Broadband in Vermont: Current and Future State

Robert Fish, Rural Broadband Technical Assistance Specialist

Statewide Telehealth Workgroup
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robert.fish@vermont.gov
802-522-2616

VERMONT
PUBLIC SERVICE DEPARTMENT

1

Overview

- Overview - Broadband Speed Requirements for Telemedicine

- Broadband coverage in Vermont

- Challenges - Light Touch Regulation

- State and Federal Programs

  - Distance Learning & Telemedicine Grants

- Proposed Communications Union Districts

- How Healthcare Professionals Can Help

Without Quality Broadband, You Don't Have Telehealth

- The greater the bandwidth up and down, the more information can be sent which results in higher image and audio quality. Not only the speed at the providers office, but also the patient's home

- "The amount and speed of the internet connection will determine the video quality and amount and speed of data transfer. A basic business broadband connection should be sufficient at about 50-100 Mbps (Megabits/sec)" - https://www.aaaai.org/

- "Telepsychiatry requires good video and audio connections with guaranteed security, anywhere between 30 and 100 megabits per second. Slower speeds may be adequate, but doctors may lack enough bandwidth for simultaneously charting, accessing medical records, or consulting other information sources."

- Zoom Video Conferencing Bandwidth Requirements
  - 2.0 Mbps up and down for single screen
  - 2.0 Mbps up 4.0 Mbps down for dual screen
  - 2.0 Mbps up 6.0 Mbps down for triple screen

- **Rural Health Clinic (approximately 5 physicians) – 10 Mbps** - https://www.healthit.gov/
  - Supports clinic management functions, email, and web browsing
  - Allows simultaneous use of EHR and high-quality video consultations
  - Enables non real-time image downloads
  - Enables remote monitoring
  - Makes possible use of HD video consultations
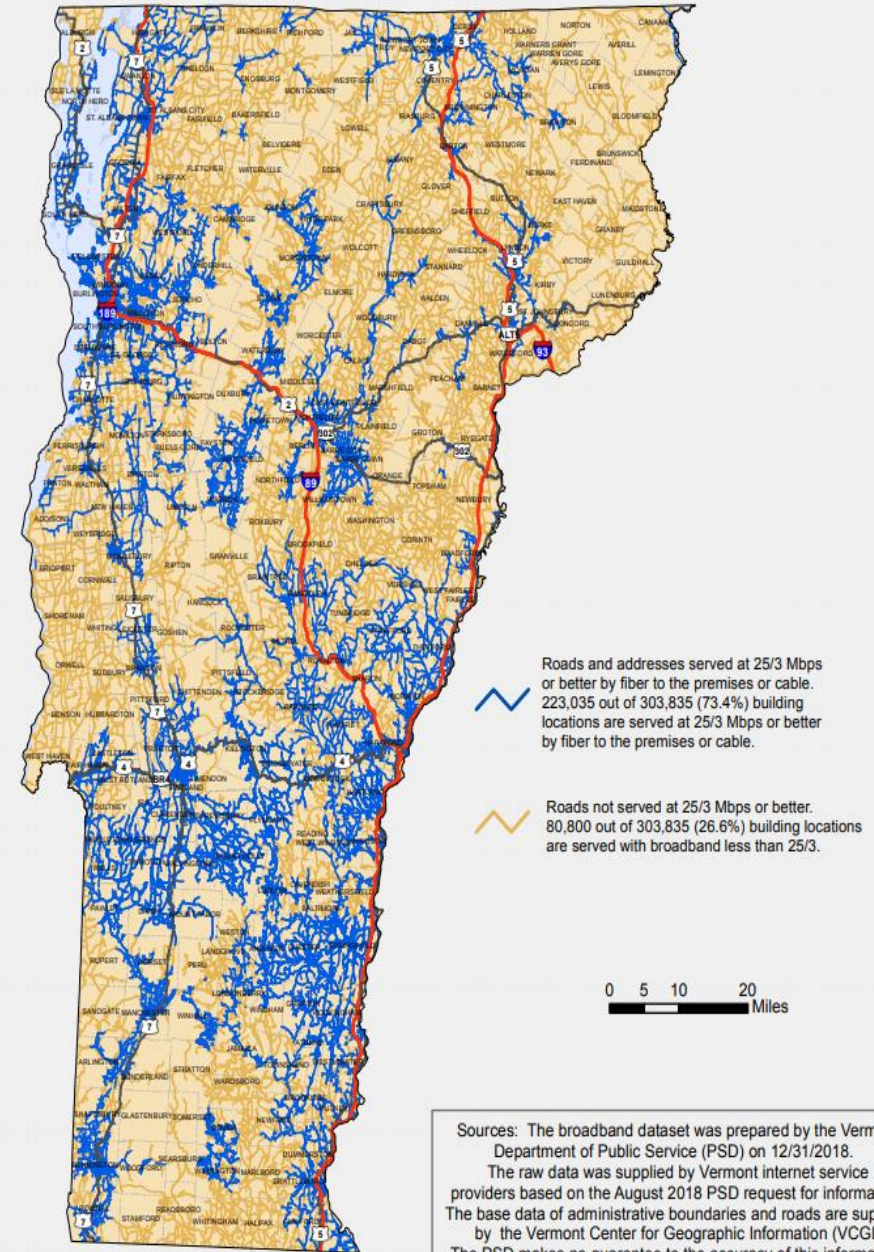
Broadband in Vermont

- **FCC Definition of Broadband:** Minimum 25 Mbps downstream and 3 Mbps upstream (25/3)

- **Vermont Statewide Goal by 2024:** Every 911 business and residential location in Vermont has a minimum speed of 100 Mbps downstream and 100 Mbps upstream (100/100) - *30 VSA 202c*

- **Vermont programs give priority to 911 addresses that are unserved or underserved** - lack 4 Mbps downstream and 1 Mbps Upstream (4/1). All programs must propose <u>at least</u> 25/3. *30 VSA 7515b*

Broadband Coverage in Vermont

- **25 towns have fiber-to-the-premise to 90% of addresses**
- **66 towns have cable or better to 90%+ of the addresses.**
- **148 towns have DSL (basic broadband 4/1) or better to at least 90% of the addresses.**
- **5.6% of business and residential locations lack basic broadband. Some in nearly every town!**

Speed Tier	Served		Not Served	
100/100	41,631	13.7%	262,204	86.3%
25/3	223,035	73.4%	80,800	26.6%
4/1	286,936	94.4%	16,899	5.6%

Broadband Statistics Summary by Town as of December 31,2018

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

VERMONT
Department of Public Service
December 31, 2018

Roads and addresses served at 25/3 Mbps or better by fiber to the premises or cable. 223,035 out of 303,835 (73.4%) building locations are served at 25/3 Mbps or better by fiber to the premises or cable.

Roads not served at 25/3 Mbps or better. 80,800 out of 303,835 (26.6%) building locations are served with broadband less than 25/3.

0 5 10   20
Miles

Sources: The broadband dataset was prepared by the Vermont Department of Public Service (PSD) on 12/31/2018. The raw data was supplied by Vermont internet service providers based on the August 2018 PSD request for information. The base data of administrative boundaries and roads are supplied by the Vermont Center for Geographic Information (VCGI). The PSD makes no guarantee to the accuracy of this information.

Broadband Market Challenges

▶ EXPENSIVE!! Cost to build out fiber to the 80,800 Vermont households currently unserved by cable:

$342.5 MILLION

The Magellan report estimates that the capital cost to deploy FTTH to the 80K locations that lack 25/3 would be $284M. This does not include the costs for drops, estimated to be $1,610 each. The study assumed a 45% take rate for residences and 30% for businesses and arrived at a total capital cost of $342.5M including drop costs.

Broadband Market Challenges

- ▶ Light touch regulation
- ▶ Competition is fierce
- ▶ Private investment business models are focused on return
- ▶ Geography

Current Federal Broadband Programs

- **"Rural Digital Opportunity Fund" (FCC)** -$20 Billion over 20 years – Reverse Auction.

- **E-RATE** – Subsidized broadband services to school & libraries.

- **USDA ReConnect** – Areas that lack 25/3 Mbps speeds.

- **Economic Development Administration, Northern Borders Regional Commission, and other USDA programs**

Distance Learning & Telemedicine Grants

▶ **APPLICATION DEADLINE:** April 10, 2020 – Last year 100% of applications were funded!

▶ **Who may apply?**
For both programs, eligible applicants include most entities that provide education or health care through telecommunications.

▶ **How may the funds be used?**
Grant funds may be used for:

- ▶ Acquisition of eligible capital assets, such as:
  - ▶ Broadband transmission facilities
  - ▶ Audio, video and interactive video equipment
  - ▶ Terminal and data terminal equipment
  - ▶ Computer hardware, network components and software
  - ▶ Inside wiring and similar infrastructure that further DLT services
- ▶ Acquisition of instructional programming that is a capital asset
- ▶ Acquisition of technical assistance and instruction for using eligible equipment

USDA

The Distance Learning and Telemedicine program helps rural communities use the unique capabilities of telecommunications to connect to each other and to the world, overcoming the effects of remoteness and low population density. For example, this program can link teachers and medical service providers in one area to students and patients in another.
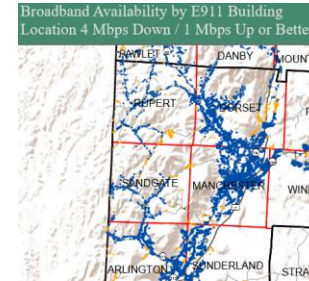
https://www.rd.usda.gov/programs-services/distance-learning-telemedicine-grants

Department of Public Service Resources

▶ **Rural Broadband Technical Assistance Specialist**

  ▶ Dedicated staff assisting communities with broadband visioning

  ▶ Connections to other resources

  ▶ Education and outreach

Robert.Fish@vermont.gov
802-522-2617

▶ **Broadband mapping**

  ▶ Helping stakeholders make informed decisions using availability data
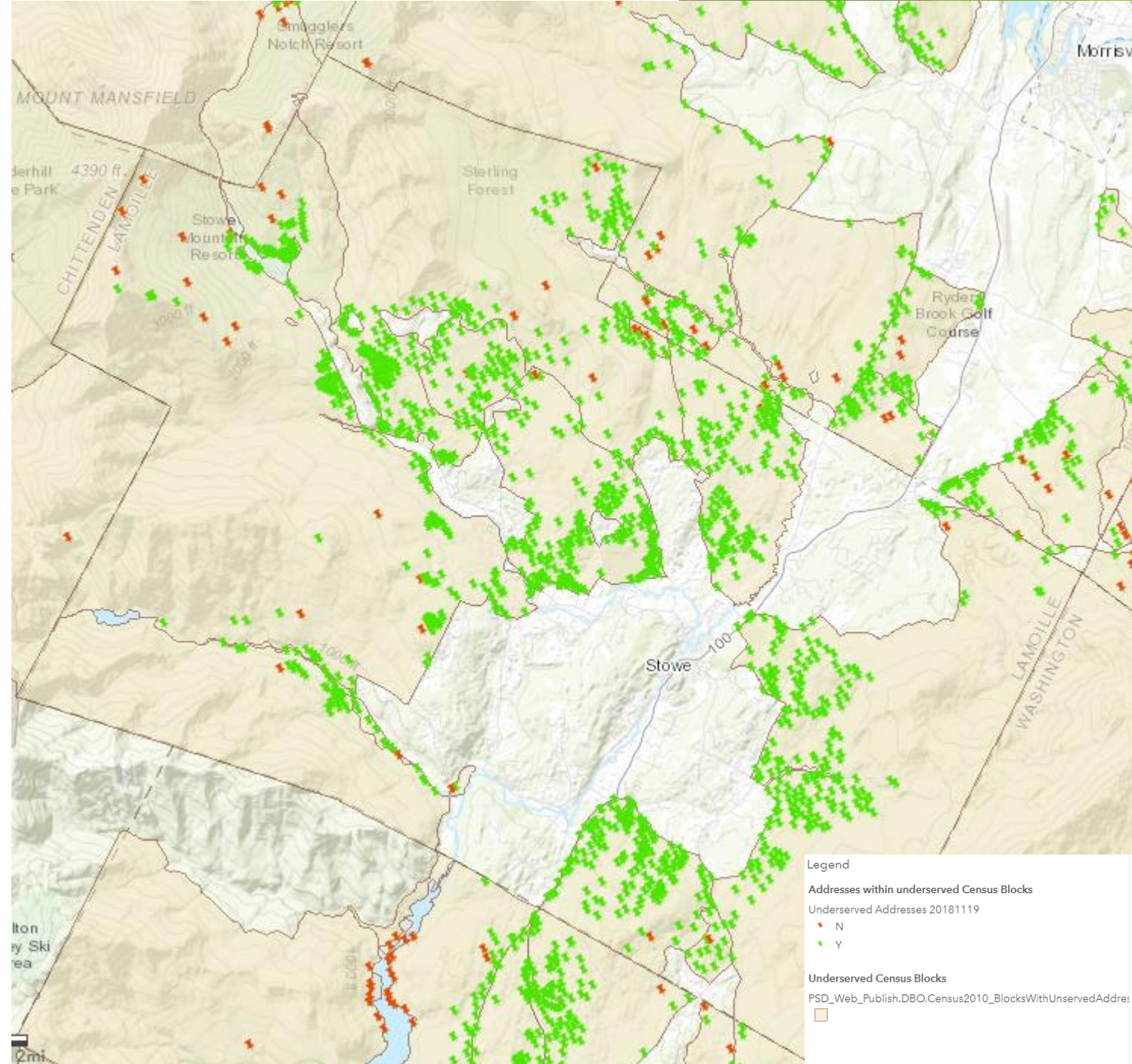
  ▶ Wireless mapping continues with the help of volunteers

▶ **Middle-mile fiber**

  ▶ We manage three middle mile networks that are available for broadband

▶ **Wireless licensing of state-owned properties**

Current State Broadband Programs

▶ **Connectivity Initiative**

  ▶ Focus on the "last mile."

  ▶ Minimizes overbuilding

  ▶ Technology agnostic

  ▶ Scalable

  ▶ Compliments other federal, local, private funding

  ▶ Next RFP to be issued in December 2020.

▶ **Vermont High Cost Fund** – Ongoing support to rural telephone providers that provision broadband.

Legend

Addresses within underserved Census Blocks

Underserved Addresses 20181119

• N

• Y

Underserved Census Blocks

PSD_Web_Publish.DBO.Census2010_BlocksWithUnservedAddres

H.513 --- Vermont's 2019 Broadband Bill

- Raises funding for the Connectivity Initiative
  - $205,000 one-time money
  - .4% USF increase dedicated to buildout
- Vermont Economic Development Authority Loan Program
  - Loan Program for new broadband providers (open to CUDs)
  - Loans of up to $4 million per project
  - Launch in FY2020
- Technical Assistance
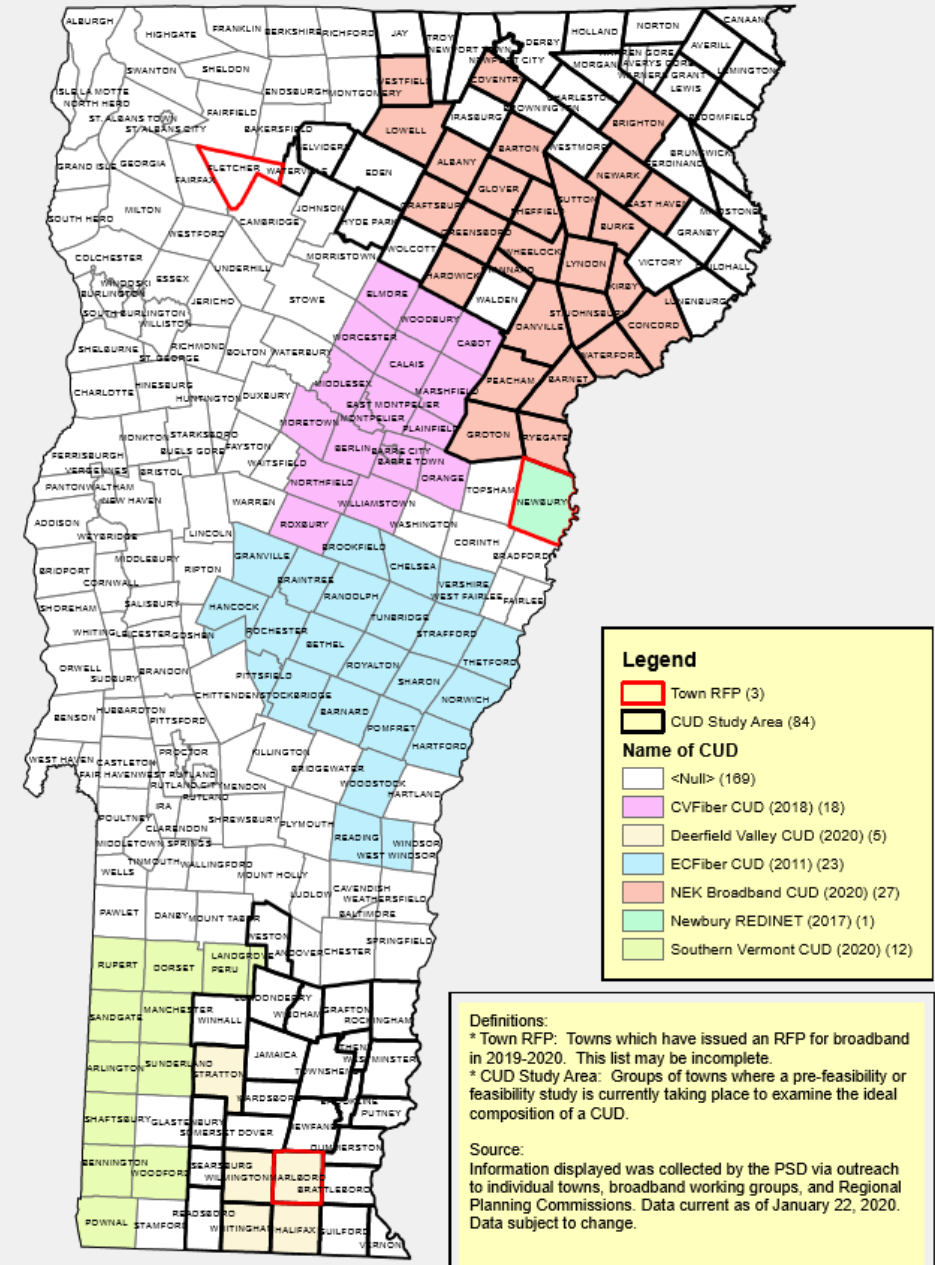 - Additional staff resources dedicated to assisting communities directly with broadband expansion.

Broadband Innovation Grant (BIG)

- **Three Rounds** (August 2019, February 2020, April 2020)
- **Most awards will be given after Town Meeting Day.** A special run for utilities in mid-February.
- **Funds feasibility studies related to deployment of broadband**
  - $700,000 total funding (<u>up to</u> $60,000 per grantee)
  - Open to CUDs, municipalities, non-profit, for profit – Basically anyone
- **Each grant has two parts:**
  - Investigate feasibility of doing a project
 - Creation of a business plan

Proposed Communications Union Districts

▶ **Communications Union District**

  ▶ Legal entity for municipalities to start telecom planning - Provides structure and governance

  ▶ Eligible for VEDA Loan Program

  ▶ Towns work together on a regional issue

  ▶ Insulates member towns from financial risks

  ▶ Economic development strategy

  ▶ MUST be approved by voters -- Town Meeting

    ▶ Current CUD: EC Fiber – 24 towns

    ▶ Current CUD: CV Fiber - 18 towns

  ▶ 44 Towns Voting on Town Meeting Day 2020

Communications Union Districts

January 2020

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Department of Public Service

Legend
- Town RFP (3)
- CUD Study Area (84)

Name of CUD
- <Null> (169)
- CVFiber CUD (2018) (18)
- Deerfield Valley CUD (2020) (5)
- ECFiber CUD (2011) (23)
- NEK Broadband CUD (2020) (27)
- Newbury REDINET (2017) (1)
- Southern Vermont CUD (2020) (12)

Definitions:
* Town RFP: Towns which have issued an RFP for broadband in 2019-2020. This list may be incomplete.
* CUD Study Area: Groups of towns where a pre-feasibility or feasibility study is currently taking place to examine the ideal composition of a CUD.

Source:
Information displayed was collected by the PSD via outreach to individual towns, broadband working groups, and Regional Planning Commissions. Data current as of January 22, 2020. Data subject to change.

Case Study: EC Fiber

- ► State's first Communication Union District -24 towns.

- ► As of October 2019, ECFiber has more than 4000 customers connected.

- ► Full coverage in 8 towns/majority of roads additional 5 towns. By the end of 2019, the District hopes to have an additional 4 fully covered towns.

- ► **State Law Prohibits Municipal Funding of Broadband.**

- ► Acts as a municipality = No taxpayers funds for individual towns used/at risk → Revenue Bonds

- ► All volunteer; operated by ValleyNet
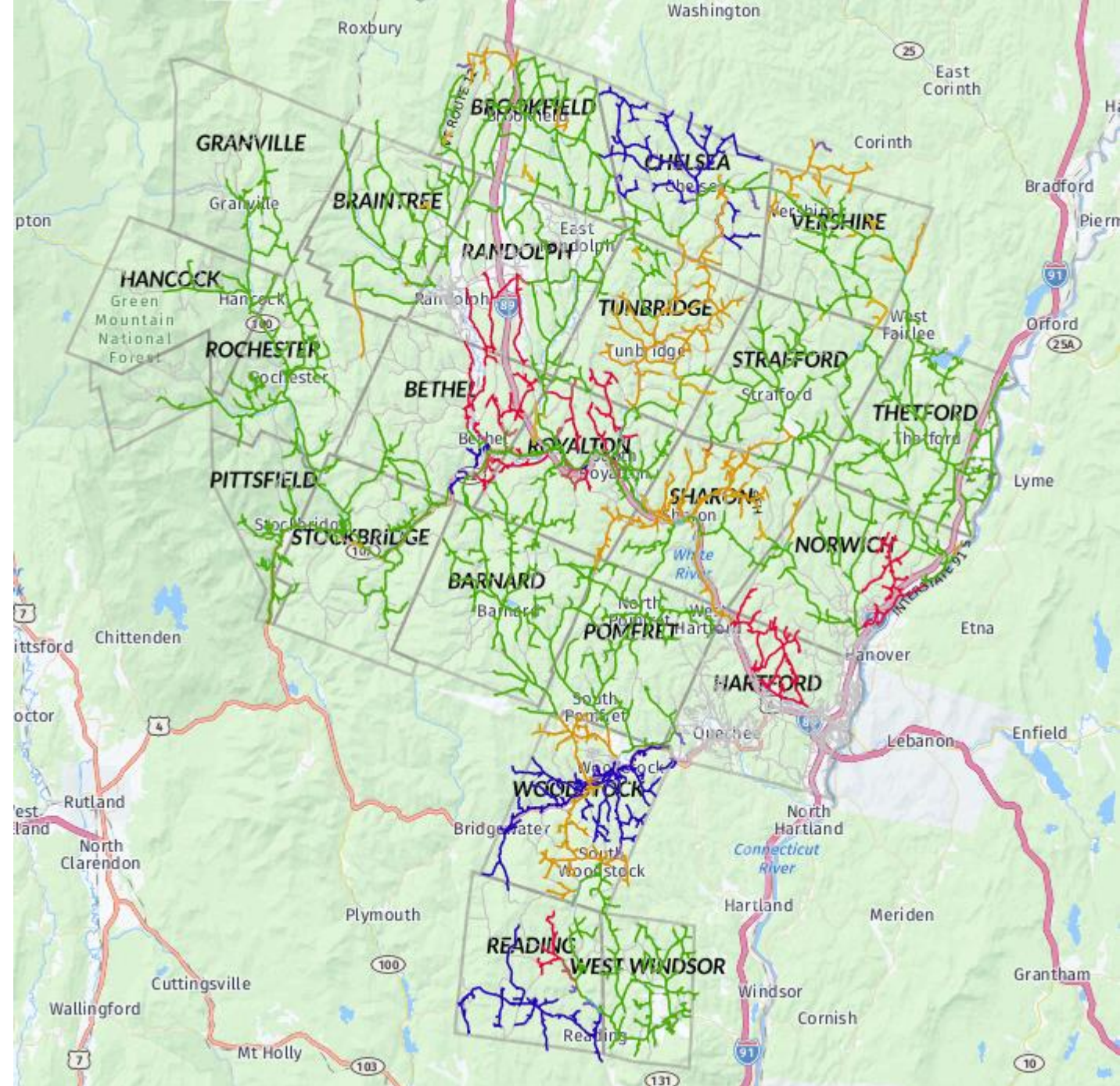
How can Telehealth Groups and Practices Help?

- **Create demand for Broadband/Fiber through training and infrastructure**

- **Create a fund to providing matching grants to communities**

- **Speak up at Town Meeting and on other public forums**

- **Assist with outreach**