

Creating a Sustainable Path to 911 and Cell Service Expansion

The Vision: CoverageCo is a company solving the challenge of rural cell phone coverage in Vermont, bringing cell service and 911 calling access to thousands of Vermonters. CoverageCo hopes to continue this rollout to significant areas of the state still without cell or 911 coverage.

The Technology:

- Small cell service devices, called “base stations,” mounted on poles or buildings
- Requires only access to broadband and the same amount of energy as a 100 watt light bulb
- Generally, delivers a half mile radius of cell service, depending on terrain, and height of the transmitting / receiving antennas above ground level.
- Is the most energy efficient option on the market (which means it would be economically very difficult for any other carrier to provide a similar service)
- Provides cell service and 911 calling in locations not covered by large service providers, for all GSM and CDMA phones, regardless of if a carrier has a roaming relationship with CoverageCo or not; all compatible 911 calls are routed.
- Doesn't require the building of expensive, massive towers
- Earns revenue from traditional cell service providers only when one of their customers uses the CoverageCo network
- 157 units have been installed to date.
- Units cover a total of 370 square miles where there was no coverage before
- There were **1215 completed calls to E911** made through the CoverageCo network in the State of Vermont over the last 12-month period from March 1, 2017 thru February 28, 2018. CoverageCo locations provide complete voice, texting and data service to T-Mobile, Sprint customers, and voice-only service to Verizon and US Cellular customers. CoverageCo has just signed a data roaming agreement with US Cellular. Verizon customers with non-CDMA phones and data cards can receive texting and data services.

To date, AT&T has chosen not to allow their customers to use the CoverageCo service in the state of Vermont.

CoverageCo did roam with AT&T in support of the hurricane relief effort in Puerto Rico and US Virgin Islands in the wake of Hurricane Maria in late 2017.

The results from our hurricane relief effort in Puerto Rico and USVI with all carriers:

462,827 SMS text messages

140,076 voice calls

269,195 voice minutes

54,551.276MB aggregated data roaming services.

Mobile virtual network operators (MVNOs) like TracFone, Republic, AARP, etc. generally cannot utilize the CoverageCo network due to their arrangements with their host carriers (as they are often reselling for the larger companies such as Sprint, Verizon, AT&T, etc.).

The Problem: CoverageCo's revenue model and device placement strategy was originally based on national averages for cell phone use while driving. However, Vermonters use the phone on the road at much lower rate than national average. The result is that the current average revenue per installation is \$56/month/site, and because current operational costs are \$135/month/site, this has led to a \$79/month/site deficit.

Addressing the Problem:

- Locations with even a little population density are viable for CoverageCo's model of small cell service - Small villages like Wilmington can benefit from cell service and provide a volume of activity to make the network viable in those locations, even with the high fixed costs of pole attachments.
- Important institutions, like hospitals, schools and colleges, still have no cell service and need it - These important state assets are hampered by the lack of cell service, sometimes creating dangerous scenarios. Yet, through various federal programs, most have robust backhaul in house that provide more than enough connectivity for small cell service. Grace Cottage Hospital was more than happy to install a device and the resulting call volume made the operation financially viable. Similar deployments at Sterling College and even the state park in Barnard yielded similar strong revenue results and user satisfaction.
- Vermont business and homeowners appear to be happy to host sites in order to have cell service - In classic Vermont fashion, CoverageCo discovered this year that individuals and business were more than happy to have a CoverageCo antenna installed on their building, plug the device into an outlet and connect to their existing backhaul. The end result was service for a neighborhood with low operating costs that allows for viable deployments in more rural areas.
- "Daisy Chain" technology works to potentially further reduce costs and leverage better backhaul.
- **3 Steps to a Sustainable Path Forward:**
 - Use the Vermont Universal Service Fund to reimburse the monthly E911 cost for *any* network provider enabling outdoor 911 calling in a location without current coverage
 - Work with Green Mountain Power to propose a tariff that would no longer require a unique meter for each and every micro cell, a change that would cut the energy cost in half and save ratepayers money as well
 - Use new models for placement of units to target stationary cell phone usage rather than usage in transit.

Monthly Site Operational Costs: CoverageCo was able to negotiate the contract rate for 911 service down from \$50 to \$28 per site per month for current 2G service, starting July 1. As such, the itemized current monthly operational costs versus the target monthly operational costs are:

	Current	Target
Backhaul	\$53	\$53
Power	\$30	\$15
Pole Attachment	\$2	\$2
E911	\$50	\$0
Total	\$135	\$70

As a form of an even more sustainable business model, CoverageCo has 10 sites installed where the host, usually a business/property owner provides the power and backhaul service, which leaves the only site operational expense as the E911 fees. An example of this can be found at Coburn's General Store in South Strafford, VT.

Benefits from the Sustainable Path Forward:

- Continue to greatly increase needed 911 coverage
- Economic development benefits that come from making more locations attractive for businesses
- Avoid construction of massive, controversial towers
- Increased revenue back to the Universal Service Fund resulting from more cell usage
- Increased cell coverage across the state by **an additional 957 square miles**

911 Costs to the State:

- Current cost of 2G 911 service for 157 sites at \$50/mo. is \$7,850/month; and the future Cost of 2G 911 service for all 357 planned sites at \$28/mo. would only be an additional \$2,146 per month for a total of \$9,996/month.
- Annual cost of 2G 911 service, once all 357 sites are running, would be **(9,996 X 12) = \$119,952**

The bottom line: Changes are needed regardless of the provider.

The funding of 911 service is necessary not just for the CoverageCo project to succeed, but for any hope of getting 911 cell service from any provider to these more remote parts of the state in the near future. That's why the reimbursement policy should be available to any provider willing to take on this challenge