The Netrification of Vermont through the creation of Communication Union Districts

Ray Pelletier, Chair Finance Committee, CVFiber
rpelletier13@gmail.com
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
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.
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*

<table>
<thead>
<tr>
<th>Area</th>
<th>Miles Total</th>
<th>Pole Inventory</th>
<th>High Level Design</th>
<th>Detailed Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area A</td>
<td>300</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Area B</td>
<td>475</td>
<td></td>
<td>2021</td>
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<tr>
<td>Area C</td>
<td>300</td>
<td></td>
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</tbody>
</table>

* Subject to fund, material, and contractor availability.

* CVFiber

July 30, 2021
## Network Contingent Schedule by Area*

<table>
<thead>
<tr>
<th>Area</th>
<th>Preconstruction</th>
<th>Construction: Phase 1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Miles</td>
<td>Pole</td>
</tr>
<tr>
<td>Area A</td>
<td>300</td>
<td>150</td>
</tr>
<tr>
<td>Area B</td>
<td>475</td>
<td>2021</td>
</tr>
<tr>
<td>Area C</td>
<td>300</td>
<td>300</td>
</tr>
</tbody>
</table>

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

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# Network Contingent Schedule by Area*

<table>
<thead>
<tr>
<th></th>
<th>Preconstruction</th>
<th>Construction: Phase 1</th>
<th>Construction: Phase 2</th>
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<tbody>
<tr>
<td></td>
<td>Miles Total</td>
<td>Pole Inventory</td>
<td>High Level Design</td>
</tr>
<tr>
<td>Area A</td>
<td>300</td>
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<td>Area B</td>
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<tr>
<td>Area C</td>
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</tbody>
</table>

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July 30, 2021
## Construction Cost Estimate: 2021 – 2025*

* Subject to fund, material, and contractor availability.

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

Ray Pelletier, Chair Finance Committee, CVFiber
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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

August 2, 2021
Construction Priorities

Phase 1: THE UNDERSERVED – Homes & Businesses

• Area B
  • 7 Communities
  • 1,800 underserved
  • 160 ± miles to construct to connect the underserved

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  • 1,000 underserved
  • 300 ± miles to construct to connect the underserved
EPB Fiber, Power and Telecommunications District

“A recent independent study found that the city-owned fiber network has delivered Chattanoogans 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 ± $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