



Your Community Internet Provider

Tonight's presentation

Welcome!

- Everyone's microphones & cameras will be turned off
- Add your questions to the chat at any point
- We'll answer the questions after the presentation
- A recording of this session will be made available for viewing later

Overview



1. About CVFiber

- Mission
- CVFiber Communities
- District Network
- Significant Milestones

2. District Development Plan & Estimated Construction Costs

- District Network Construction Cost Estimates
- Network Cost by Municipality
- Construction Schedule
- Construction Priorities
- Process of Building the Network
- Phased Network Development by Area
- Five Year Cost Estimate: 2021 – 2025

3. Grants, Support, Rates, and Return

- Grants Received
- Federal American Rescue Plan Act Grant Opportunities
- Resident Demand
- Affordable Subscription Rates & Example
- Broadband is an Investment

About CVFiber

- Communications Union District (CUD)
- A nonprofit, single purpose municipality
- Created in 2018
- Title 30 V.S.A. Chapter 82 enabling legislation
- 20 member communities
- One of nine VT CUDs

Mission

Providing Central Vermont residents, businesses, and civic institutions with universal access to a reliable, secure, locally-owned and -governed communications network able to grow to meet future community needs.

First priority: make service available to 80% of the unserved and underserved by 2023; 95% by 2024*.

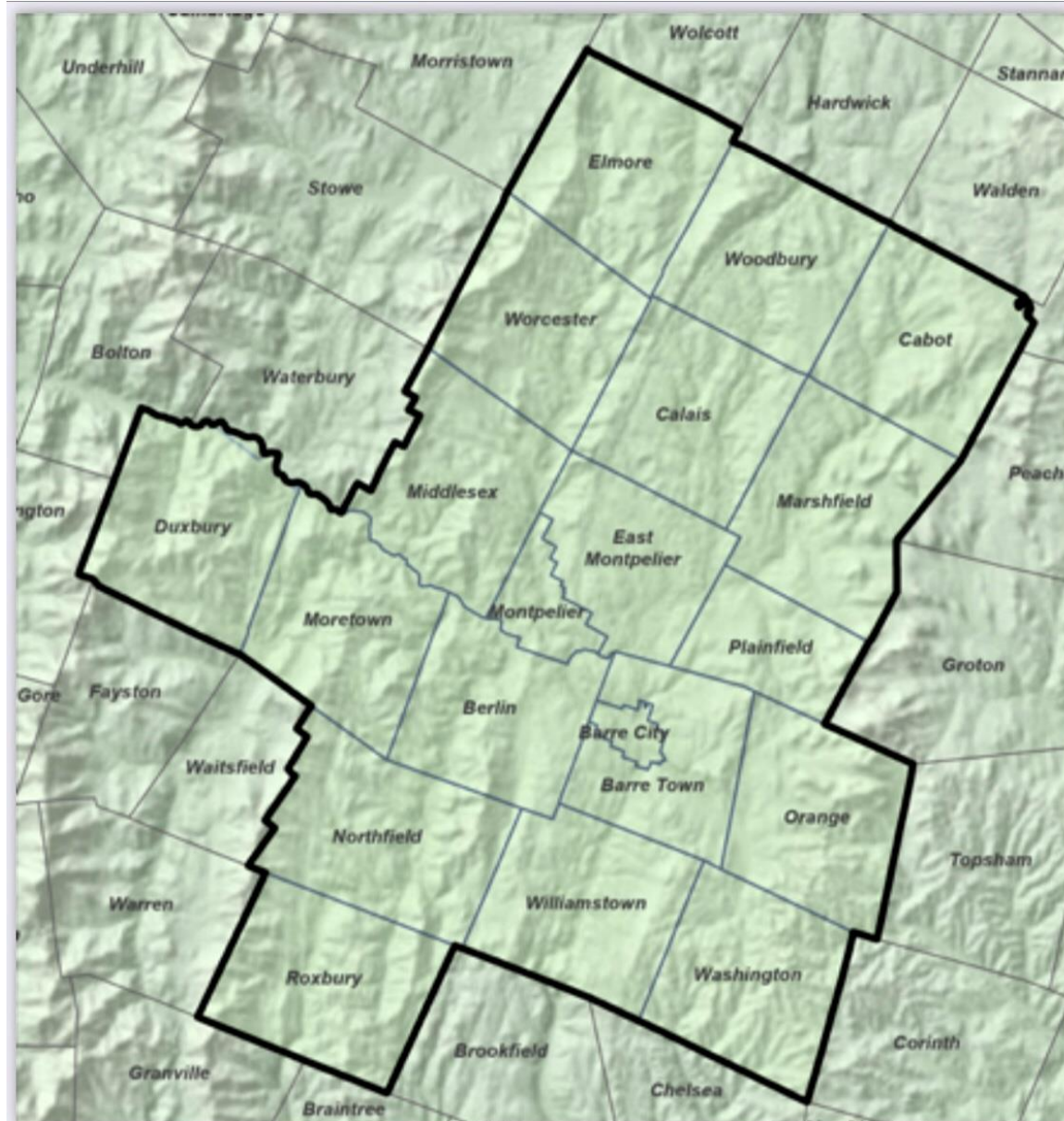
Underserved: <25/3Mbps service

* Subject to fund, material, and contractor availability.

CVFiber Communities



Barre City
Barre Town
Berlin
Cabot
Calais
Duxbury
East Montpelier
Elmore
Marshfield
Middlesex



Montpelier
Moretown
Northfield
Orange
Plainfield
Roxbury
Washington
Williamstown
Woodbury
Worcester

District Network

- Fiber to 26,000 homes and businesses
- Estimated construction cost of \$50 million
- 1,200 + miles of fiber

Significant Milestones



1. 2018

CVFiber formed

2. 2020

Completed Feasibility & Business Studies
Conducted Survey of District

3. 2021

| | |
|---|----------|
| Issued Pole Inventory Services RFP | February |
| Executed Pole Inventory retainer contracts | April |
| Issued High-Level Design RFPs | May |
| Engaged Project Manager | June |
| Launched Area A pole inventories | July |
| Executed High-Level Design contracts | July |
| Issued RFP for CVFiber Network Developer-Operator | July |
| Launch High-Level Design | August |

District Network Construction Cost Estimates*



| CVFiber Community Network Construction Cost Estimates | | | | | | | | |
|---|----------------|-------|-----------------|------------|--------------|---------------|--------------|---------------|
| 1 | | | Preconstruction | | | Construction | Operations | Costs |
| 2 | | Miles | Pole Data | Design | Make-Ready | Construction | Connections | Total |
| 3 | DISTRICT | 1,200 | \$ 784,000 | \$ 784,000 | \$ 6,516,000 | \$ 28,658,000 | \$ 9,119,000 | \$ 45,861,000 |
| 4 | Costs Per Mile | | \$693 | \$693 | \$5,761 | \$25,339 | \$8,063 | \$40,549 |

- The estimate is likely low as costs are rising, and there is now a six month delay for fiber, as well as a shortage of chips for electronics.

Network Cost Estimates by Municipality



| CVFiber Community Network Construction Cost Estimates | | | | | | | | |
|---|-----------------|-----------------|-----------|------------|--------------|--------------|------------|--------------|
| | | Preconstruction | | | Construction | Operations | Costs | |
| Town | Miles | Pole Data | Design | Make-Ready | Construction | Connections | Total | |
| 1 | Barre City | 49 | \$ 33,888 | \$ 33,888 | \$ 281,713 | \$ 1,239,077 | \$ 394,281 | \$ 1,982,846 |
| 2 | Barre Town | 107 | \$ 74,082 | \$ 74,082 | \$ 615,851 | \$ 2,708,739 | \$ 861,935 | \$ 4,334,688 |
| 3 | Berlin | 77 | \$ 53,015 | \$ 53,015 | \$ 440,717 | \$ 1,938,434 | \$ 616,820 | \$ 3,101,999 |
| 4 | Cabot | 65 | \$ 44,699 | \$ 44,699 | \$ 371,585 | \$ 1,634,366 | \$ 520,064 | \$ 2,615,411 |
| 5 | Calais | 80 | \$ 55,440 | \$ 55,440 | \$ 460,880 | \$ 2,027,120 | \$ 645,040 | \$ 3,243,920 |
| 6 | Duxbury | 35 | \$ 24,255 | \$ 24,255 | \$ 201,635 | \$ 886,865 | \$ 282,205 | \$ 1,419,215 |
| 7 | East Montpelier | 74 | \$ 51,490 | \$ 51,490 | \$ 428,042 | \$ 1,882,688 | \$ 599,081 | \$ 3,012,791 |
| 8 | Elmore | 40 | \$ 27,443 | \$ 27,443 | \$ 228,136 | \$ 1,003,424 | \$ 319,295 | \$ 1,605,740 |
| 9 | Marshfield | 58 | \$ 40,333 | \$ 40,333 | \$ 335,290 | \$ 1,474,730 | \$ 469,267 | \$ 2,359,952 |
| 10 | Middlesex | 65 | \$ 44,976 | \$ 44,976 | \$ 373,889 | \$ 1,644,501 | \$ 523,289 | \$ 2,631,630 |

Network Cost Estimates by Municipality

| CVFiber Community Network Construction Cost Estimates | | | | | | | | |
|---|--------------|-----------------|-----------|------------|--------------|--------------|------------|--------------|
| | | Preconstruction | | | Construction | Operations | Costs | |
| Town | Miles | Pole Data | Design | Make-Ready | Construction | Connections | Total | |
| 11 | Montpelier | 56 | \$ 38,808 | \$ 38,808 | \$ 322,616 | \$ 1,418,984 | \$ 451,528 | \$ 2,270,744 |
| 12 | Moretown | 49 | \$ 33,749 | \$ 33,749 | \$ 280,561 | \$ 1,234,009 | \$ 392,668 | \$ 1,974,736 |
| 13 | Northfield | 86 | \$ 59,252 | \$ 59,252 | \$ 492,566 | \$ 2,166,485 | \$ 689,387 | \$ 3,466,940 |
| 14 | Orange | 44 | \$ 30,423 | \$ 30,423 | \$ 252,908 | \$ 1,112,382 | \$ 353,966 | \$ 1,780,101 |
| 15 | Plainfield | 42 | \$ 28,898 | \$ 28,898 | \$ 240,234 | \$ 1,056,636 | \$ 336,227 | \$ 1,690,893 |
| 16 | Roxbury | 43 | \$ 29,938 | \$ 29,938 | \$ 248,875 | \$ 1,094,645 | \$ 348,322 | \$ 1,751,717 |
| 17 | Washington | 58 | \$ 40,194 | \$ 40,194 | \$ 334,138 | \$ 1,469,662 | \$ 467,654 | \$ 2,351,842 |
| 18 | Williamstown | 88 | \$ 61,053 | \$ 61,053 | \$ 507,544 | \$ 2,232,366 | \$ 710,350 | \$ 3,572,367 |
| 19 | Woodbury | 45 | \$ 30,908 | \$ 30,908 | \$ 256,941 | \$ 1,130,119 | \$ 359,610 | \$ 1,808,485 |
| 20 | Worcester | 29 | \$ 19,889 | \$ 19,889 | \$ 165,341 | \$ 727,229 | \$ 231,408 | \$ 1,163,756 |

Construction Schedule*

Phase 1: The Underserved – Homes & Businesses

- Construct the core service ring of \pm 600 miles
 - Covering 80% of district's unserved and underserved
 - Construction: 2021 – 2023
 - Service rollout begins: 2022

Phase 2: Buildout From the Core

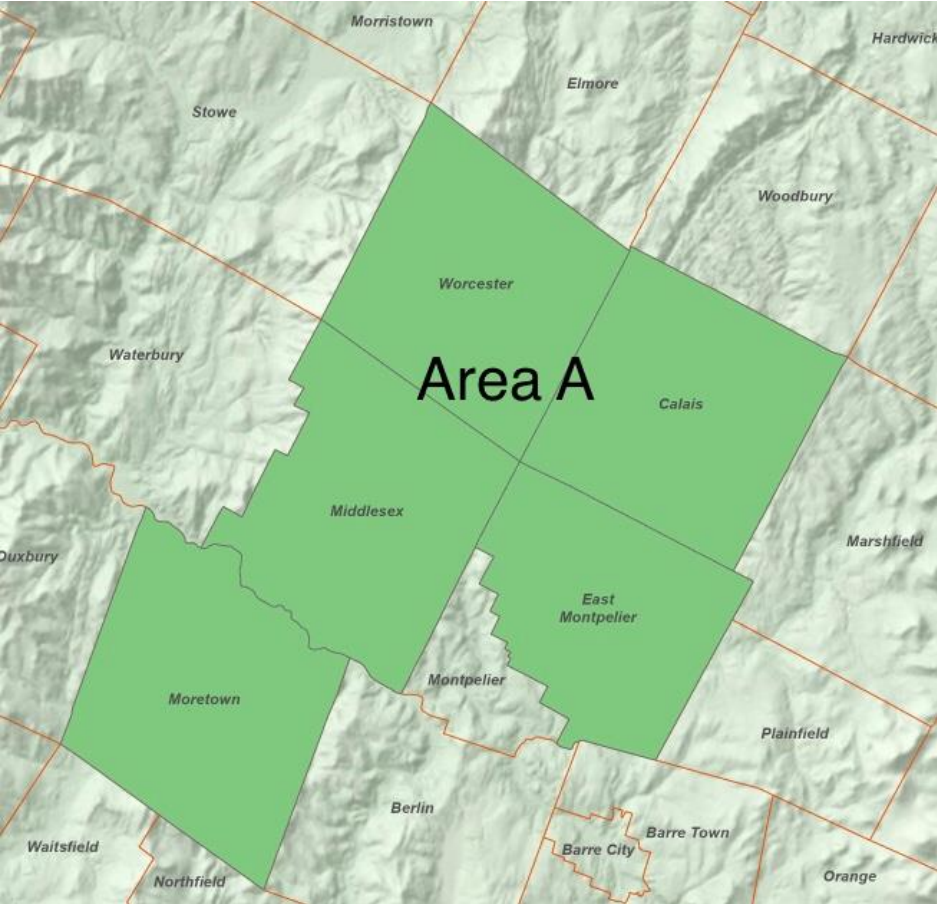
- Provide service throughout CVFiber communities (\pm 600 mi)
 - Construction: 2024 – 2025
 - Service rollout begins: 2024

* Subject to fund, material, and contractor availability.

Construction Priorities

Phase 1: THE UNDERSERVED – Homes & Businesses

- Area A
 - 5 Communities
 - 1,600 underserved
 - ±150 miles to construct to connect the underserved



Construction Priorities

Phase 1: THE UNDERSERVED – Homes & Businesses

- Area B
 - 7 Communities
 - 1,800 underserved
 - ±160 miles to construct to connect the underserved
- Area C
 - 5 Communities
 - 1,000 underserved
 - ±300 miles to construct to connect the underserved

Process of Building the Network



Pole Inventory

Auditing all the poles, their locations, and how they interconnect.

Network Design

Designing how the fiber is routed throughout the network, where redundancies are added, etc.

Make-Ready

Preparing the poles to install the fiber.

Construction

Installing the fiber on poles, setting up hubs, adding routing equipment, power, etc.

Service

Connecting fiber from the poles to homes and businesses.

Network Contingent Schedule by Area*



| | Preconstruction | | | |
|--------|-----------------|----------------|-------------------|----------------------|
| | Miles Total | Pole Inventory | High Level Design | Detailed Engineering |
| Area A | 300 | 2021 | | |
| Area B | 475 | | | |
| Area C | 300 | | | |
| | | 2021 | 2022 | |

* Subject to fund, material, and contractor availability.

Network Contingent Schedule by Area*



| | Preconstruction | | | | Construction: Phase 1 | | | |
|--------|-----------------|----------------|-------------------|----------------------|-----------------------|------------|--------------|---------|
| | Miles Total | Pole Inventory | High Level Design | Detailed Engineering | Phase 1 Miles | Make-Ready | Construction | Service |
| Area A | 300 | 2021 | | | 150 | 2021 | 2022 | |
| Area B | 475 | 2021 | | | 160 | 2022 | | |
| Area C | 300 | 2021 | | | 300 | 2022 | 2023 | |
| | | 2021 | | 2022 | | 2023 | | 2024 |

* Subject to fund, material, and contractor availability.

Network Contingent Schedule by Area*



| | Preconstruction | | | | Construction: Phase 1 | | | | | Construction: Phase 2 | | | | |
|--------|-----------------|----------------|-------------------|----------------------|-----------------------|-----------------------|------------|--------------|---------|-----------------------|-----------------------|------------|--------------|---------|
| | Miles Total | Pole Inventory | High Level Design | Detailed Engineering | Phase 1 Miles | Under-served Premises | Make-Ready | Construction | Service | Phase 2 Miles | Under-served Premises | Make-Ready | Construction | Service |
| Area A | 300 | | | | 150 | | 2021 | | | 150 | | 2023 | 2025 | |
| | | | | | | 1,594 | 96% | | | | 69 | 4% | | |
| Area B | 475 | 2021 | | | 160 | | 2022 | | | 315 | | | 2024 | |
| | | | | | | 1,795 | 65% | | | | 984 | 35% | | |
| Area C | 300 | | | | 300 | | | 2023 | | | | | | |
| | 1,075 | | | | 610 | 2,102 | 100% | | | 465 | | | | |
| | | 2021 | | 2022 | | | 2023 | | 2024 | 2025 | | | | |

* Subject to fund, material, and contractor availability.

Construction Cost Estimate: 2021 – 2025*



| CVFiber Community Network Estimated Costs 2021 - 2025 (\$000) | | | | | | | |
|---|----------------------|-----------------|------------------|------------------|------------------|-----------------|------------------|
| | | 2021 | 2022 | 2023 | 2024 | 2025 | Total |
| 1 | Pole Inventory | 725 | 0 | 0 | 0 | 0 | \$ 725 |
| 2 | High Level Design | 125 | 0 | 0 | 0 | 0 | \$ 125 |
| 3 | Design & Engineering | 750 | 0 | 0 | 0 | 0 | \$ 750 |
| 4 | Make-Ready | 250 | 750 | 750 | 0 | 0 | \$ 1,750 |
| 5 | Construction | 0 | 7,860 | 8,360 | 9,600 | 4,750 | \$ 30,570 |
| 6 | Service | 0 | 2,500 | 2,660 | 3,050 | 1,500 | \$ 9,710 |
| 7 | Total | \$ 1,850 | \$ 11,110 | \$ 11,770 | \$ 12,650 | \$ 6,250 | \$ 43,630 |

* Subject to fund, material, and contractor availability.

CVFiber Grants Received

| | |
|--------------------------------------|------------------|
| 1. Feasibility & Business Studies: | \$85,000 |
| 2. Project Manager, Outreach, Legal: | \$160,000 |
| 3. Pole Inventory: | \$255,000 |
| 4. WEC-3CUD High-Level Design: | \$200,000 |
| 5. CVFiber High-Level Design: | <u>\$190,000</u> |
| Total: | \$890,000 |

Federal American Rescue Plan Act (ARPA) Grant Opportunities



1. Federal ARPA Grant Funds: State Distribution

- a. State to authorize distribution of Federal ARPA grant funds totaling \$250M; \$150M in 2021
- b. Grants totaling \$25M being administrated by Department of Public Service
- c. VT Community Broadband Board to administer balance of \$225M ARPA funds
- d. CVFiber is 1 of 9 CUDs competing for ARPA grant funds

2. Federal ARPA Grant Funds: Town Distribution

- a. Towns to receive ARPA grant funds for various pandemic-related uses, including broadband infrastructure.
- b. Town ARPA funds will come directly (Local \$) and indirectly (Funds intended for counties)
- c. Towns are to receive half their Local \$ in 2021, the other half in 2022
- d. Towns are expected to receive all County \$ in 2021
- e. Altogether, the 20 CVFiber communities are expected to receive \pm \$16.5M in Local and County ARPA funds.

| ARPA Local Government Funding Estimate | | | | | | |
|--|-----------------|---------------------|----------------------|---------------------|----------------------|---------------------|
| | | Local \$ | County \$ | Total \$ | 2021 | 2022 |
| 1 | Barre City | \$ 843,460 | \$ 1,891,157 | \$ 2,734,617 | \$ 2,312,887 | \$ 421,730 |
| 2 | Barre Town | \$ 763,545 | \$ 1,641,378 | \$ 2,404,923 | \$ 2,023,150 | \$ 381,772 |
| 3 | Berlin | \$ 275,054 | \$ 609,378 | \$ 884,432 | \$ 746,905 | \$ 137,527 |
| 4 | Cabot | \$ 141,730 | \$ 337,044 | \$ 478,774 | \$ 407,909 | \$ 70,865 |
| 5 | Calais | \$ 158,643 | \$ 368,240 | \$ 526,883 | \$ 447,562 | \$ 79,322 |
| 6 | Duxbury | \$ 129,071 | \$ 290,882 | \$ 419,953 | \$ 355,417 | \$ 64,535 |
| 7 | East Montpelier | \$ 252,306 | \$ 553,309 | \$ 805,615 | \$ 679,462 | \$ 126,153 |
| 8 | Elmore | \$ 85,355 | \$ - | \$ 85,355 | \$ 42,677 | \$ 42,677 |
| 9 | Marshfield | \$ 145,687 | \$ 339,995 | \$ 485,682 | \$ 412,838 | \$ 72,843 |
| 10 | Middlesex | \$ 170,512 | \$ 361,706 | \$ 532,218 | \$ 446,962 | \$ 85,256 |
| 11 | Montpelier City | \$ 729,126 | \$ 1,674,471 | \$ 2,403,597 | \$ 2,039,034 | \$ 364,563 |
| 12 | Moretown | \$ 164,676 | \$ 367,397 | \$ 532,073 | \$ 449,735 | \$ 82,338 |
| 13 | Northfield | \$ 645,057 | \$ 1,283,677 | \$ 1,928,734 | \$ 1,606,205 | \$ 322,528 |
| 14 | Orange | \$ 110,081 | \$ 187,041 | \$ 297,122 | \$ 242,081 | \$ 55,040 |
| 15 | Plainfield | \$ 124,818 | \$ 259,686 | \$ 384,504 | \$ 322,095 | \$ 62,409 |
| 16 | Roxbury | \$ 70,123 | \$ 150,922 | \$ 221,045 | \$ 185,984 | \$ 35,062 |
| 17 | Washington | \$ 99,894 | \$ 202,935 | \$ 302,829 | \$ 252,882 | \$ 49,947 |
| 18 | Williamstown | \$ 349,134 | \$ 197,120 | \$ 546,254 | \$ 371,687 | \$ 174,567 |
| 19 | Woodbury | \$ 87,333 | \$ 186,966 | \$ 274,299 | \$ 230,632 | \$ 43,666 |
| 20 | Worcester | \$ 101,674 | \$ 220,691 | \$ 322,365 | \$ 271,528 | \$ 50,837 |
| | Total | \$ 5,447,277 | \$ 11,123,995 | \$16,571,272 | \$ 13,847,633 | \$ 2,723,638 |



Resident Interest

2020 Resident Survey

The survey was conducted December 2020 by a third-party vendor who obtained survey results from 1236 premises in the district.

Of those that knew of CVFiber:

- 82% said they would pre-subscribe
- 86% would definitely subscribe, with ISPs that didn't meet their needs always and
 - 80% would definitely subscribe, even with ISP that met their needs

Affordable Subscription Rates

Subscription rates depend on costs.

Costs:

- Construction and equipment costs: \$50M ±
- Operations, maintenance, upgrade expenses: TBD
- Finance - the cost of money: grants, debt, loans, bonds: TBD

Grant money = lower subscription rates!

Affordable Subscription Rates - Example



ECFiber CUD Example

- \$72 rate for Basic 25/25 service
- Debt Service = \$33 or 46% of that rate!

Grant money = lower subscription rates!

Note: CVFiber is a nonprofit municipal entity and by law cannot use community tax dollars.

Broadband: An Investment in our Future

EPB Fiber, Power and Telecommunications District

“A recent independent study found that the city-owned fiber network has delivered Chattanoogaans a \$2.69 billion return on investment in its first decade.”

- Job Creation & Retention
- Lower Unemployment
- Entrepreneurial Activity
- Bridging the Educational Digital Divide

<https://muninetworks.org/content/study-finds-chattanooga-fiber-network-10-year-roi-269-billion>



Your Community Internet Provider

Providing Central Vermont residents, businesses, and civic institutions with universal access to a reliable, secure, locally-owned and -governed communications network able to grow to meet future community needs.

CVFiber Governing Board Delegates



| | |
|-----------------|----------------|
| Barre City | Greg Kelly |
| Barre Town | Joshua Jarvis |
| Berlin | Jeremy Hansen |
| Cabot | R.D. Eno |
| Calais | David Healy |
| Duxbury | Henry Amistadi |
| East Montpelier | Tom Fisher |
| Elmore | Bob Burley |
| Marshfield | John Morris |
| Middlesex | David Lawrence |

| | |
|--------------|-------------------|
| Montpelier | Ken Jones |
| Moretown | Chuck Burt |
| Northfield | Raymond Pelletier |
| Orange | Siobhan Perricone |
| Plainfield | Jeremy Matt |
| Roxbury | Tim Sullivan |
| Washington | Katharina Mack |
| Williamstown | Frank Moore |
| Woodbury | Becky Browning |
| Worcester | Allen Gilbert |



Your Community Internet Provider