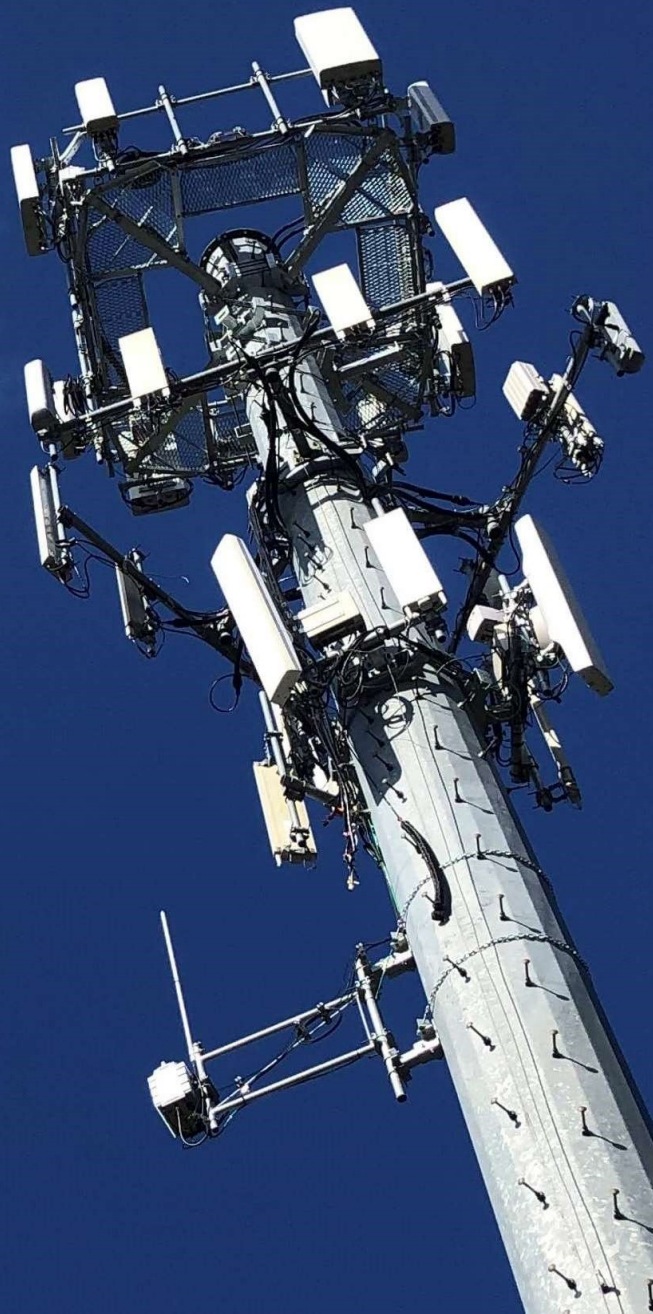
Critical Communications Infrastructure Program:

A Plan for Expanding Mobile Wireless Coverage in Vermont



The Economy

- Agriculture
  - Data and voice coverage in the field is becoming increasingly important
  - Internet-enabled equipment rely on data networks
  - Coverage is important for worker safety
- Tourism
  - Cell phones are critical to making reservations, finding accommodations, checking transportation, and locating attractions.
  - Visitors expect connectivity
- Keeping youth
  - Most people ages 18-29 can only be reached by cell phone.
  - 98% of US college graduates rely on their cell phones.
- Attracting professionals
  - Nearly every industry from the self-employed to corporate executives relies on a cell phone to connect with clients and customers, while at the office or on the road.

Transportation

Wireless communication is critical for current and future transportation needs:

- Convergence
  - Fiber Optic, Wireless, Electric Grid, becoming a seamless unified network
- Intelligent Highway Management
  - Snowplow and emergency vehicle tracking
  - Real-time highway conditions
  - Crowdsource and smart navigation
- Automation & Modernization
  - Fleet management
  - Distribution tracking

Public Safety

- 75% of E-911 calls are from mobile wireless (2021)
- 911 received 475 texts in 2021
- An estimated 40% of the population lacks access to wireless coverage in their homes
- 10% of state highways and rural roads lack cellular coverage, Emergency calls cannot be made roadsides.
- 62% have poor coverage

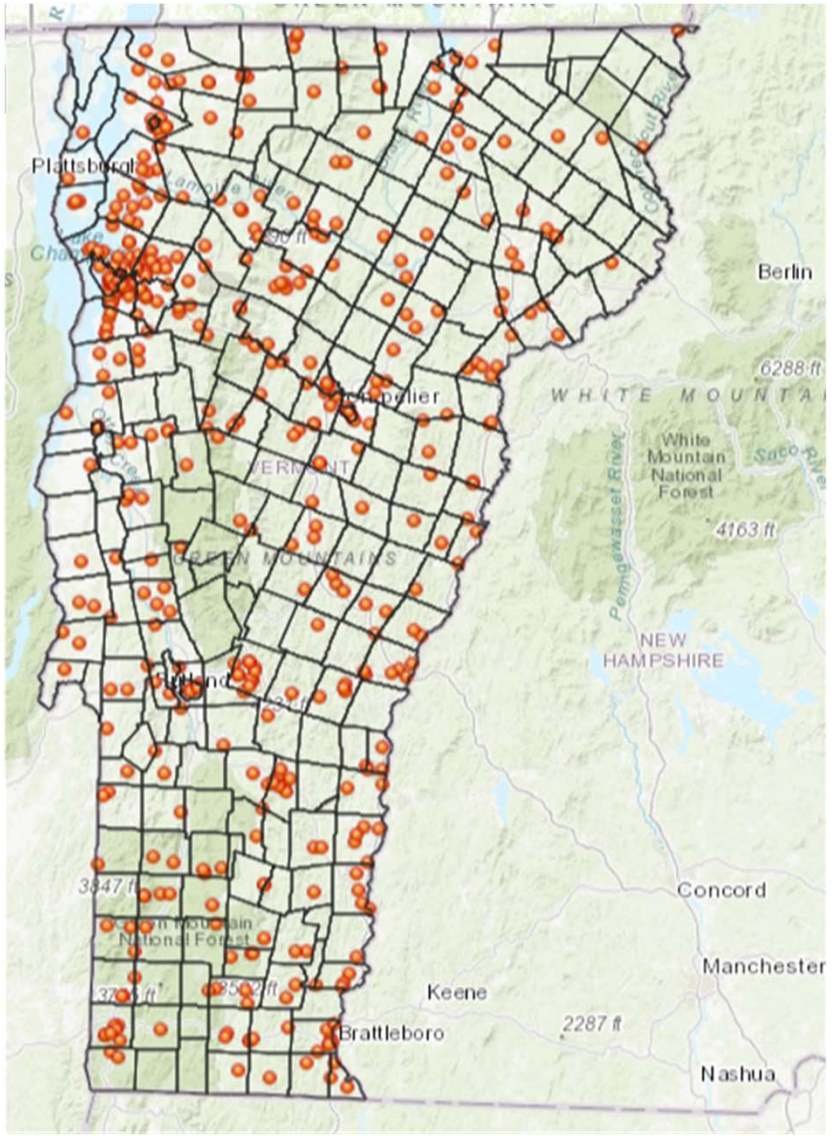
Current mobile wireless coverage

- The state did a drive test of all federal-aid highways in 2018
- About 70% of tested road miles have a signal from either AT&T or Verizon
- 10% of Vermont roadways lack a signal from any carrier
- 62% of roadways have marginal service

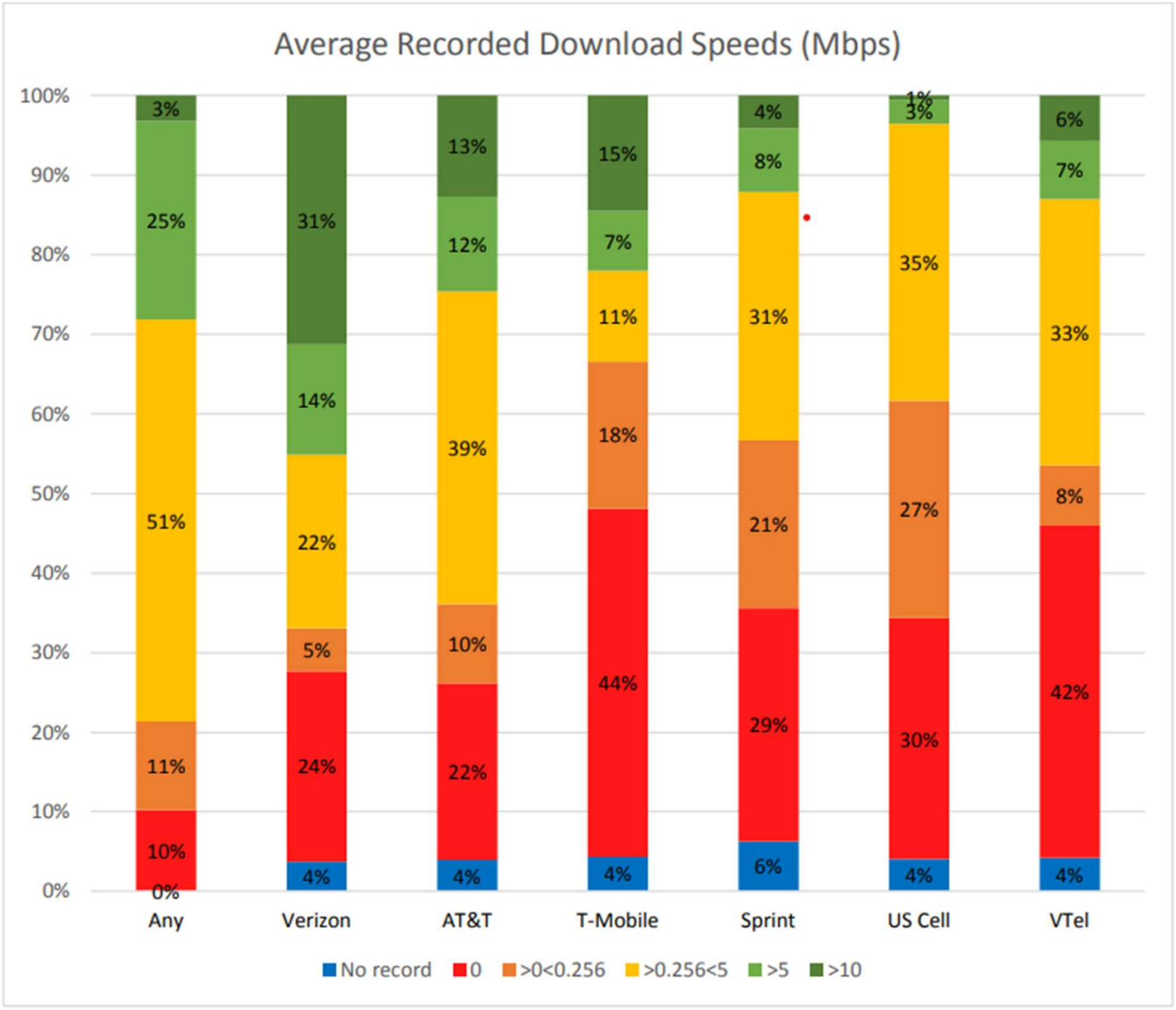
Tower Sites

- Permitted by the Vermont Public Utility Commission under 30 VSA § 248a
- Multiple permits per tower
- 2011 through 2017.

Tower Type	Quantity
Monopole	131
Building	56
Lattice Tower	56
Silo	53
Guyed Tower	41
Monopine	31
Utility Pole	20
Church	8
Water tower	8
Wood pole	5
Other	3
Total	412



2018 Drive Test Details



Critical Communications Infrastructure Program

- A proposal to deploy up to 100 new cell towers consistent with state policy (30 V.S.A. § 202c(3)) and the 10-Year Telecom Plan
- Uses $50M in federal infrastructure funding
- Towers will be deployed in rural areas to reach unserved roads and populations
- Priority coverage areas will be identified by experts and a community input process based on the 2022 drive test data

Drive Test

- Use of an outside vendor experienced with drive test analyses
- Test all Vermont state highways and interstates
  - Test as many back roads as possible
  - Incorporate crowdsource data
- Work with Regional Planning Commissions and First Responders to identify local roads of concern
- Measure both voice and data for five Vermont carriers
  - T-Mobile, AT&T, Verizon, VTel Wireless, U.S. Cellular
- Measure band class 14 (FirstNet service)
- Using this data, the state will identify priority areas for service with consideration given to:
  - AoT, Public Safety, and Regional Planning Commissions
  - Input from carriers
  - A public input process and community involvement

Identify Tower Search Rings – $1M

- Using 2022 drive test data, a consultant with experience in developing cell sites will help identify suitable search rings for the 100 towers.
  - A search ring is a geographic area in which a tower could be placed to meet a coverage goal.
- Search rings will be identified to cover the priority areas with a focus on:
  - Town and regional plans
  - Local input
  - Land use considerations
  - Optimization with existing networks

RFP for Colocation

- The Consultant will design a request for proposals that seeks to put a value on the rental fee for each tower ring.
  - It is anticipated that rental fees will be substantially below market value
- Bids will be solicited from the major and regional carriers
  - Carriers will tell us how much they are willing pay for monthly license fees to be on a tower
  - The RFP would seek at least two bidders for each search ring.
  - Regional carriers would need to have firm roaming agreements in hand for each facility bid.
  - Carriers can be open to the “neutral host carrier” model but not exclusively seeking one.

Facilities deployment support -- $30M

- Offer grants to winning carriers reduce deployment costs – Average of $300,000 per tower site ($150k per carrier)
  - Equipment, backhaul, installation, etc.
  - Everything to run the network but the tower
- Carriers have reported total facilities costs of between $185,000 - $450,000 for network facility equipment.
  - Grants would be determined not on total cost but an appropriate subsidy

Tower Construction RFP - $20m

- RFP issued to tower builders/owners to construct facilities
- Winning bidder(s) must honor the two highest rental bids for each tower
- Towers would be multi-carrier with at least three positions
- Tower owner responsible for:
  - Site identification, real estate purchase, design & engineering
  - Permitting
  - tower construction
- Tower owner must own, operate, and manage facilities for 20-year terms
  - The owner can further monetize the towers
- Tower owners will reserve space available for Public Safety LMRS.
- Cost $20 million -- Average of $200,000 per tower for general construction