

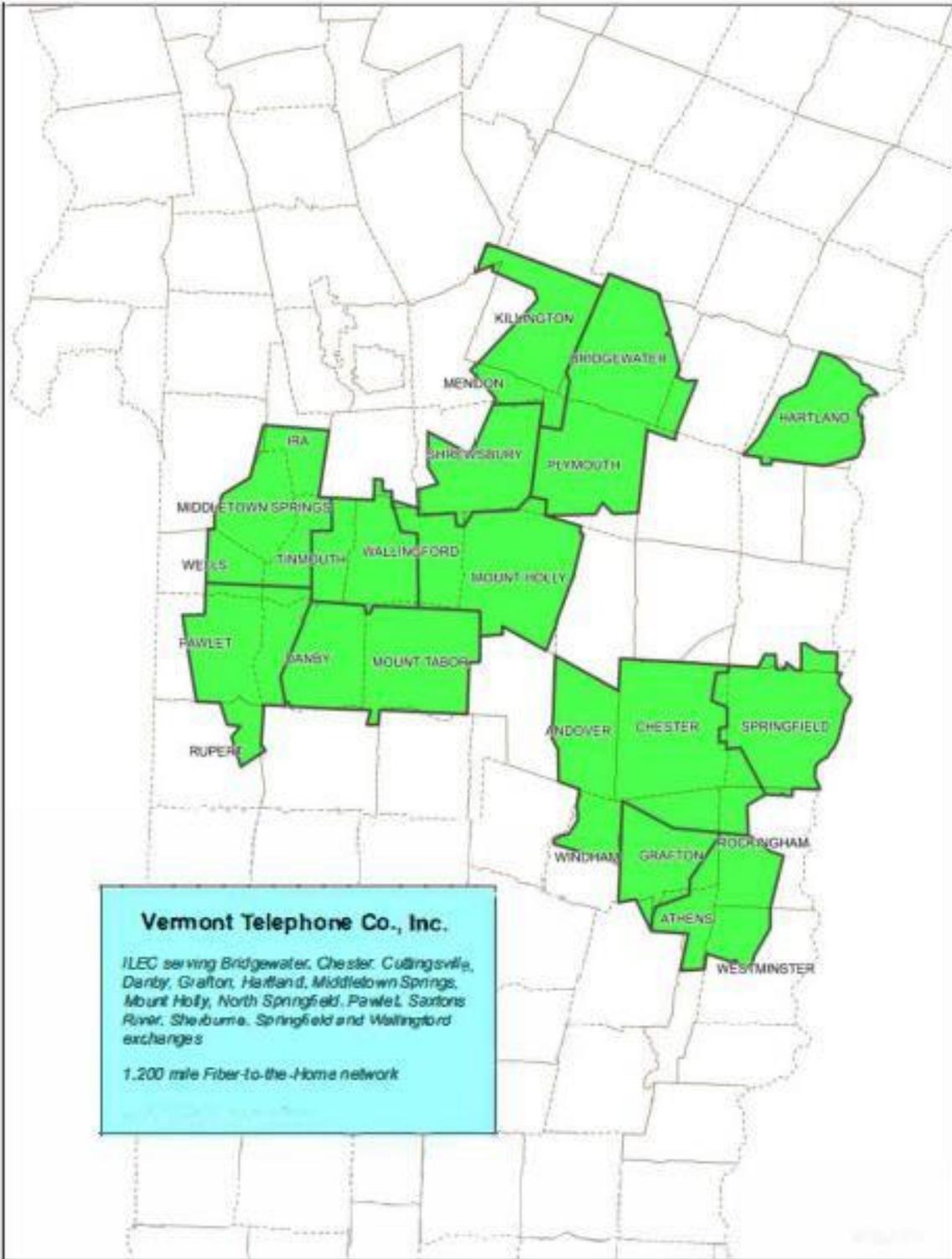


## VTel's Mission: World-Class Technology with Down-Home Service

### Vermont Telephone Company, Inc.

- VTel is a small family-owned telephone company based in Springfield, VT providing landline service to 14 rural Vermont villages. Some VTel farms and rural homes have received continuous telephone service over the VTel network since it began operations in 1890.
- Since 1994 VTel has invested over \$100 million of its own capital to upgrade its Vermont network.
- In 2010 VTel was the recipient of a \$117M award, \$82M for an Active Fiber to the Home project and \$35M for a 4G/LTE wireless project, through the USDA's Rural Utilities Service Broadband Initiatives Program (70% grant, 30% loan).
- Between 2011-2017, in partnership with RUS, VTel upgraded its traditional copper network to an Active Fiber-to-the-Home network over which it provides HD voice, Gige FTTH broadband, and a 300+ channel video service.
- Based on the latest State of VT data, Vermont Telephone Company is the primary internet service provider for 4% of Vermont's internet subscribers. (*Covid-19 Response Telecommunications Recovery Plan, Prepared for the State of Vermont, December 2020*)
- VTel's Active FTTH network speeds and affordability have been nationally recognized. A recent 2.9.2021 PC Magazine article titled *The Best Work-From-Home Cities for 2021* (<https://www.pcmag.com/news/the-best-work-from-home-cities-for-2021>), which lists the cities with best work-from-home balance of affordability, livability, and connectivity, ranked two towns in VTel's FTTH service territory among its list of the top 60 work-from-home locations throughout the US and Canada (Pawlet, VT is listed as 3<sup>rd</sup> best in America, Springfield, VT is listed as 9<sup>th</sup> best in America, and Mount Holly, VT was honorably mentioned, though too near to the other two to be separately ranked).
- VTel is a strong supporter of Fiber-to-the-Home in combination with robust wireless service as the optimal connectivity solution for Gigafication of rural America, as advocated in a 2014 Washington Post opinion piece: <https://www.washingtonpost.com/news/the-switch/wp/2014/01/14/opinion-americas-most-underutilized-resource-plain-old-telephone-poles/>
- VTel actively supports Vermont community groups, creates Vermont jobs, drives hybrid vehicles, has had women in senior leadership positions for many years in charge of finance and technology and other categories, and is committed to improving quality of life for Vermont. VTel's annual Thanksgiving dinner for elderly customers in 2020 adapted to Covid by hand-delivering over 600 turkey dinners to customers in their cars. VTel advertises the lowest costs in Vermont, and serves its customers at the end of remote country roads with the same dedication and money-back guarantees that it offers to Springfield Hospital, MIT, Dartmouth College, and Dartmouth-Hitchcock Medical Center.
- In the next potential \$250M federal broadband funding, VTel, using its existing statewide fiber network could complete 15 fully-redundant fiber rings connecting the major VT cities and towns, every PEG location, and connecting to six redundant exit points out of the State to enable more redundant and interconnected CUDs with more redundant public safety and wireless internet services.

## VTel ILEC Territory



### **Vermont Telephone Co., Inc.**

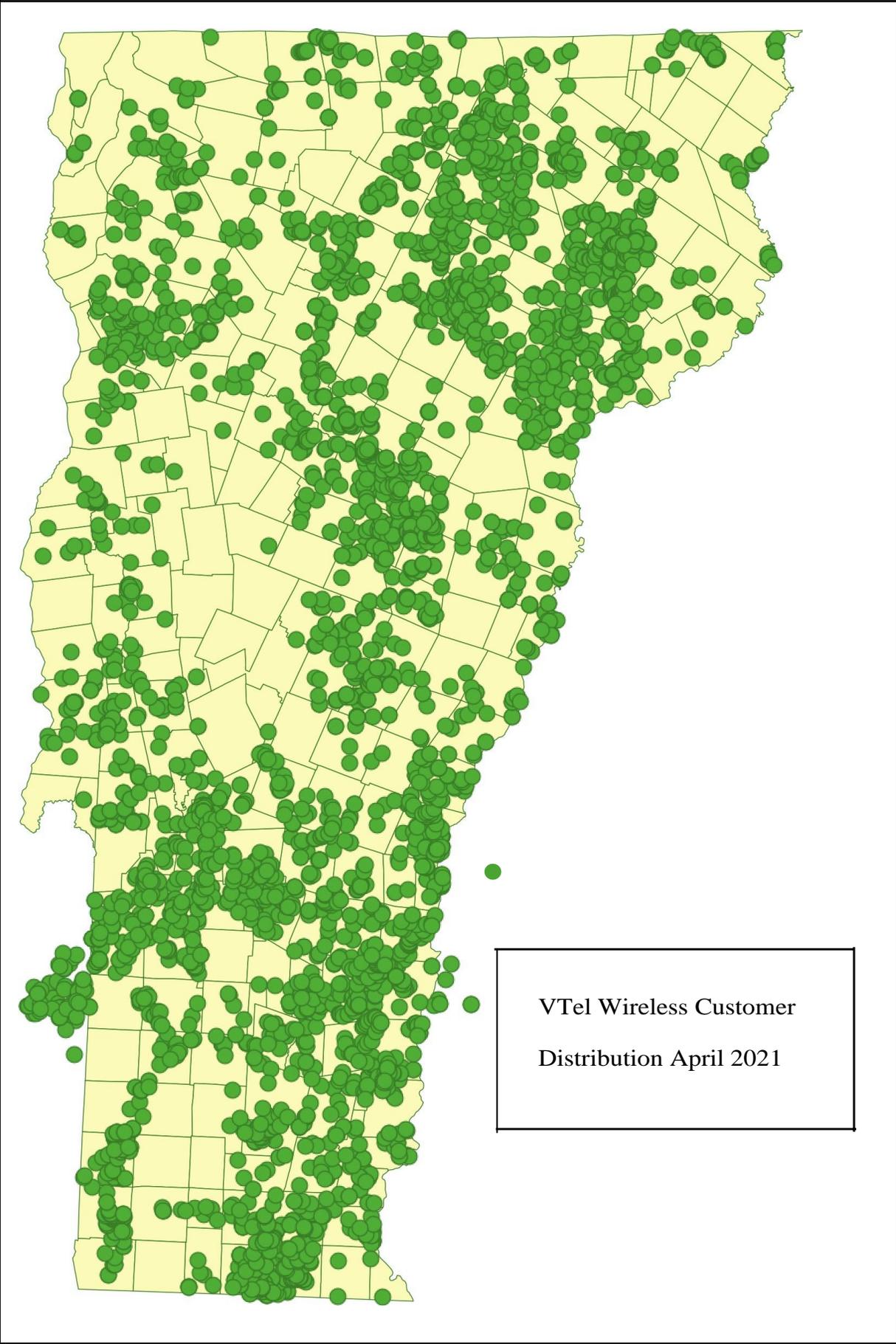
*ILEC serving Bridgewater, Chester, Cullingsville, Danby, Grafton, Hartland, Middletown Springs, Mount Holly, North Springfield, Pawlet, Saxtons River, Shelburne, Springfield and Wallingford exchanges*

*1,200 mile Fiber-to-the-Home network*

# VTel Wireless

## VTel Wireless, Inc.

- VTel Wireless provides fixed wireless broadband internet to homes and businesses throughout Vermont, with a focus on serving under-served and un-served communities in the most rural areas.
- Between 2011 - 2017 VTel Wireless utilized \$35M of RUS BIP funding to deploy a new wireless network of 131 sites to serve RUS-identified underserved areas, and deployed an additional 22 VTel-funded sites to enable service to subscribers statewide.
- Based on the latest State of VT data, VTel Wireless is the primary internet service provider for 3% of Vermont's internet subscribers. (*Covid-19 Response Telecommunications Recovery Plan, Prepared for the State of Vermont, December 2020*)
- The VTel Wireless network also provides mobile VoLTE voice service and mobile high-speed data access, with customers utilizing mobile service with a smartphone or compatible tablet.
- VTel Wireless provides wireless connectivity to statewide for GMP's Smart Grid.
- VTel Wireless currently provides roaming service for AT&T and T-Mobile/Sprint, significantly improving the State's overall mobile connectivity and emergency access for mobile users.
- VTel Wireless was one of the largest purchasers of FCC spectrum for Vermont in FCC Auction 103 and FCC Auction 105 2019 and 2020; it did not participate in recent Auction 107, in which Verizon was the largest winner of spectrum covering Vermont.
- VTel Wireless continues to improve its network to meet increasing bandwidth demands. In 2009, when the American Recovery and Reinvestment Act was passed and VTel applied for funding, the federal broadband speed threshold was 200 Kbps in both directions; in 2010 the FCC raised the federal broadband speed threshold to 4 Mbps download / 1 Mbps upload; and in 2015 the FCC raised the federal broadband speed threshold to 25 Mbps download / 3 Mbps upload.
- Between 2020 – 2021 VTel Wireless has deployed Massive MIMO technology utilizing its BRS spectrum at 8 wireless sites, which has increased throughput speeds available to subscribers up to several hundred Mbps.
- VTel Wireless' most popular plan offers 100GB/mo for \$59.95 (\$79.90 including outdoor antenna)
- In the next potential \$250M federal broadband funding VTW could extend neutral host and mobile wireless to cover the major VT corridors, and to remote fiber fed sites in coordination with CUDs.



## **VTel Comments RE H.360 and S.118 Broadband Goals**

- VTel supports State's long-term FTTH goals, but strongly believes existing wired and wireless providers should not be excluded from funding eligibility. As noted by the other RLECs, FTTH funding should be available to the entities most capable to efficiently deploy the service, including local incumbent carriers.
- New State-funded FTTH deployments should be designed to be Active Optical Network (AON) for FTTH networks, not Passive Optical Network (PON), to allow for the greatest speeds available to end users, greatest overall network capability, and CUD flexibility over time to change ISPs if needed.
- In the interim ~5 years expected for FTTH to be built out universally, nearer term solutions for improved broadband access are needed, as noted by Lt. Governor Molly Gray in the recent broadband roundtable. At VTel we think the build time for ubiquitous FTTH is likely 5-10yrs.
- Fixed wireless offers the benefit of improved broadband speeds via technology that can be deployed quickly, allowing CUDs an immediate solution to offer to their member residents while CUDs are deploying FTTH.
- VTel strongly supports the Broadband Corps proposed by Sen. Brock in S.118 to maximize Vermonters' utilization of existing internet/broadband solutions with direct outreach and technical assistance:
  - As outlined in Tom Evslin's testimony, adequate internet solutions are more widely available than many consumers may be aware of, and an immediate goal should be to ensure as many Vermonters as possible are taking advantage of the optimal connectivity solution that is available to them.
  - While VTel Wireless is the primary ISP for thousands of Vermonters statewide, there are challenges in communicating the availability of fixed wireless that a Broadband Corps could help address.
- Enhanced wireless offers the benefit of improved mobility and 911 access, a benefit that is retained as FTTH is made available to all residences over the next 5 - 10 years.
- VTel Wireless expanded use of BRS spectrum for at-home fixed internet will allow more efficient use of VTel Wireless' statewide 700MHz and AWS wireless frequencies for improved VoLTE voice and data roaming. VTel Wireless now achieves some 30 million roaming connections per month.

**VTel Broadband Funding Recommendations**

**Figure 1. Vermont DPS 2020-2021 Broadband Awards to Achieve FCC Goals of 25/3 Minimum Broadband Speeds**

<u>Vermont DPS Broadband Awardee 2020-2021</u>	<u>Technology Used in Awarded Project</u>	<u>DPS Award Amount</u>	<u>DPS Unserviced Locations</u>	<u>Projected Cost per Tested DPS Location</u>
Tilson Technology, Portland, ME	Passive (PON) Fiber	\$3,731,725	577	\$6,467
Waitsfield Telecom, Waitsfield, VT	Passive (PON) Fiber	\$962,236	242	\$3,976
Topsham Telephone, East Corinth, VT	Passive (PON) Fiber	\$971,242	350	\$2,775
ECFiber, Royalton, VT	Passive (PON) Fiber	\$1,619,570	645	\$2,511
Comcast Corporation, Philadelphia, PA	Coaxial Cable	\$152,500	77	\$1,981
Franklin Telephone, Franklin, VT	Passive (PON) Fiber	\$45,691	24	\$1,904
Duncan Cable, Wilmington, VT	Passive (PON) Fiber	\$56,607	35	\$1,617
Wireless Partners (Robert Parsloe), Portland, ME	No mobile voice. No voice roaming. Fixed wireless on public CBRS	\$762,662	668	\$1,142
Spectrum (Charter), Stamford, CT	Coaxial Cable	\$142,939	156	\$916
Cloud Alliance (Michael Birnbaum), Stowe, VT	No mobile voice. No voice roaming. Fixed wireless on public CBRS	\$384,094	639	\$601
Mansfield Comm Fiber (Tim and Lelsey Nulty), Cambridge, VT	Passive (PON) Fiber	\$351,520	686	\$512
New Alliance (Luc Beaubien & Michael Birnbaum), Plainfield, VT	No mobile voice. No voice roaming. Fixed wireless on public CBRS	\$171,770	632	\$272
NEWco (Luc Beaubien), West Lebanon, NH	No mobile voice. No roaming. Fixed wireless only, on public CBRS	\$381,611	1,360	\$281
<b>Totals in Initial Awards</b>		<b>\$9,734,167</b>	<b>6,091</b>	<b>\$1,598</b>
VTel Wireless (initial 3,889 households), Springfield, VT	Mobile voice, voice/data roaming, fixed wireless, on private 700/AWS/BRS	\$2,240,250	3,889	\$576
VTel Wireless (revised 6,260 households (projected)), Springfield, VT	Mobile voice, voice/data roaming, fixed wireless, on private 700/AWS/BRS	\$2,240,250	6,260	\$358

**Figure 2. Historical 1999-2015 FCC Recommended Minimum Broadband Speeds and Estimated 2022 Increase**

1999 January FCC First Broadband Progress Report	Recommended Minimum 200 Kbps Down, 200 Kbps Up
2010 July FCC Sixth Broadband Progress Report	Recommended Minimum 4 Mbps down, 1 Mbps Up
2015 January FCC Eleventh Broadband Progress Report	Recommended Minimum 25 Mbps down, 3 Mbps Up
2022 FCC Eighteenth Broadband Progress Report (Estimate)	Recommended Minimum 50 Mbps down, 5 Mbps Up

**Figure 3. Estimated Vermont DPS Homes With Service Below FCC Recommended Minimum Speeds and BRS Impact**

Vermont Homes Reported by DPS getting less than 10/1 Mbps	36,000
Number Served by VTel BRS, 108 Towers, built in 2021-22	16,500
Cost per Home to Fix DPS Unserved Homes Getting under 10/1	\$2,121
Vermont Homes Reported by DPS getting less than 25/3 Mbps	65,998
Number Served by VTel BRS, 108 Towers, built in 2021-22	22,390
Cost per Home to Fix DPS Unserved Homes Getting under 25/3	\$1,563
Vermont Homes Reported by DPS getting less than 50/5 Mbps	254,000
Number Served by VTel BRS, 108 Towers, built in 2021-22	112,000
Cost per Home to Fix DPS Unserved Homes Getting under 50/5	\$313

**Figure 4. "Covid-19 Response Recovery Plan" Data Regarding Needs to Close the Digital Divide**

Low-income buying Internet Services Costing \$10 to \$40/month	17%
Low-income buying Internet Services Costing \$41 to \$80/month	58%
Low-income buying Internet Services Costing \$81 to \$120+/month	26%
Of all Vermont respondents how many buy Internet at home	91%
Of all Vermont respondents how many also buy cellphone + Internet	83%
Low-Income Rutland VTel BRS Families Use of Internet GB/Month	125 Gigabytes Average vs. 170 Gigabyte Average
Low-income & unserved homes needing Broadband Corps 2021-2023	50,000

**Figure 5. VTel Costs and Recommendations Expecting \$100 Billion US Federal Broadband Infrastructure Spending**

VTel Customer Cost for GigE over Active Fiber in 2021	\$43
VTel Wireless Customer Average Payment for Service in 2021	\$60
VTel Average Uploads/Downloads	88% down/12% up and symmetrical not relevant
Recommended Fiber Architecture is Active Fiber Gigafication	Gigafication of America
VTel has offered cost-free Active Fiber cost and design guidance to:	All Vermont CUD's
How many global customers exist in 2019 for Mobile Wireless	8.3 billion
VTel Wireless proudly provides wireless roaming for great partners:	AT&T Wireless
VTel Wireless proudly provides wireless roaming for great partners:	T-Mobile
VTel Wireless proudly provides wireless roaming for great partners:	Sprint
VTel Wireless has offered roaming and spectrum sharing with:	All Vermont CUD's
VTel Wireless Vermont Roaming Connections per Month	30,000,000
Recommended Allocation 1st \$250 million to CUDs and Local Incumbents for Active Fiber	77.5%
Recommended Allocation 1st \$250 million to VTel Mobile/Fixed BRS	12.5%
Recommended Allocation 1st \$250 million to State Board Management	5%
Recommended Allocation 1st \$250 million to Broadband Corps	5%