VERMONT COMMUNITY BROADBAND BOARD

Board Packet Executive Summary
July 10, 2023
Christine Hallquist, Executive Director
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Email – christine.hallquist@vermont.gov

Workforce Development Grant Transfer

The Board will be presented with a staff recommendation to transfer the $516K Fiber Optic Apprenticeship grant from the Vermont State University (VSU). VSU has been working with the VCBB for over a year on the program and we agree that the VCBB is better positioned to carry out the terms of the grant. The planning work is complete, and the remaining work is to recruit participants and place successful graduates into the construction workforce. This will result in a minimal increase in staff time as the work will be performed by contractors.

NEK Broadband Grant Amendment Request

Staff recommends the Board approve the NEK Broadband amendment request of $17, 939,636. This request covers an additional 279 miles and 3826 addresses to their existing grant. If the Board approves this request, it brings the total grant allocation to the NEK of $38,805,525 so far which is within the NEK total allotment of $65,321,385. The grant amendment shows an estimated cost per mile to be $64,300 which aligns with the overall business plan cost per mile of $67,859. The amendment has been reviewed by CTC (VCBB's contract engineering firm) who has determined that the request complies with VCBB Outside Plant Requirements.

Maple Broadband Grant Amendment Request

Staff recommends the Board approve the Maple Broadband amendment request of $2,157,386. This request covers an additional 63.7 miles and 1560 addresses to their existing grant. If the Board approves this request, it brings the total grant allocation to Maple of $10,843,387 so far which is within the Maple total allotment of $10,843,387. The grant amendment shows an estimated cost per mile to be $33,868 (this is an incremental grant – thus lower cost/mile). The Maple Broadband overall business plan shows a cost per mile of $49,531. The amendment has been reviewed by CTC (VCBB's contract engineering firm) who has determined that the request complies with VCBB Outside Plant Requirements

Vermont Community Broadband Board Meeting
Monday, July 10, 2023, 12:00pm – 4:00pm
AGENDA

Meeting is being held virtually.
Click here to join the meeting
Join by Phone; +1 802-828-7667, 494812198#
Note: there may be executive sessions as needed

12:00 1) Meeting Call to Order, Roll Call, Approval of Agenda

12:05 2) Approval of June 12 Meeting Minutes

12:15 3) Accountability Policy for Grants - *Holly Groschner and Laura Sibilia*

12:45 4) BEAD Initial Proposal – *Lucy Rogers and Vernonburg Group*

1:45 5) Workforce Development Proposal– *Christine Hallquist*

2:15 6) NEK Broadband Grant Proposal – *Christine Hallquist*

2:45 7) Maple Broadband Grant Proposal – *Christine Hallquist*

3:15 8) Staff Updates
- General VCBB Updates – *Rob Fish*
- Dashboard Review – *Alissa Matthews*
- Communications & Media – *Herryn Herzog*

3:30 9) VCUDA Updates – *Rob Vietzke*

3:45 10) Public Comment

3:55 11) Parking Lot – *Christine Hallquist*

4:00 12) Confirm Next Regular Meeting 8/14 & Motion to Adjourn

Press inquiries: please contact Herryn Herzog, herryn.herzog@vermont.gov (802) 522-3396.

Dear Patty,

As you know, we have been working with Toni Clithero on developing an Accountability Policy for the VCBB. We have met several times via phone and have been exchanging preliminary outlines and reference materials to support this discussion. We are close to a structure for the policy, and have established the references to accountability in Act 71 and Act 179. We are pleased to find that a number of the criteria are stated in the grant documents, and merely need to be adopted as policy by the board, but not all. Nevertheless, we are confident that most or not all of this policy work is achievable in the near term.

We believe this will be important information that all of the CUDS deserve to have BEFORE submitting additional funding requests. It is also time for the VCBB to put its policies in order as there are instances of inconsistency or absent standards that are mandated by statute that leave the VCBB vulnerable, and scrutiny is unavoidable. Additionally, we know that BEAD will require added elements of accountability to be developed by the board and reconciled with the standards that we adopt for the Community Broadband Fund.

For this reason, we are writing today to ask that the board immediately notify staff and the CUDS that we will NOT be approving any additional grants until this work is completed.

It is our combined assessment that completion of much of this work can happen fairly quickly with our attorney and board discussion. We think this discussion must move to the front of the line in the board's work and may require a special meeting in July in order to return to grant approvals in August.

Please feel free to reach out to either of us via phone to discuss further.

Sincerely,

Laura Sibilia

Holly Groschner

Vermont Community Broadband Board

Vermont's Broadband Equity, Access, and Deployment Initial Proposal Volume 1

Part of Vermont's Internet for All Plans

DRAFT July 2023

VERMONT

Contact Information

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Public Service Department

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Executive Summary

The Infrastructure Investment and Jobs Act (Infrastructure Act or IIJA), enacted in 2021, includes $42.45 billion of funding to achieve reliable, affordable, and high-speed Internet coverage throughout the United States through the Broadband Equity, Access, and Deployment (BEAD) Program, administered by the National Telecommunications Information Association (NTIA). This historic investment will lay critical groundwork for widespread availability and adoption of broadband, create new jobs and economic opportunities, expand access to healthcare services, enrich educational experiences of students, and improve overall quality of life for all US residents.

This is a once-in-a-generation funding opportunity that will allow states to make meaningful progress in closing the digital divide, and it is crucial that states have a comprehensive and well-informed plan for maximizing these funds. For Vermont, The Vermont Community Broadband Board (VCBB) has been tasked with this responsibility. This Initial Proposal Volume 1 outlines:

- Existing efforts funded by the federal government or the State of Vermont to deploy broadband and close the digital divide (Initial Proposal Requirement 3)
- Identification of each unserved and underserved location within the State of Vermont (Initial Proposal Requirement 5)
- Vermont's definition of Community Anchor Institutions (CAIs) and identification of all eligible CAIs (Initial Proposal Requirement 6)
- Vermont's proposed challenge process (Initial Proposal Requirement 7)

This proposal is designed to reflect the strategy and principles outlined in Vermont's BEAD Five-Year Action Plan. It has been developed to reflect feedback from stakeholder groups, including publicly- and private-owned and operated Internet Service Providers (ISPs), relevant community-based organizations, related government agencies, and the public, in accordance with the BEAD Notice of Funding Opportunity (NOFO).

NOFO Requirements Table

The following table describes the requirements of the BEAD Initial Proposal as per the BEAD Notice of Funding Opportunity (NOFO) and the corresponding sections of this document in which they are addressed.[1]

Table 1: BEAD NOFO Requirements

#	NOFO Requirement	Eligible Entity Plan – Reference Location
3	Identify existing efforts funded by the federal government or an Eligible Entity within the jurisdiction of the Eligible Entity to deploy broadband and close the digital divide, including in Tribal Lands.	II. Existing Broadband Funding
5	Identify each unserved location and underserved location within the Eligible Entity (*i.e.*, under the jurisdiction of the Eligible Entity, including unserved and underserved locations in applicable Tribal Lands), using the most recently published National Broadband Maps as of the date of submission of the Initial Proposal, and identify the date of publication of the National Broadband Maps used for such identification.	III. Initial Location Data Requirements
6	Describe how the Eligible Entity applied the statutory definition of the term "community anchor institution," identified all Eligible CAIs in its jurisdiction, identified all Eligible CAIs in applicable Tribal Lands, and assessed the needs of Eligible CAIs, including what types of CAIs it intends to serve; which institutions, if any, it considered but declined to classify as CAIs; and, if the Eligible Entity proposes service to one or more CAIs in a category not explicitly cited as a type of CAI in Section 60102(a)(2)(E) of the Infrastructure Act, the basis on which the Eligible Entity determined that such category of CAI facilitates greater use of broadband service by vulnerable populations.	III.B. Community Anchor Institutions
7	Include a detailed plan as to how the Eligible Entity will conduct a challenge process as described in Section IV.B.6 of the BEAD NOFO.	VI. Challenge Process

[1] National Telecommunications and Information Administration, Broadband Equity, Access, and Deployment Program, Notice of Funding Opportunity (May 13, 2022), pp. 30-31 (BEAD NOFO). Available at: https://broadbandusa.ntia.doc.gov/sites/default/files/2022-05/BEAD%20NOFO.pdf.

I. Introduction

The Infrastructure Act, passed into law in 2021, includes a significant investment of $65 billion to help close the digital divide and ensure that all residents have access to reliable, high speed, and affordable broadband.[2] This historic investment will lay critical groundwork for widespread availability and adoption of broadband, creating new jobs and economic opportunities, providing increased access to healthcare services, enriching educational experiences of students, and improving overall quality of life for all residents.

The NTIA is administering two grant programs for states: the BEAD[3] program and the Digital Equity Act program.[4] The VCBB has been tasked with developing Vermont's strategy for broadband and digital equity, and the State's plan for administering the funding it receives from NTIA. The required components and process for the BEAD program are summarized in Figure 1.

The Initial Proposal Volume 1 serves as the first draft of Vermont's plan to achieve the intended purpose of the BEAD program: "every resident has access to a reliable, affordable, high-speed broadband connection, utilizing all funding available to be brought to bear to accomplish this goal, including but not limited to BEAD Program funds."[5]

[2] See Infrastructure Investment and Jobs Act (IIJA). (2021, October 10). Retrieved June 16, 2023, from https://www.congress.gov/117/bills/hr3684/BILLS-117hr3684enr.pdf.

[3] The BEAD NOFO details the requirements of the program with which Vermont and subgrantees must comply. It is available here: https://broadbandusa.ntia.doc.gov/sites/default/files/2022-05/BEAD%20NOFO.pdf.

[4] The Digital Equity Act Program Notice of Funding Opportunity details the requirements of the program with which Vermont and subgrantees must comply. It is available here: https://broadbandusa.ntia.doc.gov/sites/default/files/2022-05/DE%20PLANNING%20GRANT%20NOFO.pdf.

[5] BEAD NOFO, p. 30. Available at: https://broadbandusa.ntia.doc.gov/sites/default/files/2022-05/BEAD%20NOFO.pdf.

Figure 1. BEAD Components and Process

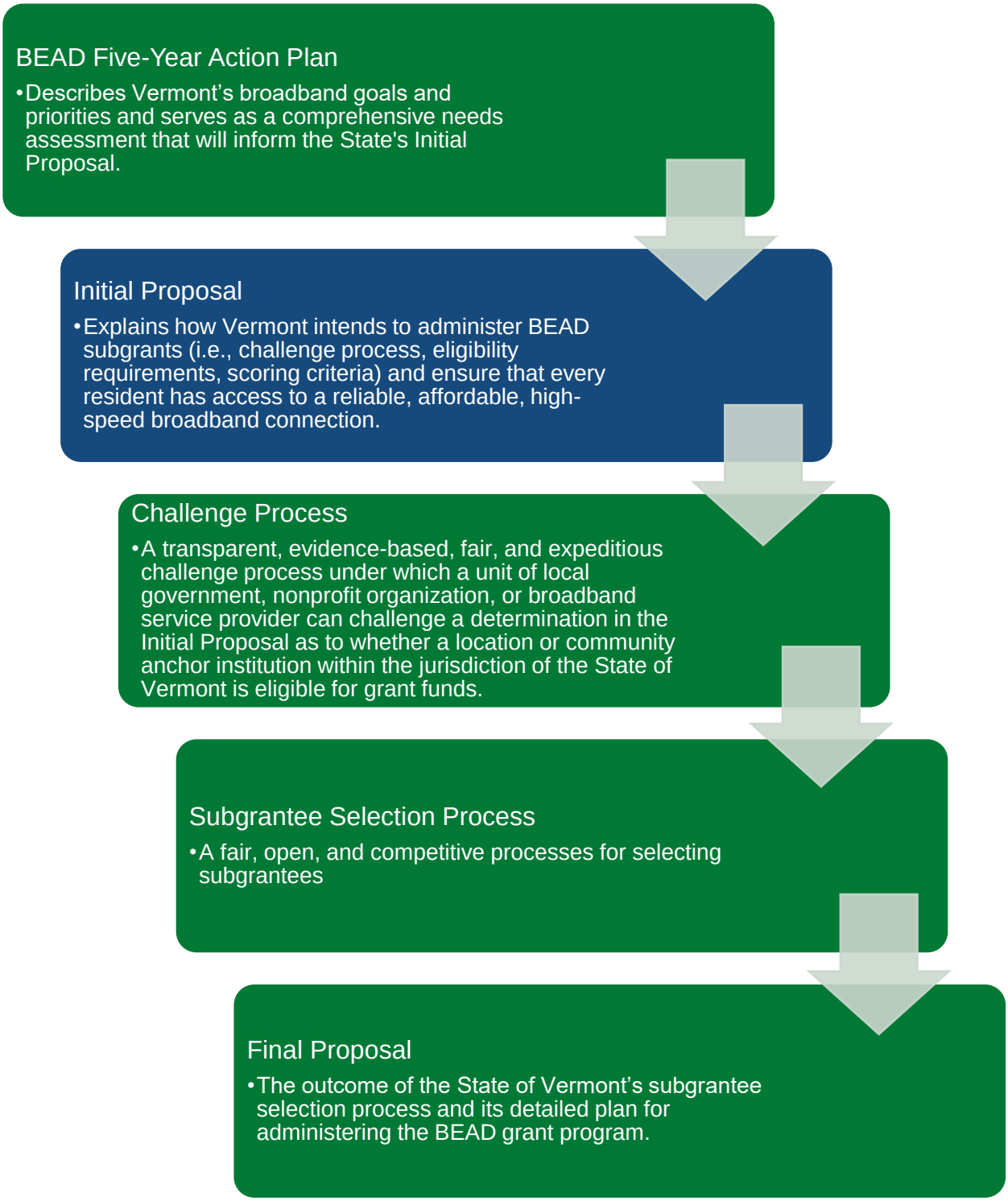
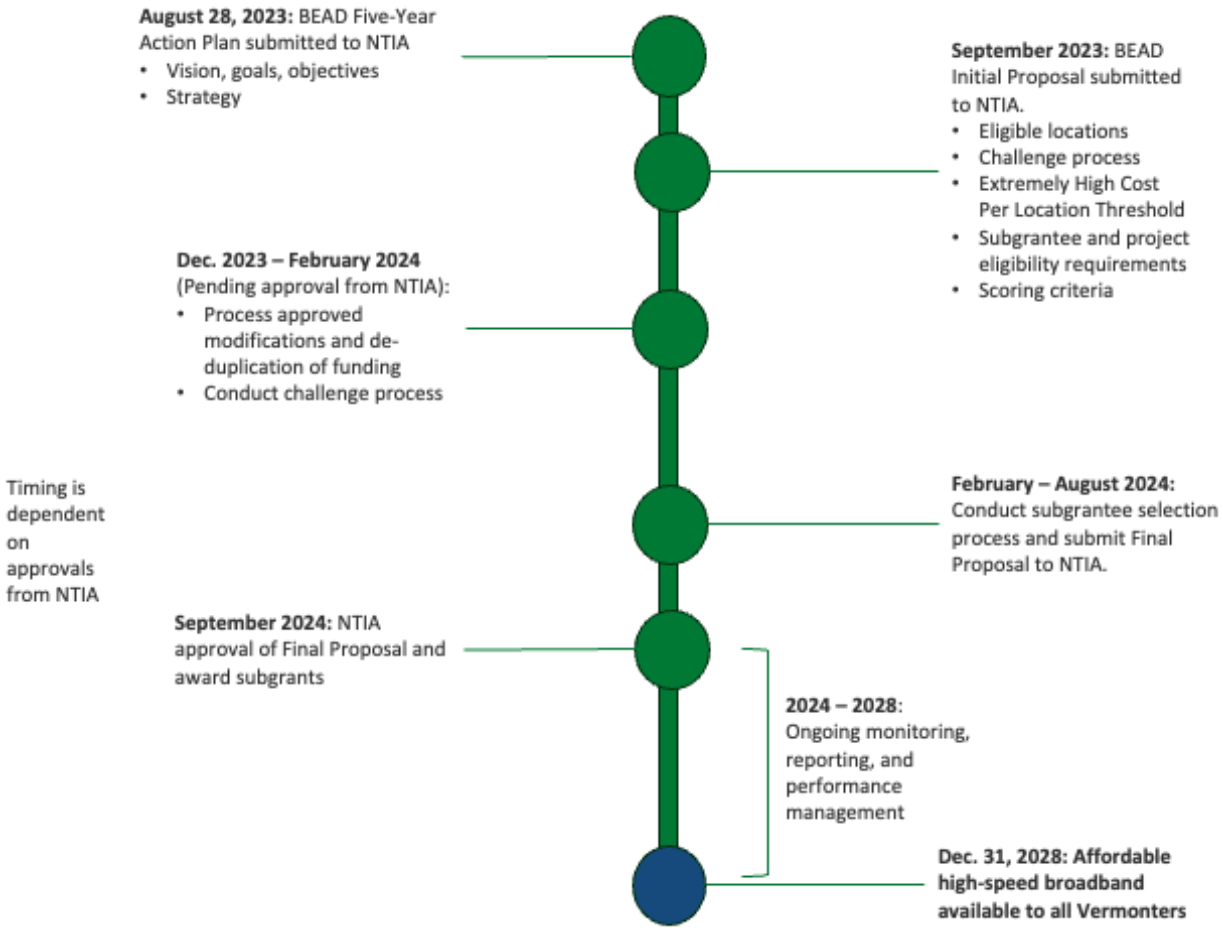


Figure 2 summarizes Vermont's timeline for completing the BEAD program and achieving universal access to reliable and affordable broadband service across Vermont.

Figure 2. Vermont's Estimated Timeline for Universal Service



This document represents Volume 1 of Vermont's Initial Proposal. NTIA allows BEAD Eligible Entities to submit the Initial Proposal in two volumes:

- **Initial Proposal Volume 1** (this document) includes the following BEAD requirements:[6]

[6] National Telecommunications and Information Administration. "Proposed BEAD Challenge Process Guidance." Available at: https://www.internet4all.gov/sites/default/files/202304/BEAD_Challenge_Process_Policy_Notice_-_Public_Comment_Draft_04.24.2023_0.pdf.

- Identify existing efforts funded by the federal government or an Eligible Entity (the State of Vermont, in this case) within the jurisdiction of the Eligible Entity to deploy broadband and close the digital divide, including in Tribal Lands (Requirement #3).
- Identify each unserved location and underserved location within the Eligible Entity (i.e., under the jurisdiction of the Eligible Entity, including unserved and underserved locations in applicable Tribal Lands), using the most recently published National Broadband Maps as of the date of submission of the Initial Proposal, and identify the date of publication of the National Broadband Maps used for such identification (Requirement #5).
- Describe how the Eligible Entity applied the statutory definition of the term "community anchor institution," identified all Eligible CAIs in its jurisdiction, identified all Eligible CAIs in applicable Tribal Lands, and assessed the needs of Eligible CAIs, including what types of CAIs it intends to serve; which institutions, if any, it considered but declined to classify as CAIs; and, if the Eligible Entity proposes service to one or more CAIs in a category not explicitly cited as a type of CAI in Section 60102(a)(2)(E) of the Infrastructure Act, the basis on which the Eligible Entity determined that such category of CAI facilitates greater use of broadband service by vulnerable populations (Requirement #6).
- Include a detailed plan as to how the Eligible Entity will conduct a challenge process as described in Section IV.B.6 of the BEAD NOFO (Requirement #7).

- **Initial Proposal Volume 2** includes all other requirements outlined in the BEAD NOFO, including long-term objectives, a detailed process for subgrantee selection, a detailed process for subgrantee monitoring and accountability, a definition of the Extremely High Cost Per Location Threshold, a description of low-cost plans that must be offered by all subgrantees, and more.[7]

II. Existing Broadband Funding

On June 26, 2023, NTIA announced that Vermont will be receiving $228.9 million to expand access to broadband in the State as part of the BEAD Program. The BEAD

[7] BEAD NOFO, p. 32. Available at: https://broadbandusa.ntia.doc.gov/sites/default/files/2022-05/BEAD%20NOFO.pdf

Program provides $42.45 billion nationwide for planning, infrastructure development, and adoption programs.[8]

While BEAD dollars may be used for both availability and adoption related efforts, the VCBB is required to prioritize BEAD funding to extend high-speed broadband infrastructure to the 49,773 locations that have been identified as either unserved or underserved based on the FCC's Broadband Serviceable Location Fabric (less estimated proposed RDOF and other federally funded areas), along with all identified CAIs lacking access to 1 Gbps symmetrical broadband connectivity.[9] **As discussed below, inclusive of Vermont's $228.9M BEAD allocation, the State has approximately $388.6M in existing funding which is available for extending high-speed broadband infrastructure to unserved and underserved locations and CAIs.[10]**

For the purposes of quantifying existing funding availability, we are considering funding coming into the State of Vermont from state and federal sources only (i.e., this would not include any committed match funds by broadband service providers or planned deployments by providers not using either state or federally funded sources). Funding is considered "available" if it is not yet expended on or awarded to a specific project, or if the deployment of funding has already been considered against the 49,773 locations identified as either unserved or underserved (e.g., RDOF funding would not be considered available, while ReConnect funding would, as ReConnect funding's planned deployment is not taken into account against the 49,773 locations considered unserved or underserved). It should also be noted that this includes federal funds allocated to and under the control of the State of Vermont along with federal funds not under control of the State of Vermont (i.e., we are including ACP funding and ReConnect funding, although the State of Vermont does not have any direct control over these funding sources). For ease of analysis, we have broken out available funding into the categories of (1) approved deployment and non-deployment activities, (2) affordability programs, (3) public connectivity, and (4) planning, administrative, or overhead. A summary of the total available funding is outlined in Table 2.

[8] The White House. "Biden-Harris Administration Announces State Allocations for $42.45 Billion High-Speed Internet Grant Program as Part of Investing in America Agenda." June 26, 2023. Available at: https://www.internetforall.gov/news-media/biden-harris-administration-announces-state-allocations-4245-billion-high-speed-internet.

[9] Alternatively, 52,170 locations that have been identified as either unserved or underserved based on the location data provided by Vermont's Public Service Department, less proposed RDOF funded areas (4.8% higher than the Fabric data).

[10] Preliminary estimates pending June 2023 accounting close.

Table 2: Existing Broadband Funding by Broadband Category

Broadband Related Category	Total	Committed/Expended	Available	Remaining % of Available
Approved Deployment and Non-Deployment Activities	$547,241,933	$158,580,669	$388,661,264	86.7%
Affordability Programs	$42,562,080	$8,367,840	$34,194,240	7.6%
Planning, Administrative, or Overhead	$8,500,000	$1,219,763	$7,280,237	1.6%
Public Connectivity	$18,000,000	$0	$18,000,000	4.0%
Grand Total	**$616,304,013**	**$168,168,272**	**$448,135,741**	**100%**

Again, of these amounts, the State has approximately $388.6M in existing funding which is available for extending high-speed broadband infrastructure to unserved and underserved locations and CAIs. Furthermore, details of the individual funding sources and programs that roll up into these respective categories are outlined in Table 3. Any dollar figures denoted with an asterisk (*) should be considered a preliminary number. These amounts will be updated upon receipt of month-end reporting from the State's accounting team.

Table 3: Detailed Funding Inventory

Source	VT to Use For	Description	Total	Committed / Expended	Available
NTIA Broadband Equity, Access, and Deployment Program	Approved Deployment and Non-Deployment Activities	Using the $233.8M projected BEAD allocation to Vermont, $228.8M is the maximum amount of funding available for last-mile connectivity less the $5M to be spent on planning	$223,913,019	$0	$223,913,019
NTIA Broadband Equity, Access, and Deployment Program	Planning, Administrative, or Overhead	Initial $5M of planning funds to be made available to Vermont	$5,000,000	$0	$5,000,000
State BEAD Funding Match	Approved Deployment and Non-Deployment Activities	Matching funds for BEAD to be made available by the State of Vermont as a result of NTIA's Middle Mile funding not having been awarded.	$30,000,000	$0	$30,000,000

Source	VT to Use For	Description	Total	Committed / Expended	Available
US Treasury ARPA Capital Projects Fund	Approved Deployment and Non-Deployment Activities	Construction grant amounts, 14K homes	$95,000,000	$17,348,243	$77,651,757
US Treasury ARPA Capital Projects Fund	Public Connectivity	Parks	$1,600,000	$0	$1,600,000
US Treasury ARPA Capital Projects Fund	Public Connectivity	Libraries	$16,400,000	$0	$16,400,000
US Treasury ARPA Coronavirus State and Local Fiscal Recovery Funds	Approved Deployment and Non-Deployment Activities	$116M - Construction grant amounts. Per the Vermont accounting department, this was later re-allocated to become $109.3M.	$109,260,528	$74,706,521	$34,554,007
US Treasury ARPA Coronavirus State and Local Fiscal Recovery Funds	Approved Deployment and Non-Deployment Activities	$30M – Preconstruction grant amounts (H360 Act 71 & Act 9). Per the Vermont accounting department, this was later allocated to become $36.7M.	$36,739,472	$32,567,038	$4,172,434
US Treasury ARPA Coronavirus State and Local Fiscal Recovery Funds	Approved Deployment and Non-Deployment Activities	$4M – Pre-purchase of materials allowance for preconstruction (authority granted in 8085(b) and 8084(a)(6)).	$4,000,000	$3,228,150	$771,850
US Treasury ARPA Coronavirus State and Local Fiscal Recovery Funds	Approved Deployment and Non-Deployment Activities	COVID-Response Line Extension Customer Assistance Program	$1,600,000	$1,600,000	$0
US Treasury ARPA Coronavirus State and Local Fiscal Recovery Funds	Approved Deployment and Non-Deployment Activities	COVID-Response Temporary Broadband Lifeline Program, Wi-Fi Hot Spots, etc.	$200,000	$65,714	$134,286
Affordable Connectivity Program (ACP)	Affordability Programs	Eligible households based upon data from Education Superhighway, enrolled households from USAC.	$41,770,080* *This is a hypothetical rate based upon all eligible Vermont	$7,575,840* *This is an annualized rate based upon current enrollment.[12]	$34,194,240

[12] 21,044 Enrolled households x 12 months x $30 per month.

Source	VT to Use For	Description	Total	Committed / Expended	Available
			households for one year.[11]		
State Universal Service Allocation	Affordability Programs	Funds to be used by Vermont for planning and administrative expenses.	ongoing - estimated at $792,000 per year	ongoing (estimated at $792,000)	N/A
FCC Rural Digital Opportunity Fund (RDOF) - (Consolidated, NRTC, CCO)	Approved Deployment and Non-Deployment Activities	Charter Fiberlink, ECFiber, Kingdom Fiber, and Consolidated Communications	$28,625,560	$28,625,560	$0[13]
USDA ReConnect: Loan + Grant Program	Approved Deployment and Non-Deployment Activities	USDA ReConnect Loan & Grant Program	$17,463,911	$0	$17,463,911
Northern Borders Regional Commission (NBRC)	Planning, Administrative, or Overhead	Securing the Public Interest through Expertise and Services (SPIES) Program	$2,500,000	$1,219,763*	$1,280,237*
Northern Borders Regional Commission (NBRC)	Planning, Administrative, or Overhead	Regional Forest Economy Partnership Grant Program	$1,000,000	$0	$1,000,000
Northern Borders Regional Commission (NBRC)	Approved Deployment and Non-Deployment Activities	Fletcher - 2020 State Economic & Infrastructure Development	$439,443	$439,443	$0[14]
Total			**$616,304,013**	**$168,168,272**	**$448,135,741**

III. Initial Location Data Requirements

[11] 116,028 Eligible households x 12 months x $30 per month.

[13] For the purposes of the broadband funding inventory, we are considering this committed. This is because RDOF funded locations will not be eligible for BEAD funding.

[14] For the purposes of the broadband funding inventory, we are considering this committed. This is because locations reached with broadband through this grant will not be eligible for BEAD funding.

The VCBB will compile files detailing locations of:

1. Unserved locations
2. Underserved locations
3. Eligible Community Anchor Institutions

This data is based on the FCC National Broadband Map as of June 15, 2023, and will continue to be updated as improved data becomes available.

A. Unserved and Underserved Locations and Community Anchor Institutions

Figure 3 and Figure 4 highlight concentrations of unserved and underserved locations as identified by the current version of the FCC National Broadband Map as of June 15, 2023 that will be eligible for BEAD funding. One can see where Vermont's unserved and underserved locations are most concentrated.

Figure 3. Percentage of Eligible Unserved Locations in Census Blocks (FCC National Broadband Map June 15, 2023)

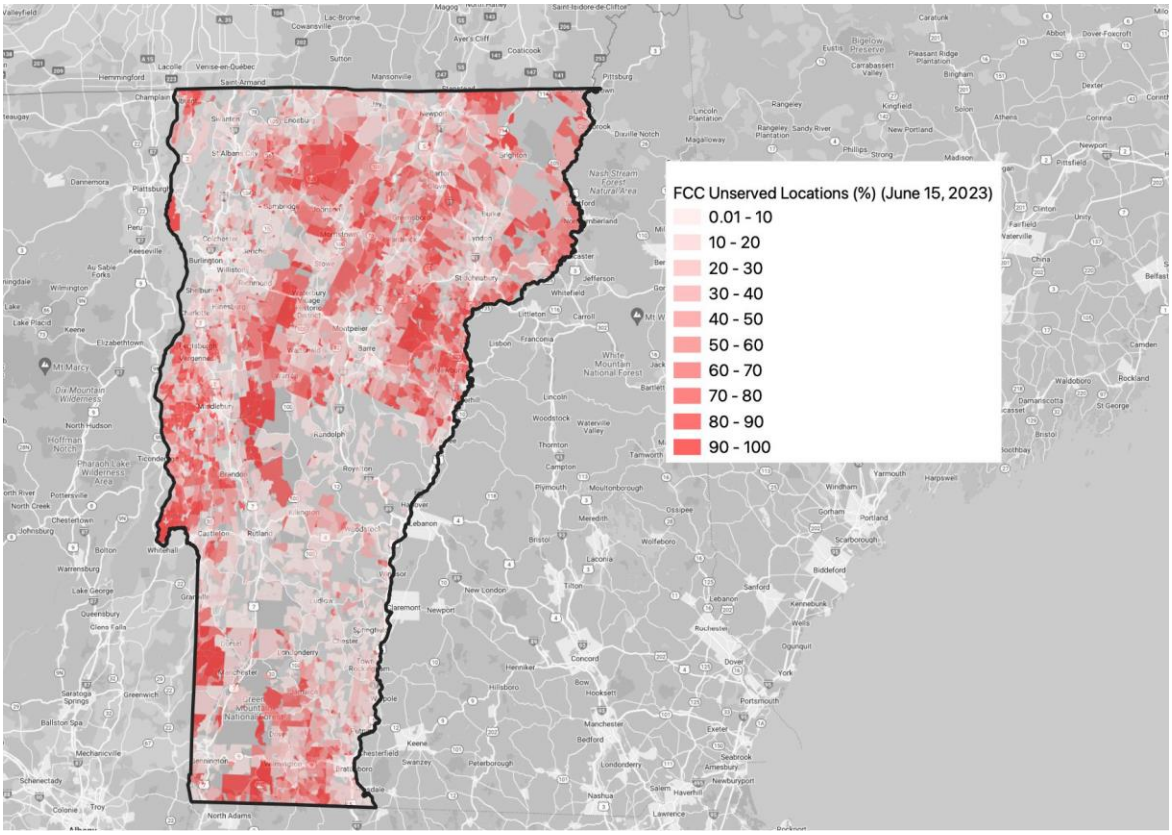
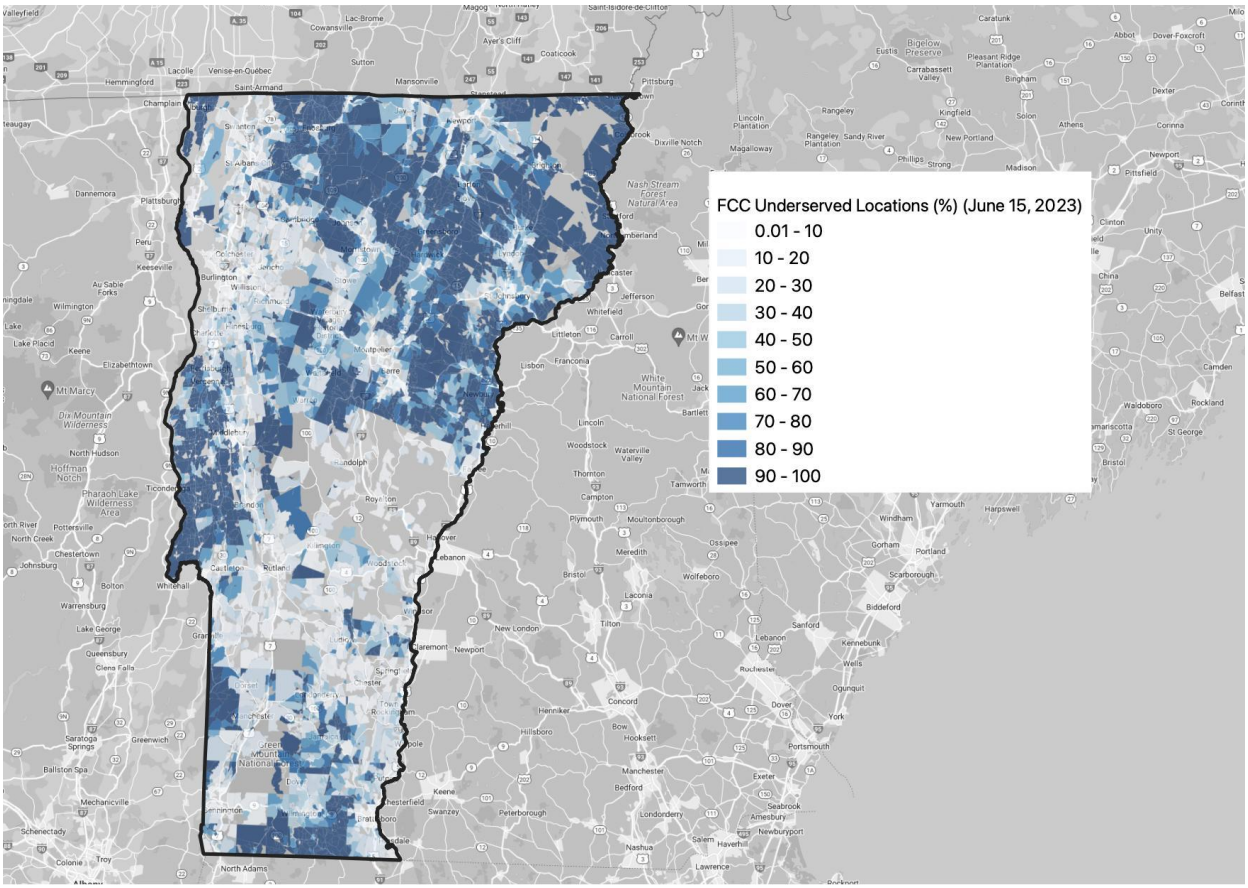


Figure 4. Percentage of Eligible Underserved Locations in Census Blocks (FCC National Broadband Map June 15, 2023)



B. Community Anchor Institutions

Vermont has a strong tradition of community engagement and CAIs have taken on a critical role in advancing digital equity. They are trusted resources in their local communities, providing important services and serving as valuable conduits of information about opportunities and resources for communities. For some people, CAIs offer the best, most affordable, or in some cases, only access to a computer and the Internet. Ensuring CAIs have reliable, high-speed Internet is one of the top priorities under the BEAD program and for the State of Vermont.

NTIA defines the term “community anchor institution” as “an entity such as a school, library, health clinic, health center, hospital or other medical provider, public safety entity, institution of higher education, public housing organization, or community support organization that facilitates greater use of broadband service by vulnerable populations,

including, but not limited to, low-income individuals, unemployed individuals, children, the incarcerated, and aged individuals."[15]

Through consultation with stakeholders, the VCBB has adopted the statutory definition of "community anchor institution"—including schools, libraries, health facilities, public safety entities, public housing, and more—and added three additional categories of organizations: houses of worship, correctional facilities and juvenile detention centers, and public outdoor spaces.

- **Houses of Worship:** Houses of worship are places where members are from all walks of life, including BEAD's Underrepresented Communities. Additionally, in many communities across Vermont, houses of worship provide services to Vermonters, and particularly to low-income families and Vermonters experiencing housing insecurity, through soup kitchens/meals on wheels programs, charity shops for clothing and household items, and low-cost daycare programs.

- **Correctional Facilities and Juvenile Detention Centers:** In order to close the digital divide for currently incarcerated Vermonters, VCBB must ensure that all of Vermont's correctional facilities and juvenile detention centers have reliable, high-capacity broadband available. This will also allow these prisons to improve offerings for inmate education and workforce training.

- **Public Outdoor Spaces:** Public outdoor spaces like community parks and gardens are frequent gathering places for Vermonters, including members of Underrepresented Communities. These are places without admission fees or membership requirements, meaning that these are locations that have low barriers to entry and attract each of our Underrepresented Communities. Several of the population-specific events that VCBB attended as a part of the stakeholder engagement process were held in parks across VT. In the warmer months, these are also frequently locations where community members gather for community programs or concerts, which will also attract members of Underrepresented Communities.

[15] BEAD NOFO, p. 11. Available at: https://broadbandusa.ntia.doc.gov/sites/default/files/2022-05/BEAD%20NOFO.pdf.

The following are Vermont's self-identified CAIs:

Vermont's List of CAI Categories

- K-12 schools
- Higher education institutions (such as University of Vermont, and Community College of Vermont)
- Workforce development organizations (such as VT Department of Labor locations, Working Fields, and Pathways VT)
- Adult education agencies (such as VT Adult Education, and Central Vermont Adult Basic Education)
- Libraries
- Health clinics, health centers, hospitals, and other medical providers
- Public safety entities (such as police departments, fire departments, and EMS headquarters)
- Public housing (such as housing and urban development-assisted housing)
- Neighborhood organizations and community centers
- Houses of worship (such as churches, synagogues, mosques, and temples)
- Local and/or state government buildings (such as town halls, city halls, town clerk offices, and courthouses)
- Housing shelters (such as COTS)
- Social service agencies (such as Age Well)
- Correctional Facilities and Juvenile Detention Centers
- Public outdoor community space

The VCBB has identified specific CAIs using E911 building classification data that includes the following: (i) colleges, (ii) universities, (iii) K12 schools, (iv) other education facilities, (v) hospitals and medical centers, (vi) clinics, (vii) nursing homes and long-term care, (viii) community and recreation centers, and (ix) libraries. VCBB is also working with the Departments of Education, Libraries, Housing and Urban Development, along with other organizations to gather data on locations and available broadband speeds at those locations. The VCBB met with representatives from different types of CAI organizations to understand their broadband and digital equity needs and resources, to request data they have on different locations, and to understand their current available broadband speeds.

CAIs currently lacking symmetrical Gigabit-speed broadband service will be classified as an "eligible community anchor institution," meaning they will be prioritized for BEAD

subgrant-funded deployments. The Public Service Department recorded all buildings that had 100/100 Mbps symmetrical broadband and higher. We assume that a building with access to 100/100 Mbps symmetrical broadband most likely has access to fiber and would be capable of upgrading to a 1/1 Gbps service. All community anchor buildings without access to 100/100 Mbps or higher service have been labelled as eligible for upgrade with BEAD funding. The VCBB have identified 676 community anchors, shown in Figure 5 that are potentially eligible for an upgrade. The VCBB will supplement PSD data for some types of CAIs with other data sources as well, including the Agency of Education's data on school broadband availability collected through the annual technology survey. The VCBB will continue to analyze and refine this data to finalize its BEAD Initial Proposal and will integrate suggestions and feedback received through the External Engagement process.

IV. Modifications to Location Classifications

The VCBB and the Vermont Public Service Department use an Interactive Broadband Map, which combines broadband deployment information submitted by Vermont internet service providers and a database of building locations in the State used for emergency services called the E911 database. The E911 database contains comprehensive detail of the physical locations and types of buildings, ranging from residences to libraries to sugarhouses. The VCBB has used this map to issue bulk challenges to the FCC broadband map to date and will continue to compare FCC data releases against it for verification.

The VCBB will undergo a continuous process of collaboration with the FCC to improve the accuracy of this data. As part of this process, the VCBB will treat locations that the National Broadband Map shows to have available qualifying broadband service (i.e., a location that is "served") delivered via DSL as "underserved" to facilitate the phase-out of legacy copper facilities and ensure the delivery of "future-proof" broadband service.

The broadband office will treat as "underserved" locations that the National Broadband Map shows to be "served" if rigorous speed test methodologies (i.e., methodologies aligned to the BEAD Model Challenge Process Speed Test Module) demonstrate that the "served" locations actually receive service that is materially below 100 Mbps downstream and 20 Mbps upstream. This modification will better reflect the locations eligible for BEAD funding because it will consider the actual speeds of locations.

V. Deduplication of Funding

VCBB plans to use the BEAD Eligible Entity Planning Toolkit to identify existing federal enforceable commitments. The VCBB will enumerate locations subject to enforceable

commitments by using the BEAD Eligible Entity Planning Toolkit and leveraging the following data sets:

1. The Broadband Funding Map published by the FCC pursuant to IIJA § 60105.
2. Data sets from state broadband deployment programs relying on funds from the Capital Projects Fund and the State and Local Fiscal Recovery Funds administered by the U.S. Treasury.
3. State of Vermont and local data collections of existing enforceable commitments.

The VCBB will make best efforts to create a list of broadband serviceable locations (BSLs) subject to enforceable commitments. If necessary, the VCBB will translate polygons or other geographic designations (e.g., a county or utility district) describing the area to a list of Fabric locations. The VCBB will submit this list, in the format specified by the FCC Broadband Funding Map, to NTIA.

The VCBB will review its repository of existing state and local broadband grant programs to validate the upload and download speeds of existing binding agreements to deploy broadband infrastructure. In situations in which the state or local program did not specify broadband speeds, or when there was reason to believe a provider deployed higher broadband speeds than required, the VCBB will reach out to the provider to verify the deployment speeds of the binding commitment. The VCBB will document this process by requiring providers to sign a binding agreement certifying the actual broadband speeds deployed.

The VCBB will draw on these provider agreements, along with its existing database on state and local broadband funding programs' binding agreements, to determine the set of state and local enforceable commitments.

VI. Challenge Process

Vermonters were highly engaged in developing the State's process of challenging the FCC's data on unserved and underserved locations. That effort yielded corrections and improvements to the data, adjusting the State's allocation of BEAD funding. Next, Vermont will conduct its own challenge process with the goal of more accurately identifying eligible locations for BEAD deployment project funding. Based on the NTIA BEAD Challenge Process Policy Notice, as well as the VCBB understanding of the goals of the BEAD program, this proposal represents a transparent, fair, expeditious, and evidence-based challenge process. VCBB plans to adopt the BEAD Model Challenge Process and has also chosen to incorporate the optional modules of Area and MDU Challenge, DSL Modifications, and Speed Test Modifications.

The VCBB will only allow challenges on the following grounds:

- The identification of eligible community anchor institutions, as defined by the VCBB,

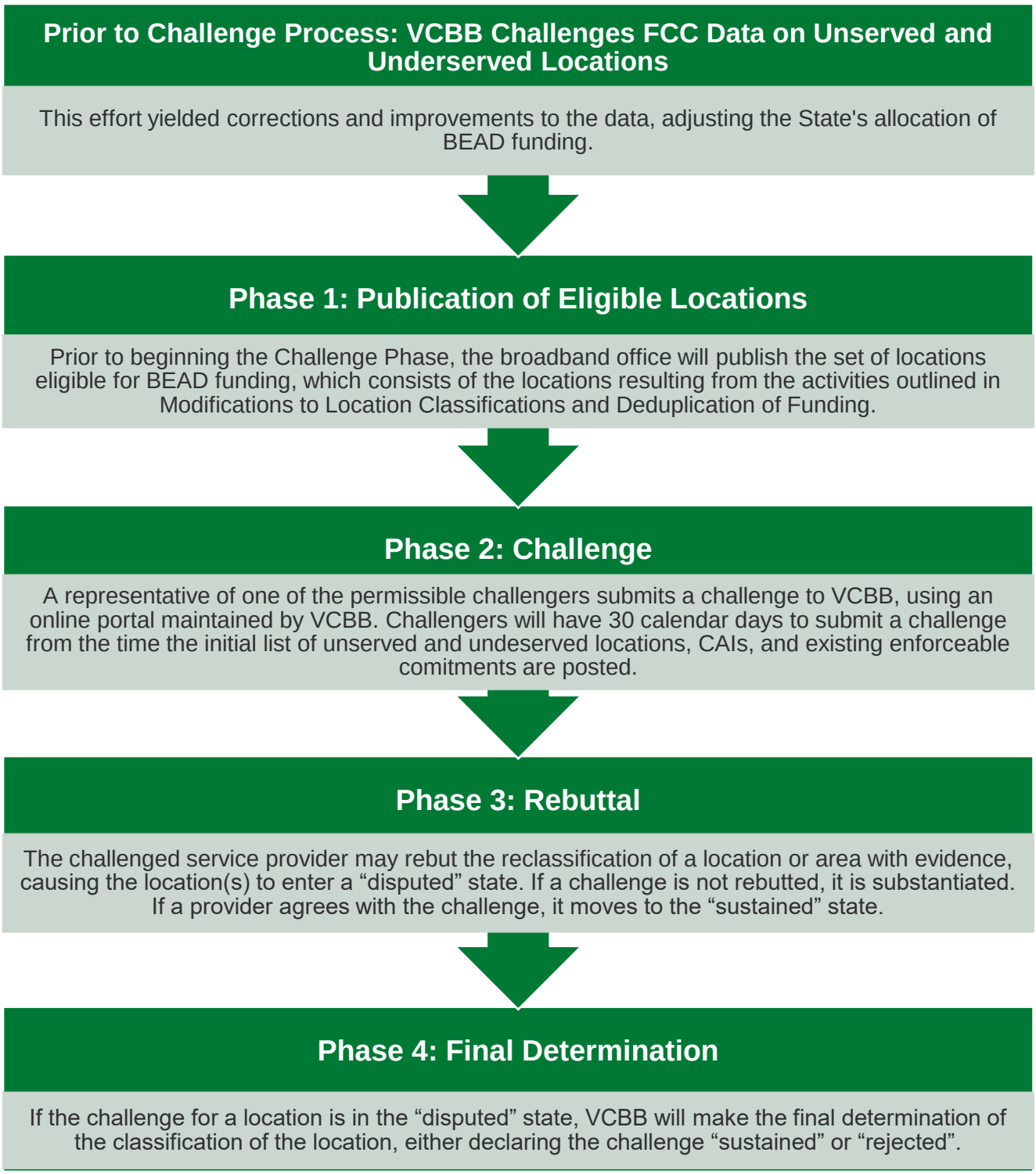
- Community anchor institution BEAD eligibility determinations,
- BEAD eligibility determinations for existing broadband serviceable locations (BSLs),
- Enforceable commitments, or
- Planned service.

This section describes the process for challenging Vermont's map of locations eligible for BEAD grant funding for broadband deployment. Permissible challengers include: nonprofit organizations, units of local governments, and broadband service providers. Residents can submit challenges through their unit of local government or a nonprofit. This unit of local government or nonprofit will then upload the challenges to the state challenge portal. The goal of this challenge process is to help improve the accuracy of broadband availability across Vermont by challenging areas that may have been incorrectly marked as served, unserved, or underserved.

This challenge process incorporates four phases, spanning 90 days. The four phases are outlined here and displayed in Figure 5.

1. **Publication of Eligible Locations:** Prior to beginning the Challenge Phase, the VCBB will publish the set of locations eligible for BEAD funding, which consists of the locations resulting from the activities outlined in Modifications to Location Classifications and Deduplication of Funding. The VCBB will also publish locations considered served, as they may be challenged.
2. **Challenge Phase:** During the Challenge Phase, the challenger will submit the challenge through the VCBB challenge portal. This challenge will be visible to the service provider whose service availability and performance is being contested. After this stage, the location will enter the "challenged" state.
3. **Rebuttal Phase:** Only the challenged service provider may rebut the reclassification of a location or area with evidence, causing the location or locations to enter the "disputed" state. If a challenge that meets the minimum level of evidence is not rebutted, the challenge is sustained. A provider may also agree with the challenge and thus transition the location to the "sustained" state.
4. **Final Determination Phase:** During the Final Determination phase, the VCBB will make the final determination of the classification of the location, either declaring the challenge "sustained" or "rejected."

Figure 5: Challenge Process Steps



A. Process and Timing

The VCBB will undertake the following process:

- Work with the FCC and CostQuest to make updates to the Broadband Serviceable Locations (BSLs) on the Fabric. Updates will be completed prior to commencing the challenge process.
- Establish and maintain an online portal to facilitate the challenge process.
- Complete the entire challenge process within 120 days, starting with the initiation of the challenge submission window and ending with submission to NTIA for review and approval the final classifications of each unserved location, underserved location, or eligible CAI within the jurisdiction of the State of Vermont after resolving each challenge.
- Allow a minimum challenge submission window of at least 14 days. These challenges must be visible to the service provider whose service availability is being contested. Upon submission of a challenge, the location enters the "challenged" state.
- Allow service providers to submit rebuttals within at least 14 days after the challenge is available on the challenge portal maintained by the State of Vermont.
- Conduct a final deduplication review process to remove from the list of locations that are eligible for BEAD funding any locations that are subject to enforceable broadband deployment commitment and update post-challenge data to reflect updates to the National Broadband Map that occur after conclusion of the challenge process.
- Submit the proposed final classifications of each unserved location, underserved location, or Eligible CAI within the jurisdiction of the Eligible Entity.
- Following approval by NTIA, publicly post the final classifications of each unserved location, underserved location, or Eligible CAI within the jurisdiction of the State of Vermont at least 60 days before allocating grant funds for network deployment.

B. Allowable Challenges

Table 4 outlines the types of challenges allowable under the BEAD program.

Table 4. Allowable Challenges

Scope	Challenge Class	Challenge Type	Detail
Allowable	Location Eligibility Determination	• Availability (A) • Speed (S) • Latency (L) • Business Service Only (B) • Data Cap (D) • Technology (T)	NTIA will permit challenges to the classification of a location as an unserved or underserved location eligible for BEAD funds (i.e., challenges to the broadband service availability data) for existing BSLs included in the FCC's Broadband Serviceable Location Fabric (Fabric). This includes the classification of individual BSLs that are multi dwelling units (MDUs) based on the availability of broadband service to individual units within the BSL.
Allowable	CAI Eligibility Determination		NTIA will permit challenges to the classification of a CAI as eligible for BEAD funds (i.e., challenges that a CAI does not receive at least 1 Gigabit broadband speeds).
Allowable	Identification of CAIs	• Location is a CAI (C) • Location is Not a CAI (R)	NTIA will permit challenges to the Eligible Entity's identification of CAIs.
Allowable	Enforceable Commitments	• Enforceable Commitment (E) • Not Part of an Enforceable Commitment (N)	NTIA will permit challenges to the identification of previous federal, state, or local enforceable commitments to minimize duplication of funding.

Scope	Challenge Class	Challenge Type	Detail
Allowable	Planned Service	Planned Service (P)	NTIA will permit challenges where a broadband provider offers convincing evidence that they are currently building out broadband to challenged locations without government subsidy or are building out broadband offering performance beyond the program requirements.
Not Allowable	Classification of BSLs	NTIA will not permit challenges to the classification of a BSL on the Fabric (e.g., altering the BSL's "Building Type" classification on the Fabric to reflect a BSL's subscription to mass-market broadband service).	
Not Allowable	Addition or Removal of BSLs	NTIA will not permit new BSLs to be added to or removed from the Fabric. See, Infrastructure Act, 60102(a)(2)(H).	

C. Evidence for Allowable Challenges

To ensure that each challenge is reviewed and adjudicated based on fairness for all participants and relevant stakeholders, the VCBB will review all applicable challenge and rebuttal information in detail without bias, before deciding to sustain or reject a challenge. The VCBB will document the standards of review to be applied in a Standard Operating Procedure and will require reviewers to document their justification for each determination. The VCBB plans to ensure reviewers have sufficient training to apply the standards of review uniformly to all challenges submitted. The VCBB will also require that all reviewers submit affidavits to ensure that there is no conflict of interest in making challenge determinations.

Table 5. E The table below describes examples of acceptable evidence for allowable challenges.

Table 5. Examples of Evidence for Allowable Challenges

Code	Challenge Type	Description	Specific Examples	Permissible Rebuttals
A	Availability	The broadband service identified is not offered at the location, including a unit of a multiple dwelling unit (MDU).	• Screenshot of provider webpage. • A service request was refused within the last 180 days (e.g., an email or letter from a provider). • Lack of suitable infrastructure (e.g., no fiber on pole). • Documentation that the service is provided via DSL. • A letter or email dated within the last 365 days that a provider failed to schedule a service installation or offer an installation date within 10 business days of a request. • A letter or email dated within the last 365 days indicating that a provider requested more than the standard installation fee to connect this location or that a Provider quoted an amount in excess of the provider's standard installation charge in order to connect service at the location	• Provider shows that the location subscribes or has subscribed within 12 months, e.g., with a copy of a customer bill. • The provider submits evidence that service is now available as a standard installation, e.g., via a copy of an offer sent to the location.
S	Speed	The actual speed of the fastest available service tier falls below the	• Speed test by subscriber, showing the insufficient speed	• Provider has countervailing speed test

Code	Challenge Type	Description	Specific Examples	Permissible Rebuttals
		unserved or underserved thresholds.	and meeting the requirements for speed tests. • Documentation of infrastructure insufficient to meet unserved or underserved thresholds.	evidence showing sufficient speed, e.g., from their own network management system, per Speed Test Requirements and in the case of terrestrial fixed wireless, provider has documentation of sufficient infrastructure (antenna location in line of sight to customer locations).
L	Latency	The round-trip latency of the broadband service exceeds 100 ms.	Speed test by subscriber, showing excessive latency.	Provider has countervailing speed test evidence showing latency at or below 100 ms, e.g., from their own network management system.
D	Data Cap	The only service plans marketed to consumers impose an unreasonable capacity allowance ("data cap") on the consumer.	• Screenshot of provider webpage. • Service description provided to the consumer.	Provider has terms of service showing that it does not impose a data cap.

Code	Challenge Type	Description	Specific Examples	Permissible Rebuttals
T	Technology	The technology indicated for this location is incorrect.	Manufacturer and model number of residential gateway that demonstrates the service is delivered via a specific technology.	Provider has countervailing evidence from their network management system showing an appropriate residential gateway that matches the provided service.
B	Business Service Only	The location is residential, but the service offered is marketed or available only to businesses.	Screenshot of provider webpage.	Provider documentation that the service listed in the BDC is available at the location and is marketed to consumers.
E	Enforceable Commitment	The challenger has knowledge that broadband will be deployed at this location by the date established in the deployment obligation.	Enforceable commitment by service provider (e.g., authorization letter or performance bond).	Documentation that the provider has defaulted on the commitment or is otherwise unable to meet the commitment (e.g., is no longer a going concern).
P	Planned Service	The challenger has knowledge that broadband will be deployed at this location by June 30, 2024, without an enforceable commitment or a provider is building out broadband offering performance beyond the requirements of an	• Construction contracts or similar evidence of on-going deployment, along with evidence that all necessary permits have been applied for or obtained. • Contracts or a similar binding agreement	Documentation showing that the provider is no longer able to meet the commitment (e.g., is no longer a going concern) or that the planned deployment does not meet the

Code	Challenge Type	Description	Specific Examples	Permissible Rebuttals
		enforceable commitment.	between the state of Vermont and the provider committing that planned service will meet the BEAD definition and requirements of reliable and qualifying broadband even if not required by its funding source (i.e., a separate federal grant program), including the expected date deployment will be completed, which must be on or before June 30, 2024.	required technology or performance requirements.
N	Not part of enforceable commitment	This location is in an area that is subject to an enforceable commitment to less than 100% of locations and the location is not covered by that commitment. (See BEAD NOFO at 36, n. 52.)	Documentation of enforceable commitment to less than 100% of the locations or declaration by service provider subject to the enforceable commitment	Evidence that the location is part of an enforceable commitment.
C	Location is a CAI	The location should be classified as a CAI.	Evidence that the location falls within the definitions of CAIs set by the state of Vermont.	Evidence that the location does not fall within the definitions of CAIs set by the state of Vermont or is no longer in operation.
R	Location is not a CAI	The location is currently labeled as a CAI but is a residence, a non-CAI	Evidence that the location does not fall within the definitions of CAIs set by	Evidence that the location falls within the definitions of CAIs set by the

Code	Challenge Type	Description	Specific Examples	Permissible Rebuttals
		business, or is no longer in operation.	the state of Vermont or is no longer in operation.	state of Vermont or is still operational.

Area and MDU Challenge

The broadband office will administer area and MDU challenges for challenge types A, S, L, D, and T. An area challenge reverses the burden of proof for availability, speed, latency, data caps and technology if a defined number of challenges for a particular category, across all challengers, have been submitted for a provider. Thus, the provider receiving an area challenge or MDU must demonstrate that they are indeed meeting the availability, speed, latency, data cap and technology requirement, respectively, for all (served) locations within the area or all units within an MDU. The provider can use any of the permissible rebuttals listed above.

An area challenge is triggered if 6 or more broadband serviceable locations using a particular technology and a single provider within a census block group are challenged.

An MDU challenge requires challenges by at least 3 units or 10% of the unit count listed in the Fabric within the same broadband serviceable location, whichever is larger.

Each type of challenge and each technology and provider is considered separately, i.e., an availability challenge (A) does not count towards reaching the area threshold for a speed (S) challenge. If a provider offers multiple technologies, such as DSL and fiber, each is treated separately since they are likely to have different availability and performance.

Area challenges for availability need to be rebutted with evidence that service is available for all BSLs within the census block group, e.g., by network diagrams that show fiber or HFC infrastructure or customer subscribers. For fixed wireless service, the challenge system will require providers challenging an address' availability , to demonstrate service availability and speed at that specific address (e.g., with a mobile test unit).[16] No challenges that provides speed data from a representative sample of addresses in the area will be considered.

[16] A mobile test unit is a testing apparatus that can be easily moved and simulates the equipment and installation (antenna, antenna mast, subscriber equipment, etc.) that would be used in a typical deployment of fixed wireless access service by the provider.

Speed Test Requirements

The VCBB will accept speed tests as evidence for substantiating challenges and rebuttals. Each speed test consists of three measurements, taken on different days. Speed tests cannot predate the beginning of the challenge period by more than 60 days.

Speed tests can take four forms:

1. A reading of the physical line speed provided by the residential gateway, (i.e., DSL modem, cable modem (for HFC),
2. ONT (for FTTH) or fixed wireless subscriber module.
3. A reading of the speed test available from within the residential gateway web interface.
4. A reading of the speed test found on the service provider's web page.
5. A speed test performed on a laptop or desktop computer within immediate proximity of the residential gateway, using a [commonly used speed test application.

Each speed test measurement must include:

- The time and date the speed test was conducted.
- The provider-assigned internet protocol (IP) address, either version 4 or version 6, identifying the residential gateway conducting the test.

Each group of three speed tests must include:

- The name and street address of the customer conducting the speed test.
- A certification of the speed tier the customer subscribes to (e.g., a copy of the customer's last invoice).
- An agreement, using an online form provided by the Eligible Entity, that grants access to these information elements to the Eligible Entity, any contractors supporting the challenge process, and the service provider.

The IP address and the subscriber's name and street address are considered personally identifiable information (PII) and thus are not disclosed to the public (e.g., as part of a challenge dashboard or open data portal).

Each location must conduct three speed tests on three different days; the days do not have to be adjacent. The median of the three tests (i.e., the second highest (or lowest) speed) is used to trigger a speed-based (S) challenge, for either upload or download. For example, if a location claims a broadband speed of 100 Mbps/25 Mbps and the three speed tests result in download speed measurements of 105, 102 and 98 Mbps, and three upload speed measurements of 18, 26 and 17 Mbps, the speed tests qualify

the location for a challenge, since the measured upload speed marks the location as underserved.

Speed tests may be conducted by subscribers, but speed test challenges must be gathered and submitted by units of local government, nonprofit organizations, or a broadband service provider.

Subscribers submitting a speed test must indicate the speed tier they are subscribing to. If the household subscribes to a speed tier of between 25/3 Mbps and 100/20 Mbps and the speed test results in a speed below 25/3 Mbps, this broadband service will not be considered to determine the status of the location. If the household subscribes to a speed tier of 100/20 Mbps or higher and the speed test yields a speed below 100/20 Mbps, this service offering will not count towards the location being considered served or underserved. However, even if a particular service offering is not meeting the speed threshold, the eligibility status of the location may not change. For example, if a location is served by 100 Mbps licensed fixed wireless and 500 Mbps fiber, conducting a speed test on the fixed wireless network that shows an effective speed of 70 Mbps does not change the status of the location from served to underserved.

A service provider may rebut an area speed test challenge by providing speed tests, in the manner described above, for at least 10% of the customers in the challenged area. The customers must be randomly selected. Providers must apply the 80/80 rule[17], i.e., 80% of these locations must experience a speed that equals or exceeds 80% of the speed threshold. For example, 80% of these locations must have a download speed of at least 20 Mbps (that is, 80% of 25 Mbps) and an upload speed of at least 2.4 Mbps to meet the 25/3 Mbps threshold and must have a download speed of at least 80 Mbps and an upload speed of 16 Mbps to be meet the 100/20 Mbps speed tier. Only speed tests conducted by the provider between the hours of 7 pm and 11 pm local time will be considered as evidence for a challenge rebuttal.

D. Transparency

To ensure that the challenge process is transparent and open to public and stakeholder scrutiny, the VCBB has or will post drafts of the BEAD Initial Proposals, Volume 1 and 2, for 30-day public comment periods prior to submission to the NTIA. Upon approval from NTIA, the VCBB will again publicly post an overview of the challenge process phases, challenge timelines, and instructions on how to submit and rebut a challenge. This documentation will be posted publicly for at least a week prior to opening the challenge submission window.

The VCBB also plans to actively inform all units of local government of its challenge process and set up regular touchpoints to address any comments, questions, or

[17] The 80/80 threshold is drawn from the requirements in the CAF-II and RDOF measurements. *See* BEAD NOFO at 65, n. 80, Section IV.C.2.a.

concerns from local governments, nonprofit organizations, and internet service providers. Relevant stakeholders can find updates on the VCBB website (https://publicservice.vermont.gov/vt-community-broadband-board-vcbb) for challenge process updates and newsletters. They can also engage with the VCBB by a designated email address (vcbb.info@vermont.gov). Beyond actively engaging relevant stakeholders, the VCBB will also post all submitted challenges and rebuttals before final challenge determinations are made, including:

- The provider, nonprofit, or unit of local government that submitted the challenge,
- The census block group containing the challenged broadband serviceable location,
- The provider being challenged,
- The type of challenge (see Table 5), and
- A summary of the challenge, including whether a provider submitted a rebuttal.

The VCBB will not publicly post any personally identifiable information (PII) or proprietary information, including subscriber names, street addresses, or customer IP addresses. To ensure all PII is protected, the VCBB will review the basis and summary of all challenges and rebuttals to ensure PII is removed prior to posting on the website. Additionally, guidance will be provided to all challengers as to which information they submit may be posted publicly.

The VCBB will treat information submitted by an existing broadband service provider designated as proprietary and confidential consistent with applicable federal law and in alignment with Vermont statute. If any of these responses do contain information or data that the submitter deems to be confidential commercial information that should be exempt from disclosure under state open records laws or is protected under applicable state privacy laws, that information should be identified as privileged or confidential. Otherwise, the responses will be made publicly available.

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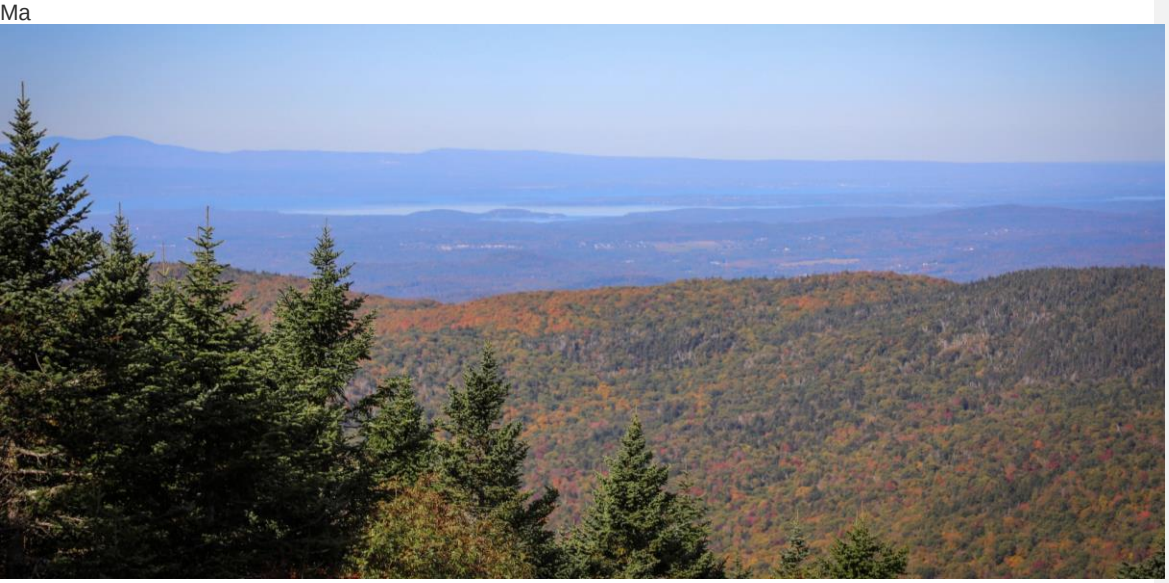

Vermont Community Broadband Board

The State of Vermont's Broadband Equity, Access, and Deployment Five-Year Action Plan

Vermont's Internet for All Plans

DRAFT July 2023

VERMONT

Contact Information

Vermont Community Broadband Board

Public Service Department

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Placeholder for letter from Executive Director Christine Hallquist

Executive Summary

The Infrastructure Investment and Jobs Act (IIJA or Infrastructure Act), passed into law in 2021, includes historic investment to close the digital divide and ensure that all US residents have access to reliable, high speed, and affordable broadband. Administered by the National Telecommunications and Information Administration (NTIA), the Broadband Equity, Access, and Deployment (BEAD) program will provide funding to the State of Vermont to address broadband availability and adoption needs. The Vermont Community Broadband Board (VCBB) is responsible for developing Vermont's strategy and implementation plans.

Vermont's vision for broadband equity, access, and deployment is that **all Vermonters have universal access to reliable, high-quality, affordable, fixed broadband at speeds of at least 100/100 Mbps, and that Vermonters and institutions have the tools and skills to maximize the value Internet connectivity can offer.** This Five-Year Action Plan outlines how Vermont can achieve this vision, what its current state is, the State's needs and gaps, and its plan for action. The goals of Vermont's BEAD Five-Year Action Plan are to:

- Mobilize resources for end-to-end fiber broadband infrastructure deployments to all unserved and underserved locations and CAIs in Vermont.
- Ensure sustainable, community-driven solutions across the entire State.
- Ensure high-speed broadband services and devices are affordable and advance digital equity for all Vermonters.
- Enhance workforce development for broadband and the digital economy.

This draft plan will be released for public comment and further refined prior to submission to NTIA by August 28, 2023.

- Improve socio-economic conditions across Vermont.

21%

Vermont Households lack access to high-speed broadband at 100/20 Mbps or better

17%

Eligible Vermont households are enrolled in the Affordable Connectivity Program (ACP)

100%

Vermonters will have access to high-speed broadband upon completion of the BEAD program by December 31, 2028

Vermont's strategic approaches to achieve these goals include:

- Keeping an intentional focus on equity when targeting resources and ensuring Vermonters have high-quality choices they can afford.
- Honoring the strategy and efforts already underway in Vermont to tackle inequities in broadband access.
- Fostering continuous stakeholder engagement and adaptability.
- Ensuring a transparent, fair, and open process.
- Ensuring resilient, future-proof technology and approaches are adopted (requiring 100/100 Mbps with a strong preference for end-to-end fiber networks).

Potential barriers to success include:

- Institutional, such as how to maximize the efficacious use of funding when data and information about broadband coverage is limited and continuously changing;
- Legal, such as balancing compliance with federal statutory requirements to conduct an open, fair, and competitive process while staying true to the Communications Union District (CUD) structures established by the State Legislature; and
- Economic, such as the cost of deployment in difficult terrain with low population density, availability of sufficient funds, and ability to guarantee affordable service options.

The VCBB has heard from Vermonters across the State and recognizes the importance of affordable broadband access for healthcare, education, employment, safety, and more. The VCBB is committed to seizing this historic opportunity to ensure all Vermonters have the option to connect to high-speed broadband and have access to the tools and skills to fully engage in today's digital society and economy.

Acknowledgments

The VCBB would like to thank the many individuals and organizations who contributed their time and input in shaping this plan. The VCBB appreciates all of the time and input from the thousands of Vermonters who joined our listening sessions, responded to our surveys and requests for input, or reached out in other ways, as well as the dozens of community-based organizations and businesses who contributed their feedback and expertise to this plan. The VCBB would also like to thank the following organizations for contributing to shaping this plan, including:

- Adult Education and Literacy Network
- Association of Area Agencies on Aging
- Association of Planning and Development Commissions
- Central Vermont Adult Basic Education
- Chittenden County Communications Union District
- Comcast
- Community Action Partnership
- Community Roots
- Consolidated Communications
- Converge Accessibility
- CVFiber
- Department of Corrections
- Department of Disabilities, Aging, and Independent Living
- Department of Labor
- Department of Libraries
- DVFiber
- ECFiber
- Equal Access to Broadband
- Green Mountain Self Advocates
- Hack Club
- Lamoille FiberNet
- Mac Mountain
- Maple Broadband
- Migrant Justice/Justicia Migrante
- NEK Fiber
- Northwest FiberworX
- Northeast Kingdom Community Action
- Otter Creek Communications Union District
- Office of Racial Equity
- Public Service Department
- Rural Innovation Strategies, Inc.
- Southern VT Communications Union District
- Stone Environmental
- TBOSS Consulting
- U.S. Committee on Refugees and Immigrants
- U.S. Department of Housing and Urban Development
- Vermont Center for Independent Living
- Vermont Communications Union District Association
- Vermont Community Foundation
- Vermont Council on Rural Development
- Vernonburg Group
- VT Futures Project
- VT RID
- Vermont Veterans and Family Outreach
- Waitsfield and Champlain Valley Telecom
- Working Fields
- Vancro Interpretation Service

Acronyms

Acronym	Definition
ACP	Affordable Connectivity Program
ARPA	American Rescue Plan Act
AT	Assistive Technology
ACS	American Community Survey
BEAD	Broadband Equity, Access, and Deployment
CAI	Community Anchor Institution
CUD	Communications Union District
DEA	Digital Equity Act
FCC	Federal Communications Commission
HUD	US Department of Housing and Urban Development
ISP	Internet Service Provider
IIJA	The Infrastructure Investment and Jobs Act
NBRC	Northern Borders Regional Commission
NEKCA	Northeast Kingdom Community Action
NOFO	Notice of Funding Opportunity
NTIA	National Telecommunications and Information Administration
PSD	Public Service Department
RDOF	Rural Digital Opportunity Fund
RFI	Request for Input
SPIES	Securing the Public Interest through Expertise and Services
USF	Universal Service Fund
VCBB	Vermont Community Broadband Board

Notice of Funding Opportunity Requirements Table

Table 1 outlines NTIA's requirements as defined in the BEAD Notice of Funding Opportunity (NOFO) and the sections of this plan in which they are addressed.[1]

Table 1. BEAD NOFO Requirements Table

#	NOFO Requirement	Reference Location
1	Provide details of the existing broadband program or office within the Eligible Entity, including any activities that the program or office currently conducts, any previous entity-wide plans or goals for availability of broadband, and any prior experience awarding broadband deployment grants.	III.A Existing Programs
2	Identify the funding that the Eligible Entity currently has available for broadband deployment and other broadband-related activities, including data collection and local planning, and the sources of that funding, including whether the funds are from the Eligible Entity or from the federal government.	III.B Existing Funding
3	Identify existing efforts funded by the federal government, including the Universal Service Fund (USF), or an Eligible Entity to deploy broadband and close the digital divide.	III.A Existing Programs III.B Existing Funding
4	Identify the current full-time and part-time employees of the Eligible Entity who will assist in implementing and administering the BEAD Program and the duties assigned to those employees, as well as any existing contracted support, and any planned expansion of employees or contractors.	III.A Existing Programs
5	Identify known or potential obstacles or barriers to the successful implementation of the BEAD Program and the Eligible Entity's corresponding plans to address them.	V. Obstacles and Barriers to Implementation
6	Include an asset inventory that catalogues broadband adoption, affordability, equity, access, and deployment activities occurring within the Eligible Entity and identifies and provides details regarding any relevant partners, such	IV. Assessment: Assets, Needs, and Gaps

[1] See National Telecommunications and Information Administration, Broadband Equity, Access, and Deployment Program, Notice of Funding Opportunity (May 13, 2022), p. 26-28 (BEAD NOFO). Available at: https://broadbandusa.ntia.doc.gov/sites/default/files/2022-05/BEAD%20NOFO.pdf.

#	NOFO Requirement	Reference Location
	as community-based organizations and Community Anchor Institutions (CAIs) that may inform broadband deployment and adoption planning.	
7	Include a description of the Eligible Entity's external engagement process, demonstrating collaboration with local, regional, and Tribal (as applicable) entities (governmental and non-governmental) and reflective of the local coordination requirements outlined herein, including outreach to underrepresented communities and unions and worker organizations. The engagement required must be undertaken both during the development of the Five-Year Action Plan itself and following submission of the plan, reflecting ongoing collaboration throughout the BEAD Program.	VI.A Stakeholder Engagement Process
8	Incorporate available federal, Eligible Entity, or local broadband availability and adoption data, including but not limited to ACP enrollment data. Other federal broadband data sources include the NTIA Internet Use Survey, the NTIA Indicators of Broadband Need Map, and the American Community Survey (ACS)	IV.
9	Identify local and regional broadband service needs and gaps within the Eligible Entity's boundaries, including unserved or underserved locations and CAIs without Gigabit service, and/or any plans to make these determinations where service availability is unclear.	IV.
10	Provide a comprehensive, high-level plan for providing reliable, affordable, high-speed Internet service throughout the Eligible Entity, including	
	a. The estimated timeline and cost for universal service,	VI.D Estimated Timeline for Universal Service
	b. The planned utilization of federal, Eligible Entity, and local funding sources,	VI.E Estimated Cost for Universal Service
	c. Prioritization of areas for federal support,	VI.B
	d. Any consideration afforded to the use of public-private partnerships or cooperatives in addressing the needs of the Eligible Entity's residents,	VI.B

#	NOFO Requirement	Reference Location
	e. Strategies to address affordability issues, including but not limited to strategies to increase enrollment in the ACP by eligible households; and	VI.B
	f. Strategies to ensure an available and highly skilled workforce (including by subgrantees, contractors, and subcontractors) to minimize project disruptions, including any plans to ensure strong labor standards and protections, such as those listed in Section IV.C.1.e; and plans to attract, retain, or transition the skilled workforce needed to achieve the plan's goals, including describing the involvement and partnerships of sub-grantees,	VI.B
11	Identify digital equity and inclusion needs, goals, and implementation strategies, including ways in which the Eligible Entity plans to utilize BEAD funding, Digital Equity Act (DEA) funding and/or other funding streams in concert to remedy inequities and barriers to inclusion. Accordingly, the Five-Year Action Plan should set forth a vision for digital equity, include the results of a needs assessment for underrepresented communities and an asset inventory of ongoing digital equity activities, and detail holistic strategies around affordability, devices, digital skills, technical support, and digital navigation. This requirement may be satisfied by the completion of a State Digital Equity Plan under the Digital Equity Act. Please refer to the Digital Equity Act State Planning Grant Program NOFO for the requirements and deadlines applicable to that program.	II.A Vision IV.C Broadband Adoption Assessment: Assets, Needs, and Gaps IV.D Broadband Affordability Assessment: Assets, Needs, and Gaps VI.B BEAD Priorities and Planned Activities VI. C Execution on Non-Deployment Activities
12	Detail alignment of the Five-Year Action Plan with other existing and planned economic development, telehealth, workforce development, related connectivity efforts, and other Eligible Entity priorities.	VI.F Implementation Plan Alignment
13	Describe technical assistance and additional capacity needed for successful implementation of the BEAD Program.	VI.G Implementation Plan Technical Assistance

Definitions

The following definitions are pulled from the NTIA BEAD NOFO[2] and from Vermont Act 71 (2021).[3]

- **Broadband; Broadband Service**—The term "broadband" or "broadband service" has the meaning given the term "broadband Internet access service" in Section 8.1(b) of title 47, Code of Federal Regulations, or any successor regulation, meaning it is a mass-market retail service by wire or radio that provides the capability to transmit data to and receive data from all or substantially all Internet endpoints, including any capabilities that are incidental to and enable the operation of the communications service, but excluding dial-up Internet access service. This term also encompasses any service that the Commission finds to be providing a functional equivalent of the service described in the previous sentence or that is used to evade the protections set forth in this part.
- **Broadband DATA Maps**—The term "Broadband DATA Maps" means the maps created by the Federal Communications Commission under Section 802(c)(1) of the Communications Act of 1934 (47 U.S.C. § 642(c)(1)).
- **Community Anchor Institution**—The term ''community anchor institution'' means an entity such as a school, library, health clinic, health center, hospital or other medical provider, public safety entity, institution of higher education, public housing organization, or community support organization that facilitates greater use of broadband service by vulnerable populations, including low-income individuals, unemployed individuals, and aged individuals.
- **Digital Equity**—The term "digital equity" means the condition in which individuals and communities have the information technology capacity that is needed for full participation in the society and economy of the United States.
- **Eligible Community Anchor Institution**—The term "eligible community anchor institution" means a community anchor institution that lacks access to Gigabit-level broadband service.
- **Eligible Entity**—The term "Eligible Entity" means any State of the United States, the District of Columbia, Puerto Rico, American Samoa, Guam, the U.S. Virgin Islands, and the Commonwealth of the Northern Mariana Islands or, in the case of an application failure, a political subdivision or consortium of political subdivisions that is serving as a Substitute Entity.

[2] BEAD NOFO, pp. 11-17.

[3] Vermont Legislature. "No. 71. An act relating to accelerated community broadband deployment." 2021 (VT Act 71), p. 8. Available at: https://legislature.vermont.gov/Documents/2022/Docs/ACTS/ACT071/ACT071%20As%20Enacted.pdf.

- **Extremely High Cost Per Location Threshold**— An "Extremely High Cost Per Location Threshold" is a BEAD subsidy cost per location to be utilized during the subgrantee selection process described in Section IV.B.7 of this NOFO above which an Eligible Entity may decline to select a proposal if use of an alternative technology meeting the BEAD Program's technical requirements would be less expensive.
- **Funded Network**—The term "Funded Network" means any broadband network deployed and/or upgraded with BEAD Program funds.
- **High-Cost Area**—The term "high-cost area" means an unserved area in which the cost of building out broadband service is higher, as compared with the average cost of building out broadband service in unserved areas in the United States (as determined by the Assistant Secretary, in consultation with the Commission), incorporating factors that include— (I) the remote location of the area; (II) the lack of population density of the area; (III) the unique topography of the area; (IV) a high rate of poverty in the area; or (V) any other factor identified by the Assistant Secretary, in consultation with the Commission, that contributes to the higher cost of deploying broadband service in the area. For purposes of defining "high-cost area," the term "unserved area" means an area in which not less than 80 percent of broadband-serviceable locations are unserved locations. NTIA will release further information regarding the identification of high-cost areas for purposes of BEAD funding allocations at a later date.
- **Location; Broadband-Serviceable Location** — The terms "location" and "broadband serviceable location" mean "a business or residential location in the United States at which fixed broadband Internet access service is, or can be, installed."
- **Non-Traditional Broadband Provider**—The term "non-traditional broadband provider" means an electric cooperative, nonprofit organization, public-private partnership, public or private utility, public utility district, Tribal entity, or local government (including any unit, subdivision, authority, or consortium of local governments) that provides or will provide broadband services.
- **Program**—The term "Program" means the Broadband Equity, Access, and Deployment Program.
- **Reliable Broadband Service**—The term "Reliable Broadband Service" means broadband service that the Broadband DATA Maps show is accessible to a location via: (i) fiber-optic technology; (ii) Cable Modem/ Hybrid fiber-coaxial technology; (iii) digital subscriber line technology; or (iv) terrestrial fixed wireless technology utilizing entirely licensed spectrum or using a hybrid of licensed and unlicensed spectrum.
- **State**—The term "State" means, for the purposes of the BEAD Program, any State of the United States, the District of Columbia, and Puerto Rico.

- **Subgrantee/Subrecipient**—The term "subgrantee" or "subrecipient" means an entity that receives grant funds from an Eligible Entity to carry out eligible activities.
- **Underrepresented Communities**—The term "underrepresented communities" refers to groups that have been systematically denied a full opportunity to participate in aspects of economic, social, and civic life, including: low-income households, aging individuals, incarcerated individuals, veterans, persons of color, Indigenous and Native American persons, members of ethnic and religious minorities, women, LGBTQI+ persons, persons with disabilities, persons with limited English proficiency, persons who live in rural areas, and persons otherwise adversely affected by persistent poverty or inequality.
- **Underserved Location**—The term "underserved location" means a broadband-serviceable location that is (a) not an unserved location, and (b) that the Broadband DATA Maps show as lacking access to Reliable Broadband Service offered with—(i) a speed of not less than 100 Mbps for downloads; and (ii) a speed of not less than 20 Mbps for uploads; and (iii) latency less than or equal to 100 milliseconds.
- **Underserved Service Project**—The term "Underserved Service Project" means a project in which not less than 80 percent of broadband-serviceable locations served by the project are unserved locations or underserved locations. An "Underserved Service Project" may be as small as a single underserved broadband-serviceable location.
- **Unserved Location**—The term "unserved location" means a broadband-serviceable location that the Broadband DATA Maps show as (a) having no access to broadband service, or (b) lacking access to Reliable Broadband Service offered with—(i) a speed of not less than 25 Mbps for downloads; and (ii) a speed of not less than 3 Mbps for uploads; and (iii) latency less than or equal to 100 milliseconds.
- **Unserved Service Project**—The term "Unserved Service Project" means a project in which not less than 80 percent of broadband-serviceable locations served by the project are unserved locations. An "Unserved Service Project" may be as small as a single unserved broadband-serviceable location.
- **Universal Service Plan**—The term "universal service plan" means a plan for providing each unserved and underserved location in a communications union district or in a municipality that was not part of a communications union district prior to June 1, 2021 access to broadband service capable of speeds of at least 100 Mbps download and 100 Mbps upload.[4]

[4] VT Act 71.

I. Background

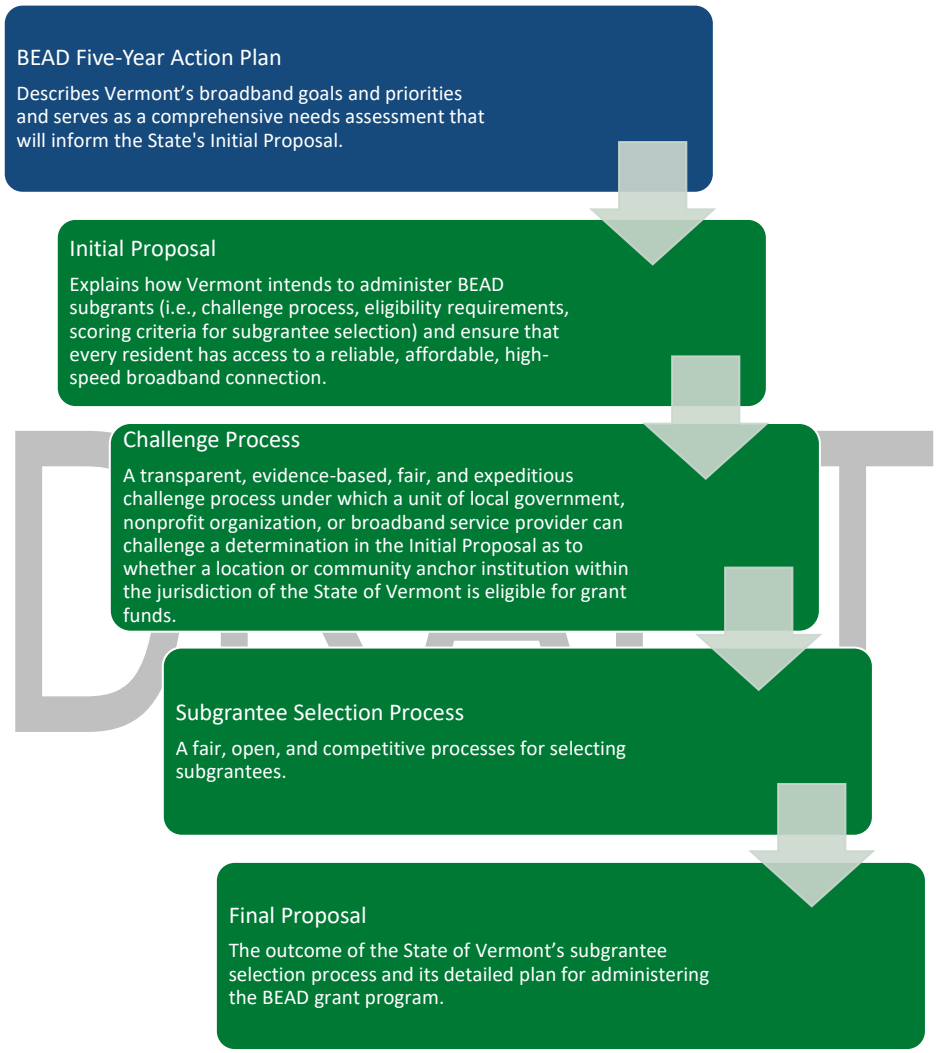
The IIJA, passed into law in 2021, includes a significant investment of $65 billion to help close the digital divide and ensure that all residents have access to reliable, high speed, and affordable broadband. This historic investment will lay critical groundwork for widespread availability and adoption of broadband, creating new jobs and economic opportunities, providing increased access to healthcare services, enriching educational experiences of students, and improving overall quality of life for all US residents.

NTIA is administering two grant programs for states: the BEAD[5] program and the Digital Equity Act program.[6] The VCBB has been tasked with developing Vermont's strategy for broadband and digital equity, and the State's plan for administering the funding it receives from NTIA. The two programs will be designed to be closely aligned and complementary. This document comprises Vermont's BEAD Five-Year Action Plan and is the first step of the process summarized in Figure 1.

[5] The BEAD NOFO details the requirements of the program with which Vermont and subgrantees must comply. It is available here: https://broadbandusa.ntia.doc.gov/sites/default/files/2022-05/BEAD%20NOFO.pdf.

[6] The Digital Equity Act Program Notice of Funding Opportunity details the requirements of the program with which Vermont and subgrantees must comply. It is available here: https://broadbandusa.ntia.doc.gov/sites/default/files/2022-05/DE%20PLANNING%20GRANT%20NOFO.pdf.

Figure 1. BEAD Components and Process



This plan was developed based on extensive data analysis and stakeholder input. The VCBB engaged other state agencies, nonprofits, elected officials, CUDs, private Internet service providers (ISPs), and individual Vermonters through events, meetings, surveys, public comment periods, and weekly office hours.

II. Overview of the Five-Year Action Plan

A. Vision

Vermont's vision for broadband equity, access, and deployment is that all Vermonters have universal access to reliable, high-quality, affordable, fixed broadband at speeds of at least 100/100 Mbps, and that Vermonters and institutions have the tools and skills to maximize the value Internet connectivity can offer. Vermont is working toward this vision through coordinating, facilitating, supporting, and accelerating community broadband solutions.

The social and economic benefits of high-quality Internet connectivity and online services are now widely understood and accepted. Connectivity has become integral to everyday activities from regular social interactions and access to media to participating in school or pursuing a career, improving farming efficiency and agricultural output, and combatting climate change.

Achieving universal high-speed Internet access for all citizens isn't just a question of ensuring everyone has access to faster connections. It also involves making sure people can afford the fixed broadband services made available to them, have devices that enable them to productively work and learn online, and have the skills, comfort, and confidence to navigate and leverage online content and services.

B. Goals and Objectives

To achieve this vision, the VCBB has defined five actionable goals, subsequent objectives, and indicators of success by December 31, 2028, and 2030. Specific priorities, plans, and activities are described later in the section titled Implementation Plan.

Goal: Mobilize resources for end-to-end fiber broadband infrastructure deployments to all unserved and underserved locations and CAIs in Vermont.

Objectives:

- Leverage BEAD and other available funding resources to remove barriers and foster a competitive and sustainable market for broadband service across Vermont.
- Design and implement the BEAD grant program for reliable and resilient broadband infrastructure deployments that use scalable technologies appropriate to the local geography to expand high-speed broadband to (1) unserved

locations lacking access to 25/3 Mbps broadband; (2) underserved locations lacking access to 100/20 Mbps broadband; and (3) connecting eligible CAIs.

- Assist subgrantees and CUDs in securing funding from additional sources for broadband infrastructure deployments.

Indicators of success by December 31, 2028:

- 100/100 Mbps broadband or better available in 100 percent of currently unserved and underserved on-grid locations lacking access to 25/3 Mbps.
- 100/20 Mbps broadband or better available in 100 percent of currently unserved and underserved off-grid locations.
- One Gbps symmetrical broadband is available to 100 percent of CAIs.

Goal: Ensure sustainable, community-driven solutions across the entire State.

Objectives:

- Design and implement a BEAD grant program that invests in infrastructure and digital equity initiatives with community support.
- Develop and strengthen partnerships with community stakeholders to identify opportunities for the VCBB to support and coordinate initiatives.

Indicators of success by December 31, 2028:

- 100 percent of BEAD subgrantees have documented meaningful community support or partnerships.

Goal: Ensure high-speed broadband services and devices are affordable and advance digital equity for all Vermonters

Objectives:

- Promote the ACP and other related resources for broadband affordability and adoption.
- Assist CUDs and town governments with strategies to ensure broadband affordability and accessibility for their communities, along with connecting communities with digital skilling and other related resources.

Indicators of success by December 31, 2028:

- 80 percent of households subscribe to fixed broadband.
- 60 percent of eligible households signed up for a broadband service subsidy (e.g., ACP).
- 95 percent of households own a laptop, tablet, or personal computer.

- 80 percent of population surveyed reports confidence in their digital literacy.
- 80 percent of ACP eligible households own a laptop, tablet, or personal computer.
- All Vermonters can choose from multiple service plan options and price points.

Indicators of success by December 31, 2030:

- 90 percent of households subscribe to broadband.
- 70 percent of eligible households signed up for a broadband service subsidy (e.g., ACP).

Goal: Enhance workforce development for broadband and the digital economy

Objectives:

- Increase capacity of education and training programs to develop the talent pipeline.
- Increase industry awareness and involvement in the opportunity created by these programs.
- Promote, target and recruit participants in Vermont.
- Support for the industry to create sustainable employment opportunities.
- Establish a roadmap of career possibilities for participants in the Workforce Development Programs.

Indicators of success by December 31, 2028:

- 100 new jobs in broadband created in Vermont.
- 80% of new jobs in broadband filled by Vermont residents.

Goal: Improve socio-economic conditions across Vermont

Objectives:

- Ensure fair labor standards among subgrantees.
- Support workforce development opportunities in broadband related industries.

Vermont will monitor several key performance indicators across the State and in funded network service areas to gauge the indirect impact of broadband access and digital equity initiatives on socio-economic factors, such as:

- Economic:
  - Unemployment rate.
  - Number of remote workers.
  - Household income level.
  - Population change (gain/loss).
- Health:
  - Utilization rates of telehealth services.
  - Life expectancy.
- Education:
  - High school graduation rates.
  - Student performance on standardized test scores.

III. Current State of Broadband and Digital Inclusion

A. Existing Programs

The VCBB was established by the General Assembly of the State of Vermont (VT General Assembly) in 2021 and is Vermont's statewide broadband office. It is housed under the Public Service Department (PSD) and works in close coordination with other teams within the PSD that are responsible for implementing telecommunications policies and developing the State's Ten-Year Telecommunications Plan.

The VCBB was established by Act 71 (2021)—an act relating to accelerating community broadband deployment—to coordinate, facilitate, support, and accelerate the development and implementation of universal community broadband solutions. The VCBB develops policies and programs to accelerate community efforts that advance the State's goal of achieving universal access to reliable, high-quality, affordable, fixed broadband achieving speeds of at least 100 Mbps symmetrical. The VCBB administers the Vermont Community Broadband Fund for broadband infrastructure, convenes and coordinates broadband stakeholders and initiatives, promotes broadband-related workforce development programs, and is responsible for Vermont's BEAD and Digital Equity Plans.

It is the purpose of the VCBB and Vermont Community Broadband Fund to support policies and programs designed to accelerate community efforts that advance the State's goal of achieving universal access to reliable, high-quality, affordable, and fixed broadband.

The VCBB currently implements and administers two grant programs established via Act 71: The Broadband Construction Grant Program and the Broadband Preconstruction Grant Program. Management and planning of these projects require successful coordination with each grantee, oversight of multi-year reporting requirements, and logistical and financial vetting. Table 2 describes activities performed by the VCBB.

Table 2. Current Activities that the Broadband Program Office Conducts

Activity Name	Description	Intended Outcome(s)
Administer Vermont Community Broadband Fund grants	The VCBB administers funding for broadband planning and infrastructure grants.	Advance universal service through community ownership and oversight.
Oversee coordination and facilitation of community broadband efforts	Convene and coordinate across stakeholders engaged in broadband efforts.	Resources maximized and best practices leveraged to expand universal broadband access.
Technical and administrative support for the 10 Year Telecommunications Plan	Provide expertise and support to the Public Service Department for the development of Vermont's 10 Year Telecommunications Plan.	Alignment of state telecommunications strategies and plans.
Increase industry awareness and involvement in the opportunity created by these programs	Engage private sector in broadband infrastructure plans and opportunities as well as workforce development strategies.	An engaged private sector and competitive ecosystem for high-quality broadband service and job opportunities.
Digital Equity Core Planning Team	Convene a diverse set of stakeholders who work with underrepresented populations across the state to inform, coordinate, collaborate, and promote digital equity resources and initiatives.	An engaged and connected network of stakeholders serving underrepresented populations with digital equity resources.

Activity Name	Description	Intended Outcome(s)
Broadband Workforce Development Needs Survey	The VCBB, working with the Vermont Department of Labor, surveyed telecommunications companies in December 2021. The results of those surveys showed that companies were not aware of the amount of construction that Vermont was planning, nor were these companies prepared for the increased demand that would be placed on their workforce.	Understand anticipated labor needs and ways to inform efforts to proactively foster workforce development.
Help ensure adequate capacity of education and training programs to develop the talent pipeline	The VCBB and NEK Broadband CUD began working with Vermont Technical College to develop a training program for existing telecommunication workers. This was well attended, with a total of 35 participants in three classes. The VCBB supports the Department of Labor and Vermont Technical College to develop and implement a Fiber Optic Broadband Apprenticeship program.	Three classes with a total of 35 participants.
Promote, target, and recruit participants in Vermont to workforce development programs	Exploring a financing model for training costs and support services for participants to obtain training and secure career opportunities.	Improve the affordability and accessibility of workforce development programs.
Support for the industry to create sustainable	Work with employers and potential candidates to	Improved alignment between employer needs and workforce

Activity Name	Description	Intended Outcome(s)
employment opportunities	understand each employee's career options and goals.	development opportunities.

Table 3. Related Activities Managed by Other State Offices

Activity Name	Description	Intended Outcome(s)
Ten-Year Telecommunications Plan	The Public Service Department regularly develops and updates the State's 10 Year Telecommunications Plan.	Recommendations for the improvement and sustainability of the State's telecommunications infrastructure.
Statewide Broadband Mapping	The Public Service Department regularly maps broadband infrastructure availability across the State.	Comprehensive understanding of access and gaps.
Broadband Occupational Needs Survey	The Commissioner of Labor conducts an occupational needs survey to determine workforce needs in the communications sector specific to broadband buildout and maintenance.	Evidence-based and stakeholder-driven workforce development initiatives.
FTTX: Incumbent Training Program	Vermont Technical College, in consultation with the Vermont Department of Labor, shall establish an incumbent training program for communications installers and technicians.	Existing employees' skills enhanced.

Activity Name	Description	Intended Outcome(s)
Broadband Installer Apprenticeship Program[7]	The Commissioner of Labor, working with broadband employers, shall establish a federally registered apprenticeship program that meets one or more occupational needs related to the installation and maintenance of broadband networks.	Broadband workforce expanded and skills enhanced.

The VCBB is headed by a five-member board comprised of two members appointed by the Governor (a financial expert and the Chair); one member appointed by the Speaker of the House (an expert in broadband deployment in rural, high-cost areas); one member appointed by the Senate Committee on Committees (an expert in communications and electric utility law/policy); and one member appointed by the State's Communications Union Districts (CUD), which are organizations of two or more towns that join as municipal entities to advance the goal of reaching underserved and unserved addresses within their jurisdiction.

VCBB's staff are described below in Table 4.

Table 4. Current and Planned Full-Time and Part-Time Employees

Current vs. Planned	Full-Time vs. Part-time	Position	Description of Role
Current	FT	Executive Director	Work with the Board in developing and implementing the State's broadband programs. Make recommendations to the Board for grant awards or other forms of financial or technical assistance. Retain or employ technical experts and other officers, agents, employees, and

[7] Vermont Tech. "Broadband Installer Apprenticeship." Available at: https://cewd.vtc.edu/cewd/broadband-installer-apprenticeship/.

Current vs. Planned	Full-Time vs. Part-time	Position	Description of Role
			contractors as are necessary.
Current	FT	Deputy Director	Manage employees, strategic program planning, testify to legislature.
Current	FT	General Counsel	Provide legal advice and expertise.
Current	FT	Special Projects Director	Manage contracts, oversee GIS/mapping initiatives, facilitate interagency collaboration, and assist with outreach & engagement activities.
Current	FT	Rural Broadband Technical Assistance Specialist	Provide outreach, technical assistance, and other support services to Communications Union Districts (CUDs) and other units of government, nonprofit organizations, cooperatives, and for-profit businesses for the purpose of expanding broadband service to unserved and underserved locations.
Current	FT	Outreach and Communications Manager	Manage press relations, write press releases, promote outreach and engagement.
Current	FT	Director of Regulatory Compliance & Risk Management	Oversees federal reporting, program compliance and risk management of grantees and contractors.
Current	FT	Digital Equity Officer	Oversee state's digital equity planning efforts and implementation of digital equity plan; build coalition of digital equity partners throughout

Current vs. Planned	Full-Time vs. Part-time	Position	Description of Role
			State.
Current	FT	Broadband Project Developer	Oversee business plan review and financial models for CUDs and grantees. Conduct long-term financial planning for Vermont's broadband efforts.
Planned	FT	Grants and Contract Administrator	Administrative management of contracts and grants.
Planned	FT	Administrative Services Manager	Manage budget and perform other necessary administrative tasks.

Table 5. Current and Planned Contractor Support

Current/ Planned	Full-Time vs. Part-Time	Position	Description of Role
Current	FT	BEAD Five-Year Action Plan, BEAD Initial Proposal, Digital Equity Plan Consultants (BEAD Rural Telecom Contractor)	Assist the VCBB with planning and stakeholder engagement for the BEAD and Digital Equity Plans

Current/ Planned	Full-Time vs. Part-Time	Position	Description of Role
Current	PT	Creative Finance Consultant	Assist with financial analysis and identifying additional funding sources
Current	PT	Fiber Optics Engineer Consultant	Assist with statewide universal service planning and project reviews
Current	PT	GIS Consultant	Assist with data analysis on broadband access across the State
Planned	PT	Asset Mapping Consultant	Data collection and mapping support
Planned	PT	Documentary and Outreach Contract	Planning, filming, and editing for documentary on Vermont's community-based broadband access solutions
To be confirmed		Capacity Grants	Municipal Organization Development Support
To be confirmed		Technical Workshops	Municipal Organization

Current/ Planned	Full-Time vs. Part-Time	Position	Description of Role
			Development Support
To be confirmed		Make-Ready Support	Municipal Organization Development Support
To be confirmed		Grant Writer	Support with securing additional grant funding

B. Existing Funding

On June 26, 2023, NTIA announced that Vermont will be receiving $228.9 million to expand access to broadband in the State as part of the BEAD Program. The BEAD Program provides $42.45 billion nationwide for planning, infrastructure development, and adoption programs.[8]

While BEAD dollars may be used for both availability and adoption related efforts, the VCBB is required to prioritize BEAD funding to extend high-speed broadband infrastructure to the 49,773 locations that have been identified as either unserved or underserved based on the FCC's Broadband Serviceable Location Fabric (less estimated proposed RDOF and other federally funded areas), along with all identified CAIs lacking access to 1 Gbps symmetrical broadband connectivity.[9] **As discussed below, inclusive of Vermont's $228.9M BEAD allocation, the State has**

[8] The White House. "Biden-Harris Administration Announces State Allocations for $42.45 Billion High-Speed Internet Grant Program as Part of Investing in America Agenda." June 26, 2023. Available at: https://www.internetforall.gov/news-media/biden-harris-administration-announces-state-allocations-4245-billion-high-speed-internet.

[9] Alternatively, 52,170 locations that have been identified as either unserved or underserved based on the location data provided by Vermont's Public Service Department, less proposed RDOF funded areas (4.8% higher than the Fabric data).

approximately $388.6M in existing funding which is available for extending high-speed broadband infrastructure to unserved and underserved locations and CAIs.

For the purposes of quantifying existing funding availability, we are considering funding coming into the State of Vermont from state and federal sources only (i.e., this would not include any committed match funds by broadband service providers or planned deployments by providers not using either state or federally funded sources). Funding is considered "available" if it is not yet expended on or awarded to a specific project, or if the deployment of funding has already been considered against the 49,773 locations identified as either unserved or underserved (e.g., RDOF funding would not be considered available, while ReConnect funding would, as ReConnect funding's planned deployment is not taken into account against the 49,773 locations considered unserved or underserved). It should also be noted that this includes federal funds allocated to and under the control of the State of Vermont along with federal funds not under control of the State of Vermont (i.e., we are including ACP funding and ReConnect funding, although the State of Vermont does not have any direct control over these funding sources). For ease of analysis, we have broken out available funding into the categories of (1) approved deployment and non-deployment activities, (2) affordability programs, (3) public connectivity, and (4) planning, administrative, or overhead. A summary of the total available funding is outlined in Table 6.

Table 6: Available Broadband Funding by Broadband Category

Broadband Related Category	Total	Committed/Expended	Available	Remaining % of Available
Approved Deployment and Non-Deployment Activities	$547,241,933	$158,580,669	$388,661,264	86.7%
Affordability Programs	$42,562,080	$8,367,840	$34,194,240	7.6%
Planning, Administrative, or Overhead	$8,500,000	$1,219,763	$7,280,237	1.6%
Public Connectivity	$18,000,000	$0	$18,000,000	4.0%
Grand Total	**$616,304,013**	**$168,168,272**	**$448,135,741**	**100%**

Again, of these amounts, the State has approximately $388.6M in existing funding which is available for extending high-speed broadband infrastructure to unserved and underserved locations and CAIs. Furthermore, details of the individual funding sources and programs that roll up into these respective categories are outlined in Table 3. Any dollar figures denoted with an asterisk (*) should be considered a preliminary number. These amounts will be updated upon receipt of month-end reporting from the State's accounting team.

Table 7: Detailed Funding Inventory

Source	VT to Use For	Description	Total	Committed / Expended	Available
NTIA Broadband Equity, Access, and Deployment Program	Approved Deployment and Non-Deployment Activities	Using the $233.8M projected BEAD allocation to Vermont, $228.8M is the maximum amount of funding available for last-mile connectivity less the $5M to be spent on planning	$223,913,019	$0	$223,913,019
NTIA Broadband Equity, Access, and Deployment Program	Planning, Administrative, or Overhead	Initial $5M of planning funds to be made available to Vermont	$5,000,000	$0	$5,000,000
State BEAD Funding Match	Approved Deployment and Non-Deployment Activities	Matching funds for BEAD to be made available by the State of Vermont as a result of NTIA's Middle Mile funding not having been awarded.	$30,000,000	$0	$30,000,000
US Treasury ARPA Capital Projects Fund	Approved Deployment and Non-Deployment Activities	Construction grant amounts, 14K homes	$95,000,000	$17,348,243	$77,651,757
US Treasury ARPA Capital Projects Fund	Public Connectivity	Parks	$1,600,000	$0	$1,600,000
US Treasury ARPA Capital Projects Fund	Public Connectivity	Libraries	$16,400,000	$0	$16,400,000
US Treasury ARPA Coronavirus State and Local Fiscal Recovery Funds	Approved Deployment and Non-Deployment Activities	$116M - Construction grant amounts. Per the Vermont accounting department, this was later re-allocated to become $109.3M.	$109,260,528	$74,706,521	$34,554,007
US Treasury ARPA Coronavirus State and Local Fiscal Recovery Funds	Approved Deployment and Non-Deployment Activities	$30M – Preconstruction grant amounts (H360 Act 71 & Act 9). Per the Vermont accounting department, this was later allocated to become $36.7M.	$36,739,472	$32,567,038	$4,172,434
US Treasury ARPA Coronavirus State and Local Fiscal Recovery Funds	Approved Deployment and Non-Deployment Activities	$4M – Pre-purchase of materials allowance for preconstruction (authority granted in 8085(b) and 8084(a)(6)).	$4,000,000	$3,228,150	$771,850

Source	VT to Use For	Description	Total	Committed / Expended	Available
US Treasury ARPA Coronavirus State and Local Fiscal Recovery Funds	Approved Deployment and Non-Deployment Activities	COVID-Response Line Extension Customer Assistance Program	$1,600,000	$1,600,000	$0
US Treasury ARPA Coronavirus State and Local Fiscal Recovery Funds	Approved Deployment and Non-Deployment Activities	COVID-Response Temporary Broadband Lifeline Program, Wi-Fi Hot Spots, etc.	$200,000	$65,714	$134,286
Affordable Connectivity Program (ACP)	Affordability Programs	Eligible households based upon data from Education Superhighway, enrolled households from USAC.	$41,770,080* *This is a hypothetical rate based upon all eligible Vermont households for one year.[10]	$7,575,840* *This is an annualized rate based upon current enrollment.[11]	$34,194,240
State Universal Service Allocation	Affordability Programs	Funds to be used by Vermont for planning and administrative expenses.	ongoing - estimated at $792,000 per year	ongoing (estimated at $792,000)	N/A
FCC Rural Digital Opportunity Fund (RDOF) - (Consolidated, NRTC, CCO)	Approved Deployment and Non-Deployment Activities	Charter Fiberlink, ECFiber, Kingdom Fiber, and Consolidated Communications	$28,625,560	$28,625,560	$0[12]
USDA ReConnect: Loan + Grant Program	Approved Deployment and Non-Deployment Activities	USDA ReConnect Loan & Grant Program	$17,463,911	$0	$17,463,911
Northern Borders Regional Commission (NBRC)	Planning, Administrative, or Overhead	Securing the Public Interest through Expertise and Services (SPIES) Program	$2,500,000	$1,219,763*	$1,280,237*
Northern Borders Regional Commission (NBRC)	Planning, Administrative, or Overhead	Regional Forest Economy Partnership Grant Program	$1,000,000	$0	$1,000,000

[10] 116,028 Eligible households x 12 months x $30 per month.

[11] 21,044 Enrolled households x 12 months x $30 per month.

[12] For the purposes of the broadband funding inventory, we are considering this committed. This is because RDOF funded locations will not be eligible for BEAD funding.

Source	VT to Use For	Description	Total	Committed / Expended	Available
Northern Borders Regional Commission (NBRC)	Approved Deployment and Non-Deployment Activities	Fletcher - 2020 State Economic & Infrastructure Development	$439,443	$439,443	$0[13]
Total			**$616,304,013**	**$168,168,272**	**$448,135,741**

Commented [RL1]: I would switch these numbers and make the same footnote as RDOF and ReConnect

C. Partnerships

Table 8 lists the VCBB's relevant community-based organizations and CAIs that have helped to inform broadband deployment and adoption planning. Further details on partners are discussed in subsequent sections including Implementation Plan and External Engagement.

Table 8: Broadband Deployment and Adoption Partnerships

Partners	Description of Current or Planned Role in Broadband Deployment and Adoption
Adult Education and Literacy Network	VCBB Digital Equity Core Team Member and non-governmental organization.
Association of Area Agencies on Aging	VCBB Digital Equity Core Team Member and non-governmental organization supporting aging Vermonters statewide.
Association of Planning and Development Commissions	VCBB Digital Equity Core Team Member and statewide association of local regional planning commissions.
Chittenden County CUD	Supporting the most populated county in VT.
Community Action Partnership	VCBB Digital Equity Core Team Member and non-governmental organization focused on community development.

[13] For the purposes of the broadband funding inventory, we are considering this committed. This is because locations reached with broadband through this grant will not be eligible for BEAD funding.

Partners	Description of Current or Planned Role in Broadband Deployment and Adoption
CVFiber CUD	Made up of 20 communities in Central Vermont, partnered with Waitsfield/Champlain Valley Telecom as the operator.
Department of Corrections	VCBB Digital Equity Core Team Member and governmental organization overseeing correctional facilities.
Department of Disabilities, Aging, and Independent Living	VCBB Digital Equity Core Team Member and government department supporting older Vermonters and Vermonters with disabilities.
Department of Libraries	VCBB Digital Equity Core Team Member and government department overseeing State libraries.
DVFiber CUD	Made up of 24 towns in mostly southeastern VT.
ECFiber CUD	Vermont's first CUD, formed in 2008 to solve broadband issues in the Upper Valley. Today, ECFiber is approaching 7,000 customers on 1,600 miles of network in 23 of its 31 towns and has issued $64M in revenue bonds.
Equal Access to Broadband	VCBB Digital Equity Core Team Member and non-governmental organization focused on affordable access. Offers consulting to broadband providers on digital inclusion and provides direct support in ACP enrollment.
Lamoille FiberNet CUD	Made up of nine towns in Lamoille County, working to expand high-quality Internet access to the county's underserved homes.
Maple Broadband CUD	Partnered with Waitsfield/Champlain Valley Telecom as the operator.
NEK Broadband CUD	Has $23.5M in USDA ReConnect and Rural Business Development funding, including provider match for fiber buildout in the Northeast Kingdom.

Partners	Description of Current or Planned Role in Broadband Deployment and Adoption
Northwest FiberworX CUD	Supports 22 communities in northwestern Vermont.
Office of Racial Equity	VCBB Digital Equity Core Team Member and government department focused on racial equity.
Otter Creek CUD	Supports 18 municipalities in and near the Rutland Region.
Public Service Department	The Telecommunications and Connectivity Division within the PSD works to ensure that every Vermonter has access to quality, reliable, and affordable communications services. As a regulator, they provide oversight of companies' compliance with Vermont Laws and Public Utility Commission orders and rules governing their operations.
Southern VT CUD	Partnering with Fidium Fiber to bring service to 14 towns in Bennington County.
US Committee on Refugees and Immigrants (VT)	VCBB Digital Equity Core Team Member and government committee supporting refugees and immigrants.
US Department of Housing and Urban Development (HUD)	VCBB Digital Equity Core Team Member and US government agency.
Vermont Center for Independent Living	VCBB Digital Equity Core Team Member and non-governmental organization supporting Vermonters with disabilities to live independently.
VT Communications Union District Association (VCUDA)	VCBB Digital Equity Core Team Member and non-governmental statewide association of CUDs.
Vermont Council on Rural Development	VCBB Digital Equity Core Team Member and non-governmental organization supporting rural economic development.

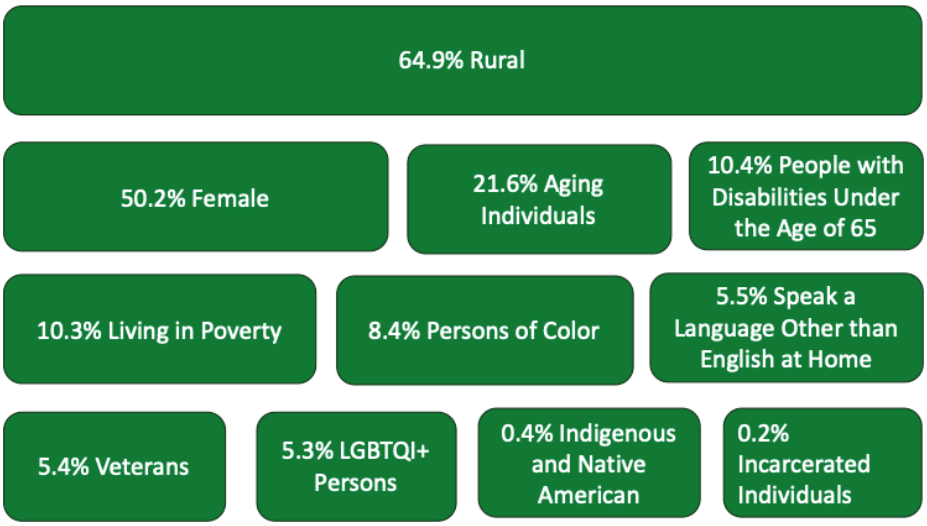
Partners	Description of Current or Planned Role in Broadband Deployment and Adoption
Veterans Outreach	VCBB Digital Equity Core Team Member and government organization supporting Veterans.
Vermont Technical College (VTC)	VTC develop and implement a Fiber Optic Broadband Apprenticeship program in partnership with the Vermont Department of Labor, the Fiber Broadband Association, CUDs, and the VCBB[14]

[14] Vermont Department of Public Service. "Meeting the Broadband Workforce Challenge." Available at: https://publicservice.vermont.gov/sites/dps/files/documents/VCBB%20workforce%20development%20plan_%20Final%20Draft_10.31.22.pdf

IV. Assessment: Assets, Needs, and Gaps

Vermonters are diverse, predominantly rural, and most consider themselves part of one or more underrepresented community (Figure 2). Data shows that many of these communities experience lower rates of broadband availability and adoption (as well as diminished access to other socio-economic resources and opportunities).[15][16]

Figure 2. Demographics of Vermonters



[15] Atske, Sara and Perrin Andrew. "Home broadband adoption, computer ownership vary by race, ethnicity in the U.S." Pew Research Center; July 16, 2021. Available at: https://www.pewresearch.org/short-reads/2021/07/16/home-broadband-adoption-computer-ownership-vary-by-race-ethnicity-in-the-u-s/.

[16] Perrin, Andrew and Atske, Sara. "Americans with disabilities less likely than those without to own some digital devices." Pew Research Center; September 10, 2021. https://www.pewresearch.org/short-reads/2021/09/10/americans-with-disabilities-less-likely-than-those-without-to-own-some-digital-devices/.

A. Broadband Access

Access Asset Inventory

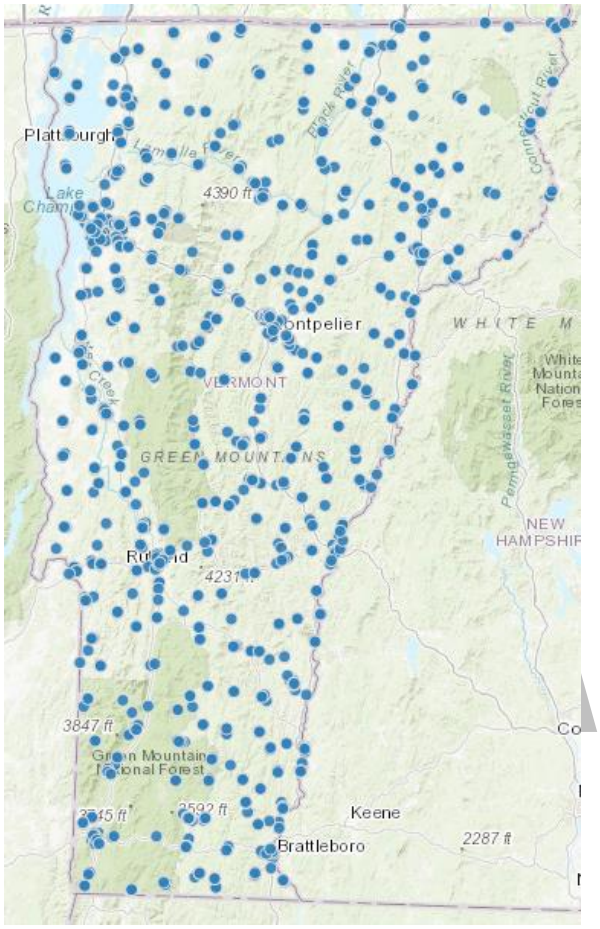
Commented [PG2]: Note to VCBB: We will be adding language on state-owned structures/buildings/towers/utility pole plan/MM Fiber/state RoW.

Public Wi-Fi

In response to the urgent Internet connectivity needs created by the COVID-19 pandemic, Vermont partnered with the Information Technology Disaster Resource Center, Microsoft, and RTO Wireless to install Wi-Fi hotspots around the state.[17] As part of this project, the PSD prepared an interactive map of locations in Vermont where Wi-Fi access is publicly available (Figure 3). These sites are accessible at all hours from a parked vehicle on the road or parking lot. The map includes 1,327 public Wi-Fi access points throughout the state, including 295 state buildings, 301 schools, 244 town and city halls, 183 libraries, and 56 crowd-sourced sites.

[17] State of Vermont Department of Public Service. Wi-Fi Hot Spot Project. Available at: https://publicservice.vermont.gov/telecommunications-and-connectivity/wi-fi-hot-spot-project

Figure 3. Vermont Public Wi-Fi Access Point Map

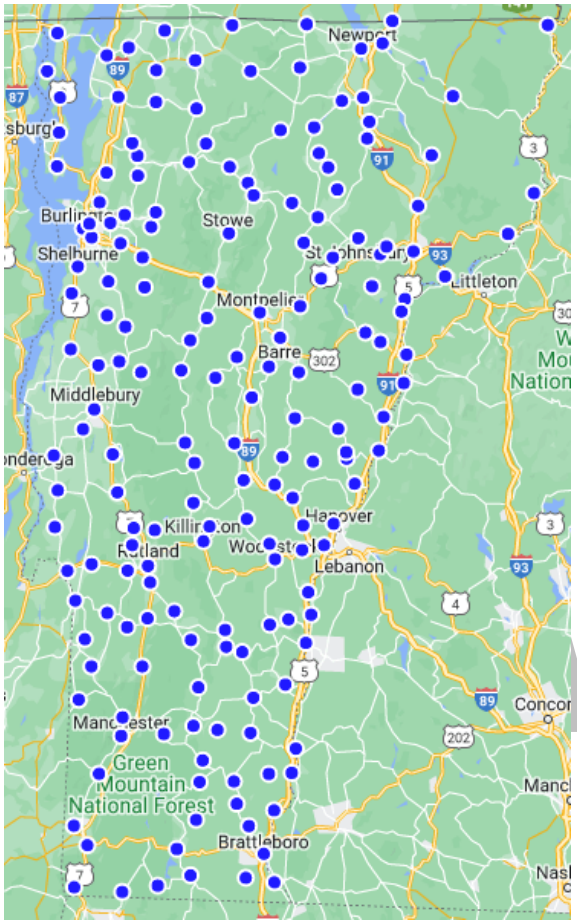


Public Libraries

Public libraries are a key asset for Vermonters to access the Internet. Vermont has 185 public libraries—the most per capita of any state in the US. As shown in

Figure 4, they are distributed statewide and provide a low barrier for Vermonters to access the Internet. Many offer device lending programs and individual support from librarians in using computers and accessing the Internet.

Figure 4. Public Library Locations in Vermont



Community Anchor Institutions
Vermont has a strong tradition of community engagement, evidenced by its extensive network of community anchor institutions. These CAIs already are pillars of access and adoption throughout the state, and their importance as assets will only increase with time.

Access Needs & Gaps

Reliable high-speed broadband service is a high priority for many Vermonters. Many Vermonters share a sense of frustration with the lack of access to broadband and with experiences of unfulfilled promises of broadband infrastructure coming to their area. Vermonters describe broadband access as a necessity to earn a livelihood, access educational opportunities, and take care of their health. For some, it has become a deciding factor in choosing where to live or if they will be able to sell their house and move.[18]

In many parts of the State, reliable, high-speed Internet is not available. Because Vermont is a predominantly rural state with a dispersed population amidst hilly terrain and heavy tree foliage, it has higher than average costs to deploy broadband infrastructure.[19] In the absence of meaningful subsidies, ISPs have been unable to invest in the deployment of broadband facilities, especially in the more rural parts of the State. This has left Vermont with approximately 20% of households (70,034 out of 352,588 households) lacking access to 100/20 Mbps or better broadband connectivity.[20]

Figure 5 is taken from Vernonburg Group's Digital Equity Map[21] and shows census tracts across Vermont lacking access to the Internet at speeds of 100/20 Mbps ("underserved" areas). The darker the color, the higher the percentage of underserved households. One can see that the northeast and the southern sections of the state have the highest concentrations of unserved and underserved communities.

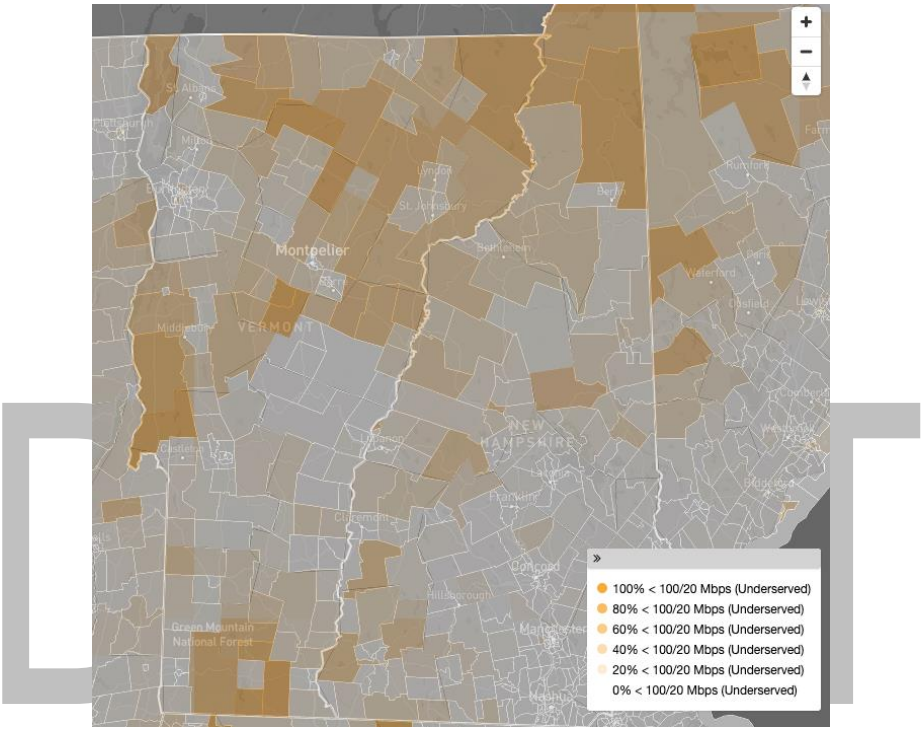
[18] Public Listening Sessions as well as a public survey and request for input conducted by VCBB as part of its stakeholder engagement process.

[19] Pew Research. "Vermont Takes a Regional Approach to Rural Broadband Expansion." January 5, 2023. Available at: https://www.pewtrusts.org/en/research-and-analysis/issue-briefs/2023/01/vermont-takes-a-regional-approach-to-rural-broadband-expansion.

[20] Calculated using the Vermont Department of Public Service Department data on broadband deployment speed status for all buildings in the State of Vermont updated on April 18, 2023 https://geodata.vermont.gov/maps/vtpsd::vt-data-broadband-status-2022/about.

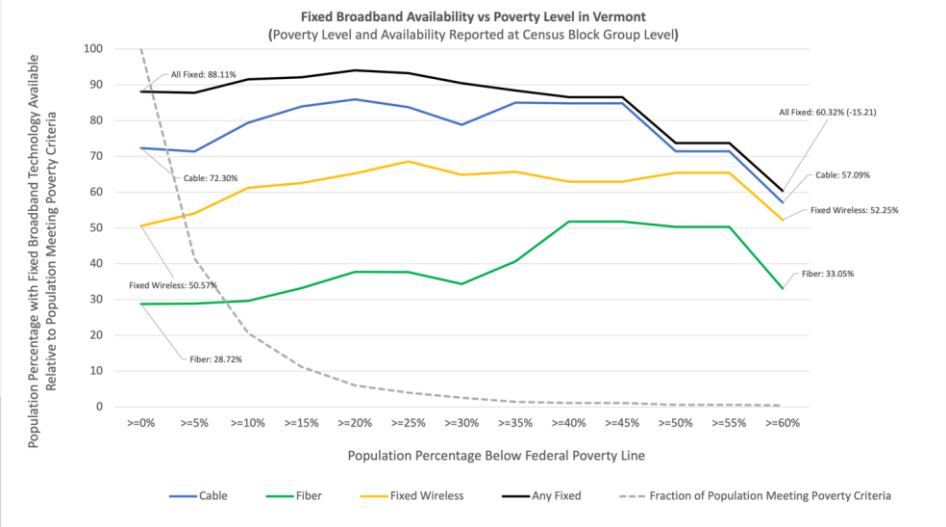
[21] Vernonburg Group. Digital Equity Map. Available at: https://www.vernonburggroup.com/digital-equity-map.

Figure 5. Census Tracts in Vermont Lacking Access to Broadband Speeds of 100/20 Mbps (Source: Vernonburg Group Digital Equity Map)



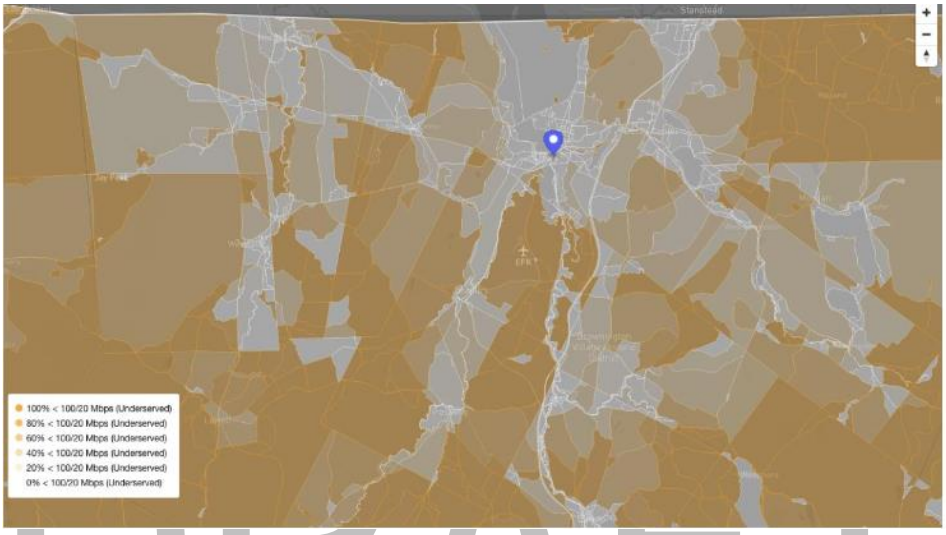
An intentional focus on equity is important in addressing the challenges of broadband access in Vermont. The availability of broadband in Vermont also correlates with income. Figure 6 demonstrates that poverty levels significantly correlate with overall access to cable network deployments, especially at higher levels of poverty, while having little negative impact on fiber and fixed wireless network deployments. While cable franchises and broadband network deployments have tended to concentrate in areas with higher population densities and higher average incomes and copper and fiber broadband network deployments have tended to concentrate more in areas with lower population densities and lower average incomes, further analysis of this data is warranted. The VCBB recognizes the importance of analyzing data to determine acute community needs and to target resources most effectively.

Figure 6. Fixed Broadband Availability (Source: FCC BDC June 2022) vs. Poverty Level in Vermont (Source: ACS 2021 5-Year Average) for Different Broadband Technologies



Broadband availability in Vermont can also be highly localized, with underserved locations surrounding the vicinity of an area with 100 percent broadband coverage. An example of this is shown in Figure 7, highlighting Newport, VT. In this example, one can see that 100/20 Mbps broadband is generally available in the center of Newport but is less available in the outskirts of Newport and in surrounding rural areas.

Figure 7. Percentage of Households in Census Blocks Around Newport Lacking Access to 100/20 Mbps Broadband (Vernonburg Group Digital Equity Map)



"I live in one of the poorest towns in one of the poorest counties, and we need affordable access to broadband more than ever. Our area is struggling to keep up as services move to cloud-based systems. With a lack of reliable affordable Internet, we are unable to stay up to date. Even accessing news and events in our areas is difficult with no Internet. Our senior citizens are left alone and disconnected to the world."

- Responder to the public request for input on Vermont's BEAD Five-Year Action Plan and Initial Proposal

To address the problem of lack of broadband access, the Vermont Legislature passed several initiatives and funds to increase broadband service availability. Act 190 of 2014 increased the State's role as a convenor, coordinator, and funder to expand broadband access and mobile telecommunications across the State.

In 2015, the Vermont Legislature authorized the formation of CUDs, enabling two or more towns to join together to provide communication infrastructure to residents. Much like a water and sewer or solid waste district, CUDs allow towns to aggregate demand for a service and find efficiency by sharing operation of the district.

CUDs are critical entities for closing the digital divide in Vermont. The state has promoted and supported CUDs as a mechanism for expanding broadband across the state in the most rural areas; the infrastructure the state has built around CUDs and the progress CUDs have made makes it clear that CUDs will continue to play an important role in the telecommunications landscape in the state.

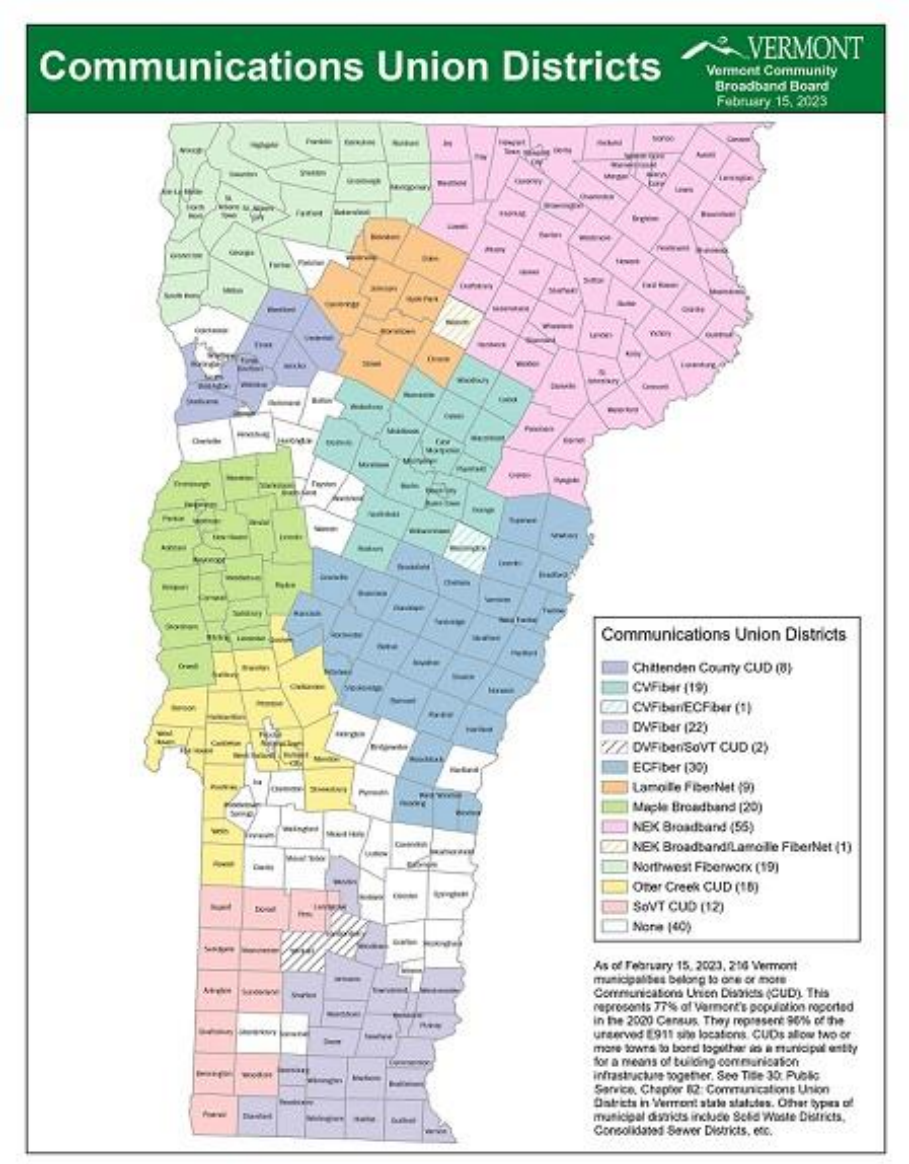
East Central Vermont Telecommunications District ("ECFiber") became Vermont's first operational CUD in 2016 and has since served as a model for other regions across Vermont seeking to address the growing needs of unserved or underserved areas. In 2018, for instance, twelve municipalities in Central Vermont followed ECFiber's lead to form CVFiber. By mid-2020, 27 towns in Vermont's Northeast Kingdom region voted to form NEK Broadband, which now covers 48 cities and towns and serves as the state's largest CUD.[22]

A growing number of municipalities across the state have chosen to join or form a CUD in the past six years. In total, nine districts representing 186 of Vermont's 246 towns and cities have formed,[23] as identified in the following table and illustrated in the map below. There are many reasons municipalities choose to form or join a CUD, but perhaps the most valuable benefit for rural communities is the ability to achieve efficiencies of scale by aggregated un and underserved premises across towns. Less dense and isolated towns may not individually provide the profitability needed for ISPs to expand or provide adequate service to their area, nor may they have the leverage to appropriately scale for efficient solutions on their own. By aggregating demand and sharing resources, CUDs allow towns to gain more negotiating power and increase their appeal to potential investors.

[22] "More than 40 towns vote to join high-speed internet groups," Associated Press, March 6, 2020, https://apnews.com/article/2a1aaa62984f0ffc7ce518b8accd15e9.

[23] State of Vermont Department of Public Service. "Vermont Communications Union Districts," Available at: https://publicservice.vermont.gov/content/vermont-communications-union-districts.

Figure 8. Map of Communications Union Districts (Source: Department of Public Service)



As these initiatives took root, Vermont also recognized the need for state-level coordination and support. It expanded the focus of the Public Service Department on broadband, creating the VCBB in 2021 to administer funding, provide technical expertise, convene, and coordinate broadband initiatives across the State, and support the CUDs. Among other things, Act 71 of 2021 sets goals of providing every on-grid Vermont address access to fixed broadband with throughputs of at least 100/100 Mbps, created preconstruction and construction broadband grant programs, and provided access to broadband network deployment funds to CUDs, small ISPs, and ISPs working with CUDs.

The VCBB is working with CUDs and other ISPs to develop universal service plans and reduce barriers to business planning and capital expenditure for broadband deployments.

B. Broadband Deployment

Deployment Asset Inventory

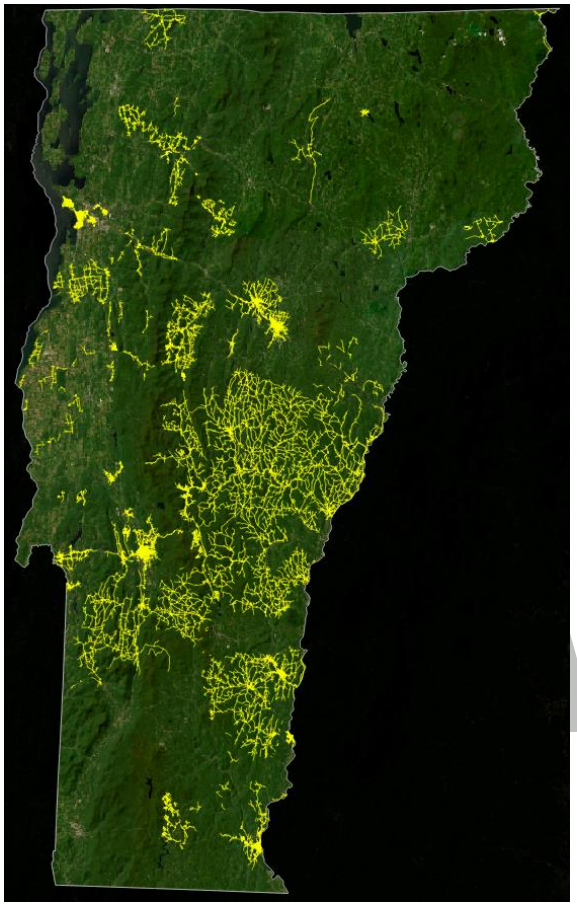
Vermont has prioritized broadband deployments since 2003. This was evidenced in 2004 when the first broadband grants were made available to help small wireless companies provide service to areas that only had dial-up access to the Internet.

Funding
As described in *Section III.B. Existing Funding*, there is currently $388.6M in available funding for approved deployment and non-deployment activities in Vermont. Vermont has a historic opportunity to establish a statewide broadband network that will benefit all Vermonters.

Existing Fiber
The first fiber optic cable in Vermont was completed in 2012, and in 2013 an 800-mile fiber-optic middle mile network was built in southern, central, and northeastern Vermont funded through the NTIA Broadband Technology Opportunities Program.[24] This allowed for 274 CAIs to become service-ready. Since then, fiber networks have expanded throughout Vermont and are currently concentrated in the middle of the state and higher population areas like Burlington and Stowe. The map in Figure 9 shows existing fiber and it is nearly the inverse of the map in Figure 12, which shows census tracts lacking access to 100/20 Mbps.

[24] Times Union. "Bridging a Fiber Optic Gap." Nov 8, 2011. Available at: https://www.timesunion.com/business/article/Bridging-a-fiber-optic-gap-2259132.php.

Figure 9. Existing Fiber in Vermont (Source: Vermont PSD)



Communication Union Districts
Vermont's ten CUDs play a key role in broadband deployment. As community-focused institutions, they work to ensure residents and CAIs can access high-quality, high-speed broadband and hold providers accountable for the quality and reliability of that service. Some CUDs are involved with infrastructure development, service provision, adoption efforts, and community engagement. Many also offer digital equity and affordability programs.

Private Internet Service Providers
Private ISPs also play a key role in broadband deployment as they are involved with

infrastructure development, service provision, and adoption efforts. Many also offer digital equity and affordability programs. Several private ISPs, such as Consolidated Communications (Fidium Fiber) and Waitsfield and Champlain Valley Telecom, have partnered with CUDs to extend broadband service in their areas.

Workforce Development Program[25]
The Workforce Development Partnership led by the VCBB is an important asset in Broadband Deployment. This program will build a training and apprenticeship program that will ensure a qualified workforce is in place to meet Vermont's network construction goals. This is critical, because BEAD project deployments will place significant strain on already limited worker pools in several key occupation groups. Given expected BEAD-generated demand, the following occupation groups expect to have at least 10% fewer skilled workers than are needed to meet demand:[26]

- Laborers and material movers (-10.2%)
- Software engineers (-15.4%)
- Trenchers (-11.4%)
- Master and stage electricians (-11%)
- Network architects and coordinators (-13.2%)
- Surveyors and drafters (-13.2%)
- Inspectors (-18.3%)

Vermont is committed to continuing its extensive workforce development and preparedness planning to address these shortfalls.

[25] VT Department of Public Service. "Meeting the Broadband Workforce Challenge." Available at: https://publicservice.vermont.gov/sites/dps/files/documents/VCBB%20workforce%20development%20plan_%20Final%20Draft_10.31.22.pdf.

United States Census. "Quick Facts: Vermont." Available at: https://www.census.gov/quickfacts/fact/table/VT/IPE120221#IPE120221.

Vermont Department of Corrections. "VT DOC Jail Population as of 6/22/2023." Available at: https://doc.vermont.gov/sites/correct/files/documents/Pop_Count_06-22-2023.pdf.

UCLA Williams Institute. "LGBT Proportion of Population: Vermont." Available at: https://williamsinstitute.law.ucla.edu/visualization/lgbt-stats/?topic=LGBT&area=50#density.

United States Census. "Nation's Urban and Rural Populations Shift Following 2020 Census." December, 29, 2022. Available at: https://www.census.gov/newsroom/press-releases/2022/urban-rural-populations.html#:~:text=Vermont%20was%20the%20most%20rural,population%20residing%20in%20rural%20areas.

[26] National Telecommunications and Information Administration, NTIA State Workforce Research Findings: Vermont, May 2023, slide 10.

Example: Meeting the Broadband Workforce Challenge

Before the existence of the BEAD program and even before COVID, Vermont was experiencing worker shortages in the broadband sector. The fact that turnover in the fiber construction industry is high adds to the challenge. According to the 2021 Bureau of Labor Statistics, average annual turnover for construction was 56.9% and utilities was 54.9%. This means that a company will have to train and hire two people for every opening. With the large influx of infrastructure funds, the demand for skilled labor will severely exacerbate the existing problem.

In response to this challenge, the VCBB developed a Workforce Development Plan that outlines a framework and roadmap to address five major areas:

- Increase industry awareness and involvement in the opportunity created by these programs.
- Increase adequate capacity of education and training programs to develop the talent pipeline.
- Promote, target and recruit participants in Vermont.
- Support for the industry to create sustainable employment opportunities.
- Establish a roadmap of career possibilities for participants in the Workforce Development Programs.

The VCBB, working with the Vermont Department of Labor, surveyed telecommunications companies in December 2021. The results of those surveys showed that companies were not aware of the amount of construction that Vermont was planning, nor were these companies prepared for the increased demand that would be placed on their workforce. The exception was Consolidated Communications, which already had 30 unfilled openings.

Deployment Needs and Gaps

The BEAD program provides Vermont with a valuable opportunity to expand broadband infrastructure to unserved and underserved locations as well as CAIs lacking high-speed broadband. The first three objectives of BEAD funding are to expand high-speed broadband access to (1) unserved locations lacking access to 25/3 Mbps broadband; (2) underserved locations lacking access to 100/20 Mbps broadband; and (3) eligible CAIs. According to NTIA, “an Eligible Entity that can demonstrate it has a plan for bringing affordable, high-speed broadband service to all unserved and underserved locations within its jurisdiction may also allocate funding to non-deployment activities.”[27]

[27] BEAD NOFO, p.39.

Figure 10: BEAD Priority Uses of Funds

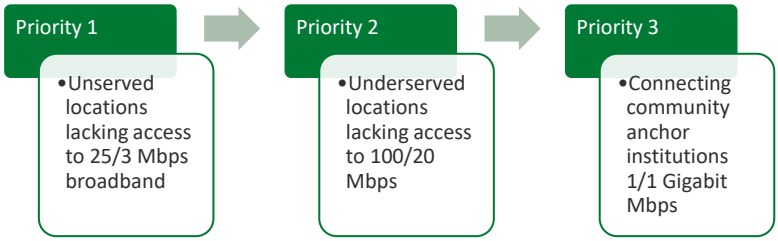


Figure 11 and Figure 12 highlight concentrations of unserved and underserved locations as identified by the current version of the FCC fabric data as of June 8, 2023, that will be eligible for BEAD funding. This will be updated after new data is released June 30, 2023. One can see where Vermont's unserved and underserved locations are most concentrated.

Commented [AJ3]: VCBB: To be updated with newest data prior to release of public comment

Figure 11: Percentage of Eligible Unserved Locations by Census Block (Source: FCC BDC June 8, 2023)

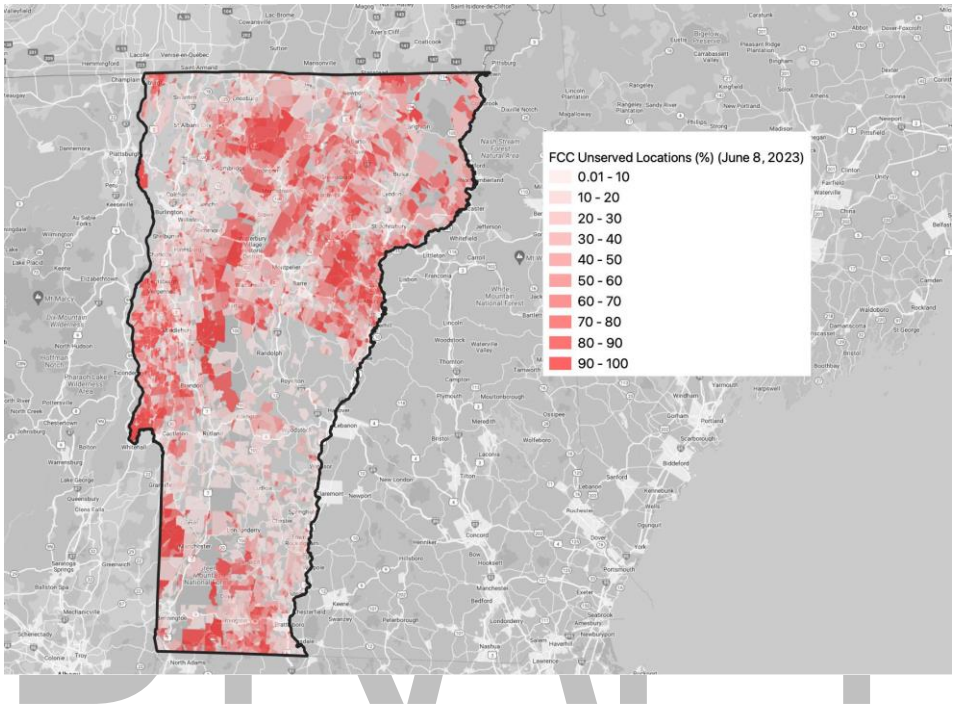


Figure 12: Percentage of Eligible Underserved Locations by Census Block (Source: FCC BDC June 8, 2023)

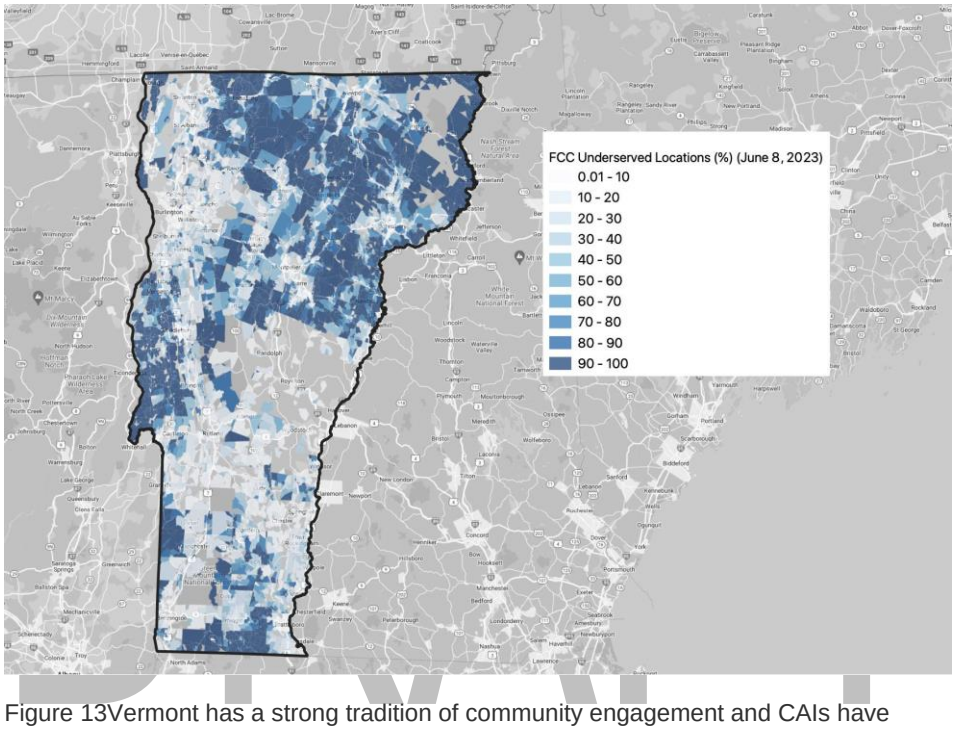


Figure 13Vermont has a strong tradition of community engagement and CAIs have taken on a critical role in advancing digital equity. They are trusted resources in their local communities, providing important services and serving as valuable conduits of information about opportunities and resources for communities. For some people, CAIs offer the best, most affordable, or in some cases, only access to a computer and the Internet. Ensuring CAIs have reliable, high-speed Internet is one of the top priorities under the BEAD program and for the State of Vermont.

NTIA defines the term “community anchor institution” as “an entity such as a school, library, health clinic, health center, hospital or other medical provider, public safety entity, institution of higher education, public housing organization, or community support organization that facilitates greater use of broadband service by vulnerable populations,

including, but not limited to, low-income individuals, unemployed individuals, children, the incarcerated, and aged individuals."[28]

Through consultation with stakeholders, VCBB has adopted the statutory definition of "community anchor institution"—including schools, libraries, health facilities, public safety entities, public housing, and more—and added three more types of organizations: houses of worship, correctional facilities and juvenile detention centers, and public outdoor spaces. This list of types of organizations regularly serves as convening point and provides essential services to communities.

Vermont's List of Community Anchor Institution Types:

- K-12 schools
- Higher education institutions (such as University of Vermont, and Community College of Vermont)
- Workforce development organizations (such as VT Department of Labor locations, Working Fields, and Pathways VT)
- Adult education agencies (such as VT Adult Education, and Central Vermont Adult Basic Education)
- Libraries
- Health clinics, health centers, hospitals, and other medical providers
- Public safety entities (such as police departments, fire departments, and EMS headquarters)
- Public housing (such as housing and urban development-assisted housing)
- Neighborhood organizations and community centers
- Houses of worship (such as churches, synagogues, mosques, and temples)
- Local and/or state government buildings (such as town halls, city halls, town clerk offices, and courthouses)
- Housing shelters (such as COTS)
- Social service agencies (such as Age Well)
- Correctional facilities and juvenile detention centers
- Public outdoor spaces

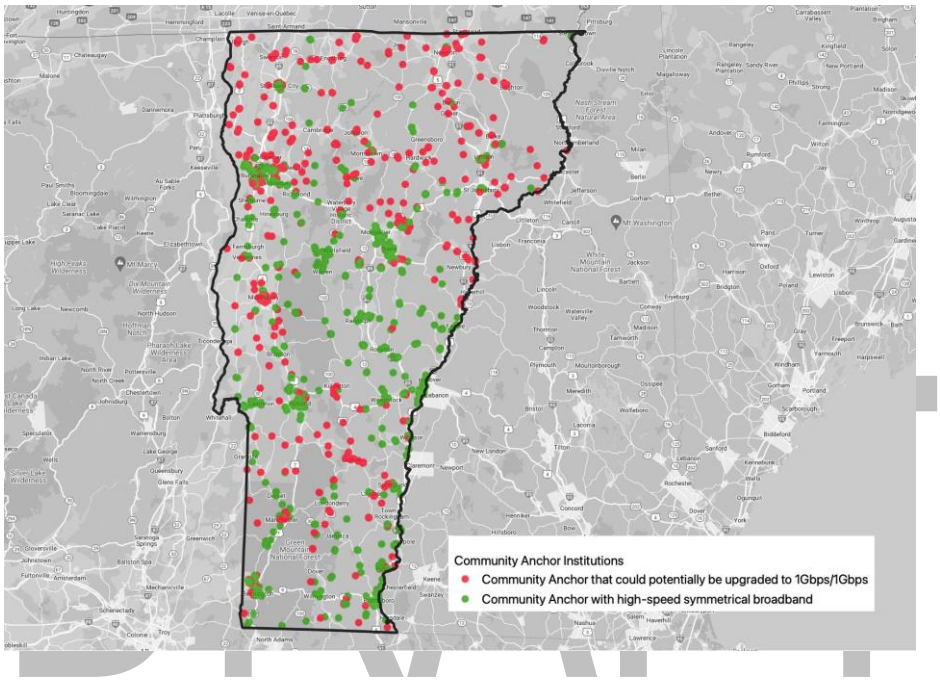
The VCBB has identified specific CAIs using E911 building classification data that includes the following: (i) colleges, (ii) universities, (iii) K-12 schools, (iv) other education facilities, (v) hospitals and medical centers, (vi) clinics, (vii) nursing homes and long-

[28] BEAD NOFO, p. 11. Available at: https://broadbandusa.ntia.doc.gov/sites/default/files/2022-05/BEAD%20NOFO.pdf.

term care, (viii) community and recreation centers, and (ix) libraries. VCBB is also working with the Departments of Education, Libraries, Housing and Urban Development, along with other organizations to gather data on locations and available broadband speeds at those locations. VCBB met with representatives from the different types of CAI organizations to understand their broadband and digital equity needs and resources, to request data they have on different locations, and to understand their current available broadband speeds.

CAIs currently lacking symmetrical Gigabit-speed broadband service will be classified as an "eligible community anchor institution," meaning they will be prioritized for BEAD subgrant-funded deployments. The Public Service Department recorded all buildings that had 100/100 Mbps symmetrical broadband and higher. We assume that a building with access to 100/100 Mbps symmetrical broadband most likely has access to fiber and would be capable of upgrading to a 1/1 Gbps service. All community anchor buildings without access to 100/100 Mbps or higher service have been labelled as eligible for upgrade with BEAD funding. We have identified 676 community anchors, shown in Figure 13 that are potentially eligible for an upgrade. The VCBB will continue to analyze and refine this data to finalize its BEAD Initial Proposal and will integrate suggestions and feedback received through the External Engagement process.

Figure 13. CAIs Eligible for Upgrade (Source: Broadband Deployment Speed Status for All Building in the State of Vermont, Vermont Public Service Department, Updated April 17, 2023[29])



C. Broadband Adoption

Adoption Asset Inventory

Approximately 73 percent[30] of households in Vermont have a fixed broadband Internet subscription, which is close to the national average of 72 percent.[31] Areas where less than 60 percent of households have a broadband subscription are predominantly, though not exclusively, rural areas. There are several reasons why some households

[29] Broadband deployment speed status for all buildings in the State of Vermont, available at: https://geodata.vermont.gov/maps/vtpsd::vt-data-broadband-status-2022/about.

[30] US Census ACS 5-year average, "Types of Computers and Internet Subscriptions." 2021. Available at: https://data.census.gov/table?q=Internet+subscription&g=040XX00US50&tid=ACSST5Y2021.S2801.

[31] US Census ACS 5-year average, "Types of Computers and Internet Subscriptions." 2021. Available at: https://data.census.gov/table?q=Internet+subscription&g=040XX00US50&tid=ACSST5Y2021.S2801.

might not adopt broadband, including, among other reasons: affordability of plans and/or devices, service quality and reliability, digital literacy, and perceived need. That said, adoption is a key component of closing the digital divide.

Vermont State Board of Education has adopted the International Standards for Technology Education for student learning.[32] These standards are designed to prepare students to thrive in a constantly evolving technological landscape.

Employers and workforce development organizations are also key assets in broadband adoption efforts as they train employees with digital skills that they can use in their existing and future jobs.

Adoption Needs and Gaps

The number of households subscribing to fixed broadband, such as cable or fiber, is 190,887 out of 262,514 households (72.71 percent).[33] However, there are many areas where the subscription levels are substantially lower than this. Figure 14 shows census blocks in Vermont where less than or equal to 60 percent of households have a fixed broadband subscription.

[32] ISTE. "ISTE Standards: Students." Available at: https://www.iste.org/standards/iste-standards-for-students.

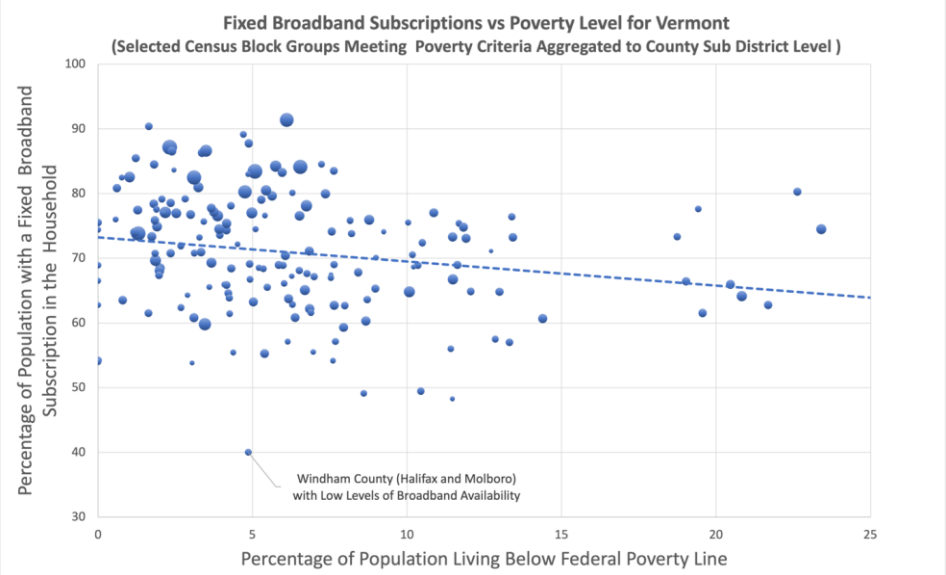
[33] US Census ACS 5-year average, "Types of Computers and Internet Subscriptions." 2021. Available at: https://data.census.gov/table?q=Internet+subscription&g=040XX00US50&tid=ACSST5Y2021.S2801.

Figure 14. Census Tracts with less than or equal to 25/3 Mbps available (unserved) and less than or equal to 60% of Households with Broadband Subscriptions (Source: Vernonburg Group Digital Equity Map)

Utilizing Vernonburg Group's Digital Equity Map, we see that income is the most significant determinant of whether a Vermont household adopts fixed broadband (Figure 1515). This same pattern repeats across the US. Broadband adoption declines with poverty rates in a linear fashion, especially in urban areas. Adoption is also generally lower in rural areas due to a mix of lower broadband availability and poverty. Note that the size of the data points (or bubbles) is proportional to the population in the county and a linear trendline for fixed household broadband subscriptions versus poverty level was created for both urban and rural areas. The percentage of the population living below the federal poverty line and the percentage of the population subscribing to fixed broadband was sourced from the 2021 ACS (five-year average).

This data was collected prior to full implementation of the ACP. It is important that any plans to address the broadband adoption gap include a robust awareness and enrollment campaign for qualified households, as will be reflected in VCBB's forthcoming Digital Equity Plan.

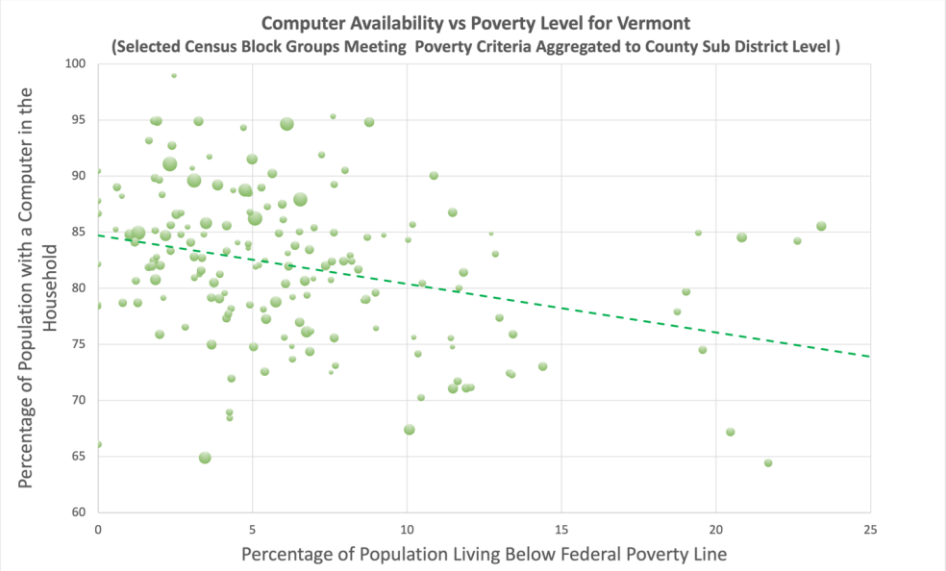
Figure 15. Fixed Household Broadband Subscriptions vs. Poverty Level Aggregated to County Sub District Level in Vermont (ACS 2021 5-Year Average)



Differences in subscription rates among counties with similar rates of poverty might be attributable to differences in broadband availability, as well as localized variability in adoption rates within communities. Wider disparities among rural counties might reflect widely varying subsidization and business models.

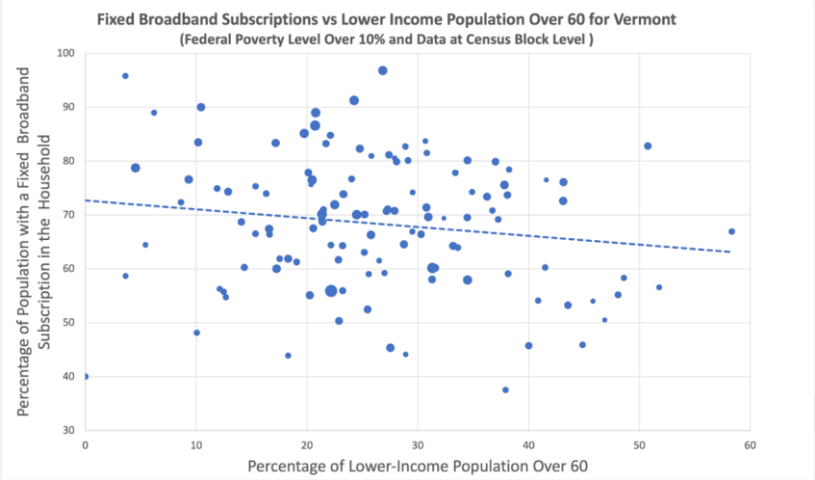
This correlation between income and adoption appears even stronger for computer (desktop or laptop) availability in a household (Figure 16).

Figure 16. Computer Availability vs. Poverty Level Aggregated to County Sub District Level in Vermont (ACS 2021 5-Year Average)



We see a similar impact of age on broadband adoption for lower-income communities in Vermont (Figure 17). A higher proportion of the lower-income population over the age of 60 in a census block translates to lower rates of home broadband subscription. More analysis would need to be conducted to assess the impact of age on broadband adoption as the current data from the US Census does not reveal non-adopters in specific age brackets at an individual level.

Figure 17. Fixed Broadband Subscriptions vs. Lower-Income Population Over the Age of 60 at Census Block Level (ACS 2021 5-Year Average)



D. Broadband Affordability

Affordability Asset Inventory

Affordability of Internet in Vermont is a key issue as around 18 percent of Vermont households live on incomes below 200 percent of the federal poverty line, the primary threshold for ACP eligibility. There are multiple organizations and programs in Vermont working to make broadband connectivity more affordable statewide.

Affordable Connectivity Program

This federal program provides a discount of up to $30 per month toward Internet service and up to $100 for a "connected device" purchase, provided that the "charge to such eligible household is more than $10 but less than $50 for such connected device." A connected device is defined by statute as a laptop, desktop computer, or a tablet.[34] There are currently 75 providers registered in Vermont that participate in the ACP,

[34] See eligibility criteria here: https://www.fcc.gov/acp

including both fixed and mobile service providers.[35] Details are shown by provider type in Table 9.

Table 9: ACP Participating Providers in Vermont

ACP Participants	Number
Fixed Broadband Service Providers	22
Mobile Broadband Service Providers	41
Providers Offering both Fixed and Mobile Broadband	12
Providers Offering a Connected Device Program	38

The ACP program came up frequently in stakeholder conversations during public listening sessions throughout Vermont, and the VCBB directed interested stakeholders to information and resources to assist them in applying. One frequent piece of stakeholder feedback came from Vermonters who are just slightly above the threshold to qualify for ACP who have trouble affording a home Internet subscription.

HUD has scheduled ACP enrollment events at public housing authorities in targeted areas across the State for the summer of 2023. Northeast Kingdom Community Action (NEKCA) was recently awarded a $500,000 ACP outreach grant from the FCC[36] and is coordinating a statewide campaign to increase ACP enrollments. Equal Access to Broadband also provides direct assistance to ACP applicants.

ACP enrollment remains somewhat low in Vermont compared to the number of Vermonters who are eligible for the program. Presently, 17% of eligible Vermonters are enrolled in ACP whereas nationwide numbers are approaching 40% of eligible households. The VCBB is working on more ACP awareness-building efforts in partnership with the Digital Equity Core Team they've assembled.

[35] FCC. "Affordable Connectivity Program Providers." Available at: https://www.fcc.gov/affordable-connectivity-program-providers.

[36] FCC. "ACP Outreach Grant Program Target Funding." Available at: https://docs.fcc.gov/public/attachments/DA-23-194A1.pdf.

Table 10: ACP Participants by County

County Name	Total ACP Subscribers[37]	County Population[38]	Percent Subscribed	HH in Poverty	Median HH Income
Addison	757	37,578	2%	8%	$ 77,978
Bennington	1,433	37,392	4%	13%	$ 63,448
Caledonia	1,518	30,579	5%	13%	$ 55,159
Chittenden	3,995	169,301	2%	10%	$ 81,957
Essex	176	5,994	3%	14%	$ 48,194
Franklin	1,514	50,731	3%	9%	$ 68,476
Grand Isle	205	7,489	3%	8%	$ 85,154
Lamoille	502	26,090	2%	9%	$ 66,016
Orange	824	29,846	3%	10%	$ 67,906
Orleans	917	27,666	3%	13%	$ 58,037
Rutland	2,510	60,366	4%	11%	$ 59,751
Washington	2,455	60,048	4%	9%	$ 70,128
Windham	1,627	45,842	4%	11%	$ 59,195
Windsor	1,614	58,142	3%	10%	$ 63,787

Lifeline

Lifeline is another federal program that offers a monthly benefit of up to $9.25 for phone or Internet plans for eligible consumers.[39] Similar to the ACP, many more Vermonters are eligible for this program than are currently enrolled (See Table 11).

Table 11: Lifeline Subscriber Data for Vermont

Subscriber Count (April 2023)	8,010
Eligible Households	78,796
Estimated 2023 Lifeline Participation Rate	10%

[37] Universal Service Administrative Co. "ACP Enrollment and Claims Tracker." Available at: https://www.usac.org/about/affordable-connectivity-program/acp-enrollment-and-claims-tracker/.

[38] US Census. "QuickFacts Vermont." Available at: https://www.census.gov/quickfacts/fact/table/VT/PST045222.

[39] See qualifying factors here: https://www.usac.org/lifeline/consumer-eligibility/.

E-Rate
The E-rate program is a federally funded program providing discounts to schools and public libraries for their broadband services, Internet access, and related equipment. E-rate works by providing discounts averaging 60-80% on these services. In 2023, Vermont received just over $3 million to subsidize schools and public libraries in purchasing services and equipment.[40]

Rural Health Care Program
The Rural Health Care program is a federal program that provides funding to eligible public or non-profit health care providers for telecommunications and broadband services necessary for the provision of health care.

Affordability Needs and Gaps

According to Education SuperHighway, 23,260 Vermont households have access to the Internet but cannot afford it.[41] In a public survey conducted by the VCBB to gather input for developing Vermont broadband and digital equity plans, 11 out of the 25 responders who do not have a home Internet subscription state that the primary reason for not signing up for service is because the cost of Internet is too high. Out of 890 total survey responses, 488 responded that the cost of Internet service is too high to a question about their experiences with Internet services (the second and third most popular responses were that the Internet was too slow—450 responses—and that the Internet was unreliable—402 responses).[42]

Commented [AJ4]: To be updated prior to public release with latest available data

According to the Vermont Ten-Year Telecommunications Plan (2021), monthly broadband service charges for speeds of at least 100 Mbps down start at $34.99.[43] According to a survey conducted by the VCBB as part of its BEAD planning process, a 56% of respondents pay over $50/month (Figure 18).

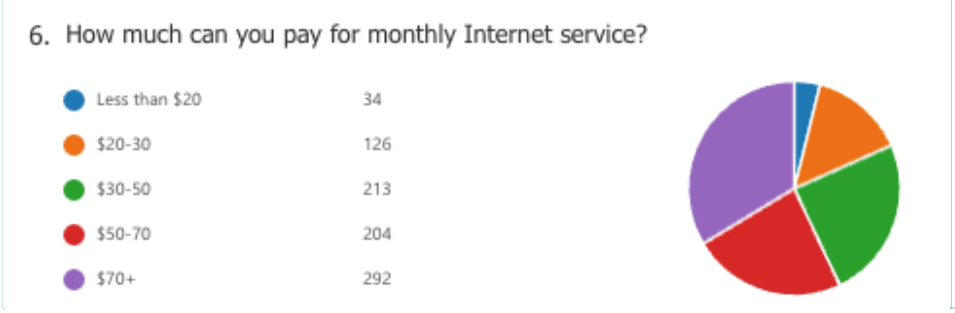
[40] E-Rate Central. Vermont Funding Commitment Overview. Available at: https://tools.e-ratecentral.com/us/stateInformation.asp?state=VT.

[41] Education Superhighway. “Vermont: Broadband Affordability Gap.” Available at: https://www.educationsuperhighway.org/wp-content/uploads/NoHomeLeftOffline_Infographic_Vermont.pdf.

[42] 488 out of 890 responders selected “The cost of Internet service is too high” in response to the question, “Please select any statements that you agree with regarding your experience with Internet use.” (June 27, 2023).

[43] Rural Innovation Strategies, Inc and CTC Technology & Energy. ”Ten-Year Telecommunications Plan.” June 2021. P. 51. Available at: https://publicservice.vermont.gov/about_us/plans-and-reports/department-state-plans/telecommunications-plan/10-year.

Figure 18. Survey Responses Regarding Monthly Cost of Internet Service



Yet, Vermonters are not maximizing the use of broadband affordability programs currently available. Compared to a nationwide participation rate of close to 40 percent, only 17 percent of eligible Vermont households have enrolled in the ACP. The rate of enrollment has been increasing, however. The VCBB's public survey included questions about awareness of the ACP and reasons for signing up or not. Of the survey respondents, only 30 or 4.5% of survey respondents report signing up for ACP. When those who knew about the ACP but had not enrolled were asked why they had *not* signed up, most (153 out of 165 who provided a reason respondents said they thought their income was too large, but a small number also responded that they did not know how to sign up (3) or that the process to sign up was too difficult (9). Over 69 percent of respondents (460 out of 660 who answered the question) had never heard of the ACP, and 80 survey respondents (as of June 27, 2023) requested more information.

The VCBB is actively working with partners to promote awareness of the ACP program and how to sign up. It intends to work with partners and stakeholders such as NEKCA to better understand the barriers to adoption of the ACP program.

E. Digital Equity

Digital Equity Assets

The VCBB Digital Equity Core Team
The VCBB has assembled a Digital Equity Core Team that encompasses organizations that work directly with underrepresented groups across the State of Vermont. Members of this team are listed in Section III.C. Partnerships. There are many examples of digital equity in the work that each of these organizations do, but a few examples are listed here:

Commented [AJ5]: VCBB: To be updated before plan is released for public comment to ensure most up-to-date statistics.

Commented [AJ6]: To be updated before public comment period

- The Department of Libraries supports Vermonters in connecting to the Internet via device lending programs and training and support programs at libraries statewide.
- The State of Vermont Department of Disabilities, Aging, and Independent Living sponsors an Assistive Technology Program which offers services for both individuals and organizations statewide. These services include: 1-1 meetings with Assistive Technology (AT) specialists, AT Training and Presentations, a funding guide, a free equipment loan program, an exchange to buy and sell used AT equipment, and more.
- Vermont Center for Independent Living coordinates a statewide equipment distribution program that loans telecommunications equipment to enable low-income Deaf, Deaf-Blind, Hard of Hearing, and individuals with physical disabilities to communicate by telephone.
- Equal Access to Broadband offers consulting on inclusive policies and practices for broadband service providers and provides individual support in signing up for the ACP.
- VT Veterans Outreach supports Veterans in accessing a VA sponsored Telehealth program that helps Veterans who don't have Internet service or an Internet-connected device get the access they need for telehealth care.

Other Digital Equity Assets

- Tech 4 Tomorrow, a 501(c)(3) based in Williston, VT, empowers individuals and organizations by providing affordable technology, supporting skills training, and enabling virtual opportunities through various local, state, and national collaboration efforts to help individuals and organizations reach their goals.
- Vermont Association for the Blind and Visually Impaired offers training on devices and accessibility features.
- The VT Association of Area Agencies on Aging (V4A), which operate statewide, offer various programs on device usage and digital skilling to older Vermonters. One of these programs is a partnership with GetSetUp, an online community for adults 55 and older to learn and connect with others. V4A has an eLearning channel for Vermonters to take free classes on various topics, including technology and digital skills.
- ReSOURCE Vermont is a registered Microsoft refurbisher, they offer full-service computer repair and sales of refurbished devices. They receive donations of used computers from schools and businesses and operate an apprenticeship program to train computer refurbishers. These devices are then given to low-income Vermonters through their Essential Goods program or sold in stores at a discount.
- Computers for Change is an organization in Burlington that works to provide affordable laptops to the community. They refurbish laptops and sell them at a discount or donate them to schools, nonprofits, and charities. They also offer trade-in credit for used, old, and broken laptops to put towards a refurbished one from their store, and offer free transfer of data from the old machine to the new one.

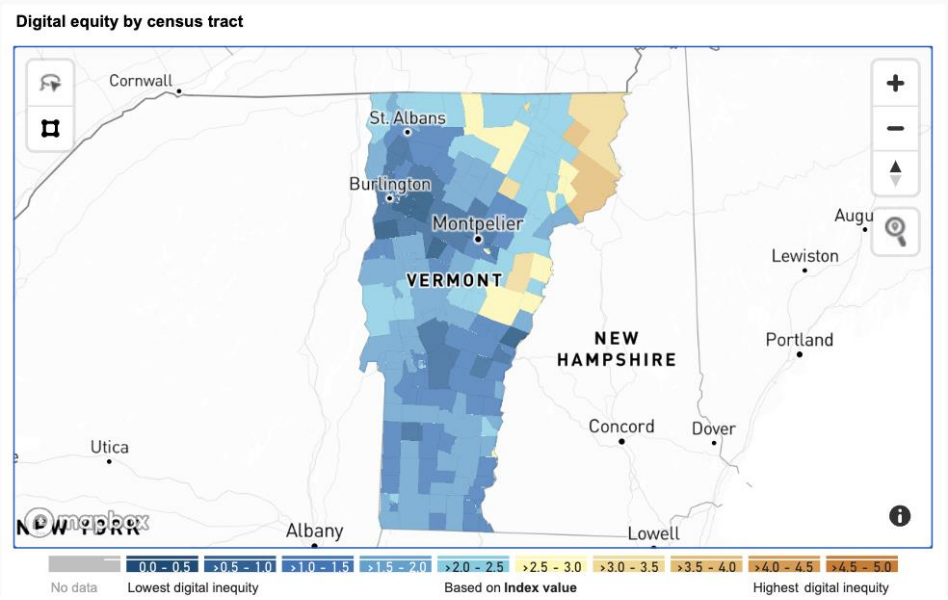
Digital Equity Needs and Gaps

NTIA defines digital equity as “the condition in which individuals and communities have the information technology capacity that is needed for full participation in the society and economy of the United States” (see *Section:*

Definitions). In addition to broadband access, this includes access to connected devices (e.g., a laptop) and the skills to meaningfully use them.

The Microsoft Digital Equity Dashboard evaluates Vermont counties against Microsoft’s Digital Equity Index, balancing the following factors: (1) 25-year-olds without a high school degree, (2) households without a desktop or laptop, (3) households without Internet access of any type, (4) percent of people not using Internet at broadband speeds, and (5) percent of annual median income spent on broadband. The darker the blue shade, the less digital inequity. The deeper the orange color, the higher the digital inequity. Coinciding with broadband availability data, the Northeast region of the State faces some of the greatest digital inequity.

Figure 19. Digital Equity Scoring by County in Vermont (Source: Microsoft Digital Equity Dashboard)



Microsoft's Digital Equity dashboard suggests that statewide, 18.5 percent of Vermonters lack a broadband subscription at home while only 47.2 percent of Vermonters are using the Internet at broadband speeds.[44] Additionally, 18.8 percent of Vermonters lack access to a computer at home.[45] This number is similar to NTIA's estimates that only 70.7 percent of Vermonters use a desktop, laptop, or tablet computer (slightly above the national average of 68.5 percent).[46]

Results from the VCBB's public survey indicate Vermonters face a full range of challenges in meaningfully getting connected online. Cost and reliability of Internet service were identified as the most significant challenges facing Vermonters. Less than 10 percent of the VCBB's public survey respondents identified affordability of devices and confidence in digital skills as a challenge to broadband adoption. The primary barriers are the cost and quality of Internet service.

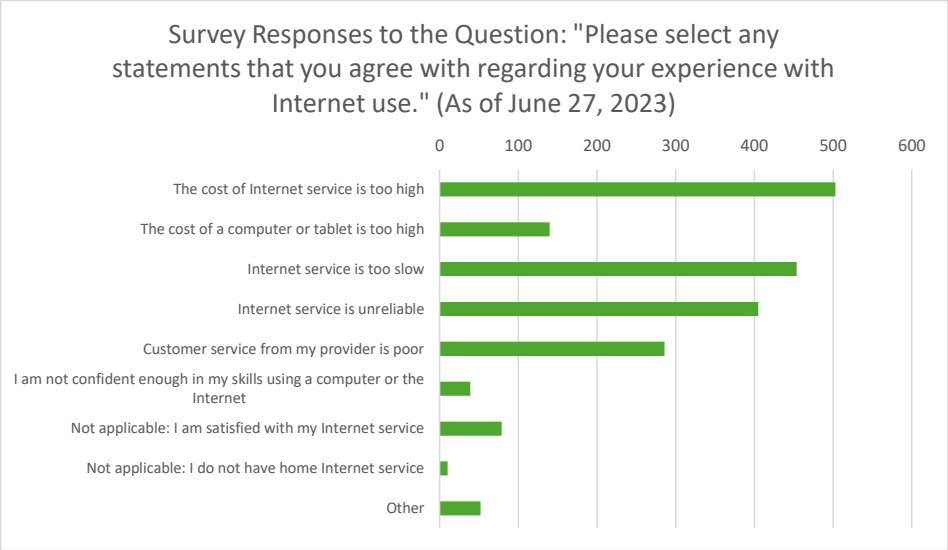
Commented [AJ7]: To be updated prior to release for public comment

[44] Microsoft. Digital Equity Dashboard. Available at: https://app.powerbi.com/view?r=eyJrIjoiM2JmM2QxZjEtYWEzZi00MDI5LThlZDMtODMzMjhkZTY2Y2Q2IiwidCI6ImMxMzZlZWMwLWZlOTItNDVlMC1iZWFlLTQ2OTg0OTczZTIzMiIsImMiOjF9.

[45] Microsoft. Digital Equity Dashboard. Available at: https://app.powerbi.com/view?r=eyJrIjoiM2JmM2QxZjEtYWEzZi00MDI5LThlZDMtODMzMjhkZTY2Y2Q2IiwidCI6ImMxMzZlZWMwLWZlOTItNDVlMC1iZWFlLTQ2OTg0OTczZTIzMiIsImMiOjF9.

[46] NTIA. "Digital Nation Data Explorer." Available at: https://ntia.gov/other-publication/2022/digital-nation-data-explorer#sel=pcOrTabletUser&disp=map.

Figure 20. Survey Responses Regarding Experiences Using the Internet



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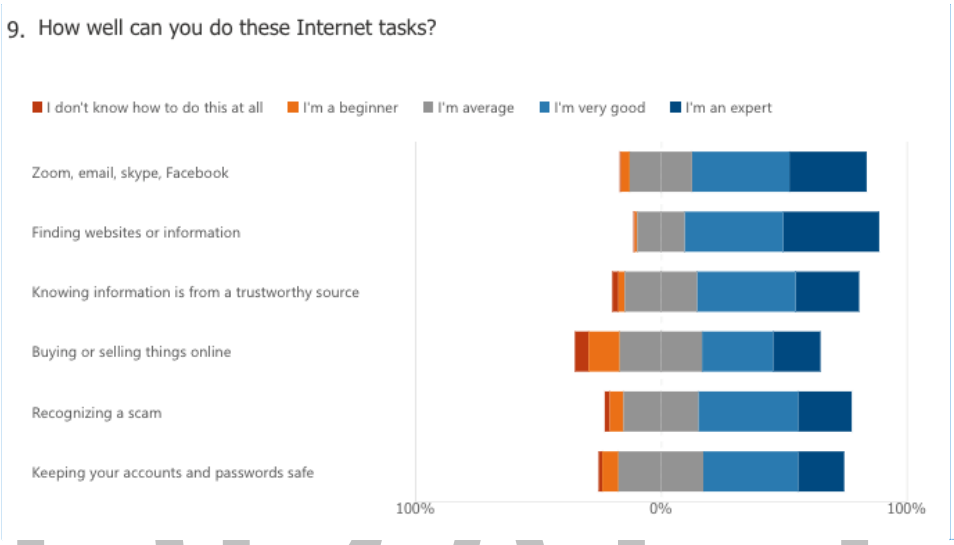
Responses to both the public survey and the request for input on the BEAD Five-Year Action Plan and Initial Proposal, as well as direct discussions with the public, highlighted a general lack of awareness of resources for digital equity. There is an opportunity for the VCBB and partners to do more extensive outreach about what programs and resources can help people get access to affordable computers, assistive technology, digital skilling opportunities, and more.

When surveyed about digital skilling and confidence, respondents mostly rated themselves as average to expert in their confidence with a range of basic online activities. Very few survey respondents rated themselves as a beginner or completely lacking in these basic skills. Nonetheless, during the external engagement process informing the development of this plan, we heard from organizations serving underrepresented communities including formerly incarcerated individuals, elderly populations, and migrant farm workers that digital literacy is a significant challenge and resources are in high demand. Staff of community organizations have found technical support and digital literacy training becoming an increasingly significant part of their roles. This supports the need to highly targeted interventions to groups and individuals in need of digital literacy support.

Figure 21. Survey Responses Regarding Digital Skills Levels



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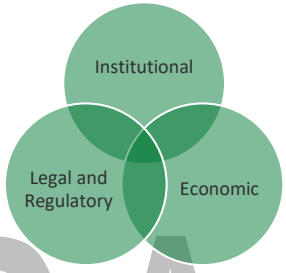
V. Obstacles and Barriers to Implementation

While all reconcilable, barriers or obstacles to implementation of the BEAD Program in Vermont can be categorized in three ways: (1) institutional, (2) legal and regulatory, and (3) economic.



- **Institutional challenges** faced by the VCBB include:
    - Ensuring that CUDs have the technical, managerial, and financial capacity to deploy or oversee deployment of reliable broadband networks, as well as deliver affordable services in a commercially sustainable manner.
    - Effectively serving and advancing the needs of a wide range of historically marginalized communities that may face pre-existing institutional barriers.
    - Maximizing the effective use of funding when data and information about broadband coverage is continuously changing and reporting from ISPs is challenged by the public or other ISPs.

- **Legal and regulatory**:
    - Balancing compliance with federal statutory requirements to conduct an open, fair, and competitive subgrantee selection process while staying true to the municipal CUD structures established by the State Legislature.
- **Economic**:
    - Challenging terrain (hills and mountains combined with dense foliage result in high costs to deploy infrastructure) and low population density (limited potential subscriber base) have hindered broadband deployments in the past. Available funding for broadband network deployment projects –while unprecedented –may prove insufficient.

- Low population density (limited potential subscriber base) can impede the financial and operational sustainability of service provision for some providers and some areas. Even with funding support for capital expenditures, some providers are concerned about a sustainable business model for operating expenses.
- Supply chain challenges and labor shortages are delaying broadband network deployments and increasing project costs. Moreover, inflation is increasing the cost of inputs, resulting in cost overruns.
- Smaller or newer providers may lack the economic capacity to secure irrevocable letters of credit, contribute 25 percent matching funds, and offer low-cost service pricing. These economic hurdles will disadvantage them in the competitive process required by NTIA.
- Several funding sources exist, yet the VCBB has found it challenging to track all the broadband infrastructure and digital equity funding sources, eligible funding recipients, and how and where those funding programs are being allocated. Implementation of management information systems will enable the VCBB to better maximize the use of its own allocations to address gaps and accelerate broadband access and adoption.
- Broadband and telecommunications plans have recommended State subsidies to ensure affordability of broadband service. Yet, the State has only instituted a temporary subsidy using COVID relief funds. Permanent subsidy programs, such as permanent support for the ACP, will be needed to ensure that broadband services and computing devices remain affordable for low-income households.

VI. Implementation Plan

The following section describes the VCBB's plan to implement its BEAD program and achieve its objectives for broadband access and digital equity, including the stakeholder engagement process, strategy for broadband affordability, priorities and planned activities, estimated timeline and cost, alignment to other local plans, and further technical assistance needs anticipated.

A. Stakeholder Engagement

Extensive and inclusive external engagement has been central to the process of developing this plan and will continue to be critical in its implementation. The State has been intentional in crafting an equitable engagement and outreach process, which has been designed to engage all segments of Vermont's population. This comprehensive effort includes various forms of direct engagement with stakeholder organizations,

including non-profits, local government officials, and broadband service providers, as well as extensive outreach efforts to the general public. Principles utilized during the development of this plan were:

- Conduct inclusive stakeholder engagement with intentional outreach to underrepresented communities.
- Build on prior work analyzing the State's broadband needs, lessons learned, and existing policies related to broadband and digital equity.
- Be data-driven: use data and evidence to guide prioritization and decision-making.
- Ensure accessibility: The stakeholder engagement plan as well as subsequent materials and surveys were crafted in consultation with a Disability and Accessibility Strategist.

These efforts are described in detail below.

Initial Planning and Establishment of the Digital Equity Core Planning Team

The idea that the content of Internet for All plans should be guided and informed by public feedback has been central to the VCBB's strategy since these programs were announced. Prior to commencing the plan development process, the VCBB assembled an advisory working group, called the Digital Equity Core Planning Team. This team was designed to include groups working with all NTIA's underrepresented communities (as well as some particularly relevant to Vermont). Participants were selected based on their experience working directly on digital equity and broadband issues and their engagement with underrepresented communities statewide. Many of the representatives to the Digital Equity Core Planning Team are also members of the underrepresented communities that they work with, further underscoring their deep understanding of the experiences of these segments of Vermont's population. This group has been meeting on a biweekly basis since January 2023, and advised on the development of the external engagement process to ensure that it was equitable and would be effective in reaching all segments of Vermont's population. The group also has played a crucial role in the implementation of that process and in reaching members of underrepresented communities. Members of the Digital Equity Core Planning Team include:

- **The Adult Education and Literacy Network** provides free basic literacy and math instruction, high school diploma and General Educational Development completion, and English Language Learning classes.
- **The Association of Area Agencies on Aging** represents five non-profits across the State that help aging individuals access caregiver support, meal programs, transportation, and other services.

- **The Association of Planning and Development Commissions** represents Vermont's 11 regional planning commissions, which act as a link between municipal affairs and state government.
- **The Community Action Partnership** is a network of five non-profit organizations that provides programs and services to low-income Vermonters.
- **The Department of Corrections** is a government agency that oversees six prisons across the state and 12 probation and patrol offices.
- **The Department of Disabilities, Aging, and Independent Living** is a government agency that offers services for Vermonters over 60 and individuals with physical or developmental disabilities.
- **The Department of Libraries** provides services to public and school libraries and houses the Audio, Braille, Large-print, and Electronic-books and Vermont State Libraries.
- **Equal Access to Broadband** works to make broadband affordable for Vermonters.
- **The Vermont Office of Racial Equity** partners with non-profits and local, state, and federal government to advance equity and social justice.
- **The U.S. Committee on Refugees and Immigrants** provides education, workforce development, translation, resettlement, and integration services to Vermont's newcomers.
- **The U.S. Department of Housing and Urban Development** administers programs to ensure fair and equal housing opportunity for all.
- **The Vermont Center for Independent Living** supports individuals with disabilities so that they can live in their own homes and make their own decisions.
- **The Vermont Communications Union District Association** serves to unite the interests of Vermont's growing municipal Internet networks, devising ways to share resources and voicing CUD consensus on critical policy issues.
- **The Vermont Council on Rural Development** is a partnership of national, state, and local non-profit, government, and business leaders that works to address issues facing rural communities.
- **The Vermont Veterans and Family Outreach Program** is part of the Office of Veterans Affairs and helps veterans and their families obtain the benefits they have earned through their service.

Once this team was established and the VCBB selected a consulting team that would support plan development and drafting, the VCBB developed its comprehensive external outreach plan. Digital Equity Core Planning Team members were involved in the development of the external engagement plan in the form of a brainstorm which was

held prior to the development of the external engagement plan and provided feedback on the draft of the plan prior to finalization. This helped maximize the effectiveness of the outreach strategy, particularly in reaching underrepresented communities, and ensure the buy-in of the Core Planning Team as they assisted in implementing these plans.

Identification of Stakeholders

The VCBB made an exhaustive effort to identify all applicable stakeholders and bring them into this plan development process. The VCBB started by identifying stakeholders to participate in the Digital Equity Core Planning Team. Once the Digital Equity Core Planning Team was established and the VCBB's broadband consultant was selected, the collective group brainstormed an extensive list of relevant organizations to target for outreach. Vermont also worked to identify particularly relevant underrepresented communities that should be targeted for outreach beyond those suggested in the BEAD and DEA NOFOs. Vermont reached out extensively to groups working directly with the following populations:[47]

- Low-income households
- Aging individuals (60 and above)
- Incarcerated individuals (formerly and currently)
- Veterans
- Individuals with disabilities
- Individuals who have a language barrier, including individuals who are English learners and those who have low levels of literacy
- Individuals who are members of a racial or ethnic minority group
- Religious minorities
- Individuals who primarily reside in a rural area
- Members of state-recognized Abenaki tribes
- Individuals who are LGBTQIA+
- Organized labor
- Unhoused individuals

[47] Vermont does not have any federally recognized tribes, but the VCBB has still sought input and engagement from local Tribal organizations within Vermont.

- Migrant farmworkers
- Children and youth

Outreach to these groups included offers for individual meetings to discuss the experience of the organization and the populations they serve related to the digital divide, as well as requests that these organizations distribute the survey that Vermont developed and distributed, which is discussed in detail below. These groups were also encouraged to respond to the Request for Input issued by the State of Vermont to inform this Plan, which is also discussed in detail below.

Public Awareness

Vermont leveraged traditional and social media to ensure that there was widespread awareness of the development of Internet for All plans, as well as opportunities for the public to provide feedback. The Internet for All planning process received media coverage from television, radio, print, and online news outlets. Several members of the public, including those who attended virtual and in-person listening sessions, noted that they were made aware of the feedback opportunities through media coverage.

Vermont also leveraged a network that is unique to Vermont: Front Porch Forum. Front Porch Forum is a network of individual community message-boards which residents can join for updates from businesses, elected officials, and fellow community members. The VCBB ensured that public engagement events (described in detail below) were shared on Front Porch Forum in the relevant community to the event. This was accomplished by contacting individuals within the VCBB's network who were members of relevant communities to post information. Vermont also purchased a statewide advertisement, which appeared on Front Porch Forum pages across the state, publicizing the public feedback process and providing a link individuals could visit to learn about in-person listening sessions and ongoing opportunities to provide feedback.

Survey

The VCBB developed and released a survey to collect feedback from Vermonters, particularly those who were unable or unwilling to attend public events. The survey was developed in close concert with the Digital Equity Core Planning Team and included 18 questions on Vermonters' experience with the digital divide along with eight demographic questions to understand which Vermonters were providing feedback. A copy of the survey is available as Appendix II: Public Survey Questions.

Questions for the survey were developed and reviewed by the entire project team to ensure that the feedback collected through the survey would be useful in developing the plan and that the survey provided a comprehensive overview of respondent Vermonters' experience with Internet connectivity. The survey was reviewed for accessibility by

Converge Accessibility (a disability and accessibility strategy firm) and for plain language and readability by Green Mountain Self Advocates, a Vermont-based group that advocates for individuals with intellectual and developmental disabilities and has members of that community on staff. It was also made and distributed on an accessible platform (Microsoft Forms). A Spanish language version of the survey was also developed, as this was of particular importance to the migrant farmworker community.

The survey was distributed extensively through a variety of channels. Digital Equity Core Team members distributed the survey widely throughout their own networks and posted on social media channels. The VCBB made exhaustive efforts to distribute the survey; it was included in all press releases that were issued after its publication and was posted on all the VCBB social media channels. The VCBB sent the survey to members of the Vermont Senate and General Assembly, Vermont's Regional Planning Commissions, Communications Union Districts, school superintendents, town clerks, and submitted it to various organizations for inclusion in newsletters. The VCBB also worked with the Vermont Department of Corrections to have the survey distributed to currently incarcerated Vermonters during educational programming. It was always sent with a request to recipients to distribute it to their networks. Members of the project team also distributed the survey to various organizations throughout the State as identified through the stakeholder identification process described above. Members of the project team, including Digital Equity Core Planning Team members, consulting staff, and Vermont staff members also shared the survey on their personal social media channels. In total, Vermont received over 890 survey responses (as of June 27, 2023).

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Vermont also made available a telephone number, mailing address, and email address so that members of the public could provide feedback in a less structured manner, if that would be more comfortable for them. Vermont received over 130 messages from Vermonters through these ongoing feedback collection channels, which were coupled with qualitative survey results for the purposes of analysis and integration into these plans.

Events

In addition to the survey, Vermont offered real-time opportunities for the public to provide feedback and ask questions about the BEAD and Digital Equity planning process. Vermont hosted two virtual listening sessions via Zoom, and six in-person listening sessions in communities across Vermont.[48] Based on current broadband availability and adoption data for the State of Vermont, event locations were chosen proximate to areas with the lowest rates of broadband availability and adoption, while also balancing with the need to have geographic breadth across the state. Event

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[48] Events were held in Brattleboro (June 14), Rutland (June 17), Newport (June 19), Burke (June 22), Shoreham (June 26), and Swanton Village (June 27). Virtual events were held on June 14 and June 15.

locations were also chosen to ensure easy access to major roads and highways wherever possible, to increase the likelihood of participation for those not from the immediately surrounding region. The events were held most frequently in the evenings, to avoid conflicting with work commitments, with one virtual listening session occurring at noon on a weekday (during popular lunch times), and one in-person event occurring on a weekend. Activities for children were made available for any attendees who could not secure childcare.

Events were planned in close consultation with the Disability and Accessibility Specialist to ensure they would be accessible. In-person events were held exclusively in ADA-accessible locations, with a particular focus on existing gathering places and trusted locations like libraries (where most events were held) and town halls. At virtual events, American Sign Language Interpreters were engaged through the entire event providing real-time interpretation services. Accessibility accommodations were also available for all in-person events by request.

In total, 145 Vermonters attended these real-time listening sessions. Attendees included several small business owners and representatives of relevant stakeholder organizations. The presentation delivered by the VCBB at the start of these events is attached as Appendix III: Listening Session Introductory Presentation .

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The VCBB also identified events where Vermonters, and particularly Vermonters who were members of underrepresented communities, were already gathering, and, where appropriate, established a presence at these events. Events attended included the Vermont Veterans Summit, a VTRID Barbecue (for members of the deaf, hard of hearing, late deafened, DeafBlind, and DeafDisabled community), a World Refugee Day celebration, and an ACP enrollment and outreach event hosted by the Department of Housing and Urban Development and the Barre Housing Authority. At these events, members of the project team distributed the public feedback survey, assisted individuals in completing the survey, and answered questions about the Internet for All planning process.

Coordination with Ongoing Efforts

There are several information gathering and public efforts currently ongoing in Vermont. To minimize duplication and confusion and to avoid overburdening the public with requests for feedback on similar topics, the VCBB felt it was important to combine outreach efforts to the extent possible throughout this process.

- Vermont Veterans Outreach: Vermont Veterans Outreach is attending a variety of outreach events throughout the summer that are specifically tailored to the veterans community. On Saturday June 24, for example, Vermont Veterans Outreach attended an outreach event hosted by the Department of Veterans

Affairs. Vermont Veterans Outreach is distributing the survey and assisting with completion at these events.

- Housing and Urban Development: The Department of Housing and Urban Development is hosting ACP enrollment events throughout the state. As described above, members of the project team attended the first of three outreach events, hosted in Barre, and used it as an opportunity to collect survey feedback. Survey distribution will continue at future events.
- Northeast Kingdom Community Action: NEKCA recently received an ACP Outreach Grant from the FCC. The project team coordinated with NEKCA staff to ensure that they would distribute the Internet for All survey during their outreach efforts (when appropriate) and to coordinate events.
- Equal Access to Broadband: Equal Access to Broadband is a non-profit organization which specifically works with low-income Vermonters to access the ACP and low-cost service plans. Equal Access to Broadband is a member of the Digital Equity Core Planning Team. The Project team has had several one-on-one conversations with Equal Access to Broadband leadership to better understand the work they're currently performing, gathering their thoughts on the barriers experienced by low-income Vermonters in accessing and using the Internet.
- Vermont's Ten-Year Telecommunications Plan: The PSD is beginning an update to its Ten-Year Telecom Plan. The VCBB coordinated directly with the PSD to coordinate the timing of outreach and to identify opportunities to share data and information.
- ACP Outreach Coordination: Given the similar work being performed by three of these groups (in addition to a planned focus on increasing ACP uptake in Vermont's forthcoming Digital Equity Plan), the VCBB convened a meeting of all groups working on ACP outreach in the State. This allowed the groups to synergize strategies, identify gaps in outreach to and support for ACP-eligible households, and coordinate future efforts.

Request for Input

At the end of May, the VCBB released a Request for Input (RFI) on the BEAD Program. The purpose was to solicit feedback and suggestions to inform grant funding, eligibility, and compliance for funds distributed by the State as part of the BEAD Program. Vermonters have put a lot of thought and effort into increasing broadband access, and the VCBB felt it was crucial to give them several opportunities to voice their ideas on how to best continue that work. The RFI was distributed via the VCBB's website, LinkedIn, and distributed via email to stakeholders including those at ISPs and CUDs. Vermont received 44 responses to its Request for Input. A description of the commenters is attached as Appendix IV: .

Individual Engagement with Stakeholder Organizations

In addition to the RFI, Vermont augmented this extensive public feedback with direct outreach to a multitude of stakeholder organizations. Outside of the Digital Equity Core Planning Team, the VCBB undertook multiple levels of direct engagement with ISPs, non-profits and community-based organizations, and other government officials and agencies.

For organizations that will be most directly impacted by the BEAD program, particularly ISPs and CUDs, the VCBB provided multiple avenues for engagement. The project team met with ISPs and CUDs individually, in addition to meetings and conversations with the Vermont CUD Association, a coalition of all 10 CUDs. These groups were also given an opportunity to schedule time to ask questions during weekly "office hours," where representatives of both the VCBB and the broadband consulting team were in attendance. Gathering feedback from these groups, which represent the likely subgrantees of Vermont's BEAD funds, is especially crucial in developing a subgrantee selection process that is practical and workable while adhering to Vermont's vision and goals.

The VCBB also engaged the Digital Equity Core Planning Team members, statewide non-profits and government agencies, and local community organizations that work closely with underrepresented communities to discuss their and their community's experience with the digital divide. These groups also contributed suggestions for how to make this plan as successful as possible for everyone in Vermont. Examples of such organizations include Working Fields, a workforce development organization for the formerly incarcerated, Migrant Justice, an organization that supports migrant farmworkers and their families, and Vermont Council on Rural Development, an economic development organization that has worked specifically on digital equity issues in the past. These organizations provided feedback that was used to inform the plans and were also particularly important in expanding the reach of the VCBB's survey into underrepresented communities.

If organizations were not receptive to scheduling or too busy with other priorities to schedule an individual meeting, the VCBB continued to reach out via email to those groups to pass along information on public feedback opportunities. Those organizations could then forward the information along to their various email lists.

Public Comment Period

A draft of this Plan also was released for 14 days of public comment. Vermont worked proactively with those who submitted feedback to address any concerns and further refined the Plan prior to its finalization and submission.

The VCBB undertook a public awareness campaign to ensure interested parties were aware of the public comment period. This included outreach to television, print, online, and radio outlets, outreach to stakeholder organizations who have already participated in the external engagement process during the plan development phase, and a public briefing where Vermont officials provided a summary of the draft plan and an overview of how to submit comments.

In summary, this extensive external engagement process, which included outreach to government agencies, ISPs, CUDs, nonprofits, community organizations, elected officials, and the Vermont public, resulted in:

- Bi-weekly meetings of the Digital Equity Core Planning Team
- Six regional in-person events
- Two statewide virtual events
- 22 virtual "roundtables"— convening group conversations, as well as individual meetings with relevant stakeholder groups as identified by the VCBB
- 13 one-on-one interviews with members of the Digital Equity Core Planning Team, CUDs, and several ISPs
- Five community-based events specifically targeting Covered Populations
- 44 responses to the request for public input on the BEAD Five-Year Action Plan and Initial Proposal
- 890 responses to the community survey
- 115 emails and phone calls received containing feedback from Vermonters
- One public comment period on the draft BEAD Five-Year Action Plan (a further comment period will be provided for the BEAD Initial Proposal)

Results

Vermonters provided extensive feedback on a variety of aspects of the digital divide.

Accountability

Vermont has a history of unfulfilled broadband network deployment commitments. As a result, Vermonters consistently cite accountability as a top priority for the BEAD program. Dozens of written comments (collected through qualitative survey response and through email) referenced this history and mistrust of large privately-owned ISPs. This issue was also mentioned at four of the listening sessions where comments were met with widespread agreement. Several attendees at multiple in-person events voiced

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a preference for municipally owned and operated broadband providers considering this accountability concern, a sentiment that was echoed in 30 written public comments.[49]

Another area stakeholders focused on was accountability of providers to existing customers. 31 percent of those surveyed reported poor customer service by ISPs (albeit without distinguishing between those publicly- or privately-owned).[50] This was supplemented by significant qualitative feedback related to ISP service. An attendee at the Newport listening session (who is a disabled, 74-year-old female Veteran currently pursuing her master's degree at the University of Vermont) reported that she spent the past 18 months being told by her provider that issues with her Internet connectivity were related to the computing device she was using. She purchased a new computer, at significant personal cost, had the same connectivity issues, and was again told by the provider that the problem was her computing device. She again spent significant time working with the device manufacturer, who eventually determined that the bandwidth of her home connection was at issue. Multiple other attendees at listening sessions across the state reported being unable to reach customer service lines for their provider and unsatisfactory resolution to issues. This is coupled with reported consistent rate increases despite no improvements in service and existing service which infrequently reaches advertised speeds, which are already well below the BEAD program's 100/20 benchmark for high-speed broadband service.

It is important to note that attendance at stakeholder events, formal comments, and responses to surveys was voluntary. In addition, given the goals of the BEAD Program, stakeholder events were intentionally held in parts of the State with lower rates of broadband availability and adoption. It is possible that those who attended these events or responded to the RFI or survey are not representative of all Vermonters. Nonetheless, they do represent a vocal and largely dissatisfied group.

Robust accountability measures in the administration of BEAD subgrants, therefore, will be of immense importance in securing the buy-in of the Vermont public and to avoid the pervasive and negative experience that has proven widespread in the State. Many Vermonters' preference for municipally-owned broadband networks, and CUDs in particular, reflects their desire to have more direct and timely access to their providers and a mechanism for ensuring accountability.

Affordability

[49] The VCBB acknowledges that the IIJA and BEAD programs require States to consider "all provider types" in a fair and competitive process. The NTIA BEAD NOFO states that "[t]he Eligible Entity may not exclude, as a class, cooperatives, nonprofit organizations, public-private partnerships, private companies, public or private utilities, public utility districts, or local governments from eligibility as a subgrantee." For additional information on these requirements see the BEAD NOFO at p. 37.

[50] It is not clear from survey responses whether this means that the remaining 69% of survey respondents are satisfied with ISP customer service.

Affordability was consistently raised as the number one barrier for many Vermonters in accessing the Internet. 70% of Vermonters surveyed described the cost of Internet service as too high, and half of respondents who do not have a home Internet connection indicated that high costs were at least one of the reasons why. It will be crucial that Vermont ensures that low-cost, high-speed plans are available to all low-income and middle-class households using a BEAD-funded network.[51]

Vermont stakeholder organizations that work with low-income communities consistently raised the point that while the ACP is helpful, a $30 per month discount is not enough of a subsidy to make Internet affordable for many Vermont families, due to the high overall cost of service. While maintaining funding for the ACP is crucial, these organizations believe that Vermont should consider a supplemental program to further subsidize the cost of service for families. This feedback was echoed by event attendees at multiple listening sessions. In one case, an attendee (a 35-year-old Black man with disabilities living in a rural area) described the challenges he has affording his $80/month Internet service. The burdensome application process, coupled with customer service issues with his provider in getting the ACP benefit applied, have meant that he continues to pay $80/month for inadequate service. He expressed the importance of not just making the ACP sign up process easier, but of also taking further measures to ensure affordability.

An additional concern among Vermonters is lack of price competition. Many Vermonters express concerns about being served by a single provider of broadband services. Indeed, only 48 percent of Vermonters have access to at least two providers of 100/20 Mbps broadband services.[52] Without any or many competitive options, this means consumers have limited options if and when their service provider raises prices. During public listening sessions, many Vermonters alleged price increases of 50 percent or more every two years, while speeds and service quality have continued to degrade. The Vermont public finds such actions totally unacceptable.

Particularly given the subsidy amounts that BEAD subgrantees will be receiving to build out broadband infrastructure, Vermonters are concerned that ISPs will fall into the same practice of regular rate increases, despite no improvement in service. Accountability measures and/or limits on price increases will be important to ensure that service is not only affordable now but remains affordable into the future.

[51] See BEAD NOFO, p.66.

[52] FCC BDC data, updated June 8, 2023. Available at: https://broadbandmap.fcc.gov/data-download/nationwide-data?version=dec2022

Availability

Availability of high-speed Internet service has been central to feedback received from Vermonters. Many virtual listening session participants complained about the lack of available high-seed Internet connectivity where they live. Over half of survey respondents described available Internet connectivity as too slow.

The negative implications of this lack of availability are multi-layered and profound. Particularly for an elderly and rural population, the Internet can be the only place to keep up with one's friends and family. An attendee at one of our virtual listening sessions said:

> "I don't have a big community in Vermont, and I'm unable to virtually connect with my friends because affordable Internet service that works is simply not available to me. I get lonely, and this Internet would give me some social life back."
>
> -Virtual Listening Session Participant

Coupled with a lack of cellular coverage, lack of available high-speed home broadband is also a safety issue. At Vermont's Burke listening session, one of the attendees, the Director of Outpatient Services for the region's main mental healthcare facility, described a total inability to connect with patients in crisis during COVID due to the unavailability of service that could support something as basic as a Zoom call at his home. For people in crisis, the inability to connect to services can be a life-or-death hurdle. Another attendee at the Newport listening session, a 74-year-old woman recovering from cancer, who has an extremely slow connection and significant reliability issues, lives alone and was ill during her cancer treatment. She was unable to reach out to any of her friends or her care team for multiple days due to an extended outage of her connection and was forced to wait until a friend who lives internationally contacted law enforcement for a welfare check before she was able to seek help.

Reliability

Service reliability has proven to be a major challenge for Vermonters. Over 50% of survey respondents cited reliability issues as being one of their chief complaints about their Internet experience, and over 50 percent of survey respondents indicated that they experience Internet outages, inability to place or take video calls, at least twice a week (with 30 percent indicating they experience those issues at least once a day). Issues of

service reliability were also brought up during every listening session held by Vermont related to this project.

One of the attendees at Vermont's Rutland-based listening session shared that she lives at the end of a dirt road with no reliable connectivity options. She is the caretaker for her husband, who has advancing Alzheimer's Disease, and with no family nearby, is his only support. To regain some independence and ability to leave the house, she purchased livestreaming cameras to place throughout the house to monitor her husband when she's running errands. Her Internet connection at home is so unreliable that the livestream fails almost every time she is out of her house, which has resulted in her being confined to her home again. She is also unable to make tele-health appointments for her husband due to their unreliable Internet connection, greatly increasing the burden of her caregiving.

While the BEAD NOFO requires that all BEAD-funded network deployments satisfy network reliability requirements,[53] it is essential that service reliability is scrutinized in the selection of any non-fiber technologies considered for BEAD funded network deployments. Vermont is a location with both a challenging topography and an extreme climate. The ability of technology to navigate dense trees and mountainous topography in all four seasons is critical. Reliability of technology in extreme cold, snow, and heavy rainfall will also be essential.

Technology

Most Vermonters who provided input declared a strong preference for fiber-optic broadband. At all but one of the events hosted by the VCBB related to this project, most residents expressed the belief that fiber is the only technology that can reliably serve Vermonters, particularly given the topography of the State. This feedback also reflects the feedback received from stakeholder organizations.

During one stakeholder meeting, the founder of a non-profit based in Vermont expressed the implications of the lack of fiber availability on Vermont's economy and workforce. He noted that:

[53] See BEAD NOFO, p.65 (Each Funded Network's outages should not exceed, on average, 48 hours over any 365-day period except in the case of natural disasters or other force majeure occurrence. Each Eligible Entity should ensure a prospective network is designed to meet this requirement and should develop metrics for measuring outages to be utilized in connection with this requirement once the network is operational.).

> Fiber is the future. From a worker retention and attraction perspective, we are finding it challenging to attract the type of talent that we want to our organization without high-speed, affordable, and reliable Internet access being consistently available. We frequently see UVM graduates forced to leave the state not because they want to, but because the types of high-paying, computer-based jobs are uncommon in Vermont. One of the main reasons for that is the lack of high-speed Wi-Fi (and particularly fiber) availability. For Vermont to build a 21st century workforce, it needs 21st century connectivity.
>
> - Founder of a Stakeholder Organization

Additionally, there is a particular sensitivity among some Vermonters of treating those in rural areas as "second-class," and receiving a worse/less reliable/less future-proof connectivity option. It is the VCBB's expressed goal to connect as many Vermont households to fiber as possible. However, in situations where connecting an address would exceed the VCBB's extremely high cost per location threshold and alternative lower-cost technologies are being proposed, it will be important to reassure Vermonters of the reliability and speed capabilities of alternative technologies being deployed.

Community Anchor Institutions

Vermont is a state of small cities and towns, where many communities do not have many of the CAIs that people living in more developed areas of the country would consider a given. Therefore, it was particularly important to get feedback from the public on locations that serve as central gathering points within the community, including for underrepresented communities and where individuals may go to access services.

The VCBB asked members of the public and stakeholder organizations what important community locations were missing from this list. Feedback highlighted how many community hubs are different in each town and region of Vermont, and often they are private businesses. The suggestions provided valuable input for understanding how to get the word out about proposed broadband networks, new services available, and digital equity resources. The VCBB has decided to add houses of worship, prisons, and public parks/gardens to the initial list of CAIs provided by NTIA (see box).

- Houses of Worship: Houses of worship are places where members are from all walks of life, including BEAD's Underrepresented Communities. Additionally, in many communities across Vermont, houses of worship provide services to Vermonters, and particularly to low-income families and Vermonters experiencing

housing insecurity, through soup kitchens/meals on wheels programs, charity shops for clothing and household items, and low-cost daycare programs.

- Correctional facilities and juvenile detention centers: In order to close the digital divide for currently incarcerated Vermonters, VCBB must ensure that all of Vermont's correctional facilities have reliable, high-capacity broadband available. This will also allow these facilities to improve offerings for inmate education and workforce training.
- Public outdoor spaces: Public outdoor spaces like community parks and gardens are frequent gathering places for Vermonters, including members of Underrepresented Communities. These are places without admission fees or membership requirements, meaning that these are locations that have low barriers to entry and attract each of our underrepresented communities. This is reflected in the fact that several of the population-specific events that VCBB attended as a part of the stakeholder engagement process were held in parks across VT. In the warmer months, these are also frequently locations where community members gather for community programs or concerts, which will also attract members of Underrepresented Communities.

Vermont's List of Community Anchor Institution Types:

- K-12 schools
- Higher education institutions (such as University of Vermont, and Community College of Vermont)
- Workforce development organizations (such as VT Department of Labor locations, Working Fields, and Pathways VT)
- Adult education agencies (such as VT Adult Education, and Central Vermont Adult Basic Education)
- Libraries
- Health clinics, health centers, hospitals, and other medical providers
- Public safety entities (such as police departments, fire departments, and EMS headquarters)
- Public housing (such as housing and urban development-assisted housing)
- Neighborhood organizations and community centers
- Houses of worship (such as churches, synagogues, mosques, and temples)
- Local and/or state government buildings (such as town halls, city halls, town clerk offices, and courthouses)
- Housing shelters (such as COTS)
- Social service agencies (such as Age Well)
- Correctional facilities
- Public outdoor spaces

Process During Plan Implementation

External engagement will continue throughout the development and implementation of Vermont's BEAD Program. For the next several months, the VCBB will continue to reach out extensively to stakeholder organizations in the context of the development of the Digital Equity Plan and the BEAD Initial and Final Proposals. This outreach will include continued direct outreach to stakeholder organizations, and particularly those organizations that are working in the digital equity space and/or well-positioned to play a role in the implementation of the Digital Equity Plan.

Throughout the implementation of Vermont's BEAD program, the Vermont project team will continue to provide updates to interested stakeholder organizations. This will naturally include extensive coordination and engagement with subgrantees to work with them through the subgrantee application and project deployment processes. It will also be particularly important to be aware of additional broadband infrastructure grant funding that is coming into the State through programs like ReConnect, and to have an up-to-date map and understanding of the current state of access in Vermont. This will also include providing continued updates to organizations who have participated in the plan development process. The Digital Equity Core Planning Team will continue to advise the VCBB throughout the implementation of the BEAD and Digital Equity Plans.

The VCBB will also continue to coordinate with organizations doing complementary outreach, including the organizations described above. This will also include identifying additional related initiatives that commence during the plan implementation process. ACP outreach coordination meetings will continue monthly for the foreseeable future, and additional groups will be added if additional ACP outreach programs are initiated in Vermont.

B. BEAD Priorities and Planned Activities

The first objective under the BEAD program is ensuring all Vermonters have access to high-speed broadband. The following priorities align to the vision, goals, and objectives to address the broadband and digital equity needs and gaps described earlier.

Goal: Mobilize resources for end-to-end fiber broadband infrastructure deployments to all unserved and underserved locations and CAIs in Vermont.

Priorities:

- Ensure that Vermont's BEAD Program successfully extends broadband access providing throughputs of at least 100/100 Mbps to all unserved and underserved locations and at least 1/1 Gbps to all CAIs.
- Attain NTIA approval for Vermont's broadband and digital equity strategies and plans.
- Promote resiliency and redundancy in broadband infrastructure across the State.
- Provide clear guidance and assistance to prospective and selected subgrantees.
- Building accountability into the program to ensure subgrantees deliver on commitments in a cost-effective, timely, and compliant manner and Vermonters are able to benefit from sustainable and affordable high-speed broadband services.

Planned Activities:

1. Define and design a grant program to administer BEAD funds, approved by NTIA.
2. Identify all potential assets the State can include for subgrantee matches (including physical assets).
3. Establish the grant administration platform.
4. Share information about eligible unserved and underserved locations with providers and administer a public challenge process.
5. Develop and issue the request for proposals for BEAD subgrants; solicit proposals from potential subgrantees.
6. Evaluate proposals against a transparent scoring rubric and select projects for funding.
7. Administer grants and oversee grant program.
8. Monitor and conduct quality assurance of subgrantees.
9. Conduct ongoing stakeholder engagement to ensure subgrantees are successful and accountable, underrepresented communities are heard and supported, and that the public is aware of Vermont's progress toward implementing the BEAD Plan.
10. Support CUDs, ISPs, and other entities to pursue funding opportunities for expanded broadband deployment and other digital equity initiatives.
11. Provide regular updates to the VCBB Board, Legislature, and general public.

Goal: Ensure sustainable, community-driven solutions across the entire State.

Digital Equity-focused programming will be addressed more specifically and in depth in Vermont's forthcoming Digital Equity Plan. An initial overview of priorities and planned activities is below.

Priorities

- Encourage and support public-private partnerships between ISPs and CUDs, municipalities, nonprofits, and other community organizations to ensure community-centered and community-driven broadband and digital equity solutions are available to and adopted by Vermonters statewide.
- Collaborate with other agencies and stakeholders to compile and increase awareness of digital equity resources for Vermonters.

Planned Activities

1. Develop Vermont's Digital Equity Plan under the Digital Equity Act Program.
2. Partner with other state agencies and Digital Equity Core Planning Team to publish and maintain a centralized digital equity asset inventory.
3. Continue to coordinate with agencies and nonprofits undertaking similar or related work, to avoid duplication and maximize efficiency.
4. Work with all ISPs in the State to ensure programs for broadband affordability are available, promoted, and utilized by Vermonters eligible to benefit from them.
5. Support the CUDs and other local community organizations to ensure residents and CAIs can access high-quality, high-speed broadband and hold providers accountable for the quality and reliability of that service.

Goal: Ensure high-speed broadband services and devices are affordable for all Vermonters

Priorities

- Ensure consumers are provided with services that adhere to values that have been identified by the state, like net neutrality, transparent pricing, no data caps, ongoing customer support, and data privacy.[54]
- Ensure affordable options are available.
- Ensure people are aware of and trust affordable options.

[54] Vermont 10-Year Telecommunications Plan (2021) p. 15.

Planned Activities

1. Define Vermont's strategy for broadband affordability and low-cost service options (for the BEAD and Digital Equity programs), building on requirements and guidelines from NTIA and the Vermont Ten-Year Telecommunications Plan.
2. Promote the ACP and any other resources for affordable broadband service and devices as well as digital skilling.
3. Engage stakeholders to understand how effective the design of low-cost service options and affordability programs are for meeting the needs of income-insecure Vermonters.

Goal: Enhance workforce development for broadband and the digital economy.

Priorities

- Increase broadband industry awareness and involvement in the opportunity created by programs like BEAD.
- Increase adequate capacity of education and training programs to develop the talent pipeline.
- Promote, target, and recruit participants in Vermont.
- Support for the industry to create sustainable employment opportunities.

Planned Activities

1. Continue to convene a working group of stakeholders related to broadband and workforce development (i.e., Department of Labor, technical colleges).
2. Continue to liaise with ISPs and CUDs to understand workforce needs and challenges as well as collaborate on training and recruitment strategies.
3. Assist with the design and implementation of training and apprenticeship programs.
4. Collaborate with stakeholders and community organizations to promote training and career opportunities.
5. Monitor, evaluate, and learn from progress.

Goal: Improve socio-economic conditions across Vermont.

Priorities

- Continue to develop and implement Vermont's broadband workforce development strategy.
- Ensure all CAIs have access to 1 Gbps symmetrical broadband by the conclusion of the BEAD program.

Planned Activities

1. Oversee BEAD subgrantees to ensure accountability for fair labor standards and encourage recruiting from underrepresented communities and State-supported apprenticeship programs.
2. Conduct ongoing engagement of ISPs to understand workforce development needs, in collaboration with the Department of Labor.
3. Continue to support the design and implementation of apprenticeship and job training programs in collaboration with the Department of Labor and potential employers.
4. Support CAIs and work with them to develop or expand programs and resources to increase the use of digital access for socio-economic mobility.

The following principles will underpin the VCBB's approach to implementing Vermont's BEAD Five-Year Action Plan:

Keep an intentional focus on equity	Honor the strategy and efforts already underway in Vermont to tackle inequities in broadband access	Continous stakeholder engagement and collaboration	Ensuring a transparent, fair, and open process
Pursuing a comprehensive plan for broadband affordability	Prudent administration and oversight	Prioritize best value (protect / leverage existing public investments) and avoid duplication of funding	Avoid distortionary investments
Aligning broadband access with broader digital equity efforts	Be data-driven	Listen to communities and make them part of the process	Ensure resilient, future-proof technology and approaches are adopted

Vermont is fortunate to have already established existing community structures to guide universal service with community accountability through the CUDs. Public-private partnerships will be important for the success of this program. Such partnerships will ensure sustainability and accountability of high-quality broadband services. They will also ensure communities are informed and empowered to benefit from such service. Prospective subgrantees of Vermont's BEAD program will be strongly encouraged to engage in public-private partnerships.

C. Execution on Non-Deployment Activities

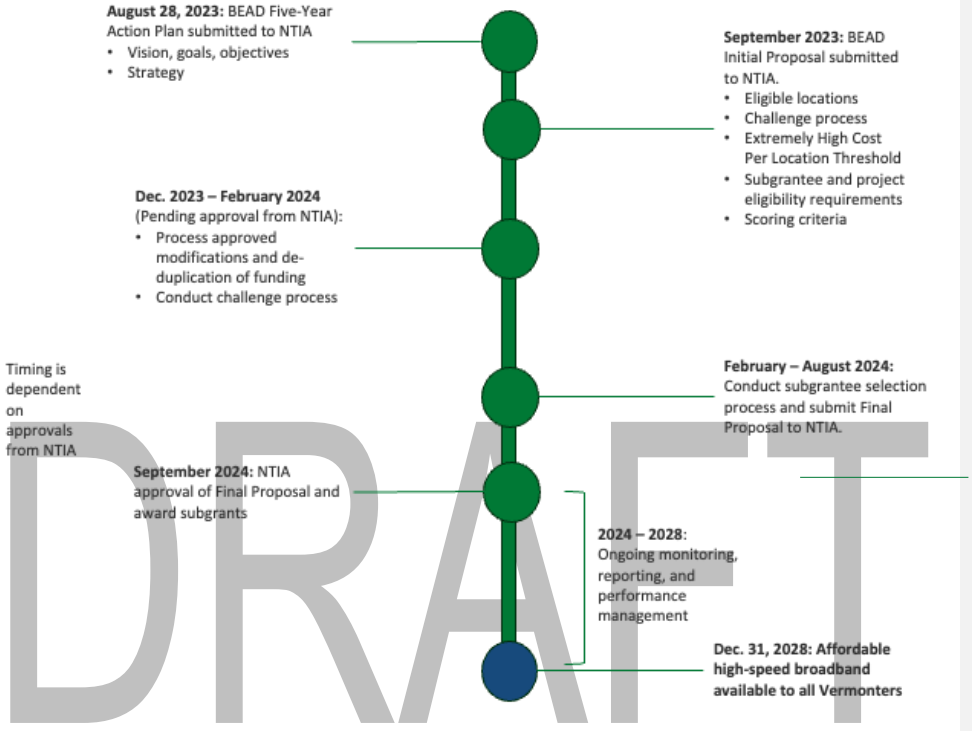
In addition to the investment in broadband availability to unserved and underserved communities across Vermont, non-deployment activities will also be important to advance broadband adoption and digital equity. Digital equity is an important value across Vermont's public service programming (as demonstrated in the Alignment section). Vermont is in the process of developing its Digital Equity Plan—an in-depth statement of Vermont's vision for digital equity and plan to advance digital equity in Vermont. Since broadband access is a major need for the state, the VCBB expects it will need to use all of its BEAD funding on broadband deployment projects. However, if the VCBB is successful in optimizing available BEAD funds (e.g., by encouraging subgrantees to reduce costs, maximize private sector matches, and obtain additional funding for deployments), the VCBB might be able to free up BEAD funding for non-deployment digital equity programming. Whether or not this can be achieved, the VCBB plans to ensure close alignment between BEAD and Digital Equity initiatives.

Central to Vermont's approach to digital equity is maximizing the positive impacts of access to the Internet and devices, while minimizing the potential negative social impacts. The VCBB holds a sense of responsibility to ensure that all Vermonters are empowered to engage in the digital world safely, securely, and productively. This means that programs focused on digital skills (including programs around minimizing the spread of misinformation), device access and affordability, access to assistive technologies and specialized support for people with disabilities, job training, and tele-health expansion will all be central to Vermont's digital equity strategy. The VCBB has already laid the groundwork for these partnerships (as described in the Stakeholder Engagement section above) and looks forward to expanding on these ideas in its Digital Equity Plan.

D. Estimated Timeline for Universal Service

Figure 22 summarizes Vermont's timeline for completing the BEAD program and achieving universal access to reliable and affordable broadband service across Vermont.

Figure 22. Vermont's Estimated Timeline for Universal Service



E. Estimated Cost for Universal Service

Vermont, in line with NTIA, has a strong preference for end-to-end fiber as the broadband technology deployed across the State. This approach prioritizes quality, scalability, and reliability. An estimated $525M will be needed to extend fiber to Vermont's 49,773 unserved and underserved locations assuming an average cost of $10,542 per location (this estimate does not include any cost overruns). With NTIA's allocation to Vermont for BEAD announced at $228M and accounting for matching and other available funds, the VCBB expects it will need to utilize all of its BEAD funding for the first three priorities of the program: extend high-speed broadband to all eligible unserved locations, all eligible underserved locations, and all eligible CAIs.

This cost per location varies significantly across the State's underserved and unserved locations. While some underserved locations could cost as little as $1,000 to upgrade to

fiber, the most expensive unserved locations in the State could cost over $100,000 per location to reach with end-to-end fiber infrastructure. These per location costs were estimated using statistical modeling of previously funded fiber projects in different building densities and aligns with other available estimates.[55]

Three important variables for ensuring that sufficient funds are available for the State to achieve its broadband availability goals are:

- The cost of extending end-to-end fiber connectivity to each unserved and underserved location in the State;
- The amount of matching funds that will be offered by prospective BEAD subgrantees (i.e., how much subgrantees will offer above the statutory minimum of 25% and if the State of Vermont can contribute any additional resources); and
- The amount of funds that the State will set aside to cover any cost overruns (i.e., to account for inflation, supply chain challenges, labor shortages, etc.) or encourage subgrantees to include in their proposed budgets.

It is possible Vermont's BEAD funding allocation, coupled with other available federal and state funding sources, will be insufficient to reach all unserved and underserved locations, as well as CAIs, with end-to-end fiber. The VCBB will pursue approaches to ensure adequate resources are available to expand access to high-speed broadband, including funding the deployment of alternative Reliable Broadband Service technologies in the State's highest cost locations.

F. Alignment

In developing this BEAD Five-Year Action Plan, the VCBB reviewed and aligned State legislation, policies, and strategies with the IIJA and NTIA requirements. The VCBB also has (and will continue to) collaborated with other agencies with related plans and strategies.

Areas of alignment include:

- Setting a minimum broadband speed goal of 100/100 Mbps, in alignment with Vermont Legislature Act 71 of 2021. This is a higher standard than the minimum defined by NTIA in the BEAD Program NOFO.

[55] BEAD Program: A Framework to Allocate Funding for Broadband Availability - Version 2.0, An ACA Connects-Cartesian Study, https://acaconnects.org/bead-program-framework/. The ACA Connects average cost to connect unserved locations in Vermont was $9,321 vs $11,116 in our model and their average cost to connect underserved locations in Vermont was $7,923 vs $8,307 in our model. However, they had a reduced set of locations; 33.7K locations consisting of 14.1K unserved locations and 19.6K underserved locations and many of these may have been in less challenging areas.

- Analyzing planned deployments funded by other federal and state programs (e.g., ARPA, ReConnect) to avoid duplication and maximize the use of available resources.
- Leveraging this historic funding for broadband infrastructure to create high-quality career opportunities for Vermonters, coupled with training initiatives to prepare them to succeed in these new job opportunities. Broadband infrastructure also unlocks opportunities for remote work.
- The importance of expanding access to unserved and underserved communities and addressing challenges of affordability are highlighted in the Vermont Ten-Year Telecommunications Plan. Networks should be resilient, redundant, robust, and flexible for future innovations in technology. Networks should also be capable of supporting Lifeline and public safety services. The plan also recommends that funds should be established to support digital skilling and equity initiatives. [56]
- How information and services are available – the language as well as the venue.[57] For example, broadband and digital equity can enable services such as telehealth for Vermonters for whom access to a health facility is challenging (e.g., distance, cost of transport)

Related local plans for alignment with BEAD include:

Vermont Act 71 (2021)

Vermont Ten-Year Telecommunications Plan

Communications Union Districts Business Plans

ACP Outreach Initiatives

Health Equity Plan and Working Group

Workforce Development Plan and Working Group

Vermont Comprehensive Energy Plan

Vermont Climate Action Plan

Environmental Justice Equity Plan

Language Access Plan

Figure 23: Related Plans for Alignment with BEAD

- Promoting energy efficiency, renewable energy usage, and climate risk and mitigation strategies in broadband deployment.[58] The Vermont Comprehensive Energy Plan "also recognizes the role that broadband services play in delivering transformative technologies to all Vermonters, together with the capability of managing those technologies to

[56] Vermont Ten-Year Telecommunications Plan, p. 8.

[57] Vermont Department of Health. "Health Equity." Available at: https://www.healthvermont.gov/about/vision/health-equity.

[58] Vermont Climate Council. "Initial Vermont Climate Action Plan." 2021. Available at: http://climatechange.vermont.gov/readtheplan.

reduce costs."[59] Expanded broadband access can enhance technologies such as smart meters to improve energy efficiency.

G. Technical Assistance

The VCBB will need additional technical assistance with the following activities as it prepares to implement its BEAD program:

- Identifying and classifying eligible location classifications.
- Compiling, tracking, and de-duplication of funding broadband deployments.
- Obtaining and analyzing information from ISPs about existing plans for broadband construction.
- Refining cost estimates and determining the Extremely High Cost Per Location Threshold.
- Establishing the challenge process and grant administration platform.
- Defining effective subgrantee scoring criteria and selection process.
- Supporting prospective subgrantees in accessing BEAD funds.
- Evaluating subgrantee proposals' technical and cost proposal as well as capacity to successfully complete the proposed project.
- Outreach and communication about deployment plans and digital equity initiatives.

VII. Conclusion

Vermont has focused on the issue of equitable broadband access for many years and has established the frameworks and structure to position it well to execute this BEAD Program. With the historic resources provided under the IIJA, Vermont is ready to seize this opportunity to establish a comprehensive, resilient high-speed broadband network and help Vermonters reap the benefits connectivity can unlock.

[59] Vermont Comprehensive Energy Plan. P. 13, 76. Available at: https://publicservice.vermont.gov/sites/dps/files/documents/2022VermontComprehensiveEnergyPlan_0.pdf.

VIII. Appendices

Appendix I: Summary of Responses to Public Survey

Appendix II: Public Survey Questions

The following questions were included in the public survey issued by the VCBB to gather input for the BEAD and Digital Equity Plans.

1. Do you have a home Internet connection?
   - Yes
     - How often do you have negative experiences with the speed of your home Internet connection (such as disruptions on video calls, buffering when streaming video, waiting for a webpage to load, inability to send emails)
       - Never
       - Rarely (1-2x/month)
       - Sometimes (1x- week)
       - Frequently (2x/week or more)
       - At least daily
   - No
     - If you do not have a home Internet connection, please select all applicable reasons why:
       - Home Internet service is not available where I live
       - Internet service in my area is slow and not worth paying for
       - The cost of Internet service is too high
       - The cost of a computer or tablet is too high
       - I don't know how to use computers or the Internet
       - I do not see the value of home Internet service
       - I do not know how to sign up for Internet/know if it is available at my home
       - I do not trust my information is safe online/fear online surveillance

2. Are you satisfied with your home Internet connection?
   - Yes
   - No
   - Not applicable: I do not have internet service at home

3. Please select any statements that you agree with regarding your experience with Internet use.

- The cost of internet service is too high
- The cost of a computer or tablet is too high
- The internet service is too slow
- The internet service is unreliable
- Customer service from my provider is poor
- I am not confident enough in my skills using computers and the Internet
- Not applicable: I am satisfied with my home internet service
- Not applicable: I do not have Internet service at home
- Other (write here)

4. How much can you pay for monthly Internet service?
   - Less than $20
   - $20-30
   - $30-50
   - $50-70
   - $70+

5. Would you be interested in any of the following services to gain confidence with digital skills? (check all that apply)
   - Classes in your town
   - Online classes
   - A tech support number to call to help you use computers or the internet
   - Other (write here):

6. If you selected any services in the previous question, how much would you be able to pay for them? If you did not select any services, you can skip this question.
   - I would not be able to pay for these services
   - $5-10
   - $10-120
   - $20-50
   - $50+

7. How well can you do these internet tasks?

(1=I don't know how to do this at all, 2=I'm a beginner, 3=I'm average, 4=I'm very good, 5=I'm an expert)

(1=I don't know how to do this at all, 2=I'm a beginner, 3=I'm average, 4=I'm very good, 5=I'm an expert)

Task	Circle One
Zoom, Email, Skype, Facebook	1 2 3 4 5
Finding websites or information	1 2 3 4 5

Knowing information is from a trustworthy source	1 2 3 4 5
Buying or selling things online	1 2 3 4 5
Recognizing a scam	1 2 3 4 5
Keeping your accounts and passwords safe	1 2 3 4 5

8. This question is for people who have a disability. Your input helps us understand how the disability you have affects how you use the internet. People who do not have disabilities can skip this question.

Choose all below that match your experience. You can choose as many answers as you want.

- I don't know about tools that can help me (like a device that reads text out loud, or a way to type without using hands)
- Tools that can help me are too expensive
- I have the devices I need to help me use the Internet, but it doesn't work well
- My disability doesn't affect how I use the Internet

9. Are there any other factors that prevent you from using the Internet at home?

TEXT BOX

10. Have you heard of the Affordable Connectivity Program?
    - Yes
    - No (if no, skip to question 12)

11. Have you enrolled in the Affordable Connectivity Program?
    - Yes
    - No
        - Why noy?
            - I believe my income is too high to be eligible
            - I don't know how to sign up
            - The application process is too difficult

12. The ACP is a benefit program that helps ensure that households can afford the Internet they need for work, school, healthcare and more. ACP provides a discount of up to $30 per month toward internet service for eligible households.

Eligible households can also receive a one-time discount of up to $100 to purchase a laptop, desktop computer, or tablet. Eligible households include:

Participants in one of these assistance programs:

- Free and Reduced-Price School Lunch Program or School Breakfast Program
- SNAP (3SquaresVT)
- Medicaid
- Federal Housing Assistance
- Supplemental Security Income
- WIC
- Veterans Pension or Survivor Benefits
- Lifeline
- Recipients of a Federal Pell Grant
- Households with qualifying incomes

Please include your email below if you would like more information about the ACP.

TEXT BOX

13. Do you see any downsides to expanding access and use of the internet in Vermont?
    - No
    - Yes
        - If yes, what are they?

TEXT BOX

14. One of the requirements of this federal funding is for the State to identify "Community Anchor Institutions--" or places in Vermont communities where it is especially important to have high-speed, reliable Internet access. Our list includes:
    - K-12 schools
    - Higher education institutions (such as University of Vermont, Community College of Vermont)
    - Workforce Development organizations (such as VT Department of Labor locations, Working Fields, Pathways VT)
    - Adult education agencies (such as VT Adult Education, Central Vermont Adult Basic Education, etc.)
    - Libraries
    - Health clinics, health centers, hospitals, other medical providers
    - Public safety entities (such as police departments, fire departments, EMS headquarters)

- Public housing (such as Housing and Urban Development-assisted housing)
- Neighborhood organizations and Community Centers
- Houses of Worship (such as churches, synagogues, mosques, temples, etc.)
- Local and/or state government buildings (such as town halls, town clerks offices, courthouses)
- Housing shelters (such as COTS)
- Social Service Agencies (such as Age Well)

What do you feel is missing from this list of important community locations, if anything?

TEXT BOX

15. Please share any other thoughts you have related to accessing and to accessing and using the Internet in Vermont. What would you like to see in Vermont's Internet for All plans?

Demographics Questions:

16. What is your age?
    - Under 18
    - 18-25
    - 26-45
    - 26-45
    - 46-60
    - 61-74
    - 75-84
    - 85+
17. What is your race (check all that apply)
    - American Indian or Alaska Native
    - Asian
    - Black or African American
    - Hispanic/Latino
    - Native Hawaiian or other Pacific Islander
    - White
    - Two or more races
    - Prefer not to answer

18. What is the primary language spoken in your home?

TEXT BOX

19. Do you identify as a member of any of the following groups? (check all that apply)
    - LGBTQIA+
    - Immigrant/refugee
    - Unhoused/experiencing housing insecurity
    - A person with a disability or chronic condition

- A person who is Deaf, Hard of Hearing, late deafened, DeafBlind, or DeafDisabled
- Recipient of income-based government assistance (SNAP/3SquaresVT, Rental Assistance, Emergency Heat System)
- Member of a state recognized Abenaki tribe
- Resident of a rural area

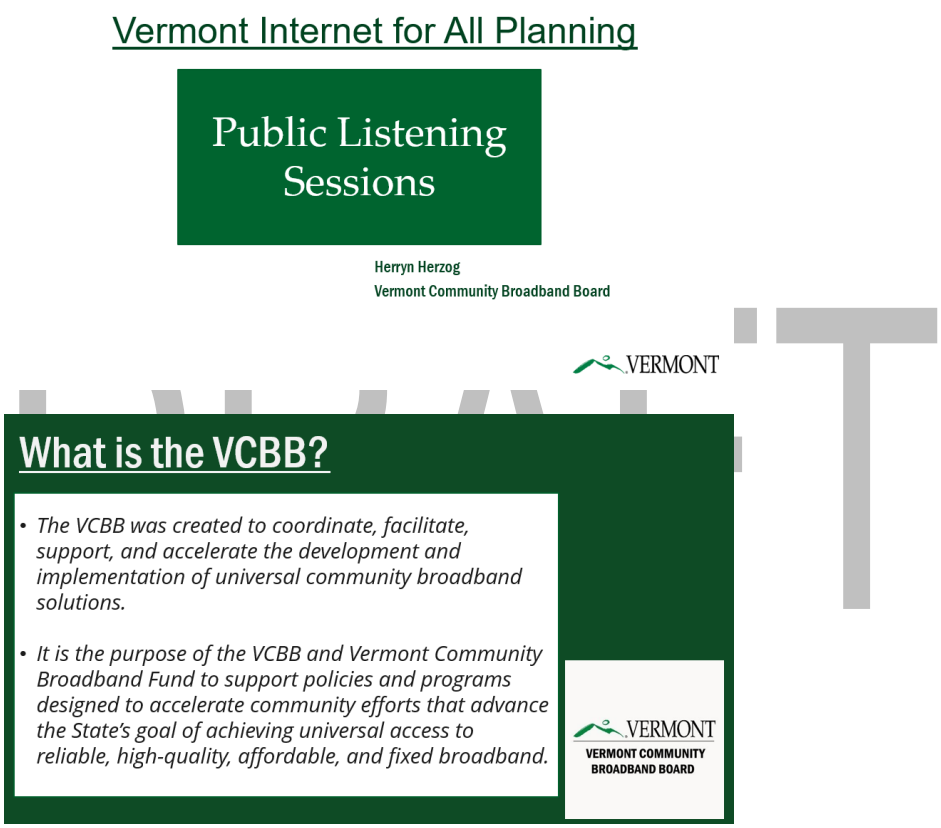
20. Are you a veteran of the Armed Forces or an active-duty service member?
    - Yes
    - No
        - If yes, are you a disabled veteran?
            - Yes
            - No
            - I don't know

21. What is the last grade you completed in school?
    - 8th or below
    - 9th
    - 10th
    - 11th
    - 12th/high school graduate
    - College or above

22. Does your household include people under the age of 18?
    - Yes
    - No

23. If you're interested, write your email below to be entered to win a $100 gift certificate.

Appendix III: Listening Session Introductory Presentation



What is Digital Equity?

- Digital equity means ensuring that all people and communities can afford Internet service and a computer, and have the skills, technology, and capacity needed to fully participate online.

VERMONT

Why are we here?

•The **Broadband Equity, Access, and Deployment Program** provides $42.45 Billion nationwide to expand high-speed Internet access.
1. Expand access to all unserved locations, underserved locations, and community anchor institutions
2. Support digital equity initiatives

•The **Digital Equity Act** provides $2.75 billion to establish three grant programs that promote digital equity and inclusion nationwide.

VERMONT
VERMONT COMMUNITY BROADBAND BOARD

Why are we here?

•In order to get Vermont's allocation of this federal funding (which will be at least $125 million), Vermont needs to produce plans for how we will use the money.

•VCBB believes it is essential that these plans reflect the lived experience of Vermonters. This is also a requirement to receive federal funding.

•We are holding virtual and in-person events across the State to hear directly from you.

VERMONT
VERMONT COMMUNITY BROADBAND BOARD

Discussion Questions

- Why don't you have Internet at home?
- If you have Internet at home, what makes it difficult to use?
- What are locations in the community where you think it is especially important to have Internet (schools, hospitals, community centers, etc.)?
- Are the costs of computers/tablets or Internet service too high?
- What has been your experience with Internet Service Providers?

VERMONT

Comments

- If you think of other comments, or would like to encourage neighbors/other community members to submit feedback, there are multiple ways you can submit thoughts to us any time:

- Phone number: (800) 622-4496
- Mailing address: VCBB, 112 State Street, Montpelier, VT, 05620
- Email: vcbb.info@vermont.gov
- Stay informed of other outreach events by visiting publicservice.vermont.gov/vt-community-broadband-board-vcbband selecting the BEAD and Digital Equity Act page.
- LinkedIn, Twitter, and Facebook
- Please share this information with others in the community!

VERMONT

In-Person Listening Sessions

- Wednesday, June 14, in Brattleboro
- Saturday, June 17, in Rutland
- Monday, June 19, in Newport
- Thursday, June 22, in Burke
- Monday, June 26, in Shoreham
- Tuesday, June 27, in Swanton

More Info – publicservice.vermont.gov/vt-community-broadband-board-vcbb and selecting the BEAD and Digital Equity Act page.

VERMONT

Appendix IV: Request for Input List of Commenters

Respondent Name	Individual or Company	Description of Individual or Company
F. X. Flinn	Company	ECFiber CUD (ISP)
David Solomon	Individual	Individual from Shelburne
Matthew Lawrence LeFluer	Individual	Individual from Alburgh
Laurie Beth Putnam	Company	CVFiber CUD (ISP)
John Morris	Individual	Individual from Marshfield
Lisa Vaillancourt	Individual	Individual from Eden Mills
Stephan Mindel	Individual	Individual from Dummerston
Andrew Tytla	Company	ECFiber CUD (ISP)
Margaret Tiffany	Individual	Individual from Marlboro
Delna Khambatta	Individual	Individual from Williston
Dana Caspersen	Individual	Individual from Kirby
Frank Sawicki	Individual	Individual from Canaan
Ross	Individual	Individual from Middlebury
Diane St. Clair	Individual	Individual from Orwell
Bjorn Jackson	Individual	Individual from Lincoln
David Tucker	Individual	Individual from Sutton
Siobhan Perricone	Company	CVFiber CUD (ISP)
Russell Young	Individual	Individual from Orwell

Respondent Name	Individual or Company	Description of Individual or Company
John Freidin	Individual	Individual from Middlebury
Larry Labor	Individual	State Representative from Morgan
Mark Bowen	Individual	Individual from Barnet
Neil Glassman	Individual	Individual from Barnet
Keith Bellairs	Individual	Individual from Walden
Alissa	Individual	Individual from Groton
Steven Schwerbel	Company	Wireless Internet Service Providers Association
Scott Brooks	Company	Consolidated Communications ISP
Michael Birnbaum	Company	Wireless Internet Service Providers Association Vermont State Coordinator, Cloud Alliance LLC, NEW Alliance LLC, Kingdom Fiber (ISP)
No Name	Company	Comcast (ISP)
Rob Vietzke	Company	Vermont Communications Union Districts Association
Ellie de Villiers	Company	Maple Broadband CUD (ISP)

DEPARTMENT OF LABOR **GRANT AGREEMENT #: 2247AAG03**
MODIFICATION #1

GRANT MODIFICATION

Parties agree to modify Grant Agreement # 2247AAG02, a grant intended to expand registered apprenticeship programs and enrollment within the state, by changing the grant number, expanding the scope of work, extending the end date of the period of performance, and revising the budget category allotments.

The changes are as follows:

Change grant number from 2247AAG02 to **2247AAG03** due to a clerical error that double populated grant number 2247AAG02.

Period of Performance. Shall end on 12/31/2023. Originally set to end on 06/30/2023.

Scope of Work.

- Revise the number of apprentices served from 100 to 50. Through a series of personnel changes at Vermont Tech, it was discovered upon meeting with Community Union Districts (CUDS) and Vermont Broadband Workforce Committee that the focus of the original grant will not meet the needs of the industry. Based on this discovery, a full pivot of curriculum and direction needs to take place. Due to the change in direction, the unanticipated costs in curriculum and materials have necessitated the decrease in numbers served in order to fulfill grant outcomes and not exceed grant total dollars.
- Revise completion rate from 80% to 50%. After grantee's consultation with Vermont Utility Leaders, based on industry trends and despite a fully funded program, the anticipated number of completers will be one third less than originally targeted.
- Revise the relation instruction description to better reflect the program content and course materials.
- Revise Deliverables section to better reflect deliverables of extended semester offerings and student enrollment.

A complete modified Scope of Work outlining all changes is attached.

Budget Information.
Due to changes in curriculum and staffing needs as well as the delivery of the related instruction (classes to be held on-campus), the budget has been revised as follows:

1. Personnel	AS MODIFIED **$130,280.00** ORIGINAL $90,000.00
2. Fringe Benefits (7.65% FICA Rate for faculty plus $20,000 benefits for full time coordinator position)	AS MODIFIED **$29,966.42** ORIGINAL $28,000.00
3. Travel	AS MODIFIED **$1,500.00** ORIGINAL $4,500.00

4. Supplies	AS MODIFIED **$252,549.50** ORIGINAL $25,400.00
5. Contractual	AS MODIFIED **$45,500.00** ORIGINAL $18,600.00
6. Other	AS MODIFIED **$0.00** ORIGINAL $307,000.00
7. Total, Direct Cost (Lines 1 through 7)	AS MODIFIED **$459,795.92**
	ORIGINAL $500,500.00
8. Indirect Cost (Rate 58.6% of Personnel)	AS MODIFIED **$76,344.08** ORIGINAL $35,640.00
9. TOTAL Funds Requested (Lines 8 through 9)	NO CHANGE **$536,140.00**

Budget Narrative.
Changes to the Budget Narrative were required to better reflect the changes in the budget, outlined above. A complete updated Budget Narrative is attached.

Relevant attachments include:

1. Attachment B: Scope of Work
2. Budget Information
3. Budget Narrative
4. Exhibit A to Budget Narrative

***

All other terms of the agreement remain the same.

***

Agreed to by Grantor and Grantee.

[SIGNATURES APPEAR ON NEXT PAGE]

DEPARTMENT OF LABOR **GRANT AGREEMENT #: 2247AAG03**
MODIFICATION #1

Vermont Department of Labor (Grantor):

DocuSigned by:
Michael Harrington
B0A299AGB108499...

5/4/2023

Michael Harrington — Date

Name:	Michael Harrington
Title:	Commissioner
Department:	Vermont Department of Labor
Address:	5 Green Mountain Drive Montpelier, VT 05601-0488

By Vermont Technical College (Grantee):

DocuSigned by:
Sarah Truckle
495E108DCC934D4...

4/25/2023

Sarah Truckle — Date

Name:	Sarah Truckle
Title:	Vice President of Business Operations
Business Name:	Vermont State University
Address:	124 Main Street, Randolph Center, VT 050621
(EIN):	03-0213787

Vermont Department of Labor Internal Grant Review

This grant has been reviewed and approved as to form and content by:

DocuSigned by:
Carly Patrick
25045E0C9536468...

4/24/2023

Carly Patrick — Date
Contracts and Grants Administrator
Vermont Department of Labor

DocuSigned by:
Jay Ramsey
610B01CA843048A...

4/28/2023

Jay Ramsey — Date
Interim State Director, Workforce
Development Vermont Department of Labor

DocuSigned by:
Coriene Hayes
6C5BAE8AE34F441...

5/3/2023

Coriene Hayes — Date
Fiscal Specialist III, Fiscal Section
Vermont Department of Labor

DocuSigned by:
Chad Wawrzyniak
AEA6A3BA1B3747E...

5/4/2023

Chad Wawrzyniak — Date
Chief Financial Officer
Vermont Department of Labor

ATTACHMENT B: SPECIFICATIONS OF WORK TO BE PERFORMED

As Modified by Modification 1

Scope of Work

To complement and support recent state and federal investments in broadband infrastructure throughout the State, VTC worked with the Vermont Community Broadband Board, Community Union Districts, employers, and other specialists in the broadband industry to develop standards of apprenticeship for a broadband installer technician program, which was recently approved by VDOL. This grant provides funding to build capacity and operate a system of related instruction to fund up to 50 new apprentices. VTC will work with employers to become employer sponsors, assist in outreach and recruitment of new apprentices, work with VDOL to register them in the registered apprenticeship program, enroll them in classes, and support the successful completion of coursework and OJT for apprentices and employers.

Related Instruction Description:

The Fiber Broadband Association (FBA) OpTIC™ Path course consists of 144 hours of instructor-led and hands-on practices to equip future fiber technicians with the skills and knowledge required to install, splice, test and maintain “Fiber to Home” (FTTH) and Fiber to the Building (FTTB) systems.

The course is designed using a building block format so that novices to the technology can easily follow the course. Integrated skills training follows the classroom knowledge chapters. By the completion of the course, the technicians will be able to install, test, and troubleshoot components to completed systems, including at subscribers FTTH locations.

Optical fibers are the communications backbone which telephone, cable television, utilities, cellular and internet service providers all use as their dominant transmission medium.

FBA OpTIC™ Path Course Module List

1) Introduction
2) Applications
3) Why Fiber (Advantages)
4) Theory
5) Safety
6) Fiber Types
7) Fiber Geometry
8) Cables
9) Cable Structures
10) Tools
11) Architectures & Topologies
12) Connectors
13) Splicing
14) Splitters
15) Fiber and Cable Management
16) OSP FTTx Fiber Management
17) OSP Installation
18) Premises Installation
19) Test Equipment
20) Testing
21) Systems Overview
22) Optical Network Terminals (ONT)

23) Troubleshooting
24) Exams
25) Glossary (CFHP)

Deliverables:

- VTC will create the course curriculum and operate the classes – in the spring of 2023 and summer of 2023
- VTC will hire instructors and program coordinators
- VTC will involve employers in the instructional design and support them in becoming apprenticeship sponsors
- VTC will provide supplies and equipment for the delivery of the related instruction
- VTC will enroll and this grant will fund related instruction, supplies, and supports for up to 50 apprentices in this program with a 50% completion rate
- VTC will provide reports and information to VDOL as

requested Performance Reporting

VTC will provide quarterly reports to VDOL regarding the status of grant deliverables, updates to timelines, learnings about the content or form of the new program and account of apprentices and employers served using a form provided (including enrollment, completion, demographic, and other data). The final report, due 45 days after the grant is complete, will also include a narrative summary of the grant activities, two or more success stories, information on recruitment and retention challenges, lessons learned, and any other information that would be useful for piloting future programs of this nature.

DEPARTMENT OF LABOR
GRANT AGREEMENT FOR SERVICES

GRANT AGREEMENT #: 2247AAG03

BUDGET INFORMATION

As Modified by Modification 1

Record funds requested for the initial period of performance.

	Grant Amount
1. Personnel	$130,280.00
2. Fringe Benefits	$29,966.42
3. Travel	$1,500.00
4. Supplies	$252,549.50
5. Contractual	$45,500.00
6. Other	$0.00
7. Total, Direct Cost (Lines 1 through 7)	$459,795.92
8. Indirect Cost (Rate 58.6% of Personnel)	$76,344.08
9. TOTAL Funds Requested (Lines 8 through 9)	$536,140.00

BUDGET NARRATIVE

As Modified by Modification 1

Describe how funds will be used. For example, describe the title and role of personnel, the types and purpose of travel, the types and purpose of supplies, the activities that will be contracted, etc. Descriptions may be brief.

Personnel
Amount = $130,280.00
Description: To include one full-time coordinator ($65,000 salary) and 4 part-time instructors.

Responsibilities for the full-time coordinator include, but are not limited to the following:Assist in training new instructors, Register apprentices for upcoming classes, Coordinate class start-ups, Coordinate reporting to VDOL, Employer Sponsor Outreach, Apprentice Outreach, and Coordinate future trainings.

Instructor Salary – related instruction (4 Instructors, $85/HR, 168 Hours) $57,120.00
Instructor Salary – Train the Trainer (4 Instructors, 24 hours/3 days, $85/HR) $8,160.00

Instructor positions have not yet been posted and filled.

Fringe Benefits
Amount: $20,000 benefits for FT Coordinator and $9,966.42 FICA for faculty at federal rate 7.65%

Travel
Amount: $1,500.00
Description: Reimbursement of travel and mileage at federal rate (65.5 cents per mile) for VTC program coordinators, instructors, and other employees doing work under this grant. Reimbursements to be paid based on the U.S. General Services Administration Rates for the given travel area.

Supplies
Amount: $252,549.50
Description:

FBA Curriculum Supplies (50 students, $4,000.00/student) (See Exhibit A)	$200,000.00
PPE Equipment for Pole/Pole Rescue Training ($1,200.00/student, 40 students)	$48,000.00
Classroom supplies, including technological (laptop, camera, etc.) and desk (paper, pens, etc.)	$4,549.50

Contractual
Amount: $45,500.00
Description:

FBA Curriculum (50 students, $450/student)	$22,500.00
FBA Train the Trainer	$10,000.00
OSHA 30 Training (Online, 50 students, $125/student)	$6,250.00
Flagger Training (AGC, 50 students, $135/student)	$6,750.00

Other
Amount: $0.00

Indirect*
$76,344.08 = Federally approved for off-campus rate – 58.6% of personnel
Agreement attached.

EXHIBIT A
Supplies List

FBA OpTIC™ Path Course Material List

Description	Qty per student per lesson
Work mat	1
Table mat	1
Eyewear	1
Fiber Disposal container	1
Black vinyl cloths for station tables (TBD)	1
Work gloves	1
Bare G.652D (note: G.652D/G.657A1 can be used for G.652D) - connector on inside end 5000 m	1
Bare G.652D (note: G.652D/G.657A1 can be used for G.652D) - connector on inside end 1000 m	1
Bare G.652D Ribbon - connector on inside end	1
Bare G.652 D Partially Bonded Ribbon - connector on inside end	5
SC/UPC to SC-APC Patchcords	1
SC/UPC Pigtails	1
SC/APC pigtails	1
SC/APC Jumpers	1
SC/UPC Jumpers	1
LC/APC Jumpers	
MPO Jumpers	1
Jumpers, A2 and B3, labeled as such	1
MM SC (OM3), 1 each for color code identification	1
MM ST (OM1), 1 each for color code identification	1
Damaged connector endfaces	1
Stripping tools (250 and 900 micron)	1
Cable prep tools - end cuts	1
Cable prep tools - mid-entry	1
Tools for specific tasks	1
Cable prep tools - mid-entry - central tube	1
Fixture brackets to hold closures	1
Tweezers	1
Color code cards (FBA)	1
Worksheet for documenting power in/out, microbending and microbending measurements at 1310/1550 nm wavelengths. (Templates provided by FBA)	1
Labeler	1
OTDR 1310/1550 nm w SC/UPC connector (1625 or 1650 nm module optional) with video output to laptop and projector. 1650 nm recommended.	1
Optical multimeter (optional)	
Light source - 1310/1490/1550 nm SC/UPC, 2 KHz modulation	1
Power Meter - 1310/1550 nm SC/APC adaptor cap	1

PON Power meter	
Fiber Identifier (Optional)	1
Visual fault locator with 2.5 mm adaptor or SC/UPC	1
Inspection scope SC/APC adaptor	1
Bare fiber adaptor for inspection scope	1
Launch suppressor boxes (2)	1
White light source (Flashlight or lamp)	1
Spare batteries (AA, AAA, 9V as appropriate)	
Cutback Sample - Loose Tube	1
Cutback Sample - Ribbon	1
Cutback Sample - Drops	1
Cutback Samples - Premise 900 micron cable	1
Cutback Samples - Armored	
Grounding straps/grounding wire/tools	1
Trunk cables – Armored versus all dielectric	20
Loose tube and ADSS cable	20
Microduct cables	20
Central tube ribbon	20
Central tube partially bonded ribbon	20
Loose tube ribbon	20
Loose stranded tube partially bonded ribbon	20
Drop cables (Dielectric and metallic)	20
CO distribution cable	20
(toneable vs non-toneable) ?	20
Flat drop	20
Round drop	20
Indoor cables - ultra bend insensitive	20
Indoor Distribution Cables	20
Breakout cordage	20
Ribbonizing setup	1
Core alignment splicer	1
Clad alignment or fixed v-groove splicer	1
Ribbon splicer, thermal stripper, cleaver	1
Spare electrodes and cleaning kit.	1
Splice-on connectors (SC-APC) and tools	5
Heat shrink protectors (Single)	5
Heat shrink protectors (Flat or Rollable Ribbon)	5
Cleavers (ribbon and single strand)	1
Holder fixtures	1
IPA or fiber prep fluid	1
Fusion splicer cleaning supplies,	1
Cable gel remover and rags	1
Dishwashing liquid and spray bottle and water for flash testing	1
Connector Cleaning supplies	1
Transport lubricant, talcs or oils	1
Fanout kit	1

Air source with pressure gauge	1
Closures and mounting hardware	1
MST or terminal and mounting hardware	1
Pedestal	1
Wall mount panel	1
Transition terminal (NIU/NID)	1
Fiber Distribution Hub	1
Splice trays (Various types-closure and splice panel)	1
Transition tubes	1
Ground wires and rods	1
SFU low visibility fiber	1
MDU low visibility cable	1
1x2 splitter	1
1x4 splitter	1
1x8 splitter	1
1x16 splitter	1
1x32 splitter	1
Dynamometer (optional)	1
Pulling eyes/grips	1
Lashing Wire (optional)	150
Lashing machine (optional)	1
Poles (optional)	3
Strand (optional)	150
Strand hardware (optional)	1
Handholes (optional)	1
Duct (optional)	150
Demo ONT	1
Demo OLT (Optional)	1
Equipment Rack (optional)	1
Plywood for NID installation	1
Simulated wall for home/MDU installation	1
ADSS hardware (Deadends, tangents, dampers, downleads as appropriate)	1

AUTHORIZED GRANT SIGNATORIES

Grantee Organization Name: Vermont State Colleges System

Mailing Address: PO Box 7, Montpelier, VT 05601

NAME(S), TITLE(S) AND SIGNATURE OF PERSON(S) AUTHORIZED TO:

(A) Sign Grant Documents and this Form

NAME: Sarah L. Truckle TITLE: Vice President of Business Operations

SIGNATURE: DocuSigned by: Sarah Truckle 495E108DCC934D4... E-MAIL: Sarah.Truckle@vermontstate.edu

(B) Sign Checks

NAME: Sarah Truckle TITLE: VP of Business Operations

SIGNATURE: DocuSigned by: Sarah Truckle 495E108DCC934D4... E-MAIL: Sarah.Truckle@vermontstate.edu

(C) Sign Cash Requests

NAME: Jocelyn Haley TITLE: Director of Financial Operations

SIGNATURE: E-MAIL: jocelyn.haley@vsc.edu

(D) Sign Quarterly Financial Statements

NAME: Jocelyn Haley TITLE: Director of Financial Operations

SIGNATURE: E-MAIL: jocelyn.haley@vsc.edu

Certification By Person Listed In (A) Above: I certify that the individuals named above are authorized according to federal and state law and grantee organization to perform the stated functions.

SIGNATURE: DocuSigned by: Sarah Truckle 495E108DCC934D4... DATE: 4/25/2023

INSTRUCTIONS FOR THE AUTHORIZATION AND CERTIFICATION FORM

This form may be e-signed or signed manually. A recent copy must be sent to labor.grants@vermont.gov before a grant is executed.

Explanation of Authorization Status:

(A) Sign the Grant and this form: Must be an authorized signor of the organization. Must also sign the final closeout forms.

(B) Sign Checks: Must be authorized to sign checks and disburse the funds on behalf of the organization.

NOTE: The person authorized to sign checks may not be the same person who is authorized to submit cash requests. Also, an individual may not sign their own paycheck.

(C) Sign Cash Requests: Must be authorized to submit cash requests for reimbursement of costs on behalf of the organization.

(D) Sign Quarterly Financial Statements: Must be authorized to submit quarterly financial statements on behalf of the organization.

Revised 05/22

ACT 71 Construction Grant Review Sheet – NEK Broadband

Round Two

SUMMARY SHEET

PLAN

Total Estimated Cost of Universal Service Plan: $201M
Total Miles Required: 2962
Overall Cost per Mile: $67,859
Total # of eligible addresses: 29,658

PROJECT

Cost of proposed project (amount of grant): $17, 939,636
Miles to be constructed: 279
Cost per mile: $64,300
Total # of eligible addresses: 3826
Total Addresses served: 945
Overall Take rate assumption: 24.7%
Towns with addresses to be served this phase: Burke, Craftsbury, Lowell, Glover, Newport Town, Westfield, Derby, Holland

Public Ownership: Yes

CHECKLIST

Business Plan

Note: The business plan is a stand-alone document. Do not refer to documents elsewhere.

Is the Plan Act 71 Compliant? (PASS/FAIL)

Does the business plan include a Universal Service Plan? _X_Yes __No
Does the business plan include the following?

High-level design plans _X_ Yes __No __Conversion of Existing Network
Market analysis _X_ Yes __No __N/A __Existing ISP

Take-rate assumptions _X_ Yes __No
Cash flow positive date (as relevant) _X_ Yes __No __Not Applicable
Expected loan payoff date(s) X__ Yes __No __Not Applicable
Financing models _X_ Yes __No __Not Applicable (fully funded)
Pro forma financial projections _X_ Yes __No
Estimated construction costs _X_ Yes __No
Ideal operational models _X_ Yes __No __Existing Model

Does the Business Plan evaluate the following risks:

Labor needs and availability _X_ Yes __No
Supply-chain contingencies for equipment and materials _X_ Yes __No
Make-ready work _X_ Yes __No
Additional other relevant capital and operational expenses. X__ Yes __No
Contract management including safety/house-keeping X__ Yes __No __Existing Record

What is expected for a HLD? A high-level design consists of a route map. Addresses passed and interconnection points for backhaul. The HLD should also show the planned phases of construction. We understand that these phases may adjust over time.

High Level Design Route Map

- Proposed Construction Phases
- OLT/Distribution Areas (DA)
- Span Routes
    - Backbone Route (that can be part of the span route)
- Passings by Type – (underserved or served/ not on grid)
    - ESite ID, E911 Address, Current level of Service, Phase
- Interconnection Points for Backhaul
    - Location

What is necessary for the spreadsheet: All addresses in the plan with the current level of service. Must include ESite ID, E911 address, Phase

Overview:
Provided an estimated cost for Universal Service Plan: _X_ Yes __No
Provided cost breakdown for proposal project within that plan: _X__Yes __No
Community Match: _x_ Yes __ No __ How much? _$942,400_
Estimate Ratio of VCBB funding to other funding – Universal Service Plan - (Goal – minimum 60/40 for private) ___56/44__
Cost per passing (this amendment) to be constructed or upgraded for addresses included Universal Service Plan: ____$4689_____ Business plan cost/passing __$6,777__
Certification of Acceptance of Conditions: *_X_ Yes __No*
Provided list of subcontracts: *_X_ Yes __No*
Act 71 Compliant Business Plan: *_X_ Yes __No*

Universal Service Plan: (PASS/FAIL)

Demographics of community: _X_Yes __No
Map showing the phases of the universal service plan: _X_Yes __No
Who owns the infrastructure _X_ public __private
Does the applicant account for all underserved addresses? _X_ Yes _No
Will they serve them all directly? _X_Yes __No
If not, did they include letters of commitment or other supporting materials for the remaining addresses? __ Yes __No
Will all addresses in a community be served via this proposal? _X_Yes __No
Are there other funding sources? ___Town _X_Bonds _X_NTIA Grant _X USDA ReConnect (Pending)
Evidence of Community Engagement and Support? _X_Yes __No

Project Description

Narrative and map showing the project proposed for funding. The map should show the route and current level of wireline service at each address (showing cable lines or fiber lines is acceptable) to be served in the phase to be funded with this grant proposal.
Retail Price: _____$89.95____100/100_____ Concerns?_____
Reasonably detailed budget: __X_Yes __No
Plan for monitoring the network: _X__Yes __No
Spreadsheet detailing all locations (ESite ID, E911 Address, Current level of Service, Phase (if applicable), and overbuild rationale for any addresses currently served. _X_Yes _No (Attachment)

Act 71 Criteria

Evidence of collaboration? __X_Yes __No
Steps to address resiliency and ensure redundancy? __X_Yes __No
Is the project designed to provide service to unserved and underserved? Incidental overbuild is at or under 20% and the proposal passes the overbuild "tests" - __X_Yes __No
Sustainability – If more than a single phase, does the business plan support achieving universal service? __X_Yes __No
Affordability – Has the applicant certified it is participating in the Affordable Connectivity Program or the equivalent? _X__Yes __No
Technical and Security Approach _X__Yes __No

Attachments:

Act 71 Compliant Business Plan _X _Yes __No
Letters of Support __Yes __No X_ (required for nonCUD)
Documentation of Community Match _x_Yes __No __Not applicable
Response to Service Quality Complaints: __Yes __No _X _Not applicable
Operating agreements: _X_Yes _No _Not applicable
Maps, Spreadsheets and High-Level Network Design: _X_Yes _No

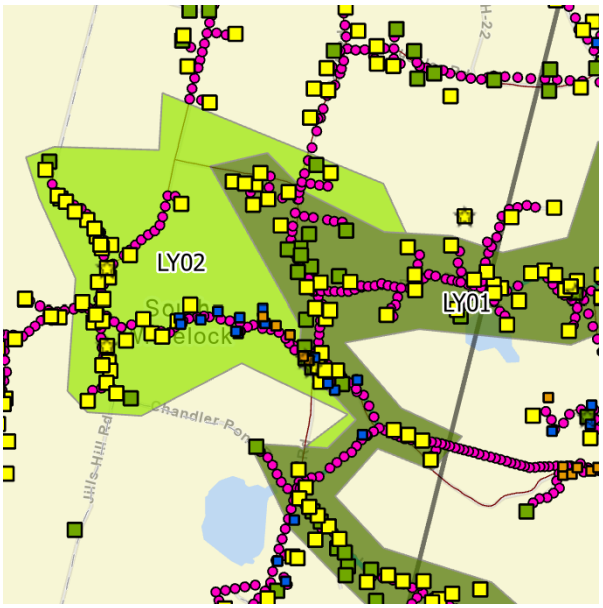
Introduction and Outline of Amendment Request

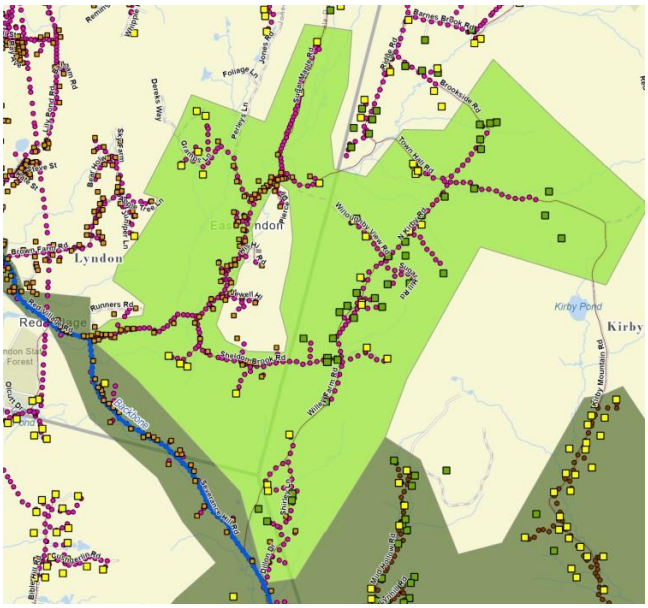
This grant amendment is to supplement the existing construction grant contract with additional areas. NEK Broadband is currently allocated roughly $65 million. After our original construction grant contract and our first amendment we have been awarded a total of $20,865,889. This amendment seeks a total additional amount of $17,939,636 for a total construction grant contract amount of $38,805,525. The additional areas comprise the remainder of our backbone that is outside of the ReConnect award and deeper distribution throughout the network. Each section is broken down by the Optical Line Terminal (OLT) Equipment Cabinet that serves a Distribution Area (DA). DA's are essentially work packets inside an OLT area. We are requesting the following additions to our construction grant.

In all maps the light green polygon is the proposed amendment; the dark green is from Construction Grant One, and the hatched green is from Construction Grant Two (the first amendment). Under 4/1 Mbps is green squares, under 25/3 Mbps is yellow, orange is cable, fiber is red.

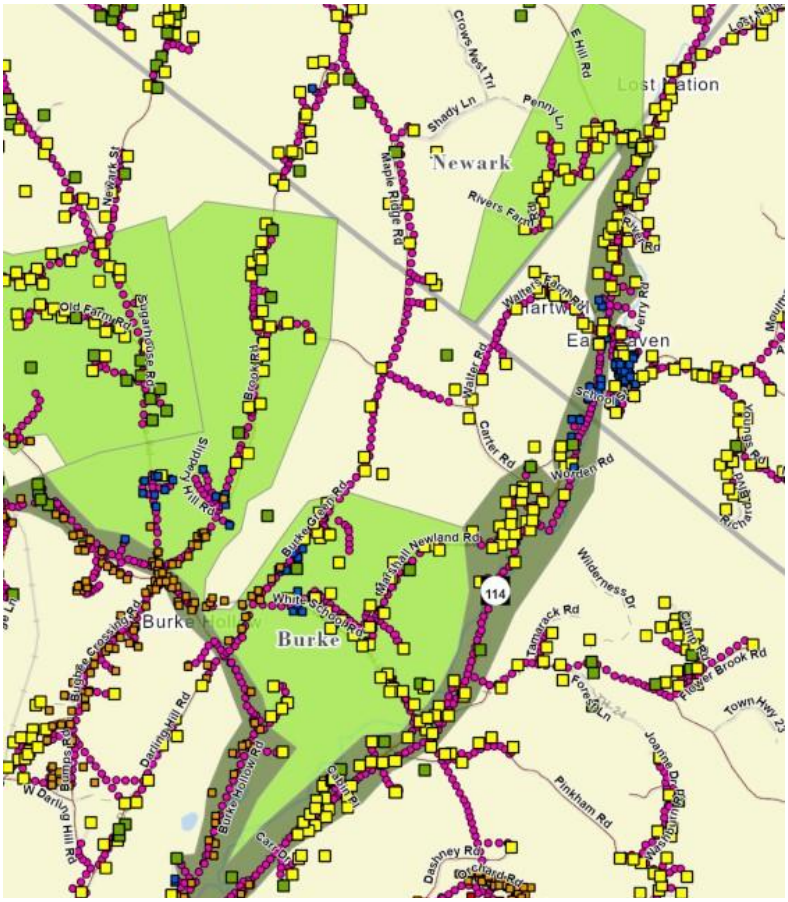
I. Proximity of Construction Grant 1(dark green)

A. LY02: This area adds a section of Wheelock(left) and a section of Kirby and Lyndon (right). These areas have make-ready applications issued. The dark green is construction grant 1, the light green is for this amendment. This area covers 180 addresses, 100 or 56% are eligible. This application does not include any addresses that are not necessary to reach the unserved addresses. It does NOT include addresses on the following roads: Pierce Dr, His Hill Rd, Jewell HI, Runners Rd. In addition the area prepares us to reach more than 125 unserved (yellow and green) premises to the north in Kirby, Lyndon, and Wheelock. Every served address that we are passing is necessary to pass in order to reach unserved areas - grant funds will not be used for any served dead-end roads as identified above. (Pink dots are Lyndonville Electric poles and show a lack of connectivity from Kirby Mountain road on the east.





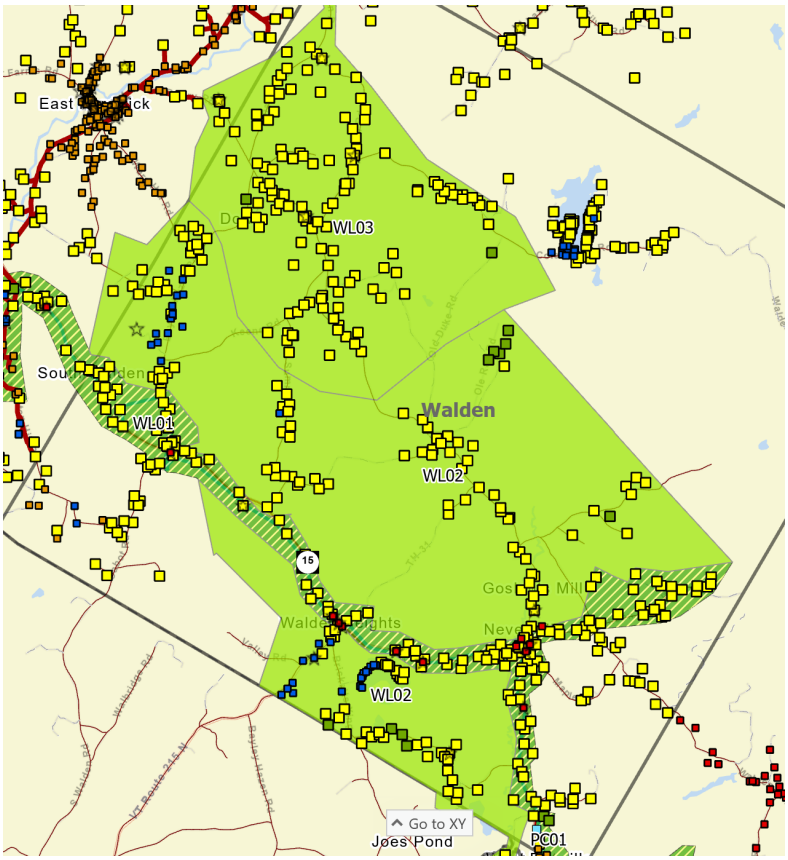
Proximity of Construction Grant I - Continued (dark green)



B. BK02 This area of the Burke OLT covers 128 addresses, 85%have less than 100/20Mbps. 87 or 65.4% are VCBB unserved/eligible. Dark green is our backbone. Light green is this amendment. Every served address that we are passing is necessary to pass in order to reach unserved areas. Grant funds will not be used for any served addresses on the dead-end roads of Gator Aly and Birch Tree Lane.

C. This portion of SU02 serves a total of 218 addresses, 118 or 54% of which are unserved. This area will also serve many unserved addresses in the future. Every served address that we are passing is necessary to pass in order to reach unserved areas. Grant funds will not be used for any served dead-end roads. This includes Burke Hill Road, Burkeland Ln, Chase Hill Road, Hoffecker Hill Road.

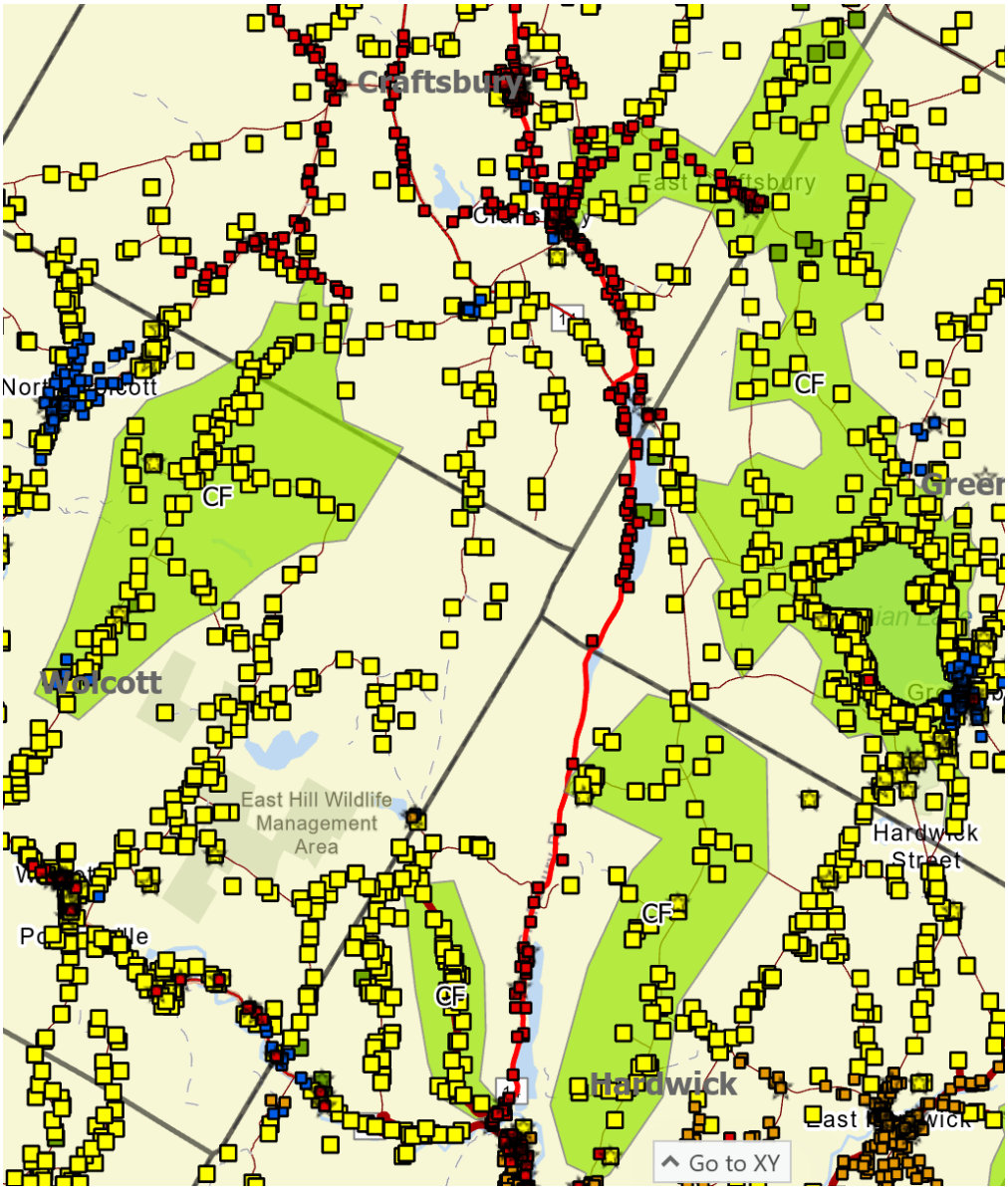
II. Proximity of Construction Grant II



A. WL02 and WL03 area covers 324 addresses, 289 or 89% are eligible/unserved and 100% have less than 100/20 Mbps. All necessary to reach the unserved. Previous amendment is green hatch. Current amendment application is light green.

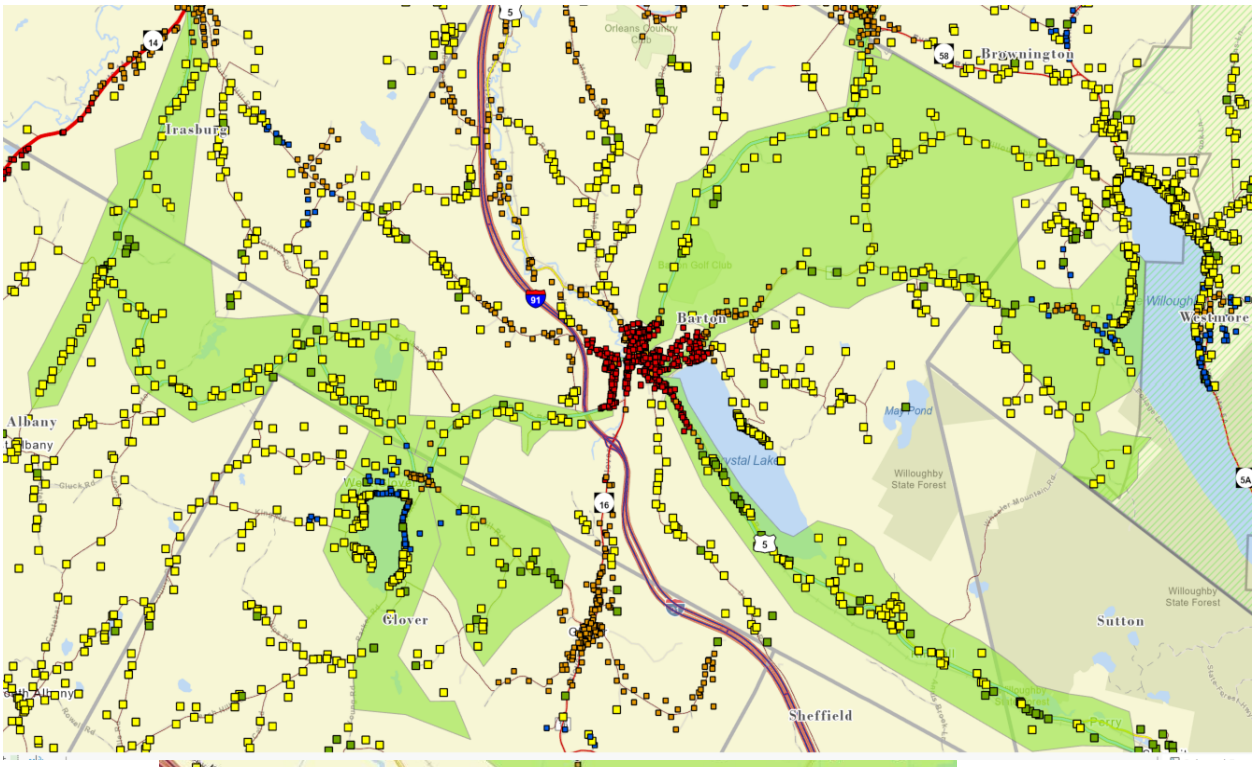
III. New Craftsbury OLT off the State Fiber

A. These are areas that will feed off the state fiber in our Craftsbury OLT cabinet. These four areas contain areas connected to Town Fiscal Recovery contributions matched from the VCBB for Wolcott, Greensboro, and Hardwick. On June 20th, 2023 the Town of Craftsbury voted to contribute the Town owned Fiber to NEK Broadband. NEK Broadband and the town will work to effectuate this over the course of the next three to six months. Pear Networks LLC controls the vast majority of strands, but this will provide NEK Broadband with the contractual leverage and the potential to claw back the strands that are not being used. These areas cover 712 addresses, 590 or 83% are eligible unserved addresses, over 90% have less than 100/20 Mbps. Every served address that we are passing is necessary to pass in order to reach unserved areas.



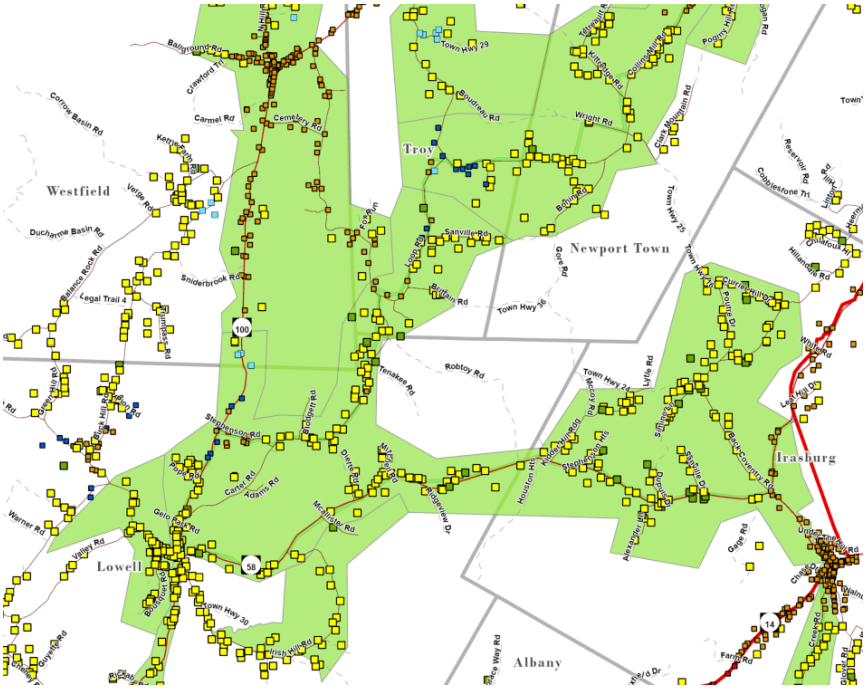
IV. New Glover/CH OLT with Backbone and Distribution

A. These grant application areas (light green) represent 917 addresses, 586 are eligible unserved or 64%, and 70% have less than 100/20 Mbps. We have to get through Barton which is served with fiber from CCI. We meet with CCI every week. One of the items under discussion is a swap of fiber which might enable us to cut through Barton - we have removed the majority of served addresses in anticipation of a swap. However, this is a three way meet point for our backbone that moves north to Charleston, east to Sutton, and south to Glover so if we don't secure sufficient strands we will have to overlash or overbuild the fiber - but with straight build. Every served address that we are passing is necessary to pass in order to reach unserved areas. Grant funds will not be used for any served dead-end roads.



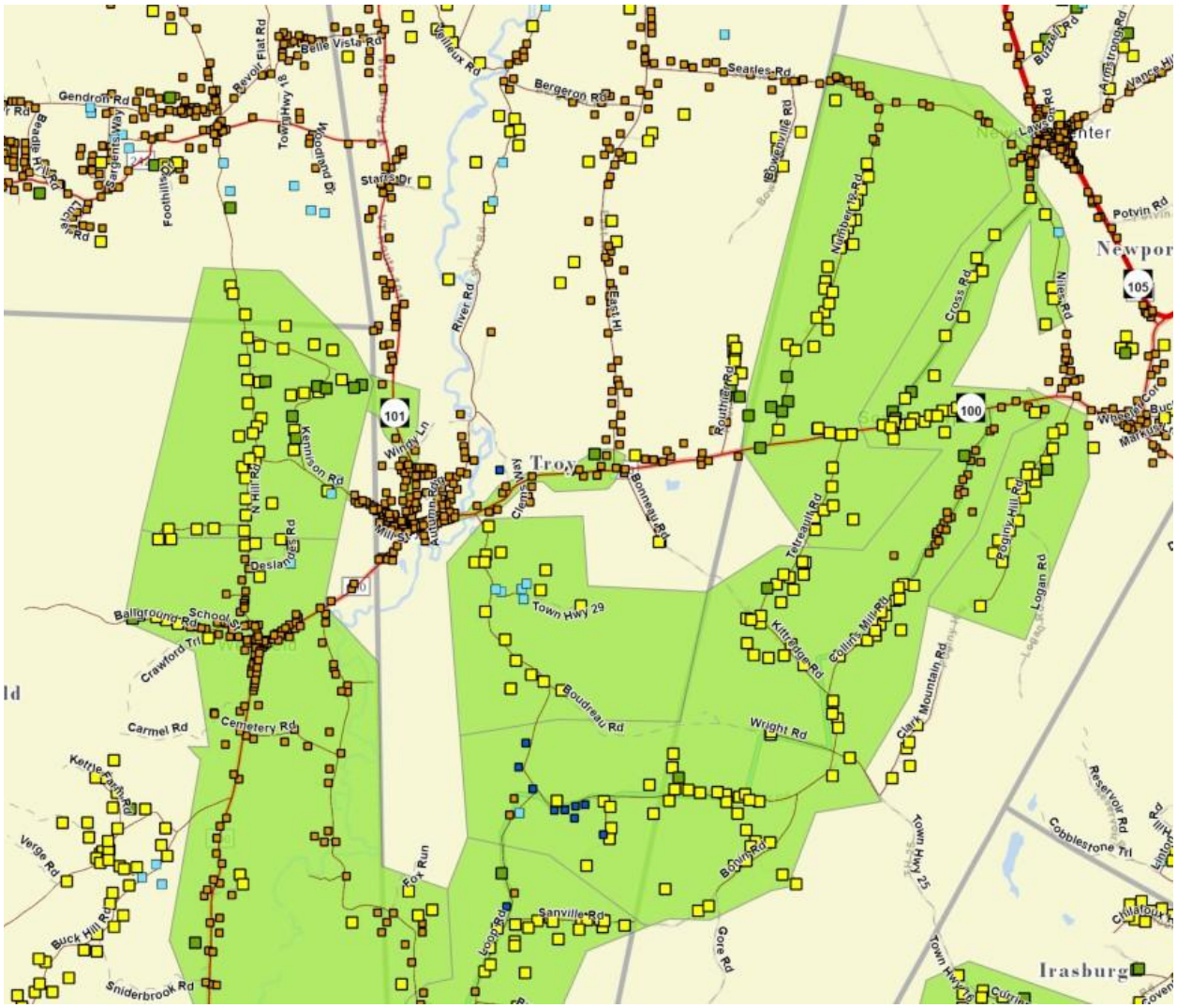
V. New Lowell OLT with Backbone and Distribution

A. The LW01 and LW02 areas in green represent 636 addresses, 434 are eligible unserved addresses or 68%, 70% have less than 100/20 Mbps. The majority of this area is backbone from Irasburg to Lowell to Westfield. Every served address that we are passing is necessary to pass in order to reach unserved areas. Grant funds will not be used for any served dead-end roads.



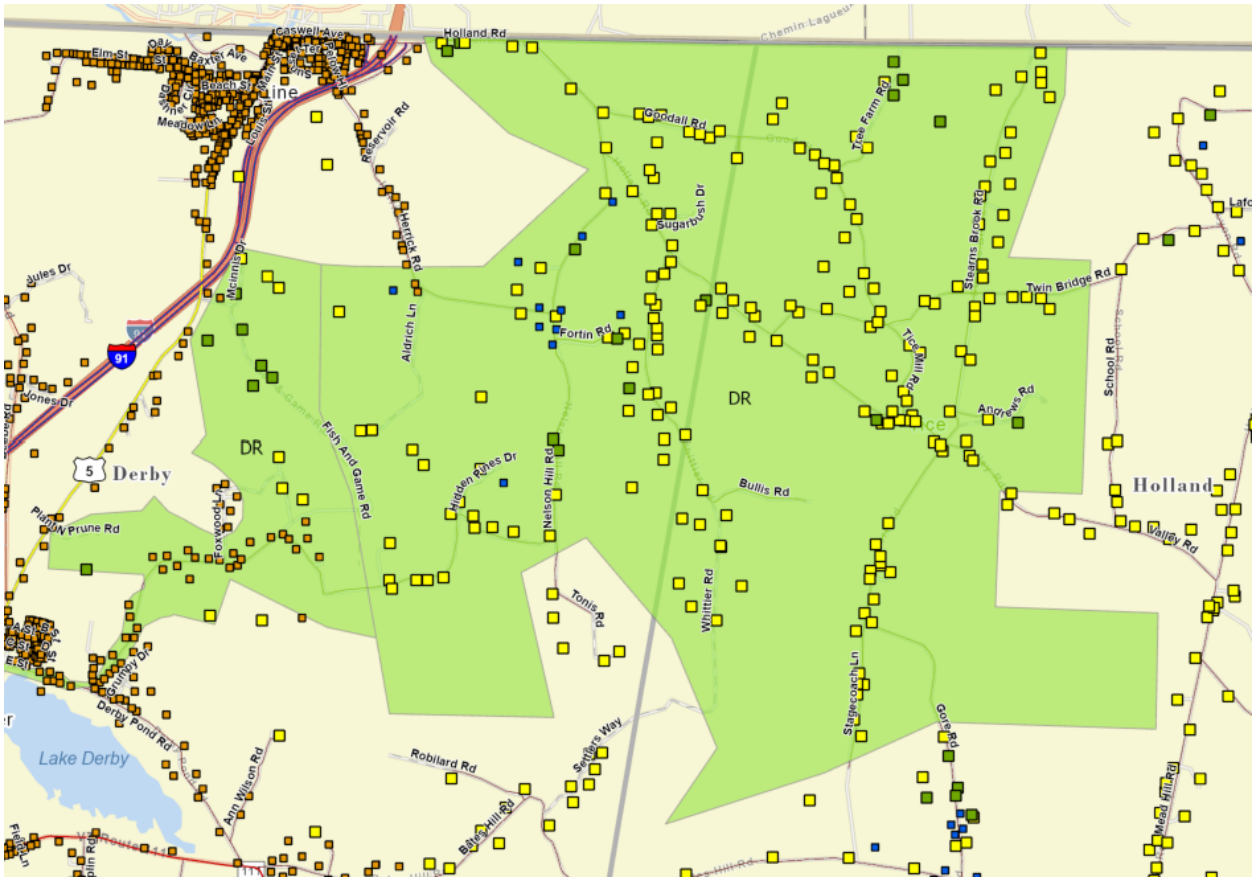
VI. New Newport Town OLT Backbone and Distribution

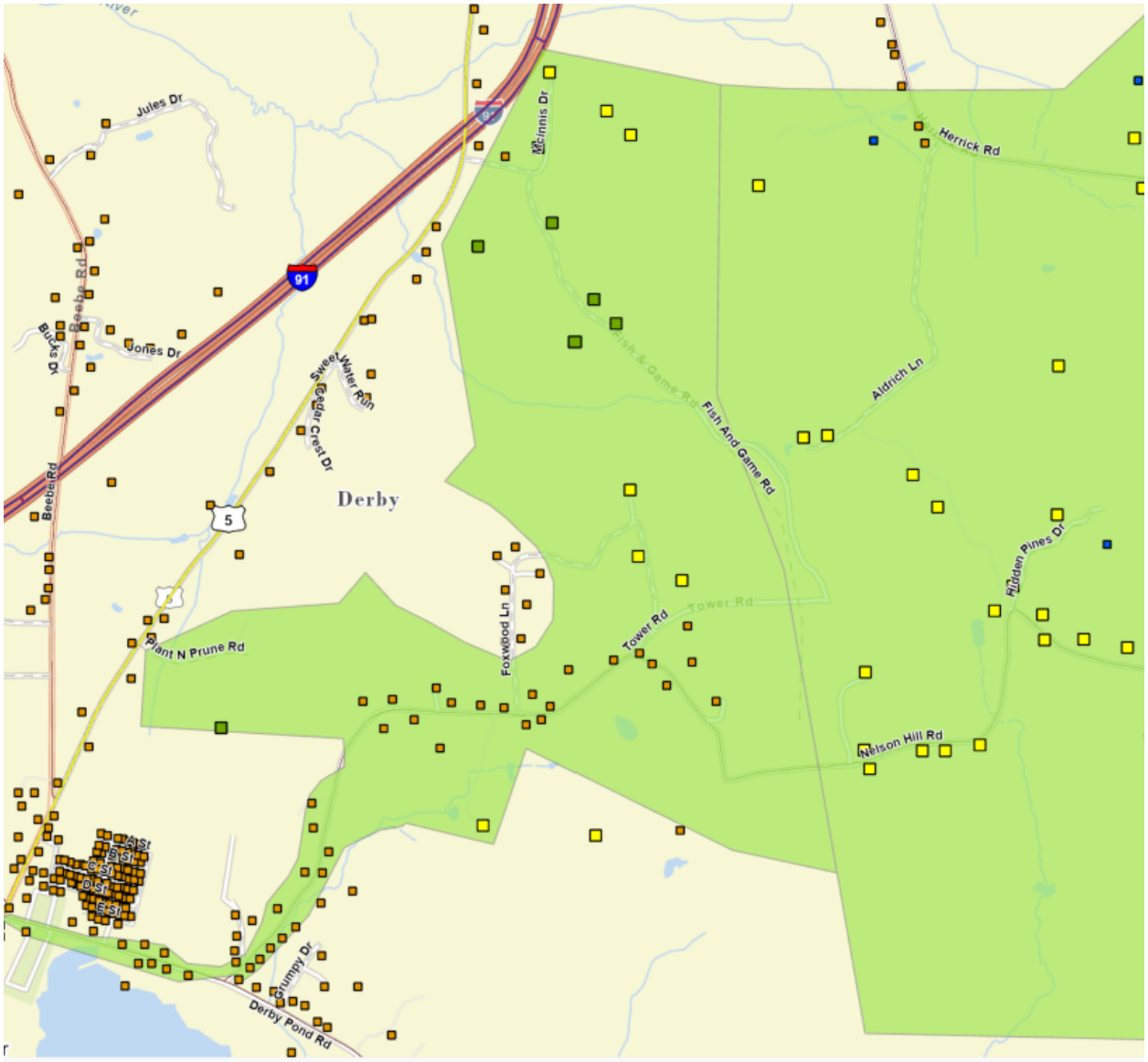
A. The Newport Town DA's in this construction grant represent 417 addresses of which 243 or 56% are eligible unserved and 60% have less than 100/20 Mbps. This includes backbone through Troy and Newport Town. Originally the Lowell OLT went up through Westfield to the Jay line. However there is a gap in the pole line which means we need to go through West Troy, north on Route 100 to access the northern part of Westfield. Every served address that we are passing is necessary to pass in order to reach unserved areas. Grant funds will not be used for any served dead-end roads.



VII. New OLT Derby - for Distribution to Town ARPA Projects

A. The construction grant in Derby and Holland will leverage the State Fiber to get services quickly to communities that have invested Local Fiscal Recovery Dollars. The section in the southwest is where we will access the state fiber along route 5. We looked at trying to reach it at the point that is near the interstate but that access is unfeasible. This project represents 266 eligible unserved addresses or 80% unserved, 84% with less than 100/20 Mbps. Every served address that we are passing is necessary to pass in order to reach unserved areas. We are accessing the area from the State fiber (in red along Route 5) and entering on Nelson Hill Road in the South. The only other route in is at the border but this entails going through larger parts of cable, an interstate crossing and a very expensive section of make ready. Every served address that we are passing is necessary to pass in order to reach unserved areas. Grant funds will not be used for any served dead-end roads. This includes Birchwood Drive and Foxwood Ln.




Jules Dr
McInnis Dr
Herrick Rd
91
Beebe Rd
Jones Dr
Sweetwater Run
Cedar Crest Dr
Fish And Game Rd
Aldrich Ln
Derby
5
Hidden Pines Dr
Foxwood Ln
Tower Rd
Plant N Prune Rd
Nelson Hill Rd
Grumpy Dr
Derby Pond Rd

VIII. Budget Description

Below are descriptions of items in our budget:

Design & Engineering

The amount associated with this category is associated with all activities and deliverables to produce a GIS based constructible design for the project, including field collection, and is driven both by per-mile and per-passing elements. Field collection is the activity of visual inspection in-the-field for validation of locations including poles, fiber equipment placements, and service points, confirmation of pole replacements, and validation of aerial versus buried construction routes. The per-mile component is based on an estimated number of fiber feet to be designed (and constructed) combined with fiber design mileage pricing and field collection pricing from NRTC. The per-passing has been determined based on the number of locations passed combined with a fiber design passing pricing from NRTC.

NRTC has indicated an increase in field collection pricing by 43% based on the cost incurred - we are vigorously fighting this increase - and have not increased our design amount to reflect this. Most previously expensed design and engineering has been from the preconstruction grant - because of the increased flexibility of those grant funds we are moving the design and engineering costs to this grant for the new miles.

Project & Construction Management

The amounts associated with this category are activities associated with establishing a construction project as well as on-going management of both overall project progress (budget, schedule, etc.) as well as oversight and validation of network construction. The budgeted amount for this is estimated based on 6.5% of the construction cost of the fiber network. This amount includes NRTC work as described above as well as Mission Broadband work.

Field Network Equipment

Field network equipment includes Optical Line Terminals (OLT) generally installed in outdoor cabinets. In this budget there are rough estimates for two huts included. OLT equipment is sized according to the number of passings associated with the area to be served. Amounts include network engineering services to design, install, and commission the facilities & equipment.

Aerial Construction

The amounts associated with this category include labor and material items necessary for the construction of the fiber plant along aerial portions of the network from the OLT out to pre-connectorized terminals. Included in this category is:

Make-Ready – Labor associated with improvements to existing poles to make them suitable to deploy fiber. Ahead of field validation to determine specific replacements and other activities, this is an estimated cost per mile of $8,000. Our costs per mile have run a bit lower because we started with the two utilities that have a rider tariff for unserved addresses. We are concerned these costs

may rise when we do more in the municipal electric districts. We have also targeted easier make ready - leaving additional time for completion of the off-road difficult work.

- **Plant-Labor –** Construction labor associated with physically deploying the fiber and includes the installation of pole-attachment hardware, installation of strand, and lashing of fiber to strand. Per-mile costs are derived from recent contractor rates for established RUS construction units associated with an Strand & Lash (S&L) fiber deployment. We are certain that these rates are going up after this contract and so have adjusted the amount per mile accordingly.
- **Technical-Labor** – Labor associated with fiber splicing as well as physically deploying technical items of the passive fiber network including splice closures, splitters, and pre-connectorized terminals in the aerial environment. Costs are derived from recent contractor rates for established RUS construction units associated with these technical items. We are most concerned about this rate as we have not been able to secure a splicer full time and we are pushing to get a splicer dedicated to the Kingdom.

Aerial and Underground Fiber and Technical Materials

- **Fiber** was purchased in advance and is not included in this amendment request. However, our procurement of fiber cable included a mix of 48-ct, 96-ct, 144-ct, and 288-ct cable to provide sufficient capacity and the design informs the quantity of cable accounts for necessary sag & storage loop allowances.
- **Fiber Materials** – Procurement of materials and components necessary for the installation of the fiber cable required such as pole-attachment hardware and housings.
- **Technical Materials** – Procurement of items that include splice closures, splitters, and terminals to be deployed in the aerial environment.

Underground Construction is based on 20 miles.

The mileage assumptions are based on pole gaps. NEK Broadband has eight electric utilities and so many breaks in pole infrastructure. In some cases there are telephone only poles. In other cases we decide to install poles ourselves rather than do underground. In each scenario a cost benefit analysis is conducted that weighs cost and time until crews need to proceed through the area.

The amounts associated with this category include labor and material items necessary for the construction of the fiber plant along underground portions of the network from the OLT to pre-connectorized terminals. Included in this category is:

- **Plant-Labor –** Construction labor associated with physically deploying the fiber both in buried environments. This assumes the placement of cable in conduit and therefore includes the installation of conduit and handholes. Per-mile costs are derived from recent contractor rates for established RUS construction units.
- **Technical-Labor** – Labor associated with fiber splicing as well as physically deploying technical items of the passive fiber network including splice closures, splitters, and pre-connectorized terminals in the underground environment. Costs are derived from recent contractor rates for established RUS construction units associated with these technical items.

- Fiber Materials – Procurement of materials and components necessary for the installation of the fiber cable such as conduit, hand-holes, and pedestals.
- Technical Materials – Procurement of items that include splice closures, splitters, and terminals to be deployed in the underground environment.

Drop Construction

We pay a per drop fee of $1,500 regardless of drop length. This pricing may be revisited and NEK Broadband reserves the right to bring drop provisioning in-house - but has no plans to do so at this time. The cost here is based on the projected take rate as outlined in the table. The $1,500 price includes the following items:

- **Plant-Labor** – Construction labor associated with physically deploying the drop fiber from the pre-placed terminal to the subscriber location (exterior of home/business etc.). Budget is based on an average expected drop distance across the project and will vary based on individual drops.
- **Technical-Labor** – Construction labor predominately associated with splicing the drop cable at the subscriber location.
- **Drop Fiber** – Procurement of drop cable associated with physically deploying the drop fiber from the pre-placed terminal to the subscriber location (exterior of home/business etc.). Budget is based on an average expected drop distance across the project and will vary based on individual drops.
- **Materials** – Procurement of materials to physically deploy drop fiber to subscriber location including riser guard, house cane, NID, etc.
- **Subscriber Equipment** - This category is comprised of the equipment to be installed at subscriber locations as well as outsource service for the in-home installation & provisioning of broadband service. Equipment is comprised of an Optical Network Terminal (ONT) and wireless gateway.

Contingency

A 5% contingency for fiber network related capex and for customer related capex (drop construction) is factored on-top of all capital expenditure items.

IX. Budget Allocation for non-address areas

A. NEK Broadband has identified an amount of funds that are not allocated to a particular address. That allocation includes costs for other capex, as well as administrative, community relations, and sales and marketing costs.

Other Capex

This category is comprised of the following items that fall outside of established categories:

- **Capitalized wages** – During the construction period, a portion of in-house tax & benefit loaded wages are capitalized.
- **Vehicles & Equipment** – This includes budget for equipment and vehicles necessary to test and maintain the network
- **Warehousing** - NEK Broadband maintains three warehouses. The one in Brighton is dedicated to ReConnect but this budget will cover it until we have closed on the ReConnect grant. The

warehouse in Danville is our new warehouse and office space. We maintained the Saint Johnsbury warehouse because it gives us overflow options and we had secured a very good rate. We also intend to work with CVFiber to assist them with space constraints.

Administrative, Sales & Marketing, Communications.

- **Administrative -** This includes a portion of the Executive Director, Accounting and Grants Manager, Treasurer, and Executive Assistant. It also includes office space, utilities, audit review, grant compliance.
- **Community Relations / Sales & Marketing / Communication:** This includes the Community Relations Manager, money for direct mailings, and development of a marketing strategy in a very complicated market with aggressive competition. .

X. Adjustments

A. We have completed design for 5 of the 6 DAs in Construction Grant 1 and are nearing completion for some in Construction Grant 2. This detailed design work indicates fewer miles than from the high level design. This is because the high level design spans were to the home and so some of the miles are in the drops and not in the distribution. Mileage in the revised budget chart reflects the new budget and a total eligible address spreadsheet for the awarded grant and this application are attached.

B. The previous applications did not include underground and so this includes the estimated underground for the awarded grants and this application based on the high level design. We anticipate that we will be able to reduce cost in the future if some prove to have poles or we can set poles for less.

XI. Proposed Contract Amendments

Within twenty-four (24) months grantee shall construct a network consisting of at least 499.3 miles, serving 4,538 unserved premises across 34 towns: Albany, Barnet, Barton, Brownington, Burke, Concord, Craftsbury, Derby, East Haven, Glover, Greensboro, Groton, Hardwick, Holland, Irasburg, Jay, Kirby, Lowell, Lyndon, Newark, Newport Town, Peacham, Ryegate, Sheffield, St. Johnsbury, Sutton, Troy, Walden, Waterford, Westfield, Westmore, Wheelock, Wolcott. Grantee will provide the VCBB with an updated accounting of addresses to be completed in the next quarter. The grantee will also provide updated budget reporting quarterly.

To change page 15, Attachment B, Payment Provisions, item (1): Authority by replacing the grant award not to exceed $38,805,525.

To change page 15, Attachment B, Payment Provisions, item (4): Dispersal of Grant Funds by replacing the expected total project cost with $38,805,525 and replacing the project milestones chart with the following:

Project Milestones	Amount Disbursed
Upon Grant Agreement execution, Board receipt and Executive Director approval of submission of invoice and documentation for materials and construction contracting, 30% of the award will be issued to grantee.	**$11,641,658**
Performance payment upon submission and approval by the Grant Manager of each OLT detailed designs (for a total of 30%)	**$11,641,658**
30% of the Grant award is reimbursable for approved expenses with any remaining amount of this 30% to be issued upon completion of first 50% of the miles.	**$11,641,658**
Construction completion payment (8%) upon completion and compliance as outlined in the grant agreement. This includes testing, and submission of all required reporting data.	**$3,104,440**
Final payment (2%) upon submission of 6-month post-project reporting and all required data.	**$776,110**

ACT 71 Construction Grant Review Sheet – Maple Broadband

Round Two- based on 12/2032 cumulative.

SUMMARY SHEET

PLAN

Total Estimated Cost of Universal Service Plan: $18.5 M
Total Miles Required: 373.5
Cost/mile = $49,531
Total # of eligible addresses: 4569

PROJECT

Cost of proposed project (amount of grant): $2,157,386
Miles to be constructed: 63.7
Total # of eligible addresses: 1560
Total Addresses served: 468
Cost/mile – $33,868 (this is an incremental grant – thus lower cost/mile)
Overall Take rate assumption: 30%
Towns with addresses to be served this phase: Vergennes, Ferrisburgh, Waltham, Monkton and New Haven

Public Ownership: Yes

CHECKLIST

Business Plan

Note: The business plan is a stand-alone document. Do not refer to documents elsewhere.

Is the Plan Act 71 Compliant? (PASS/FAIL)

Does the business plan include a Universal Service Plan? _X_Yes __No
Does the business plan include the following?

High-level design plans _X_ Yes __No __Conversion of Existing Network
Market analysis _X_ Yes __No __N/A __Existing ISP
Take-rate assumptions _X_ Yes __No

Cash flow positive date (as relevant) _X_ Yes __No __Not Applicable
Expected loan payoff date(s) X__ Yes __No __Not Applicable
Financing models _X_ Yes __No __Not Applicable (fully funded)
Pro forma financial projections _X_ Yes __No
Estimated construction costs _X_ Yes __No
Ideal operational models _X_ Yes __No __Existing Model

Does the Business Plan evaluate the following risks:

Labor needs and availability _X_ Yes __No
Supply-chain contingencies for equipment and materials _X_ Yes __No
Make-ready work _X_ Yes __No
Additional other relevant capital and operational expenses. X__ Yes __No
Contract management including safety/house-keeping X__ Yes __No __Existing Record

What is expected for a HLD? A high-level design consists of a route map. Addresses passed and interconnection points for backhaul. The HLD should also show the planned phases of construction. We understand that these phases may adjust over time.

High Level Design Route Map

- Proposed Construction Phases
- OLT/Distribution Areas (DA)
- Span Routes
    - Backbone Route (that can be part of the span route)
- Passings by Type – (underserved or served/ not on grid)
    - ESite ID, E911 Address, Current level of Service, Phase
- Interconnection Points for Backhaul
    - Location

What is necessary for the spreadsheet: All addresses in the plan with the current level of service. Must include ESite ID, E911 address, Phase

Overview:
Provided an estimated cost for Universal Service Plan: _X_ Yes __No
Provided cost breakdown for proposal project within that plan: _X__Yes __No
Community Match: _X_ Yes __ No __ How much? _$380,000_
Estimate Ratio of VCBB funding to other funding – Universal Service Plan - (Goal – minimum 60/40 for private) ___56/44__
Cost per passing (this amendment) to be constructed or upgraded for addresses included Universal Service Plan: ____$699_____ Business plan cost/passing __$4049__
Certification of Acceptance of Conditions: _*X*_ *Yes* __*No*
Provided list of subcontracts: _*X*_ *Yes* __*No*
Act 71 Compliant Business Plan: _*X*_ *Yes* __*No*

Universal Service Plan: (PASS/FAIL)

Demographics of community: _X_Yes __No
Map showing the phases of the universal service plan: _X_Yes __No
Who owns the infrastructure _X_ public __private
Does the applicant account for all underserved addresses? _X_ Yes _No
Will they serve them all directly? _X_Yes __No
If not, did they include letters of commitment or other supporting materials for the remaining addresses? __ Yes __No
Will all addresses in a community be served via this proposal? _X_Yes __No
Are there other funding sources? ___Town _X_Bonds _X_NTIA Grant _X USDA ReConnect (Pending)
Evidence of Community Engagement and Support? _X_Yes __No

Project Description
Narrative and map showing the project proposed for funding. The map should show the route and current level of wireline service at each address (showing cable lines or fiber lines is acceptable) to be served in the phase to be funded with this grant proposal.
Retail Price: _____$89.95____100/100_____ Concerns?_____
Reasonably detailed budget: __X_Yes __No
Plan for monitoring the network: _X__Yes __No
Spreadsheet detailing all locations (ESite ID, E911 Address, Current level of Service, Phase (if applicable), and overbuild rationale for any addresses currently served. _X_Yes _No (Attachment)

Act 71 Criteria
Evidence of collaboration? __X_Yes __No
Steps to address resiliency and ensure redundancy? __X_Yes __No
Is the project designed to provide service to unserved and underserved? Incidental overbuild is at or under 20% and the proposal passes the overbuild "tests" - __X_Yes __No
Sustainability – If more than a single phase, does the business plan support achieving universal service? __X_Yes __No
Affordability – Has the applicant certified it is participating in the Affordable Connectivity Program or the equivalent? _X__Yes __No
Technical and Security Approach _X__Yes __No

Attachments:

Act 71 Compliant Business Plan _X _Yes __No
Letters of Support __Yes __No X_ (required for nonCUD)
Documentation of Community Match __Yes __No _X_Not applicable
Response to Service Quality Complaints: __Yes __No _X _Not applicable
Operating agreements: _X_Yes _No _Not applicable
Maps, Spreadsheets and High-Level Network Design: _X_Yes _No

MAPLE

BROADBAND

District Update June 2023

- Completed 25.7 miles/304 passings
  - Service launched in February 2023
  - 60 customers installed to date
  - Take rate 19.7% after 4 months (vs projection 19.4% after 12 months)
  - Actual ARPU within $1 of 2022 projections
- 129.9 miles in progress in Cornwall, Shoreham, Orwell, Whiting, Salisbury, Leicester
- Phase 1 total of 155.6 miles will be active by Q1 2024

Impact of Competition

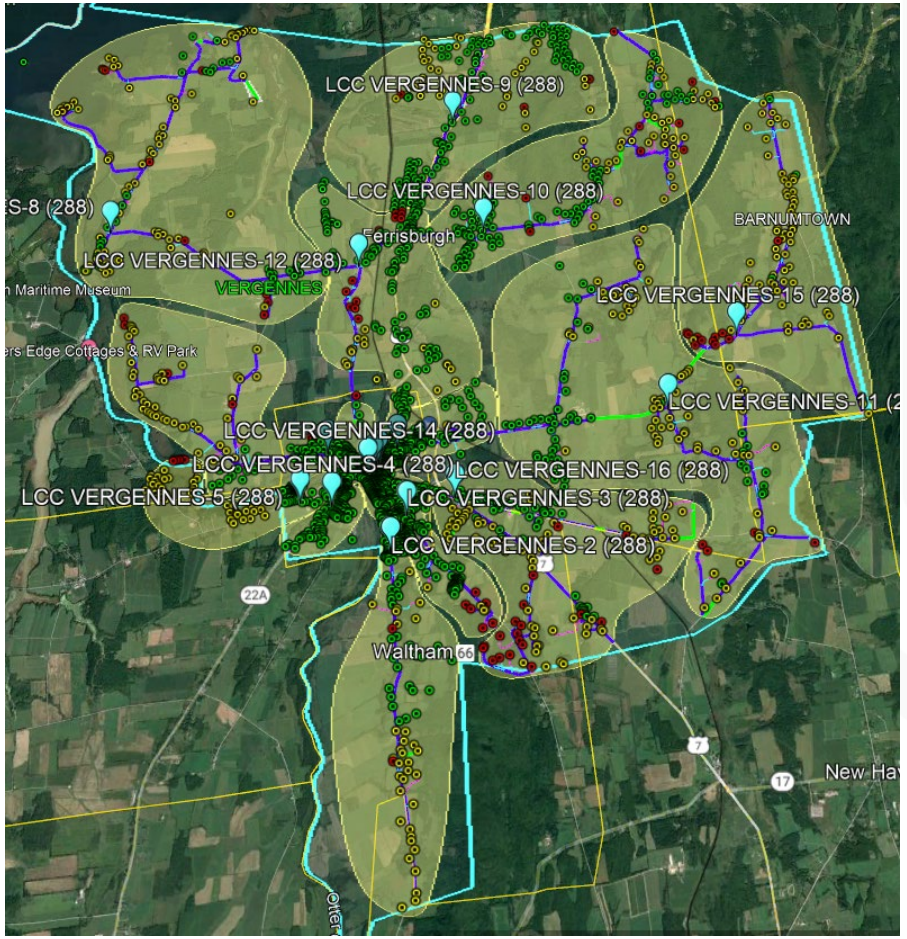
- GoNetspeed has extended service to portions of Cornwall and Shoreham
- Fidium (Consolidated) is in the final stages of service activation in Middlebury and Ripton
- **The majority of planned Maple Broadband Phase 3 will be served in the near future by Fidium**

Impacts to Business Plan

- Size of planned network reduced to avoid overbuild of new fiber
- Smaller footprint
  - 374 miles (reduced from 595)
  - Remaining footprint lower cost (more aerial, less complex make-ready)
  - Mainline capex requirement reduced by $10M
  - Cost per mile lower as a result
- Projections updated with actual costs
  - Actual construction costs +/- 10-15% lower than expected
- Net results
  - Plan to complete remaining 218.6 mainline miles with Act 71 construction funds by mid-2024
  - Remainder of build to be completed with BEAD in 2025
  - Staff levels will be reduced in 2026
  - Strong, viable business

Planned Phase 2

- Underserved areas of Ferrisburgh, Waltham, Monkton, and New Haven
- 88.7 miles
- 612 unserved/underserved passings



Grant Request

- $2,157,386 (remainder of Act 71 allocation)
- Increase miles from 180.6 to 244.3
- Increase addresses passed from 1,188 to 2,748
- Add service in portions of Vergennes, Ferrisburgh, New Haven, Monkton, and Waltham

Updated Budget

Sums in 1000's	Current Grant	Proposed Amendment
Capex (make-ready, mainline, hubs & electronics, drops, quality assurance/OPR)	$8,535	$9,911
Maintenance capex	$62	$133
Construction-related operating expenses (pole rentals, network insurance, etc)	$89	$95
Phase 3 materials	$0	$577
Contingency	$0	$490
Total	**$8,686**	**$11,206**

Thank you

MAPLE BROADBAND
14 Seminary St
Middlebury, VT 05753
maplebroadband.net

June 23, 2023

Christine Hallquist, Executive Director
Vermont Community Broadband Board
112 State Street Montpelier, VT 05620-2601
vcbb@vermont.gov

Re: Broadband Preconstruction grant 02240-FY22-A71Const-05 Amendment #1 - Transmittal

Dear Christine:

Maple Broadband requests an amendment to its Act 71 Construction Grant, to increase the grant award by $2,157,386 which is the the remainder of its allocation of Act 71 Construction Grant funds.

In support of this request, we submit an updated business model that reflects the following major changes from our prior submission:

1. Reduction in planned total mileage as a result of new fiber builds in the district
2. Updated projections based on actuals (where available) and reflecting the most up-to-date assumptions
3. Revised financial model showing monthly projected totals, as well as remaining balance in grant awards

Our new business model reflects a total planned mileage of 374 miles, and reflects completion of our Universal Service Plan obligations under Act 71 by the end of 2025.

We propose the following amendments to our construction grant agreement:

1. Increase the number of miles we will build from 180.6 to 244.3
2. Increase the addresses passed from 1,188 to 2,748
3. Add service in portions of Vergennes, Ferrisburgh, New Haven, Monkton, and Waltham

Sums in 1000's	Amount
Capex (make-ready, mainline, hubs & electronics, drops, quality assurance/OPR)	$9,911
Maintenance capex	$133
Construction-related operating expenses (pole rentals, network insurance, etc)	$95
Materials for Phase 3	$577
Contingency	$490
Total	**$11,206**

The capex is inclusive of a 2.5% contingency on actuals, and a 10% contingency on estimates.

Please contact me if you have any questions regarding this submission.

Sincerely,
Ellie de Villiers

Ellie de Villiers

Executive Director

ellie@maplebroadband.net