

The Netrification of Vermont through the creation of Communication Union Districts

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Outline

Who we are

What we are doing

How we are going to pay for it.

Vermont

9,000 sq miles

14,000 road miles

650,000 people

50,000 addresses underserved (<25/3Mbps)

250,000 addresses less than 100/100Mbps

“among top five worse-connected states”

VT Approach - History



- ECFiber, a DIY Community Network, needed municipal status to go to bond market
- 2015 VT passed Title 30 V.S.A. Chapter 82 enabling creation of Communications Union Districts (CUDs)
 - Towns could join together to form a CUD
 - CUDs are a nonprofit, single-purpose municipality, to deliver 100/100 to all underserved in rural VT
- 2021 Vermont Community Broadband Board created
 - “Coordinate, facilitate, support, and accelerate implementation of universal broadband solutions”
- 2021 Vermont Community Broadband Fund
 - Distribute Federal and State grant money

VT Approach

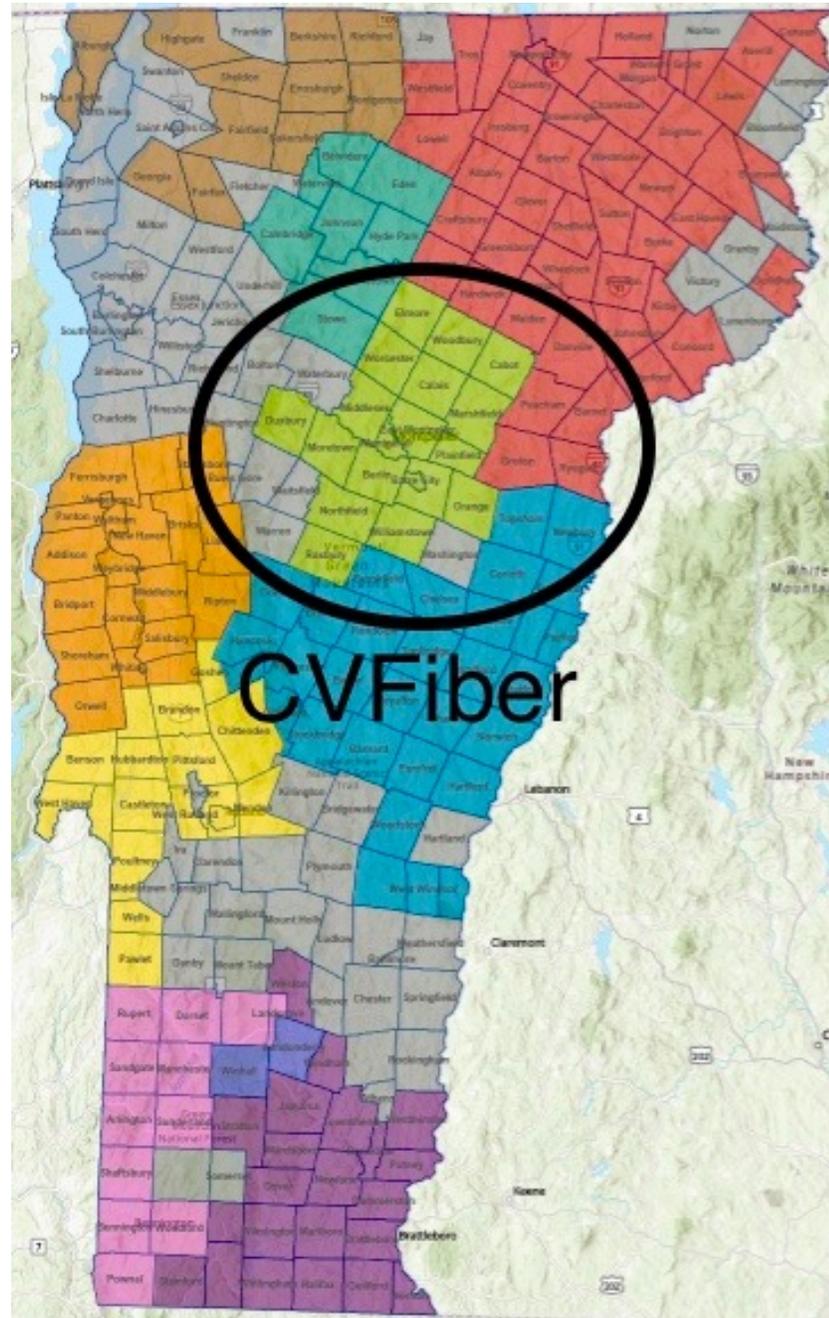
9 CUDs

CVFiber CUD formed in 2018

20 member communities

Governing Board of 20 delegates

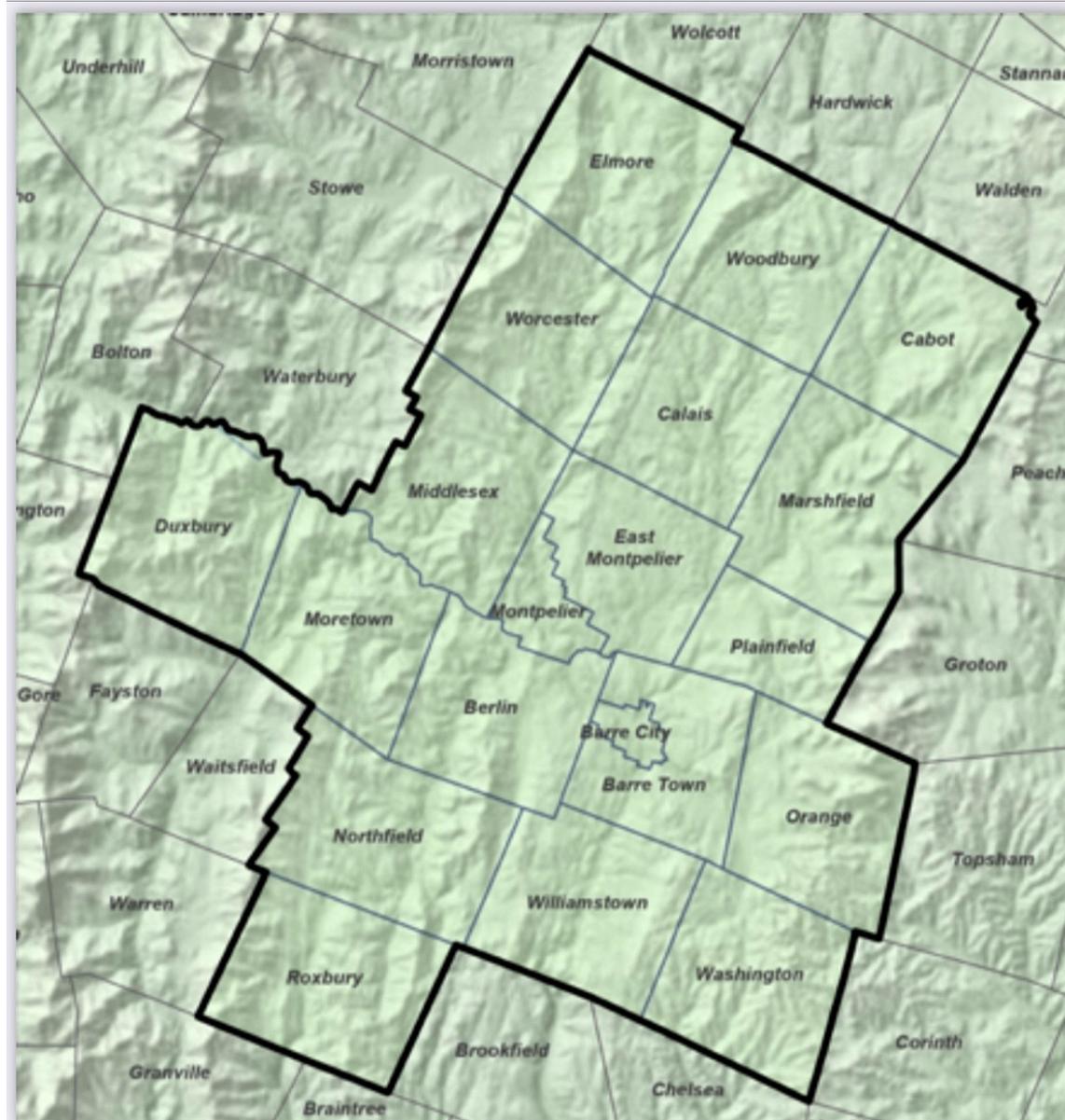
Fiber, Fiber, Fiber



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

CVFiber Mission

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

First priority: make service available to 50% of the underserved by 2022; 80% by 2023; 95% by 2024*.

Underserved: <25/3Mbps service

* Subject to fund, material, and contractor availability.

CVFiber Community Network

- Fiber to 26,000 homes and businesses
- Estimated construction cost of \$50 - \$60 million
- 1,200 + miles of fiber

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.

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.

Construction Priorities



Phase 1: THE UNDERSERVED – Homes & Businesses

- Area A
 - 5 Communities, 1,600 underserved, 150 ± miles to connect the underserved
- Area B
 - 7 Communities, 1,800 underserved, 160 ± miles to connect the underserved
- Area C
 - 5 Communities, 2,000 underserved, 300 ± miles to connect the underserved
- Area D
 - 3 Communities, well served by cable, etc

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				150	2021		
Area B	475	2021			160	2022		
Area C	300				300		2023	
		2021		2022		2023		2024

Goals:
2022 - 50% of Underserved
2023 – 80% of Underserved
2024 – 95% of Underserved

* 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 Possible Sources of Funds



- | | |
|--|--------|
| 1. Grants to date: | <\$1M |
| 2. Federal ARPA Grant Funds: | ~\$20M |
| 3. Town ARPA Grant Contribution: | ~\$5M |
| 4. Federal Infrastructure Grant Funds: | ~\$20M |
| 5. Revenue Bonds: | TBD |

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.

Questions? Comments? Suggestions?



Your Community Internet Provider

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Significant CVFiber 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
Issued RFP for CVFiber Network Developer-Operator	July
Launched Area A pole inventories	August
Executed High-Level Design contracts	August
Launch High-Level Design	August

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

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>

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. VT Community Broadband Board to administer ARPA funds
- c. 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.

Resident Interest

2020 Resident Survey

- CVFiber conducted a survey of District residents
- 81% of those responding said they would definitely or probably subscribe
- 82% said they would pre-subscribe