected, which is all of us. Thank you for your consideration. Melinda Underwood
Saxtons River, VT

5G

Tuesday, May 26, 2020 10:58 AM

Subject	**5G**
From	Elizabeth Vitale
To	PSD - Telecom
Sent	Monday, May 25, 2020 11:01 AM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Hi,

As a Vermonter living in Cabot I was recently informed of the intention to bring 5G to my area. I want to let you know that I am NOT in favor of this wireless option. I would much prefer cable connectivity if it is needed at all. Wireless technology is harmful to the environment and our health and I do not want it here.

Thank you for your consideration. Sincerely,

Elizabeth Vitale

Comments on Emergency Broadband Action Plan

Tuesday, May 26, 2020 10:58 AM

Subject	**Comments on Emergency Broadband Action Plan**
From	Carrie Barker
To	PSD - Telecom
Sent	Monday, May 25, 2020 11:09 AM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

To whom it may concern,

I am deeply concerned about the Emergency Broadband Action Plan. In it, it discusses that the long-term plan for Vermont is to roll out 5G. While there are a lot of things that can be said and debated about in the controversy surrounding 5G, I would like to simply propose this:

The future of Vermont is not 5G. What if we hold out? What if we don't invest our billions in something that will cause more people to move away? Imagine Vermont advertising to potential new residents and tourists as being a 5G FREE ZONE.

Irregardless of if you believe or don't believe that 5G poses a risk to human and environmental health, the question of if it has already been established in the public mind. Instead, imagine this: Vermont becoming a refuge from 5G. Imagine, as 5G rolls out across the US, if Vermont *did* have high speed internet throughout its state, but instead of using questionable technology, we chose a different path- fiber optic wired internet.

As billionaires continue to buy land and bunkers in New Zeeland, one of three countries that have banned 5G, we have a choice- not just to protect Vermonters and our environment, but to be innovative and smart. We can opt out of the short sightedness that installing mini cell towers all across this mountainous, cold and rural state and the infrastructural/financial headache that would be inflicted on residents for generations to come. We can be creative and we have an opportunity here to really stand out from states like California, Colorado, and Washington, states that Vermont loses many of its residents to.

Vermont has a chance to stand out once again as a good place to raise a family- the very demographic that Vermont needs. Please consider an innovative path forward for generations to come.

Sincerely,

Carrie Barker of Coventry, VT

Emergency Broadband Action Plan

Tuesday, May 26, 2020 10:58 AM

Subject	**Emergency Broadband Action Plan**
From	daniel smith
To	PSD - Telecom
Sent	Monday, May 25, 2020 11:23 AM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

To Whom It May Concern:

I am a 5th generation Vermonter and have lived in VT my whole life. I am an organic farmer and largely live off the land. I do not own a smart phone and have no plans to get one. I have a land line and use the internet rarely.

The last thing I would want is to know that a 5G network was growing throughout Vermont. 5G is an unknown new thing, is pushed by industries, not customers, and is potentially extremely dangerous. I understand that fiber optics cables that go directly into the home are safe in many ways, and are already safely doing what they are meant to do, which is bringing the fastest internet to users.

Please be sensible and at least look deeply into ALL sides of this, not just taking industry's word
on any aspect of this new 5G technology. Thank you for reading this comment.

Sincerely,

Daniel S. Smith Sr.

Athens, VT

response to 5g towers

Tuesday, May 26, 2020 10:58 AM

Subject	**response to 5g towers**
From	getmusic @sover.net
To	PSD - Telecom
Sent	Monday, May 25, 2020 11:34 AM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Fiber optics instead of huge ostentatious harmful towers would afford all of Vermont residents more reliable stable

broadband access rather than selective access through towers. Invest in the future and not just the short term.

Pls. "wire to premises" and "fibre-optic" in place of ANY 5G projects

Tuesday, May 26, 2020 10:59 AM

Subject	**Pls. "wire to premises" and "fibre-optic" in place of ANY 5G projects**
From	Nancy Crompton
To	PSD - Telecom
Sent	Monday, May 25, 2020 11:44 AM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Please consider "wire to premises" and "fiber-optic" and "fibre to the premises (FTTP)" to SAFELY ad more effectively extend Internet access to the state of Vermont.

Wireless tech is a poor choice for Vermont's technology. The effects on the human are not well enough studied.

Fibre optics are a safe, effective, powerful choice---100 times faster and more reliable than wireless, and no radio frequency radiation! It's a win-win, why is anyone even considering dangerous, unknown, expensive 5G tech? Do we really want driverless cars? Do we really want refrigerators bossing us around?

Not everyone wants wireless. Count me on the side of caution, of reasonable alternatives, and on equal and equally safe connectivity for all Vermonters.

Best regards, Nancy

Word Craft • 87 Bonnyvale Road Brattleboro, VT 05301 • 802-490-2213

Vermont citizen Dr. Rob Williams: INPUT on Vermont's Emergency Broadband Action Plan

Tuesday, May 26, 2020 10:59 AM

Subject	**Vermont citizen Dr. Rob Williams: INPUT on Vermont's Emergency Broadband Action Plan**
From	Rob Williams
To	PSD - Telecom; Rob Williams
Cc	Maxine Grad; Kari Dolan
Sent	Monday, May 25, 2020 11:50 AM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Green mountain greetings, public servants!

Dr. Rob Williams in the town of Waitsfield here.

I am writing to weigh in on public comment re: the proposed Emergency Broadband Action Plan for Vermont.

As a newspaper publisher, environmental historian, and professor of media and communication at the University of Vermont, I have studied the political economy of telecommunications and the pros and cons of 5G telecommunications networks for many years.

I enthusiastically support the deployment of a MORE SAFE, 100 times FASTER, and much more effective and resilient fiber "wired to the premises" telecommunications network for Vermont

I deeply oppose the current thinking re: the deployment of a 5G wifi telecommunications option, which is LESS safe, slower, less effective and much less resilient given the challenges of wiring together our beautiful mountains, river valleys, and the realities of extreme weather much of the year.

As you know, the US telecommunications industry and their well funded lobbyists are taking full advantage of this COVID moment to aggressively push for the latter, which is both inferior technologically and the much less safe option re: Vermont public health and wellness.

Please make the right choice, and bring Vermont into the 21st century by deploying a FIBER-driven statewide network: faster, safer, more effective, and more resilient.

Vermont's collective health, economic vitality, and communications future are all depending on you.

Most sincerely, Rob Williams, Ph.D.

Waitsfield, Vermont contact@doctorrobwilliams.com # 802.279.3364

Emergency Broadband Action Plan comment

Tuesday, May 26, 2020 10:59 AM

Subject	**Emergency Broadband Action Plan comment**
From	Barbara Halada
To	PSD - Telecom; Elizabeth Vitale
Sent	Monday, May 25, 2020 11:54 AM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

As a Vermont taxpayer and voter, I would greatly prefer the use of fibre optic cable over 5G and wireless. I don't feel the safety of 5G is adequately proven. Consider, for example, the FDA's online statement. (https://www.fda.gov/radiation-emitting-products/cell-phones/scientific-evidence-cell-phone-safety). Two items caught my attention. First, The FDA's dismissal of *in vivo* animal studies is based on a list of deficiencies- yet, though this may cast doubt on the results found, neither does it prove the system's safety. If I designed a study to show that mice perished underwater because of lack of oxygen, yet were guilty of one of their deficiencies, would that prove aquariums of submarine mice were viable? Second, they condemn the 2018 study by the National Toxicology Program, principally because they felt that the rats involved had too high an exposure, a level unrealistic for human cell phone users. Yet what would be the exposure of a Vermonter living or working too close to a 5G relay or transmitter, in effect being exposed to the radiation of everybody's cell phone and smart
device? Unless the 5G wireless genie can be proven safe, why bother letting it out of the bottle, when safer alternatives are available?

Fibre optic systems, on the other hand safely avoid any possibility of harm. If damage to humans, wildlife, farmland, or forest is eventually traced to wireless "profitable mischief", the legal, medical and replacement costs would be catastrophic. Why not do it right the first time?

Richard Halada

no 5G rollout!

Tuesday, May 26, 2020 10:59 AM

Subject	**no 5G rollout!**
From	sarah augeri
To	PSD - Telecom
Sent	Monday, May 25, 2020 12:07 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Hello,

I am writing to express my deep concern about the 5G rollout in Vermont. Let me make it clear that I am a Vermonter who does not want 5G. I also know many, many other Vermonters who do not want 5G. The repetitive refrain that “everyone wants 5G” is a false one. No one in my community that I speak with thinks it is a good idea. I am also concerned about the lack of information that has been provided to the Vermont public. I feel like there is a huge lack of transparency when it comes to 5G and the health and environmental impacts. Why has the public not been included more in these major infrastructure decisions? Despite the current situation due to Covid-19, this is not the time to make fast, dangerous decisions about technology.

My main concern surrounding 5G is the chronic exposure to RF that have been proven to be incredibly detrimental to our health. There is no question that the installation of 5G would be harmful to Vermonters. I am also worried about the environmental impact.

The best option for reliable and **safe** internet is wired fiber optic. This is where Vermont should be investing funds.

Please ensure the health and safety of Vermont and Vermonters by stopping this plan to blindly roll out 5G infrastructure.

Thank you, Sarah Augeri

Walden, Vermont

emergency broadband action plan

Tuesday, May 26, 2020 11:00 AM

Subject	**emergency broadband action plan**
From	kim sullivan
To	PSD - Telecom
Sent	Monday, May 25, 2020 12:08 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

ABSOLUTELY NOT.

I want NOTHING to do with 5G.
I choose to live in a rural area of Vermont for good reason, I had to fight for my right to refuse a smart meter on my home when they were first being forced on us, and I will fight NOT to be exposed to a wide swath of connectivity disguised as a progressive step in communication. In my humble opinion, NO ONE needs that much communication. And if they believe they do, please, stay in NYC.

Vermont is still mostly, blessedly unspoiled and a refuge of solace and immersion in nature that needs to remain as such for those of us (large in number) seeking to maintain a life free of toxicity and constant stimulation.

What is the point? WHO is driving it? Who makes a profit?

Leave Vermont alone. If the internet is not fast enough or available enough for you, then this is not where you should be.

With my strongest intent to keep it out, Kim Foltz

Sent from my iPhone

URGENT

Tuesday, May 26, 2020 11:00 AM

Subject	**URGENT**
From	Luz Elena Morey
To	PSD - Telecom
Sent	Monday, May 25, 2020 12:15 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

To whom it may concern at the Vermont Department of Public Service I DO NOT WANT 5G or WIRELESS TECHNOLOGY. It is DANGEROUS!**

Please do NOT roll out 5G in Vermont if you actually care about people, animals and nature. There is an ABUNDANCE of information proving the perils of 5G.** For LONG TERM benefit, please build a statewide fiber optic cable network and REQUIRE all telecommunications providers to provide fibre to the premises (FTTP) that can connect to wireline equipment in the premises. It is IMPERATIVE TO NOT - REPEAT NOT - replace existing wired telephone and Internet services with wireless. **Wireless technology is a poor investment for mountainous Vermont.**

Connectivity, with wires and in particular fibre optic cable (fibre), is the best means to help all people have access to the internet. Please note: - fibre does not emit radio frequency (RF) radiation that is harmful

- fibre is at least 100 times faster, more reliable, secure and resilient (Wireless cell networks are constantly upgraded whereas cable or fibre is laid once)
- fibre is far more protective of privacy than wireless connectivity
- wireless technologies have a much larger carbon footprint than wired technologies, relying on rare minerals
- the Institute of Electrical ad Electronics Engineers (IEEE) published that, "Wireless technologies will continue to consume at least 10 times more power than wired technologies"

All over the world and DEFINITELY in VERMONT there is a growing number of people who DO NOT WANT 5G or wireless!!!!!!!!!

** Here are but a few links to information about the hazards of 5G: Article by Joel M. Moskowitz, PhD, director of the Center for Family and Community Health in the School of Public Health at the University of California, Berkeley:
https://blogs.scientificamerican.com/observations/we-have-no-reason-to-believe-5g-is-safe/
The Bioinitiative Report: https://bioinitiative.org/ Information from Dr Barry Trower, former UK Royal Navy microwave weapons expert, who lectures globally about the dangers of microwave technologies – wifi, cell phones, cell towers, smart meters, baby monitors, and now 5G https://www.youtube.com/watch?v=k3QeSOU8qC0&t=7s

Luz Elena Morey, MA, RDT

Emergency Broadband Action Plan

Tuesday, May 26, 2020 11:00 AM

Subject	**Emergency Broadband Action Plan**
From	Tyler Buswell
To	PSD - Telecom
Sent	Monday, May 25, 2020 12:19 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

This e-mail is to object to the the recent industry push to use emergency funding to roll out 5G wireless technology in some parts of Vermont under the Emergency Broadband Action Plan. This effort is shortsighted and will primarily benefit big brother and big industry while polluting our downtowns and landscapes with unnecessary additional radio frequencies.

The marketing from the telecommunications industry has told us that "people want 5G because we can send data faster, and we will all be more connected." This is horse shit. I visit peoples houses everyday for work in Central and Northern Vermont and I have never once heard anyone complain about the speed of sending a text message or video to another person. I actually hear more concern about 5G being untested and potentially harmful. I have never met a single Vermonter who expressed any interest in 5G or expressed any notion that it would somehow make their lives easier. From everything that I have read about 5G, including copious amounts of white paper from the telecommunications industry itself, the push to expand to 5G is primarily going to benefit the private telecommunications industry, federal governments, and the military, as the primary achievement of 5G will be creating almost real-time interactions between users and machines, meaning a person operating a drone on the other side of the world will be able to send commands and receive data from that drone in like-real-time. **The perceived benefit to a normal person using social media or e-mail will be literally imperceptible as the difference the speed between 4G and 5G is literally in milliseconds.**

Surely this will not be the only e-mail you receive objecting to this ridiculous use of taxpayer dollars. Let this e-mail go to show that we are watching, not with our drones, but with our eyes and our hearts, and we see the state subordinating itself to private industry at our expense. We see the hyperbole and the lies and the misuse of taxpayer dollars and the state ignoring repeated requests for high speed fiber.

How about instead of 5G for private industry, we start with safe fiber optics for everyone, now there's a cause we can all get behind.

Sincerely, Tyler Buswell Wheelock, VT 802 355 0520

comment on Emergency Broadband Action Plan

Tuesday, May 26, 2020 11:00 AM

Subject	**comment on Emergency Broadband Action Plan**
From	Steven Gorelick
To	PSD - Telecom
Sent	Monday, May 25, 2020 12:37 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

To the DPS:

Having read your department's Emergency Broadband Action Plan, I have a few comments:

1) One of the assumptions underlying the Plan is that, in addition to the emergency services it can provide, broadband "is also key to a vibrant economy." This unthinkingly recycles the self-promoting pablum that high-tech industries have peddled for decades. The truth, as always, is more nuanced: greater broadband access will benefit some businesses, but will harm other businesses. One can't possibly argue that access to the internet has helped Vermont's bookstores, movie theaters, department stores, mom and pop general stores or video rental businesses (the last of these no longer even exist in Vermont, thanks to the internet.) Even if all of those kinds of businesses are able to "reach customers" more easily online, the net effect has been to transfer wealth from small locally-owned businesses to Amazon, Netflix, Hulu, Google, Facebook et al. The 'vibrant economy' you refer to is happening in Silicon Valley, not Vermont. To the extent that Vermont tech businesses are thriving, those are primarily concentrated in Chittenden County, while the economic costs are being felt across the state and especially in more rural areas.

2) A subset of the "vibrant economy" assumption is that universal broadband will enable people to work from home even in the most rural reaches of the state. It's far-fetched to think that today's logger or small farmer in the Northeast Kingdom will be tomorrow's web designer or social media 'influencer'. Far more likely is that universal broadband will attract out-of-state high-tech workers to rural parts of the state, driving up housing prices – and driving out those loggers, small farmers, and their children. Lots of new people working from home via the internet may sound good for the tax base, but it's really just another term for rural gentrification. It would also drive suburbanization: how does
this square with another Vermont policy goal, which is to concentrate economic activity in "smart towns and cities", not in sprawling suburbs?

3) The economic downside is not the only cost of universal broadband your Plan fails to acknowledge. It's as though DPS believes internet access will be used only for telemedicine, distance learning, and job-creation. If internet use everywhere else is any guide, I suspect that before (and presumbably after) the Covid-19 emergency, Vermonters use the internet far more for shopping (damaging local businesses, as noted above), playing video games, viewing pornography, and gambling. These are the most lucrative businesses on the internet, and the hundreds of billions of dollars spent on them — not to mention the hours devoted to them — are signs of addiction. Numerous studies have shown that the brain chemistry in children addicted to their devices differs from that of normal children (though how many 'normal' children there will be once they all have 24/7 access to the
internet is an open question.) It has been revealed recently by key Silicon Valley executives that

internet platforms are *intentionally* designed to be addictive — which is why so many of them tech insiders send their children to screen-free private schools. Sean Parker, former President of Facebook, now
acknowledges that the guiding principal in the design of Facebook was “to consume as much of people’s time and attention as possible.” He also says, “God knows what this is doing to our children.”
4) With few exceptions, every home and business in Vermont is already connected to a copper phone line, which can also be used for DSL internet access. I use the internet regularly for work — teleconferencing, uploading and downloading large files, etc. — and DSL via the phone line is more than
adequate for my needs. It is also more than sufficient for my needs at home — perhaps because I have no interest in hooking my refrigerator to the internet to tell me when I’m getting low on orange juice, or any of the other “benefits” supposedly brought to the world by the internet of things. I suspect most people don’t “need” them either, aside from responding to the constant barrage of advertising telling
them that they’ll be left behind — economically and socially — if they don’t jump on board.
5) If higher speeds are needed than copper-line DSL can provide, the only safe option is fiber optic, which should go all the way to the premises. I am vehemently against using the cheaper expedient of 5G wireless. No studies have been done on the safety of this technology. Instead, the FCC is relying on decades-old studies of very different EMR frequencies and wavelengths — studies that were themselves flawed by, for example, the assumption that physical heating by radiation was the only way cells could be harmed. Aside from potential risks to human health, it is likely that existing EMR — from cell towers in particular — are already having an adverse impact on wildlife, especially insects and birds. There is no good reason to add to that damage with an unncecessary technology. If fiber to the premises is more expensive, think of it as the cost of applying the precautionary principle to this untested
technology. Compared to the damage this technology might do, any added cost is a real bargain.

Steven Gorelick 349 Keene Rd.
East Hardwick, VT 05836

response to the draft Emergency Broadband Action Plan

Tuesday, May 26, 2020 11:00 AM

Subject	**response to the draft Emergency Broadband Action Plan**
From	Jeff Euber
To	PSD - Telecom
Sent	Monday, May 25, 2020 12:48 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

I am writing to offer my comments as a Vermont citizen on the proposed Emergency Broadband Action Plan draft document.

While I fully support fiber-to-the-premises wherever possible, I have strong reservations about 5G deployment. My reasons are grouped below according to topic:

Health

5G rollout in the near future would essentially amount to a vast public health experiment. Commissioner Levine's January 1 report on RFR health consequences stated, "Importantly, the body of evidence regarding the health effects of RFR from 5G technologies is limited, and in order to fully understand the potential health effects, additional research is needed." Therefore, logic dictates that no 5G rollout proceeds until such research fully satisfies public questions regarding 5G safety. Please keep in mind the first point of the 1949 Nuremberg Code on human experimentation: "The voluntary consent of the human subject is absolutely essential."

Ample precedent exists to take actions ensuring public safety regarding 5G. U.S. Senator Tim Blumenthal questioned 5G safety in February of last year. Easton, CT became the first town in that state to ban the rollout of 5G pending further safety studies. Numerous states are moving on legislation to protect their citizens. Over 230 scientists from more than 40 countries have expressed their “serious concerns” regarding the ubiquitous and increasing exposure to EMF generated by electric and wireless devices— already *before* the additional 5G roll-out.

For an overview of 5G safety issues, please read a sobering article, "We Have No Reason to Believe 5G Is Safe," which appeared in *Scientific American* on October 17, written by Joel M. Moskowitz, PhD, director of the Center for Family and Community Health in the School of Public Health at the University of California.

Cost

Deploying 5G in areas already covered by fiber is redundant and makes no sense from a budget perspective. For those areas not yet covered, the temptation to deploy wireless instead of fiber would ultimately prove an inferior investment. In a report, "Re-Inventing Wires: The Future of Landlines and Networks" by the National Institute for Science, Law & Public Policy, author Timothy Schoechle, PhD, states,

"The public needs publicly-owned and controlled wired infrastructure that is inherently more future-proof, more reliable, more sustainable, more energy efficient, safer, and more essential to many other

services. Wireless networks and services, compared to wired access, are inherently more complex, more costly, more unstable (subject to frequent revision and "upgrades"), and more constrained in what they can deliver."

Quality

As a consumer, it is obvious to me that the quality of wired service crushes that of wireless. In Zoom meetings, my co-workers' faces freeze up constantly, but mine doesn't via my wired connection. Fiber is a mature technology with vastly more capability than wireless—fiber-optic cables have been proven to carry over a *terabit* of data per second, a rate wireless cannot touch. Instead of saying, in the draft plan, "It is not unreasonable to assume that wireless technology will be able to meet [wired] standards in the near future," why not double down on proven fiber-optic technology? It has been achieved elsewhere; Chattanooga, TN and Longmont, CO have both successfully built out broadband fiber networks.
Longmont has the fastest service in the nation.

Finally . . .

Public health is my biggest concern with this issue, and I believe the precautionary principle should be your guiding light. The list of "presumed safe" products let loose on the market—later proven unsafe after causing harm—is considerable: cigarettes, DDT, pesticides, lead paint, asbestos, to name a few. Wireless technology, and 5G in particular, already has enough evidence against it to suggest it will also eventually join this list—unless those who make the laws demonstrate some wisdom and caution in their decision-making. Please exercise your ability to do so.

Vermont has a history of doing things in an independent way. We don't need to simply fall in line with the wireless industry's one-size-fits-all approach to connectivity. We can do it differently and do it better. Thank you.

Sincerely,

Jeff Euber Montpelier

wired connection for Vermont

Tuesday, May 26, 2020 11:00 AM

Subject	**wired connection for Vermont**
From	S. Peck
To	PSD - Telecom
Sent	Monday, May 25, 2020 2:24 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Dear members of Vermont's Emergency Broadband Action Plan,
We do not want wireless 5G in Vermont. Instead we would like to see a statewide fiber optic cable network.
We believe that a fiber optic plan would provide more long term benefits for a mountainous state like Vermont. Fibre does not emit radio frequency (RF) radiation that is harmful. Fiber optic is at least 100 times faster, more reliable, secure and resilient than Wireless cell networks (the Wireless networks are constantly upgraded whereas cable or fibre is laid once). Fiber is far more protective of privacy than wireless connectivity. Wireless technologies also have a much larger carbon footprint than
wired technologies and rely on rare minerals.
Many, many Vermonters feel strongly about this issue and do not want to see 5G in Vermont. We feel that any funding that comes to Vermont should go toward the long-term benefit of a stable safe statewide fiber optic network.

Thank you for your hard work on this important issue. Sarah M. Peck
John T. Beagan Jamaica, VT

Emergency broadband action plan comments

Tuesday, May 26, 2020 11:01 AM

Subject	**Emergency broadband action plan comments**
From	Joel Eisenkramer
To	PSD - Telecom
Sent	Monday, May 25, 2020 2:23 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

To whom it may concern,

Please note my comments on the Emergency Broadband Action Plan.

1. I am not interested in 5G. My neighbors, my parents and the vast majority of those that I interact with in our community have no use and no desire for 5G connectivity. We have plenty of bandwidth to do everything that we need to on the internet. That includes streaming movies and music and working from home.
2. Any broadband plan for Vermont should be based on a fiber optic, wired network. Not wireless. Vermont is a mountainous region where cellular signals are inherently unreliable. The solution is not to increase the number of transmitters but to provide real, wired fiber optic infrastructure.
3. Vermonters should continue to have a say on future connectivity rollouts. Thank you for accepting public comments. In the future, please publicize this more.

Regards,

--

Joel Eisenkramer Property Management 802-275-2044

Comments on the Emergency Action Broadband Plan

Tuesday, May 26, 2020 11:01 AM

Subject	**Comments on the Emergency Action Broadband Plan**
From	Elizabeth White Kroll
To	PSD - Telecom
Sent	Monday, May 25, 2020 3:01 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

I am a resident of Brattleboro and would like to comment on this plan. Yes, I am in favor of expanding access to the internet -- but through FTTP (wired) service, rather than through wireless connection (such as 5G).

For several reasons, I feel that Vermont should not replace wired phone and internet access with 5G or other wireless connection means. New access is better accomplished through FTTP means, as well. Vermont is a rural and mountainous state. Not only is wired connectivity using fiber optic cable safer for Vermonters' health – since it doesn't emit RF radiation – but it also protects privacy and is more reliable, stable, and secure. With wired connection, users are not abruptly "dropped," as often happens with wireless service. In addition, wired connection protects privacy and has a lower carbon footprint than does wireless connection.

As a forward-looking leader in clean energy and sustainability, Vermont should expand internet and phone access by focusing on FTTP connection, so that Vermonters of all regions can securely, reliably, and safely connect to the internet for home, work, educational, and medical use and access.
Thank you very much.
Elizabeth Kroll

5G OPPOSITION

Tuesday, May 26, 2020 11:01 AM

Subject	**5G OPPOSITION**
From	Judy Wood
To	PSD - Telecom; emfsafetyforvermont@gmail.com
Sent	Monday, May 25, 2020 3:37 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

The scientific community has proven there are serious dangers inherent in 5G - and they have also soundly theorized others. Ergo, I AM STRONGLY OPPOSED TO 5Ging VERMONT - not to mention the rest of our precious planet!

Judy Wood

Granville, VT

Comment Regarding Vermont's Emergency Broadband Action Plan

Tuesday, May 26, 2020 11:06 AM

Subject	**Comment Regarding Vermont's Emergency Broadband Action Plan**
From	Martine Victor
To	PSD - Telecom
Sent	Monday, May 25, 2020 4:10 PM

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Comment Regarding Vermont's Emergency Broadband Action Plan

Fast internet access for all is a necessity in today's world.
The current pandemic crisis has highlighted areas of vulnerability in our state due to inadequate internet coverage.
That said, we now have a golden opportunity to revise Vermont's broadband buildout by using the most efficient and safest means at our disposal; a statewide fiberoptic cable network with fiber to the premises (FTTP).
Vermont's own Emergency Broadband Action Plan champions the need to extend existing cable
lines.
"There are thousands of underserved Vermonters who live within a mile of existing cable lines that could be extended to provide broadband service at 25/3 Mbps, which meets the federal law definition of broadband service. A fund could be created to defray the consumer portion of the line-extension cost to expedite the expansion of advanced telecommunications. Such line- extension subsidies would be an effective way to quickly reach students, patients, and workers with broadband access who are living through the COVID-19 emergency without the internet at home."(pg 18)
An article in todays WSJ crystalizes the problem many states face; namely how best to identify underserved areas and deploy resources to achieve optimal broadband coverage.
In $16 Billion Push to Expand Broadband, America Is Flying Through a Fog - WSJ 5/25/20
https://www.wsj.com/articles/in-16-billion-push-to-expand-broadband-america-is-flying-through- a-fog-11590399000
One customer's dilemma illustrates a widespread problem found in rural states like Vermont. Wireless service carriers claim to provide coverage in a given area, but many residents are not receiving it. Fiberoptic cable would better serve those residents but wireless carriers want to preserve their turf and customers lose out.
Whereas Vermont's mountainous terrain and heavy foliage is inimical to wireless, fiberoptic cable is superior by every metric; faster speeds, unlimited bandwidth, better reliability and security, and no radio frequency radiation (RFR) emissions, a known health

hazard.
Now is the time to determine what constitutes our safest, most reliable course of action. And it is not investing in more wireless, especially 5G.
Untested for safety and antithetical to Vermont's core credo in valuing individual privacy, adopting 5G would mean caving to the worst excesses of data mining and privacy infringement. There's a reason the US government declined Huawei's 5G technology, now the cornerstone of China's massive surveillance system.
Telecom companies promote 5G with a false narrative, claiming the public is clamoring for super fast speeds and streaming capabilities.
They have sued each other over misleading advertising.
5G is not an extension of 3G and 4G, but uses higher, untested frequencies that require massive infrastructure density to work effectively. On top of existing wireless structures, it's a huge escalation in RFR exposure.
There are significant aesthetic issues in blanketing towns and villages with thousands of unsightly "cantennas" and other wireless detritus. Here again, fiberoptic cable proves superior. Cables are buried, unseen, never require foliage trimming, and emit no harmful RFR.

The current pandemic emergency and Federal broadband funding presents our state with a landmark opportunity to shift away from wireless and invest in a fiberoptic future. At this critical juncture, we need to place the safety and needs of all Vermonters first.
Martine Victor Manchester, VT

5G Safety Concerns

Tuesday, May 26, 2020 11:06 AM

Subject	**5G Safety Concerns**
From	James Mayer
To	PSD - Telecom
Sent	Monday, May 25, 2020 8:17 PM

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Hello Vermont representative!

I am a 24 year old who has just moved to Putney, VT with my partner and 6mo daughter. I am working on opening a small business in Brattleboro. I have heard that Vermont is thinking about quickly pushing 5G installation. I do not believe this is a good decision and it causes me concern. From personal experience, high levels of wireless and similar energy seems to have negative effects on my energy levels and sometimes cause me headaches. I have also read many materials that state that 5G has not been properly researched and much research shows that it has negative health effects for humans and other parts of the environment.

I think for the health and prosperity of Vermont as a state and its residents I hope that officials decide to proceed with high consciousness and caution with regards to 5G. I moved to Vermont to keep my self and my family healthy and abundant. I believe 5G may threaten that and would make Vermont less appealing to health-conscious young individuals like my self. I believe there are tested safer and more economical options, such as fiber.

Thank you for you time and consideration. Please proceed with caution. Well wishes to you!

James

Please no 5G for Vermont

Tuesday, May 26, 2020 11:06 AM

Subject	**Please no 5G for Vermont**
From	ENLIVEN
To	PSD - Telecom
Cc	emfsafetyforvermont@gmsil.com
Sent	Monday, May 25, 2020 8:34 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

To whom it may concern,
There are many reasons to reconsider bring 5G technology to Vermont. First, it is not practical for the landscape. Connecting through fiber makes much more logistic sense and is more ecologically sensible based on the materials used and the infrastructure required. Further, the health concerns around wireless technology are significant and rising and the majority of Vermonters would certainly choose
community health and environmental responsibility above “wireless for all”. We can work to bring fiber cable throughout Vermont so that we can all have access without the overbearing potential harm caused by 5G.
Please consider the future costs... it is too great to ignore. Thanks,
Christyn King, Cabot Vt

Comment on Emergency Broadband Action Plan

Tuesday, May 26, 2020 11:06 AM

Subject	**Comment on Emergency Broadband Action Plan**
From	Hannah Jackson
To	PSD - Telecom
Sent	Monday, May 25, 2020 9:53 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Dear Public Service Board,

I am writing to express my support for building out the statewide fiber optic cable network. Fiber optic networks are safer, faster, and more reliable. Additionally, fiber networks are more energy efficient than wireless networks, including 5G. Since Vermont has set a statewide goal to reduce greenhouse gas emissions by 75% by the year 2050, I feel it would be in the state's best interest to develop and support the fiber optics infrastructure since it would be the most energy efficient broadband option and more inline with the state's energy goals.

I am strongly opposed to the roll out of 5G. Let's keep Vermont healthy by keeping 5G out. I'll close my comment with a candid quote by Dr. Martin Pall PhD and Professor Emeritus of Biochemistry and Basic Medical Sciences at Washington State University:

"Putting in tens of millions of 5G antennae without a single biological test of safety has to to be about the stupidest idea anyone has had in the history of the world."

That about sums it up. Let's be smart about this folks. The states that roll out 5G are in for a rude awakening, and legal turmoil, when they start seeing the devastating effects the increased electrosmog environment has created in their local populations. Let's build out the fiber optics infrastructure so our state can stay healthy and green, and reap the long-term benefits of our efforts.

Thank you for your time.

Respectfully,

Hannah Jackson Colchester, VT

Comments - Emergency Broadband Action Plan

Tuesday, May 26, 2020 11:06 AM

Subject	**Comments - Emergency Broadband Action Plan**
From	Ahmad Abdel-Mawgood
To	PSD - Telecom
Sent	Monday, May 25, 2020 10:41 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

I am writing in support of providing broadband access to all Vermonters in all corners of our beautiful State. HOWEVER, I am also writing in absolute opposition to the use to 5G wireless technology.

As a Vermonter, I demand the right to not have my body constantly bombarded with dangerous high frequency waves. As a citizen of this great State, I have the right to not be subjected to these and other harmful radio waves.

There is a better way to state-wide broadband: Fibre! Fibre has many advantages including safety, speed and reliability. Keep VT 5G free! We just don't need it.

Sincerely,
Ahmad Abdel-Mawgood, Stowe

Public Comment on "Emergency" Broadband Action Plan

Tuesday, May 26, 2020 11:06 AM

Subject	**Public Comment on "Emergency" Broadband Action Plan**
From	Laurie Larson, Monica Brager
To	PSD - Telecom
Sent	Monday, May 25, 2020 10:53 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

H As a Health Care Advocate and
University Professor teaching about biosociopolitical issues for well over 2 decades, I see this push by corporations and individuals with many potential conflicts of interest to rush to implement a potentially dangerous technology that is labeled "smart" in industry propaganda, as misguided at best, and unethical at the core.
As other
states and countries have done, Vermont needs to put a moratorium on the rollout of 5G wireless technology and the Internet of Things (IOT), until adequate health and environmental assessments of these technologies are complete and there is scientific consensus on the public safety and ecological impacts of this technology. Yes, people are using the internet and computer communication at an unprecedented rate due to the COVID 19 pandemic, but that is a very poor reason (and frankly seems to be manipulating public vulnerability) to force one very flawed technology upon the public before considering how an alternative could be safer, longer-lasting, and not commit the environmental damage that so-called "smart" technology wreaks.
The sales
pitch is that the type of radiation that wireless transmitters emit, Radio Frequency (RF), is safe and benign, despite hundreds of peer-reviewed scientific publications describing biological effects and harms in humans, plants, laboratory animals and wildlife such as birds and pollinators,
(1, 2, 3, 4)
with exposure limits being based on the outdated premise that RF causes harm only at exposure levels that produce excessive heat.
Wireless
transmitters emit RF radiation, which is scientifically demonstrated to cause or contribute to numerous health effects
including cancers
,
(5, 6)
sperm damage,
(7)
other reproductive harms,
(8)
learning and memory deficits,
(9)
neurodegenerative, cellular and genetic damage.
(10, 11, 12)

A growing number of people also experience immediate and debilitating (but preventable) health problems such as headaches, irregular heartbeats, cognitive difficulties and insomnia, resulting in poor quality of life.
(13)
Scientists report environmental harms to birds, (14, 15)
pollinators,
(16)
trees (17)
and other species, (18,19)

however, there are no environmental guidelines for RF radiation.
Vermont policy should focus now on building out a statewide fiber optic cable network so that telecommunications providers can bring fibre to the premises (FTTP). Fibre does not emit RF radiation that is harmful; fibre is at least 100 times faster, more reliable, more secure and more sustainable and has a much smaller carbon footprint than wireless technologies. The Institute of Electrical and Electronics
Engineers (IEEE) published that "Wireless technologies will continue to consume at least 10 times more power than wired technologies."
I for one, do not want to see an expansion of wireless that will threaten health (particularly in this time of pandemic), the ecology and also be a key driver of climate change. The Public Service Board will do the public a huge disservice to race forward implementing 5G and the IOT without adequately performing environmental and health assessments, particularly when there is a more benign option available.
Thank you for your time and consideration of this comment. Laurie Larson
Burlington VT Partial Bibliography:
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EBAP Comments from Deerfield Valley CUD

Tuesday, May 26, 2020 11:07 AM

Subject	**EBAP Comments from Deerfield Valley CUD**
From	David Jones
To	PSD - Telecom
Cc	sandboxsovernet@gmail.com; Steven John; Fish, Robert; Jwhite@leg.state.vt.us; Becca Balint; bcampion@leg.state.vt.us; Richard Sears; Sara Coffey; Emilie Kornheiser; Mburke@leg.state.vt.us; Ttoleno@leg.state.vt.us; Cpartridge@leg.state.vt.us; Ktully@leg.state.vt.us; Nhashim@leg.state.vt.us; Mike Mrowicki; Emily Long; Gannon, J; Kpajala@leg.state.vt.us; Sibilia, L
Sent	Monday, May 25, 2020 11:46 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

The Deerfield Valley Communications Union District (DVCUD) greatly appreciates the intentions and actions of the Public Service Department to expedite the deployment of broadband throughout Vermont and to eliminate the digital divide between our city centers and rural towns.

The draft Emergency Action Plan (EBAP) includes several excellent ideas that we would like to further develop and amplify. It also contains proposals that, if enacted, would be counterproductive to Vermont's long term goals and must be avoided.

State Policy Goals

As stated in 30 V.S.A. § 202c, **Vermont's telecommunications policy goals include universal access to broadband technology that is capable of providing 100 Mbps symmetrical service by 2024.** The statute states clearly that strategies to achieve these goals should use the best commercially available technology (e.g., fiber) that is deployed on existing facilities (e.g., utility poles). In contrast, technology that may become outmoded in the medium term (e.g., DSL, cable, and fixed wireless) and newer, taller structures (e.g., wireless towers) should be avoided.

The only organizations that are both capable and willing to deploy fiber universally and cost-effectively to every home and business are Communications Union Districts (CUDs). **History and economic logic tell us that commercial entities will invest only in projects that can yield a high return on investment. In contrast, ECFiber has proven that Communications Union Districts (CUDs) can succeed in their public service mission of delivering universal 100 Mbps service to underserved rural areas at an affordable cost.** Following ECFiber's example, Central Vermont Fiber will soon begin construction in its area.
Legislation in 2019 that was designed to foster the growth and development of CUDs has succeeded in inspiring three additional CUDs to start up in 2020, including the DVCUD, and at least two other Districts are in the discussion stage.

EBAP Long Term Goal: Universal Broadband Deployment by 2024

We believe that all Vermont multi-year broadband deployment programs should focus on enabling

CUDs to deliver fiber optic broadband to every underserved home and business in Vermont.

The EBAP proposes up to $293 million of state funding to accomplish universal broadband deployment by 2024. The proposal to invest heavily is laudable but distributing the subsidies through a reverse auction would be wasteful and counterproductive.

It would be exceedingly difficult to coordinate a Vermont reverse auction with the FCC Rural Digital Opportunity Fund (RDOF) reverse auction that is scheduled for October of this year. The outcome of two uncoordinated auctions could be a patchwork of subsidized investments in limited areas and/or duplicative awards to competing providers in overlapping areas. If commercial providers win awards that support investments in some portions of CUD service areas, the remaining areas may not support a viable CUD business case. If two competing vendors receive uncoordinated subsidies for the same area, at least one of the vendors will fail to achieve the service obligations of its subsidy and one of the duplicative subsidies will be wasted.

Instead of conducting its own reverse auction, Vermont should adopt the policy goal of helping CUDs or CUD consortiums to win every available RDOF subsidy for their service areas and to prevent any commercial competitor from winning any subsidy in these areas. This can best be accomplished though targeted grant funding and letter of credit guarantees. **Vermont should also adopt the policy goal of enabling CUDs to fulfill the service obligations of the RDOF subsidies they win.** This can best be accomplished through block grants and targeted programs to expedite utility pole make-ready, develop the technical workforce, and pre-purchase fiber optic cable.

<u>Winning RDOF</u>

- The EBAP should include **grant funding to new CUDs for capacity building**, specifically for the legal assistance needed to form consortiums that will qualify to bid for RDOF subsidies. The consortium agreement(s) would need to articulate the roles and responsibilities of each member and the process for distributing RDOF subsidies between the members.

- The EBAP should also include **grant funding for economic consulting assistance** to the Vermont CUDs or utilities that are qualified to bid in the RDOF auction and have formed consortiums with the CUDs that are not qualified to bid. Consulting assistance is required to form a bidding strategy that will both maximize the amount of subsidies awarded to CUDs and minimize the amount awarded to commercial providers in CUD territories.

- The EBAP correctly includes funding for **letter of credit guarantees** that may be required by CUDs or CUD Consortiums that would qualify to bid but cannot obtain sufficient letter of credit guarantees from commercial banks.

- Reasoning:

- The RDOF auction will award up to $92.7 million of subsidies to winning bidders who promise to deliver broadband technology in some form to the underserved Vermont addresses identified by the FCC.

- If there is ANY bid for an RDOF subsidy in a census block group, a subsidy will be awarded. We must expect that land-based providers will bid for every census block group in which there is any hope of an acceptable return on subsidized investment. Land-based bidders could propose to invest in

inferior terrestrial technologies such as cable or wireless. If there are no such bidders, we must expect satellite providers such as Starlink and even HughesNet will bid for every census block group. If any commercial provider wins an RDOF subsidy to serve our CUD territories, CUDs will have no voice in what is built or how it is managed.

- The RDOF subsidies are a zero-sum game. If commercial bidders win RDOF subsidies for the areas in which they can gain an acceptable economic return on subsidized investment, the CUDs that could have served those areas cost-effectively will be unable to do so. Moreover, the remaining CUD service area will be the most difficult and expensive to build out relative to the subscriber revenue that can be
  obtained, reducing the viability of each CUD's business case.
- The key RDOF problem for Vermont is that no newly formed CUD is qualified to bid in the RDOF auction. Our new CUDs need to form one or more consortiums with qualified bidders. Qualified bidders could include ECFiber and/or one or more electric utilities.

- The second immediate RDOF problem to be solved is that first rate economic consulting assistance is necessary to form a winning bidding strategy. This assistance is expensive but essential. State policy should maximize the likelihood that consortiums that include CUDs will win the auction for their service areas. Subsidies for economic consulting assistance to CUD consortiums will support this goal.

Fulfilling RDOF Service Obligations

- CUD consortiums that win RDOF subsides must provide service to the subsidized number of locations within 6 years. The EBAP goal is to complete all work sooner, by 2024. To achieve the 2024 deadline, the plan should include **block grants to CUDs or CUD consortiums** to fund expedited investments in utility pole make-ready, network design and engineering, and construction.

- Block grants to CUDs or CUD consortiums will align state resources with state policy goals of deploying universal broadband through the governance structure of CUDs.

- Because CUDs and CUD consortiums are able to access the municipal bond market after several years of cash-flow positive operation, the block grants could be in the form of loans that are repaid in the medium term from the proceeds of municipal bond issuance.

- In addition, the EBAP should include **targeted investments in CUD capacity building, labor force development, utility make-ready actions, and bulk procurement of fiber optic materials**.

- The EBAP should include funding through Broadband Innovation Grants for fund-raising and administrative costs. Currently, BIG funding is limited to feasibility studies and business planning. There is no funding to do anything after the business plans are written, including work necessary to obtain matching funds for VEDA loans.

- The EBAP should include a commitment of workforce development funding to CCV and programs such as the HATC so that a sufficient workforce exists to perform pole data collection and make-ready, fiber construction, customer site installation, and maintenance and repair.

- The EBAP should include incentives to electric utilities to expand the number of employees or contractors to perform pole make-ready. The incentive amounts should be determined though a

formula that rewards a) higher numbers of poles for which rights-of-way are provided to CUDs and b) lower average elapsed time per pole.

- The EBAP should include funding for immediate purchases of fiber optic cable and electronics. We can expect lengthened lead times for these items as 49 other states and many commercial providers move to improve the broadband infrastructure in response to the Covid-19 emergency. Ordering our materials far in advance will help to limit construction delays.

EBAP Short Term Goals:

Any state program that helps cable, wireless, or DSL providers to increase their footprint and market share will be counter-productive to the long term goal of universal fiber connectivity. Therefore, the **EBAP should NOT include funding for cable line extensions or fast tracking of additional fixed wireless towers**.

The goal of providing immediate connectivity for distance learning and telemedicine by expanding the
footprint of suboptimal technologies would throw money at **expensive temporary solutions**. The scarce resources used to extend cable, wireless, or DSL technologies will not contribute to achieving Vermont's long term goals. In addition, expansions of suboptimal technology footprints **will likely reduce initial take rates in CUD areas, adding difficulty to each CUD's already difficult task** of earning enough revenue to pay back investment costs.

Facts on the ground in one Southern Vermont school system suggest there is no pressing need to expand the footprint of suboptimal technologies.

- In April, the Windham Southwest Supervisory Union surveyed faculty and families of students to determine how many would be unable to participate in distance learning due to poor internet service. For both faculty and student families, 20% were unable to participate, half because of low speed and half because of data caps. The total count of underserved faculty and student families was 80, spread out over 5 towns (Wilmington, Whitingham, Halifax, Readsboro, and Stamford) having a total of 5,041 inhabited buildings spread out over 293 highway miles. There is no way that any existing technology could be extended to reach the homes of all underserved teachers and students at any acceptable level of expense.

- A better use of resources in the short term would be to subsidize the use of school buildings as the distance learning locations for the 20% of teachers and students who cannot participate from home. If only 20% of the school population participated in distance learning programs at the school building rather than at home, social distancing and other safe practices could be observed. Subsidies might be needed to operate school facilities that would otherwise be closed and to transport students and teachers to and from home.

Conclusion

The Public Service Department is right to develop ideas for expediting delivery of broadband to all Vermont locations. The strategy of deploying fiber to the home through the governance structure of Communications Union Districts is demonstrably sound. The EBAP should support this strategy more directly than in the initial draft plan and should not support short term actions that are not cost-

effective and will make each CUD's task even more challenging.

The Deerfield Valley Communications Union District appreciates the opportunity to provide these comments and pledges to work cooperatively with the PSD, other CUDs, and electric utilities to serve our citizens effectively.

Respectfully submitted,

David Jones Clerk
Deerfield Valley Communications Union District

David W. Jones David@ConsultingInDetail.com Land: (802) 368-2217
Cell: (917) 538-4649

Public Statement about Wifi 5G safety

Tuesday, May 26, 2020 11:08 AM

Subject	**Public Statement about Wifi 5G safety**
From	jonplace
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 6:45 AM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

To whom it may concern,
As a resident, teacher, homeowner, taxpayer, and voter here in Vermont, and as a parent to two young children, I express deep concern over the implications of the 5G rollout, of which I do NOT provide my informed consent. I am very concerned about the negative health impact this technology and associated wireless technologies have on the environment, the human being, and all living beings due to EMF emmissions. In particular, I am very concerned to the lack of testing and safety data regarding 5G technology. I urge you to develop a plan that emphasizes the use of fibre-optic cable delivery and transmission of communication services. I am opposed to the use of 5G technology.

Thank you very much, Jonathan Place Proctor, Vermont

more comments for you about 5G

Tuesday, May 26, 2020 11:08 AM

Subject	**more comments for you about 5G**
From	Heidi Henkel
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 7:51 AM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

My grandmother died of lymphoma. Because of that, my mother learned a lot about what causes lymphoma. Pesticides and herbicides (like the popular one used on corn) are major causes. Another major cause is chronic exposure to certain kinds of radiation and electrical stuff. When I was looking for a house, my mother vetoed anything near a transformer or extra-high-power power line, and she made sure I opted out of a smart

meter, because those things contribute to cancer risk. There are lots of studies on cell phone use, done in Scandinavian countries, showing that they cause brain cancer. It's hard to imagine that 5G wouldn't be risky; we shouldn't make it ubiquitous when we haven't even tried it yet. That's stupid. We should start by trying it in a very small way, and see how that goes, before deciding whether to make it widespread. That is just common sense. The extent to which there's a lack of data about ill effects, is just because it hasn't been used much yet. That's not a green light of safety. Let's just use some common sense. Cancer isn't a mystery. It's caused by specific things. We need to be more mindful of what we're exposing each other to. If people want to make personal choices of risk, OK, but public choices where people are putting each other at risk or where public officials are putting the public at risk, is a different story. People should be able to opt out of anything with any lack of data on safety or any credible risk- either one.

The public internet availability effort should be focused on fiber-optic cable and satellite. 5G should be made an option in very small ways in very small areas, ONLY. People who want it at their residence should be able to get it, and it could be provided at one small location in each town, for example. It should not be made ubiquitous in Vermont. People should always, even 20 years from now, be able to opt to NOT be exposed to it where they live and sleep. There is usua
to be exposed to.

Fiber optic and satellite are great options. We don't need perfect cell service. People who really need perfect cell service can get satellite phones. People can also get pretty good cell service by using a phone that calls from wifi, like Republic Wireless. Perfect cell service is not worth potentially creating health risks, and it's certainly not any emergency. Making fiber optic cable an urgent priority for internet capacity, makes a lot more sense.

--

Heidi Henkel 802-490-8190
Other email: heidikhenkel@yahoo.com

5G

Tuesday, May 26, 2020 11:08 AM

Subject	**5G**
From	Jack Rossi
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 8:09 AM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

There is absolutely no conclusive study indicating 5G is safe for human interface. After all - we're talking about a type of radiation. Before any consideration is given to actually installing this in VT - studies need to be conducted, utility/tech company pressures and greed need to be understood and discarded, and the public needs to be educated and involved in all decisions.

At this point in time - 5G interface near schools, private residences, public office buildings, etc. is incredibly irresponsible and, should harm occur, - the decision makers will be held responsible to the full extent to the law,

Jack

JACK ROSSI **LANDSCAPE ARCHITECTURE**
3 Bond Street
Woodstock,VT 05091
802.457.2686
www.jackrossi.com

Emergency Broadband Action Plan

Tuesday, May 26, 2020 11:08 AM

Subject	**Emergency Broadband Action Plan**
From	Ross Conrad
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 8:28 AM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

To Whom It May Concern,

I am writing to comment on the Emergency Broadband Action Plan put forth by the Vermont PUC. My biggest concern is that primarily due to cost, the plan will not prioritize fiber optic and cable alternatives to 5G broadband service options.

I am in the process of building a home in Middlebury and plan to connect my home with broadband service. However, I have no interest in using 5G technology. I really want to be able to hook my home up with fiber optic internet service. Fiber Optic service is much faster and more reliable than 5G service.

Unanswered questions about 5G safety are avoided entirely with fiber optic sevice. Cable and fiber optic sevice also avoids sticky issues about who can get access to the personal data transmitted over the service. And since I live in a rural area, the uncertianty of 5G service even reaching me, even if I even wanted it is not encouraging.

Our working landscape is a critical component of the quality of life we enjoy here in Vermont, my understandng is that 5G will require numerous transmission structures to be placed throughout the Vermont landscape in order to provide 5G service, adding visual pollution that will mar our landscape impacting our quality of life and potentially degrading Vermont as a popular tourist destination. Fiber Optic, especially when buried adds no such degradation of our visual landscape, and even strung cable and fiber optic wires are at least no more visually objectionable than the telephone and electrical wires we already have strung all over the state.

Given the state of our planet's environmental degredation, we need to also consider that broadband connections that utilize fiber or cable is a lot less impactful on ecosystems we rely on to clean our air, filter our water and maintain the biodiversity needed for our survival. We need to be a lot more efficient in our energy use, and 5G is the most energy inefficient broadband option being considered and it will add greatly to our electical load.

There is a reason 5G tends to be the least expensive option...you get what you pay for. Please DO NOT force broadband on Vermonters who do not want it. Am not saying it should not receive any support, but cable and fiber optic broadband service should receive the lion's share of the support, incentives and financing since they are simply the better options on many fronts. Thank you for your time and consideration in this matter.

Ross Conrad PO Box 443
Middlebury, VT 05753

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Bees be with you,
Ross Conrad
Dancing Bee Gardens PO Box 443
Middlebury, VT 05753
802-349-4279 (cell)

www.dancingbeegardens.com

“The point is that the relative freedom which we enjoy depends on public opinion. The law is no protection. Governments make laws, but whether they are carried out, and how the police behave, depends on the general temper in the country. If large numbers of people are interested in freedom of speech, there will be freedom of speech, even if the law forbids it; if public opinion is sluggish, inconvenient minorities will be persecuted, even if laws exist to protect them.” - George Orwell: ‘Freedom of the Park’ - First published: *Tribune*. — GB, London. — December 7, 1945.

"We don’t have to engage in grand, heroic actions to participate in the process of change. Small acts, when multiplied by millions of people, can transform the world." – Howard Zinn

THIS MEANS YOU--NSA!

Not in favor of 5G wireless; fiber is better

Tuesday, May 26, 2020 11:08 AM

Subject	**Not in favor of 5G wireless; fiber is better**
From	Christien Beeuwkes
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 9:20 AM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Greetings,

I am writing to say that as a resident of southern Vermont, I am strongly opposed to the installation of 5G wireless technology, for a multitude of reasons: privacy/security, quality of connection, and thirdly the fact that 5G technology has not been adequately studied for effects on environmental health, not to mention on human health.

A much more reliable approach would be to install fiber optic cables throughout Vermont.

There is a common assumption that everyone wants 5G— but that's simply not true. I am one citizen who opposes it, and I know many others who are likewise opposed, and who would strongly prefer to see fiber networks installed.

Thank you so much for your attention to my position on this question. I appreciate it, and hope very much you will take it into consideration.

Sincerely,

Ms. C. A. Beeuwkes Brattleboro, Vermont

Comment on Broadband Plan

Tuesday, May 26, 2020 11:08 AM

Subject	**Comment on Broadband Plan**
From	Iishana Artra
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 9:44 AM
Attachments	Comment on Broad...

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

My comment is attached also.

May 26, 2020
RE: May 2020 Broadband Action Plan

The current draft of the Broadband Action Plan keeps Vermont at Telecom's heel. It is time for Vermont to think for itself, and listen to independent experts and its informed citizens. Telecom has influenced our thinking for too long.

Fiber-to-the-premises (FTTP), when without use of any antennas at any point, offers more reliable, faster, more secure, and, yes, more affordable options than wireless infrastructure. It is the gold standard that wireless is routinely trying and failing to achieve.

The Action Plan mentions 5G 20 times and declares Vermont leaders will advocate for 5G to enter into "pristine areas" of Vermont (p. 17) although wireless infrastructure is shown to lower property values, and 5G will result in high energy costs and substantial loss of trees. Vermont
leaders persist in following Telecom's lead in deciding our future.

If the above listed shortcomings of wireless are not enough, the fact that man-made pulsed radio wave cellular and WiFi emissions are not proven safe, and in fact have been shown to lower immunity and increase the lethality of respiratory illness, should tip the scale. Evidence-based research in biological, environmental, real estate, economics, and other fields repeatedly show cause for halting the relentless rollout of each generation of wireless infrastructure.

When reading articles describing us as "conspiracy theorists", I invite the reader to notice the lack of mention of the fact that thousands of international independent peer-reviewed studies show negative effects, and notice the lack of any independent evidence for safety; for increased property values, security, reliability, or even beauty; for lower energy costs; or for superiority over FTTP.

The biological facts persist, despite industry advertising dressed up as articles. Corporate media fails to make a case against FTTP, just against citizens doing their due diligence to protect themselves and their children. Two prominent examples are the now infamous 2019 *New York Times* Verizon-sponsored article and the 5/13/20 *Atlantic's* tech editor's cow tow to the magazine's owner: Steve Jobs' widow.

Telecom, which funds the same lobbyists, candidates, and committees, as Tobacco, spends millions on disinformation campaigns smearing advocates of the evidence-based independent science that clearly shows harmful impacts by wireless tech on economies, the environment, and biological life.

I have already spent countless hours gathering the evidence, sending it to Vermont policy makers, and testifying. This letter is a bit different, I am simply offering two links: 1) One is an example of current municipal leadership that seeks to protect human health, the economy, and the beauty of our world. 2) The other example shows research results that every policymaker should see as the maps and graphs lay out enough cause to halt 5G rollout specifically.

- https://tennesseestar.com/2020/05/20/town-of-farragut-resolution-petitions-state-and-federal-government-to-halt-5g-pending-fcc-reevaluation-of-decades-old-standards/
- https://gumshoenews.com/2020/05/04/study-shows-direct-correlation-between-5g-networks-and-coronavirus-outbreaks/

4G, 5G, and future iterations that are unregulated and not shown to be safe - in fact shown to be unsafe, costly, degrading of property values, and slower, less secure and less reliable than FTTP - are absolutely not welcome in Vermont. I do not consent.

Sincerely,
Iishana Artra, PhD
Brattleboro, Vermont since 1999

Iishana Artra, PhD

ii

Vermont's Emergency Broadband Action Plan

Tuesday, May 26, 2020 11:08 AM

Subject	**Vermont's Emergency Broadband Action Plan**
From	BEVERLY STONE
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 10:00 AM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

All Vermonters deserve both safe and reliable connectivity, something that 5G will not provide. It has never been proven to be safe and yet is being rushed to deployment with zero informed consent of human and plant/animal/insect populations.
Fiber-to-the-Premises (FTTP) offers the most secure and reliable, and fastest connectivity. Sweden has done this extensively and it has served them well, especially for transfer of large medical files, something that would not be doable with 5G.
5G is also an energy hog. At a time when we are all concerned about the environment as well, we don't need something that uses more energy for a gain that we don't have any interest in.

Emergency broadband action plan

Tuesday, May 26, 2020 11:08 AM

Subject	**Emergency broadband action plan**
From	Suzanna Jones
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 10:17 AM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

To whom it may concern,

I have read the Emergency Broadband Action plan.

Please read the attached essay from Scientific American by Joel Moskowitz of UC Berkeley's School of Public Health titled, 'We Have No Reason to Believe 5G is Safe'.

For broadband access, fiber optics to the premises is the only safe option. If this cost the state of Vermont more money, it is money well spent.

5G has not been proven safe. Please exercise a principle of precaution when making decisions that effect the lives of all of us here in Vermont, including the natural world.

Thank you.
Suzanna

https://www.saferemr.com/2019/10/5G-Scientific-American.html

5G!

Tuesday, May 26, 2020 11:08 AM

Subject	**5G!**
From	'Peppin' Vergi
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 10:25 AM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Dear Vermont Public Service Board,
Due to the fact that 5G will have such a monumental effect on ALL Vermonters and due to the fact that no one is 100% certain of what kind of effect it will have on everyone I respectively request that this be examined and researched more before anyone goes ahead with the project.
Thank you,
Ilse Vergi

NO 5 G

Tuesday, May 26, 2020 11:09 AM

Subject	**NO 5 G**
From	MacBook Pro
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 10:42 AM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

To Vermont Department of Public Service:

I am a citizen of this state and have been for 40 out of my 50 years. I love Vermont. I feel safe here, I feel like I can make a difference here with my volunteer work and my limited activism. I am very against 5 G.

I am a Mom of a 17 year old. I think that the kids of this generation
are guinea pigs for the world in terms of seeing how technology affects our bodies and minds. Filling our air with more radiation without proper long term studies is a really bad idea. We already have measurable signs
that the kids now have many more health problems than Vermonters did in my generation - I have

no asthma, no significant allergies and am strong and healthy due to my life style. Now, surrounded by chemicals and radiation, a healthy living can no longer protect us even when we live in rural environs. Our son has had life long allergies, eczema and impaired breathing. He is not alone. Many of his peers struggle with similar ailments.

Please lets not experiment with our residents and children. Keep the internet connections in fiber and in the ground!

Connectivity, with wires and in particular fiber optic cable (fiber), is the best means to fulfill this need. Fiber does not emit radio frequency (RF) radiation that is harmful; fiber is at least 100 times faster, more reliable, secure and resilient (Wireless cell networks are constantly upgraded whereas cable or fiber is laid once) and is far more protective of privacy than wireless connectivity; wireless technologies have a much larger carbon footprint than wired technologies, rely on rare minerals, and the Institute of Electrical ad Electronics Engineers (IEEE) published that, “Wireless technologies will continue to consume at least 10 times more power than wired technologies”.

For all of these reasons above - protecting our environment, protecting privacy, protecting our citizens, connect Vermonters with fiber NOT 5 G

Thank you, Jennifer Boucher

Commenting on Emergency Broadband Action Plan

Tuesday, May 26, 2020 11:09 AM

Subject	**Commenting on Emergency Broadband Action Plan**
From	Haley Jackson
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 10:51 AM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Hello Department of Public Service,

I am a child, but I am commenting today because I am already worried about the health of my future. If you roll out 5G/4G infrastructure, I am worried about what my future will look like. Will there be bees? Will birds still be able to migrate? Will I be able to have my own child in the future? Will I have a greater chance of getting cancer after being exposed to more wireless radiation than ever before? I hear 5G wireless technologies are affecting these things.

There are still too many questions and not enough research showing 5G wireless technologies are safe for humans and animals. Do you feel comfortable rolling out this technology with so many unanswered questions still out there? It doesn't seem right, it actually seems rather stupid if you ask me. Not one biological test has been run to prove this is safe.

I support the buildout of a fiber optic cable network throughout the state. Not only is it a more energy efficient broadband infrastructure (yes, I want to be able to breathe fresh VT air, with fewer

greenhouse gases mixed in it, when I am older), but it also is cyber safer, faster and more reliable in our hilly state. Most importantly though, we know fiber optic cable networks are safer for humans, no unanswered questions linger around fiber optics. It is currently the backbone of the wireless industry because the telecommunications industry knows it is the superior technology.
Please don't discount my future and condemn me to this experiment of unknown results by rolling out 5G in VT. Let's play it safe and smart by sticking with fiber optic cable networks.
Thank you for listening, Haley Jackson

Emergency Broadband Action Plan

Tuesday, May 26, 2020 11:09 AM

Subject	**Emergency Broadband Action Plan**
From	James Roberts
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 11:07 AM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Dear PSD: I'm concerned about the plans to use emergency funding for 5G to build out internet access throughout Vermont. It is my hope that public information sessions throughout the state (via Zoom) and a concerted effort to get informed public feedback be part of the development of the plan. It is my understanding that providing fibre to the premises (FTTP):

1. is safer (it does not emit radio frequency radiation which is harmful);
2. is more reliable in the mountains of Vermont;
3. is at least 100 times faster and is more secure than wireless;
4. is a better protector of privacy;
5. does not need constant upgrading;
6. does not use 10 times the energy or carve a much larger carbon footprint.

I want a chance to say that not everyone prefers wireless access and to ask that we do this thoughtfully, with the future in mind, rather than quickly. I ask that you seek significant, versus accidental (which is how I found out today), input from those of us directly affected, which is all of us. Thank you for your consideration.

James "Silos" Roberts 35 Sleepy Valley Road Athens, Vermont 05143
802-869-1388

Fwd: PSD's non plan: EBAP = Eggregious Bumbling At Par

Tuesday, May 26, 2020 11:11 AM

---------- Forwarded message ---------
From: **Stephen Whitaker** <whitaker.stephen@gmail.com> Date: Wed, May 6, 2020, 8:56 AM
Subject: PSD's non plan: EBAP = Eggregious Bumbling At Par To: <acummings@leg.state.vt.us>, <tbriglin@leg.state.vt.us>
Cc: Becca Balint <bbalint@leg.state.vt.us>, <rbrock@leg.state.vt.us>, <jkitchel@leg.state.vt.us>, Mark Macdonald <senatormark@aol.com>, Michael Sirotkin <msirotkin@leg.state.vt.us>, <schase@leg.state.vt.us>

Professed by the Department to mean "Emergency Broadband Action Plan".

A substantial number of issues raised last week have proved true in this draft. As such, some of the critique offered below is substantially similar.

COMMENTS
Prepared response to The Department of Public Service document issued May 5, 2020, as promised last week in a presentation to Senate Finance Committee.

What was presented as an EBAP "Plan" is anything but. Not even close. Not a single

mention of how to simultaneously contract for a real Ten Year
Telecommunications Plan nor how those two would inform each other or adjust.

(Removed) bowl of spaghetti analogy though still apt.

The "Action Plan" makes no effort to detail strategies to enhance and in-fill (CMRS) Mobile Wireless service, as is fundamentally necessary for providing the essential first line safety net when drivers, passengers or residents whose landline service fails, all of whom will require Mobile Wireless service to reach out for help. The Department recommends more "wait and see" as a solution to Vermonts voluminous dead zones or single carrier cell coverage islands. Unacceptable!

Storms and accidents will continue to disrupt communications networks and the lack of cell coverage and resiliency planning to assure delivery of 911 calls is ignored in the EBAP. RESTORAL efforts might similarly be delayed by the pandemic.

The budget numbers offered as estimates for fiber build costs are either pulled from thin air or are from the Magellan report which was founded on the erroneous assumption that Vermont enjoys a competitive market for middle mile fiber! Nothing could be further from the truth. Yet the EBAP recommends only providing open access to fiber owned by electric distribution utilities! Open Access is already a statutory policy goal and

should be applied to all fiber, including VELCO, Comcast, Consolidated, VTel and even CUDs. This disconnect from statutory policy is glaring.

Similarly, the lack of any reference to developing a transparent process for coordination and alignment of Community Broadband fiber build strategies with the connectivity requirements of Public Safety Regional Dispatch Communications, distance education, telemedicine and host-remote isolation vulnerabilities is glaring. This is essential and should be our top priority yet it merits nary a mention in the EBAP!

The EBAP makes no mention of a need for new statewide teleconference technology nor an analysis of the deficiencies of Zoom audio/video quality or security. The pandemic might necessitate an extended period of social distancing and technology alternatives to legislative, executive anc judicial processes will require bandwidth beyond the DSL and 25/3 proposals deemed adequate in the EBAP. Symmetric fiber speed connectivity to hygenic spaced meeting rooms or studios, cleaned frequently merit analysis and accellerated deployment.

The PSD's new fascination with the concept of a reverse auction to piggyback on an FCC initiative is ripe for failure. The concept, if pursued in Vermont in the absense of any detailed and duly adopted Telecommunications plan or even a strategy to reach ubiquitous 100/100, is fraught with unintended consequences and missed opportunity, not to mention rampant waste of public dollars. If the Department's goal is to defeat the intent and statutory policy of symmetric fiber speed connectivity, auctioning areas adjacent to monopolies to build more of the same will accomplish that. The auction idea was never before detailed in any telecom plan nor draft nor has the Department had any experience conducting such an auction process.

Relying the Connectivity Division and fund to dispense monies when that fund is, by statute, only supposed to be used for projects that are determined by the Telecommunications & Connectivity Advisory Board to be consistent with the missing Ten Year Telecommunications Plan is absurd. That fund and initiative is by far the least accountable and most mismanaged example of deficient oversight today. Again I mention the four required annual public hearings skipped in violation of statute. How much undue deference are they entitled to?

It appears the Department intends to continue on their path of least resistance: Further establish or entrench the incumbent carriers, be they cable companies or landline voice DSL carriers, with additional subsidies to continue building obsolete technology. It is noteworthy that the EBAP relies on stopgap connectivity division statutes but ignores the foundational statutory goals and policy of 30 VSA 202c.

Now more than ever, due to the absence of a plan, we need to ground every calculated move on our statutory goals and policy of 30 VSA 202c. These goals and policies include not only 100 / 100 symmetric broadband speeds to every address, but also ubiquitous mobile wireless service along highways and in villages and competitive choice. They also noteably include a policy to NOT deploy technology which will soon be outmoded. It's absolutely clear that DSL and DOCSIS technologies are already outmoded in the context of our statutory goal of symmetric fiber speed connectivity. To continue to invest public

money is those technologies and in multiple uncoordinated bandwidth intensive initiatives is both wasteful and irresponsible.

Similarly to continue to pretend that 25/3 speed is sufficient for multiple users and homebound families, engaged in distance learning, remote work, telemedicine and Legislative teleconferencing, and to act in a manner to protect the monopolies of areas served by 25/3 service, the cable franchise areas, and to not allow or to refuse to support Communications Union Districts from overbuilding fiber in those areas -- being the most populated and customer dense locations needed to generate the revenue needed to become sustainable as internet service providers and network managers, is counter-productive flawed policy. Our new CUDs deserve more the crumbs and leftovers.
Our statutory goals of 202c also include Competitive Choice whereas every solution offered by the Department seems targeted to further entrench Consolidated, Comcast or Charter to build out more cable or DSL technology and operate same as a monopoly. Those operators are monopolistic, both technologies and vendors. They are not equipped nor have any expressed any intent to reconfigure themselves with new Open Access options for middle mile fiber, for competitive choice services offering symmetric broadband and integrated telehealth, distance education, remote work and community media services.

The Senate Committee on Finance should meet soon jointly with House Energy and Technology directing the Joint Fiscal Office to retain an expert consultant to quickly develop a strategy to assure integration and alignment of the needs of telemedicine, education, public safety and community broadband with Vermont's statutory goals and policy, with best available technology, anticipating an accellerated deployment considering all available funding sources and to rapidly prepare an interim strategy and Plan to be used by the legislative committees to guide acceptance of funding.

The same consultant might be best qualified under a seperate agreement or contract to complete a comprehensive Ten Year Telecommunications Plan by April of 2021.

The Department is clearly not the best facilitator to set the agenda nor convene a coordinating interagency"SkunkWorks" team. Consider the Commerce Agency or even the Fifth Floor, possibly under the leadership of Liz Miller.

Without our knowing precisely where our fixed and mobile wireless coverage already exists, at what speeds, and precisely where our poles and existing useable fiber are, we are continuing a reckless practice of throwing money into the wind. This is precisely what we should NOT be doing with this once in a lifetime Federal funding stimulus response to a pandemic.

Stephen Whitaker May 6, 2020

<Emergency Broadband Action Plan final draft 5-5-20.pdf>

How an Actionable Emergency Broadband Plan Serves to Support

Vermont's Ten Year Telecommunications Plan Here is the Overlap. Nom Sain?

Stephen Whitaker May
20, 2020

How does the proposed **Actionable** Emergency Broadband Plan relate to and support the efforts toward the Vermont Ten Year Telecommunications Plan due in December and the necessary 2021 Broadband initiatives expected to be funded by the Covid-19 economic stimulus infrastructure bill anticipated from Congress later this year or next?

The need is for an immediate 2020 strategy to rapidly provide broadband to unserved locations, at any speed, to as many students, teachers, healthcare providers, patients and home-bound workers as possible. This will need to be delivered primarily using wireless technology. This will also need to be done in a manner that anticipates substantial new fiber routes for which planning is not yet started, much less completed ordocumented.

In order to quickly mount additional fixed wireless radios and small cells for mobile wireless along State highways in the public right of way all available fiber backhaul will need to be identified. This yet to be compiled GIS based inventory should be completed by carrier, by route, by leasing cost/strand and by resiliency.

Some carriers, Consolidated Communications, for example,
are not required to lease their (CAFII $54M publicly funded) fiber, especially dark fiber, as a result of FCC rulings, federal preemption and corporate strategy. Similarly, Sovernet, now as FirstLight, was encouraged to build a fiber network with a $33M grant of federal funds passedthrough
the VTA, with absolutely no requirement that anyone at all be allowed to lease dark fiber!

That does not mean that Consolidated Communications cannot andshould not be expected, or persuaded to make fiber available for lease under these emergency circumstances to support the placement of wireless transmitters as are necessary to extend broadband to unserved homes during the pandemic emergency. Were "open access" which is a statutory policy goal, to available and abundant dark fiber to be made an explicit requirement of the 2021 edition of the Ten Year Telecommunications

Plan, Consolidated's proposed Incentive Regulation Plan will need to assure consistency with the state Telecommunications Plan in order to gain approval by the PUC. That IRP is anticipated to be filed early next year as the PUC granted an extension of the current IRP until July 31, 2021 to allow time for the RDOF auction results to become known and for the conclusion of the pending service quality investigation.

Building any new fiber routes requires substantial investments of time, engineering, dollars, utility pole make-ready, pre-ordering of fiber cable, supply chain delays and the pre-scheduled availability of construction contractors. This complexity means that no fiber that is not presently installed will become available during the remainder of calendar year 2020 to support any new wireless radios so available fiber transparency is essential to emergency broadband strategies.

The primary challenge will be to identify where existing wireless signals are sufficiently strong, where they are insufficient and then identify the best sites and technology choices to deploy new or upgraded radios along existing fiber routes or on existing towers. What is the needed infrastructure that can be paid for soon with CRF/CARES funds and installed in the remaining months of 2020?

As necessary and complementary tasks, we should also:

- Establish immediate plans for resilient, self-healing fiber ring architectures that can be assembled from carriers' fiberroute segments which are installed and already intersect.
- Identify routes where fiber will need to be built on a priority basis in 2021 for backhaul of 4G/LTE small cells, new 4G/LTE towers, LMR public safety radios and repeaters, and community broadband fiber projects.
- Identify all points of possible interconnections with VELCO and electric Distribution Utility (DU) fiber which can be used to accelerate broadband fiber backhaul and wireless deployment and also serveto increase the resiliency of networks built or being planned. (i.e. rings and mesh)

This integrated fiber planning strategy highlights the need for transparency of all carriers' existing fiber infrastructure, including available strand counts, in order to identify where wireless in-fill can be accomplished immediately and where additional fiber will be needed as well as new radio locations where current wireless service cannot reach and where temporary small cells or even temporary new 70' poles with 4G/LTE radios can be installed.

In order to support Emergency Broadband Access as will berequired throughout the entire 2020-2021 Academic Year, several immediate actions are required:

INVENTORY

First Responders are for the most part already aware of the dead zones within their communities where no 4G/LTE cell service or no LMRPublic Safety Radio Communication Service is available. (i.e. Firemen in Barre City sometimes cannot hear their own commanders' radio messages!) Mapping these dead zones is an urgent priority.

Identify public buildings such as schools and libraries that are presently served with fiber and are willing to host small cell neutral hostwireless infrastructure on that existing fiber simply by upgrading the speed or the symmetric configuration, possibly connecting to a second carrier for redundancy / fail-over.

Building off the catalog of unserved address information compiled by the Public Service Department and the wireless propagation data made available and validated by regional and national wireless carriers, Communications Union Districts will provide a starting point from which they or others can propose priority in-fill radios and small cell locations for mobile wireless service.

But these are only a viable solution in the near term if fiber backhaul is available along these routes. If so, these installations can be accomplished in a matter of months where the fiber is available, at latest by September **IF** timely decisions are made.

Sound planning must also begin now for next year's fiber builds.

What is essential is that the fiber inventories, the fiber planning and the engineering be done in a manner that incorporates the present and future needs of each of these constituencies.

- Public safety grade, resilient rings for LMR communications
- Resilient backhaul for towers/ small cells supporting 4G/LTE
- Community fiber for broadband, including CUDs
- Resolution of ILEC host-remote isolation vulnerabilities

By conceptually mapping out NOW the required multi-town resilient rings, statewide, identifying fiber spans already available, placing 4G/LTE radios along these routes to in-fill fixed wireless gaps, simultaneously proceeding to design a neutral host mobile wireless in-fill network and place a large number of small cells where needed and backhaul is available, we can assure that public funds are well spent consistent with the longer term strategy and that the statutory goals and policies are not diverged from.

This CAN occur as the Ten Year Telecommunications Plan is being completed and as it moves through

public hearings towardadoption.

An Actionable Emergency Broadband Plan v.2

By Stephen Whitaker May
17, 2020

The 4G/LTE broadband end-point radio device, made by Cradlepoint, exterior antenna and WiFi router installation (see two attached PDFs) will work now with VTel's Band 12, 700MHz, Band 66 AWS spectrum and the 153 towers' radios. It will also work with the 2.5 GHz NR band n90 BRS MIMO radios planned to soon be installed by VTel, but so far only operational in Rutland, as well as with Band 14 first responder public safety radios for FirstNet but for which VTel does notyet have access to that spectrum nor roaming.

The Cradlepoint radio/ external antenna combination is capable of broadband speeds, when the BRS tower radios are installed, of up to 150/50 Mbps over 4G/LTE. These versatile end point radios do NOT work with the unlicensed CBRS frequencies that are being proposed for the NEK Barnet "Kingdom North" school district's project to serve 150 students / 1000 subscriber homes.

Some of the E911 addresses that will surely receive fiber broadband (FTTP)later may wish to keep using these Cradlepoint devices, using the fiber as their primary connection and 4G/LTE as fail-over for mission critical connectivity like calling 911! This is precisely what these quality, business-class network devices were designed for!

We should all be working to convince others to quit screwing around and get moving on connecting folks for a possible, even likely, tumultuous September start of the school year necessitating continued distance education, and while this CARES money is still available.

A standardized approach is, in my opinion, necessary due to there being an available solution, lack of time and personnel to engineer and construct one-off projects all around the state and the lack of an army of trained technicians to complete field installations, including the need to climb ladders to mount antennas 18 feet high as well as to configure WiFi access points and firewall security for the homes or businesses.

This may also be our best chance to finally achieve a real and substantialpublic benefit (other than smart meters) from the earlier public investments in the VTel network which indisputably failed to meet expectations and unnecessarily poisoned the dialog. It's high time to get over it.

One of the essential first steps will be for an independent RF engineer tovalidate the propagation analysis that VTel's engineer has conducted which revealed that nearly 90% of unserved addresses, as defined by the Department, could be reached with fixed wireless if two conditions were met.

1. Installation of BRS radios including MIMO technology on 102 orall 153 VTel towers ($30-$40M)
2. Installing the Cradlepoint six inch antenna at an elevation of 18feet on unserved buildings, with the radios indoors.

Massive Multiple In - Multiple Out (MIMO) means that both speed and data throughput is enhanced by the radios on both ends' ability to establish multiple connections on different frequencies simultaneously and narrow the radio "beam" to aim at the device antenna, thereby saving power and bandwidth. The fact that the Cradlepoint radios receive a 4G/ LTE signal on the existing Band 12, 700 MHz and Band 66 AWS frequencies now working on VTel's towers means that waiting for the higher speed BRS radio upgrades is not necessary to begin installations as many of the unserved addresses have wireless service available now (albeit much slower) using the current VTel fixed wireless signal.

The only way that I can envision a political decision being made to invest a significant portion of Vermont's CRF/CARES funds in $30-$50M+ in wireless equipment and services statewide, to be managed by VTel and the CUDs,would be to execute a neutral host agreement where the CUDs are to be the front line service providers who are reselling / installing services purchased from and managed by the neutral host operator. A neutral host operator could be VTEL, GMP, or a VELCO subsidiary using the VTel wireless infrastructure.

The CUDs would retain ownership of the installed Customer Premise Equipment (CPE) radios (about $1000 each) in subscribers' homes and VTel would surely intend to own the new BRS radios/antennas mounted on their towers.

Customers' monthly subscription fees, both subsidized and not, would be shared between CUDs and the neutral host operating entity. The $40M+ cost of the BRS radios funded by the State for the VTel upgrade could be repaid to the State or to a revolving loan fund from subscriber revenues or result in reduced neutral host operator charges over time.

Other possible immediate roles for the CUDs might be to work with the propagation mapping datasets, (necessarily made publicly available) the PSD datasets on unserved homes, the school districts' lists and healthcare providers to identify precisely where the the other 10-15% of unserved addresses are, and then work quickly with utility installation contractors to set any needed new poles or mount radios where necessary, installing either the self contained small cells supporting only Band 12, possibly with Band 14 (FirstNet) wherever fiber backhaul is available on short notice, i.e. Consolidated Communications, PSD, Kingdom Fiber, VTel, GMP, VELCO, or ECFiber along the prior CoverageCo routes, etc.

It is also possible that a waiver might be granted by the FCC or 3GPP to allow the Band 12 spectrum in use by VTel to operate at higher power (1.2W vs.
200mW) during the pandemic emergency to achieve the greater range over LTE that the FirstNet Band 14 High Power User Equipment (HPUE) is allowed. This valuable 700 MHz spectrum can reach for miles and deep into buildings, possibly making it possible to delay installing some of the outdoor antennas or delay the need for some small cells.

Any fiber to be leased, and later built under this conceptual plan would be carefully reviewed for it's availability to serve multiple stakeholders:

- LTE backhaul for towers and small cells,
- Public safety LMR radio repeaters and transmitters,
- Community fiber broadband,
- Closing regional resilient rings,
- Elimination of host-remote vulnerabilities in ILEC networks.

This is important planning that has been poo-poo-ed by the Department, yet is too valuable and necessary to miss the opportunity.

Ownership of any new 70 foot, taller wooden utility poles and 4G/LTE small cells will still need to be resolved. VTel has offered to connect the new small cells through fiber to it's existing 4G/LTE core which has abundant capacity, and to share or allow the CUDs to benefit from the roaming agreements and revenues when mobile subscribers of AT&T, Sprint, T-Mobile utilize these small cells for voice and data in formerly unserved areas or dead zones.

Achieving the public safety benefit of increased "all carriers" mobile wireless coverage, in-filling dead zones as part of this solution for students, teachers, remote workers and those requiring telemedicine services is an opportunity too good to ignore. The Department has ignored it for too long and apparently intends to continue doing so.

The prerequisite questions that should be posed and answered (yesterday!):

- Is any or all of this proposal a realistic possibility from a politicalangle? Decide soon!
- Will the VTel propagation analysis be independently verified andmade public soon?
- Can an engineering/economic analysis be completed soon to supporta Neutral Host

Operator Agreement?

- Are the State and VTel/GMP/CUDs willing to consider entering a neutral host agreement soon?
- What role is there for the Department which voiced objections to the neutral host model as pioneered by CoverageCo?
- Who should make efforts to reserve more of the CARES $ than ACCD's $10M ask?
- Might the fixed wireless solution deployed on an emergency basis inflict unacceptable damage on CUD viability, by reducing the "take rate" of later fiber building projects?

I'll bet you're wondering: How would this program relate to the upcoming FCC RDOF auction?

My belief is that it would lay a foundation for the CUDs to no longer be in a position of competing with VTel for unserved census blocks in the RDOF auction, but instead be partnering with an accomplished ISP to win census blocks with interim wireless solutions and possibly gaining a points advantage with FTTP plans in years out. The CUDs and VTel might be jointly competing against Consolidated Communications which as an equivilent advantage with the $54M in publicly funded fiber as a result of the CAF II award.

These partnerships might be useful to build fiber used to serve both wireless and FTTP and to even provide immediate and "future-proof" broadband to the census blocks that are not included in the RDOF auction due to prior funded coverage making them ineligible or "contaminated". These include contamination by both by VTel Wireless and by the Department's own grants from the Connectivity Fund.

CONCLUSION

It's a lot to absorb, but it's a much more concrete, specific and achievable plan concept and outline than anyone else has yet put forth. It has also been well researched and conceptually introduced to those who are in a position to move on it.

That is the best I can do unless I'm to be paid well to move it forward! Stephen Whitaker

May 17, 2020v.2

Legal and Policy Analysis of the Vermont Public Service Department's Emergency Broadband Action Plan

Submitted to four Legislative Oversight Committees

Joint Fiscal Committee

Senate Committee on Finance

House Committee on Energy and Technology

Joint Information Technology Oversight Committee

by Stephen

Whitaker May

12, 2020

EXECUTIVE SUMMARY

The proposed plan fails to meet numerous threshold requirements of current Vermont statutory telecommunications policy and goals. Nor does the proposed plan set forth any strategy to rapidly respond and provide for the urgent needs of remote work, health care and education in the very likely event that COVID-19 requires social distancing to continue beyond this summer. I address here some but not all problems with the plan. This is NOT an exhaustive review of the EBAP.

The plan does not comply with state law, which directs state officials to achieve 100/100 Mbps broadband by 2024. Also, the plan proposes distribution mechanisms which cannot be shown to be effective in achieving the promised results. Third, proposed subsidies to cable companies for obsolete broadband technologies work at cross purposes with the plans of existing and emerging CUDs to build fiber-speed broadband to all Vermonters.

The plan also fails to coordinate among state planning efforts now underway for mobile wireless, public safety radio and broadband, distance learning, telemedicine and community fiber broadband. If implemented separately, these separate initiatives will waste public funds and miss the opportunity for communications resilience, integrated planning and operational cost savings.

A new structure for integrated planning and effective oversight is both necessary and achievable. Immediate actions are also necessary to design and deploy interim wired, wireless and LTE based broadband services to all currently unserved addresses within reach.

Those individuals living at locations not reachable by these efforts will need to be

accommodated with temporarily repurposed use of existing sites with high speed broadband, hosting connected computers safely distanced for flexible use by students, teachers and remote workers. Necessary interim broadband solutions can possibly be achieved by this coming September while longer term, well planned and coordinated broadband fiber strategies are executed, most cost effectively, over the next two to five years.

1. Does the EBAP comply with state law regarding broadband speed?

The Commissioner has clarified that the Draft Emergency Broadband Access Plan dated May 5, 2020, hereinafter "EBAP," aims to “deliver universal broadband access in Vermont at 25/3 Mbps by 2024.” (Commissioner June Tierney letter to Senator Sirotkin dated May 5, 2020, hereinafter "Letter" p.2; EBAP p.2.) She also explains that her reason is that the “Department believes it is prudent to mirror federal law for purposes of achieving universal access to broadband service at 25/3 Mbps by 2024.” (Letter p.6.)

However, one purpose of state telecommunications policy and planning, among other purposes, is to:

> (10) support measures designed to ensure that by the end of the year 2024 every E-911 business and residential location in Vermont has infrastructure capable of delivering Internet access with service that has a **minimum download speed of *100 Mbps and is symmetrical***. 30 V.S.A. § 202c (b) (10).

This telecommunications policy and goal has been in statute for six years. (Acts of 2014 (Adj. Session), No. 190, Sec. 8.

Thus the EBAP provision setting a broadband speed goal of 25/3 by 2024 is a clear violation of this law. Even though the target date, 2024, is the same, the targeted speeds are vastly different, as is the lack of symmetrical service. The EBAP not only fails to follow the Vermont statute, but it substitutes a different and 75% slower download speed, and an even lower asymmetrical standard for uploads.

Surprisingly, the Commissioner does not even mention the relevant and fundamental state statute nor it's unambiguous section title, "**§ 202c. State telecommunications; policy and planning**". Moreover, she offers no rationale, other than to broadly claim that she deems this course more “prudent” and that she arbitrarily chooses to follow what the FCC has been doing instead.

How can the Commissioner conclude that it would be imprudent to follow Vermont's telecommunications policy and planning goals that have been established in state law for six years? The only plausible conclusion seems to be that the Commissioner has chosen to disregard state law.

The Commissioner cites the current COVID-19 crisis as a basis for lowering the state’s broadband speed goals. She says her plan is “directed at ensuring all Vermonters

have the protection of internet access at home." (Letter p.2). Indeed, she goes on to recommend that the legislature actually create "an exception" to the important statutory 100/100 Mbps standard. (EBAP p.3.)

The COVID-19 crisis has demonstrated the essential importance of broadband, but it has also increased the need for high quality, scalable broadband service. The current social distancing rules have required that broadband video conference applications be used nearly everywhere that broadband is available at all. Millions of Americans today are learning to use highly compressed, two-way video conference applications such as Zoom, Google Hangouts, GoToMeeting and Facetime video. Distance learning has become essential to education continuity.

The importance of quality broadband now faces Vermont's legislators in their own work. Vermont's General Assembly continues to meet using low quality and insecure Zoom sessions, to pass emergency legislation and work toward a budget despite the Statehouse remaining closed.

Telemedicine has likewise exploded in the current crisis. Doctors today are examining skin problems remotely, as just one example, using video conference sessions and handheld cell phone cameras. These efforts demonstrate that poor quality broadband leads to poor quality voice and videoconferencing and thus negatively impacts the effectiveness of education, governance and telemedicine. Even in the current COVID-19 pandemic crisis, the prudent course is to follow Vermont's planning law, not to ignore it.

The Commissioner's reliance on the FCC's transitory 25/3 speed standard is misplaced. There is no federal statute that sets such a standard. Instead, federal law requires the FCC, from time to time, to evaluate broadband access and take action whenever effective access is lacking. In these reports, the FCC has adopted a sequence of ever-increasing standards. It started with broadband at 200 kbps in both directions. Then in 2010, the FCC raised the target to 4/1 Mbps, and in 2015 it raised the standard again to 25/3 Mbps. Much has changed since 2015, especially with regard to our critical reliance on reliable, high speed broadband network connectivity.

At times, the FCC has articulated even more ambitious planning goals. For example, in the National Broadband Plan of 2010, the FCC established two very ambitious goals:

- By 2015, to have 100 million homes with 50/20 Mbps service; and
- By 2020 to have 100 million homes with 100/50 Mbps service.

Thus a full ten years ago the FCC decided that by now there should be 100 million homes in the country with 100 Mbps download broadband speeds. Vermont's current goal for 2024 aims at that same download speed.

Similarly, the FCC grant programs have not committed all its funds solely to satisfy a minimum standard. Network performance requirements for grantees have increased over time, and preference has been awarded to higher speed networks. In 2011, the FCC's Connect America Fund, hereinafter "CAF" program set an initial standard of 4/1 Mbps. (FCC No. 11-161, released in Nov. 2011.) In 2017, during the CAF II auctions, the FCC set a minimum performance of 10/1 Mbps, but gave extra preference to higher "performance tiers." The "above baseline" tier consisted of 100/20 Mbps and this received a more

favorable scoring than the minimum tier. There was also a “Gigabit” performance tier eligible for even higher scoring.

Vermont policymakers have been and should continue to determine what is acceptable and necessary for Vermont, and not rely on the lower federal 25/3 Mbps standard which is somewhat ambiguous, which has evolved over time, and which clearly lags current COVID-19 pandemic situational response and customer demands.

Because Vermont’s clearly established policy and planning goal for 2024 is 100/100 Mbps, the legislature and the Joint Fiscal Committee should reject the EBAP as to the minimum broadband speeds acceptable for public funding support.

2. Would spending federal funds according to the EBAP proposed strategy achieve ubiquitous broadband?

Existing telephone company (ADSL) and cable television (DOCSIS) facilities will never meet the 30 V.S.A § 202c speed goal of 100/100 Mbps, unless they are replaced by dedicated fiber installations. Therefore, it appears that the EBAP's main purpose of adopting a 25/3 Mbps standard is to create a new public funding stream for obsolete cable-video line extensions. (EBAP p.2.)

The EBAP states that by following this plan, Vermont will “have achieved the deployment of ***universal access*** to broadband at the speed of at least 25/3 Mbps.” (EBAP p.2.) Similar ambitious broadband promises have been made and broken numerous times in Vermont’s recent history by two governors. This time the suspect assurances are equally broad, and the legislature and the Joint Fiscal Committee should assess them skeptically.

It's impossible to guarantee that the EBAP proposals will achieve ubiquitous broadband, reaching every underserved address, even at the slow 25/3 speed as proposed. This is because the EBAP also proposes to allocate funds using a reverse auction mechanism which often produces wildly unpredictable outcomes. The outcomes of any auction will depend upon what geographic areas the cable companies choose to offer bids, what subsidy prices they demand in those bids, and the total amount of funding that is available. Even in the best case, it remains unlikely that any foreseeable auction-based subsidy program will produce 25/3 broadband facilities everywhere in Vermont.

FCC auctions have generally failed to achieve ubiquitous service (or even to draw many bids from cable companies). At best, auctions are said to use federal dollars in a way that efficiently spends the limited funds available. But by their very nature, auctions allow bidders to carefully pick and choose the areas that they would serve and the amounts of subsidy they would demand. This has frequently left behind the most economically challenging regions. Similarly, a Vermont auction would likely produce cable line extensions at the edges of the current cable networks. The probable benefit would be minimal in the most rural areas that require long and costly cable line extensions.

Before the legislature (or the Joint Fiscal Committee) approves the Commissioner’s EBAP plan, or recommends any funding be appropriated, the House and Senate committees should take testimony from Vermont’s cable companies on whether those companies are willing to make advance commitments to realizing the EBAP authors' claim that “Vermont will have achieved the deployment of

universal access to broadband at the speed of at least 25/3 Mbps," whether the technology deployed will be upgradable to meet the 100/100 goal for 2024, and whether any projects that include fiber built with public support will make some strands of that fiber available to competitors on an open access basis in order to comply with the statutory policy and goal of competitive choice.

Vermont statute in 30 V.S.A 202c (8)(A) and (B) also contains another policy and goal that prohibits investments in any cable line extensions. The goal is to:

> (8) support deployment of broadband infrastructure that:
>
> (A) uses the best commercially available technology;
>
> (B) does not negatively affect the ability of Vermont to take advantage of future improvements in broadband technology or result in widespread installation of technology that becomes outmoded within a short period after installation;

Providing subsidies to cable and DSL services is not the best available technology, and if it happened, it would negatively affect the finances of building a more capable fiber network.

If, despite the above arguments, the legislature (or the Joint Fiscal Committee) decides to allow the proposed use of auctions, it should require the Department to grant higher subsidies for higher value, higher speed networks. The Department should be required to structure the auction to give additional rating points to proposals that meet the 100/100 Mbps standard or better, and in sufficient quantity to make those proposals likely to prevail over a lower price bid for the same area at 25/3 Mbps.

In the absence of a detailed Ten Year Telecommunications Plan, it's difficult to imagine the Public Service Department, having failed repeatedly to produce required plans or to manage the Connectivity Program in accordance with statute, and having now offered such a defiantly compromised strategy, being qualified to manage any auction or grant program in strict compliance with the statutory policy and goals. A new contracting entity is required, one committed to integrated planning statewide, including public and private networks. One possible solution is to revive the currently dormant Vermont Telecommunications Authority.

3. Would spending federal funds according to the EBAPharm Vermont's Communications Union Districts?

Funding monopoly cable line extensions with public dollars would also have important market consequences. If federal money is used to subsidize further line extensions of cable facilities offering 25/3 Mbps, those same subsidies could harm the business case for Communications Union Districts (CUDs) serving or intending to soon serve those same regions.

This competition issue is familiar to many state legislatures, but here it is completely turned on its head! Usually it is the private telecommunications carriers who argue vehemently against allowing any form of municipal competition in the telecommunications utility space. Here the issue is whether the state should be subsidizing privately owned networks to build inferior facilities that could harm the viability of publicly owned networks.

What sort of harm is foreseeable? The cable television companies have built hybrid fiber-coaxial facilities to serve the most profitable customers in the state's more densely populated areas. These systems have resulted in less reliable 911 emergency calling due to the number of electricity-dependent components lacking sufficient battery backup to survive extended power outages. If these cable companies now receive subsidies to extend their existing lines into areas of their choosing, only the most remote and least profitable areas will be left unserved. In the CUD and member towns' areas, this fundamental change to the market would dramatically worsen the financial prospects for any CUD intending to build Fiber-To-The-Premises (FTTP) across the entire member towns' service area.

Encouraging cable providers to skim additional customers from the pool of underserved addresses makes the work of the CUDs all the more difficult. As the cable companies continue to focus on the higher density underserved areas they will increase the average cost for the fewer remaining addresses. And, the uncertainty of the "take rate" or the number of addresses available and willing to become subscribers for CUD buildout makes planning and financing more difficult.

To the extent that the state is proposing to follow the philosophy of a reverse auction, aiming to reduce the costs for providing access to currently underserved customers, each CUD will need to consider how, or if it can develop competitive bids to prevail over existing providers. CVFiber as an example, has been in development for more than a year and is just now at the point where it is ready to start the engineering design and pricing for establishing fiber connections to its underserved customers. CVFiber may be able to establish its pricing model, select and execute a contract with an operating partner, secure financing and all the necessary actions to begin building fiber in the next six months.

Will this level of preparation be sufficient to compete against existing cable providers that have the advantage of decades of buildout experience as well as the administrative capacity to participate in the auction process? Three newer CUD's lag behind CVFiber and will be at an even greater disadvantage in competing with the cable carriers that already have an operating foothold in Vermont.

Before the legislature (or the Joint Fiscal Committee) approves the Commissioner's EBAP plan, the House and Senate committees should take testimony from both technical and policy experts on behalf of CUDs on the question of how the proposed auction would affect CUD commitments to build fiber networks meeting the statutory speed goal of 100/100 and achieve a sustainable economic model.

Further, if the legislature (or the Joint Fiscal Committee) does approve the Commissioner's EBAP plan, it should prohibit funding to cable companies for 25/3 line extensions altogether, but especially in any area where a nascent CUD is reasonably likely to be operating fiber-based 100/100 broadband by 2024. This condition is necessary to bring the EBAP into minimal compliance with the state's planning goals as established in 30 V.S.A. § 202c.

4. If 25/3 Mbps cable networks were to receive auction-based subsidies, what conditions should be imposed?

Any grant for broadband should include conditions detailing a public interest obligation and stated metrics to ensure compliance with those obligations, including penalties. The centerpiece should be a statutory obligation to build a broadband network in a specified area "using the best commercially available technology." But other conditions might also be included.

One such condition relates to the affordability of broadband service. Cable broadband rates have been rising in recent years. Vermont should consider imposing a rate cap on broadband network expansions that receive any governmental subsidy. For example, the auction rules might require a rate cap of $40 a month for 25/3 Mbps service and $70 per month 100/100 Mbps service with no other required purchase such as a minimum tier television channel package. New York recently imposed such a cap after an FCC order recognized the state has jurisdiction to do so.

The COVID-19 pandemic emergency suggests another public interest obligation. Currently Vermont schools are closed for safety reasons and are trying with varied degrees of success to provide substitute learning experiences over broadband.

But many students and even some teachers are financially unable to afford broadband at home, even when it may be available in their neighborhoods. For households that include elementary or secondary students receiving free or reduced pricing meals, the broadband rates might be reduced during any month in which the schools facilities are closed or prohibited from conducting classes and yet education programs are continuing through the use of broadband. The reduced rate might even be set to zero during any designated emergency period.

Another specific strategy that could help the schools and the CUDs is to facilitate immediate, in-depth technical collaboration with the education and healthcare communities and regional public safety entities. Each of these entities has immediate, short term and long term needs for connecting students, teachers, first responders, patients and clinical health care providers.

Providing broadband service to these customers and practitioners as part of a pandemic response is both an urgent priority and also a potential revenue source that could help direct the priority and timing of broadband fiber buildout, including the interim use of wireless broadband technologies. Today, the ability for CUDs to identify and plan broadband connections to these unmapped, underserved locations is beyond their current capacity and yet all parties will benefit from well integrated, coordinated telecommunications planning activities.

The legislative oversight committees or a new designated oversight body should immediately implement measures that avoids missed opportunities and precludes unplanned projects. These invariably result in wasted funds being invested in divergent efforts by uncoordinated telehealth, distance education and community broadband initiatives. Today these entities are ripe for opportunistic preemptive marketing efforts and long term contracts, captured by private telecommunications providers that thrive on wasteful and disjointed public expenditures.

5. Does there exist in Vermont a robust competitive marketfor middle mile fiber?

The EBAP asserts that there is an abundance of middle mile fiber in Vermont.

> Generally, there is a robust market for middle-mile backhaul transport throughout Vermont. In the Department's view, state intervention in the middle-mile backhaul market is unnecessary to advance the goal of last-mile build out. (EBAP p.14, see also Letter p.3.)

The assertion is misleading because it pretends that access to middle mile fiber is easy to acquire by CUDs (and others) that wish to use it. In the recent experience of CVFiber this is clearly not the case. It takes significant effort and expertise to even identify the existence of fiber along a given route, much less across an entire town or group of towns, and then additional research and effort to establish who owns every fiber segment, whether dark fiber capacity exists, to establish business relationship(s) for the purpose of planning a possible CUD fiber expansion off of that middle mile resource.

Claims of the need for secrecy for fiber maps should be rejected. The information relates to visible cables residing in the public right-of-way. To provide secrecy for this information adds unnecessary complexity, wastes time and effort, and fundamentally impedes planning for fiber buildout and resiliency.

The legislature should direct the Public Service Department to provide CUDs with GIS datasets, working with VCGI, detailing the precise locations (with sufficient accuracy for fiber design) of all utility poles, available middle mile fiber routes, and electricity service at those poles. The Department of Public Service should also be required to propose PUC rules to speed fiber owners' cooperation with CUDs that wish to utilize dark or lit fiber for deploying their FTTP systems.

The EBAP (p.16.) suggests that all existing state owned middle mile fiber should be made available at no cost, regardless of use. This proposal would be counterproductive if the goal is creating a competitive market for middle mile fiber. In fact, more state built and owned middle mile fiber may be necessary to support the CUDs and the states statutory telecommunications goals. In that case, the combination of no-cost state fiber and the scarcity and complexity of obtaining privately owned fiber would discourage the emergence of a viable competitive market.

Velco, VTel, Consolidated, FirstLight, Level3/CenturyLink, and Comcast are required to obtain a Certificate of Public Good in Vermont, and they are regulated in varying degrees by the Public Utility Commission in a way that presumably serves the public good. This regulatory authority should be used to require these companies to disclose their leasing rates, capacity, resiliency measures and access locations for all middle mile and long haul fiber that might be available for use by CUDs. Providing this information in an online accessible GIS would be consistent with statutory policy and goals as set forth 30 V.S.A § 202c which reads:

> "(9) in the deployment of broadband infrastructure, encourage the use of existing facilities, such as existing utility poles and corridors and other structures, in preference to the construction of new facilities or the replacement of existing structures with taller structures;"

VELCO is unique in this regard due to its ownership structure, half owned by the Vermont Low Income Trust for Electricity, (VLITE). This share, when combined with other municipally owned electric distribution utilities' shares, comprise a majority interest held by the public and as such, suggest a greater need for

transparency and public accountability. VELCO should be subject to Vermont's Access To Public Records laws, and should publish technical details concerning its statewide fiber rings and DWDM assets. This information will be crucial to accelerating Vermont's resilient, affordable broadband evolution. We may need to act now to assure that the past chronic secrecy of fiber locations, rates and resiliency measures that has for years hobbled broadband progress among incumbent telcos does not take root within VELCO.

6. Does the EBAP address the need for better mobile cellcoverage across rural Vermont?

Another important omission of the EBAP is a strategy to address the absence of mobile wireless coverage in rural areas. One possible strategy is to expand existing fiber broadband and fixed wireless facilities in a way that provides in-fill coverage for the gaps using an "all carriers" neutral host. These small cells for the extraordinarily large number of dead zones will not only improve mobile wireless coverage, but it will provide revenue opportunities for the new CUDs in the form of roaming and backhaul payments.

This is an increasingly important aspect of integrated communications planning that is vitally important for the public safety community. During the transition from traditional Land Mobile Radio (LMR) to 4G/LTE for first responder communications we must ensure ubiquitous reliable cellular coverage, including both Verizon Wireless public safety services and FirstNet. This is especially important during emergency events to assure the ability for dispatchers to call back to reach 911 callers and for cell phone subscribers to be able to receive emergency alerts via text and recorded voice.

The EBAP counsels the state to be cautious in future state funding for wireless.

> It is possible that, in due course, state funding will need to be invested to bring universal cell service to the state. However, before Vermont commits any substantial financial resources to the expansion of wireless services, it is prudent to await further development and deployment of the federal CMRS initiatives. (EBAP p. 17.)

The legislature should reject this advice, which encourages it to miss yet another opportunity to align coverage mapping, microcells placement, backhaul designs and funding priorities, and thereby achieve better mobile wireless coverage as part of our broadband planning and deployment

7. Two issues that are not addressed in the emergency planare important topics for CUDs' engagement and participation.

The EBAP fails to address the urgent need for a broadband buildout strategy. The immediate emergency in broadband access is that households, workers, students, teachers, legislators, all who are required to stay at home, do not have adequate broadband service to support distance education, health care, or remote work. The EBAP as drafted does not lay out any strategy over the next several months to provide the required broadband service. A contingency plan is needed for September school openings, at the latest.

The EBAP does not examine the possibility of rapid deployment of broadband connections using wireless solutions, yet for short term solutions, wireless may be the only plausible option. Wireless speeds will not match fiber nor will connections be symmetric in any but a few cases, but the low cost and potential for rapid deployment merits serious consideration as an interim solution. CUDs and others will need to retain

technical assistance and financing to quickly investigate and engineer wireless solutions to be integrated into their longer range plans for fiber build out, with immediate emphasis on what can be accomplished by September.

Second, the CUDs, in cooperation with state agencies, should develop specific proposals that can build on existing fiber and wireless infrastructure and increase coverage and speed in a timely and cost-effective manner. There is insufficient time to build new fiber routes before September, so the mapping of existing fiber and establishing open access to lease dark fiber available from current owners must be made a priority.

In both cases, work on fixed wireless connectivity can be accomplished in the short term and might legitimately utilize a portion of the $1.25 billion in CARES Covid Response Funds (CRF).

In order to move the wireless topic forward in a timely fashion, the Legislature / JFO should:

Provide specific guidelines based on an understanding of the limitations imposed on the use of the CRF. It is easy to establish such spending as an unbudgeted, necessary COVID response that serves the immediate needs of households that currently do not have sufficient connectivity to participate in a) remote learning, b) telehealth, and c) remote work.

In developing these guidelines, the State should provide support for both the specific investments that will be necessary to upgrade existing systems and the subsidies that are necessary for low income households to access services during the remainder of 2020 (the period for which CRF is intended to support)

The State should, in a very short timeframe obtain radio frequency engineering expertise, establish a clear description of the different fixed wireless technologies that are presently available in Vermont, predict how each of those technologies, as is, can be best utilized, and describe which technologies might be upgraded to better meet the needs of underserved addresses. In developing this description, it is important to consider how the fixed wireless technologies and any expansion of broadband coverage will complement the longer term effort of providing 100/100 service to all addresses – understanding that additional federal dollars may become available for fiber buildout as infrastructure investment and economic stimulus.

The State or the Legislature/JFO consulting engineers will need to convene the appropriate representatives of the Department of Public Service, Department of Health, Agency of Education, Agency of Transportation, Agency of Digital Services and the Department of Public Safety to establish a short term needs assessment. The goal of this needs assessment is to identify all of the locations of households and businesses that require improved broadband connectivity to ensure participation in telemedicine, distance education, remote work.

A secondary goal should be to identify possibilities for simultaneously improving resilient public safety communications including regional dispatch LMR and hardened emergency 911 calling access during power outages, as well as shared fiber opportunities.

CUDs, municipalities, supervisory unions and health care providers might also begin work immediately to identify sites which already have or are now reachable by adequate symmetric broadband service and which are available to provide safe locations for use by residents located beyond the reach of the interim wireless broadband. These sites might include plans for well-spaced or "distanced" cubicles arranged in publicly accessible buildings with sufficient fiber speed broadband and privacy to serve as remote work / education / telehealth sites. These flexible use "satellite" sites may become necessary and even essential

to support students, teachers and remote workers at the required safe social distances commensurate with equal educational opportunity obligations.

As with any consideration for how fixed wireless technology can contribute to charting an achievable path for the state to move to its mid-term goals of ubiquitous 100/100 connectivity, a similar analysis for each technology should identify strategies for how fixed wireless and it's required fiber backhaul can contribute to improving mobile wireless (cellular) coverage in the state. In conducting this analysis, neutral host mobile wireless coverage should not be used as an excuse to ignore mobile wireless. It may well be that federal broadband infrastructure grants can reduce the cellular coverage capital costs.

Because CUDs are an important part of the state's mid-term goals for establishing expanded fiber in the state, the planning and analysis described above should be carried out with the CUDs' active participation. To make that participation effective, the State should immediately provide financial support to CUDs so that they can hire full time staff or develop the professional services contracts necessary to accomplish these urgent planning tasks.

8. Some significant issues not addressed above:

a. Would spending federal funds according to the EBAP serve to resolve orto aggravate wasteful duplication of state owned, leased or controlled communications facilities? E-911? Public Safety? ADS? VSC? VTrans?
b. How might transparency of fiber facilities location and available capacityamong various owners encourage sharing of facilities on an open access basis or, conversely, facilitate unfair competition or predatory builds of monopolyfiber?
c. How will the required statutory public participation process of telecommunications planning be encouraged or impeded by the private carriers or CUDs claims of trade secrets with regard to infrastructure which might otherwise be shared, also in accordance with statute?
d. How would EBAP proposed reverse auctions handle competing bids from wireline and wireless bidders? Satellite service bidders? No informeddiscussion of the impacts of latency, jitter and asymmetric technology options which dramatically impact or limit the usefulness of video conference technology has been presented to policymakers.
e. Has the Department completed and adopted a current Ten Year Telecommunications Plan as Required By Law? Or have plans, drafts, skipped hearings on final drafts, naming a first draft a final draft, as the 2018 10YP and the EBAP did! Does all this show a gaming of the system and a flagrant disregard for the statute?
f. Has the lack of any current and duly adopted Plan worked to the benefit of FairPoint or Consolidated when 30 VSA § 226b Incentive Regulation Plansare required by statute to be found to be consistent with a duly adopted and current Ten Year Telecommunications Plan?
g. What accountability or penalty measures should apply if broadband providers

fail to deliver services as contracted?

h. Are the Department's fiber and cable buildout cost estimates reasonable and verifiable?
    i. Otelco, which now owns Shoreham Telephone in Vermont, estimated rural fiber build costs to be $18k-$22k/mile. But Magellan Partners estimates the cost of aerial fiber to be greater than $38k per mile. Is the Magellan estimate too high?
    ii. Magellan admitted in the House E&T Committee that they based their fiber build cost estimates on the assumption of the statewide availability and accessibility to competitively priced middle-mile fiber across Vermont. Does that suggest that their estimates are too low?

Vermont's Emergency Broadband Action Plan-comments

Tuesday, May 26, 2020 11:17 AM

Subject	**Vermont's Emergency Broadband Action Plan-comments**
From	Thauna Abrin
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 11:12 AM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

My name is Thauna Abrin and I am a naturopathic doctor in Hardwick.

I am extremely concerned about the Vermont's Emergency Broadband Action
Plan to set up 5G wireless technology in the Northeast Kingdom.

As a doctor, I have read research from Israel about the harmful effects of EMFs on our immune, endocrine and neurological systems. I dont see
any need or benefit of 5G technology in our region, but rather more harm than benefit.

Please consider safe fiber-optic wired internet in our state, which is the most logical plan for financial, logistical and health reasons.

Sincerely,

Dr Thauna Abrin Hardwick Vermont

--

5G comment

Tuesday, May 26, 2020 11:24 AM

Subject	**5G comment**
From	Michael Fannin
To	PSD - Telecom
Cc	emfsafetyforvermont@gmail.com
Sent	Tuesday, May 26, 2020 11:15 AM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Gentlemen
I've read your broadband action plan and I am disturbed at your enthusiastic embrace of 5G technology and your assumption that general public feels the way you do. Do you have any evidence of that? Have you offered a referendum on the matter? Are you able to offer definitive proof of its safety? The leaders of this industry were not able to do so when asked in congressional testimony. Do you know something they don't. Why accept the tired old trope that the former industry lobbyist who staff FCC have been pushing for years that every device operates within their levels of approved exposure to radiation? It's the second highest exposure rate allowed in all of the different countries that it is being developed in.
What do these other countries know that we ignore? I've listened to hours of public testimony and committee meetings at the state house and I'm depressed at the level of willful ignorance demonstrated by our legislators and agency heads. I wish that you would protect the Vermont public rather than rubber stamp what ever the wireless industry hands you.
What you can do, and do at less final cost in energy consumption and with greater safety is use fiber optic. We have had it here in Tinmouth for years and we love it. It provides all of the benefits of connectivity and none of the health hazards. Please make your first priority public safety.
Michael Fannin
Emergency Management Director Tinmouth V

5G wireless proposal feedback

Tuesday, May 26, 2020 11:33 AM

Subject	**5G wireless proposal feedback**
From	Cate Kelley
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 11:28 AM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Dear Vermont Public Service Board,

I am very concerned about the proposal to fast track 5G wireless technology.
While I am aware that all Vermonters need to have the option to have decent internet service, 5G technology is not the best way for our State to achieve this goal in my opinion.
It would be a better long term solution if the existing Fiber Optic Cable network were expanded. The teletelecommunications providers should be required to provide fiber to the homes and businesses (FTTP) that can connect to wireline equipment in the premises. This way existing wired telephone and Internet services would not need to be replaced with wireless.
Passing legislation to fast-track 5G using a waiver of Act 250 and the Section 248a processes to install wireless facilities is NOT in the best long term, interest of Vermonters and our environment.

Lastly, I object to the use of our emergency funding for 5G development. It's a very poor investment for our beautiful, mountainous State.
I appreciate the opportunity to weigh in on this extremely important issue. Thank you! Sincerely,
Catherine and Ron Kelley Jamaica Vermont

EBAP - Comment

Tuesday, May 26, 2020 11:50 AM

Subject	**EBAP - Comment**
From	Timothy O'Dell
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 11:38 AM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

With respect to proposed Emergency Broadband Action Plan (EBAP) kindly consider:

Act 79 sets clear policy favoring fast, symmetrical speeds of 100 / 100 Mbps “down / up”

Cable and DSL operators cannot provide 100/100 signals to any significant subset of their customers.

Cable and DSL operators cannot provide symmetrical signals at any reasonable speeds at times of extensive network use.
Cable and “copper” technologies are not scalable to such even higher higher speeds in excess of 100 Mbps required for fully two-way, state-of-the-art applications now and in the near future.

Therefore, Act 79 sets implicit policy in favor of fiber optic networks for existing, high, symmetric speeds
and “future proof” scalability.

Proposals contrary to Act 79, to fund marginal expansion of existing, soon to be obsolete, 25 /3 or slower, services for questionable, short-term results and marginal improvement are STRATEGIC ERRORS.

Such STRATEGIC ERRORS would not be considered except in expectation of “free federal funding” for telecom infrastructure. Such funding has so far proved an “egg cream” style illusion – all name, no substance.

Failing to insist on best available technology, particularly in this crisis year, Vermont will further DAMAGE ITS BRAND, branding itself as technologically second rate, a backwater, an also-ran.

Finally, a short story about a young couple and their two young daughters who tried to make a life with their extended family in my town. He is an entrepreneur – partner in an agricultural software start-up. All liked life here, but available bandwidth, lack of symmetry and latency failed to provide sufficient connectivity for daily engagement with colleagues. This is the sort of loss that towns, aging out like this one, cannot afford. Available service is poor such that this family's concept never got a realistic test.
They were forced to move away, leaving Vermont.

--
Tim O'Dell Corinth

5G concerns

Tuesday, May 26, 2020 11:50 AM

Subject	**5G concerns**
From	Saveria
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 11:48 AM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Hello,

I would like to comment on the Emergency Broadband Action Plan.

I have had to learn about the effects of EMF technologies in a peculiar way; through my health. I have been struggling with chronic fatigue and Epstein-Barr for many years now. I started realizing that when I spent a number of hours in wi-fi, I would come home and my symptoms would become much worse. On some occasions I wouldn't be able to lift myself from the chair I was sitting in.

I began to research and found that EMF actually deplete the energy of the immune system, since anti- oxidants have to be wasted grounding out the free radicals caused in the human body by the EMF.

Be careful, do not think that EMF are harmless, and don't be bullied by social pressure, or lobbyists pushing agendas. I am the canary in the coal mine.

Another thought, I believe it is highly possible for these 5G towers became a target for eco-terrorism, if it ever got that bad. Imagine a billion dollar transmitter being ruined, I think we could better spend our money.

I am also concerned about all the dwindling species, because we do not know how this will affect them. I don't want already threatened animals becoming experiments in a "laboratory".

Thank you so much for your time, Saveria Boyer
Walden VT

Sent with ProtonMail Secure Email.

Tuesday, May 26, 2020 12:18 PM

Subject	
From	Ali Savitt
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 12:15 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Dear Vermont Department of Public Service:

In response to Vermont's Emergency Broadband Action Plan, I want to say that while I am very much in favor of accessibility of internet access for all Vermonters, I am very much against the "technology neutral" approach mentioned in the EBA plan. I do not believe it is appropriate to fast-track 5G wireless infrastructure when this technology has not been proven to be safe. The FCC safety standards have not been updated in over twenty years. In contrast, there have been thousands of peer-reviewed studies that show the detrimental effects of small-wave high-frequency radiation on humans as well as plant and animal life.

Vermont prides itself on promoting healthy life-style choices and being conscientious stewards of the environment. Ignoring all of that to bring 5G to our state would be a disastrous and quite unnecessary choice. Much of the mountainous terrain in the areas that need more internet access don't even support 5G technology. And the requirement of cutting down trees in some circumstances to allow more effective 5G transmission is an even more absurd choice during a time when trees are desperately needed to sequester carbon.

The idea of using 5G in schools as being proposed in Rutland is an especially disastrous health choice, when high-frequency RF radiation has been found to have neuro-psychiatric effects on children, among a host of other vulnerabilities.

Although there have been numerous articles in media sources such as the NY Times that discredit studies claiming that 5G is unsafe, it must be pointed out that there is a huge conflict of interest due to the fact that most mainstream media sources are heavily partnered with the Telecom industry and are now doing everything in their power to discredit opposition to 5G.

The option of fiber-optic wired internet access is safe, more secure against hacking, and a much better economic investment as well.

Thank you allowing public comment on these important decisions that have such a strong impact on Vermont.

Sincerely, Ali Rose

FW: Public Service Emergency Broadband Public Comment Draft

Tuesday, May 26, 2020 12:22 PM

From: Cassie Polhemus <cpolhemus@veda.org>
Sent: Wednesday, May 6, 2020 5:34 PM
To: Tierney, June <June.Tierney@vermont.gov>
Cc: Purvis, Clay <Clay.Purvis@vermont.gov>; Fargo, Audrey <Audrey.Fargo@vermont.gov>; Thad Richardson <trichardson@veda.org>
Subject: RE: Public Service Emergency Broadband Public Comment Draft

Hi June,

As a very interested citizen in the future of Broadband in Vermont, I have been following some of the testimony to the Legislature, but I will admit I hadn't read anything on how VEDA might play a larger role until your e-mail. I am cautiously optimistic and excited for the potential to use some of the CARES stimulus to improve Broadband statewide, but I also need to hit the pause button when it comes to how much VEDA can take on.

VEDA's entire loan portfolio right now is about $280 million, so from a scale standpoint, this would potentially double the size of VEDA's balance sheet. We do not have access to the required liquidity to fund this plan as structured. When the Legislature approved the VEDA Broadband Loan Program last year, we received not only the $540,000 appropriation for loan loss reserves, but also an additional $6 million in Moral Obligation from the Treasurer to enable us to access funding for the program. We would need significant additional MO to access the needed liquidity for the EBAP as contemplated.

Aside from the liquidity issue, the high level of credit risk would have significant consequences to VEDA's ability to continue as a going concern if one or more of these loans defaulted. If I understand the plan correctly, VEDA would only receive $13 million for loan loss reserves; actual losses above that would have to be appropriated by the state. The existing Broadband Loan Program caps VEDA's losses to our historical loss rate on our commercial portfolio, plus an additional $3 million which would be split with the state. We cannot take the risk of not knowing if lawmakers will approve funding losses several years down the road after all the CARES money is gone.

I wanted to share these concerns with you before our call next week. I very much want to find a way VEDA can play a meaningful role and leverage the CARES money without stretching our resources beyond what we can deliver, or exposing the Authority to an untenable amount of risk.

I am looking forward to the conversation next week. I've added VEDA's new CFO, Thad Richardson, to the call.

Hope you are staying well and healthy during this turbulent time. Cassie

--
Cassie Polhemus

CEO | **Vermont Economic Development Authority**
(P) 802.828.5627 (D) 802.828.5458 (M) 802.498.4005 |**www.veda.org**

From: Tierney, June <June.Tierney@vermont.gov>
Sent: Tuesday, May 5, 2020 4:30 PM
To: Cassie Polhemus <cpolhemus@veda.org>
Cc: Purvis, Clay <Clay.Purvis@vermont.gov>; Audrey Fargo <audrey.fargo@vermont.gov>
Subject: Public Service Emergency Broadband Public Comment Draft
Importance: High

Hi Cassie –

Here is an advance copy of the Emergency Broadband Action Plan prepared by the Department of Public Service. The Department will publish it at 5pm on its website for public comment. There is an executive summary at the top of the document for your quick reference.

First, my apologies for not being in touch with you during this drafting phase. You will see the Department has identified a potential role for VEDA to play that is very important in bringing about universal availability of broadband at the speed of 25/ Mbps in Vermont. See Section II c. beginning on page 9. This should have been socialized with you all ahead of time, and would have been if time had permitted. It was work we did under the time pressure of the COVID-19 emergency, otherwise I would definitely have reached out for VEDA's input before putting pen to paper.

As far as I am concerned, you have every right to hit this plan as hard as you think is warranted as you review it. I truly welcome your input on how to build a better mousetrap. I have looped in Clay Purvis, the Department's Director for Telecom so that he is aware of this email.

Also, by copy of this email, I am asking Audrey Fargo of my office to contact you to set up a time for you, Clay, and myself to meet to discuss your feedback on this plan.

Meanwhile, please stay safe and stay well. JET

June E. Tierney
Commissioner
Vermont Department of Public Service 112 State Street, 2nd Floor Montpelier, Vermont 05620-2701

To: Dept. of Public Service, Legislators, and Other decision-makers regarding broadband planning

Tuesday, May 26, 2020 1:28 PM

Subject	**To: Dept. of Public Service, Legislators, and Other decision-makers regarding broadband planning**
From	Heidi Kole
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 12:23 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

I am writing with the unique perspective of living both in VT & NYC so have first hand experience of what it's like living in a 5G envorinmnet, NYC, as well as a, to date, 'pristine' landscape, VT.

NYC - in the past 12 months 5G cells have been installed on every building redisential & commercial alike, in NYC including water towers.

The death rates in my building alone has skyrocketed since said installations.

Young and elderly alike have had the follwoing physical symptoms from being near the 60ghz cels & antennas

- Ringing in ears
- Vertigo
- Heart Palpitations
- Shortness of breath
- Inabiltiy to think or concentrate properly

And finally - it appears, **a much lowered immune system due to decreased oxygen uptake ability when exposed to 60ghz 5G.** As during the recent COVID outbreak demonstrates, we've had on average, in a 46 story 5G building, 7-14 deaths a week as compared to other parts of the Nation which have yet to be fully outfitted w/ 5G, which come nowhere close to that casualty rate.

Some data on what 5G 60Ghz does to your body's oxygen uptake capacity https://ourgreaterdestiny.org/2020/02/5g-60-ghz-oxygen-absorption-you-and-coronavirus/ https://www.livescience.com/silent-hypoxia-killing-covid-19-coronavirus-patients.html

Secondly - Vermonters should know that for 5G to work, 5G Cells need to be placed **EVERY 500 FEET**, in your towns, cities & on your property.

Consider your propperty values https://www.nytimes.com/2018/03/02/technology/5g-cellular-service.html

Imagine your current porperty covered in 5G cells

Consider what will happen to property values as more & more people are affected as I & my NYC neighbours have been as to the devastating effects of 5G, what they will find valuable at that point, when seeking refuge from 5G.

I urge every Vermonter to weigh carefully what you may be trading for what is currently 'promised' by Big Telecom in your precious state.

Many states, cities, townes & countries all over the globe have already banned 5G after doing their research & homework

Here is a partial list of these 'safe zones' around the globe: https://smombiegate.org/list-of-cities-towns-
councils-and-countries-that-have-banned-5g/
Finally - I strongly support highly efficient, non-toxic, fibre cable connectivity for all of Vermont.
I do not consent to the development of 4G / 5G in the state of Vermont.
I do consent to & fully support the development of fiber optics (FTTP) to all premises in the state of Vermont.
Sincerely, Heidi Kole LINKS

- https://tennesseestar.com/2020/05/20/town-of-farragut-resolution-petitions-state-and-federal-government-to-halt-5g-pending-fcc-reevaluation-of-decades-old-standards/
- https://gumshoenews.com/2020/05/04/study-shows-direct-correlation-between-5g-networks-and- coronavirus-outbreaks/

Emergency Broadband Action Plan - A Public Comment

Tuesday, May 26, 2020 1:28 PM

Subject	**Emergency Broadband Action Plan - A Public Comment**
From	Kim Hall
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 12:23 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

These comments concern the proposed Emergency Broadband Action Plan. I believe that it is **breathtakingly short sighted**. Expanding wireless broadband service is a poor expenditure of the State's precious resources. Why would you wish to invest in a technology which will **delivers poorer service** than the competing technology. Why would you wish to invest in technology that **requires more energy** than the competing technology? Why would you wish to invest in a **less reliable** technology than the competing technology? Why would you wish to invest in a technology that **sacrifices privacy** rather than the competing technology? Why would you wish to invest in a technology that is **vulnerable to attacks** rather than the competing technology? Why would you wish to invest in a technology that has **potentially dangerous consequences to public health,** particularly children's health? What justifications outweigh these concerns? You have been entrusted with fostering the best outcome for the people of Vermont. Do so. **Serve our businesses and homes with fast, safe, and reliable fiberoptic connections.** Kim Hall
North Bennington, VT

Emergency broadband plan

Tuesday, May 26, 2020 1:28 PM

Subject	**Emergency broadband plan**
From	Talia Gorelick
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 1:00 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

To the Department of Public Service:

I am a nineteen year old Vermont-born citizen. I am writing because I do not approve of 5G implementation here in Vermont.

The broadband emergency plan mentions 5G many times and comes with the assumption that we all want it. Nothing could be further from the truth.

Telecom is not a citizen, nor an elected official. So they should not be determining issues like this in our beloved state. Before any technology is established it should undergo rigorous research. This has not happened where 5G is concerned. In the rush to implement broadband, don't make the mistake of setting up a technology of which no one knows the long term effects.

There is the fiber optic - wiring to the premises option available, which is perfectly safe. This should be the only method used.

Thank you for understanding our concerns for the future. Talia Gorelick

Emergency Broadband Action Plan

Tuesday, May 26, 2020 1:29 PM

Subject	**Emergency Broadband Action Plan**
From	Stephanie Horn
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 1:02 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

To whom it may concern,

Your plan states that "everyone wants 5G and everyone wants wireless. This is not true for me, my family, my friends or my neighbors. Our community is fighting a new cell phone tower because it is a blemish on our town and will negatively affect the health of the residents nearby. It is very alarming that the State of Vermont is using a health crisis to usher in 5G technology which we know is harmful. Millions of dollars should not be spent in this manner. We do not need more ugly cell phone towers wrecking our beautiful Vermont landscape. Wireless technology is not well suited for the mountainous landscape of Vermont. There are ways to increase connectivity and internet capacity without wrecking our landscape and putting our health at risk. I would like to see tens of millions of dollars funding a Fiber Optic Cable network. It is fast, safe and secure internet. I hope the State will consider carefully the risk in experimenting with a new technology that many communities are now banning.

-Stephanie Lacayo Fairfax, VT

Emergency Action Broadband Plan - Comment (Ken Austin)

Tuesday, May 26, 2020 2:24 PM

Subject	**Emergency Action Broadband Plan - Comment (Ken Austin)**
From	Kenneth Austin
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 1:02 PM

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I think getting modern internet to all households in Vermont is essential. However, 25/3 is not an acceptable long term speed, and my concern is that settling for that now means that's the best rural Vermonters are going to see for a very long time. As an example that most people can probably relate to, 25 megabits down barely qualifies for Netflix's recommended download speed for 4K (ultra HD) video streams, and 8K video is already on the horizon. At the same time, it's basically impossible to upload a live 1080p video stream with good, watchable quality at 3 megabits up. For example, popular streaming service Twitch.tv recommends a 6Mbps bitrate for 1080p / 60 frame per second video streams. This is to not even mention high bandwidth use cases that might exist for those working or learning from home, especially in households with multiple members.

Also, the proposal seems to suggest that 5G wireless internet is an acceptable substitute for a proper wired connection to the home. It isn't. While 5G wireless coverage is certainly desirable on its own for multiple reasons (my home has 0 bars of cell service for example), the consumer costs, latency, and data limitations in particular of wireless service make it an unrealistic internet solution for most households. It's the same problem that's presented by satellite internet. They advertise "unlimited" data usage, but that's false from a practical perspective. What good are advertised 25, 50, 100 or even 1000 megabit per second download speeds when you have a 20-50 gigabyte data cap that throttles your connection down to around 1 megabit per second for the rest of the month after you exceed it in a week or two?

My home at 2962 Keiser Pond Rd in West Danville 05873 only has access to internet speeds of 3 Mbps down and less than 1 Mbps up from Consolidated Communications. To put things in perspective, my childhood friends that lived in the center of Danville, less than 5 miles away by road, had better internet than that 20 years ago. That's an objective failure of service providers in the state who seem to view the idea of providing quality internet service to rural households as an inconvenience to their bottom line at best. The cable TV / internet lines stop less than half a mile from my house, and Charter has repeatedly refused to upgrade the infrastructure on my road to provide service to my address as well as a few homes nearby, should they be interested. Upgraded service from Consolidated Communications is nowhere to be found, despite asking about it many times over the past few years. In fact, their internal systems incorrectly put my address in the 05828 zip code, which makes their sales staff think an upgrade to 25/2 is possible, only to have it shot down by their technical staff because their systems can't even accurately determine where I live.

My point is this: service providers have proven time and time again that they aren't going to lift a finger to improve the quality of service for rural Vermonters on their own. If we are going to spend this money, we need to make sure that households are getting high quality internet that's better than they need right now, because this is probably the best they're going to get for the next 20 or more years.

Best regards, Ken Austin

Comment on the Emergency Broadband Plan

Tuesday, May 26, 2020 2:24 PM

Subject	**Comment on the Emergency Broadband Plan**
From	rose friedman
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 1:11 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

To Whom it May Concern,

I am writing to you from East Hardwick, Vermont, where I work and live. I home school my two kids and run a small business out of my home. I want to loudly voice my disagreement with the idea that "everyone" wants or needs 5G. My husband and I have chosen to live, work, and raise children in Vermont because it is a state that has worked hard to protect and maintain its environment. If these protections continue to be worn down, and if 5G becomes the reality, it will not make it a more inviting place to live, but will actively drive many families like ours out. As a committed community member, small business owner, and mother, I beseech you to consider the long lasting damage this kind of "emergency plan" will bring to our state. We want to stay in our home, and continue to raise our family in this place we love so dearly. Careful consideration and research has shown that connectivity using fibre optic cable, is the best path forward. It will be faster, more reliable, secure, and resilient, and more protective of privacy than wireless connectivity.

Thank you for your thought and care, Rose Friedman

East Hardwick, VT

The Possibility of 5G in Vermont

Tuesday, May 26, 2020 2:25 PM

Subject	**The Possibility of 5G in Vermont**
From	amwakeen@myfairpoint.net
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 1:51 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

To Whom it May Concern:

Due to recently spending five months in Idaho getting successfully treated for Lyme disease, I was able to directly observe the impacts of 5G installations; impacts that were extremely and seriously negative, both health-wise and economically. I therefore, urge the DPS to reject installing 5G in Vermont and state the following:

1. Any funding coming to Vermont should have long-term benefits. The policy of Vermont should not be **"technology neutral",** but focus on building out a statewide fiber optic cable network.
2. Vermont should require all telecommunications providers to provide fibre to the premises (FTTP) that can connect to wireline equipment in the premises, and to not replace existing wired telephone and Internet services with wireless. As DPS must be aware, wireless technology is a poor investment for mountainous Vermont.
3. Connectivity, with wires and in particular fibre optic cable (fibre), is the best means to fulfill this need. Fibre does not emit radio frequency (RF) radiation that is harmful; fibre is at least 100 times faster, more reliable, secure and resilient (Wireless cell networks are constantly upgraded whereas cable or fibre is laid once) and is far more protective of privacy than wireless connectivity; wireless technologies have a much larger carbon footprint than wired technologies, rely on rare minerals, and the Institute of Electrical ad Electronics Engineers (IEEE) published that, "Wireless technologies will continue to consume at least 10 times more power than wired technologies";
4. The DPS talking point is "everyone wants 5G, everyone wants wireless." As the DPS must be well aware, this statement is completely untrue and suggests the use of tactical strategies which are shameful. Many citizens are aware of the above-mentioned bullet points, as well as the privacy issues which come with installing 5G. Many citizens, as DPS must be well aware, do not want 5G. I urge DPS to speak with a conscience in the future.
5. We, Ann Marie Wakeen, Catherine O'Brien, Harry O'Brien, Sophia Wakeen and others in our community urge DPS to abandon the idea of installing 5G in Vermont.

Emergency Broadband Action Plan

Tuesday, May 26, 2020 2:26 PM

Subject	**Emergency Broadband Action Plan**
From	James Minnich
To	PSD - Telecom
Cc	EMF Safety for Vermont
Sent	Tuesday, May 26, 2020 1:53 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

What is wrong with Vermont? Other states are revolting against having their civil liberties overtaken by the satanic telecom companies. Why does Vermont continue to prostitute themselves to these leaches. They don't care about our citizens. They only care about how much money they can steal from our already depleted treasury. Surely this money can be better used to help Vermonters who are trying to scratch out a living during these economic depressed perilous times. The emergency is not about broadband communications, it is about Vermont trying to survive the pandemic without having additional debilitating health issues imposed on them.

Health Hazards from Cell Phone Technology "Beyond Measure"

Cell phones operate essentially by sending and receiving radiofrequency radiation from their antennas to a nearby cell tower.

Thousands of independent studies link Radiofrequency radiation exposures from cell phones to a number of very serious diseases such as; **Cancer** [3], **Infertility** [4], **Cardiovascular Diseases** [5], **Birth defects** [6], **Memory Problems** [7], **Sleep Disorders** [7] and so on.

5G Technology Comes With Increased RF Radiation Exposure

These millimeter waves (MMWs) as used by the 5G network can transmit large amounts of data within a short period of time. But over short distances and also, the other big issue is that the signal is poorly transmitted through solid materials.

This means massive transmission of MMW will be needed.

Many new antennas will be needed. We are told full-scale implementation may require at least one antenna for every 10 to 12 houses in urban areas.

Also, the MIMO (multiple-input multiple-output) technology is expected to be used massively. The MIMO technology is a wireless system that uses multiple transmitters hence, it is able to send and receive multiple/more data at once. Some 4G base stations already use MIMO technology. Standard MIMO involves four to eight antennae. MIMO for 5G may involve approximately 100 antennas per cell tower – that's a lot of antennas!

Increased transmission leads to increased capacity, so electromagnetic radiation levels can only increase. The concern is that, given what we know about radio frequency radiation, this **mandatory environmental increase in exposure to EM radiation** will lead to increased health risks.

A number of studies have demonstrated the detrimental health effects of the MMW frequencies used in 5G technology.

One Israeli study [8] lead by Dr. Yuri D Feldman found that human sweat ducts act as an array of tiny, helix-shaped antennas when exposed to MMWs. Their findings suggest that human skin not only absorbs but also amplifies the radiation from MMW networks. A study carried [9]out to evaluate the interactions and implications of

MMWs (60GHz) with the human body discovered that *"more than 90% of the transmitted (MMWs)*

power is absorbed in the epidermis and dermis layer."
The effect of MMWs on the skin is arguably the greatest concern of these new wavelengths utilized by 5G technology.
We might well be looking at the possibility of increased incidences of many skin diseases and cancer in the coming years in areas where the 5G technology is deployed. **Profound Effect On Immune System**
A 2002 Russian study [10] carried out to examine the effects of high-frequency **electromagnetic radiation** (42HGz) exposure on the blood of healthy mice found that, the activity of cells involved in immunity such as the neutrophils reduced drastically (about 50% decrease in activity).
It was concluded that *"the whole-body exposure of healthy mice to low-intensity EHF EMR has a profound effect on the indices of nonspecific immunity."*
Damaging Effects on The Heart
A 1992 study [11]found that frequencies in the range 53-78GHz impacted the heart rate variability (an indicator of stress) in rats. A Russian study [12]on frogs whose skin was exposed to MMWs discovered abnormal heart rate changes (**arrhythmias**).
Hazardous Effects on the Eyes
In 1994, a study [12]carried out in Poland to evaluate the influence of millimeter radiation on light transmission through the lens of the eyes. It was discovered that low- level MMW radiation produced lens opacity in rats, which is associated the production of cataracts.
A Japanese experiment [13]carried out to examine the potential for 60-GHz millimeter- wave exposure to cause acute ocular injuries found that 60GHz *"…millimeter-wave antennas can cause thermal injuries of varying types of levels. The thermal effects induced by millimeter waves can apparently penetrate below the surface of the eye."* **180 Scientist and Doctors Call For A Moratorium**
Scientists are concerned as well. More than 180 scientists and doctors from 35 countries [14], have recommended a temporary ban on the roll-out of 5G technology until its potential hazards on human health and the environment have been fully evaluated by scientists independent of the telecommunication industry.
What Are The Real Dangers Of 5G Technology?
The short answer is: we don't fully know yet! But the **studies** we have on this are a cause for concern.
The health hazard of the most studied 3G CMDA technology (shown to cause an array of detrimental health effects) have not been fully revealed, yet, here we are, at the verge of adopting a potentially more dangerous technology.
Don't you think we should fully evaluate the health effects of 5G before rolling out the technology?
Let's not forget, alternatives to wireless mobile technology are available. Fiber Optic Broadband Technology is a feasible and safer alternative. I firmly believe that technological improvement can be attained without jeopardizing the health of the general public.

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Message Regarding Cell Phone Towers

Tuesday, May 26, 2020 2:26 PM

Subject	**Message Regarding Cell Phone Towers**
From	David Ozahowski
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 1:54 PM
Attachments	Dear Men, Women a...

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Good afternoon,

Attached you will find a letter regarding the placement of cell towers in Vermont. It is also pasted below.

Thank you for your time.

May joy and peace be with you and yours, Davey Ozahowski

Dear Men, Women and Children of the Green Mountains,

As the tender apple blossoms bloom and the hidden harmony of the avian choir sings in the verdant canopy that now puffs and rolls over our hills and mountains, may this, may this dear neighbor, greet you with a seed sprouting, clear water trickling smile.

But, dear neighbor, have you heard that we are about to be towered over? Have you heard that cell phone towers are ready to take root in our soil?

May this serve to remind one and all that this is a place where we don't appreciate being looked down upon.

For it is fine, fine land around here—here in this "brave little state." Land we preserve. Land we cherish. Land from Canada to the extending shadow of the Bennington Monument. Land from the long corridor of the Connecticut to the mighty chops and jostles of Champlain. Land that was wrought by the sacrifice, genius and will of Allen and our Forefathers. Land that was tearfully lost and taken from our Native Americans. Land we live off. Land we make our living from. Land folks visit to snap photos; taste syrup; gaze at the fiery hillsides; chomp on our crop and harvest; admire the works of our craftsman and artists; ski through our silent sunshine forests; and be, be in and around Nature and that bucolic lifestyle that charms the heart just right as the cows go on a grazing

through our pastures and the church bells go on a ringing through our dales and hamlets.

This is a state of Freedom. This is a state of Unity. This is a province where egalitarian principles are embedded in the bedrock of our Constitution: *“That all persons are born equally free and independent...”*
Right and ready to oppose tyranny, supporting a fledgling Revolution with that Green Mountain Boy boundless spirit.
Right and ready to oppose enslavement, on the front lines for Lincoln and standing for the best of the North.
Right and ready to stay strong and lend a helping hand to rebuild and reengineer after Hurricane Irene.
Right and ready and self-reliant: Vermonters.

Shortcuts for big and mighty monetary bucks, well, well that ain’t honest; no, and it ain’t the Vermont way. No billboards around here to disrupt our treasured landscape; no advertisements beckoning and disturbing the long, thoughtful gaze that peers out at our hills; our mountains; our rivers; our lakes; our waterfalls; our ledges; our fields; our farms; our wildlife; our faces; and our children. What you
see is what you get and what get is lovely; what you get is divine poetry of seasonal stanzas that go on a changing and churning in a long, drawn out circle of life that glimmers and shines at daybreak and sunset.

But things are changing direction and changing fast. So we ask, is perverting our landscape with an onslaught of cell phone towers, wrestling with the clouds and stars, imbedded above our hills, good for our land and our children? As we follow along, accepting the constraints of the pandemic times, limiting our ability to gather and hold council, is now the time to be ambushed by towers?

Are massive cell phone towers anything but a transparent advertisement? Are they not a belching reminder to all that we have succumb to the corporate tattoo as the metal ink stains our hillsides for generation and generation to look upon as a permanent reminder of how we were placed prostrate before the corporate branding? Massive billboards! Massive billboards sending health compromising rays of numerical G forces through hill and dale, through body and skull, through wing and tail, through mother and child, sparing none.

For our first responders? Well by golly, bless, bless, bless their good souls. Souls that are called to duty and react without a flinch, heeding the call in the blink of a piercing eye, the patter of a good heart, to hold and comfort and bring solace, like the sun after a storm, to our neighbors who have been struck by misfortune.

Are massive cell phone towers, pointing to the heavens, our only solution? Might there be another way to give our first responders reliable communication and connect those of us who live in rural outposts?

Greed moves the mighty buck and the more we let it rut through our countryside, opening the floodgates for corporate breeding, we might just find ourselves with wounds so deep that even our first responders will not be able to help us heal.

It is Freedom and Unity around here. So let us be free to make moral decisions; to listen to our neighbors; take their voices to heart; keep our legislators accountable to *we the people*, and may, may we pledge to Unite in the present so posterity can smile when thinking back upon how we as Vermonters continued to keep the best interest of our land and our children in focus when threatened to be towered over.

Your neighbor, your friend,

Always and forever, your fellow Vermonter

DEAR MEN, WOMEN AND CHILDREN OF THE GREEN MOUNTAINS,

As the tender apple blossoms bloom and the hidden harmony of the avian choir sings in the verdant canopy that now puffs and rolls over our hills and mountains, may this, may this dear neighbor, greet you with a seed sprouting, clear water trickling smile.

But, dear neighbor, have you heard that we are about to be towered over? Have you heard that cell phone towers are ready to take root in our soil? May this serve to remind one and all that this is a place where we don't appreciate being looked down upon.

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see is what you get and what get is lovely; what you get is divine poetry of seasonal stanzas that go on a changing and churning in a long, drawn out circle of life that glimmers and shines at daybreak and sunset.

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Your neighbor, your friend,

Always and forever, your fellow Vermonter

5G comments

Tuesday, May 26, 2020 2:37 PM

Subject	**5G comments**
From	Deborah Hartt
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 2:27 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Hello good day to you,
I am writing to ask that you Please Slow Down,...
We need more time to assess environmental & health impacts before rolling out 5G in Vermont.
I have read that RF radiation, the radiation cell tower antennas and cell phones (among others) emit, is scientifically demonstrated to cause many adverse health problems including memory deficits, genetic damage and some cancers, to name a few.
Please Slow Down!! Let's see more research, and allow for more public input and comments please.
I thank you for reading this. Peace,
Deborah Hartt
East Hardwick, Vermont 05836 Sent from my iPad

Emergency Broadband Action Plan Comment

Tuesday, May 26, 2020 2:50 PM

Subject	**Emergency Broadband Action Plan Comment**
From	Edward Childs
To	PSD - Telecom
Cc	Carl Demrow; Mark Macdonald
Sent	Tuesday, May 26, 2020 2:47 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Dear Sir or Madam,

I am an engineer residing at 1804 Pike Hill Rd. in Corinth, VT. I work at Concepts NREC in White River Junction.

For the past two months, I have had to work remotely from my house, currently served by a DSL 4/1 service.

Among my responsibilities at work is to prepare training videos to instruct clients in the use of our software. To complete my assignments, I need to upload completed videos to my corporate cloud account.

With my current upload speed, it takes close to 24 hours to upload a typical compressed video.

I am writing to express concern at the provision in the EBAP to relax the Act 79 requirement that broadband expansion projects in order to be funded must deliver 100/100 speeds. Instead 25/3 is to be permitted in your proposed reverse auction. The asymmetrical speed would be equally useless for my needs, rendering it impossible to do my work, since I must upload large files on a regular basis.

The EBAP plan should stick with the 100/100 requirement, which will provide a growing number of work from residents adequate bandwidth to do their work.

Best regards, Edward Childs Edward Childs

+1 802 794-3589 (Best: Google Voice - Reaches me everywhere)
+1 802 222 6335 (Out of US Mobile)
+1 802 439 9117 (Vermont home)

Regarding the Fiber to premises vs 5G

Tuesday, May 26, 2020 2:53 PM

Subject	**Regarding the Fiber to premises vs 5G**
From	Emily Peyton
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 2:50 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

I have the exact same viewpoint as reflected in these carefully crafted letters, thus I am going to copy them here.

Rolling out 5G is a direct violation of the VT State Constitution, in so far as it will subject many to harm, knowingly and intentionally. I will be working to organize to hold you accountable should you allow it.

Thank you for reconsidering your position, Emily Peyton

I second the following:

Comment Regarding Vermont's Emergency Broadband Action Plan Fast internet access for all is a necessity in today's world.

The current pandemic crisis has highlighted areas of vulnerability in our state due to inadequate internet coverage.

That said, we now have a golden opportunity to revise Vermont's broadband buildout by using the most efficient and safest means at our disposal; a statewide fiberoptic cable network with fiber to the premises (FTTP).

Vermont's own Emergency Broadband Action Plan champions the need to extend existing cable lines. "There are thousands of underserved Vermonters who live within a mile of existing cable lines that could be extended to provide broadband service at 25/3 Mbps, which meets the federal law definition of broadband service. A fund could be created to defray the consumer portion of the line-extension cost to expedite the expansion of advanced telecommunications. Such line- extension subsidies would be an effective way to quickly reach students, patients, and workers with broadband access who are living through the COVID-19 emergency without the internet at home."(pg 18)

An article in todays WSJ crystalizes the problem many states face; namely how best to identify underserved areas and deploy resources to achieve optimal broadband coverage.

In $16 Billion Push to Expand Broadband, America Is Flying Through a Fog - WSJ 5/25/20
https://www.wsj.com/articles/in-16-billion-push-to-expand-broadband-america-is-flying-through-a- fog-11590399000

One customer's dilemma illustrates a widespread problem found in rural states like Vermont. Wireless service carriers claim to provide coverage in a given area, but many residents are not receiving it. Fiberoptic cable would better serve those residents but wireless carriers want to preserve their turf and customers lose out. Whereas Vermont's mountainous terrain and heavy foliage is inimical to wireless, fiberoptic cable is superior by every metric; faster speeds, unlimited bandwidth, better reliability and security, and no radio frequency radiation (RFR) emissions, a known health hazard.

Now is the time to determine what constitutes our safest, most reliable course of action. And it is not investing in more wireless, especially 5G.

Untested for safety and antithetical to Vermont's core credo in valuing individual privacy, adopting 5G would mean caving to the worst excesses of data mining and privacy infringement. There's a reason the US government declined Huawei's 5G technology, now the cornerstone of China's massive surveillance system.

Telecom companies promote 5G with a false narrative, claiming the public is clamoring for super fast speeds and streaming capabilities.

They have sued each other over misleading advertising.

5G is not an extension of 3G and 4G, but uses higher, untested frequencies that require massive

infrastructure density to work effectively. On top of existing wireless structures, it's a huge escalation in RFR exposure.
There are significant aesthetic issues in blanketing towns and villages with thousands of unsightly "cantennas" and other wireless detritus. Here again, fiberoptic cable proves superior. Cables are buried, unseen, never require foliage trimming, and emit no harmfulRFR.

The current pandemic emergency and Federal broadband funding presents our state with a landmark opportunity to shift away from wireless and invest in a fiberoptic future. At this critical juncture, we need to place the safety and needs of all Vermonters first.

To: Dept. of Public Service, Legislators, and Other decision-makers regarding broadband planning

Re: Emergency Broadband Action Plan Date: May 24, 2020

The Emergency Broadband Action Plan lays out needs, goals, and options, with an underlying subtext that presumes that the general public in Vermont wants, demands, and expects more accessible and increased wireless service throughout the state. The problem with this presumption is that it is just that, a presumption. I don't recall being asked if this is what I want, and I don't know anyone else who was asked their opinion on this matter, ahead of this request for comments on this Plan.

While I rely heavily each day on internet access, my computer is Ethernet wired, my phone is a land line, and I have no smart phone. This is all by choice. I am one of many Vermonters who do NOT want to see increased wireless services. More and better internet access, yes. More wireless, no.

Clearly, Fiber to the Home/Premise already is used and known to have the fastest speeds and clearest reception. In the words of your Plan, it "is widely considered to be future proof". It is SAFE, secure, resilient, and it is a known quantity. 4G wireless, which is already in use, is NOT safe, with radiation that has been making many people ill, but is already delivering what most people need for wireless use. 5G wireless radiofrequency/microwave radiation, orders of magnitude more intense than 4G, has been proven hazardous by approximately 25,000 independent, peer-reviewed scientific studies of RF/MW radiation bio-effects, but has escaped public scrutiny thanks to FCC "guidelines", which are now 24 years outdated, a situation that is obviously pro-industry all the way. And 5G wireless applied to populations is an unknown, making this a grand experiment on a large scale, world-wide. **Why would State agencies and legislators simply accept industry's word that 5G is "where it's at", end of story?**

The only reason you have not heard from many more citizens about this issue, is that 5G rollout has been up until now conducted stealthily, without public input or any substantive discussion. People, including legislators and public servants, are simply uninformed. **Why would anyone want to inflict a known neurotoxicant, carcinogen, cardiovascular threat, immunosuppressant, etc. on a general population, including themselves?** Where is the backbone in State government that would at least invoke the precautionary principle WHILE more REAL study goes into this decision?

Please do your homework. There are plenty of good, scientific sources out there that can lead you to primary studies, if that is what you wish. I have suggested a few below for a start. **This plan for Vermont should be a long-range plan that should be extremely well vetted, and putting resources forward that will ensure a safe, privacy-secure, resilient, and**

environmentally intelligent option that will be around for a long time. Vermont already has a good start on this project, with EC Fiber and other companies employing Fiber-to-the-Premises efforts. Please just help complete this project, rather than taking the 5G road that is fraught with corruption, potential health and environmental dangers, and a very uncertain future.

I do not consent to the development of 5G in this state. I do consent to the development of fiber optics to all premises.

Thank you for your consideration of my comments. Sincerely yours,

---

To Whom It May Concern:

I am a 5th generation Vermonter and have lived in VT my whole life. I am an organic farmer and largely live off the land. I do not own a smart phone and have no plans to get one. I have a land line and use the internet rarely.

The last thing I would want is to know that a 5G network was growing throughout Vermont. 5G is an unknown new thing, is pushed by industries, not customers, and is potentially extremely dangerous. I understand that fiber optics cables that go directly into the home are safe in many ways, and are already safely doing what they are meant to do, which is bringing the fastest internet to users.

Please be sensible and at least look deeply into ALL sides of this, not just taking industry's word
on any aspect of this new 5G technology. Thank you for reading this comment.

Sincerely,

I WOULD LIKE FIBER OPTIC. I don't want 5G antennas all over the place.

Little Vermont Telephone was able to wire a large swath of the state with fiber optic without charging their customers an extra dime for service.

First Light is in my area. They are a NY fiber optic company, I think, but seem to have no real interest in servicing Vermont in any meaningful way. WHY?

Has anyone done any real testing of resonant effects and constructive interference with regards to having 5G antennas radiating all over the place?

Resonance is the foundation of old-fashioned radio. When there is resonance, voltage or current can be magnified ENORMOUSLY. Has anyone done extensive testing to find out if the new 5G frequencies resonate with pine needles, honeybee antennae, human kidney cells, smooth muscle cells, neurons...

Would there be harmonics with any other radiation currently blanketing the state (Doppler radar, WiFi...???) that would create constructive interference?

Please gather that information and make it publicly available, please, if the state is going to be blanketed with these antennas.

It would be good, would it not, to not throw another pandemic-type situation at our healthcare

providers, who apparently missed the first SARS outbreak and the MERS outbreak and had no idea what coronavirus illness does and how to treat it. Western Medicine has barely any consciousness of the fact that we are electrical beings and that, for instance, “DNA FUNCTIONS AS AN ELECTRICAL WIRE IN A COMPLEX CIRCUIT.” (http://jonlieffmd.com/blog/human-brain/electric-dna-mind)

Respectfully,

I am writing to weigh in on public comment re: the proposed Emergency Broadband Action Plan for Vermont.
As a newspaper publisher, environmental historian, and professor of media and communication at the University of Vermont, I have studied the political economy of telecommunications and the pros and cons of 5G telecommunications networks for many years.
I enthusiastically support the deployment of a MORE SAFE, 100 times FASTER, and much more effective and resilient fiber "wired to the premises" telecommunications network for Vermont
I deeply oppose the current thinking re: the deployment of a 5G wifi telecommunications option, which is LESS safe, slower, less effective and much less resilient given the challenges of wiring together our beautiful mountains, river valleys, and the realities of extreme weather much of the year.
As you know, the US telecommunications industry and their well funded lobbyists are taking full advantage of this COVID moment to aggressively push for the latter, which is both inferior technologically and the much less safe option re: Vermont public health and wellness.
Please make the right choice, and bring Vermont into the 21st century by deploying a FIBER-driven statewide network: faster, safer, more effective, and more resilient.
Vermont’s collective health, economic vitality, and communications future are all depending on you.

- - - - - - - - - - - - - - - - - - -

I respectfully ask that Vermont's Dept. of Public Service seriously consider the following thoughts, concerns, and suggestions before approving this dangerous plan for ALL Vermonts and ALL life here. If we plan to hand over the State to our progeny to enjoy, the decisions we make now, are crucial, or we WILL be asked by our Grandchildren, "How could you let this happen?" And history will be the judge.
There is NOTHING more important than the future for our children, and the health of Vermonters, nothing.
In an age when 'energy consumption' has been pushed on the consumers to solve, its time for the PUC to push back to industry with regard to their dirty energy schemes that, in fact, endanger all Vermonters because of the 'spillage' into our cells, DNA and children's brains.

I urge you to please consider:
-- Requiring all telecommunications providers to provide fibre to the premises (FTTP) that can connect to wireline equipment in the premises, and to not replace existing wired telephone and Internet services with wireless. Wireless technology is a poor investment for mountainous Vermont.
-- A direct physical connection with wires and in particular fibre optic cable (fibre), is the best means to fulfill this need. Fibre does not emit radiofrequency (RF) radiation that is harmful; fibre is at least 100 times faster, more reliable, secure and resilient (Wireless cell networks are constantly upgraded whereas cable or fibre is laid once) and is far more protective of privacy than wireless connectivity; wireless technologies have a much larger carbon footprint than wired technologies, rely on rare minerals, and the Institute of Electrical ad Electronics Engineers (IEEE) published that, “Wireless technologies will continue to consume at least 10 times more power than wired technologies”.

Make no mistake that this decision will decide the actual future of Vermonters because at its heart, it either decimates our health with one choice, or it preserves and protects it with another.

Which kind of person are you?

May 26, 2020
RE: May 2020 Broadband Action Plan
The current draft of the Broadband Action Plan keeps Vermont at Telecom's heel. It is time for Vermont to think for itself, and listen to independent experts and its informed citizens. Telecom has influenced our thinking for too long.

Fiber-to-the-premises (FTTP), when without use of any antennas at any point, offers more reliable, faster, more secure, and, yes, more affordable options than wireless infrastructure. It is the gold standard that wireless is routinely trying and failing to achieve.

The Action Plan mentions 5G 20 times and declares Vermont leaders will advocate for 5G to enter into "pristine areas" of Vermont (p. 17) although wireless infrastructure is shown to lower property values, and 5G will result in high energy costs and substantial loss of trees. Vermont
leaders persist in following Telecom's lead in deciding our future.

If the above listed shortcomings of wireless are not enough, the fact that man-made pulsed radio wave cellular and WiFi emissions are not proven safe, and in fact have been shown to lower immunity and increase the lethality of respiratory illness, should tip the scale. Evidence-based research in biological, environmental, real estate, economics, and other fields repeatedly show cause for halting the relentless rollout of each generation of wireless infrastructure.

When reading articles describing us as "conspiracy theorists", I invite the reader to notice the lack of mention of the fact that thousands of international independent peer-reviewed studies show negative effects, and notice the lack of any independent evidence for safety; for increased property values, security, reliability, or even beauty; for lower energy costs; or for superiority over FTTP.

The biological facts persist, despite industry advertising dressed up as articles. Corporate media fails to make a case against FTTP, just against citizens doing their due diligence to protect themselves and their children. Two prominent examples are the now infamous 2019 *New York Times* Verizon-sponsored article and the 5/13/20 *Atlantic's* tech editor's cow tow to the magazine's owner: Steve Jobs' widow.

Telecom, which funds the same lobbyists, candidates, and committees as Tobacco, spends millions on disinformation campaigns smearing advocates of the evidence-based independent science that clearly shows harmful impacts by wireless tech on economies, the environment, and biological life.

I have already spent countless hours gathering the evidence, sending it to Vermont policy makers, and testifying. This letter is a bit different, I am simply offering two links: 1) One is an example of current municipal leadership that seeks to protect human health, the economy, and the beauty of our world. 2) The other example shows research results that every policymaker should see as the maps and graphs lay out enough cause to halt 5G rollout specifically.

- https://tennesseestar.com/2020/05/20/town-of-farragut-resolution-petitions-state-and-federal-government-to-halt-5g-pending-fcc-reevaluation-of-decades-old-standards/
- https://gumshoenews.com/2020/05/04/study-shows-direct-correlation-between-5g-networks-and-coronavirus-outbreaks/

4G, 5G, and future iterations that are unregulated and not shown to be safe - in fact shown to be unsafe, costly, degrading of property values, and slower, less secure and less reliable than

FTTP - are absolutely not welcome in Vermont. I do not consent.

Sincerely,
--

--

Emily Peyton is present to collaborate with you for a transformation Cell Phone: 802 579 5524
PO Box 821, Putney Vt 05346

We pledge allegiance to the Earth Upon whom all life depends.
And to the Beings with Whom we share Her. One Earth, of the Universe,
Beauteous beyond comprehension.

--

Emily Peyton is present to collaborate with you for a transformation Cell Phone: 802 579 5524
PO Box 821, Putney Vt 05346

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comment regarding VT's emergency broadband action plan

Tuesday, May 26, 2020 3:46 PM

Subject	**comment regarding VT's emergency broadband action plan**
From	Matthew Ennis
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 3:20 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Please expand the fiberoptic cable network with fiber to the premises throughout the state. That is what should be promoted for broadband access, not 5G. There are already people that have health issues because of cell towers, cell phones, and wireless technology. It is important to not just believe the science pushed by the telecom industry, but also look at other published science that warns about the health dangers of 5G. Thank you.
Matthew Ennis Winooski, VT

Vermont's Emergency Broadband Action Plan

Tuesday, May 26, 2020 3:46 PM

Subject	**Vermont's Emergency Broadband Action Plan**
From	Sarah G. Burger
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 3:21 PM

May 26, 2020

To whom it May Concern:

While the most of the country communicates easily through reliable internet, Vermont Citizens and businesses have been at a decided disadvantage by not having stable, affordable internet service. The plan for expanded only phone service will not make rural towns attractive to the sorely needed residents to fill our schools and start businesses. Much more important are fiber optic cables which will provide reliable internet for homes and businesses. To deploy public and private money for telephone services will inevitably further delay internet services, based on past experience. The Pandemic accentuates the negative effect of home schooling without reliable internet. Rental homes without internet service are a drag on the market when housing is in such short supply. The Wall Street Journal article which I read with my morning coffee expressed the situation very well. Many rural communities are internet deserts. The current plan for cell phones will delay those much needed services. I have been a Vermont resident for decades.

Sincerely,

Sarah G. Burger, RN, MPH, FAAN Chelsea, VT

Draft Emergency Broadband Action Plan - Comments

Tuesday, May 26, 2020 3:49 PM

Subject	**Draft Emergency Broadband Action Plan - Comments**
From	Mark Richardson
To	PSD - Telecom
Cc	emfsafetyforvermont@gmail.com
Sent	Tuesday, May 26, 2020 3:31 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

We read your draft emergency Broadband Action Plan and would like to submit a comment.
In our town of Thetford we are well served by ECFiber for broadband services. I understand that the Town has complete broadband coverage from ECFiber as of the end of last year.
At the same time our town has been presented with a proposal for a 190' AT&T communications tower on a highly visible ridge with an access road across steep slopes, within a forest block our planning commissions feel should be protected. Unfortunately, the 248a application process appears particularly ill-suited to truly provide “substantial deference” to local plans and priorities.
We approve of your interest and emphasis to expand broadband in Vermont, but it seems that you have been at best cavalier in including wireless communication and the construction of dozens of new cell towers under the banner of meeting broadband goals. Eventhough the report states that the EBAP "does not look to CMRS as a principal means of deploying universal broadband access at 25/3 Mbps by 2024” you effectively disregard the local impact the proposed towers are creating.
The approach of ECFiber appears FAR better suited technically, environmentally, and aesthetically for delivering broadband service in Vermont. We recommend that you clearly segregate CMRS expansion from your EBAP rather than giving tacit approval. Furthermore we would ask that you recommend that CMRS tower approval be excluded from the 248a hearing process and allow such fast-track approval to sunset July 1.
Cordially,
Mark and Donna Richardson 1994 Sawnee Bean Road Thetford Center, Vermont 05075

Mark B. Richardson mrichardsvt@gmail.com IL Office: 217-726-0600
VT Office: 802-785-3100
Cell: 802-384-8322

Comment on Vermont Emergency Broadband Action Plan

Tuesday, May 26, 2020 3:50 PM

Subject	**Comment on Vermont Emergency Broadband Action Plan**
From	Kurt Steinert
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 3:48 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Hello,

I am writing to share some concerns about the Emergency Broadband Action Plan (EBAP) currently being considered. As a rural Vermonter, with a background in telecommunications, I have fairly well-developed views around the technologies in question.

Personally, I would strongly prefer that investment in the Vermont focus on: 1) building out fiber-to-the- home (FTTH) networks wherever possible (this would provide the best quality, most long-lived service for Vermonters); 2) providing a fund to extend cable (HFC) service to more homes, particularly those already 'passed' by existing cable providers; 3) expanding backbone and backhaul data networks into under-served areas; 4) expanding the footprint of existing 3G and 4G wireless networks, which provide spotty or no coverage in many areas.

Given that the main challenges faced when it comes to broadband delivery are in rural, often remote areas with low population density, the emphasis on the proposal on deployment of 5G seems misplaced. The reality is that 5G is being deployed to boost data speeds over short geographic distances, meaning expanding data transmission in densely populated areas. Its benefit would be negligible in remote, rural communities. There are also concerns out there about the potential negative health impacts of data communications in the higher frequency bands utilized by 5G, so I think it would be prudent to delay or forego the deployment of the technology unless and until there is widespread understanding of the nature of such risks.

I do appreciate the urgency of the matter, and the desire to bring better broadband to Vermont's under- served communities, including my own. However, I do not believe 5G technology will do much to remedy the problem, and brings with it more questions than I think we, as a state, are fully prepared to address.

Respectfully, Kurt Steinert

4407 Route 215 North
Cabot, Vermont 05647

5G in Vermont

Tuesday, May 26, 2020 4:25 PM

Subject	**5G in Vermont**
From	Mary Tirpok
To	PSD - Telecom
Cc	emfsafetyforvermont@gmail.com
Sent	Tuesday, May 26, 2020 4:21 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

I believe that internet access should be widely available in the state and at the same time be safe, affordable and secure.

There should be rigorous independent research and a public comment period prior to any implementation of a 5G plan. There are many aspects of this technology that deserve expert and public scrutiny.

Thanks for your consideration, Mary Tirpok

Hardwick, VT

Commenting on Emergency Broadband Action Plan

Tuesday, May 26, 2020 4:33 PM

Subject	**Commenting on Emergency Broadband Action Plan**
From	Doug Jackson
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 4:28 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Hello Department of Public Service,

I am writing you to express my concern that 5G is included in the state's emergency broadband action plan.

I am strongly opposed to 5G/4G wireless network. There has not been a single scientific study proving it is safe to use.

I support the development of the state's fiber optic cable network. It is safer both in terms of cyber security and human health, it's more reliable and faster. Not to mention it is also more energy efficient. Please do not pursue 5G in our state. Keep VT healthy.

Thank you for your time, Doug Jackson Colchester, VT

No 5G in Vermont

Tuesday, May 26, 2020 4:34 PM

Subject	**No 5G in Vermont**
From	D S
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 4:29 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

I am writing to express my strong opposition to bringing 5G to Vermont until it has been proven safe. Although the telecom industry would like us to believe otherwise, there are thousands of independent studies showing the dangers of 5G and microwave technology.

Donald Saaf
802 289 2179

Comments on Emergency Broadband Action Plan

Tuesday, May 26, 2020 4:34 PM

Subject	**Comments on Emergency Broadband Action Plan**
From	Amelia Castillo
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 4:31 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Hi,

After reading the Emergency Broadband Action Plan, I urge you to consider of the long-term benefits of building a fibre-optic cable network, as opposed to a 5G installation.

Fibre-optic cable uses less energy, is faster, and does not emit harmful radiation. Thank you for helping keep our

Vermont Community safe.

Best, Amelia

EMF is not not safe

Wednesday, May 27, 2020 8:49 AM

Subject	**EMF is not not safe**
From	Dana Maiben
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 6:37 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Dear People,

We all need access to internet, but fiber optics would be a much better choice for our town.

EMF has been demonstrated to be hazardous to health of humans, birds, bees, and why should we risk that?

And 5G hasn't been properly tested, so we don't know if ot could be even worse. So please consider health and don't be hasty to get 5G here.

Please. Thank you, Dana Maiben 05301

Comment on Emergency Broadband Plan.

Wednesday, May 27, 2020 8:50 AM

Subject	**Comment on Emergency Broadband Plan.**
From	Martha Sirjane
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 6:47 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

To: Department of Public Service.

Re: May 2020 Emergency Broadband Plan.

I encourage you to use federal funds coming to the Vermont on fiber optic cables not cell service projects. This will have a long-term benefit for Vermonters and I am confident can reach the hollows in rural areas which has yet to see internet service with our present cell coverage. With my understanding of 4G and 5G it seems unlikely of ever making it there, thereby perpetuating rather than solving the issue of no broadband in those locations.

I commend you for looking to the near future needs and working to rectify this long inequity and issue. However, I ask that you rethink the idea of pushing for cell coverage to solve the problem by blanketing Vermont with giant cell towers. I was under the impression that 5G was not on the table anytime soon when speaking with legislators not that long ago. I urge caution rather than a rush to follow the FCC and other states by jumping on the 5G bandwagon. There are way too many studies that point to health concerns and we only need to look at the past and what we have learned from second hand smoke and laws now in place to see where we may be if we do not wait for the research to settle out. Like second hand smoke, radio frequency radiation is not something one can easily avoid if health compromised or simply concerned about its safety. I believe it is unethical, and possibly unlawful, to subject citizens to the radiation emitted without their consent.

- Fiber optic lines are safe from health concerns, offering customers the option of using ethernet cables within the home.
- Fiber optic cables do not leave us with tainted vistas, which Vermonters wisely rejected when confronted with the Skyline Drive in the 1940's, or the roads through wild areas which disturb flora and fauna, setting the stage for battles with communities.
- Fiber optic cables are said to use less energy and be "cleaner" than cell service.
- Fiber optic broadband offers speeds that are enviable, and are considered fast and acceptable by the FCC.

When I asked my GP during a health care checkup his thoughts on 5G, he replied that Vermont would be wise to become a sanctuary state for people living with with EMF sensitivities. He shared that he has patients who would need to move if we were to blanket our state with cell towers and 5G, and he predicted we'd see an influx of new residents which our present administration now desires is we were to avoid cell service as our means of achieving broadband in Vermont.

I urge you to do due diligence before rushing to towards this new technology. You state that

5G is desired by Vermonters, but have you actually fully vetted the question; or rushed to judgement in the face of today's pandemic and the funds that are becoming available? If in twenty-five years we all discover this is not a safe technology, as many already say, do you want this to be your legacy to the citizens of Vermont, your children and grandchildren? I feel very confident that answer is no.

I ask you to think wisely and act cautiously. Use a technology that is known to be safe and is capable of delivering the broadband speeds that everyone now needs in their homes.

With appreciation for your consideration. Martha A. Sirjane

191 Button Hill Rd.

Shrewsbury, Vermont

Regarding the Emergency Broadband Action Plan

Wednesday, May 27, 2020 8:51 AM

Subject	**Regarding the Emergency Broadband Action Plan**
From	Judy
To	PSD - Telecom
Cc	emfsafetyforvermont@gmail.com
Sent	Tuesday, May 26, 2020 8:11 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Regarding your Emergency Broadband Action Plan:
It is a very careless and brainless plan. It is made to sound logical and wise, and as if it is beneficial for the citizens of Vermont. It is none of those! To the contrary, it is all based on extreme carelessness and lies and total disregard for the safety of Vermont citizens. Personally I am appalled!
Vermont has certainly changed in the last several years. A pleasant rural state that was once a nice place to raise one's children, and to enjoy liberties and the joys of nature, is becoming a literal death camp. Now the huge 5G roll-out will certainly be the final nail in the coffin for Vermonters!
What is wrong with Vermont and why are Vermonters tolerating the attacks on our human rights under our Constitution of the United States and the Nuremberg Code! Glyphosate is sprayed all across our state for weed-control! Lots of proof about why that is not a good idea! Chemtrails for the last 7+ years have polluted our air so badly that thousands of trees are dying in our yards and the national forests from the heavy metals and fungus coming down. And this state of the free and the brave, the first to require GMO labeling, ended up bowing to the Federal Government on that, and has been bowing ever since. Every time Vermont bows to "Big Government" and big corporations, Vermonters lose their personal rights and freedoms and also their health. I am absolutely sick of it!
Now this lie is the biggest of all! That this rushing out and putting 5G up all across the state is a real wonderful benefit for the citizens! That it will help with the COVID 19 problem! Oh no, it will not! 5G, as many, many hundreds of doctors, researchers, and scientists have warned is very detrimental to human health! Some states like New Hampshire have set up commissions to study the health and safety effects, and have had experts come in and speak and explain to the commission members what the dangers are and how it is not worth the risks. (HB 522 in NH)
Hello, Vermont! How many independent experts did your legislators bring in to explain the dangers? Can you name any? Sadly, your legislators would listen only to the lying Telecomm companies and follow the money trail. No concern for the health of your citizens nor the voice of the citizens who voted you into office! Aren't the children and families of Vermont worth more than that?
So now you want to rush in more of the dangers we tried to warn you about when you would not listen. In the midst of a health epidemic like the COVID 19, the very last thing you would want to do is to depress the immune system of Vermont citizens when they already have such a threat upon them. Instead of putting up more 5G implementation, ALL 5G should be discontinued during this epidemic! That is the responsible thing to do! Fiber optics provides the sensible and healthy solution. It is the safe and reasonable answer to solve the communication crisis.
As for myself, personally, I have no doubts whatsoever about health effects from cellular radiation and wi-fi. Since 2014 I have suffered from electro-hypersensitivity. (EHS). It causes me severe, unbearable pain. It only goes away when I can get away from it and then it takes a while to go. When 5G is up and running completely 24/7, Vermont will not be compatible for my residing here. All the pregnant women and the little children too will not be safe. Did I not already call it a literal death

camp?
There is so much proof of the detrimental effects that 5G will inflict on the people. So where are the safety studies? Why are we not following the precautionary principle? And now more than ever with the Coronavirus issue, this needs to be addressed right now!
Who is in charge here? Who really is in charge here? Yours truly,
Judith Anne Persin, RN Bethel, Vermont
https://electromagnetichealth.org/electromagnetic-health-blog/5g-covid-19-epidemic/ Symptoms-Microwave-Illness.png
https://static1.squarespace.com/static/5b8dbc1b7c9327d89d9428a4/t/5bfc2bb12b6a28e7ef502623/15 43252917462/CURRICULUM+VITAE+of+Arthur+Firstenberg.pdf
https://www.youtube.com/watch?v=kBsUWbUB6PE&feature=youtu.be

Emergency Broadband Plan- Comments

Wednesday, May 27, 2020 8:51 AM

Subject	**Emergency Broadband Plan- Comments**
From	Catherine Dimitruk
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 8:23 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Commissioner Tierney,

Thank you for releasing the Vermont Emergency Broadband Plan and providing the opportunity to comment on the plan. Northwest Regional Planning Commission (NRPC) recognizes the need for robust broadband service to meet our current and future economic needs. When schools, businesses, commerce and private lives moved to a virtual world almost instantly the disparity in access to broadband was magnified. We appreciate that this plan focuses on the immediate and longer term needs to help lessen this disparity. Extending service to areas in need will have a positive effect on property values, community connection, educational choices and individual opportunity.

General Comments:

- The plan should address the challenges individual households have paying for broadband service. The plan includes recommendations for subsidizing the cost of infrastructure
  deployment. But is does not address the disparity in access based on a household's ability to pay for the service. Vermont should have a robust plan to support access for households of low income to improve equity and decrease the digital divide. As affordability increases, take rates can improve and have positive impact on the economics of deployment.

- Cellular phone service is also important; many of the same areas lacking in broadband service also lack reliable cell service. Proposals and opportunities to address cellular service bundled with broadband should receive priority consideration.

Comments on Priority Actions:

Section I: Immediate Actions to Improve Broadband Availability in Vermont

1. Establish a cable line extension fund to defray the residential customer share of the cost of cable-video line extensions.

NRPC supports this action.

2. Pass legislation to facilitate fast-tracking or waiver of Act 250 and Section 248a processes for installing wireless facilities that will serve locations identified as needing broadband or

commercial wireless connectivity.

NRPC supports fast tracking applications but does not support a waiver of the standards or requirements.

3. Pass S.301 or H.682 to ensure Section 248a continues the rapid deployment of telecommunications facilities.

NRPC supports extending the sunset of Section 248a.

4. Establish a fund for and provide in-kind support to pole-owning entities that agree to fast-track pole license applications.

NRPC supports these and other efforts to facilitate line/pole deployment.

5. Convene a working group of public and private sector stakeholders to collect data and coordinate efforts to support the professional needs of healthcare workers and educators.

NRPC supports this action but suggests it could be broader, ensuring support for small business and data collection to clarify the needs of all economic sectors.

Section II: Universal Broadband Access Deployment by 2024

1. Fully fund a broadband access-deployment program that provides funding to unserved towns through a reverse auction format. Needed funding ranges from $85 million to $293 million, depending on the design of the award disbursement methodology.

NRPC supports this suggestion. The percent of grant vs. loan should be used as an incentive to serve the most difficult areas.

2. Consider adopting an exception to the statutory 100/100 Mbps state-wide goal to facilitate deployment of other high bandwidth services at lower speeds. With this greater speed flexibility, the amount of an auction funding award could be tied to the actual speeds provided by the carrier.

Serving currently underserved areas with lower quality broadband only perpetuates the digital divide. NRPC believes that waivers should be used only as a last resort when it is the only option for serving an area.

3. Modify 30 V.S.A. § 8091 to provide open access to middle-mile fiber owned by Vermont's electric distribution utilities.

NRPC supports this action.

4. Provide direct financial support to communications union districts ("CUDs") through the state's Broadband Innovation Grant Program for administrative and grant-writing support. and, 5 . Provide direct financial support to CUDs to meet the Letter of Credit obligations imposed by the FCC's Rural Digital Opportunity Fund ("RDOF") program.

Although there are currently no CUDs in the NRPC region, we support these actions to bolster the effectiveness of CUDs.

Thank you again for the opportunity to comment on this plan and for all DPS is doing to address this need. Warm regards,

Catherine Dimitruk

NRPC employees are working remotely and the office is closed to visitors. Please call or email and we will respond as soon as possible. Thank you.

Catherine Dimitruk | ***Executive Director***
Northwest Regional Planning Commission | 75 Fairfield Street, St. Albans, VT 05478
Phone: 802.524.5958 ext. 10 or 802.310.6797 | **Fax:** 802.527.2948 | **Website:** www.nrpcvt.com

Transition to 5G in Vermont

Wednesday, May 27, 2020 9:55 AM

Subject	**Transition to 5G in Vermont**
From	Linnea Congleton
To	PSD - Telecom
Sent	Wednesday, May 27, 2020 9:34 AM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Hello,

This is a response to the Emergency Broadband Action Plan currently being considered for Vermont's future. As a young person who has deep roots in this state and who, along with my friends, are considering how we value this land and what we envision for its future, I just want to urge you to consider what is at stake when implementing 5g technology.

From what I have read, whether or not 5g technology is a great threat to life (all types of life) is somewhat unclear and studies are ongoing, but in all planning for Vermont's future, I think that protection of ecosystems should be highly prioritized.

Vermont should have the courage to be a leader and set an example for the rest of the country when it comes to making difficult decisions. What is the true motive for 5g technology, and how does its carbon footprint compare with wired technology? At how much of a disadvantage would we be at without it across the state?

We need to realize that there may be sacrifices we have to make in order to protect what is really important to us : Life. If protection of the environment (our immediate environment as well as those that we affect with out wastes and our energy demands) means making deliberate decisions around how we construct the infrastructure for the future of Vermont, I think the conversation should be taking place. We should be considering how we can create a space where life is protected, which would set Vermont apart and show that it is possible to plan wisely and stand in solidarity with indigenous folx throughout the world who risk their lives daily in protection of the environment.

In all new infrastructure and energy projects we have an enormous opportunity to create a world that does not cause desecration to life and careless unwanted side effects which slowly poison our environments, our bodies and our minds.

Thanks for reading and I hope that we can all see how incredibly blessed we are to share this state which is so rich in natural resources, and which derives its power from the fact that these have not yet been demolished. We have to stand and continue to protect what is sacred here.

Re: Transition to 5G in Vermont

Wednesday, May 27, 2020 9:55 AM

Subject	**Re: Transition to 5G in Vermont**
From	Linnea Congleton
To	PSD - Telecom
Sent	Wednesday, May 27, 2020 9:45 AM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

I would just like to add that as studies are conducted and more concrete results about 5g's health affects become accessible, if it is true that 5g causes adverse affects, if Vermont is a space kept free from these dangers, our value to humanity only grows.

On Wed, May 27, 2020 at 9:34 AM Linnea Congleton <linneacongleton@gmail.com> wrote:

Hello,

This is a response to the Emergency Broadband Action Plan currently being considered for Vermont's future. As a young person who has deep roots in this state and who, along with my friends, are considering how we value this land and what we envision for its future, I just want to urge you to consider what is at stake when implementing 5g technology.

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In all new infrastructure and energy projects we have an enormous opportunity to create a world that does not cause desecration to life and careless unwanted side effects which slowly poison our environments, our bodies and our minds.

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Emergency Broadband Action Plan Comments

Tuesday, May 26, 2020 11:08 AM

Subject	**Emergency Broadband Action Plan Comments**
From	Amy Hornblas
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 9:17 AM
Attachments	 DPS letter. Fiber Opti...

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Dear Public Service Department,

I am writing to you today to advocate for fiber optic cable for Vermont. There is no need to expand wireless, since fiber optic is faster and more reliable. Vermont could be a destination for the growing number of people who are seeking a refuge from the wireless radio waves. I would like to see the expanded wireless program removed from the Emergency Broadband Action Plan.

Vermont needs to join the growing number of governments who are choosing the health of their citizens over the profits and interests of the telecommunications companies. Let's invest in technology

that is safe and dependable: fiber optic lines. Sincerely,

Amy Hornblas

Fiber optic for VT

Wednesday, May 27, 2020 2:31 PM

Subject	**Fiber optic for VT**
From	Chandra Bossard
To	PSD - Telecom
Sent	Wednesday, May 27, 2020 12:03 PM

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Hello,

I am writing to ask that Vermont invest in a fiber optic cable network. I am concerned about 5G, and believe that a fiber optic cable network would better serve all Vermonters safely.

Thank You, Chandra Bossard Dummerston, VT

Corporation, Institution, CUD and Non-Profit Comments
Pages 177-307

Re: EBAP Comments from Deerfield Valley CUD

Tuesday, May 26, 2020 3:46 PM

Subject	**Re: EBAP Comments from Deerfield Valley CUD**
From	Sara Coffey
To	David Jones; PSD - Telecom
Cc	sandboxsovernet@gmail.com; Steven John; Fish, Robert; Jeanette White; Becca Balint; Brian Campion; Richard Sears; Emilie Kornheiser; Mollie Burke; Tristan Toleno; Carolyn Partridge; Kelley Tully; Nader Hashim; Mike Mrowicki; Emily Long; Gannon, J; Kelly Pajala; Sibilia, L
Sent	Tuesday, May 26, 2020 3:30 PM

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thanks so much David - very helpful to get your vantage point. Sara Coffey
State Representative
Windham-1/Guilford and Vernon
House Committee on Corrections & Institutions, Room 33 House Seat 60
E-mail: SCoffey@leg.state.vt.us www.saracoffeyvt.com
State House phone: 802-828-2228 Home phone: 802-257-0288
Mailing Address: 542 Fitch Road, Guilford, VT 05301

From: David Jones <David@consultingindetail.com>
Sent: Monday, May 25, 2020 11:46 PM
To: psd.telecom@vermont.gov <psd.telecom@vermont.gov>
Cc: sandboxsovernet@gmail.com <sandboxsovernet@gmail.com>; Steven John <sbjohn@sover.net>; Fish, Robert <robert.fish@vermont.gov>; Jeanette White <JWhite@leg.state.vt.us>; Becca Balint <bbalint@leg.state.vt.us>; Brian Campion <BCampion@leg.state.vt.us>; Richard Sears <RSEARS@leg.state.vt.us>; Sara Coffey <SCoffey@leg.state.vt.us>; Emilie Kornheiser <EKornheiser@leg.state.vt.us>; Mollie Burke <MBurke@leg.state.vt.us>; Tristan Toleno <TToleno@leg.state.vt.us>; Carolyn Partridge <CPARTRIDGE@leg.state.vt.us>; Kelley Tully <KTully@leg.state.vt.us>; Nader Hashim <NHashim@leg.state.vt.us>; Mike Mrowicki <MMrowicki@leg.state.vt.us>; Emily Long <ELong@leg.state.vt.us>; John Gannon <JGannon@leg.state.vt.us>; Kelly Pajala <KPajala@leg.state.vt.us>; Laura Sibilia <LSibilia@leg.state.vt.us>
Subject: EBAP Comments from Deerfield Valley CUD

The Deerfield Valley Communications Union District (DVCUD) greatly appreciates the intentions and actions of the Public Service Department to expedite the deployment of broadband throughout Vermont and to eliminate the digital divide between our city centers and rural towns.

The draft Emergency Action Plan (EBAP) includes several excellent ideas that we would like to further develop and amplify. It also contains proposals that, if enacted, would be counterproductive to Vermont's long term goals and must be avoided.

State Policy Goals

As stated in 30 V.S.A. § 202c, **Vermont's telecommunications policy goals include universal access to**

broadband technology that is capable of providing 100 Mbps symmetrical service by 2024. The statute states clearly that strategies to achieve these goals should use the best commercially available technology (e.g., fiber) that is deployed on existing facilities (e.g., utility poles). In contrast, technology that may become outmoded in the medium term (e.g., DSL, cable, and fixed wireless) and newer, taller structures (e.g., wireless towers) should be avoided.

The only organizations that are both capable and willing to deploy fiber universally and cost-effectively to every home and business are Communications Union Districts (CUDs). **History and economic logic tell us that commercial entities will invest only in projects that can yield a high return on investment. In contrast, ECFiber has proven that Communications Union Districts (CUDs) can succeed in their public service mission of delivering universal 100 Mbps service to underserved rural areas at an affordable cost.** Following ECFiber's example, Central Vermont Fiber will soon begin construction in its area.
Legislation in 2019 that was designed to foster the growth and development of CUDs has succeeded in inspiring three additional CUDs to start up in 2020, including the DVCUD, and at least two other Districts are in the discussion stage.

EBAP Long Term Goal: Universal Broadband Deployment by 2024

We believe that all Vermont multi-year broadband deployment programs should focus on enabling CUDs to deliver fiber optic broadband to every underserved home and business in Vermont.

The EBAP proposes up to $293 million of state funding to accomplish universal broadband deployment by 2024. The proposal to invest heavily is laudable but distributing the subsidies through a reverse auction would be wasteful and counterproductive.

It would be exceedingly difficult to coordinate a Vermont reverse auction with the FCC Rural Digital Opportunity Fund (RDOF) reverse auction that is scheduled for October of this year. The outcome of two uncoordinated auctions could be a patchwork of subsidized investments in limited areas and/or duplicative awards to competing providers in overlapping areas. If commercial providers win awards that support investments in some portions of CUD service areas, the remaining areas may not support a viable CUD business case. If two competing vendors receive uncoordinated subsidies for the same area, at least one of the vendors will fail to achieve the service obligations of its subsidy and one of the duplicative subsidies will be wasted.

Instead of conducting its own reverse auction, Vermont should adopt the policy goal of helping CUDs or CUD consortiums to win every available RDOF subsidy for their service areas and to prevent any commercial competitor from winning any subsidy in these areas. This can best be accomplished though targeted grant funding and letter of credit guarantees. **Vermont should also adopt the policy goal of enabling CUDs to fulfill the service obligations of the RDOF subsidies they win.** This can best be accomplished through block grants and targeted programs to expedite utility pole make-ready, develop the technical workforce, and pre-purchase fiber optic cable.

Winning RDOF

- The EBAP should include **grant funding to new CUDs for capacity building**, specifically for the legal assistance needed to form consortiums that will qualify to bid for RDOF subsidies. The consortium agreement(s) would need to articulate the roles and responsibilities of each member and the process for distributing RDOF subsidies between the members.

- The EBAP should also include **grant funding for economic consulting assistance** to the Vermont CUDs or

utilities that are qualified to bid in the RDOF auction and have formed consortiums with the CUDs that are not qualified to bid. Consulting assistance is required to form a bidding strategy that will both maximize the amount of subsidies awarded to CUDs and minimize the amount awarded to commercial providers in CUD territories.

- The EBAP correctly includes funding for **letter of credit guarantees** that may be required by CUDs or CUD Consortiums that would qualify to bid but cannot obtain sufficient letter of credit guarantees from commercial banks.

- Reasoning:

- The RDOF auction will award up to $92.7 million of subsidies to winning bidders who promise to deliver broadband technology in some form to the underserved Vermont addresses identified by the FCC.

- If there is ANY bid for an RDOF subsidy in a census block group, a subsidy will be awarded. We must expect that land-based providers will bid for every census block group in which there is any hope of an acceptable return on subsidized investment. Land-based bidders could propose to invest in inferior terrestrial technologies such as cable or wireless. If there are no such bidders, we must expect satellite providers such as Starlink and even HughesNet will bid for every census block group. If any commercial provider wins an RDOF subsidy to serve our CUD territories, CUDs will have no voice in what is built or how it is managed.

- The RDOF subsidies are a zero-sum game. If commercial bidders win RDOF subsidies for the areas in which they can gain an acceptable economic return on subsidized investment, the CUDs that could have served those areas cost-effectively will be unable to do so. Moreover, the remaining CUD service area will be the most difficult and expensive to build out relative to the subscriber revenue that can be obtained, reducing the viability of each CUD's business case.

- The key RDOF problem for Vermont is that no newly formed CUD is qualified to bid in the RDOF auction. Our new CUDs need to form one or more consortiums with qualified bidders. Qualified bidders could include ECFiber and/or one or more electric utilities.

- The second immediate RDOF problem to be solved is that first rate economic consulting assistance is necessary to form a winning bidding strategy. This assistance is expensive but essential. State policy should maximize the likelihood that consortiums that include CUDs will win the auction for their service areas. Subsidies for economic consulting assistance to CUD consortiums will support this goal.

<u>Fulfilling RDOF Service Obligations</u>

- CUD consortiums that win RDOF subsides must provide service to the subsidized number of locations within 6 years. The EBAP goal is to complete all work sooner, by 2024. To achieve the 2024 deadline, the plan should include **block grants to CUDs or CUD consortiums** to fund expedited investments in utility pole make-ready, network design and engineering, and construction.

- Block grants to CUDs or CUD consortiums will align state resources with state policy goals of deploying universal broadband through the governance structure of CUDs.

- Because CUDs and CUD consortiums are able to access the municipal bond market after several years of cash-flow positive operation, the block grants could be in the form of loans that are repaid in the medium term from the proceeds of municipal bond issuance.

- In addition, the EBAP should include **targeted investments in CUD capacity building, labor force development, utility make-ready actions, and bulk procurement of fiber optic materials**.
- The EBAP should include funding through Broadband Innovation Grants for fund-raising and administrative costs. Currently, BIG funding is limited to feasibility studies and business planning. There is no funding to do anything after the business plans are written, including work necessary to obtain matching funds for VEDA loans.

- The EBAP should include a commitment of workforce development funding to CCV and programs such as the HATC so that a sufficient workforce exists to perform pole data collection and make-ready, fiber construction, customer site installation, and maintenance and repair.

- The EBAP should include incentives to electric utilities to expand the number of employees or contractors to perform pole make-ready. The incentive amounts should be determined though a formula that rewards a) higher numbers of poles for which rights-of-way are provided to CUDs and b) lower average elapsed time per pole.

- The EBAP should include funding for immediate purchases of fiber optic cable and electronics. We can expect lengthened lead times for these items as 49 other states and many commercial providers move to improve the broadband infrastructure in response to the Covid-19 emergency. Ordering our materials far in advance will help to limit construction delays.

EBAP Short Term Goals:

Any state program that helps cable, wireless, or DSL providers to increase their footprint and market share will be counter-productive to the long term goal of universal fiber connectivity. Therefore, the **EBAP should NOT include funding for cable line extensions or fast tracking of additional fixed wireless towers**.

The goal of providing immediate connectivity for distance learning and telemedicine by expanding the footprint of suboptimal technologies would throw money at **expensive temporary solutions**. The scarce resources used to extend cable, wireless, or DSL technologies will not contribute to achieving Vermont's long term goals. In addition, expansions of suboptimal technology footprints **will likely reduce initial take rates in CUD areas, adding difficulty to each CUD's already difficult task** of earning enough revenue to pay back investment costs.

Facts on the ground in one Southern Vermont school system suggest there is no pressing need to expand the footprint of suboptimal technologies.

- In April, the Windham Southwest Supervisory Union surveyed faculty and families of students to determine how many would be unable to participate in distance learning due to poor internet service. For both faculty and student families, 20% were unable to participate, half because of low speed and half because of data caps. The total count of underserved faculty and student families was 80, spread out over 5 towns (Wilmington, Whitingham, Halifax, Readsboro, and Stamford) having a total of 5,041 inhabited buildings spread out over 293 highway miles. There is no way that any existing technology could be extended to reach the homes of all underserved teachers and students at any acceptable level of expense.

- A better use of resources in the short term would be to subsidize the use of school buildings as the distance learning locations for the 20% of teachers and students who cannot participate from home. If only 20% of the school population participated in distance learning programs at the school building rather than at home, social distancing and other safe practices could be observed. Subsidies might be needed to operate school facilities that would otherwise be closed and to transport students and

teachers to and from home.

Conclusion

The Public Service Department is right to develop ideas for expediting delivery of broadband to all Vermont locations. The strategy of deploying fiber to the home through the governance structure of Communications Union Districts is demonstrably sound. The EBAP should support this strategy more directly than in the initial draft plan and should not support short term actions that are not cost-effective and will make each CUD's task even more challenging.

The Deerfield Valley Communications Union District appreciates the opportunity to provide these comments and pledges to work cooperatively with the PSD, other CUDs, and electric utilities to serve our citizens effectively.

Respectfully submitted, David Jones
Clerk
Deerfield Valley Communications Union District

David W. Jones David@ConsultingInDetail.com Land: (802) 368-2217
Cell: (917) 538-4649

comments on DPS " Broadband Action Plan"

Tuesday, May 26, 2020 10:48 AM

Subject	**comments on DPS " Broadband Action Plan"**
From	Leslie Nulty
To	PSD - Telecom
Sent	Wednesday, May 13, 2020 3:42 PM
Attachments	

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Please see attached document in response to your request for public comment. We will be happy to respond to any further questions you may have.

--

Best Regards,
Leslie Nulty, CFO, Secretary-Treasurer
Mansfield Community Fiber, Inc.
PO Box 1084
Jericho Center, VT 05465 www.mcfibervt.com office: 802-899-2044
cell: 802-324-1496

Mansfield Community Fiber believes that robust broadband is a vital necessity for community vitality and quality of life. We are dedicated to extending state-of-the art broadband communications to underserved rural areas of Vermont. We operate on the principles of a sustainable socially-responsible business, respecting the needs of people and planet as well as profit.

MCF-EBAP 05.13a.20

MANSFIELD COMMUNITY FIBER

Comments on "Broadband Action Plan", Vermont Department of Public Service

May 15, 2020

The DPS paper "A Plan for addressing the Covid-19 Emergency" contains many good points and is a worthy "first draft" considering the speed and pressure under which it was produced. Mansfield Community Fiber Inc (MCF) understands that the DPS is seeking constructive comments from knowledgeable broadband players and stakeholders in Vermont. This document contains MCF's initial response to this request.

Our comments on the draft EBAP fall into three categories:

I. Basic principles contained in the EBAP which we would like to endorse—and, indeed, see strengthened;
II. Assumptions about the technical and economic landscape which we think are erroneous, whether in part or in whole (and conclusions that flow therefrom);
III. Basic principles which do not appear in the EBAP but which we believe are important and should be added.

Addressing these topics in order:

I. Basic principles/goals we endorse and would like to see strengthened:

A. Goal of achieving complete, border-to-border universal coverage:

The tone and spirit of the EBAP conveys the flavor of this goal…..but not, in our opinion, with sufficient force and clarity. Universal provision of service that is ***effectively equal in quantity and quality*** for all citizens has been the time-honored goal of basic US public utility policy, including telecommunications, for 150 years and is enshrined in the fundamental Federal law governing the sector, The Telecommunications Act of 1934[1] (as subsequently amended).

[1] See the Preamble to that law.

Unfortunately, this fundamental policy goal has been seriously eroded throughout the country over the last few decades—especially, most recently, for broadband--with significant detrimental effects on our society and economy. Despite the fact that the EBAP is only able to address Vermont, this basic policy goal is still appropriate AND achievable within our state, irrespective of what the Federal or other state governments may or may not do. This is a bipartisan principle as illustrated by the major and forceful role that George Aiken, Republican Governor of Vermont in the 1930's, played in pushing for universal service for both power and telecom. We believe that the authors of the EBAP share this view but we also believe that this fundamental principle should be stated more strongly and explicitly in the EBAP and in any successor document as the cornerstone for all State policies and actions in the telecom sector. This preference also appears to underlie much of the document but is also not clearly stated. In several instances this commitment is weakened by what appears to be an unfortunate misunderstanding of the basic physics and economics of broadband technologies. It is, however, an extremely important guiding principle. A strong statement to that effect, as well as greater consistency in implementation, are called for.

B. Loans vs Grants

.

The general public interest requires that policy be crafted to insure the most effective and efficient use of scarce financial resources. In our view, grant financing reduces or removes the most powerful impetus for recipients to be as efficient, effective and economical as possible. Vermont (like other states) has a woeful record of handing out grants in the telecom sector, which produce little or nothing useful in return. Many tens of millions of dollars have been effectively "wasted" over the last two decades in Vermont alone as a result of grant awards — including some very large ones — that have produced negligible results. These mis-steps arose largely from awards that underwrote deployments that were inadequate, incomplete and/or obsolete from the moment the grant was issued. ***This has to stop***. If we weren't fully aware of the essential quality of broadband infrastructure before the current pandemic, Vermonters are very much aware now. We should not be disbursing scarce public monies on projects whose usefulness is negligible and/or will not endure. While grants may be "free" to the recipient, they are not "free" to society. Public resources are scarce and their efficient use is a solemn duty both of government agencies responsible for allocating them and for recipients trusted with their use. Recipients should be under serious pressure to use any taxpayer money they obtain to generate concrete benefits that will endure for many years into the future.

The best way to ensure this is to require taxpayer-sourced financing to be paid back—with interest. This has two benefits: i) it drives the project managers to perform pursuant to rigorous commercial discipline, and, ii) loan repayments can be placed in a revolving fund which can support additional projects.

There are, of course, other means to enforce "accountability" but most of them require invasive oversight by state officials. These officials, however well meaning they may be (and usually are), rarely have a high degree of direct experience in the sector. They are also burdened with multiple other responsibilities. Further, these officials and institutions are vulnerable to the many methods for intimidation, lobbying, deflecting and otherwise undermining their ability to enforce rigorous accountability. Instead, the discipline of having to pay back loans — and having to figure out how to build and run networks that are able to do that, is by far the most effective way to enforce accountability while allowing project managers to exercise their expertise, entrepreneurship and innovation.

The EBAP sketches two forms of fund disbursal: straight grants and small grants that leverage repayable loans. ***We urge that the first be abandoned and all efforts be focused on developing and elaborating the second.***

II. Basic assumptions with which we disagree:

A. Rural deployment of Fiber-optic infrastructure does not require subsidization

We believe it is extremely important to (re)state the following: ***World class broadband is financially viable everywhere in Vermont…including the most remote "outback" towns in rural areas.*** As such, subsidies are unnecessary…and frequently counter-productive in that they invite and reward both waste and incompetence.

The EBAP states several times that profitable business plans are "challenging" in many parts of Vermont. This appears to imply that world-class broadband networks cannot be profitably built and run in the more "outback" parts of the state. This assertion seems to be the rationale for taking a "softer" line on loans v. grants than is either justified, necessary or desirable. The supposed "infeasibility" of world-class broadband in rural areas is one of the most common platitudes in telecom policy discussions. It is, however, completely false. The owners and managers of MCF have more concrete practical experience building working rural telecommunications systems, including state-of-the-art Fiber-to-the-Home networks, all over the world as well as in Vermont, than virtually anyone else in the State. On the basis of that experience we state categorically that: *Every single town in Vermont can be provided with universal world-class broadband service, economically and profitably and without below-market subsidized support.* To emphasize the strength of our conviction, all of the partners in Mansfield Community Fiber have invested significant percentages of our net worth in successfully doing exactly that. All debt and equity financing that MCF has procured is on regular commercial market terms.

MCF intends to build and operate world class FTTH infrastructure in the entirety of northern Vermont—including the most remote and sparsely populated regions—and is able and willing to do so on commercial terms with commercial financing. If subsidized financing is available,

MCF will, of course apply for it. But let us make it clear: MCF does not require and, indeed, does not support—subsidized financing for broadband in Vermont, including the most rural areas.

Broadband is not like public schools, police, fire departments etc. Those essential services cannot perform their task and also make a profit—and they should not be required to do so. Broadband, however, is another matter: it CAN provide universal service profitably. Hence, it should be required to do so and should not receive special treatment which only makes the rich richer and/or rewards incompetence.

Precisely because universal world-class broadband service is financially feasible for every single Vermont town under commercial terms, funds committed to broadband loans should only be made on terms (rates of interest, maturities, initial holidays etc) that are normal in the market for capital-intensive long-lived public utilities. Anyone who cannot build and run a broadband network in a manner that permits it to pay back public debt on commercial terms should not be receiving such loans from taxpayer-supported sources[2]--and probably should not be in the business at all!).

B. <u>Do not undermine technical standards in the pursuit of ephemeral "diversity of technologies". Support appropriate technologies matched to desired service requirements.</u>

The fact is that there are two—and only two—relevant submarkets for "broadband" access to the global telecom system that matter in Vermont:

i). universal fixed infrastructure with extremely high capacity and speed which is suitable for the "heavy lifting" of both residential and institutional uses; and,
ii) mobile service which can be transported and used anywhere.

These two market segments are profoundly different in their technical, scientific and economic characteristics. As such, they cannot be substituted for each other. This is not because of "opinion" or "personal preference" but because of the basic laws of physics. Wireless communications can not now, and will NEVER be able to, compete with fixed infrastructure in terms of pure speed, capacity, reliability and stability. That fact is rooted in the physics of transmitting intelligible signals through the open, uncontrolled atmosphere as opposed to customized, engineered closed "wires". On the other hand, by definition, fixed infrastructure cannot be transported in the pockets or briefcases of citizens. This demarcation is ineluctable and insuperable. As such, these two market segments should be addressed separately on the basis of what is economically and technically optimal for each, independent of the other. *No*

[2] That goes for major carriers as well. There is even less excuse for providing below-market finance to large national companies with ready access to the normal financial markets. If such companies don't want to build in rural Vermont on market terms, then find others who can and will.

solution that is optimal for one will be optimal for the other. You cannot "kill these two birds" with any single stone[3].

In practice this means that the standard of *symmetrical* 100 Mbps as *the minimum* that qualifies for EBAP funding for fixed systems *should not be undercut* (if anything, it should be increased!) If the intent of the EBAP is to propose support for broadband development that responds to the uses and needs revealed by the current pandemic, it must pay attention to the questions of symmetry, reliability, stability and latency in determining the appropriateness of any proposal. All current and foreseeable technologies for addressing the "fixed" telecom sector other than fiber-optics fail this test. We have appended a recent commentary on this issue by one of the industry's foremost respected consultants. It should serve as a warning against repeating the past follies of using public funds to underwrite technologically obsolete or inappropriate deployments.

FTTH can meet these standards right now and, indeed, far exceeds them. (All FTTH networks being build today are engineered to carry at least 1 Gigabit symmetrical signals —fully 10 times the 100/100 standard. Any other technology should be required to meet, at very least the 100/100 standard—or not get taxpayer-supported funding. (If private investors wish to throw away their money backing things that are technically inferior, that is their prerogative…but it is very unlikely that they will commit such folly….in practice no private investor is interested in deploying the inferior technologies unless free or subsidized public money is available to do so—which should be, by itself, a major red flag to public authorities!!)

Further, just as important as current capability is the *ease and cost* of continually increasing capability as the need for it inevitably rises. Unlike other technologies, optical fiber networks can be easily and cheaply upgraded, almost infinitely. The ability to upgrade to 10 Gigabit speeds affordably, already exists and will be implemented as soon as there is demand for that—which will certainly happen within the next decade. Further upgrades (to 100 Gig and beyond) are in the development stages. No other technology can come close to fiber in this critical respect. If some other technology does arise which ***can*** demonstrate both the immediate ability to match fiber in current capability AND has the ability to be easily and economically upgraded beyond it, then it should be treated equally with fiber. If not, then not.

In conclusion: There is absolutely no *legitimate*[4] need or excuse for consigning some parts of the state to lesser service. Any attempt to finance shorter-term stopgaps will have the longer

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[3] In particular the idea that 5G mobile service can, at some time in the future, meet all of Vermont's broadband needs is a chimera supported solely by people who have little or no understanding of the physics involved. As 5G exists today (and in fact there are scarcely any real deployments as distinct from re-branding of existing technology) its reputed bandwidth capabilities are limited to a very small physical space, completely unsuited to the low-density widely dispersed character of most of Vermont's potential customers.

run effect of "crowding out" the deployment of more desirable and sustainable solutions. As a real example, the State of Vermont gave past grants to incumbents to build inferior DSL in areas where fiber-optics were being deployed. As a result of grant subsidy, such grant recipients can undercut fiber deployers through "predatory pricing," teaser contracts, etc. These inferior technologies can only compete if they receive subsidized funds. In these circumstances subsidized financing has the ironic result that public funds are used to sabotage the spread of state-of-the-art future-proof infrastructure. Regrettably, the EBAP's lack of firm endorsement of and adherence to the 100/100 standard is, effectively, another example of Vermont's unfortunate history of using taxpayer money to pay for broadband deployments that are obsolete the day the checks are cut. This lesson should have been learned by now….and, absolutely, should **NOT** be repeated!!!

IV. Responses to and alternative suggestions for specific proposed action items in the EBAP proposal

A. Cable Line Extensions

The EBAP correctly recognizes that there are pockets of unserved and underserved locations that are difficult and costly to reach because they are in the midst of territory wired by cable companies. The report essentially puts the burden of getting those pockets "back-filled" on the residents, and includes no oversight or control of what a cable company might charge such residents. We have been told of cable company quotes of $50,000/mile for line extensions to a single resident. Since cable companies are regulated by the state, the state could make "back-filling" a *contingent requirement* of any request by a cable company for regulatory relief, license renewal or any other regulated matter. Some legal due diligence to determine what other powers the state might have to compel "in-filling" line extensions would seem to be in order. We see no justification for allowing cable companies to compete for scarce public resources in order to expand into new areas when they haven't even completed the ones they already dominate.

B. Amending Act 250 and Section 248a

We believe legislative action is warranted where and if attachments are for designated approved purposes consistent with established and defined broadband standards. For example: if towers in specific places are necessary—and able—to improve cellular coverage and service then so be it. Ditto if they are needed to fill holes in the "middle mile" network.

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[4] The only excuse that can be made for such "second class" service anywhere in the state is a special interest political one: i.e. to protect legacy networks of some established carriers who do not wish to expend their own resources on building world class facilities in every town in the state—but don't want competitors to do so either since that would undermine the continuing profitability of their existing obsolescent infrastructure.

But if the purpose is to enable wireless services that are materially worse than fixed fiber service that can be built without such towers, then giving such towers special regulatory dispensation is unjustifiable.

C. Pole Attachment/License Process

We are pleased that the PSD recognizes the importance of accelerating the pole license application process. This can be most effectively accomplished by: i) shortening the timelines required by Rule 3.7; and, ii) mandating use of qualified outside contractors if the utility in question does not have sufficient in-house resources.

Both of these were done, to a degree, by Act 79 last June. However, the process of adding alternative contractors to the "approved" list has been left to the individual POEs who have not set up easy or transparent processes for getting this done. As a result, a pole attachment applicant is now required to elect "one touch make ready" at the time of submitting the initial pole attachment application in a situation in which it is compelled to seek out a limited number of approved contractors (which may differ from one POE to another) with whom it may have no business knowledge or relationship. This has added time and expense to a process whose goal is the opposite. It would be more efficient to have one centralized list of qualified contractors that all POEs would be required to recognize, derived from those contractors who have already done construction or make-ready work for *any* POE in New England (in order not to unduly constrain market availability of such contractors).

Another, very simple and inexpensive way to streamline the process is to have only one application form to be used by all applicants and all POEs, rather than requiring two applications for the same poles with slightly different formats as is now the case.

D. Method of Awarding EBAP funds

We are delighted that at long last the PSD is contemplating a method to accelerate universal deployment of broadband. We support the reverse auction method, but suggest that any such proposal be only for the small grant + loan option outlined in the EBAP. (The pure "grant" option should be abandoned--for the reasons we have set out earlier[5].) Further, we recommend that, in order to accomplish this, the PUC adopt the FCC's format. In so doing, the PSD should also adopt the FCC's point system for prioritizing the quality and capacity of any proposal. There should be NO EXCEPTIONS to a minimum 100/100 Mbps standard. Indeed, there should be extra points for proposals that exceed this. Further, all proposals should explain how, how much, and at what cost, the system in question can be upgraded in the future.

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[5] If an applicant is not required to commit their own money, what incentive have they to engineer efficient, economic proposals? Their only risk is that they might not get the grant—which, in fact, costs them nothing. On the other hand, if they have to pay back the loan portion of the award, they will be much more careful about making sure that their applications are based on "real" numbers.

V. Efficient Deployment of Existing Resources – Identification of Overlooked Needs

A. EBAP loan program proposal

We do not think it wise to try to invent a new loan program in VEDA. VEDA is in the very early stages of learning to implement the loan program put in place by Act 79 last June. Prior to that VEDA had zero experience with broadband. No other entity in Vermont has ever demonstrated much competence in this area. VEDA, at last, is beginning to develop this expertise under the impetus of Act 79 from last year. (Full disclosure: MCF was approved for a broadband loan under the Act 79 provisions in December 2019 and we believe we may be the first recipient of such a loan, to date.) Our experience with VEDA has been excellent—far better than with any other State agency we have dealt with over the last 20 years. We see every reason to believe that they will prove a responsible and effective executor of the current—and future—programs of this sort. To their credit, they have admitted to us that they are still learning the industry and the particular characteristics of broadband deployment. Our observations so far are encouraged by the good sense, humility and willingness to learn that we have observed at the "new" VEDA — especially when compared to previous agencies that have been active in the sector. In view of this, we recommend that Vermont build on this growing foundation and not "reinvent the wheel." The existing loan program is perfectly fine as a financing mechanism – no additional subsidies are needed. Any credible broadband project should be perfectly feasible within the VEDA's existing credit terms.

If demand for these funds increases beyond their current capacity, then more funds can be allocated. Since VEDA loans carry commercial interest rates and maturities, such increases would not jeopardize the financial soundness and credit rating of the State at large. Growing sophistication regarding the broadband sector in VEDA will only strengthen this factor.

The institutional issue is a serious one: Both at VEDA and at the PSD, there are new staff members who are still learning the broadband industry and its particulars in Vermont. These individuals are being trusted to evaluate the capacity of applicants for loans or grants to deliver effective and financially sound infrastructure. Simply verifying that monies have been spent for identified equipment and other capital expenditures ***does not*** constitute evidence that a functioning network delivering a specified level of service has indeed been created. This is a huge responsibility. We encourage the legislature and the PSD to consider whether some small funds should be appropriated to support relevant professional training for these individuals.

B. Training Needs

While the EBAP acknowledges the job-creating opportunities of the program, and the labor shortage it will be confronting, there is no provision for increased training funds for loan or grant awardees, or the industry as a whole. Our community and technical colleges, and

technical high schools could be the vehicle for much of the required training with current utility employees serving as trainers. These would only need to be short-term courses and could be structured as a partial match between the trainers and the broadband deployers. Utilities or existing contractors who provide staff to act as trainers can be compensated for the time spent. Recent utility retirees might be another source of trainers. We encourage the PSD to consult with stakeholders to develop a program tailored to the estimated need and provide requisite funding.

C. Absorptive Capacity

One final issue which, though left to the end, is of central importance: the capacity of Vermont entities to absorb and effectively deploy funds for rural telecom is, unfortunately, severely limited. Building *real, efficient and effective* broadband networks in the difficult conditions of rural Vermont is not easy. Providing funding is only one part of the problem — and, possibly, the easier part. But throwing money at organizations and people who do not have the knowledge, skill and experience required to ensure that the funds are used effectively is fundamentally abhorrent to the frugal spirit of 3 centuries of Vermont Yankees. Unfortunately, there is a considerable and lamentable track record of large amounts of public funds being disbursed to entities, which are either not equipped or not inclined to use these funds economically and effectively. If this cannot be remedied before disbursement of more taxpayer money then it would be better not to disburse such money at all. In view of this, we strongly urge that the State start by going slowly: disbursing only small amounts to any entity that does not already have a strong prior track record of actually building and operating broadband networks in rural Vermont or similar environments. It is far better to start modestly and build on the knowledge gained as to which entities are able to utilize small amounts, before risking wasting large amounts — and the public's limited confidence in government's own expertise in this arena.

In conclusion, we must caution and re-emphasize that a rush to disburse monies entails a significant risk of repeating the very significant mistakes of the past. The fact of the matter is that at the state level, Vermont has been grappling with the need for universal broadband since 2007, when we were organizing ECFiber. While ECFiber is now rightly considered the model for the rest of Vermont, the early years were fraught with state-level obstruction and outright opposition. In the thirteen years since then, well over one hundred million Federal dollars and something like $15 - $25 million state funds have been disbursed in the name of developing and supporting broadband. Much of that has, frankly, been wasted. That ECFiber is a success today owes scarcely anything to public monies. Virtually all its funding has been obtained by itself from private sources on commercial terms. The current pandemic seems to have awakened policy makers to our current deficiencies. That is certainly a welcome, if painful, development. BUT, we would do well to review that history so as not to rush in and fritter away precious scarce resources in a misguided state of panic. We must remember that we are considering how best to develop fundamental infrastructure that we want to endure, to underpin a robust

and sustainable economy and society for the entire coming century. Today, when we determine that we need to build a new bridge or replace a failing one, we don't throw down a few saplings to bridge that gap, even if they might be marginally helpful for a short time. We hope our policy makers will look at broadband in the same manner.

Comments to EBAP

Tuesday, May 26, 2020 10:53 AM

Subject	**Comments to EBAP**
From	Claude Phipps
To	PSD - Telecom
Sent	Wednesday, May 20, 2020 2:50 PM
Attachments	Emergency Broadban...

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Attached are my comments to the EBAP.

In addition to my proposals to the plan, I ask that the plan be formatted to clearly separate the Executive Summary from the body of the plan. And that there not be any ideas presented in the ES that are not already in the body of the plan.

Claude

May 20, 2020

Emergency Broadband Action Plan

I am Claude Phipps, Board Chair, Newbury REDInet. I think that I speak for many Communication Utility Districts in Vermont. We are striving to meet Vermont's goal of FTTP for all Vermont towns. We strive for the present and future needs of all Vermonters who have been left out by the big corporations in past development efforts. This plan is about last mile service, "getting connected", not just about middle mile fiber.

This is a wonderful plan with great ideas. This plan recognizes many issues and participants that have not been addressed / included before. This is a great opportunity for Vermonters.

1. My biggest concern with this plan is affordability. The EBAP spends a lot of space discussing the cost to VT for various funding / bidding projects, but almost nothing about the cost of the service to Vermonters. The state goal of getting everyone served will fail if potential subscribers cannot believe that they can afford the service. Various plans need to be development to help low income families to connect. A customer service representative may be needed to help a subscriber understand what existing services will no longer be needed, such as land-line phone.
   "Affordability" is very complex and sensitive and will require a careful touch.

2. I am also concerned that the short term goal of *Section I b, cable line extensions,* conflicting with the long term goals of *Section II.* This article encourages players such as Charter/ Spectrum to extend their reach without any requirement to **meet the 100/100 standard nor to serve the whole town.** This behavior will make it more expensive for CUDs to efficiently cover the rest of the town with FTTP. There will be more miles of fiber-optic cable that have to run past coax-cable to get to underserved subscribers. I ask that coax-cable providers:
   a. Not be permitted to extend their service unless they contract to serve every potential subscriber with in the town.
   b. Must provide a discounted service of a reliable 25/3 for low income subscribers.
   c. Must agree to upgrade their service to meet the VT standard 100/100 in 5 years.

3. I would like to propose an additional short term article be added to Section I. Rather than investing in additional coax-cable; work with potential subscribers who could already be connected to DSL or Cable, but have not. Why are potential subscribers not connected? What kind of help do they need?

4. The reverse auction bid process appears to be designed to award to the bidder that delivers the most miles of FTTP at the least cost to the State of Vermont. Such a formula makes it difficult to incorporate factors such as support for low income

Vermonters, connection fees, bandwidth available at connection, availability of future FTTP. In addition, potential "bidders" must invest time and funds to compete with other providers. Utility developers have long understood that competition for territory is never an efficient way to establish a new utility.

5. Section I f, page 5, Work force considerations: One way to reduce workforce conflicts is to designate those areas/ towns to be served with coax-cable and those served by FTTP. This would simplify the bidding and the construction.

6. Act 250 is to protect Vermont from in-appropriate development. We must maintain our long-term goals for Vermont, even in the face of short term goals. I ask that we do not relax the Act 250 goals and requirements. If a project is identified that is being restricted or delayed by Act 250, only then consider adjustments to Act 250.

Claude Phipps

Chair, Newbury REDInet

Vermont Chamber Comment on EBAP

Tuesday, May 26, 2020 10:54 AM

Subject	**Vermont Chamber Comment on EBAP**
From	Charles Martin
To	PSD - Telecom
Cc	Purvis, Clay; Fargo, Audrey
Sent	Friday, May 22, 2020 1:54 PM
Attachments	 VCC_DPSEB AP_5.22.20

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Good Afternoon,

Attached is the Vermont Chamber's comment on the recently announced DPS Emergency Broadband Access Plan. Please let me know if you have any questions. Thank you!

Charles Martin
Government Affairs Director Vermont Chamber of Commerce 802.291.3267 direct

COVID-19 Resources for Businesses

VERMONT CHAMBER of Commerce

May 22, 2020

June Tierney
Commissioner
Department of Public Service
112 State Street
Montpelier, VT 05620-2601

Re: Draft Emergency Broadband Action Plan

Dear Commissioner Tierney,

As the largest state-wide private, non-profit business organization representing nearly every sector of the Vermont's economy, the Vermont Chamber of Commerce is proud to serve as a collective voice for thousands of businesses. The Vermont Chamber believes Vermont is well positioned to become a work-from-home capital, although realizing this goal will require universal broadband access. If implemented, the Department of Public Service (DPS) Emergency Broadband Action Plan (EBAP) would provide universal broadband access by 2024. The Vermont Chamber of Commerce fully supports of the EBAP, as it would aid in economic recovery from the COVID-19 pandemic, while also helping to strengthen Vermont's economic future.

We continue to believe universal broadband access is essential to maintaining a functional economy. This is especially true in our most rural communities, and the connectivity crisis prompted by COVID-19 has only magnified difficulties associated with operating a business or living with limited or no connectivity. Vermonters must have the ability to work, learn and access certain medical services remotely. These capabilities are now essential, and to meet current need in a timely manner we encourage policy leaders to embrace additional buildout in accordance with the federal standard while also working toward goals set forth in state law. This policy direction will allow thousands of unserved Vermonters to expeditiously gain access to critical infrastructure.

There exists considerable public debate related to varying ideas of what technology could most appropriately provide a lasting connectivity solution. We applaud this long-term thinking and support efforts to ensure any public funds invested in connectivity will serve Vermonters well into the future. That said, we are also fully cognizant of the reality currently facing workers unable telecommute, children unable to learn, and patients unable to access providers – tasks most often sufficiently covered through access to federally defined broadband. The EBAP addresses these immediate needs by requesting a statutory exception that would grant public

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and private stakeholders the ability to expeditiously increase connectivity through a variety of technologies, preexisting and otherwise.

It is unrealistic to believe any single approach will deliver broadband to every Vermont home in a timely enough manner to address immediate emergency needs. The EBAP appropriately responds to this reality by encouraging collaboration designed to expeditiously mitigate the connectivity emergency, while also capitalizing on the availability of federal funds to provide a meaningful long-term investment for Vermonters. As outlined in the EBAP, efforts to expand connectivity must involve coordination between public and private stakeholders, each with their own valuable perspective and expertise.

The Vermont Chamber looks forward to serving as a resource to the Department as the EBAP is implemented. If you have any questions or foresee areas of collaboration that we may assist in, please contact Charles Martin at cmartin@vtchamber.com.

Sincerely,

Charles Martin
Government Affairs Director

NEK Community Broadband Response to Emergency Broadband Action Plan

Tuesday, May 26, 2020 10:55 AM

Subject	**NEK Community Broadband Response to Emergency Broadband Action Plan**
From	Evan Carlson
To	PSD - Telecom; Tierney, June
Cc	Marty Feltus; jkitchel@leg.state.vt.us; Scott Campbell; TBriglin@leg.state.vt.us; Sibilia, L; fbrown@leg.state.vt.us; acummings@leg.state.vt.us; mmacdonald@leg.state.vt.us; Brady, Ted; Executive Committee; F. X. Flinn; Jeremy Hansen; Tim Scoggins; Ann Manwaring; lea@lcpcvt.org; pseymour@leg.state.vt.us; msirotkin@leg.state.vt.us; bbalint@leg.state.vt.us; CPearson@leg.state.vt.us; rbrock@leg.state.vt.us; rchesnut-tangerman@leg.state.vt.us; schase@leg.state.vt.us; bcampion@leg.state.vt.us; mhigley@leg.state.vt.us; apatt@leg.state.vt.us; hscheuermann@leg.state.vt.us; jbenning@leg.state.vt.us; Katherine Sims; lbatchelor@leg.state.vt.us; sbeck@leg.state.vt.us; plefebvre@leg.state.vt.us; mmarcotte@leg.state.vt.us; mmartel@leg.state.vt.us; wpage@leg.state.vt.us; cquimby@leg.state.vt.us; jrodgers@leg.state.vt.us; BSmith@leg.state.vt.us; vstrong@leg.state.vt.us; ktoll@leg.state.vt.us; ctroiano@leg.state.vt.us; syoung@leg.state.vt.us
Sent	Saturday, May 23, 2020 8:54 AM
Attachments	NEK VT DPS EBAP Res... TCAB Public Comment...

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Good Morning Commissioner Tierney & Dept. of Public Service,

Please find the NEK Community Broadbands CUD's comments on the proposed Emergency Broadband Action Plan attached here. Additionally, I've included our Vice Chair, Kristen Fountain's commentary provided on our behalf to the Telecommunications & Connectivity Advisory Board earlier this week. Thank you for the work that has been done on the plan to this point, we look forward to seeing the revised plan in the coming weeks. If you have any additional questions please do not hesitate to contact us.

Best,

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Evan Carlson

Chair, NEK Community Broadband P: 617-909-3408

To: Commissioner Tierney, Vermont Department of Public Service,
psd.telecom@vermont.gov
From: NEK Community Broadband member representatives
CC: VT Telecommunication & Connectivity Advisory Board, Senate Finance Committee, House Energy & Technology Committee; Northeast Kingdom Representatives & Senators
Re: Comments on Draft Emergency Broadband Action Plan, 5/5/20
Date: 05/19/20

NEK Community Broadband is a 27-member Communications Union District (CUD) officially formed on April 30, 2020. We plan to formally adopt an organizational mission, goals and strategic plan by mid-June. As that process has not yet been completed, we offer these comments as the compiled thoughts of individual appointed representatives. All representatives were offered the opportunity to provide feedback. What follows is a summary of that content. Where there was some lack of consensus, a difference of opinion is noted. We offer an overall response, and then more detailed responses by section.

Overall Response

We strongly support the objective of the EBAP to universally connect all Vermonters to high-speed internet. However, we do not agree that 25/3 Mbps is an acceptable minimum for new installations, particularly those supported with public dollars.

We understand the need for rapidly deployable solutions to crisis situations, and support the Department's resolve to meet this challenge in 2020. However, we strongly oppose funding any short-term solution that cannot be improved to the statutory standard of 100/100 Mbps with straightforward upgrades in equipment or protocol. And such technologies, whether wireless and cable extensions, should not be supported without a submitted plan and commitment by providers to perform those upgrades by 2024 or to pay back their subsidy. There also should be a strong, clear requirement set for low latency, 100 milliseconds or less, no data caps or throttling allowed.

While the urgency of connectivity during the pandemic cannot be understated, we caution the department in their approach to designing subsidy programs. In the short term subsidizing incumbent providers to pick and choose the addresses that are easiest for them to reach would likely connect hundreds of addresses across the state. However, in the longer term, this would also likely create an even more challenging business case in the last miles of our communities. We request that this tension remains top of mind if you believe the CUD's are going to play a key role in reaching the 2024 connectivity goal.

We believe that the cost estimate being used by the department is too low, and that perhaps as much as $500 million will eventually be needed to meet its goal statewide. This is in part because the number of actual unserved addresses is undoubtedly substantially larger than the figure based on provider self-reporting. Independently collected data through surveys and on-ground analysis of fixed resources is needed to arrive at a more accurate figure. Also, our own preliminary feasibility analysis for building out to our 27 members shows that some

overbuild will be necessary to reach unserved addresses, leading to greater costs than the model used suggests.

We are encouraged by the plan's acknowledgement of the importance of CUDs as direct representatives of community needs and as organizations with the potential for spurring the construction of last mile infrastructure. We agree that providing additional administrative and technical resources to our organization and others would be helpful. The Department of Public Service should be able to administer technical resources. If funds were available for a CUD support staff, either the CUD itself or an Regional Planning Commission would work as the recipient. We agree that allowing low-cost access to state-owned fiber to the CUD or its chosen service provider would be helpful.

Finally, we encourage the department in its final version of this report to state explicitly where the priorities described in the emergency plan overlap with Vermont's current Telecommunications Plan, and where they differ. This will clarify which ideas the department expects to expand upon in an updated version of the Telecommunications Plan.

Thank you for the opportunity to provide our feedback.

I. Immediate Actions to Improve Broadband Availability in Vermont

Action Steps: Our top priority is (4) the establishment of financial and in-kind support to pole-owning utilities that agree to fast-track pole license applications. We would also like to see an action step related to regional workforce training programs for lineworkers, assuming that would also be supported by pole-owning utilities. Any cable line extension fund must prioritize backfill within densely populated areas.

a) Convening a working group of stakeholders related to the needs of healthcare workers and educators is laudable and as noted already seems to be occurring. Our understanding from both groups in our region is that a large portion of the challenge in their work is the lack of connectivity in residences leading to lack of ability to participate in tele-health and online learning. Though sharing best practices and training would certainly be useful, a broader solution to connectivity is essential to meeting their needs.

b) Greater clarity and more detail is needed to evaluate the concept of a fund to defray consumer costs for cable line extensions. Will there be a limit on extension distance? How long will the company have to complete the work? What will the process be for making that request? In general, we urge the department to focus this program on backfilling last mile infrastructure in densely populated areas where cable service is widespread, prioritizing those improvements over line extensions into new territory. Hard to reach addresses within territories already well-covered by cable are very expensive to reach with fiber, making the business case more difficult for a first-round build. Cable extensions will be the quickest way to improve service to these specific last-mile

addresses.

c) We support emergency permitting to allow fast-tracking of Act 250 and Section 248a processes. We have concerns that a waiver would not be well-received by communities who are sensitive to having the ability to provide input on wireless installations in their backyard.

d) The current rate of processed pole applications is extremely alarming to us and represents a significant obstacle. Funds and in-kind support for pole-owning entities, particularly small electric utilities, is greatly needed to ensure timely deployment of a fiber network. We strongly support this initiative. We also encourage ongoing efforts to simplify pole-owning ownership arrangements. This initiative, as well as a local workforce training (I.f) for both utility and fiber line crews, will be essential to our efforts in the Northeast Kingdom. **We encourage the swift adoption and development of both these ideas.**

e) Many members believe that there are inherent limits to the utility of fixed wireless as a solution to the lack of connectivity in our region due to the challenges of our topography. We believe that fixed wireless broadband is useful as a way of rapidly deploying service to a limited number of households within line of sight of the installation.

II. Action Plan to Achieve Universal Broadband by 2024

Action Steps: While we support the Department's general goal of providing the needed funds to connect every unserved Vermonter, we do not all agree that the reverse auction format is the best mechanism to achieve that goal. Some are concerned that the unnecessary complexity of this approach will lead to problems and delays. We believe that either direct block grants to CUDs or an expanded Connectivity Initiative and VEDA loan program would be sufficient mechanisms for distributing these funds. Also, we are concerned that the funds described here will not be sufficient to fully achieve the department's goal. Finally, we oppose adopting a statutory exception to 100/100 Mbps for long-term investment. We would support emergency funding for short-term projects that can be upgraded to the statutory speed by 2024.

(a) We believe that more work is needed to come to an accurate understanding of the true costs of serving all underserved addresses. First, the service numbers self-reported by existing providers are not accurate and must be independently verified by an on-ground analysis of fixed assets. Second, our own preliminary feasibility work suggests that serving those addresses designated as unserved will cost more than the Magellan report suggests. There are approximately 11,300 provider self-reported unserved addresses in our member towns, according to VT DPS reporting. Building a fiber network to reach all of them was estimated to cost roughly $77 million, a per premise cost of $6,800.

However, this network would also provide improved service to 9,100 other addresses, which results in a per premise cost of $3,800. Within the other towns in the NEK not in our district, there are 6,700 provider self-reported unserved addresses out of 14,600 total addresses. Without a high-level design, it is very difficult to estimate the cost of building out to all of those non-district underserved addresses. However, costs are not likely to be less than the in-district towns per address, putting a minimum cost at $55 million. Thus, the lowest estimate for reaching unserved addresses in the entire Northeast Kingdom is unlikely to be less than $132 million. Given that our region accounts for less than one-third of the unserved addresses in the state, a conservative approach would project costs of $450-500 million.

(b) Some members are skeptical of a DPS-run reverse auction as an effective mechanism for the state to distribute federal and state funding for universal connectivity. We all do agree that funding will go farther if coordinated with the FCC RDOF reverse auction, but that does not mean that the state must use the same complex format as the FCC. Some believe a simpler, price-sensitive straight bidding for subsidies similar to what currently occurs related to the Connectivity Initiative funding would be easier to manage and more appropriate for directing funds where they are most needed. Alternatively, the Department should consider providing grants for the CUDs to fund build-out on their own or through agreements with other providers. Those members more optimistic about the potential of a reverse auction feel that there needs to be strong accountability measures in place to ensure awardees provide the promised service to every address within their award area.

(c) We agree that a combination of grant and VEDA loan program would be an effective strategy, and that a town-wide or county-wide approach to serving all unserved addresses is required. However, if loans are to be a primary source of funding, providers need to be allowed to recoup investment by serving all addresses passed and not just those currently unserved. Also, great care must be taken so that the funding program does not suffer from the same lack of accountability for actual addresses served that has plagued federal subsidy programs. There was strong concern in this section that any option that leaves the minimum service level at 25/3 Mbps would lead to subsidizing outmoded technology. All subsidies must be for technology that can be upgraded to meet the state mandate of 100/100 by 2024.

(d) The state can encourage subsidies that align with the RDOF auction in ways other than running a simultaneous reverse auction. Some members believe that trying to reproduce a complex mechanism that was developed to balance the needs of the entire country is not necessary or advised in a small state like Vermont.

(e) Theoretically, three years should be enough time to do this work. However, for fiber networks, this time frame will not be possible without the investment in capacity at

utilities and workforce training programs to alleviate points of backlog.

(f) Vermont's Independent Local Exchange Carriers have a mixed record on their commitment to broadband internet. A few have heavily invested in bringing fiber to the premises in their regions, while most have not. We do not support any program that would result in more investment in copper lines or other outdated technology. We believe a more competitive process for distributing subsidies would allow ILECs interested in providing needed speeds to participate as well as other companies and organizations capable of producing the needed results, including CUDs.

(g) We are deeply concerned about adopting an overbroad emergency exception to the state's policy goal of 100/100 Mbps. This standard was adopted after much consideration to give Vermonters the benefit of future-facing technology. We do not support an exception for any service that does not have the capacity now to provide 100/100 Mbps with simple upgrades to equipment or protocols, or can expect to be able to do so by 2024. Many members have great skepticism about the capabilities of wireless technologies to provide widespread broadband access to high-speed internet in the Northeast Kingdom, even with new technologies, due to the impact of topography and weather. Others are more optimistic about the targeted potential here. We agree that low earth orbit satellites currently do not provide a realistic option.

Support of CUDs

We appreciate the Department's respect for the purpose and utility of CUDs and the limitations faced by volunteer representatives.

Funding: There already exists some federal and state grant programs that are applicable to network planning and design, as well as administrative support and grant-writing. Our organization has already applied for several grants and has been awarded several already that will be put to work this year. That said, there is great competition for most of these funds across a variety of sectors. With more CUDs expected to form, additional dedicated funding for these purposes would be useful. Paramount in our view would be funds that would allow CUDs to hire independent technical advisors to help them make informed decisions about provider proposals for their regions. We believe DPS would be a reasonable conduit for these funds. Regional Planning organizations could apply for them on behalf of towns interested in forming a new CUD.

FCC RDOF auction: A backstop Letter of Credit from the state is a welcome suggestion. However, in itself, it is unlikely to be sufficient to allow CUDs without an internet service track record to participate in RDOF. We would welcome the opportunity to approach the state in partnership with a service entity (utility or internet service provider) to discuss options for meeting the auction's credit requirements.

Finally, we oppose removing the prohibition against CUDs using taxpayer funds to support the construction and operation of infrastructure. This statutory prohibition was instrumental in

allowing for the creation of our CUD as it did not put a member town's tax base at risk. Reversal would likely lead to many of our towns leaving the district and would lead to distrust of the CUD concept.

Middle Mile Transport

We agree that electric utilities have the potential to be great partners in the provision of middle mile backhaul for fiber networks in rural areas. We anticipate that collaboration with electric utilities in our region will be highly mutually beneficial. We strongly support legislative and regulatory efforts to speed and support these partnerships.

It seems likely that any sort of discounted rates for use of fiber backhaul would have to be paid for through state subsidy to insure no impact to rate-payers. If state subsidy was used, then the technology taking advantage of this subsidy must meet state statutory requirements of 100/100 Mbps.

Undoubtedly, opening the state-owned fiber system to reduced price access will make last-mile builds in our region less expensive. We would welcome the opportunity to utilize the fiber owned by the state in our region at a reduced rate. However, again, this reduced price should only be made available to technologies that meet state statute.

Commercial Mobile Radio Service

We agree that CMRS will not be the principal means for deploying universal broadband access in our region. There is skepticism among members that microwave 5G will ever be an appropriate technology for less dense, rural areas.

We are concerned that the level of investment offered by FirstNet will not be sufficient to fully serve emergency needs of our region.

Federal Broadband, Telehealth and Distance Learning Programs

The fact USDA funding remains blocked to large portions of our state is of great concern to NEK Community Broadband and other CUDs. We hope that new requirements for more granular data on broadband service will lead to greater accountability in the future. In the meantime, we appreciate the Department's advocacy around this issue. We also hope that USDA adopts a definition of broadband for its ReConnect program that aligns with the FCCs and stops using access to 10/1 Mbps as the threshold for a census group region's participation.

Kristen Fountain, Vice Chair NEK Community Broadband, commentary from Telecommunications & Connectivity Advisory Board, Thursday, May 21, 2020

My name is Kristen Fountain. I am a resident of the town of Albany in Orleans County and the Vice-chair of the new Northeast Kingdom Communications Union District.

We are called NEK Community Broadband

I am pleased to have the chance to provide a brief overview of our comments in response to the Department's Emergency Broadband Action Plan. We will be submitting more detailed comments prior to the deadline.

First, we applaud the department for its swift production of this plan, and we strongly support its overall objective of connecting all Vermonters to high-speed internet. This pandemic has made it extremely clear that broadband is essential to our health and safety as well as for economic development and community vitality.

There are components of the plan we do not agree with and others we believe are spot-on. I urge this advisory board to recommend the following

MOST IMPORTANTLY,
Do not allow **any** public dollars to flow to projects that cannot be improved to the statutory standard of 100/100 Mbps with straightforward upgrades in equipment or protocol.

Applications from emergency projects that can be completed by the end of 2020 should involve a plan for and commitment to making these upgrades by 2024.

NEXT, there must be strong accountability measures put in place that require providers to report on actual service provided, rather than the theoretical potential capacity to provide service. Experience shows that the latter all too often means in practical terms that service is not in fact available and addresses remain unserved.

ALSO, we strongly agree that to achieve the long-term components of this plan, that immediate investments must be made in increasing the capacity of to fast-track make-ready tasks. This is particularly important for smaller municipally owned ones, but all could benefit. We foresee the availability of skilled lineworkers to also be a bottleneck and urge the department to take action to work with utilities and private companies to increase regional workforce training programs.

We agree cell phone coverage needs much improvement. We support filling in access to 4G before trying to apply 5G in a rural context.

We think costs are likely to be higher than what was estimated.

FINALLY, we are very encouraged by the department's acknowledgement of the importance of CUDs. We are direct representatives of our communities and their needs. We will be essential partners in spurring the construction of last mile infrastructure in rural areas. Receiving additional technical and administrative resources for our volunteer organizations would be helpful. We believe CUDs with their private and utility partners can do more than just review projects. We plan to be active participants in any funding program. As such, we believe that block grants to CUDs or the Connectivity Initiative bid format may be simpler and easier to implement than the reverse auction proposed in the emergency plan.

CVFiber EBAP Commentary

Tuesday, May 26, 2020 11:50 AM

Subject	**CVFiber EBAP Commentary**
From	Jeremy Hansen
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 11:48 AM
Attachments	 CVF EBAP Comment...

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Dear DPS Staff-

Attached is CVFiber's commentary on the Emergency Broadband Action Plan that was recently offered for public comment. Please let me know if you have any questions about this commentary.

Regards,

Jeremy A. Hansen, PhD
Chair, CVFiber Governing Board 802-279-6054

Department of Public Service
122 State Street
Montpelier, VT 05620-2601

26 May 2020

Dear DPS Staff:

On behalf of the CVFiber Governing Board, I want to share feedback about the Emergency Broadband Action Plan (EBAP) that was recently offered for public comment. Firstly, thank you for putting the document together on such short notice, and while we have comments, by and large we feel that the document is quite good, and goes a long way in reacting to the current crisis and getting Vermont on the path towards its goal of universal 100/100 broadband by 2024.

We really appreciate the inclusion of administrative support for Communications Union Districts (CUDs). The day-to-day jobs of bookkeeping, grant writing, minute taking, public (door-to-door and online) outreach, and so on are all currently done by volunteers who all have other responsibilities to manage and who may not be as effective or responsive as a dedicated staffer could be. We envision this support person ("executive director"?) in a similar role as a town administrator.

We also appreciate the vision of allocating a large amount of funding as a concrete path to reaching the 2024 goals. However, we feel that town-by-town block grants to CUDs are going to be much faster, less costly, and more efficient than the reverse auction process described in the EBAP. Further, tying the EBAP reverse auction to the RDOF auction is probably unwise given that the funding mechanism for EBAP is still speculative, not to mention that RDOF money won't reasonably be available for a year or more. The EBAP's acknowledgment of the need for additional

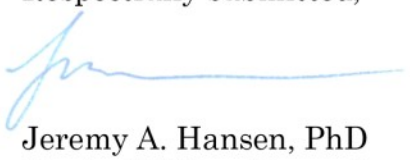
802.279.6054 | Central.Vermont.Internet@gmail.com | https://facebook.com/CVFiber | http://cvfiber.net

skilled fiber line workers, installers, and splicers is totally on the mark. And finally, for those CUDs intending to bid in the RDOF auction, having the state pay for the letter of credit would be essential to them being able to participate in the auction at all.

There are several additional steps that would be helpful for the existing CUDs and as more CUDs come online. Firstly, we would like to see a statewide website template that includes facilities for billing, donations, posting minutes, a customer support portal, and a hub for public information. A statewide pole and tower inventory along with updates to map data so that it includes all fiber in the state, an updated statewide wireless coverage map to include propagation studies of mobile and fixed wireless broadband, and feedback from Vermonters about their real broadband speeds could dramatically expedite engineering and design. We also believe that the state should mandate that all telecom infrastructure databases be updated annually and made available at the Vermont Center for Geographic Information (VCGI). For example, the Public Utility Commission (PUC) uses paper applications for new tower permits. Shifting to electronic applications could automatically include location details and be included in this data repository. Lastly, we would like to see an update to the Public Records law to acknowledge that CUDs are engaged in a competitive market and thus have trade secrets that should not be subject to public disclosure.

We should also mention that all CUDs currently in existence (and at least one that has not yet been formed) have been considering the possibility of constructing a consortium of districts primarily to bid together on the RDOF auction, but also to pool resources for some administrative tasks. Having enabling legislation that explicitly creates or allows the creation of such a body would allow us an easy route to jointly pursuing our missions of universal broadband coverage in our respective districts.

Respectfully submitted,



Jeremy A. Hansen, PhD
Chair, CVFiber Governing Board

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Providing Central Vermont residents, businesses, and civic institutions with universal access to a reliable, secure, locally-owned and -governed communications network able to grow to meet future community needs.

Barre City • Barre Town • Berlin • Cabot • Calais • East Montpelier • Elmore • Marshfield • Middlesex
Montpelier • Moretown • Northfield • Orange • Plainfield • Roxbury • Williamstown • Woodbury • Worcester

Efficiency Vermont's comments on the draft Emergency Broadband Action Plan

Tuesday, May 26, 2020 3:19 PM

Subject	**Efficiency Vermont's comments on the draft Emergency Broadband Action Plan**
From	Haley Roe
To	PSD - Telecom
Cc	David Westman; Rebecca Foster
Sent	Tuesday, May 26, 2020 3:18 PM
Attachments	 2020 05 26 FINAL EVT...

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Good afternoon,

Please find Efficiency Vermont's comments on the Draft Emergency Broadband Action Plan attached to this email. Any questions regarding these comments can be directed to Dave Westman, Efficiency Vermont's Director of Regulatory Affairs, at dwestman@veic.org.

Thank you for the opportunity to submit these comments. Best,

Haley Roe Regulatory Analyst Efficiency Vermont
20 Winooski Falls Way, 5th Floor Winooski, VT 05401
Cell: (406) 548-5362
www.efficiencyvermont.com

Efficiency Vermont

www.efficiencyvermont.com
888-921-5990 | 802-860-4095

May 26, 2020

Commissioner Tierney
Department of Public Service
112 State Street, Third Floor
Montpelier, VT 05620-2601

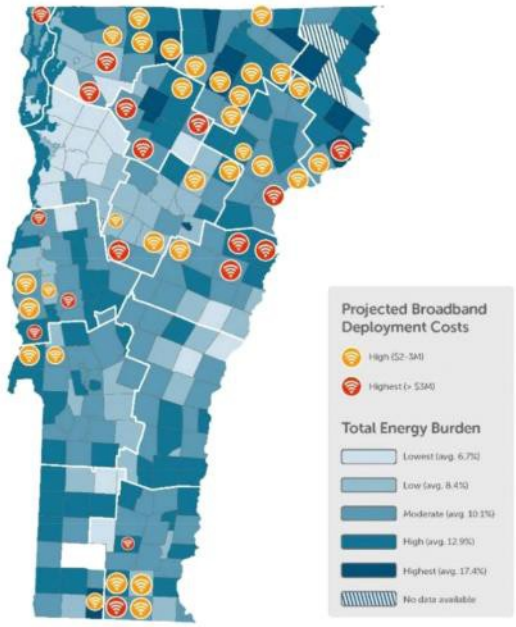
Re: Efficiency Vermont Comments on the Draft Emergency Broadband Action Plan

Dear Commissioner Tierney,

During this unprecedented time of the COVID-19 pandemic and State of Emergency, Efficiency Vermont understands it is more important than ever for Vermonters to have access to affordable broadband service. Given this critical need, Efficiency Vermont supports many of the concepts and policy proposals outlined in the Department of Public Service's ("Department") Draft Emergency Broadband Action Plan ("Draft Plan"), and submits these comments to identify areas where the Energy Efficiency Utility ("EEU") can provide strategic support for the nexus between broadband expansion and energy efficiency efforts. We believe these two services can provide compounding benefits for Vermonters during this unprecedented time, and we look forward to working with the Department to coordinate our efforts.

Load management will play a growing and valuable role in reducing electricity costs as the state continues its transition toward a more efficient and cleaner electric power system. Efficiency Vermont aims to work with Vermont's electric distribution utilities to strategically install load control measures across the residential and commercial sectors, enabling the distribution utilities to then utilize these controllable devices to better manage load on the electric grid. Many of these controllable devices are dependent on broadband connectivity, and unless connectivity is universally accessible across the state, some Vermonters will be left out of load management programs and other "smart home" or "smart business" opportunities. Efficiency Vermont has already encountered this issue in its load management collaboration with the Washington Electric Cooperative. Of those who did not qualify for participation in the PowerShift Pilot, 20% of these applicants were noted to have "technological limitations" that precluded their enrollment, ranging from insufficient access to internet to unfamiliarity with new communications technologies. As a result, these customers were not able to participate in the Pilot and receive a $5/month bill credit. Efficiency Vermont recognizes that if the Department's Draft Plan is implemented, more Vermonters will be able to realize the future monetary and environmental benefits of load management and efficiency programs.

20 Winooski Falls Way, 5th Floor, Winooski, VT 05404



Efficiency Vermont would also draw attention to the fact that high broadband cost areas identified in the Draft Plan are many of the same high cost areas identified in Efficiency Vermont's Energy Burden report.[1] That is, areas where the cost of broadband deployment are highest are also areas where large portions of household income are spent on basic energy needs. For example, of the 48 Vermont towns with high or highest cost to deploy universal broadband (greater than $2M), 42 (88%) of those towns have a moderate energy burden or higher, and 18 (38%) have a high energy burden.

Efficiency Vermont recognizes that access to affordable internet and energy are both essential for Vermonters to stay safe when they shelter at home during a crisis, such as the COVID-19 emergency, but are also important when the present danger is ameliorated. Even if underserved areas were to gain access to broadband, some Vermonters may not be able to afford the service without financial assistance. Long term access and monthly service charges could be cost-prohibitive and exacerbate existing financial worries for these Vermonters. With wider availability of broadband in the areas with significant energy burden, Efficiency Vermont sees an opportunity to help. By offering programs that bundle smart appliance upgrades and connected energy-saving devices with an incentive to reduce the cost of broadband service, Efficiency Vermont believes it could improve both broadband affordability and reduce energy burden. Efficiency Vermont suggests that pursuant to PUC Rule 8.313, if a customer(s) is considering a connection to an extension project by a broadband provider, the EEU could further incent the connection by installing smart efficient appliance upgrades and/or connected energy-saving devices. In this or other ways, we would be very interested in exploring with the Department how the EEU could leverage the potential monetary benefits from smart and/or connected devices to defray the cost customers pay for broadband service.

Additionally, Efficiency Vermont supports the Draft Plan's focus on creating areas for public and community connectivity. To the extent that community spaces such as schools, libraries, or nonprofits receive infrastructure improvements to support public access to broadband (e.g. establishment as Wi-Fi hotspots), Efficiency Vermont stands ready to support by identifying opportunities for energy and cost savings in those facilities at the appropriate time. Notably, the Draft Plan includes a list of federal funding opportunities, that if bundled with such an efficiency or load management program, could reduce the customer cost for broadband and

[1] Lucci, Kelly and Justine Sears. Vermont Energy Burden Report. Efficiency Vermont. October 2019. *See* https://www.efficiencyvermont.com/Media/Default/docs/white-papers/2019%20Vermont%20Energy%20Burden%20Report.pdf

Efficiency Vermont

energy services significantly. Efficiency Vermont believes the most compelling opportunities for cost savings will occur when EEU services are coordinated with the Department and Community Union Districts' broadband efforts; Efficiency Vermont stands ready to work collaboratively toward that goal.

Finally, the Draft Plan identifies a need for expanding existing workforce development programs to ramp up the state's workforce to complete make-ready and cable-line construction. Efficiency Vermont has focused its workforce development efforts on the clean energy sector. Given the similarities between the energy and telecommunications workforces, to the extent they would be helpful, Efficiency Vermont would be happy to share learnings from workforce development efforts and/or participate as a thought-partner with the Department or other interested entities.

Efficiency Vermont appreciates the opportunity to submit comments on the Draft Plan and looks forward to supporting the State's broadband expansion efforts moving forward.

Sincerely,

Rebecca Foster

Rebecca Foster
Director, Efficiency Vermont

Efficiency Vermont

BED Comments on DPS Draft EBAP

Tuesday, May 26, 2020 3:46 PM

Subject	**BED Comments on DPS Draft EBAP**
From	Amber Widmayer
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 3:29 PM
Attachments	2020_5_26 DPS EBAP...

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Hello,

Please find attached BED's comments on DPS' Draft EBAP. Please feel free to contact me if you have any
questions.

Thanks,
Amber Widmayer

Amber Widmayer
Regulatory Specialist

awidmayer@burlingtonelectric.com
802.735.6918

burlingtonelectric.com
Burlington, Vermont

May 26, 2020

June E. Tierney, Commissioner
112 State Street
Montpelier, VT 05620-2601

Re: Vermont Department of Public Service Draft Emergency Broadband Access Plan

Dear Commissioner Tierney,

Thank you for forwarding the Department of Public Service's ("DPS") Draft Emergency Broadband Access Plan ("EBAP") to Burlington Electric Department ("BED") for review and comment on May 5, 2020. BED understands the heightened urgency for DPS' EBAP in taking action to improve Vermonters' access to broadband service during this critical time. We appreciate the opportunity to seek further clarification on the proposed distribution utility-related action items in the EBAP in the following comments:

1) On p.5 of the EBAP, DPS proposes the establishment of a fund to provide in-kind support to pole-owning entities that agree to fast-track pole license applications, and notes that the current time for processing a pole attachment license application is generally over six months. Due to BED's compact territory, BED is typically able to review most pole license applications in less than three months. What is the specific fast-tracking timeline for review that DPS will propose, if known?

2) On p. 14 of the EBAP, DPS proposes that, "utilities could offer "backhaul" at a heavily discounted rate such as $1 per strand mile per year, or lease their existing fiber facilities extending from substations in unserved areas to interconnection points with other broadband providers." Additionally, DPS proposes legislative changes to 30 V.S.A. § 8091 to implement this proposal, including, "if alternative fiber access is not available within one mile of the substation, and the electric distribution utility has unused facilities serving that substation, the electric utility shall provide dark fiber from the substation to the nearest point of interconnection to an existing internet service provider."

   BED requests that DPS include provisions for utilities to exclude dark fiber for which it can document that it has specific future plans for use, from its definition of "unused" in the above proposed legislative language.

Burlington Electric Department
585 Pine Street Burlington, VT 05401
burlingtonelectric.com

Phone 802.658.0300

Also, BED assumes that the DPS proposed legislative language, "if alternative fiber access is not available within one mile of the substation," is not intended to permit a communications provider to use a utility's dark fiber at a cheaper rate than another existing broadband provider. BED requests DPS' confirmation that this is correct, and that access to a utility's dark fiber would only be provided where no other options for middle mile access exist. We also request that the language clearly indicate that it is not intended to create multiple broadband paths to customers.

BED appreciates the opportunity to provide these comments. Should you have any questions or concerns, please feel free to contact us at any time.

Sincerely,

Amber Widmayer
Regulatory Specialist
Burlington Electric Department
(802) 735-6918

VCE Comments on Broadband Emergency Plan

Tuesday, May 26, 2020 3:49 PM

Subject	**VCE Comments on Broadband Emergency Plan**
From	Annette Smith
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 3:42 PM
Attachments	VCE_Comm ents_Bro...

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender. Dear DPS,

Attached please find VCE's comments on the broadband emergency plan.

Thank you. Annette

Annette Smith Executive Director
Vermonters for a Clean Environment 789 Baker Brook Road
Danby, VT 05739
(802) 446-2094
www.vce.org

Vermonters for a Clean Environment

May 26, 2020

Dear Department Service Department,

Vermonters for a Clean Environment offers these comments on the May 2020 Broadband Action Plan, which is primarily focused on federal funding for coronavirus-related needs, comes with numerous constraints, and must be spent by the end of this year.

VCE's comments are also relevant to future federal funding that is likely to come to Vermont for broadband expansion. The state of Vermont has not adopted the statutorily required 10 year Telecommunications Plan, which would presumably be most relevant at this time in strategically planning for statewide broadband service.

We are aware that the Commissioner of Public Service would prefer that the Emergency Broadband Plan be "technology neutral." We strongly object to that approach. The Telecom Industry is building out more towers and placing more antennas, focusing on wireless technologies that are poorer quality and less secure than fiber optic cable. The industry has placed its focus on technologies that require constant upgrade and purchases of new, expensive devices, which are projected to make trillions of dollars for the wireless telecom industry.

Fiber to the Premises -- FTTP

VCE supports all state of Vermont moneys be spent on high quality, secure fiber optic cable to the premises. Vermontel.com deployed buried fiber optic cable throughout its service territory. With the amount of money projected to be coming to Vermont, building out the fiber optic cable network to unserved areas should be the sole focus of a coordinated effort with utilities, CUDs, and fiber optic providers.

Wireless Technologies & Children's Health

In 2019, the Senate Finance Committee required the Vermont Department of Health to report on The Possible Health Consequences from Exposure to Radio Frequency Fields Produced by Wireless Technologies…
https://legislature.vermont.gov/assets/Legislative-Reports/RFR-Report-12.23.19.pdf

While the report is inadequate in that it looks only at ionizing radiation (heating) and does not address non-ionizing radiation, it does recommend minimizing "the dose to RFR, especially to children."

Meeting the "distance learning" needs of Vermont's school children is of special concern to our members, as it is being done with "wifi hotspots" which include the Microsoft Airband initiative. Antennas are being placed on schools, apparently

789 Baker Brook Road • Danby • Vermont • 05739 • 802.446.2094

outside of the regulatory process.

This report, "On the Clear Evidence of the Risks to Children from Smartphone and Wifi Radio Frequency Regulation" https://e9a5d5c6.stackpathcdn.com/wp-content/uploads/2019/02/On-the-Clear-Evidence-of-the-Risks-to-Children-from-Smartphone-and-WiFi-Radio-Frequency-Radiation_Final.pdf supports the recommendation of the VDH Report to the Legislature, and provides greater support for protecting children's health. In part it concludes:

> ..there is only one realistic course of action. Children and adolescents should not be using smartphones, or WiFi-enabled tablet devices, and their expose to RFR sources should be minimized. This might seem impractical in the digital world, but in our real analogue world, children and teenagers are no longer permitted legal access to cigarettes, nor is it socially acceptable for adults to smoke in their presence. Given the current scientific evidence, the pathophysiological properties of RFR appear to be no different than cigarette smoke or similar carcinogens.

VCE is not aware of any discussions taking place in Vermont, whether at legislative committee hearings or with input from the Vermont Department of Health, regarding the potential for harm to children due to increased dose of Radio Frequency Radiation. The health of our state's children must be a consideration in meeting the needs of Vermont school children.

This industry-sourced article https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=9016183 discusses the issues with Cellular, Wifi and Bluetooth Technologies, and concludes:

> IX. CONCLUSION
> People should be made aware that the EMR from using day to day cellular, Wi-Fi and Bluetooth devices are harmful to human health. The levels of radiation observed in most cases such as phone calls, internet browsing on laptops and smartphones, using wireless routers and hotspots, Bluetooth smartwatches and smartphones are unsafe when compared with radiations limits determined by medical bodies. According to the current medical literature, various adverse health effects from exposure to RF EMR have been well documented. For now, wireless technologies must be avoided as much as possible. New and innovative wired solutions which provide the same level of user-friendliness should be encouraged.
>
> Intervention of government and medical bodies with the main purpose of protecting human health is of utmost necessity to ensure good economic development without compromising the health of the population. Countries must adopt the guidelines suggested by medical bodies which take into account both thermal and non-thermal effects of EMR. At present, all individuals must take preventive and protective measures to protect themselves from harmful EMR exposure.

5G

The draft plan has 20 references to 5G. It is very disturbing to read about the FCC Fund's potential to serve 85% of Vermont with 5G. This experimental, untested technology is favored by the telecom industry, which, as noted above, stands to make trillions of dollars deploying 5G and selling new devices to the public.

5G frequencies have not shown to be safe for human health or the natural world. Citizens worldwide are asking for 5G deployment to be stayed. Canada is one example: https://www.appel5gappeal.ca/. In part, it notes:

> RF radiation is scientifically demonstrated to cause or contribute to numerous health effects, including cancers, sperm damage, reproductive harms, learning and memory deficits, and neurodegenerative, cellular and genetic damage.

The FCC's regulation of frequencies for public health is being done entirely in the interests of the telecom industry, not the public or the environment. The FCC is not a health agency and has no doctors or health experts on staff. Numerous legal challenges are currently in the court system challenging the FCC's already-inadequate standards for 4G and the deployment of 5G. In a Congressional hearing in 2019, the head of the FCC admitted that no health studies have been done on 5G.

2G, 3G and 4G have been studied and shown to present risks to human health. The Environmental Working Group recently filed comments to the FCC https://cdn.ewg.org/sites/default/files/testimony/EWG_comments_to_FCC_May2020.pdf in which they discuss the FCC's outdated exposure limits that are now being applied to 5G and emissions above 6 GHz. In part, EWG states:

> EWG's research on the human health impacts of RF emissions draws on the latest studies by U.S. and international scientists, our thorough knowledge of previous research, and our close monitoring of regulatory approaches and recommendations on RF radiation made by government agencies around the world. Based on this analysis, EWG finds that the overall body of science on RF radiation raises justifiable concerns and deserves extensive additional toxicological and epidemiological study and a precautionary attitude.

Regardless of whether or not decision-makers believe that 5G poses risks to the public and the environment (birds and bees in particular), VCE is aware that many Vermonters are deeply concerned about 5G.

Vermont has already been down this path with wind turbine noise. Despite no testing prior to exposing humans and wildlife to industrial wind turbines' acoustic emissions, the technology was rolled out worldwide, just as 5G is now being deployed. Vermonters have been harmed by industrial wind turbines, as was expected based on available information. After the fact, people have had to abandon their homes, been forced into litigation, and lost the peaceful enjoyment of their homes and properties through the failure of decision-makers to make sure that it was safe, prior to deployment. Please do not make the same mistake again, this time

with 5G. As we learned with industrial wind turbines, even the threat of them has been enough to seriously disrupt people's lives, cause them to lose sleep, and dramatically increase their stress. We are now hearing similar reactions from Vermonters to the deployment of 5G.

5G has been experienced in certain areas, and the reports are that it robs the body of oxygen and damages the immune system. That Vermont's DPS has produced a report referencing 5G that gives zero consideration to the potential for harm to human health and the environment is most disturbing.

Meanwhile, the national media has gone on a discrediting, disinformation campaign. The NY Times reported that anyone who is concerned about 5G is victim of a Russian conspiracy theory. Atlantic Magazine has recently published an article debunking all concerns about 5G. It should be noted that the NY Times has a 5G lab with Verizon and was bailed out in 2008 by a Mexican telecom billionaire (Tracfone) who is still a major owner of the newspaper. Atlantic Magazine is now owned by the wife of the late Steve Jobs of Apple Computers. It is not difficult to recognize media bias on the topic of 5G, all it takes is a little searching.

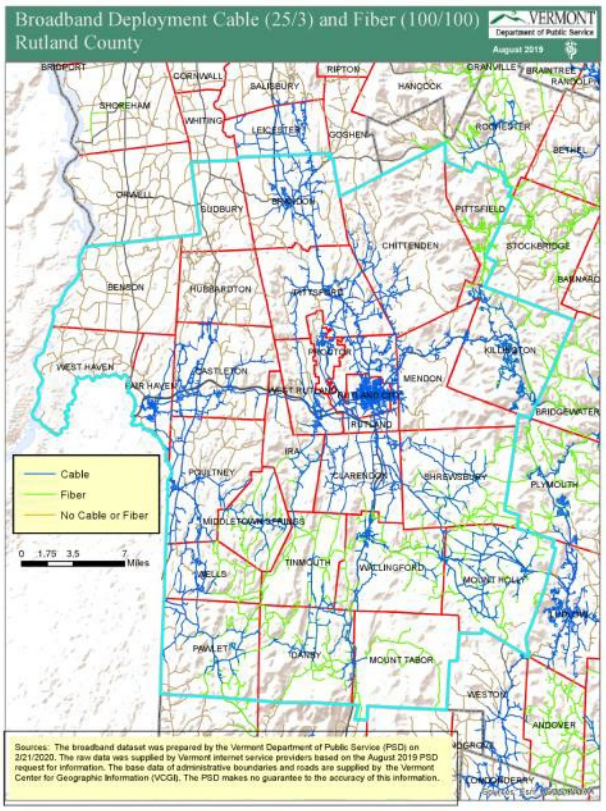
Deploying FTTP in Vermont

VCE has studied some of the maps made available by DPS.

This map appears to be most accurate in showing fiber and cable, and accurately shows redundant service. However, it only works at a very zoomed in scale. https://vtpsd.maps.arcgis.com/apps/View/index.html?appid=c47f156cef4a4db0b407333fc5dab63f

For example, see this image. This area has both cable and fiber optic, but it is barely visible even at this zoomed in scale.

The image below shows the same area as served only by cable. It does not show dual service or that fiber optic cable also exists where the cable exists.



Given the mapping capabilities that exist in Vermont, DPS does seem to have the information to show all the unserved structures in Vermont. What would it cost to expand fiber optic cable to those unserved structures? Answering that question would seem to be the starting place to determine how to spend federal dollars coming to Vermont to deploy broadband via fiber optic cable statewide.

Thank you for considering these comments.

Sincerely,

Annette Smith
Executive Director
Vermonters for a Clean Environment
789 Baker Brook Road
Danby, VT 05739
(802) 446-2094
www.vce.org

VT- PSD Emergency Broadband Action Plan (Charter)

Tuesday, May 26, 2020 3:50 PM

Subject	**VT- PSD Emergency Broadband Action Plan (Charter)**
From	Chowaniec, Michael A
To	PSD - Telecom
Cc	Purvis, Clay; Young, Jennifer R
Sent	Tuesday, May 26, 2020 3:48 PM
Attachments	 VT. CHTR Broadban...

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Good afternoon,

Attached please find comments from Charter re: VT DPS Emergency Broadband Action Plan. Please do

not hesitate to contact me with any questions.

Regards-
Mike

Michael A. Chowaniec
VP- State Regulatory Affairs
Office: 203.705.5551 Mobile: 203.561.3492
michael.chowaniec@charter.com 400 Atlantic Street
Stamford, CT 06901

Charter
COMMUNICATIONS

By Electronic Mail

May 26, 2020

Commissioner June E. Tierney
Department of Public Service
112 State Street
Montpelier, VT
05620-2601

RE: Emergency Broadband Action Plan

Dear Commissioner Tierney,

Charter respectfully submits the following comments regarding the Department of Public Service's Emergency Broadband Action Plan.

The Department is to be commended for developing such a thorough and thoughtful plan to address emergency broadband connectivity issues in the state. Every Vermonter can benefit from a high-speed internet connection. As the Department rightly observes, the COVID-19 crisis has further underscored the importance of broadband to realizing critical public health, safety, and welfare objectives. Internet connectivity in all its forms has proven critical to helping residents and businesses shelter in place, work remotely, receive healthcare, and educate their children, all while helping to slow the spread of the virus.

Charter's Ongoing Response to the COVID-19 Pandemic

Charter understands the challenges facing those who, for whatever reason, were without a broadband connection at the outset of the pandemic. That is why Charter immediately signed onto the FCC's Keep Americans Connected Pledge, committing until at least June 30 to:

- Not terminate service to any residential or small business customers because of their inability to pay their bills due to the disruptions caused by the coronavirus pandemic;
- Waive any late fees that any residential or small business customers incur because of their economic circumstances related to the coronavirus pandemic; and
- Open its Wi-Fi hotspots to any American who needs them.

Charter is also one of the few Internet Service Providers (ISPs) to have gone above and beyond these commitments. In particular, we're:

- Partnering with school districts to make sure local communities are aware of our commitments and the array of tools available to help students learn remotely;

- Continuing to offer Spectrum Internet Assist, our high-speed broadband service to eligible low-income households; and

- Offering free Internet up to 100 Mbps, including in-home Wi-Fi and a self-installation kit for 60-days to households with K-12 or college/university students or educators who do not already have a Spectrum Internet subscription through June 30th. By the end of the school year, we expect that this nationwide offer will have helped approximately 400,000 students and teachers and their families continue schooling through remote learning.

Charter is also prioritizing the health and safety of our frontline workers, who are critical to ensuring that the physical network remains robust and reliable in the face of unprecedented shifts in broadband use and data consumption patterns. It is from this dual vantage – of both an ISP serving millions of customers and an employer of thousands of essential workers – that we appreciate the myriad challenges facing Vermont as it seeks to ensure that residents and businesses have the resources needed to seamlessly engage in daily life during this period.

Charter's Experience With and Lessons Learned from State Partnerships

Even though Charter's presence in Vermont is relatively small – we serve approximately 16,000 customers in the state – we stand ready to partner with the Department and other state agencies on key aspects of the proposed emergency plan. We have a robust track record of successfully partnering with states and helping them improve broadband access through public-private partnerships where scarce government resources are focused on helping reach unserved areas. Two examples are illustrative.

- ***Maine.*** Charter has been an active participant in Maine's ConnectME program. Since 2009, Charter has received $1.75 million in state grants, and matched that with $1.05 million of our own funding, to extend our network to pass approximately 1,500 previously unserved locations across 17 towns.

- ***Massachusetts.*** Charter has worked closely with the Massachusetts Broadband Institute (MBI) to extend our network into previously unserved parts of the state. Over the last few years, we've leveraged over $10.5 million in state grant funding to pass nearly 7,000 homes in nine towns in Western Massachusetts.[1]

[1] For additional info, see releases, "Commonwealth, Charter Finalize Agreement to Deliver Broadband to Hinsdale, Lanesborough, West Stockbridge," 8/9/16, MBI, https://broadband.masstech.org/press-releases/commonwealth-charter-finalize-agreement-deliver-broadband-hinsdale-lanesborough-west; and "Commonwealth, Charter Agree to Deliver Broadband Coverage to Five Unserved Towns,"; 7/12/17, MBI, https://broadband.masstech.org/press-releases/commonwealth-charter-agree-deliver-broadband-coverage-five-unserved-towns.

From these experiences, Charter has identified several guiding principles regarding successful implementation of broadband plans and programs and realization of core public policy goals. Charter respectfully offers these principles to the Department as it seeks to finalize and implement its plan.

- ***Prioritizing Unserved Areas.*** The Department's plan details a range of potential mechanisms for bringing broadband to what it labels the "unconnected" – locations that "do not have access to broadband at 25/3 Mbps." That speed threshold has become a de facto standard and is one that Charter regularly exceeds in the markets it serves. The "unconnected" category, though, seems overly broad and might include areas that have some access to broadband as well as areas that have none. In Charter's experience, state funds go furthest when targeted at truly unserved areas. At a time when public funding is precious, putting tax dollars to their most efficient and impactful use is essential. As such, focusing any available state or federal funds on wholly unserved areas should be a priority for the state. Doing so would align it with many federal subsidy programs (*e.g.*, the FCC's Rural Digital Opportunity Fund (RDOF); the USDA's Broadband ReConnect Program) and most state programs being implemented in other states.

  Similarly, the mechanisms by which such funds are allocated matters. The proposed reverse auction methodology, while potentially sound in theory, is complex and time-consuming to administer in practice. Vetting of some kind is critical to ensuring that public funds are wisely spent, but deploying a reverse auction could greatly delay investments in bringing broadband to truly unserved areas. A program that makes direct grants to those selected through a transparent process tends to be the most expedient and effective way of allocating state funds.

- ***Technology Neutrality is Key.*** When setting broadband connectivity goals, states sometimes fixate on very specific speed thresholds and related outcomes. Doing so artificially narrows the kinds of technologies – and thus potential partners – that are capable of helping the state achieve its goals. To that end, the Department's plan raises the possibility of "adopting an exception to the [state's] statutory 100/100 Mbps statewide goal to facilitate deployment of other high bandwidth services." This is a wise recommendation because it will assure a "kitchen sink" approach to enhancing connectivity across the state, allowing cable, mobile broadband, and fixed wireless providers to partner with the state.

- ***Tap Into ISP Expertise.*** Impactful broadband grant programs in Maine, Massachusetts, and elsewhere owe their success in large part to prioritizing partnerships with established, expert ISPs like Charter. Such entities bring significant skills and experience to the table in these situations: scale, financial wherewithal, technical expertise, and operations experience[2].

[2] To the extent that VT seeks to partner with other entities, including municipalities, electric utilities and communication union districts, policymakers should ensure that appropriate safeguards are put into place

- ***Facilitate Deployment By Removing Financial & Operational Barriers.*** The Department's plan includes a number of proposals for streamlining the deployment of new broadband networks. Such policies have proven to be incredibly effective in hastening network construction. In Massachusetts, for example, successful completion of Charter's grant-funded broadband projects there hinged not only on receipt of state funds, but also on coordination with localities and their utilities to access critical rights-of-way. Charter would recommend that Vermont closely examine opportunities to address the impact of unnecessarily costly and burdensome make-ready requirements and high pole attachment rates that serve as a significant impediment to major broadband network deployment.

- ***Establish Robust Challenge Process.*** It is important that any plan adopted by the Department include a robust process that enables current service providers to challenge an unserved area designation to ensure that limited public resources are focused on truly unserved areas. Charter believes that an effective challenge process would, at a minimum, require that:
  - All applications be made publicly available (subject to reasonable confidentiality exceptions) with notice to current broadband providers and a minimum of 30 days to respond to the application and provide relevant data and information;
  - A current service provider demonstrate that it (a) already serves the area; (b) has commenced construction to provide broadband in the area; (c) will commit to providing broadband service to the area within 2 years; and
  - Applications be denied if a current provider demonstrates any of (a) through (c) above.

- ***Leverage Private Sector Investment by Requiring Matching Funds.*** In order to maximize the impact of public sector funding it is essential that applicants for Vermont initiatives commit to paying a portion of the cost of any projects (for example- a minimum of 20%). As you would expect, these matching funds should not include other governmental subsidies (i.e. grants or loans) including dollars received from federal grant programs[3].

---

to prevent unfair competition— ex. provision of service via separate affiliate, non-discriminatory pole access and pole attachment rates.

[3] Charter would recommend that any initiative include language that prohibits the provision of state broadband grant funding to project(s) that are already receiving federal funds to bring broadband service to that specific area (ex. federal RDOF requirements). These areas should be considered served, as recipients of federal funding will have committed to building out that area upon receipt of a federal grant. Federal grant programs recognize this as well, and prohibit grants from going to those areas where state funding has already been committed.

Potential Partnership Opportunities in Vermont

After reviewing the Department's plan, Charter has identified several potential areas where we might consider partnering with the state.

Foremost among these opportunities is the proposal for facilitating cable line extensions. Cost remains the biggest barrier to expanding broadband networks into remote or sparsely populated areas. The Department's plan correctly notes that many unserved households are proximate to an existing broadband network; extending that network to serve a single household, though, can be prohibitively expensive for both the homeowner and the ISP. Defraying that cost via a direct subsidy – to either the homeowner or the ISP – would help to solve that problem. Charter is interested in exploring how a cable line extension fund might be structured and administered.

More generally, Charter would appreciate the opportunity to participate in further conversations with the Department and other stakeholders about how to improve broadband connectivity across the state. These discussions tend to be most fruitful when there is a diversity of perspectives at the table. Having ISPs involved is essential to determining workable solutions and grounding project specifications in reality.[4]

Thank you for the opportunity to comment on the Department's Emergency Broadband Action Plan. Charter looks forward to working with the Department and other stakeholders to help the state ensure that every Vermonter has the opportunity to benefit from broadband now and in the future.

Sincerely,

Michael A. Chowaniec
Vice President, State Government Affairs
Charter Communications

[4] For example, the structure and processes (ex. inventory of poles/road miles) associated with MBI programs have been very effective in enabling Charter to develop build-out proposals to unserved communities in an efficient and timely manner. See link- https://broadband.masstech.org/last-mile-programs/flexible-grant-program.

Consolidated Communications Comments - Emergency Broadband Action Plan

Tuesday, May 26, 2020 4:07 PM

Subject	**Consolidated Communications Comments - Emergency Broadband Action Plan**
From	Austin, Jeffrey
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 4:03 PM
Attachments	Consolidate d Commu...

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Dear Mr. Purvis,

Please see Consolidated's attached public comments related to the VT Department of Public Service Emergency Broadband Action Plan Draft.

Thank you for the opportunity to provide comments and please let me know if you have questions.

Sincerely,
Jeff Austin

Jeffrey Austin | Director, Government Relations, VT & NY D: 802.951.8009| C: 802.735.7049
Jeffrey.Austin@consolidated.com consolidated.com | NASDAQ: CNSL

Jeffrey B Austin
Director-Government Relations
266 Main Street
Burlington, VT 05401
802-951-8009

E-mail

May 26, 2020

Clay Purvis, Director
Telecomm. & Connectivity Division
Vermont Public Service Department
112 State Street
Montpelier, VT 05620-2601
psd.telecom@vermont.gov

Re: CONSOLIDATED COMMUNICATIONS Comments regarding the Draft Emergency Broadband Access Plan

Dear Clay:

Consolidated Communications of Vermont Company, LLC and Consolidated Communications of Northland Company d/b/a Consolidated Communications ("Consolidated" or "Consolidated Communications") submit the following comments as requested by the Vermont Department of Public Service ("Department") in its May 5, 2020 Press Release. Specifically, Consolidated responds to the Department's request for public comments addressing the Draft Emergency Broadband Access Plan ("EBAP") and universal broadband coverage of 25/3 Mbps for the 68,899 address in Vermont that lack access to that speed today.

Consolidated appreciates the opportunity to provide comments related to the Department's Draft Emergency Broadband Access Plan. The global COVID-19 pandemic has further reinforced the need for universal broadband coverage throughout the state of Vermont to provide all Vermonters with access to broadband to support tele-medicine, education and work-at-home requirements.

Consolidated would like to take this opportunity to describe the significant amount of work, time and investment that it, the 8 Vermont RLECs and other companies have spent expanding broadband and internet services in Vermont to date. Consolidated has shown the technical, managerial and financial expertise to build, manage and maintain robust networks, capable of handling the increased internet traffic that has resulted from the COVID-19 pandemic. We employ hundreds of Vermont residents in good paying jobs with good benefits; established and maintain provisioning systems; offer 24x7x365 repair and technical support; and utilize engineering and design expertise within Vermont. Consolidated has demonstrated its ability to expand broadband, even in some of the hardest, least populated and most expensive areas of the state, offering a minimum of 10/1 Mbps internet access to 76% of the locations it serves in Vermont.

Consolidated agrees with the Department's estimate that it will cost approximately $293 million to fund the expansion of 25/3 Mbps to the 69,899 locations. Consolidated

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believes the list of 69,899 locations, which include camps and many business categories like gas stations, grocery stores, banks, etc. could be limited to single-family dwelling, multi-family dwelling and residential farms resulting in a total of 46,190 unserved homes. This strategy supports the expansion of ubiquitous broadband for all residential locations in Vermont so all families can work and school from home while potentially reducing the total cost of this broadband expansion. Many business entities have various connectivity needs including dedicated internet, point to point and multi-point services which can differ from a residential internet service. These business services are available across Vermont which supports removing these locations from the list of unserved locations. For the purposes of clarity, Consolidated references the 69,889 locations in its responses to the EBAP in this document.

Consolidated supports the Department's proposed method to award recipients the full value of the cost to provide a minimum of 25/3 Mbps to these locations. Consolidated believes these funds should be allocated to the Connectivity Fund already managed by the Department, and that the initial phase should include the Department issuing RFP's for all of the locations which would be open to all companies. The RFP should cover all of the approximately 70,000 locations and specific timeframes for deployment. After the initial phase of the bid process, locations or areas that were not bid on through this process could be open for a reverse auction.

The Department's second method includes a 10% VT Connectivity Fund grant and 90% Vermont Economic Development Authority loan funding model, with an estimated disbursement cost of $122 million. Consolidated believes this should only be an option if there is not federal money available to support the essential broadband expansion in Vermont. Consolidated also agrees that any broadband expansion program in Vermont should complement the FCC's upcoming Rural Digital Opportunity Fund ("RDOF"), in order to maximize the investment required to build out to some of the 69,889 locations.

Comments on Section I. Immediate Actions to Improve Broadband Availability In Vermont.

a. Data Collection regarding Broadband Needs; Creation of a Remote Learning/Telehealth Working Group

Consolidated supports the Data Collection work that the Department is conducting and recommends language be added to the plan that focuses efforts first on locations that currently do not qualify for *any* wireline internet services.

b. Cable Line Extensions

Consolidated recommends modifying the title to "line extensions" and include the ability for all wireline carriers and technologies capable of providing a minimum of 25/3Mbps to be able to participate in this fund. There is considerable urgency in expanding broadband to all locations in Vermont and excluding technologies or entire companies in any section could

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limit options and ultimately results. Incumbent Local Exchange Carriers ("ILECs") are also the designated Provider of Last Resort ("POLR") carriers in their territories and have poles, copper, fiber and electronics that service virtually all customers in their territories and should be included in the line extension language.

c. **Emergency PUC Powers to Expedite Sections 248a and/or Act 250 Permitting for Telecommunications Infrastructure**
Consolidated supports this section. No additional comments.

d. **Fast-tracking Pole License Applications**
As an ILEC, Consolidated already has existing communications plant extending to virtually every location in its service territory. This existing plant, along with Consolidated's expertise in expanding and supporting broadband, provide the most efficient path to continue to expand broadband in Vermont and support this Plan. Consolidated has over 3,700 miles of existing fiber across Vermont today and would not need to apply for Pole Licenses, conduct ride-outs and wait for make-ready work. Consolidated can act quickly and attach to our existing infrastructure saving precious time and expense. Based on this information, and the fact that the Public Utility Commission ("Commission") just concluded an in-depth Make-Ready Rulemaking in PUC Case 19-0252-RULE, Consolidated recommends that this section is not necessary to meet the requirements of this Plan.

e. **Extension of 30 V.S.A. Section 248a**
Consolidated supports this section. No additional comments.

f. **Workforce Considerations**
Consolidated agrees with the Department's assertions that implementing the EBAP will require a significant amount of resources, considering the objective is to build out a minimum of 25/3 Mbps to 69,899 locations by the end of 2024. The aggressiveness in the timeline can be illustrated when compared to the FCC's RDOF , that provides a 6 year build timeline starting in 2022 to provide at least 25/3 Mbps to 24,631 Vermont locations. Providing local workforce development and training for utility workers that could assist in the build-out of the plan has merit but we also want to consider the effects on this new workforce once the EBAP and other projects are completed, and whether they would be able to find and maintain consistent work here in Vermont for the long term.

Comments on Section II. Action Plan to Achieve Universal Broadband Availability in Vermont by 2024

As previously noted, Consolidated believes that a standard RFP process through the Connectivity Fund would be an appropriate first step in awarding bids to companies that can start expanding broadband quickly. Once the RFP process is completed, remaining locations could be arranged in a reverse auction process.

a. **Deployment Costs**

Jeffrey B Austin
Director-Government Relations
266 Main Street
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Consolidated believes that the Magellan Report estimate of $3,515 per location to provide the backbone network supporting at least 25/3 Mbps is directionally accurate. However, it is important to note the 69,899 underserved locations in Vermont are some of the highest cost, hardest to reach locations in the State and that estimate could vary significantly. Consolidated's estimate to provide a fiber-drop and Optical Network Termination device is approximately $1,100, compared to the $1,610 in the Magellan report but can vary widely depending on existing service delivery to the location such as aerial, underground in existing conduit or underground direct buried.

b. The Reverse Auction Proposal

Consolidated has provided comments regarding its position on the reverse auction proposal above. It seeks further clarification on the Reverse Auction Proposal set forth in the draft EBAP. There is language in the Draft EBAP that states "existing CUD's would have decision-making authority over whether bids for projects in their service territories would be awarded funding, unless the CUD itself chooses to participate in the auction." EBAP, at p. 9 Does this language mean that if a company successfully bids on a town or county, and has been awarded the funds to expand broadband in that area through the existing Department and VTCAB process, that the CUD has the authority to advise they do not want that specific company to be awarded the funds? If so, Consolidated is opposed to that approach. Consolidated recommends that special consideration be given to bids from companies that have existing robust facilities and networks with the ability to expand broadband to completely unserved locations before expanding broadband to locations that currently have access to internet services but are categorized as "underserved".

c. The Two Proposed Methodologies for Disbursing Reverse Auction Awards

No additional comments.

d. Cost Implications of the FCC Rural Digital Opportunity Fund Auction

No additional comments.

e. Timeline for Deploying Universal Broadband Access

Consolidated understands the urgency surrounding the EBAP. The proposed timeline that provides winning bidders 3 years to complete the grant deployments is very aggressive. As mentioned previously, the RDOF program, which includes 24,631 locations, has a 6-year deployment schedule beginning in 2022, which allows companies time to fully engineer the projects, work with vendors to coordinate the on-going delivery and management of materials, coordinate resources and build the projects. The work is required at the same time companies like Consolidated are managing existing workload requirements including installation and maintenance for residential and business customers across the state, mandated VTrans and town/city relocation for projects, make-ready work and managing a statewide infrastructure network while dealing with the challenging terrain and seasons in Vermont. Taking all of this into consideration, Consolidated recommends the EBAP timeline be increased to 5 years to ensure the ability to properly manage these important projects.

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f. High-Cost Area Program: An Alternative to the Reverse Auction Proposal
Consolidated generally supports this proposal and believes this could be an efficient vehicle for ILECs to expand broadband into these designated High-Cost areas, as long as this proposal also provides ILECs with the ability to participate in all other parts of this Plan.

g. Bandwidth Considerations
If properly funded, Consolidated sees the EBAP as an opportunity to build fiber services to these 69,899 locations. The COVID-19 pandemic has put a spotlight on the connectivity inequities in Vermont and has provided a possible one-time opportunity with significant federal funding to expand broadband. Consolidated believes that using those funds to deliver fiber to the 68,899 locations will provide customers with a future proof facility that will require no additional solutions, programs or funding for these areas in the future.

Section III Communications Union Districts ("CUDs")

Consolidated has worked with, and will continue to work with, CUDs to discuss and potentially partner with them to expand broadband services in their communities. CUDs have motivated and energized the broadband landscape in Vermont and there are many synergies that can be gained between CUDs and ILECs. With appropriate funding outlined in the EBAP, CUD's and ILEC's can work together to discuss and plan service availability and speeds, construction schedules, discuss priorities and overall goals of broadband expansion in their territories. Absent significant federal and/or state broadband expansion funds, we believe these synergies can be the most beneficial with the parties engaging in public/private partnerships. Consolidated has partnered with several towns in NH to build complete fiber to the premise (FTTP) networks so the structure is in place for these types of partnerships.

a. Funding
Consolidated has long believed that funding resources should be utilized for the build out of broadband facilities to Vermont residents.

Section IV. Middle-Mile Transport

Consolidated agrees that there is already robust Middle-Mile fiber in Vermont including fiber from ILECs, VELCO, Electric Distribution Companies, Vermont DPS, FirstLight and CenturyLink and state intervention is not needed. Consolidated has 85 fiber fed Central Offices across Vermont that connect our robust 3,700-mile fiber network, which includes fiber in virtually every town in our service territory.

Section V. Overview of Commercial Mobile Radio Service in Vermont (CRMS)

Jeffrey B Austin
Director-Government Relations
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Consolidated supports wireline broadband expansion and deployment that aligns with the state's broadband goals, and therefore, does not believe that CRMS should be included in the EBAP.

Section VI. Federal Broadband, Telehealth, and Distance Learning Programs

Consolidated operates in a 23 state national footprint and is very involved in broadband programs and opportunities across the country.

a. **Federal Broadband Expansion Programs**
   Consolidated is familiar with all of the federal broadband expansion programs and reviews all available programs for potential opportunities.
b. **Federal Telehealth Programs**
   No additional comments
c. **Education Funding Opportunities**
   No additional comments
d. **Broadband Affordability - Lifeline**
   Consolidated supports and participates in the State and Federal Lifeline programs.

Section VII. Technical Definitions

Consolidated has no comments regarding the Technical Definitions in the Plan.

Additional Comments

Consolidated believes there should be additional discussion regarding affordability in the EBAP. The Draft EBAP briefly mentions the Federal and State Lifeline program, which is helpful but only provides limited financial assistance to customers. As companies build out more FTTP networks with increased speed capacity, we are likely to see increased rates for these new services. This could result in greater availability of FTTP services that are not affordable to Vermont residents which ultimately doesn't solve our current connectivity issues.

Consolidated appreciates the opportunity to provide comments to the Department regarding the Draft EBAP and looks forward to participating in future discussions regarding this Plan.

Regards,

Jeffrey B. Austin

Eight RLECS' Comments on the Department's Emergency Broadband Action Plan

Tuesday, May 26, 2020 4:23 PM

Subject	**Eight RLECS' Comments on the Department's Emergency Broadband Action Plan**
From	Paul Phillips
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 4:21 PM
Attachments	 Eight RLECs Comment...

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Please find attached the Comments of Eight Rural Local Exchange Carriers regarding the Department's Emergency Broadband Action Plan. Many thanks to the Commissioner and the Department for the opportunity to provide these Comments.

Paul Phillips
Counsel for the Eight RLECs

Paul J. Phillips | Attorney at Law

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***(Please contact me by cellphone if you need to speak with me during the current state of emergency.)**

Montpelier, VT Office:
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Admitted in Vermont and New Hampshire

May 26, 2020

Hon. June E. Tierney, Commissioner
Vermont Department of Public Service
112 State Street, 3rd Floor
Montpelier, VT 05620-2601

Re: Vermont Emergency Broadband Action Plan
—Comments of Eight Rural Local Exchange Carriers

Dear Commissioner Tierney:

Eight Vermont rural local exchange carriers (the "Eight RLECs")[1] have reviewed the draft Emergency Broadband Action Plan ("EBAP") issued by the Vermont Department of Public Service ("Department")[2] and offer the following comments for your consideration. The Eight RLECs appreciate the Department's thoughtful approach and wide-ranging proposals for swift deployment of high-capacity broadband connectivity throughout the State of Vermont, but they are concerned that the EBAP mentions the Eight RLECs only in passing. The Eight RLECs stand ready to serve as trusted partners in achieving the Department's goals.

1. Introduction

Vermonters confront an unprecedented global health emergency for which no community was fully prepared. With little advance warning, Vermont residents and businesses have experienced a complete disruption of the daily rhythms and routines of life. Shuttered businesses and job losses have created or deepened economic insecurity for many Vermont families. Self-isolation and social distancing have moved nearly all group activities online—from work meetings to public hearings to classroom learning—all of which require a robust Internet connection.

The Eight RLECs are uniquely situated to connect the remaining unserved and underserved locations in their rural Vermont service areas to their existing broadband networks:

---

[1] Franklin Telephone Company, Inc., Ludlow Telephone Company d/b/a TDS Telecom, Northfield Telephone Company d/b/a TDS Telecom, Perkinsville Telephone Company, Inc. d/b/a TDS Telecom, Shoreham Telephone LLC d/b/a Otelco, Topsham Telephone Company, Inc., Vermont Telephone Company, Inc. d/b/a VTel, and Waitsfield-Fayston Telephone Company, Inc. d/b/a Waitsfield Telecom, d/b/a Champlain Valley Telecom.

[2] "Broadband Action Plan: A Plan for Addressing the COVID-19 Emergency" (Vt. Dept. of Pub. Serv., May 5, 2020), available at https://publicservice.vermont.gov/sites/dps/files/documents/Emergency%20Broadband%20Action%20Plan%20final%20draft%205-5-20.pdf.

- As long-serving providers of communications services in their communities, the Eight RLECs are trusted and recognized partners for residential and business customers in rural Vermont.

- As carriers of last resort ("COLRs") with a statutory obligation to provide regulated voice service throughout their services areas, the Eight RLECs already have ubiquitous facilities and distribution networks in place, as well as engineers and technicians available to extend service where needed.

- As regulated entities, the Eight RLECs are already engaged in broadband construction projects that are funded in part with federal and state public resources. It would not be cost-effective or administratively efficient to provide emergency public resources to competing providers to overbuild the Eight RLECs' networks with duplicative facilities and services.

The Department's EBAP recognizes the urgency of connecting all Vermonters to high-speed Internet connections during the present state of emergency. The EBAP's cost estimate of $4,240 per location is a reasonable one, so long as the goal is 25/3 statewide. The Eight RLECs support Vermont's statutory goal of 100/100 Mbps where wireline connectivity solutions to the premises already receive state support. Nonetheless, the Eight RLECs support flexibility in the use of emergency public funding to reach locations that are presently served by less than 25/3 broadband. The Eight RLECs concur with the Department that it makes sense to adopt an exception to the 100/100 policy goal, since that goal may foreclose support for capable fixed-wireless networks that could provide one of the quickest-to-deployment solutions for students and others in need of an immediate connectivity solution.[3] In general, reverse auctions are an acceptable process for selecting recipients of emergency funds. The Eight RLECs, however, prefer the Department's proposal for an alternative High-Cost Area Program and agree that using emergency funds to supplement the State's existing High Cost Program would be "[o]ne of the most expeditious ways of deploying broadband infrastructure" in Vermont.[4] The Eight RLECs support the EBAP's suggestions of potential funding sources for emergency broadband construction, so long as the Eight RLECs are included in the Department's funding plans.

The Eight RLECs share the Department's mission of connecting all customers with high-speed broadband throughout their rural service areas. As the Department finalizes the EBAP for publication and implementation, the Eight RLECs ask the Department to recognize the role that they can play in achieving the EBAP's goals.

2. The Eight RLECs have close relationships with the communities they serve.

The Eight RLECs have provided vital communications services to their communities for many decades—in some cases for over a century. The companies are core businesses and employers in the communities they serve. They identify with the successes and struggles of their communities and have always supported their communities in many ways.

[3] EBAP, at 11-12.
[4] EBAP, at 11.

The EBAP emphasizes the importance of "grassroots planning and community priorities" in identifying and implementing emergency broadband projects.[5] But the EBAP does not acknowledge the long history and deep knowledge that the Eight RLECs bring to their communities. While Communications Union Districts ("CUDs") are also community-based, they lack the existing infrastructure, operational history, and technical and managerial expertise that the Eight RLECs offer in their communities.

With access to additional public resources, the Eight RLECs are capable of implementing the Department's emergency plans immediately and efficiently without long lag times or learning curves. The Department would be well served to include the Eight RLECs more fully in the EBAP's implementation plans.

3. The Eight RLECs are COLRs with ubiquitous distribution networks and with the technical, managerial, and financial capabilities to connect unserved and underserved locations quickly and efficiently.

Unique among broadband providers in Vermont, the Eight RLECs are carriers of last resort ("COLRs"), with longstanding obligations under both federal and state law to provide communications service to any location that requests service in their rural service areas.[6] To carry out these obligations, the Eight RLECs own and operate robust communications networks capable of delivering service ubiquitously throughout their service areas. In addition, the Eight RLECs have trained and experienced engineering, construction and installation technicians available to connect each unserved and underserved location upon request.[7] With decades of experience in provisioning voice and data services in Vermont, the Eight RLECs have the technical, managerial, and financial capability to connect the unserved and underserved locations in their respective service areas.

The EBAP recognizes the urgent need to achieve high-speed broadband connectivity throughout Vermont. But the EBAP focuses on cable providers whose facilities serve mostly downtowns and town centers[8] and on electric utilities and CUDs who lack the experience to deliver communications services to end users.[9] In the present state of emergency, the Department should look to providers like the Eight RLECs, who can deploy communications facilities efficiently to locations in need of broadband service.

4. The Department should deploy public resources so as to enhance, rather than duplicate, existing public investments.

The Eight RLECs presently receive public support for broadband deployment in their service areas both through the FCC's Connect America Fund ("CAF") and, for most of them, through the Vermont High Cost Program. CAF funding requires the Eight RLECs to build broadband access

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[5] EBAP, at 8.
[6] Consolidated Communications, Inc. is a COLR with similar obligations to those of the Eight RLECs.
[7] The Eight RLECs have tariffs that establish rates and terms for serving unserved customers.
[8] EBAP, at 4-5.
[9] *Id.*, at 7-8 & 13-14.

at 25/3 speeds to an identified set of unserved and underserved locations by the end of 2024. The Vermont High Cost Program requires designated Vermont Eligible Telecommunications Carriers ("VETCs") to provide symmetrical broadband at 100/100 speeds within five years.

Despite these ongoing federal and state funding programs, the EBAP looks to other providers to receive public funding to achieve the Department's emergency connectivity goals. The Eight RLECs believe that the Department's goals will be more efficiently served if the Department enhances, rather than duplicates, the existing public investments in broadband in Vermont.

The challenge in reaching unserved and underserved locations in Vermont has long been the high cost of construction and the relatively lengthy return on investment. Connecting the most inaccessible locations is not economical as a commercial investment and has proven to be challenging even when public funds supplement private dollars. When providers build out fiber networks in these areas, the take rates for the highest-speed services have been low, making it difficult for providers to generate revenues sufficient to fund additional construction. Competition in the provision of high-speed services has further fractionalized potential take rates. In addition, public funding through the FCC's Connect American Fund has declined sharply in recent years, as has state funding provided through the Vermont High Cost Program.

The EBAP discusses several potential sources of public funding for emergency broadband construction. Access to additional funding could allow the Eight RLECs to accelerate the construction projects they already have underway under existing federal and state programs.

The Draft EBAP proposes a plan for public investment that will achieve universal 25/3 broadband in Vermont by 2024.[10] The draft does not acknowledge, however, that existing federal and state funding programs are already aimed at achieving these results in the territories of the Eight RLECs. The Eight RLECs ask that the Department recognize these ongoing efforts and that the final version of the EBAP acknowledge the potential to use emergency funding to enhance and accelerate these existing publicly-supported programs.

5. Specific Comments

In addition to seeking greater recognition for their capabilities and services in the EBAP, the Eight RLECs are concerned that particular proposals in the EBAP exclude or minimize the role that incumbent telecommunications providers can play in the Department's emergency plans. To ensure parity and to avoid unjust discrimination in the Department's funding decisions, the Eight RLECs offer the following comments.

a, Cable Line Extensions (page 4). The EBAP discusses the potential use of emergency funding "to defray the consumer portion of the line-extension cost" for cable Internet service, but does not acknowledge that the Eight RLECs have similar line-extension policies in their tariffs on file with the PUC. If the EBAP proposes the use of public funds to defray customers' line-extension costs, the proposal should apply equally to all regulated providers with line-extension tariffs.

[10] EBAP, at 6-13.

b. Middle Mile Transport (page 14). The Eight RLECs provide middle-mile backhaul for wireless and Internet traffic in their service areas. While the EBAP acknowledges that "there is a robust market for middle-mile backhaul transport throughout Vermont,"[11] the only backhaul providers mentioned are electric distribution utilities and the Department's state-owned facilities. The Eight RLECs ask that the EBAP discussion be broadened to recognize all backhaul providers in Vermont, including the Eight RLECs.

c. State-Owned Fiber Networks (pages 15-16). The EBAP proposes to "[o]ffer CUDs a nominal lease rate on the Department-owned fiber network for five years if the CUD can meet a predetermined number of premises reached per year."[12] The Department does not explain why it would give CUDs, but not all broadband providers, a favorable benefit to use state-owned facilities. On its face, the proposal appears to create unjust discrimination. The Eight RLECs ask that the EBAP ensure parity among providers in the use of state-owned facilities.

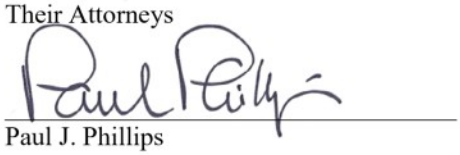
The Eight RLECs thank the Department and the Commissioner for the opportunity to offer the foregoing comments and look forward to working with the Department and its public and private partners to achieve our shared goals.

Please let me know if you have any questions.

Very truly yours,

FRANKLIN TELEPHONE COMPANY, INC., LUDLOW TELEPHONE COMPANY d/b/a TDS TELECOM, NORTHFIELD TELEPHONE COMPANY d/b/a TDS TELECOM, PERKINSVILLE TELEPHONE COMPANY, INC. d/b/a TDS TELECOM, SHOREHAM TELEPHONE LLC d/b/a OTELCO, TOPSHAM TELEPHONE COMPANY, INC., VERMONT TELEPHONE COMPANY, INC. d/b/a VTEL, and WAITSFIELD-FAYSTON TELEPHONE COMPANY, INC. d/b/a WAITSFIELD TELECOM, d/b/a CHAMPLAIN VALLEY TELECOM

By: PRIMMER PIPER EGGLESTON & CRAMER PC
Their Attorneys

By: 
Paul J. Phillips

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[11] EBAP, at 14.
[12] EBAP, at 16.

4341280.1

Eight RLECs CORRECTION to Comments on EBAP (May 27, 2020)

Wednesday, May 27, 2020 9:55 AM

Subject	**Eight RLECs CORRECTION to Comments on EBAP (May 27, 2020)**
From	Paul Phillips
To	PSD - Telecom
Sent	Wednesday, May 27, 2020 9:37 AM
Attachments	Eight RLECs Suppleme...

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Commissioner Tierney: The attached letter corrects a misstatement in the set of comments submitted yesterday on behalf of the Eight RLECs. Please consider this as a supplemental submission to correct the initial submission.

Thank you.

Paul Phillips

Counsel for the Eight Vermont RLECs

Paul J. Phillips | Attorney at Law

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***(Please contact me by cellphone if you need to speak with me during the current state of emergency.)**

Montpelier, VT Office:

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May 27, 2020

Hon. June E. Tierney, Commissioner
Vermont Department of Public Service
112 State Street, 3rd Floor
Montpelier, VT 05620-2601

Re: Vermont Emergency Broadband Action Plan ("EBAP")
—CORRECTION to Comments of Eight Rural Local Exchange Carriers

Dear Commissioner Tierney:

I write to you to correct one aspect of written comments that I submitted to you yesterday on behalf of Eight Vermont rural local exchange carriers (the "Eight RLECs").[1] Those comments included an error that resulted from a misunderstanding of comments in an email and miscommunication between drafting parties. This letter addresses that error and corrects a misstatement in the initial comments.

On Page 5 of the written comments, in Section 5, subpart (b), the comments discuss middle mile transport and include the following request: "The Eight RLECs ask that the EBAP discussion be broadened to recognize all backhaul providers in Vermont, including the Eight RLECs." This is a misstatement. The Eight RLECs intended to make the point that, if the Department intends to allow broadband providers to have access to state-owned and electric-owned middle-mile transport at below-market rates, the Eight RLECs should be given such access on similar terms as other broadband providers in Vermont. This the same point made by the Eight RLECs in subpart (c) regarding state-owned fiber networks.

The original comments could be misconstrued as suggesting that the Eight RLECs would allow their own middle-mile transport to be shared with other providers at below-market costs. This is not the Eight RLECs' intention. The Eight RLECs' middle-mile transport within their service areas is subject to fully-distributed costing rules. The cost of removing investments from their regulated accounts is much greater than any incremental prices or below-market rates and would result in increased costs across all regulated services. Because the Eight RLECs are no longer

[1] Franklin Telephone Company, Inc., Ludlow Telephone Company d/b/a TDS Telecom, Northfield Telephone Company d/b/a TDS Telecom, Perkinsville Telephone Company, Inc. d/b/a TDS Telecom, Shoreham Telephone LLC d/b/a Otelco, Topsham Telephone Company, Inc., Vermont Telephone Company, Inc. d/b/a VTel, and Waitsfield-Fayston Telephone Company, Inc. d/b/a Waitsfield Telecom, d/b/a Champlain Valley Telecom.

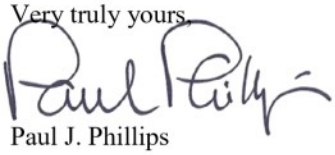
fully rate-regulated, they are not able to pass these costs along to rate payers, as the electric distribution utilities are able to do.

To the extent some RLECs own or operate middle-mile transport outside their traditional service areas, these facilities are the product of private investment and are properly excluded from the Department's proposal as they were not "originally paid for by rate payers." (EBAP, at 14.)

I regret any misunderstanding caused by the initial written comments. Please consider this letter as a supplemental submission that corrects the initial submission.

Please let me know if you have any questions.

Very truly yours,



Paul J. Phillips

cc: Eight Vermont rural local exchange carriers

4341930.1

Comments on the EBAP

Tuesday, May 26, 2020 4:35 PM

Subject	**Comments on the EBAP**
From	Irv Thomae
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 4:35 PM
Attachments	 ECFiber EBAP Co...

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

On behalf of the East Central Vermont Telecommunications District (ECFiber), I am happy to submit the enclosed comments on the Department's Emergency Broadband Action Plan.

Thank you very much, Irv Thomae
Government Relations Officer 802-649-5617

Emergency Broadband Action Plan

Response to the Public Comments Draft

from

East Central Vermont Telecommunications District (ECFiber)

May 26, 2020

Drastic changes to everyday life necessitated by the COVID-19 pandemic have drawn public attention as never before to the urgent need for full-strength broadband throughout Vermont, most especially in rural areas. Students, people required to work from home, veterans who need telemedicine services: all are struggling now with emergency needs for full-strength broadband. Act 79 established state strategy for reaching those rural residents: support CUDs, the only proven model to succeed in delivering 100/100 to rural areas left behind. The tactical support in the law envisioned processes that would take years to play out. The strategy is sound, but the tactics must change. In a nutshell, this means productively spending as much money as possible as quickly as possible; cutting the red tape around make-ready; and facilitating stakeholder cooperation so as to minimize design cost and time.

We commend the Department of Public Service for rapid development and distribution of an impressively comprehensive plan for accelerating broadband deployment, and we strongly support most of the Plan's recommendations. Before offering detailed comments, however, we will take this opportunity to encourage Vermonters and all branches of state government to follow the Department's lead in seeking out opportunities to make real progress within this calendar year. The CARES Act seems to be rife with strange restrictions, but the list of "Eligible expenditures" in US Treasury guidance dated April 22 does include the following:

> Expenses of actions to facilitate compliance with COVID-19-related public health measures, such as: [..]
>
> - Expenses to facilitate distance learning, including technological improvements, in connection with school closings to enable compliance with COVID-19 precautions.
> - Expenses to improve telework capabilities for public employees to enable compliance with COVID-19 public health precautions.

Even as our Congressional delegation works to resolve CARES Act oddities and free up new resources for rural broadband, we need to remember that many other potentially applicable funding programs already exist. For example, according to a press release from the US Commerce Dept., EDA grants can be used for "constructing public works and facilities that will support economic recovery, including the deployment of broadband for purposes including supporting telehealth and remote learning for job skills."

Public-private funding to reduce the monthly cost for low-income families, where state money could be tripled by matching grants, could also put another $900K to work.

As examples of concrete results that could be achieved between now and Dec. 30, consider the following:

(1) Cover the one-time cost of connection for the many rural residents whose premises already are passed by fiber or cable, but cannot afford by virtue of low income or unemployment caused by COVID-19 (etc.) Many jurisdictions require that all utility connections, whether power or communications, enter mobile homes through underground conduit. That puts the one-time cost of getting connected to a broadband network beyond reach of many. ECFiber's district alone has over 1400 residential mobile homes, 1000 of which will be serviceable by the end of this year. At $2,000 per location, a $2 million grant would be money well spent toward the state's goal.

(2) In response to the workforce concerns articulated in Section I (f), organize and implement a 3- to 4-month training program for utility crews, ideally at VTC, with a goal of increasing the labor force available for widespread broadband deployment by an order of magnitude beyond the number of skilled workers presently available. There is also a related need, not mentioned in Section I, for field data collection. With appropriate funding, ECFiber is prepared to start training a dozen pole data collectors by July 1 who could be in the field by mid-August.

(3) Pay for preparations for broadband construction in all towns presently members of, or likely to be built out by, CUDs. This will cut 6 to 18 months off the elapsed time from obtaining funds for actual network construction until customers can actually be connected to a functioning network:

(a) Pay the pole owning entity or entities to undertake proactive makeready work along each Federally designated connecting road that passes through unserved parts of each such to(b) pay for the pole data collection throughout each such town that will be needed for network design

(c) pay for preliminary network design to cover each such town. ECFiber is preparing cost estimates for the four towns just added to its District, as well as others currently being considered for membership.

Turning now to specific sections of the public-comment draft:

We welcome Section I (d)'s call for state assistance to accelerate processing and makeready work for pole applications. Indeed, our suggestion (3)(a) above can be considered a further extension of that idea.

Similarly, we strongly concur with the concern voiced in I (f) on "Workforce Considerations". As evidenced by our own suggestion (2) above, we urge the Department to use its moral authority to help bring about a practical solution.

Section II (a), "Deployment Costs", does cite one assumption from the Magellan report which we find very questionable: in our experience connecting more than 4500 FTTP customers to date, drop cost does not vary significantly with take rate because it's unavoidably labor-intensive. There may be some reduction on job-site travel costs if all premises on the same street can be connected sequentially as the crew reaches them, but the expected savings might be on the order of 10%, not more than 50%. In summary, this section's estimated cost per premise served does not match ECFiber's experience. We would be happy to share our data with the Department.

We strongly concur with the basic requirements declared in Section II (b), "The Reverse Auction Proposal", i.e.

Bidders would be obliged to submit proposals to provide service at the speed of 100/100 Mbps symmetrical on a town-basis. Successful bidders would be required to offer service capable of 100/100 Mbps service or better to all locations in a town, except to those that already have access to service at 25/3 Mbps.

However, the proposal to seek bids based first on full towns and then on counties or RPC territories strikes us cumbersome in comparison with using CUD's as the basic unit. In fact, as an alternative to the Reverse Auction procedure, we suggest awarding block grants to CUD's based on parameters such as population, number of unserved premises, and road mileage. etc.

We share the concern voiced by several participants in the Department's recent public hearing to the effect that in some towns or CUD territories, the FCC's RDOF process and a parallel reverse auction by the state could result in fragmented service areas, with neither the RDOF winner nor the state awardee having sufficient customer base to be economically viable. Block grants to CUD's could help reduce the risk of such scenarios, but a more complete solution will probably require help from our Congressional delegation.

Incidentally, RDOF's LOC requirement exemplifies but does not fully summarize that program's complexity. If the Department decides to encourage CUD's to apply either jointly or individually, some State funds should be used to engage a consultant well-versed in the FCC application process.

As an ambitious alternative to the Reverse Auction proposal, we urge the Department, working together with ACCD, to consider submitting a comprehensive proposal to the EDA which would fund planning, network design, and even proactive makeready by CUD's all over the state, covering all unserved premises throughout Vermont.

Section II (g), "Bandwidth Considerations", suggests relaxing the statutory goal of 100/100 service so as to allow consideration of fixed wireless for allegedly faster rollout. However, at least in topography similar to ECFiber's, the fiber backhaul infrastructure needed to achieve full coverage would cost as much, and take about the same amount of time to build, as future-proof FTTP. A fixed wireless solution would not be consistent with established state strategy, and its use as a tactic would be in a long tradition of short-sighted surrenders to expediency, or as the folk saying might put it, "throwing good money after bad."

Telehealth, at-home education, and working from home all require significant upload bandwidth. Therefore, we respectfully, but vigorously, disagree with the fixed wireless recommendation unless augmented by requirements for symmetrical bandwidth and for upgradability to 100/100 by 2024. Failure to deliver on either parameter should result in return of any public funding.

As the state's first CUD, we read Section III on Communications Union Districts with great interest. It is certainly true that newly formed CUD's . and we strongly endorse the suggestion in III (a) that Broadband Innovation Grants be used to fund administrative support functions as well as network planning and design. If RDOF rules allow a state to assist with the LOC requirement, we support that as well. However, we disagree with the suggestion that Act 79's requirement for 10% non-public funding is an insurmountable obstacle, and in fact we would be happy to share with other CUD leaders the methods and tools that ECFiber used to finance early construction in the years preceding enactment of the CUD statute.

We are also deeply concerned that allowing towns to apply sales tax revenues to broadband projects would exacerbate existing economic disparities between towns, with the unintended consequence of further widening the digital divide.

Section IV (a) on Middle-Mile Transport includes several welcome ideas, for example encouraging electric distribution utilities to offer any spare fiber strands at a heavily discounted rate for middle-mile use by broadband providers However, we disagree with the third paragraph of the Plan's suggested amendment to 30VSA §8091, covering the situation in which the electric distribution utility has no spare strands available for middle-mile transport between a substation and an interconnection point. We acknowledge the expectation that requiring the utility to install new fiber in the power space would eliminate makeready delays and costs. However, because cables located in the power space can only be accessed by electric-utility crews, that placement makes their installation, access, and maintenance inherently more problematic and expensive. Worse, in the afterrmath of heavy damage from events such as severe storms or vehicular accidents, the POE would very properly give priority to repairing only those facilities that are essential to restoring electric service. The new middle-mile fiber would become an orphan, inaccessible for repair by the entity that most needed its prompt restoration and subjected to the same kinds of delay that had been avoided at make-ready time. Utilities consulted agree with us: Fiber involved in delivering broadband service to homes should be constructed in the Communications Space only.

We welcome the recommendation in Section IV (b) and matching Action Step IV (c) (2), i.e. to make Department-owned dark fiber available at nominal lease rates to CUD's that "can meet a predetermined number of premises reached per year." That's similar to the terms offered to ECFiber before such facilities were built, and we strongly believe that extending such terms to newer CUD's will be in the best economic and societal interests of Vermont as a whole. However, in fairness to small broadband providers that have taken on IRU's under the present rate structure, any such change should be made retroactive, with excess payments refunded.

Thank you for the opportunity to comment.

Respectfully submitted,

Irv Thomae
Government Relations Officer, East Central Vermont Telecommunications District (ECFiber)

GMP Comments on DPS Draft Emergency Broadband Action Plan

Wednesday, May 27, 2020 8:49 AM

Subject	**GMP Comments on DPS Draft Emergency Broadband Action Plan**
From	Stevens, Melissa
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 4:56 PM
Attachments	 2020 05 26 GMP Com...

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Good afternoon. I have attached Green Mountain Power's comments with respect to the Draft DPS Emergency Broadband Action Plan.

Thank you, and please contact me with any questions or concerns. Melissa Stevens, Esq.
Green Mountain Power 2152 Post Road
Rutland, Vermont 05701
(802)770-3254
Melissa.stevens@greenmountainpower.com

BRIAN OTLEY
Senior Vice President & Chief Operating Officer

Direct Dial Number:
(802)655-8701
Brian.Otley@greenmountainpower.com

May 26, 2020

psd.telecom@vermont.gov

June Tierney, Commissioner
Vermont Department of Public Service
112 State St.
Montpelier, VT 05620-2601

Re: GMP Comments on DPS Draft Emergency Broadband Action Plan

Dear Commissioner Tierney:

Green Mountain Power ("GMP") is pleased to provide comments to the Department of Public Service's ("DPS" or "Department") Emergency Broadband Action Plan released May 5, 2020.

GMP's energy transformation is increasingly enabled by the use of telecommunications technology to support customer access to our services and programs. This convergence of energy and telecommunications is important to our transformation vision for customers, and we are in the midst of thinking through how GMP can better serve our customers and the State by increasing customer access to broadband. With access to broadband, GMP customers can benefit from the latest energy technologies and participate in our energy service programs and pilots; these are initiatives focused on reducing cost and carbon impacts while improving reliability. Sufficient broadband access is also needed for Vermonters to participate fully in our economy. This pandemic has clearly demonstrated that the ability to navigate work and education from home is dependent upon reliable access to sufficient broadband.

GMP supports the ideas outlined in the Department's Emergency Broadband Action Plan. We believe that all of our customers should have access to modern energy services and programs that enhance resiliency and help mitigate climate change; but those systems and programs require access to reasonable and reliable broadband. In just the past five years, GMP has advanced numerous innovative pilots that are incorporated into active grid management, including battery storage systems, electric vehicle chargers, and others, delivering cost savings, carbon reduction, and resiliency improvements for all customers. In the process of deploying these services and programs, we have seen how lack of access to reliable broadband limits customer choice and participation, and can deprive participants of the full benefits these programs can deliver. Going forward, we feel is it critical for GMP to facilitate broadband access to our customers, both

directly and through partnerships with broadband providers and other stakeholders. This will help provide our customers with the opportunity to fully participate in the innovative services we offer.

With both speed and cost of deployment of importance to State policymakers, a mix of technologies to improve access should be considered. Fiber optic cable is the foundation of broadband services and will play an important role in delivering reliable broadband to Vermonters who need it. There is also a role for other broadband technologies, such as high-speed wireless broadband. This technology may help to resolve lack of broadband access more quickly than a fiber-only solution. In the short term, we believe priority should be given to establishing adequate broadband connections for the 23% of Vermonters who lack access to the internet, even at the relatively modest speeds considered by the federal government as high-speed broadband (25/3 Mbps)[1], so that we connect the unconnected. We want to partner to help provide solutions that close the broadband gap as quickly as possible for these Vermonters.

Here are a few things in addition to requested make-ready work that GMP is exploring now to advance this mission and help our customers:

- **Northeast Kingdom, specifically the Towns of Lunenberg, Guildhall, Granby, Concord, and East of St. Johnsbury**: GMP is exploring, with Vermont Electric Power Company ("VELCO") and TCC Networks, the opportunity to leverage TCC's FCC-provided WISP grant of 5.x GHz wireless spectrum to certain areas of Essex County. VELCO and GMP likely can provide backhaul, lit fiber and power for this project. TCC would provide pole-top radio equipment and customer retail broadband services.

- **Fiber Installations for GMP Transmission and Distribution (T&D) Projects, including those in GMP's Climate Plan**: GMP has started to analyze all of our T&D projects for the inclusion of fiber runs that will serve GMP infrastructure as well as unserved and underserved areas of Vermont through an Open-Access Tariff. Going forward, we intend to include fiber in projects that serve areas without significant high-speed broadband coverage. In addition, GMP's recently filed Climate Plan sets forth a vision for statewide "Resiliency Zones" that would pair the usage of renewable generation with storage and grid technology, requiring strong broadband connectivity where it is currently lacking.

- **Rural Digital Opportunity Fund ("RDOF") Investigation**: GMP is working with VELCO, other Distribution Utilities, and Tilson Communication to assess whether to submit an RDOF application to access funding opportunities for the FCC-identified census blocks eligible for broadband funding in GMP's territory. We are in the analysis phase right now, looking at the list of all RDOF eligible census blocks from FCC that exist in GMP territory and then matching that to our list of GMP T&D assets, pole attachments, and upcoming projects in each block.

- **Other Federal opportunities**: Whether related to Covid-19 response or otherwise, GMP is ready to help in any way we can to advocate for and help deliver opportunities for Vermont to bring federal dollars into the state to help increase connectivity.

[1] Executive Summary, Department of Public Service Emergency Broadband Action Plan Draft May 5, 2020

GMP is paying close attention to the continued work of the Administration and Legislature on this front. We agree that public utilities like GMP can be key partners in helping Vermonters access better broadband. We stand ready to work with the State to utilize any available funding to deploy these services to Vermonters, and to seek new opportunities for funding that will benefit customers. We have in mind that utilities helped partner with communications providers and government to deliver significant statewide smart grid expansion in the past decade, after the Great Recession, and we are ready to work cooperatively again to help address broadband challenges during and after this pandemic. We appreciate the opportunity to comment and look forward to helping with the rapid deployment of high-speed broadband to Vermonters who lack it.

Thank you for the opportunity to comment, and please contact me with any questions.

Sincerely,

Brian Otley

Comments of VEC on Emergency Broadband Action Plan

Wednesday, May 27, 2020 8:49 AM

Subject	**Comments of VEC on Emergency Broadband Action Plan**
From	Brown, Victoria
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 5:14 PM
Attachments	 Emergency Broadban...

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Dear Friends at the DPS: Attached are VEC's comments. I take it that these will be posted publicly at some point. We are interested in seeing the comments of others.

Thanks for the opportunity. Vickie

Victoria J. Brown General Counsel
Vermont Electric Cooperative, Inc. 42 Wescom Road
Johnson, Vermont 05656
(802) 730- 1129 (direct)
(802) 730-2392 (cell)

Vermont Electric Cooperative, Inc.

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May 26, 2020

Honorable June E. Tierney, Commissioner
Vermont Department of Public Service
112 State Street, Drawer 20
Montpelier, VT 05620-2601
Submitted to psd.telecom@vermont.gov

Re: Vermont Electric Cooperative Comments on
Emergency Broadband Action Plan

Dear Commissioner Tierney:

Vermont Electric Cooperative supports the objective of the Department of Public Service in developing its Emergency Broadband Action Plan: to connect the unconnected to the internet in Vermont. VEC has long supported efforts to widen broadband deployment in Vermont -- for example through supporting streamlined make-ready processes developed as part of a recent revision to Rule 3.700 -- because VEC recognizes the many benefits of cost-effective internet access to individual Vermonters and Vermont businesses, including VEC members. The Covid-19 pandemic has demonstrated the real burdens that lack of internet access has placed on Vermonters, including some VEC employees and members who are not able to effectively work at home and who struggle to connect with their children's schools during the state "stay home stay safe" period.

These comments outline several thoughts at a conceptual level and offer alternatives to be considered in a further iteration of the Plan.

With a Broadband Innovation Grant from Vermont, VEC is currently engaged in a feasibility study with initial results available in early August. This will explore practical construction costs and details, as well as partnerships and business models that might allow for a different model and potential expanded role for VEC beyond our current focus which is primarily on make-ready work. This detailed study could result in participation by VEC in new partnerships, in the upcoming FCC RDOF auction, or even in the reverse auction proposed in the Emergency Plan, if it is implemented. However, considerations of whether to step more deeply into broadband deployment are significant business decisions that will take time and resources – likely beyond the anticipated timeline in the EBAP to expedite broadband deployment.

If speed of deployment is most critical, VEC recommends that the Department consider giving deeper consideration to an option mentioned but not favored in the Plan, specifically allocating funding to Vermont's high-cost support program. The state's incumbent providers are in the best position to swiftly implement the Plan's goals. They have business operations in place and workers on the ground that they could quickly scale up to build out unserved areas. They have a good understanding as to where the need is the greatest, and how to serve the most Vermonters in the most cost effective way. The Plan acknowledges that "[o]ne of the most expeditious ways of deploying broadband infrastructure would be to simply allocate any funding the EBAP may receive to Vermont's high-cost area support program," but does not explain why that is not a viable option, other than that the Department has not historically supported it. Vermont has tried in the past to build out ubiquitous broadband without involving the incumbent providers – by creating a new entity, the Vermont Telecom Authority – and that entity was disbanded without achieving the goal. With protections in place to ensure transparency and accountability, the role of incumbent providers could be a viable and quick solution.

A similar concept applies to middle-mile build out. VEC and the other Vermont utilities, including VELCO, have ample experience and expertise in building out a middle-mile fiber network. With proper resources available, Vermont utilities have the capabilities, working with the incumbent providers, to identify gaps in coverage and fill those gaps in the most cost effective way. We also have strong and effective working groups in place, such as the VELCO Operating Committee, to coordinate efforts among utilities. VEC recommends that the Department set goals, provide resources (funding) and exercise oversight for accountability, rather than impose highly specific requirements such as those presently included in the Plan. In this way, the state's financial support leverages the existing expertise and "boots-on-the-ground" to achieve its goals.

The comments that follow address specific proposals in the Plan:

<u>Fast-tracking Pole License Applications</u>

VEC believes that it can manage the licensing and make-ready required for rapid deployment of fiber if sufficient resources are available. VEC has recent history with expediting make-ready requests by Mansfield Fiber, Consolidated Communications and Franklin Telecom, using contractors with VEC oversight. Currently it is working on make-ready request to support Comcast's recently-announced deployment in the Newport and Derby areas. Scaling up will require additional contract crews and administrative and project management resources, but VEC believes it has the expertise to direct such resources, with sufficient financial resources in place. Accordingly, VEC supports the creation of a fund to provide financial and in-kind support for rapid fiber deployment.

Middle-mile Transport

While VEC recognizes that wider availability of middle-mile fiber will be essential, VEC has some concerns about the following elements of the proposals included in the Plan:

Mandatory Discounted Lease of Dark Fiber

It make sense for utilities (and the state) to license the unused dark fiber that they currently own or build in the future; however, utilities must be able to reserve dark fiber for their own use as back up, given that this fiber supports the resilience of critical utility infrastructure. In addition, at least for VEC, we do not have large amounts of unlit fiber and most of what we have is already licensed to the Department of Public Service, as the VTA's successor.

Moreover, VEC must be able to charge for the use of that fiber at a rate that will cover its expense to operate and maintain it. Currently Vermont law provides the cooperatives may not use ratepayer dollars for purposes outside of providing electric service, and providing below-cost fiber maintenance services is not consistent with the law or VEC's member-equity philosophy.

Finally, the service level agreements must be such that electric restoration is given priority over fiber repair particularly in times of widespread outages. VEC suggest that for normal fiber breaks, e.g. due to a car-pole accident, repairs with 24 hours would be a reasonable expectation. However, during a major storm event, the utilities need to prioritize restoration of electric service over fiber repairs.

Requirement to Install Middle-mile Fiber in Electric Space

Of most concern in the proposed Plan is the requirement that utilities install middle-mile fiber in the electric space. This may create safety and reliability issues and increase the cost of fiber build outs.

As to safety, VEC must follow the National Electric Safety Code (NESC), which includes specific clearance requirements for communications equipment in proximity to electric equipment. If such requirements cannot be met, VEC would not be able to install fiber in the electric space. There is a provision in the NESC that allows for communications equipment to be placed 30 inches beneath the neutral (thus redefining the "communications space". VEC supports this approach as it provides additional make-ready and design options that may prove more effective over time. However, VEC would need to obtain waivers from other attaching entities in order for this to be within code compliance; anything the DPS can do to ease or speed that process would be helpful.

Additionally, the NESC requires that ADSS fiber be used in located in the electric space, and that fiber is not as reliable as (more susceptible to tree damage) and more expensive than the metal clad fiber that would be hung in the communications space. This may have an impact on cost and reliability. The waiver discussed above would make it possible to use the metal clad fiber.

A requirement to install fiber in the electric space will also add expense, both for initial construction and ongoing maintenance. Installation or maintenance of any communications facilities in the electric space must be done by individuals certified to work in electric space. These workers are paid at a higher rate than workers installing communication equipment in the communications space.

Communications equipment in the electric space may also increase complexity for electric outage restoration (*e.g.*, if more than one crew needs to visit the same area to restore electric vs communications facilities.) In addition, to the extent this work would be done by qualified contractors, if any switching is involved, VEC line workers must oversee that due to the potential impact on electric reliability, imposing additional costs.

These individual concerns underscore the general concern expressed above that the Plan as written is overly-prescriptive. VEC believes that, with proper resources, the utilities are in the best position to plan, construct and maintain the middle-mile backbone in a way that is safe, reliable and cost-effective.

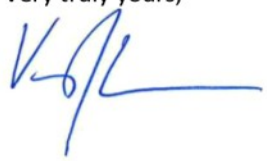
One final note, there is a proposal in the Plan that is not clear to VEC. The suggested statutory language concerning fiber from the substation to the point of interconnection with a provider states as follows:

> The requesting entity shall pay the full cost of the project and shall receive an IRU for the fiber, which shall remain the property of the utility. *Electric distribution utilities shall revise their rates to accept such interconnection requests by such date specified herein or per PUC order.*

VEC is unsure what rates are referenced in the italicized language quoted above.

Thank you for the opportunity to comment. VEC looks forward to continued work with the Department and others on this important work.

Very truly yours,



Victoria J. Brown
General Counsel

Comments from New England Cable Telecommunications Assn. Re: EBAP

Wednesday, May 27, 2020 8:49 AM

Subject	**Comments from New England Cable Telecommunications Assn. Re: EBAP**
From	Dylan Zwicky
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 5:57 PM
Attachments	NECTA Comment...

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Good Evening –

Please find attached comments from the New England Cable & Telecommunications Association, Inc. (NECTA) in response to the Department's draft Emergency Broadband Action Plan.

We look forward to continuing the conversation with the Department about broadband deployment in Vermont.

Best, Dylan

DYLAN ZWICKY | VICE PRESIDENT, GOVERNMENT RELATIONS
Leonine Public Affairs
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101 Federal Street • Suite 1900 • Boston, MA 02110
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By Electronic Mail

May 26, 2020

June E. Tierney, Commissioner
Department of Public Service
112 State Street
Montpelier VT
05620-2601

RE: Emergency Broadband Action Plan

Dear Commissioner Tierney,

I. Introduction

The New England Cable & Telecommunications Association, Inc. ("NECTA") is a five-state regional trade association representing substantially all private cable telecommunications companies in Vermont, Connecticut, Massachusetts, New Hampshire, and Rhode Island. In Vermont, NECTA represents Charter Communications, Comcast, and Waitsfield and Champlain Valley Telecom. These companies provide over 3,600 direct and indirect Vermont jobs. Our members serve 185 Vermont municipalities with broadband, video, voice, and home security and automation services. We appreciate the opportunity to provide input on the potential for expanded broadband deployment under the Department of Public Service ("DPS") Emergency Broadband Action Plan ("EBAP") and to identify sections of the plan that should be reconsidered.

As the DPS states "[t]he EBAP has one objective: to connect the unconnected to the internet in Vermont." NECTA commends DPS for their time and effort in crafting the plan. We look forward to collaborating with the Scott Administration and lawmakers to close Vermont's digital divide. Below we detail the strengths of EBAP and identify areas where the plan could be revised or changed to best address the state's short and middle term objective to connect the unconnected. To that end, NECTA strongly suggests that the EBAP's proposed use of the

Connectivity Initiative and the line extension program as the best options to connect more Vermonters in the most expedited and cost-effective manner.

II. NECTA members' long-term investment in robust and reliable broadband networks

Since 2000, the cable broadband industry has invested $300 billion to construct world class, state-of-the-art, high speed national broadband networks. In Vermont, that interconnected, multistate infrastructure system is supported through $200 million of direct investment resulting in high-speed broadband to 155,000 homes and businesses through approximately 9,000 miles of fiber. As a result of those decades of investment in Vermont, NECTA members have played a critical role in connecting Vermonters. That enduring commitment to Vermonters has never been more important than during the COVID-19 outbreak.

Over the last few months in the wake of the COVID-19 crisis, Vermont broadband providers have taken unprecedented steps to ensure that Vermont families and businesses stay connected. By opening up thousands of free Wi-Fi hotspots and expanding internet adoption programs for low income families who need it most, these steps have enabled hundreds of Vermont residents, businesses and families to access vital internet services such as health care and education. Additionally, every NECTA member company has signed the FCC's "Keep Americans Connected Pledge"[1] to ensure that their customers will remain connected throughout the COVID-19 crisis.

Data collected during the pandemic tells us two things: that our networks are strong – we have built the capacity to meet the demand for Zoom meetings, distance learning, telemedicine, binge-watching and how-to videos for baking bread. NCTA, the Internet and Television Association, recently launched a dashboard of aggregated data from cable internet service providers to offer an ongoing depiction of how cable broadband networks are faring.[2] For Vermont, the data since March 1st reveals that although downstream usage has increased nearly 19 percent and upstream usage has increased nearly 40 percent, consumers have experienced no speed reductions to meet this significantly elevated peak demand. But the data also exposes a gap: some Vermonters still do not have access to high speed broadband.

During this unprecedented crisis, when we are living and working at home, our ability to access information, education and sometimes even food is reliant on the internet. As broadband service providers, we know that our greatest obligation is to make those connections possible through fast and reliable internet service, in good times or during a pandemic. We are uniquely suited to

[1] https://www.fcc.gov/keep-americans-connected
[2] https://www.ncta.com/COVIDdashboard

partner with the state to turn federal dollars into critical infrastructure because we have achieved it before in Vermont and in other states in New England and beyond.

III. Successful public private partnerships serve as a model for Vermont's response to the pandemic

Under Governors Shumlin and Scott, Vermont has awarded Connectivity Initiative grants to reach hundreds of unserved addresses in multiple rural communities. These network construction grants, serving only unserved areas, is a model for success in other states. In Massachusetts, through the Massachusetts Broadband Institute (MBI) and following Vermont's successful grant program, a public private partnership delivered sustainable and cost-efficient broadband solutions on a large scale to previously unserved locations. Of the 53 communities defined by MBI in 2016 as either completely or partially unserved, only one town remains completely unserved, 17 projects are completed and the other communities are now working towards successful broadband connectivity. Charter and Comcast were selected as the provider in nearly half of these MBI communities providing these residents access to the communications tools, educational resources, and content they need to fully participate in the 21st century economy. The MBI's program allows all providers and technologies to participate, so in addition to well-established entities like Comcast and Charter, municipal electrics, small internet service providers or "WISPs" and other companies were awarded grants for the other half of communities. Also in Massachusetts, local governments work closely with the MBI to review the respective proposals. While the MBI retains ultimate decision-making authority and is the administrator of public funds, towns are able to weigh in with preferences. Importantly, no town participated in the competitive bidding process as an applicant.

Virginia is another jurisdiction where the state established a successful public private partnership program that has yielded significant progress in reaching unserved residents and businesses. The Virginia Telecommunications Initiative ("VATI") is the primary program by which the state incentivizes broadband infrastructure deployment. VATI provides one-time capital investment for the purposes of constructing broadband infrastructure through a public private partnership model. Last year public funding was granted permitting construction to connect an estimated 15,000 households, and 300 businesses, and community anchors. Those public dollars leveraged $9.2 million in local and private sector matching funds. In January 2020, Governor Northam announced over $18 million in grants to support 12 construction projects to leverage over $35 million in local and private investment to connect approximately 36,000 premises.

IV. Principles underlying successful public private partnerships to connect unserved areas

In order to best serve Vermonters through the expansion of broadband, NECTA encourages the use of any COVID-19 stimulus funds for broadband expansion to require certain minimum

standards to ensure successful public private partnerships. As witnessed in other states, when state governments establish open, competitive, technology neutral broadband construction programs, successful public private partnerships can be established with an array of providers bringing high speed broadband to unserved areas. In Vermont, we believe the Connectivity Initiative is the program that is ready and best positioned to achieve these goals.

Expanding Broadband to Clearly Defined Unserved Areas

With limited funds available, it is imperative that federal funds are limited to areas that are unserved by broadband infrastructure. The FCC's definition for advanced telecommunications capability is 25/3 mbps and this threshold should be used to determine the use of any federal dollars used in EBAP. New Hampshire and Massachusetts, as do many other states, use this FCC standard to define premises that are not served. NECTA suggest any locations currently capable of receiving the 25/3 mbps level of service should not be eligible for funding under any of the EBAP proposals.

Structure any funding programs to be technology neutral

Any broadband infrastructure deployment program created through the EBAP proposal should be open to all technologies and all providers. Any technology that works and efficiently solves the problem in a particular unserved area should be eligible to participate, including wireline and wireless technologies. For example, as page 12 of the EBAP cites, the capability of current DOCSIS 3.1, which is ubiquitous in our members' networks, "provides data rates that generally meet or exceed the speeds demanded by customers and are expected to continue meeting that demand well into the future as new versions of the DOCSIS standard are issued." While fiber is important and our members are constantly deploying fiber further into their respective networks, there are many methods to deliver needed and future proof broadband speeds.

Programs limiting eligibility or otherwise state a preference for one technology over others are not effective as they exclude viable and sustainable solutions. Given the constraints on how to spend current and potential federal stimulus dollars, the final EBAP plan should prioritize flexibility and equity of solutions over certain technologies or types of providers. Furthermore, an inclusive, rather than exclusive approach will bring more private dollars to the table and will ensure the digital divide in Vermont is closed faster.

Establish Construction Grant Programs to Leverage Private Investment and Eliminate Ongoing Taxpayer Subsidies

As observed in the successful models described above, funds should be provided as one-time direct capital grants in order to maximize deployment to unserved areas. The risks of loans are that they either will not be repaid, or the repayment costs will divert amounts that would otherwise go to deployment. In many instances, the only thing preventing new buildout or extension of existing networks is the initial capital outlay and the EBAP proposals should be

focused primarily on that hurdle. Ongoing subsidies subject the state to undue risk and should be avoided. The best way to prevent ongoing public subsidization is attracting proven providers with the sophistication and capitalization to maintain, operate, and upgrade these networks.

Mandate accountability and reporting requirements and allow incumbent challenges to ensure project success

All final EBAP programs should establish a comprehensive but fair reporting mechanism for transparency and accountability ensure that it remains clear who is receiving funds, how goals are being achieved and verification that the funds are used as intended. Again, this is essential due to the conditions placed on current and potential federal stimulus dollars. By adopting the FCC definition of advanced telecommunications capability, Vermont will ensure that all deployment occurs in areas that need it the most, unserved locations. Importantly, these requirements are already in place under the Connectivity Initiative.

V. The EBAP's best proposals to achieve immediate successful broadband deployment

Although the EBAP outlines a number of recommendations to expand broadband infrastructure, there are two paths that will ensure immediate construction with the greatest likelihood of successful outcomes and meets the conditions on current and potential federal dollars: DPS' established Connectivity Initiative and the proposed cable line extension fund. Each could lead to rapid deployment to numerous locations around Vermont.

Connectivity Initiative

The Connectivity Initiative is a demonstrated and inclusive program that should be the vehicle Vermont relies upon with the majority of federal dollars dedicated to broadband expansion. Moreover, the Department and its staff have experience with administering this program.

The Connectivity Initiative is a successful program because of important governing principles contained in its guidelines, many of which have been generally described previously. The program ensures that all construction dollars are only used in unserved areas which the program guidelines defines as 25/3 mbps.

The Connectivity Initiative's commitment to attract providers through a technology neutral approach is a leading factor in its past success. This principle permits the program to select the right solution for a particular geographic area. Given the restrictions on current or future stimulus dollars coupled with the policy goal of the EBAP to connect the unconnected, an open and fair approach to providers is the best approach to achieve greater broadband deployment.

One component in the EBAP's Connectivity Initiative recommendation that should be revised is that the program's funding should be provided exclusively as direct construction grants to selected providers to guarantee the EBAP's goal of maximizing deployment to the unconnected. The grants should require a matching grant by the selected provider—an approach that has resulted in construction to thousands of premises in other states. The amount of the matching grant should be factored into the competitive bid and should remain flexible based on the area being served. As described above, loans for construction have unnecessary risk and could divert dollars away from deployment. The EBAP should also not invest in programs supporting ongoing costs including operating expenses. Given scarce public dollars, NECTA strongly cautions DPS against partnering with any providers who may not have a proven track record or may not be financially viable. The scalability of this program is another rational for direct grants. Oftentimes an incumbent, whether a NECTA member or other internet service provider, may already be in close proximity to an unserved area. Building out to an adjacent area through this program means that more dollars would go fiber and network construction rather than having to build a new network in its entirety.

As seen in other states referenced above, this approach makes it such that all future financial cost (ongoing maintenance, operation, and upgrade expenditures) and risk be borne by the selected provider. Partnering with providers through directs grants who have proven records of financial viability, capable workforce and commitment to continuous network upgrades, ensures Vermonters receive world class broadband speeds and network reliability. Like its counterparts in Massachusetts, the program leverages significant private investment, thereby extending the reach of the public investment. This innovative funding policy fills the gap to reach last mile locations. In those states where NECTA members have been selected in similar programs, the state's return on their investment is ensured.

Cable Line Extension Program

DPS could also partner with providers to realize an immediate return on state investment through the cable line extension fund proposal. As the EBAP states on page 4, "[t]here are thousands of underserved Vermonters who live within a mile of existing cable lines that could be extended to provide broadband service at 25/3 Mbps, which meets the federal law definition of broadband service." Establishing this program would allow NECTA members and other existing providers to quickly construct extensions of their existing plan to "thousands" of unserved locations. The scalability of this proposal is recognized by DPS where the EBAP continues, "[s]uch line-extension subsidies would be an effective way to quickly reach students, patients, and workers with broadband access who are living through the COVID-19 emergency without the internet at home." Again, this proposal envisions an inclusive approach to selecting providers and NECTA strongly recommends that the state partner with proven, existing providers under similar principles described above to reach the maximum number of unserved locations in the most expedited way possible.

VI. Specific recommendations to the EBAP to maximize the EBAP's objective for connectivity

Mandating symmetrical and unnecessarily high speeds in an infrastructure grant program undermines the goal of universal access,

Mandating a symmetrical or too-high speed threshold such as 100/100 Mbps will drive up the costs of deployment and the amount of money borne by the grant program by forcing providers to develop and deploy upstream network technologies that will not be used. Despite a higher spike of growth in upstream traffic during the current pandemic, downstream traffic was still greater by far than upstream. Rather than set unrealistic and unnecessary speed thresholds, a broadband infrastructure grant program should reflect real-world broadband usage.

Speeds of 25/3 meet the FCC's current definition of broadband and have proven more than sufficient to meet the needs of consumers even with all of the increased broadband usage during the pandemic. The FCC adopted 25/3 as the minimum level for broadband because that speed tier allows for online learning, video streaming and working from home for a family with multiple devices in use.

Cable networks are more than capable of meeting a higher threshold, as shown below. But to meet the goal of connecting every household and business in Vermont, the focus should be on extending the reach of scarce government dollars. That means ensuring that the program won't limit the pool of potential providers and won't force providers to waste money deploying technologies that Vermonters won't use. Falling into either of these traps would leave fewer resources available to the state and private providers to bring broadband to all unserved Vermonters.

Aligning Vermont's broadband grant program with the national standard of 25/3 as other states have done will enhance the evaluation of all possible solutions. During the proposal evaluation process, the scalability of the network and its speed offerings can be weighed against the cost of the proposal.

Vermont is alone in requiring a product offering of 100/100 symmetrical service as a floor for broadband investment. States throughout the U.S. have proven that building a successful public private partnership using the FCC definition of broadband as a minimum entry point while being technology neutral allows a greater variety of providers to participate and ultimately delivers better options for communities to choose from. The goal of the EBAP should be to encourage as many technologies and providers to put their best plans forward so every Vermonter has access to high speed broadband service in the most cost-efficient manner. Relying on an arbitrary standard like 100/100 will only exclude proven and reliable providers who offer high-speed and reliable products and services.

Future proof networks should be scalable, not tied to a particular technology or speed threshold

Ongoing conversations among policy-makers in Vermont have focused on the need to invest in "future proof networks." That is precisely what our members' networks are today. This is evidenced by the 18 to 24 months of investment planning our companies make to ensure their networks far exceed today's aggregate customer demand. Today, cable operators are beginning to launch a next-gen network initiative that aims for symmetrical speeds of 10 Gigabits with low latency and advanced security. While this may seem theoretical, the roadmap to delivering this service has been in place for years with a fiber rich broadband network that is capable today of providing up to one gigabit speeds to 80 percent of U.S. homes, including to all Vermont customers. That figure is up from just four percent in 2016. By continuously enhancing these existing networks with a combination of new hardware, software and other engineering techniques, the migration to 10G is efficient and will not require a massive and protracted network overhaul.

The EBAP includes conflicting standards of speed tiers. While recognizing that the EBAP calls for an exemption from the Vermont Telecommunications Plan to allow for a 25/3 Mbps threshold, it could be interpreted that DPS is prioritizing 100/100Mbps as a preferred entry point for provider participation. Vermont is the only state in the country with a policy goal of 100/100 Mbps. Relying on this standard as a threshold for either participating or providing future proof networks provides no meaningful benefit for Vermonter's over today's technologically advanced hybrid-cable networks. Such a policy focus could be interpreted to have a singular intent: to minimize or eliminate cable providers' participation and support only fiber to the premises solutions. Instead, the state should focus on the services needed by Vermonters and focus its efforts on ensuring expanded scalable broadband access capable of providing those services. At a time when connectivity is more important than ever, when our members already deliver high-speed broadband and as they prepare to deploy 10G over existing infrastructure, this exclusive rather than inclusive approach to deployment is difficult to reconcile.

The 25/3 standard established by the FCC is not a cap of service offerings. In fact, according to FCC data, only two providers (HughesNet and Hudson Valley Wireless) offer 25/3 as the highest speed offering. Fiber to the premises providers, including EC Fiber, also offer customers products that provide 25/3 service[3]. The reality is that the products and services of Vermont ISPs, including NECTA companies, far exceed the 25/3 standard. Our services are provided over networks consisting primarily of fiber and coaxial cable – a hybrid fiber coax network. Those networks are supported by cutting edge DOCSIS technology which drives today's gigabit speed offerings and tomorrow's 10G capabilities. Vermonters can choose from plans that are capable of providing speeds of up to two gigabits. Collectively, this variety of consumer plans far

[3] Basic Residential Service, Basic Internet of 25 Mbps (https://www.ecfiber.net/pricing/)

exceeds the FCC floor for speed. Vermonters can choose from a variety of plans based on what their needs are.

For example, below is a menu of existing speed options for two of our members, Charter Communications and Comcast. For Vermont, these are the same cutting-edge product offerings and speeds for the same prices as their customers in Boston's Back Bay or the financial district in Manhattan.

Comcast Speed Tiers

Tier	Speeds
Internet Essentials	25Mbps/3Mbps
Performance Starter	25 Mbps/3 Mbps
Performance	100 Mbps/5 Mbps
Performance Pro	200 Mbps/5 Mbps
Blast!	300 Mbps/10 Mbps
Extreme Pro	600 Mbps/15 Mbps
Gigabit	1 Gbps/35 Mbps
Gigabit Pro	2 Gbps/2 Gbps

Charter Speed Tiers

Tier	Speeds
Spectrum Internet Essentials[4]	30 Mbps/4 Mbps
Spectrum Internet	100 Mbps/10 Mbps
Spectrum Internet Ultra	400 Mbps/20 Mbps
Spectrum Internet Gig	940 Mbps/35 Mbps

[4] Subject to eligibility

Cable's Hybrid Fiber Coax networks are primed to provide multigigabit symmetrical broadband solutions over today's cable broadband infrastructure

The internet's original infrastructure was designed by scientists to withstand failures and dramatic increases in traffic, but the role of the "last mile" network carrying internet traffic to the premise is just as critical to the consumer experience. The last mile cable broadband network is a technology called Hybrid Fiber Coax ("HFC"). But to be clear, fiber is the predominant element in HFC and makes up about 80 percent of the cable broadband network.

HFC uses fiber optic lines to carry data through national and regional networks, which are then then routed into neighborhoods and divided in a series of nodes, which service a specific number of homes. Once the data reaches the neighborhood, signals are converted from light signals to electrical signals, and then coaxial cable delivers the data to each subscriber's home through a cable modem. Today's advanced cable modems not only translate data packets into the content we all enjoy but they have enhanced security and in-home connectivity features that improve the consumer experience.

The value of HFC architecture is that it marries that power of gigabit capable networks with an architecture that is extremely efficient and flexible. As stated earlier, cable broadband companies plan and invest up to 24 months ahead of consumer demand to build networks that accommodate future growth in aggregate consumer need. That planning allows cable's networks to stay ready and robust in the face of expected and unforeseen events that may cause internet traffic surges. And the next chapter of NECTA members' network technology – the evolution of HFC to 10G technology– will continue that trend.

Founded in 1988, CableLabs is a nonprofit innovative research and development laboratory, funded by cable broadband operators. CableLabs is well into development of 10G technology - whichmeans symmetrical multigigabit speeds. Customers will have access to internet speeds 10 times faster than today's 1 gigabit product, provide lower latencies, enhanced network reliability and better security features. Specification development at CableLabs started in August 2016 and modems capable of supporting 10G were announced earlier this year.

DOCSIS 3.1 technology, the current industry wide standard developed by CableLabs that enables data transfer over cable infrastructure, is the platform for today's network capability with speeds that can exceed multi gigabit downstream and 1 gigabit upstream today over HFC. DOCSIS 4.0 and other technologies are under active development for cable's HFC network of the future. These technologies are backwards compatible with previous generations of DOCSIS allowing for rapid deployment without the costs of an infrastructure overhaul. DOCSIS 4.0 technology is a major step toward reaching the industry's ubiquitous 10G goal.

Additionally, with extended spectrum capabilities ("ESD") now completed, operators can leverage a lot more usable spectrum on their existing HFC networks—up to 1.8GHz. That's 600MHz more than the 1.2GHz available to them under the current DOCSIS 3.1 standard. The DOCSIS 4.0 working groups are in full swing, focusing on developing and adding the ESD requirements to the DOCSIS 4.0 specifications. This boost in capacity provided by DOCSIS 4.0 technology will enable cable broadband companies to provide multi-Gbps symmetric services to residential and business customers and support the next generation of user experiences.

Importantly, the DOCSIS 4.0 specification consists of four pillars for the 10G platform initiative: speed, lower latency, increased security, and higher reliability. . With 10G, cable broadband networks have more than enough speed and capacity to handle broadband usage well into the future, without overhauling the existing HFC infrastructure, keeping costs down and reliability high.

I. Conclusion

Once again, NECTA applauds DPS for the work and effort to produce the EBAP. It contains the framework to realize the plan's "one objective: to connect the unconnected to the internet in Vermont." NECTA has outlined its members' long-standing commitment to Vermont, its significant record of successfully entering into public private partnerships with state governments to bring world class, high speed broadband to economically challenging areas. NECTA has provided detailed feedback on the areas of the EBAP where Vermont can accomplish connectivity via this "rapid response measure", principally through the Connectivity Initiative and the line extension program. These are scalable programs that should incorporate the guidelines NECTA has suggested to ensure a fair, open competitive process to ensure Vermonter's receive a world class network for their investment. As NECTA encourages DPS to establish that competitive process similar to Massachusetts, there are multiple cautionary examples that the state should choose partners who are financially sound, technologically sophisticated providers. NECTA has provided information on misunderstandings or misconceptions about the industry. The prerequisite for fiber to every premise and 100/100 product framed as a standard fails to appreciate what the state should be investing in: proven providers who are constantly upgrading their already reliable networks and high-speed offerings. Vermonters currently served by NECTA members have the same cutting-edge product offerings and speeds for the same prices as their customers in Boston's Back Bay or the financial district in Manhattan. Our members look forward to near term partnership opportunities to expand their networks to unserved areas of Vermont and further close the digital divide.

Very truly yours,

_____

Timothy Wilkerson
President, NECTA

VPIRG Comments on Emergency Broadband Action Plan

Wednesday, May 27, 2020 8:50 AM

Subject	**VPIRG Comments on Emergency Broadband Action Plan**
From	Zach Tomanelli
To	PSD - Telecom
Sent	Tuesday, May 26, 2020 8:02 PM
Attachments	 VPIRG_2020_Emerge...

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

To Whom It May Concern:

Thank you for the opportunity to comment on the Emergency Broadband Action Plan. Please accept the attached comments on behalf of the Vermont Public Interest Research Group (VPIRG) and our 50,000+ members and supporters statewide.

Zach Tomanelli
Communications & Engagement Director, VPIRG Office: 802-223-5221 ext. 21
Cell: 845-234-8090

May 26, 2020

TO: Vermont Department of Public Service

Re: Emergency Broadband Action Plan

Introduction

Thank you for the opportunity to comment on the Emergency Broadband Action Plan. I offer these comments on behalf of the Vermont Public Interest Research Group (VPIRG) and our 50,000 members and supporters statewide.

VPIRG is broadly supportive of this plan as presented and appreciates the Department's rapid work in pulling this together and the thoughtful approach it takes toward expanding broadband access to Vermont in both the immediate and near-term.

VPIRG believes that community-owned fiber networks are the key to ensuring that every Vermont household is served with affordable high-speed internet access. To that end, VPIRG has been very supportive of the Communication Union District model in Vermont and we appreciate the steps in this Plan that would build on the work done in Act 79 and further empower Vermont communities to tackle the connectivity issue.

We offer the following comments to highlight the areas of the plan that we believe should be prioritized and to suggest changes and additions to the plan that the Department may wish to consider.

Section I

With regards to Section I: Immediate Actions to Improve Broadband Availability in Vermont – VPIRG is largely supportive of this section, however we would caution that all immediate actions taken to expand broadband access in 2020 must be balanced against their impact on other near-term plans that will move Vermont toward our statutory goal of making 100mbps symmetrical broadband universally accessible by 2024. This does not mean withholding assistance that could vastly improve a Vermonter's bandwidth in this calendar year (as it seems at least possible that critical needs like telehealth and remote learning will continue throughout 2020 and beyond) – but rather that such assistance should be deployed strategically so as not to undermine Vermont's own efforts to get *every* Vermonter connected by 2024.

As to the specific action items offered in Section I, we would ask the Department to consider the following:

- To the extent there may be limited funding for the proposed cable line extension fund, those funds should be directed to locations in towns that are close to universal cable access (e.g. 80% service and above). Such line extensions would help bring those towns to 100% coverage under the federal definition of broadband in the immediate term. Doing so would serve the dual goals of getting more underserved Vermonters connected in 2020, while maintaining the feasibility of nearby planned fiber networks that will provide universal high-speed 100/100 service to their

territories in the medium term.

- Any temporary modifications to the siting process to fast-track the installation of facilities to expand access should be exactly that—temporary. Any facilities constructed through the modified process, should be subject to the standard review process for that particular facility once the declaration of emergency has been lifted.

- Any internet provider taking state dollars to expand broadband in Vermont in 2020 by using technologies incapable of providing 100/100 speeds must demonstrate a plan to upgrade those facilities to technology capable of those speeds by 2024—and should be subject to accountability measures to demonstrate progress toward that goal.

- Funds should be used to get more underserved Vermonters connected to 100/100 *this year* by either expanding the purpose of the proposed line-extension fund or creating a separate fund to support fiber drops for low-income Vermonters in communities where fiber to the premises is available but the drop is cost prohibitive.

- In addition to funding and providing in-kind support to pole owners that fast-track pole license applications, the state should consider incentivizing pole owners to conduct pre-emptive make ready work on poles along major thoroughfares that will likely be used in the construction of fiber networks.

Section II

With regards to Section II: Universal Broadband Access Deployment by 2024—VPIRG is similarly supportive of the action items outlined in this section. To the extent this section envisions steps the state can take to facilitate broadband expansion beyond the immediate window of 2020, we would not, however, recommend that the programs contemplated in this section support the expansion of technology incapable of achieving 100/100 speeds.

As to the specific action items offered in Section II, we would ask the Department to consider the following:

- We believe that a reverse auction with CUD participation/approval, while promising in theory, is unnecessarily complicated and thus ill-suited to achieving the aim of quickly and efficiently expanding affordable high-speed internet access in underserved areas. The reverse auction process disadvantages community networks that could ultimately prove the most effective at covering their territories but may lack the immediate resources and infrastructure to compete in such a process. If the intention is to give CUDs decision-making authority over how to expand broadband in their territories, we would recommend block granting any infrastructure funds that might become available directly to CUDs. For areas that aren't covered by CUDs – a reverse auction may make more sense.

- We strongly support many of the other actions contained in Section II – particularly the proposed administrative support for CUDs, financial support for CUDs to meet the Letter of Credit obligations for RDOF, and modification of 30 V.S.A § 8091 to provide open access to

middle-mile fiber.

- We also want to recognize and emphasize the critical need for workforce training. This could be one of the most important aspects to realizing the success of this plan. To that end, we would urge the Department and the Legislature to move swiftly to fund and establish such a training/incentive program to ensure that Vermont has the workers necessary to rapidly expand broadband in the next three years.

Conclusion

In summary, VPIRG appreciates the Department's time and attention to this matter, and we broadly support the proposed plan, noting those areas for improvement and further consideration. Thank you for the opportunity to present these comments.

Sincerely,

Zachary Tomanelli
Communications and Technology Director
Vermont Public Interest Research Group (VPIRG)
zach@vpirg.org
802-223-5221 ext. 21

Comcast Comments on Emergency Broadband Access Plan

Wednesday, May 27, 2020 8:51 AM

Subject	**Comcast Comments on Emergency Broadband Access Plan**
From	PIERCE, MELISSA
To	PSD - Telecom
Sent	Wednesday, May 27, 2020 12:06 AM
Attachments	 VT EBAP Comcast ...

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

On behalf of Comcast, attached are comments regarding the Department's Emergency Broadband Access Plan.

Melissa R. Pierce
Manager, Government & Regulatory Affairs Western New England Region
Phone: 802-776-1632
Mobile: 802-282-3432
Fax: 802-775-1133
E-mail: melissa_pierce@comcast.com

INTERNET ESSENTIALS from Comcast
A program designed to expand broadband adoption among low-income American households receiving HUD housing assistance or with at least one child eligible to receive free or reduced price school lunches or low-income veterans receiving state and/or federal assistance. Once in the program, participants receive fast, affordable Internet service for $9.95/mo + tax, the option to purchase a computer for just $150 and access to free digital literacy training. To learn more or to apply, please call 1-855-8-INTERNET (1-855-846-8376) or visit InternetEssentials.com. To become a partner, please visit InternetEssentials.com/partner.

May 26, 2020 ***By Electronic Mail***

June E. Tierney, Commissioner
Department of Public Service
112 State Street
Montpelier VT 05620-2601

RE: Comcast Comments to Draft Emergency Broadband Action Plan, dated May 5, 2020

Dear Commissioner Tierney:

Comcast of Connecticut/Georgia/Massachusetts/New Hampshire/New York/North Carolina/Virginia/ Vermont, LLC (Comcast) appreciates the Department of Public Service's (Department) efforts in preparing the comprehensive draft Emergency Broadband Action Plan, dated May 5, 2020 (EBAP). As a broadband provider serving over 105,000 homes and businesses in Vermont, Comcast understands what is necessary to deploy broadband infrastructure in a state with varied geography and population densities. We believe the EBAP appropriately recognizes the challenges and realities of broadband expansion in rural areas. In particular, we support the Department-administered Connectivity Initiative as the mechanism to disburse any grant funding that the state or federal government allocates for broadband deployment. Further, we fully endorse the EBAP's recommendation that there be an exception to the state's goal of 100/100Mbps for every Vermonter.

Comcast is pleased to submit these comments to further explain our support for these two recommendations included in the EBAP. In addition, we offer a few additional suggestions for the Department to consider as it determines the most effective plan to ensure every Vermonter has access to the power of broadband. Comcast's interest in the Department's plan is driven by our commitment to serve Vermonters, and a willingness to partner with the state to help close the digital divide. Comcast has the tools, resources, and experience with other state broadband funding programs to execute on the EBAP and do what is necessary to expand broadband availability in Vermont.

Connectivity Initiative is the Proper Mechanism to Disburse Funds

The EBAP is conditioned on the receipt of federal stimulus funds. If such funding becomes available, those funds will need to be disbursed quickly. Unlike other states, Vermont is well positioned to begin the process of disbursing funds immediately as a successful program exists for that purpose. The Connectivity Initiative is a proven, inclusive, and efficient program that could be even more successful if funded appropriately. Moreover, the Department and its staff have experience with administering this program.

The Connectivity Initiative is successful because of several key principles embedded in its guidelines. These principles that have made the Vermont program the model for the very successful Massachusetts Broadband Institute's (MBI) program. In western Massachusetts, 53 towns either lacked or partially lacked broadband access. Following Vermont's lead, the MBI established a broadband funding program

and today is working on finding a solution for the last town. Like the Connectivity Initiative, the Massachusetts program protects public dollars, attracts a range of solutions, incents private investment, and relies on a competitive process to ensure the best and most cost-effective solution is identified for each area.

The Connectivity Initiative protects public dollars, by focusing on areas without broadband, here defined as 25/3 Mbps. This ensures that all taxpayer money connects those without broadband rather than those who already have broadband available. Moreover, the Connectivity Initiative places all financial risk upon the grant awardee. The awardee assumes all the risk of maintaining and upgrading the plant to meet continually increasing consumer demand and competitive pressures. Many municipalities have failed in their attempts to deliver broadband to residents and businesses as they underestimate the continual reinvestment in the network that is necessary. Often, they overestimate take rates and are unable to meet even current expenses. Comcast's performance during the COVID-19 crisis demonstrates the importance of continued reinvestment in the network. Comcast doubles the capacity of our broadband network every 18-24 months, anticipating demand and usage changes. This ongoing network investment to add fiber and capacity has put us in the position to manage the increases that we are experiencing today. We are seeing an unprecedented shift in network usage, but it is within the capability of our network and we continue to deliver the speeds and support the capacity our customers need while they are working, learning, and connecting from home.

The Connectivity Initiative attracts a range of provider solutions by being technology neutral. The Connectivity Initiative recognizes there is a not a one-size-fits-all solution. This is especially true given the very rural nature of many of the unserved areas in Vermont. The fund as administered has created successful broadband partnerships across Vermont. All providers are eligible to participate leading to partnerships with a range of providers.

The Connectivity Initiative incents private investment. It is a proven financial model where the state plays a role to alter the economics of hard to serve areas, thereby incenting even more private investment.

The EBAP recognizes that existing providers are often in the best position to extend their plant to nearby unserved areas. Scale economics mean this will frequently be a better option than standing up a new entity. For example, to build-out to a new adjacent area, with a subsidy, probably means existing core regional network equipment and technicians in the area can be used to service households. Conversely, a new entity would have to invest significant start up resources to meet this need.

Exception to 100/100 Mbps Goal

Comcast also fully endorses the EBAP draft recommendation to adopt a realistic and achievable variance from strict adherence to the 100/100 Mbps goal contained in the Vermont Telecommunications Plan (Telecommunications Plan). A variance allows the ultimate goal – fast internet- to be achieved but in a different way than originally contemplated. The EBAP recognizes that a variance allows multiple providers to do their part in bringing high speed connectivity to all Vermonters.

The Telecommunications Plan has established a goal that every Vermonter have access to broadband service at a speed tier of 100/100 Mbps. We believe the Telecommunications Plan's reliance on this standard is misplaced as it focuses on an arbitrary service offering rather than the capability of the network to meet the needs of consumers. The EBAP should identify a path to ensuring every Vermonter has access to broadband service in the most cost-efficient manner. This ultimate goal becomes that much

harder to achieve when success is measured against an arbitrary standard that bears no relationship to consumer demand, network capabilities required for consumer applications or cost/benefit analyses. While the EBAP should set Vermont up for success not only in the short term, but for the future, deploying services that far exceed consumer needs is unlikely to be a cost-effective way for connecting the most unconnected Vermonters to advanced broadband services.

The Telecommunications Plan's goal of 100/100 Mbps, if not a specific service criterion, is then a state endorsement of a specific technology – fiber-to-the-home architecture – as the sole solution for Vermont. Currently, the only providers who have opted to differentiate themselves with symmetrical speed capability are those that build only fiber-to-the-home networks. Federal Communications Commission (FCC) research has found that consumers download considerably more than they upload. Over the years, Comcast has consistently increased both upload and download speeds, and we continue to keep a close eye on usage patterns to ensure we are providing the best service possible in response to our customers' needs. We have not found a demand for symmetrical upload speeds. In fact, in recent months, network monitoring has shown that while increased use of video conferencing has helped contribute to upstream usage increasing somewhat faster than downstream usage during COVID-19, the overall usage balance remains weighted heavily toward downstream use (See https://corporate.comcast.com/covid-19/network). The Telecommunication's Plan goal of 100/100 Mbps is disconnected from the marketplace, discounting how residential customers actually use the Internet in an unwise attempt to pick winners and losers among competing technologies.

For the EBAP to succeed, it must be technology neutral. Any technology, wireline or wireless, that supports broadband capability and is an efficient solution to the problem should be eligible to participate in a broadband funding program. Plans which limit eligibility or otherwise state a preference for one technology over others are not effective as they exclude viable and sustainable solutions that may be the most cost-effective way to close the digital divide for the highest number of Vermonters. In the event there are competing proposals to serve an area, service offerings and attributes of each provider can be factored into a decision whether to fund the proposal.

The Telecommunications Plan's dismissal of a broadband benchmark set at 25/3 Mbps is equally troublesome. Important to this policy discussion is a clear understanding of what 25/3 Mbps is: a minimum benchmark, not a cap. Simply put, 25/3 Mbps is broadband. The FCC has recognized that this is the level of service necessary for household access to important services that people need to keep their online lives running smoothly, such as high-quality voice, data, video streaming, online classes, and video conferencing. For example, the educational tools and tools families need to work and stay connected today are available to a home with 25/3Mbps, which can support:

- Up to three high-quality Zoom calls at the same time (https://support.zoom.us/hc/en-us/articles/201362023-System-Requirements-for-PC-Mac-and-Linux)
- Up to four simultaneous high-quality video calls on Skype (https://support.skype.com/en/faq/FA1417/how-much-bandwidth-does-skype-need)
- Up to three simultaneous group video calls on Microsoft Teams (https://docs.microsoft.com/en-us/microsoftteams/prepare-network)
- Khan Academy: 150 Kbps to 1.5 Mbps
- Blackboard: 1.5 Mbps or more

Importantly, the 25/3 Mbps benchmark does not operate as a cap on providers service offerings. According to FCC data, only 2 providers (HughesNet and Hudson Valley Wireless) offer 25/3 Mbps as their

highest service tier in Vermont. All other providers in Vermont offer service levels exceeding the 25/3 Mbps benchmark. For Comcast, we offer eight residential speed tiers, designed to meet our consumers' varying needs. The following service tiers are currently available throughout our Vermont service areas:

Tier	Speeds
Internet Essentials	25Mbps/3Mbps
Performance Starter	25 Mbps/3 Mbps
Performance	100 Mbps/5 Mbps
Performance Pro	200 Mbps/5 Mbps
Blast!	300 Mbps/10 Mbps
Extreme Pro	600 Mbps/15 Mbps
Gigabit	1 Gbps/35 Mbps
Gigabit Pro	2 Gbps/2 Gbps

Moreover, a fiber-only requirement (the typical network architecture for 100 Mbps symmetrical speeds) imposes unnecessary costs, draining limited resources without measurable benefit. Costs to deploy all fiber networks are excessive, while the speed tiers available through other technologies are significantly more robust. Expansions of fiber-only networks have been very limited due to the extreme costs to deploy that technology. Google has abandoned its Google Fiber experiment after deploying "Fiberhoods" in just a few communities. Telephone companies have stopped deploying fiber in favor of 5G mobile technology, which is less expensive to deploy. As EBAP points out, the costs of a fiber-only plan are significantly higher than a more inclusive approach. The costs of a fiber requirement are too great to allow for near ubiquitous deployment. It is not that fiber networks should not be an option; it is that they should not be considered the right choice in every situation, and certainly not the only choice.

Concerns about whether the EBAP-recommended exception from the 100/100 Mbps aspirational goal will harm Vermont in the long term should be calmed. Ten years ago, under the American Revitalization and Reinvestment Act (ARRA), over $45 million in federal funds supported the deployment of fiber networks in Vermont, yet still today, broadband gaps exist. In the last 10 years, Comcast has increased the speed of our broadband service offerings 9 times, now offering 1 gigabit throughout our entire Vermont footprint. During this time, we have extended our plant 770 miles, some as business as usual construction and some to fulfill franchise commitments. Significantly, Comcast has routinely exceeded the terms of any plant extension commitment. We have also partnered with both the Vermont Telecommunications Authority and the Department, completing 3 rural projects in unserved areas, and are currently working on a fourth. We have done all this while improving our customers broadband experience by adding mobility through over 19 million hotspots nationwide, introducing a mobile phone service and allowing control of their in-home Wi-Fi network through Xfinity xFi.

Moreover, Comcast is part of an industry built on innovation. The industry is working through CableLabs to develop the next iteration of DOCSIS, named 10G. The 10G platform is a combination of technologies that will deliver internet speeds 10 times faster than today's networks and 100 times faster than what most consumers currently experience. This technological development will allow Comcast to offer 10 Gigabit symmetrical service over its existing hybrid fiber-coaxial (HFC) network throughout our entire Vermont footprint. Not only will 10G provide faster symmetrical speeds, but also lower latencies, enhanced reliability, and better security in a scalable manner. Field trials of 10G are beginning this year.

Comcast became the nation's largest provider of gigabit broadband in just 18 months. There is no doubt that this level of innovation will continue well into the future.

Other Considerations – EBAP Clarifications Required

Grants versus Loans

Comcast suggests a modification in the EBAP's recommendation regarding the type of funding to be provided. Funds should be provided as direct capital grants to maximize deployment to unserved areas in Vermont. A flexible match requirement of a percentage of the total project cost is reasonable. The risks of loans are that they either will not be repaid, or the repayment costs will eat up amounts that could otherwise go to deployment. In many instances, the only thing preventing upgrade or extension of existing networks is the initial capital expenditure that would make the extension economically feasible to maintain on an ongoing basis.[1] There is no need to support operating expenses; on-going subsidies should be strictly avoided.

Support for Pole Owning Utilities

The EBAP suggests support for pole owning utilities, proposing creation of a fund to provide financial and in-kind support to pole-owning entities to fast track pole license applications. This proposal is misguided and overlooks the fact that attaching entities pay substantial pole application fees and pay upfront the costs of pole "make ready" to get poles ready for new attachments. Pole owning entities set the application fees and establish the make ready fees that vary by project. Pole owning entities already are fully compensated for performing those functions. With respect to timing, which Comcast concurs is an issue, the Public Utility Commission (PUC) has promulgated rules with strict timelines for these activities. Further, in late 2019, the PUC adopted new rules allowing "self-help" and "one-touch" make ready designed to expedite access to poles. If pole owners meet the timelines required in the rules, access to poles is not delayed. Scarce funds should not be allocated to pole owning entities to perform tasks for which they are already compensated. If support were provided for pole owning utilities, it should be in the form of a loan so that they can expedite hiring resources to handle the volume of work. The loans would be repaid from the revenue received through application fees, make ready charges and pole rental fees.

On that latter point, pole rental rates represent a significant ongoing cost of operating a broadband network. Yet, the EBAP does not mention them. Pole rental rates should be based on the amount of space attaching entities actually occupy on a pole – which is one foot – as adopted by the FCC and Vermont's neighbors. Historically, the PUC's rule on pole rental rates contained assumptions about the space occupied on a pole that resulted in higher pole rental rates. And, pursuant to legislation last year, the PUC has now proposed a rule that assumes attaching entities occupy 1.25 feet of space which means that attaching entities will pay more in Vermont than elsewhere. Comcast supported the 1.25-foot presumption at the PUC as preferable to the existing rule but continues to believe there are very strong policy and legal reasons Vermont should align with the FCC and neighboring states. Almost a decade ago, the National Broadband Plan recommended adoption of low, uniform rates for pole attachments that

[1] In some instances, the line extension is dependent on a customer contribution, which may be out of reach for a particular consumer. To address these instances, EBAP proposes a line extension fund. We fully support the creation of such a fund.

impact the cost of broadband particularly in rural areas where there often are more poles per mile than households. The National Broadband Plan also explained that the FCC's Cable Rate Formula results in a rental rate that is fully compensatory to pole owners. The omission of a discussion of pole rates from the EBAP should be rectified by recommending pole rates based on space actually occupied

Support for Community Utility Districts (CUDs)

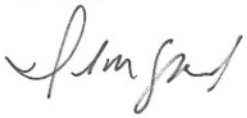
Comcast seeks clarification in the EBAP that our understanding of the Department's intent with respect to CUDs is accurate. It is understandable that local governments, particularly those involved in broadband policy discussion, have an interest in the solution suggested for the town. In Massachusetts, local governments worked closely with the MBI to review the respective proposals. While the MBI, as the administrator of public funds, retained ultimate decision-making authority towns were able to weigh in with preferences. However, no town participated in the competitive bidding process as an applicant. We understand the EBAP recommendation to be similar. First, a CUD must determine whether it 1) has a plan and 2) can execute on a plan to deploy broadband through the CUD. If the CUD towns are unable to do so, they would join all other areas under the state program and the town would be considered an eligible project area for competitive bidding but in no instance, would the town submit a proposal for funding.

Eligible Funding Areas

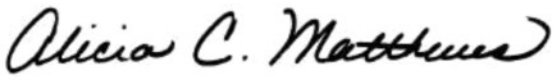
With regard to eligible areas for funding, Comcast strongly suggests the EBAP remain flexible and not require town-wide proposals or condition one area on the building of another. Based on our experience in Massachusetts, often it is more cost-effective and efficient to cross municipal boundaries to reach a small group of homes that are served by the same pole line as the first town. The availability of contiguous pole lines is a significant factor in determining costs and pole lines are not necessarily bounded by town boundaries.

Comcast appreciates the opportunity to offer these comments on the EBAP. We are available to further discuss any of the suggestions put forth here or our experience generally in other states if the Department would find that useful.

Sincerely,



Daniel M. Glanville
Vice President, Government/Regulatory Affairs & Community Impact
Western New England Region



Alicia C. Matthews
Vice President, Government Affairs and Strategic Initiatives
Northeast Division

VPPSA Comments on Emergency Broadband Plan

Wednesday, May 27, 2020 8:51 AM

Subject	**VPPSA Comments on Emergency Broadband Plan**
From	Ken Nolan
To	PSD - Telecom
Sent	Wednesday, May 27, 2020 7:43 AM
Attachments	VPPSA Broadban...

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Please find VPPSA comments attached.

I apologize the late submittal, but I unexpectedly ended up in the ER yesterday afternoon and was unable to coordinate with staff to make the filing by the deadline.

Ken

Kenneth A. Nolan General Manager

Cell: **(802) 734-8802** | Direct: **(802) 882-8500**

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5195 Waterbury-Stowe Road
Waterbury Center, VT 05677

http://www.vppsa.com

VPPSA Vermont Public Power Supply Authority
Putting the Public in Power.

VPPSA
Vermont Public Power Supply Authority

Putting the Public in Power.
www.vppsa.com

P.O. Box 126 • 5195 Waterbury-Stowe Rd. • Waterbury Center, VT 05677 • 802.244.7678 • Fax: 802.244.6889

May 26, 2020

June E. Tierney, Commissioner
Vermont Public Service Department
112 State Street
Montpelier, VT 05620-2601

Via e-mail: psd.telecom@vermont.gov

RE: Comments – Vermont Emergency Broadband Action Plan

Dear Commissioner Tierney:

On May 5th the Department of Public Service issued an Emergency Broadband Action Plan for public comment. Please consider the comments contained in this letter to be VPPSA's response.

VPPSA would like to commend the Department and its staff for taking an aggressive thoughtful approach to develop a solid framework for making additional broadband resources available while utilizing each stakeholder's strengths. VPPSA is generally supportive of the recommendations put forth and agrees with the limited roles identified for electric utilities in supporting further broadband development.

We would like to reinforce the VPPSA member's strong belief that the bright line between electric utility service and broadband service that exists today should remain in place. Recognizing the growing convergence between electric and broadband service, as well as emerging concerns over energy equity, the fact remains that electric utilities do not have expertise in operating retail broadband networks nor providing retail broadband services. Asking them to do so would bring both increased risk to electric consumers and delay in any broadband buildout. We are encouraged that the Emergency Broadband Action Plan recognizes this fact.

VPPSA is also supportive of the recommendation to accelerate make ready work through both providing funding and better coordination. In the VPPSA members' experience, the time required to engineer the design of new attachments as well time required for each attaching entity to move its equipment can lead to extended installation periods. Efforts to bring more resources to bear and coordinate those resources, while maintaining safety and reliability, would be welcome.

VPPSA
Vermont Public Power Supply Authority

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VPPSA's main concern with the Emergency Broadband Action Plan's recommendations relates to the suggestion that electric utilities become the fiber provider of last resort, and that they make their fiber available for a "heavily discounted" $1/strand-mile/year. VPPSA has been consistent in its position that electric consumers should not be subsidizing broadband service. While VPPSA is supportive of utilizing excess utility fiber capacity to assist in broadband deployment, and concurs that future utility fiber deployment should be done in a way that enhances energy equity, any use of electric assets to provide non-electric service needs to honor traditional cost of service principles. VPPSA is supportive of adding dark fiber as a potential line extension request option and of developing tariffs to offer cost-based access to excess utility dark fiber. VPPSA does not support aspects of the proposed plan that would shift broadband costs onto the backs of electric ratepayers, since the two sets of customers are not the same and any such action would create cost shifting.

VPPSA appreciates this opportunity to comment on the Emergency Broadband Action Plan and looks forward to working with the other stakeholders to expand broadband services throughout Vermont.

Sincerely,

Kenneth A Nolan

Kenneth A. Nolan
General Manager

EBAP comments

Thursday, May 28, 2020
1:19 PM

Subject	**EBAP comments**
From	Michael Birnbaum
To	PSD - Telecom
Sent	Wednesday, May 27, 2020 3:07 PM
Attachments	<<MB EBAP Comments.pdf>>

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Dear Department friends,
Attached, please find my comments on the Emergency Broadband Action Plan. I sincerely hope you find them useful. My apologies for being a day late submitting.

Michael Birnbaum, founder
Pear Networks LLC
802-454-7834 home
802-272-1027 mobile
Kingdom Fiber
https://kingdomfiber.net

<<MB EBAP Comments.pdf>>

Comments on DPS Emergency Broadband Action Plan

Michael Birnbaum
Cloud Alliance LLC, general manager
Pear Networks LLC, founder
CVFiber, Plainfield delegate

I applaud the Department of Public Service for its thoughtful and comprehensive Emergency Broadband Action Plan (EBAP) document, compiled under adverse conditions in a very short time due to the pandemic of 2020. There is much to like and, as with everything, always room for improvement.

Not a substitute for a Ten-Year Telecommunications Plan, the EBAP appropriately looks at what can and must be done in the short term with existing resources and what should be done in the medium term should federal resources be released specifically for broadband. I will restrict my comments to suggestions for improvement.

Section I

a. The proposed data collection of addresses needing broadband for remote learning for students and staff of educational institutions is essential. It's equally important to realize that nearly all locations in the categories under 25/3 also need immediate upgrading to enable telemedicine and remote work.

b. Just as there is provided a cable line extension fund, a similar fund should be created to include terrestrial, fixed-wireless service at a minimum capability of 25/3 Mbps down/up. There is no technology that can match the speed of deployment of wireless. Fixed wireless can provide full broadband speeds to

students and school staff for remote learning, for medical staff and potential patients for telehealth, and for most non-manufacturing workers for remote productivity. The equipment, if and when supplanted by fiber optic solutions, can be redeployed where it is needed, so investments are not necessarily stranded.

In addition to Vermont's seven WISPs seven, other organizations that might participate. The WISPs are best positioned to rapidly deploy within the calendar year, as they already have tower assets, which can simply be upgraded to the latest broadband platforms capable of exceeding 25/3 standards. The WISPs currently serve up to five thousand Vermonters and would be prepared to augment that number considerably using the latest available technologies.

There should be an expansion of Lifeline broadband subsidies for families of students receiving reduced cost meals at school. The fixed-wireless funding should be distributed through the Connectivity Initiative grant process. The Lifeline and fixed-wireless initiatives, funded together at $20MM, would bring significant benefit to Vermonters within this calendar year and in time for any pandemic resurgence this fall.

c. Permitting wireless telecommunications facilities in the form of poles, building attachments, and towers should be fast-tracked. However, in order to protect communities from environmental hazards or redundant facilities, Act 250 and Section 248a application requirements and time limits should be curtailed but not fully waived.

d. Pole attachment surveying, make ready, and licensing procedures should be accelerated. In the case of communications cable connections from main distribution pole lines to drop poles or even short service extensions, authority to attach prior to application and licensing should be granted with the proviso that attach entities are certified as professional installers with an obligation to ex post facto apply to pole owners for licenses. This would greatly decrease delayed delivery of broadband services while protecting pole-owners' ultimate authority for safety and revenue.

f. For Vermont Communication Union Districts (CUDs) and fiber providers, hardly anything will be more important than ensuring there are sufficient line workers to construct fiber networks and splice drops to end users. The FCC Rural Digital Opportunity Fund auction will surely generate an enormous amount of work both in our state and throughout the country. The RDOF funding will probably begin flowing in late 2021 or early 2022. If the EBAP reverse auction or something like it is funded, the need might be even sooner.

There are currently not enough line workers to carry the anticipated load. This is an opportunity to provide good-paying careers to Vermonters. The State should cooperate with regional tech centers and Vermont Technical College to create dedicated training for this profession. This is an urgent need and should begin this year.

Section II

b. The reverse auction proposal, modeled on the FCC's CAF II/RDOF approach to distributing universal service funds, is a very good way to incent competitive selections of internet services providers. The detailed rules and procedures will tell the tale of whether it both proves to be an equitable way and whether it will attract sufficient interest. One such set of rules in RDOF that would be appropriate for Vermont to use, is to allow 100/100, 100/20, and 25/3 service levels with weighting, which encourages fastest speeds and lowest latency solutions offered in bids, but doesn't preclude others, where the build-out costs might discourage any bids at all.

As long as the DPS and the Vermont Legislature continue to express a predilection for supporting and encouraging the development of CUDs and their largely FTTP projects, it seems awkward, inappropriate, and possibly illegal to allow them to select winners and losers in a reverse auction especially when disregarding lowest bidders. To remedy this, those areas that CUDs intend and are prepared to serve should be fully removed from the auction process. These can be awarded directly to the CUDs using the Connectivity Initiative grant process. The CUDs, in turn, can either develop as providers themselves or contract with companies they select to do the work.

c. Determining how to fund the auction and grants for EBAP buildout will be highly dependent on available funds. Should a Broadband Infrastructure Act emerge from Congress in time, and should it include funding states directly to administer their own programs, Vermont may be able to support its own reverse

auction and separate CUD grants. Whether a grant/loan program will be necessitated or a full funding will be achievable should simply be determined by the amount of funding available to the state. It's generally agreed that the areas that have not been built yet would have attracted private capital if only the returns on investment were sufficiently attractive. Expecting the Vermont Economic Development Authority (VEDA) and municipal bond banks to carry the risks of large percentages of these projects may be very challenging for the borrowers and the institutions. Adding to the challenge, funded areas will in most cases need to be joined with unfunded areas, with no subsidy available.

The assumption that the same conditions elsewhere will replicate those of ECFiber disregard differences in demographic density, income level, age, and ratios of anchor institutions to business to residences as well as Vermont's varying topography will mean that every project will be different with different costs and different expected revenues. Further, the urgency to complete these enormous builds will outstrip ECFiber's historical pace. The DPS's own language argues for minimizing loan amounts: "The EBAP envisions that VEDA would grant loans without expectation that they would all be fully repaid."

Therefore, the best policy is to offer the highest grant to loan funding ratio that is made possible with federal funds. Please examine the tables on the following page with estimates of costs to VEDA for loan components, assuming the state nets up to full "Magellan" cost levels from the federal government. For both tables, VEDA absorbs interest amortized over 10 years, compounded monthly and VEDA's risk factor decreases by 0.5% per 10% of grant increase (risk = 1% at 90%

FULL "MAGELLAN" LEVEL, NO AUCTION REDUCTIONS

without RDOF removed	Grants	VEDA Loans	VEDA Graduated 1–5% Risk	VEDA 3% Amortized Interest	Total VEDA Costs	Grand Totals
10%	$ 29,300,000	$263,700,000	$ 13,185,000	$ 41,856,821	$ 55,041,821	$ 84,341,821
20%	$ 58,600,000	$234,400,000	$ 10,548,000	$ 37,206,063	$ 47,754,063	$106,354,063
30%	$ 87,900,000	$205,100,000	$ 8,204,000	$ 32,555,305	$ 40,759,305	$128,659,305
40%	$117,200,000	$175,800,000	$ 6,153,000	$ 27,904,547	$ 34,057,547	$151,257,547
50%	$146,500,000	$146,500,000	$ 4,395,000	$ 23,253,789	$ 27,648,789	$174,148,789
60%	$175,800,000	$117,200,000	$ 2,930,000	$ 18,603,031	$ 21,533,031	$197,333,031
70%	$205,100,000	$ 87,900,000	$ 1,758,000	$ 13,952,274	$ 15,710,274	$220,810,274
80%	$234,400,000	$ 58,600,000	$ 879,000	$ 9,301,516	$ 10,180,516	$244,580,516
90%	$263,700,000	$ 29,300,000	$ 293,000	$ 4,650,758	$ 4,943,758	$268,643,758
100%	$293,000,000	$ 0	$ 0	$ 0	$ 0	$293,000,000

AS ABOVE WITH ALL RDOF BLOCK GROUPS FUNDED AND REMOVED

with RDOF removed	Grants	VEDA Loans	VEDA Graduated 1–5% Risk	VEDA 3% Amortized Interest	Total VEDA Costs	Grand Totals
10%	$ 20,400,000	$183,600,000	$ 9,180,000	$ 29,142,633	$ 38,322,633	$ 58,722,633
20%	$ 40,800,000	$163,200,000	$ 8,160,000	$ 25,904,562	$ 34,064,562	$ 74,864,562
30%	$ 61,200,000	$142,800,000	$ 7,140,000	$ 22,666,492	$ 29,806,492	$ 91,006,492
40%	$ 81,600,000	$122,400,000	$ 6,120,000	$ 19,428,422	$ 25,548,422	$107,148,422
50%	$102,000,000	$102,000,000	$ 5,100,000	$ 16,190,352	$ 21,290,352	$123,290,352
60%	$122,400,000	$ 81,600,000	$ 4,080,000	$ 12,952,281	$ 17,032,281	$139,432,281
70%	$142,800,000	$ 61,200,000	$ 3,060,000	$ 9,714,211	$ 12,774,211	$155,574,211
80%	$163,200,000	$ 40,800,000	$ 2,040,000	$ 6,476,141	$ 8,516,141	$171,716,141
90%	$183,600,000	$ 20,400,000	$ 1,020,000	$ 3,238,070	$ 4,258,070	$187,858,070
100%	$204,000,000	$ 0	$ 0	$ 0	$ 0	$204,000,000

Section III

a. As CUDs (other than ECFiber) will not be eligible to bid in the RDOF auction, they can join consortia to proxy bid through partners with bidding rights. The EBAP plan to facilitate funding any CUD's Letters of Credit is partially misplaced, because only the lead bidder of a consortium can carry the LoC to protect the Fund. If CUD partner lead bidders (electric utilities, ISPs, or ECFiber/ ValleyNet) are unable to acquire LoCs, the State could conceivably assist. One way would be for VEDA to guarantee the LoC issued by an FCC-approved bank in the same fashion as SBA guarantees loans for commercial banks. To be clear, the lead bidder, not a new CUD, is the entity that must become the ETC and has the obligation for the build out, backed by the LoC.

b. Access to the State-owned fiber system was made available for lease in a tiered system. Prior to that there was an "Initial Offer" which had a proscribed time limit to license. This offer was for a long-term IRU at a favorable rate specifically intended for FTTP service providers. An entity agreeing to enter into agreement had to take considerable risk and expend time and capital to assess and agree to the contract. Only one entity could take this offer for up to one third of the 144 strand capacity. In exchange for this early risk taking, the entity was protected from others getting the same deal. The logic for that is the same as in RDOF, RUS, and most other rural broadband deals. There is a very limited market in rural unserved and underserved areas—too limited to support the business case of multiple new providers.

Proposing to offer CUDs "free or reduced" or "a nominal lease rate" would seriously undermine the value of the IRU and increase the concomitant risk for the initial licensee. Arguments by current such license holders that they may not object to this proposal are understandable if they have already built out their networks, and thus would expect no competition for the limited market.

In the case of the NEK, where the State's largest network has not been built out for service, largely due to severe delays from the State's contractor making it ready for development, this protective condition most emphatically does not exist. The proposal to change the previously established pricing rules for this network would directly inflict grievous harm to the existing licensee in the especially limited NEK market.

HCA Comments on Emergency Broadband Action Plan

Thursday, May 28, 2020
1:25 PM

Subject	**HCA Comments on Emergency Broadband Action Plan**
From	Julia Shaw
To	PSD - Telecom
Sent	Thursday, May 28, 2020 10:26 AM
Attachments	<<HCA Comments Emergency Broadband Action Plan 5-26-20.pdf>>

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.
Please find attached brief comments from the Office of the Health Care Advocate on the Emergency Broadband Action Plan.
I apologize for submitting these past the deadline.
Take care,
Julia
--
Julia Shaw, MPH (she/her)
Health Care Policy Analyst
Office of the Health Care Advocate
Vermont Legal Aid
jshaw@vtlegalaid.org
(802) 383-2211
https://vtlawhelp.org/health

<<HCA Comments Emergency Broadband Action Plan 5-26-20.pdf>>

VERMONT LEGAL AID, INC.

OFFICE OF THE HEALTH CARE ADVOCATE

264 NORTH WINOOSKI AVE. - P.O. BOX 1367
BURLINGTON, VERMONT 05402
(800) 917-7787 (TOLL FREE HOTLINE)
(802) 863-7152 (FAX)

OFFICES:
BURLINGTON
RUTLAND
ST. JOHNSBURY

OFFICES:
MONTPELIER
SPRINGFIELD

May 26, 2020

Department of Public Service
112 State St.
Montpelier, VT 05620-2601

To Whom It May Concern:

Thank you for soliciting comments on the Department of Public Service's draft Emergency Broadband Action Plan (EBAP)[1]. The Office of the Health Care Advocate (HCA) supports the Department's objective to achieve universal access to broadband in Vermont. This objective has become even more urgent in the context of COVID-19. As Vermont has moved much of its health care system online, Vermonters without broadband are at a significant disadvantage in accessing care. Vermonters who need health care and do not have reliable internet access must make the difficult choice between forgoing care and risking exposure to COVID-19 in their provider's office (if the office is available) or the emergency department.

The need for reliable access to broadband for telemedicine and other essential purposes will continue and likely increase in the future. Once the COVID-19 crisis begins to abate, it will take a significant amount of time for Vermont's health care system to transition back toward care taking place in person. It is likely that some care will remain online indefinitely. As providers and patients become more comfortable with new technologies, it is likely that the use of internet-based technologies will increase.

Access to broadband was already essential for full participation in our society and economy. It is now essential for accessing health care as well.

Thank you for your consideration of our comments.

Sincerely,

Julia Shaw
Health Care Policy Analyst
Office of the Health Care Advocate
Vermont Legal Aid
jshaw@vtlegalaid.org
(802) 383-2211

[1] https://publicservice.vermont.gov/sites/dps/files/documents/Emergency%20Broadband%20Action%20Plan%20final%20draft%205-5-20.pdf

FW: VAN Response to VT Emergency BB Plan

Wednesday, June 3, 2020
10:53 AM

From: Lauren-Glenn Davitian <davitian@cctv.org>
Sent: Tuesday, May 26, 2020 2:53 PM
To: Tierney, June <June.Tierney@vermont.gov>; Purvis, Clay <Clay.Purvis@vermont.gov>; Tim Briglin <TBriglin@leg.state.vt.us>; Sibilia, L <lsibilia@leg.state.vt.us>; Robin Chesnut-Tangerman <RChesnut-Tangerman@leg.state.vt.us>; Danielle Bean <dbean@leg.state.vt.us>; scampbell@leg.state.vt.us; Michael Yantachka <MYantachka@leg.state.vt.us>; schase@leg.state.vt.us; mhigley@leg.state.vt.us; apatt@leg.state.vt.us; hscheuermann@leg.state.vt.us; Tim Ashe <timashe@burlingtontelecom.net>; Christopher Pearson <CPearson@leg.state.vt.us>; Ann Cummings <acummings@leg.state.vt.us>
Subject: VAN Response to VT Emergency BB Plan

Dear Commissioner Tierney,

Please find Vermont Access Network's response to the draft VT Emergency Broadband Plan. We are glad to shed more light on any of the comments entered here. Many thanks for all of the work you and the DPS team are doing for our beloved state.

Thank you for your consideration.

Lauren-Glenn Davitian
802.777.7542

--
Lauren-Glenn Davitian | Executive Director | davitian@cctv.org | 802.862.1645 x12
CCTV Center for Media & Democracy | cctv.org
WATCH: 35 Years of CCTV

<<VAN Broadband Comments 5_26_20 (1).pdf>>

VERMONT ACCESS NETWORK

26 May 2020

MEMO TO: Commissioner June Tierney, Vermont Department of Public Service
Rep. Tim Briglin, Chair and Members of the House Energy and Technology Committee

FROM: Lauren-Glenn Davitian, CCTV Center for Media & Democracy, davitian@cctv.org, 802.777.7542

RE: Comments on Emergency Broadband Plan and Connectivity Provisions for COVID-19 Period (and Beyond)

Thank you for the opportunity to comment on the Vermont Department of Service's draft Emergency Broadband Action Plan, referenced here:

https://legislature.vermont.gov/Documents/2020/WorkGroups/House%20Energy%20and%20Technology/COVID-19/W~June%20Tierney~Emergency%20Broadband%20Action%20Plan~5-7-2020.pdf

According to the State of Vermont Emergency Broadband Action Plan, 23% of the state -- comprising 69,899 business and residential locations -- presently does not have access to broadband at 25/3 Mbps – the service speed that defines "broadband" under federal law.

This Emergency Plan seeks to remediate this problem in order to provide flexibility and resilient systems for Vermonters for the duration of the COVID-19 pandemic and future emergency situations.

Vermont Access Network submits the following comments and recommendations:

Vetting the Emergency Plan: This Emergency Plan is no substitute for a Vermont Ten Year Telecom Plan and should not be treated as such. This Emergency Plan should note be used unless it is vetted by the engineering firm in charge of the Ten Year Telecom Plan. The Emergency Plan should also be vetted to ensure that it conforms with the statutory requirements are required to drive the Vermont Ten Year Telecom Plan.

Mapping: Currently there are no formal maps of Vermont's fiber networks and "dead zone"/"not spots". It is not even clear that 70K homes, cited in the Emergency Plan, are accurate. The number has been provided by Vermont telecom providers and have not been validated by the Vermont Department of Public Service. This mapping is overdue and should be made a priority to be completed in advance of additional broadband roll out. These maps should be updated annually, and included in the provisions of relevant state agency planning and legislative policy documents.

Connectivity Speeds: While the speed of 25/3Mbps is seen as a short term or phase one connectivity goal in the Emergency Plan, Is not sufficient for multiple household members to run multiple applications for education, business and telehealth applications. We strongly urge you to stage the broadband service extensions at the highest symmetric speeds possible, as soon as possible.

Timing of Build Out/ Wireless Alternatives: Many public health experts anticipate that Vermonters will continue to operate in an emergency "stay at home" status into the autumn months of 2020. Broadband build out to 70K locations will not be possible by that time.

Given the immediacy of the needs, we suggest that the state install easy to mount (and move later), cost-effective wireless devices in identified locations across the state, with a minimum of 25/3Mbps capacity. Small cells cost about $16K each and can use available spectrum to provide 4G/LTE service in dead zones. These require only 80 Watts to operate and can be maintenance for extended power grid outages using batteries and solar panels. These will provide both interim, emergency "broadband lite", asymmetrical service to cellular modems connected to student laptops, but will also provide voice cell service where none presently exists across much of rural Vermont. These devices can be installed on existing poles or newer taller poles (70') covering greater area or range. These can later be reconfigured or relocated to become part of a fully integrated mobile wireless canopy allowing tourists, bus drivers and public safety vehicles to travel between cells without dropping coverage. These can be purchased by the State for now and might be later owned by the Communications Union Districts which could derrive revenue from roaming charges from all the carriers utilizing these neutral host small cells.

Leadership: Currently we lack a Vermont Telecom Authority or any entity to take charge of this monumental undertaking. Ad hoc alliances of WISPS, or electric

company coordination without the necessary public sector authority will not be sufficient for a project of this time line and scale.

It is necessary for the Legislature to designate or assign a coordinating entity that includes representatives of various industries, that will adhere to state telecom statutes and priorities, be accountable for benchmarks and funds, and include CUD's, private telcos, electric companies and administrative entities that represent government, education, business and health stakeholders.

Possible Way Forward Given Time and Constraints: In light of the current lack of any accurate mapping of existing fixed or mobile wireless coverage or maps of available fiber necessary for backhaul of small cells, the best approach may now be to identify clusters of unserved addresses, either by anecdotal evidence from schools and town officials, identify fiber from requesting maps from all carriers, empower GMP to install as many small cells as possible before September, and to contract fro use of backhaul fiber, spectrum, roaming agreements and Core services.

Public Switched Applications: Extending broadband service to every household without a plan for a public switched video network dramatically limits the value of the network build out. There is an immediate need and opportunity for non-commercial engagement tools for education, government operations and healthcare delivery that has been highlighted by the COVID-19 Pandemic.

Vermont Access Network has developed technical and financial scenarios for the next generation of Vermont Interactive TV (VIT 2.0). These high bandwidth models utilize Vermont's community media centers (providers of public, educational and government access cable TV/ internet services) as hubs, and include HD video and high quality production for meetings, events, programs that can be live streamed, facilitate easy interaction, archiving (very important) and sharing.

We are prepared to present this plan and preliminary budget to the Department and Legislative body upon request, to be included as part of the COVID-19 broadband funding package.

Additional potential revenue sources for this include:

- U.S. Department of Education, Education Stabilization Funds (ESSER and GEER)
- Elementary and Secondary School Emergency Relief (ESSER) Fund

- U.S. Department of Agriculture, Rural Development, Distance Learning and Telemedicine (DLT) Program
- Federal Communications Commission (FCC), Connected Care Pilot Program

Thank you for your consideration.

Vermont Access Network is a statewide association of 25 community media centers that provide public, educational and government access services and "channels" on cable and the internet. These centers weave local communities together, supplement public education, provide open forum for the exchange of ideas and help to keep the wheels of local democracy turning. See VermontAccess.Net

---------- Forwarded message ---------
From: **Gordon Mathews** <gmathews@vermontel.com>
Date: Thu, May 21, 2020, 10:15 AM
Subject: Wireless Connectivity Information for Telecommunications and Connectivity Advisory Board
To: David Snedeker <dsnedeker@nvda.net>, Michael.Clasen@vermont.gov <Michael.Clasen@vermont.gov>, Katherine Sims <katherine@nekcollaborative.org>, Rob.White@vermont.gov <Rob.White@vermont.gov>
Cc: Dr. Michel Guité <mguite@vermontel.com>

Good morning David, et al.,

Apologies in advance for not including the full Board, but wanted to get you some information quickly for consideration regarding your discussion of the Emergency Broadband Plan this morning.

Upon reviewing the EBP, VTel Wireless has conducted analyses of how its existing infrastructure and resources might be utilized to address some of the connectivity challenges the EBP seeks to address. The following information has been circulated to Commissioner Tierney and Jason Gibbs, and therefore we thought it appropriate to also provide it to the Telecommunications and Connectivity Advisory Board. In sum, as detailed further below, by utilizing existing VTel Wireless infrastructure and FCC spectrum holdings, wireless propagation models show that by deploying new, readily-available antennas on VTel Wireless's BRS spectrum, the vast majority of underserved VT E911 locations could be reached with a fixed wireless service of 25/3 or greater, with many receiving 50 Mbps or greater. VTel has invited the DPS to co-sponsor an independent, third-party data analysis, at VTel's expense, verify the data, and extends this offer to the Board or any state agency that would be interested in an independent review of the data.

The table below is derived is from wireless industry-standard ATOLL RF predictive software made by Forsk, a French company used by over 500 wireless companies in 140 countries.

If our data is right, and if we have used ATOLL correctly – we are 99% sure we used the model right -- then any experienced wireless consultant should be able to plug into ATOLL the near-identical 5 principal Vermont variables. These are: (a) Technical characteristics of Ericsson BRS Massive MIMO radio/antennae; (b) Heights and coordinates of 155 VTel Wireless towers and silos and sites where these Ericsson radios would be placed; (c) Use of (3 x 20 MHz) of VTel's 73.5 MHz of BRS licenses at these sites; (d) Longitude and latitude of 339,103 Vermont E-911 locations; and (e) contours of Vermont hills, mountains, tree heights, and know structures.

Our results, even assuming a healthy potential margin of error might of perhaps 1% to 15%, indicate that by using conventional at-home, or on-site, outdoor antennae/modems/routers made by several vendors today including Cradlepoint, BEC, Netgear, and Green Packet, mounted at 25 feet, **309,725 or 91% of Vermont's 339,103 E911 points should get wireless speeds greater than 25 Mbps, 86% should get over 50 Mbps, 77% should get over 100 Mbps, 57% should get over 200 Mbps**, using these new radios, on our existing towers. The results with indoor devices are much less attractive.

	Indoor 18ft (2nd Floor)		Outdoor 25ft/VTel	
DL Speed (Mbps)	# Pts	% of Total	# Pts	% of Total
25	64,666	19%	309,725	91%
50	62,179	18%	291,049	86%
100	51,598	15%	262,085	77%
150	24,330	7%	225,642	67%
200	13,510	4%	192,391	57%
250	4,317	1%	132,300	39%
300	-	0%	36,193	11%
339,103	Total Points in Model			

VTel has an independent review of the data underway by 4G Unwired, a firm recommended by Forsk, and has invited the DPS to select 4G Unwired, or another of the firms recommended by Forsk (Mobile Allies and Netscout) to either jointly or independently verify this data and bill back VTel for the work to challenge or confirm the results, and to ask us to cooperate by sending our confidential data to them, and we have not yet received a reply. We would be happy to also include the Board if there is interest.

Basically the near-identical result keeps popping up. Almost every home in Vermont gets fast service. Looking only at the DPS under-served addresses, whether we use 80,000 DPS underserved homes as discussed by Magellan, or 69,000 DPS underserved homes getting less than 25/3, or 39,058 DPS underserved homes getting less than 10/1, being extra conservative we find about 40% of all these addresses are served very well if we set the minimum at 50 Mbps or higher with outdoor antennae at 15 feet. If we simply use the ATOLL model itself, we find about 60% are served if we set the speed at 25 Mbps or higher, with outdoor antennae at 25 feet. This means, if we use the most dire 39,058 homes getting below 10/1, about 16,000 are left out. But after recognizing that many of these are boat ramps and camps, and cemeteries, and many are in Waitsfield territory where the data seems wrong, we come up with the outcome **only about 6,700 homes are entirely missed by these radios on our existing towers.**

Because we and many friends were badly burned by over-optimism using ATOLL in 2010 with 4G LTE radios, our starting point has to be that "too good to be true" is extremely dangerous. Yet 4G LTE radios in 2010 did not yet exist, and we had only Nokia and Verizon and Ericsson and Alcatel best guesses to make predictions. Today, by contrast we have Ericsson BRS radios that are used worldwide.

We have also discussed this information with Senator Brock and Representative Chesnut-Tangerman, and predict the following could be done this calendar year, serving all but a few hundred homes, if the parties moved quickly authorizing an immediate start, using about $100 million COVID-19 emergency educational, health-related, and emergency service funding: For about $43 million VTel could add these BRS radios statewide to all towers. For about $2 million more we could increase our existing 35 wood poles of 49.5 feet to 90 feet, and add five new fully-equipped 90 foot poles. For another $47 million Vermont's 5 CUD's, or WISP's, or electric co-ops,

or government agencies, or other telco's, could be equipped with, and install, 25,000 in-home devices at $1,000 per device, and to build 10 fully equipped 90 foot poles reaching 1,000 homes each, and to place 250 micro-radios reaching 50 homes each, plus technical, educator, and public safety training for $3.5 million, for a total of about $92 million, plus $8 million contingency.

VTel, in this envisioned outcome, would offer its services as a wholesale wireless roaming enterprise, as it does today to AT&T, T-Mobile, and Sprint, to anyone, including CUD's, or WISP's, or electric co-ops, or government agencies, or telco's, who want to sell retail wireless services. VTel would continue to offer retail services, but would work cooperatively with CUD's and others to enable its wireless licenses to be shared with others. This immediate $100 million for statewide wireless 2020 broadband would then provide a strong basis for CUD's, telco's, or others, who apply for RDOF funding for FTTH, to expand further toward the legislative long-term goal of 100/100.

We would be happy to discuss anytime at your convenience.

Gordon Mathews
Vice President Legal & Regulatory Affairs
Vermont Telephone Co., Inc. / VTel Wireless, Inc.
354 River Street
Springfield, VT 05156
Phone: 802-885-7712
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Get the latest news and updates on VTel GigE, VTelevision and VTel Wireless – Like us on Facebook!

TCAB May 21st Draft Meeting Minutes
Pages 309-290

Telecommunications & Connectivity Advisory Board

Meeting Minutes May 21st , 2020 Meeting
10:00 am – 12:00 pm Remote Meeting

Attendees:

1. David Snedeker – Chair of the Board, Northeastern Vermont Development Association
2. Robert T. White- AOT
3. Michael Clasen – Deputy State Treasurer
4. Kenneth Jones - ACCD
5. Evan Carlson – Do North Coworking
6. Clay Purvis – Director, Connectivity Division, Dept. of Public Service
7. Michael DeHart- Telecommunications & Connectivity Staff, Dept. of Public Service
8. Rob Fish - Rural Broadband Technical Assistance Specialist, Dept. of Public Service
9. Katherine Sims – NEK Collaborative
10. Corey Chase – Telecom Engineering Specialist

Members of public:
David Healy Ann Manwaring Bill Esses
Carole Monroe Sally Carpenter Mike Chase Claude Phipps David Healy David Jones
Ed Bove Jeremy Grip Kevin Reagan
Kristen Fountain(NEK Broadband) Brian Otley
Susan Paruch Robbie Leppzer
Sheila Kearns (Sandgate, SoVTCUD) Susan Baldwin
Tim Scoggins
Zach Tomanelli (South Burlington, VPIRG) Henry Amistadi
Jeff Austin, Consolidated
Michael Birnbaum, Kingdom Fiber Irv Thomae ECFiber
Michael Reed Mission Broadband Stephen Whitaker

Item	Item Description	Action By
1.0	Call to Order at 10:06am	Chair Snedeker
2.0	Meeting Minutes • Corrections: none • Motion to Approve	Moved Robert White Second Michael Clasen Unanimous Approve

3.0	New Business: **BIG Updates** Three early awardees, remaining funds will be awarded on July 3 **Emergency Broadband Action Plan** Purvis provided short presentation summarizing the EBAP Evan: I'd like to hold my comments until I've heard from the public, can we set aside a few minutes after the comments so we can react to them? Clay: sounds good	Clay Purvis
4	Public Comment: Brian Otley: Do we have a list of unserved addresses? Kristen Fountain: Albany, NEK, vice Chair of NEK Community BB. Providing brief overview of comments on EBAP, will submit more detailed written comments. Applaud Dept for swift production. Strongly support overall objective. Components of plan we don't	

	agree with, and urge the Advisory board to recommend the following to the dept. Any public $ that flow to projects that cannot be improved/upgraded to 100/100 should not happen. We believe that applications for emergency projects should involve a plan for/commitment to making upgrades by 2024 to 100/100. Must be strong accountability measures in place. Strongly believe that (garbled) Concerned about workforce constraints, and would like to see investments in workforce training programs to support this big proposal. Concerned that costs will be higher than Magellan report estimates. Encouraged by the acknowledgement of CUD importance. Believe that block grants would be a simpler method than reverse auction. David Jones: Deerfield Valley CUD, clerk. Believe that most pressing need right now is how to participate in the RDOF auction in October. Reverse auction- how coordinated with RDOF subsidies? Our territories are not economically capable of supporting two providers. Awards going to two competing entities is not productive. EBAP money is speculative- if real- we want it conducted in such a way that applicants are fully aware if competitor has been awarded RDOF funds. We want to know how to participate in RDOF without a service track record, etc. Plan should consider how CUD's can access federal funds, including their legal and consulting needs. Sheila Kearns: Vice chair of SoVTCUD, Sandgate.	

	Section I: cable line extension- I feel that addresses that fall within 1 mile of existing cable lines should be public information. Fast tracking pole license applications: any investment to pole owners should include a requirement to share attachment info DPS needs to do more for CUD's in RDOF. Reaction to middle mile transport and electric distribution etc. Disheartening to hear the assumption that middle mile is easily accessible USDA reconnect: loan repayment area/protected borrower status Any reverse auction that could lead to provider exclusivity like protected borrower status areas without universal service mandate should not happen. Zach Tomanelli (VPIRG): Communications director for VPIRG. Broadly speaking, appreciate the EBAP. Ask that any fast-tracking or lifted siting standards be clearly temporary. Anything less than 100/100- broadly against it. Recognize the tension that stopgap/short term solutions are a necessary component of rapid response. Ask that any entity taking state dollars for less than 100/100 should include a plan to serve those addresses with fiber by 2024. Reverse auction- agree with the idea that block grants would be administratively simpler than reverse auction. Bidding on reverse auctions is difficult for grant-seekers. Accountability- providers should	

	demonstrate they are fulfilling their proposals Support transparency on pole-attaching entities and pole owners. Jeff Austin: submitting written comments Irv Thomae: Michael Birnbaum: Generally supportive of the plan. Creative solutions. Section 1b: cable line extensions should be restricted to current commitments so they don't encroach too deeply into CUD territories and undermine business case. 248a/250 emergency expedite- don't support waiving those. Fast-tracking good. There will probably be many instances of towers that become regrettable. 1d: applaud the fast-tracking pole licenses and subsidizing costs. 1f: workforce limitations are a major threat to target deadlines. Training systems need to be put into place and a practical plan to increase the number of laborers and trucks Block grants to CUD's according to a cost formula seem like a better idea than reverse auction. If reverse auction accepts less than 100/100, I recommend a weighted formula similar to RDOF to balance awards and incent 100/100 deployment. Consider the impacts on CUD's if they are not RDOF recipients. Vermont will be even more divided and the business	

	case for rural areas could be completely lost. Doubtful that EBAP deadlines are met due to financing and workforce constraints. Supporting CUD's for letter-of-credit-needs clarity. If CUD's aren't in a bidding position, they don't need a letter of credit. Reducing cost/free access to state fiber unduly harms existing license holders of state fiber. If an existing holder spent time/money on one set of terms, then competitors have lower barrier to entry and can undercut current license holders. Will submit written comments later. Irv Thomae: Very impressed, very supportive of plan. Do not fully agree with Birnbaum about existing licensees, but retroactive adjustments could be made to compensate those who bought in at a higher price. Several things money could be spent on right now that could be eligible for CARES money and applied to immediate effect. There are people who cannot afford to access broadband that passes their home (undergrounding costs). Could be lower cost than a cable line extension for some people. Mobile homes are required to have utilities undergrounded through conduits, for example. Think more utility crews should be hired and trained- possible within 3 or 4 months, and could have a lasting positive impact.	

	Disagree: section on making use of electric utilities for middle mile suggests amending 8091. That could place new fiber into the power space. That fiber SHOULD be placed in the communications space (reduced cost, easier repairs, simpler access) Disagree: page 7/8 drop costs – do not vary based on take rate very much. Splicing costs are constant and that language should be re-examined. Suggest proactive make-ready. State highways with no fiber will need work- why not go ahead and encourage utilities to do it right now? We are very supportive and impressed and will submit further written suggestions. Dick Birch? There are plenty of people willing to enter the workforce right now. Lots of us travel to other states on a regular basis, and we feel like we aren't as well utilized in our own state as we could be. Claude Phipps: Submitted written comments, but not hearing enough about affordability. A lot of people have service pass their house but cannot afford the cost to connect/monthly fees. Consider measures to increase affordability. Consider the subscriber when crafting a bid structure (lowest cost encourages providers to put cost onto subscribers). FX Flinn: Chair, ECFiber – will submit written comments shortly. We will provide very specific, costed out projects we are ready to enact. Also hoping to give specific numbers for cost to install conduit for low-income homes. Believe that CARES money should be dispensed on specific things	

	now rather than a reverse auction in the future. Will set us up well for the coming year. Stephen Whitaker: Montpelier. Misaligned with 10-year telecom plan. Emergency plan lacks actionable task for this coming school year. We need immediate strategy to get students/teachers, doctors/patients connected with CARES money by December 31. Scheduled to have a 10-year telecommunications plan by December 1. That's the official plan. This is an attempt to usurp the plan and position the department to control the funds. I think we need a professional engineering firm to get that plan underway. Consolidated inventive reg plan could undercut CUD's Ignores statutory policy goals Most of what's in this plan is in violation of goals. Set this plan aside and come up with a new plan. This is no substitute for statutory processes. Good ideas in this document, but ideas are not a plan. We need planning and engineering. Most of the content of this emergency plan should be vetted by a professional engineering firm, or set aside. Carlson: Themes from public comments-exception to 100/100 is a problem sense of a lack of accountability for	

	those that would offer something less. concerns around reverse auction vs block grants prioritization of workforce **Motion to request that department update the plan to address those things that were expressed by the public** (accountability for <100/100, recommendation to issue block grants instead of reverse auction, prioritize workforce) **Seconded- Ken Jones** Purvis: we will take those comments and provide them as added content in an appendix. We will respond to them either in the appendix or in the plan. If an idea isn't adopted into the plan, it's still in the plan itself. Points and counterpoints will be present in the final document. Ken: When will the EBAP be finalized? Clay: We're working as fast as we can to get it finalized. Comments open until the 26th, but we haven't picked a specific date to publish the final one. We can schedule a meeting two week from now to discuss what it looks like, but we should talk offline when we have more clarity. Katherine Sims: Appreciate Evan/Ken's suggestion, support PSD to take time to incorporate comments then give the board the opportunity to weigh in. Support an additional meeting two weeks from now. Michael C: concur with Katherine's comments	

	Ken J: Concur with Katherine's comments Evan C: Concerned that board won't be able to influence how those comments are adopted. **Suggest tabling motion.** **Unanimous Tabled. Purvis will notify TCAB when comments are incorporated and schedule a meeting to discuss.** Evan C: Burke Mtn. fixed wireless project mentioned by Tierney in testimony- what is dept doing to look at short term actions like that? Seems like it would fit within the CARES budget. What can dept do to support short term solutions like that? Purvis: We're still trying very hard to collect good data from around the whole state. 600 responses on our interactive map so far, but additional communication to Districts from AoE should spur increased input of address-level data. St Johnsbury is the best type of short-term project. No guarantee that CARES money can be put towards that, but we're trying to get that hammered out.	
5	Adjournment 11:43am	Motion: Ken Jones Second: Michael C.

Minutes Subject to Approval