



2024 Vermont 10-Year Telecommunications Plan

Agenda

1. Plan context
2. Research and analysis
3. Changes to the Plan
4. Findings and recommendations
 - a. Wireline coverage
 - b. Mobile wireless
 - c. Affordability
 - d. Public safety systems
 - e. Statute
5. Public hearings



10-Year Plan context

- **Guided by telecommunications goals in 30 V.S.A. § 202c**
 - Provides analysis and recommendations supporting each goal
- **Created in accordance with 30 V.S.A. § 202d process**
- **Builds on momentum created by recent federal resources**
 - ARPA, CPF, and BEAD
- **Addresses all statutory requirements, but places special focus on elements not addressed in simultaneous BEAD planning**

Qualitative and quantitative research underpins the Plan

- Landline and cellular phone survey of a statistically significant sampling of residents
- Online surveys of Vermont businesses, healthcare, and public safety professionals
- Interviews with over 55 public and private stakeholders
- Statewide mobile wireless engineering and coverage analysis
- Scientific “input-output” workforce gaps analysis based on broadband construction spending

Public participation process

- **Statewide WCAX live stream and website banner ads in March 2024**
- **Three public hearings with remote joining options in March 2024**
- **Hearings included sign language translation and closed captioning**
- **Direct emails to all interviewees encouraging them to review draft plan**
- **Dedicated email address and form for written comment submission throughout March 2024**
- **Collaborative publicity and distribution of hearings with AMOs**
- **Over 50 pages of feedback during public comment period**

Selection of changes to the final draft

- **Section 7:** Added clarity and context around possibility of fiber providers offering carrier-grade and enterprise-grade service
- **Section 8:** Added recommendation for a workforce incentive program for broadband construction roles
- **Section 9:** Added details on priority and preemption services, and the ongoing work of the Public Safety Communications Task Force
- **Section 10:** Updated information on state rights-of-way permits and fees and selection criteria for the mobile wireless grant pilot program
- **Section 12:** Additional timelines and success measures added to Action Plan



Selection of findings

Fiber coverage is expanding rapidly, but stakeholders identified small challenges

- **Households with access to 100 Mbps symmetrical rose by roughly 35,000 between 2021 and 2023; Vermont is on track to pass all on-grid premises by 2029**
- **Vermont needs to grow its broadband construction workforce**
 - Between 2018 and 2022, Vermont's broadband deployment workforce shrank by 12%
 - Building \$700M of fiber deployments will require growing the workforce by ~750 workers
- **Fiber infrastructure owners may need to bury portions of network in next 10-15 years as part of utility hardening, but costs and responsibilities are unclear**
- **The Agency of Transportation no longer assesses zero-cost fees in unserved areas, decreasing overall efficiency of deployment in VT**

Mobile wireless service is critical, but little coverage expansion has occurred

- 80% of surveyed businesses indicated Vermont's mobile wireless coverage is "inadequate for their business needs"
- 64% of surveyed residents agree that the state should use public funds to improve mobile wireless coverage
- Mobile download speeds have increased by sixfold since 2018, but coverage areas have seen almost no expansion
 - Approximately 412 miles of road do not have mobile broadband coverage from any provider
- Engineering analysis shows strategically placed small wireless facilities (under 50 feet tall) can make efficient progress toward closing the first 50% of gaps

Highlights of Mobile Wireless Engineering Analysis

- **Assumes ubiquitous fiber along roadways will reduce cost of mobile deployments**
- **Certified PE estimated \$240,000 per 140-foot AGL traditional macro tower**
 - Includes design, backhaul, power, and installation
 - Requires more significant landscape changes to maximize signal reach
- **Certified PE estimated \$97,000 per 50-foot AGL pole-based radio deployment**
 - Often considered less aesthetically obtrusive and are well suited to VT terrain and foliage
 - Over 50% savings in capital expenditures compared to 140-foot towers
 - In many locations, lower height does not sacrifice range due to VT topography and curvature of earth
- **Closing *easiest* 50% of mobile wireless coverage gaps would require:**
 - 98 macro towers that are 140 feet tall at total estimated cost of \$25,520,000
 - 107 wireless facilities that are 50 feet tall at total estimated cost of \$10,379,000

Affordability of services is a significant challenge hampered by ACP sunset

- **ACP expired in May, causing 24,000 Vermont households to lose \$30/month subsidy**
 - 16% of survey respondents under the age of 45 reported that the cost of their mobile cell bill often or always affects what essential items they can afford
 - 12% of persons with a disability and 37% of income-based government assistance recipients participate
- **Although stakeholders strongly note that both fixed and mobile connectivity are important, the federal Affordable Connectivity Program (ACP) subsidy only covered one service**
- **Healthcare workers noted that without continuous mobile coverage and access to devices, unhoused Vermonters struggle to access care**

Public safety systems will continue to evolve; mobile coverage remains an issue

- **Public Safety Communications Task Force** was established in February 2024 to evaluate a possible consolidation of public safety answering points (PSAP)
- **Over 50 FirstNet sites** (new towers and tower upgrades) have been deployed; however, only 5.6% of public safety survey respondents report never losing mobile service on the job
- **Some goals of the Statewide Communication Interoperability Plan (SCIP)** may only be addressed with additional state funding

Statutes could be more specific and better aligned with current state strategy

- **Broadband speed definitions and deployment parameters are not cohesive across statutes**
- **Statutorily mandated end date for the VCBB (July 1, 2029) is before all BEAD Program activities are likely to happen**
- **Statutory goals, first drafted 40 years ago, contain some overlapping and nonspecific language**



Selection of key recommendations

State should take a range of actions to make wireline deployment more efficient

- AOT should continue issuing zero-cost fees in unserved areas until state achieves universal 100/100 Mbps broadband
- Scale training programs to indicated levels to ensure workforce is skilled, qualified, and sufficient to execute necessary construction
- Lead a study among infrastructure owners of process and costs of burying infrastructure, impact to ISP and fiber-owner financials, and opportunities for savings and alignment

Performance Expectations: Agency of Transportation, Vermont Community Broadband Board in collaboration with the Department of Labor, and Public Service Department during late 2024 and early 2025.

Encourage small-facilities wireless deployments via a pilot grant program

- **Pilot a small-facilities (<50 ft) mobile wireless grant program to address coverage gaps while preserving landscape aesthetic**
 - Dedicate \$2 to \$3 million to the pilot and collect data to adjust future iterations
- **Update data collection practices to strengthen planning and measure mobile coverage progress**
 - Repeat the 2022 mobile broadband drive test every two years
 - Establish a crowdsourced drive-test practice to collect data on Class 2 and 3 roads
 - Request that 248a permit recipients notify PSD of completion of tower builds

Performance Expectations: Public Service Department with funding allocated by the Vermont Legislature during the 2024-25 biennial.

Ensure affordability of both wireline and wireless service for low-income residents

- Define affordable as 2% of monthly income for fixed and mobile broadband spending for low-income Vermonters
- Provide a subsidy of \$67/month to low-income Vermonters for *both* wireline and wireless broadband subscriptions
- Provide fully subsidized mobile devices and mobile subscriptions to unhoused Vermonters to ensure continuous access to services

Performance Expectations: Agency of Human Services with funding allocated by the Vermont Legislature during the 2024-25 biennial.

Strengthen the state's emergency communications systems

- **Use the PSAP consolidation analysis to inform the Public Safety Communications Task Force's charge**
- **When federal grants are unavailable, dedicate sufficient funding to execute the SCIP**
- **Use grantmaking leverage to ensure resiliency measures are built into new deployments**

Performance Expectations: Department of Public Service, Department of Public Safety, and the Public Safety Communications Task Force in 2024 and early 2025.

Modernize statutes to better guide practices and align with state strategies

- Ensure statutory goals in 30 V.S.A. § 202c and 30 V.S.A. § 202d are specific and aligned with Act 71
- Extend the VCBB's sunset date to provide adequate oversight and monitoring of BEAD deployments
- Consider aligning statutory goals with ongoing deployment strategies
 - E.g., set goals that address the benefits that competition may (but doesn't always) bring — better speeds, lower costs, better customer service — rather (or in addition to) goals of competition for competitions' sake

Performance Expectations: Vermont Legislature during the 2024-25 biennial.



Thank you