



How do I . . .

## Evaluate Mobile Broadband Coverage?

One of FirstNet's top priorities is providing rural America with access to the nationwide public safety broadband network. Coverage is a critical issue in Vermont. First responders throughout the state are beginning to subscribe to the AT&T built network and are evaluating how it operates in their area. Signal strength and download speeds are two factors to consider when assessing a mobile broadband service offering.

**Broadband allows users to access information via the Internet using one of several high-speed transmission technologies. Transmission is digital, meaning that text, images, and sound are all transmitted as "bits" of data. The transmission technologies that make broadband possible move these bits much more quickly than traditional telephone or wireless connections, including traditional dial-up Internet access connections.** - FCC, Getting Broadband Q&A

Mobile broadband can also be referred to as a cellular network. This type of connection utilizes cell towers to transfer a signal. The network is made up of "cells" that connect to one another and to telephone switches or exchanges. Each cell contains at least one tower with a transceiver that can transmit and receive communications. Various radio frequencies can be used. Cell phone signal strength is measured in decibels. The closer a decibel reading is to the value of zero, the stronger the signal. A reading of -50 dB represents a great signal (full bars) and -110 dB is virtually no signal (dead zone). In general, anything better than -85 decibels is considered a usable signal. *(Evaluate Coverage continued pg. 2)*

[www.PSBC.Vermont.gov](http://www.PSBC.Vermont.gov)

**VT Public Safety Broadband Commission**  
Department of Public Safety  
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FirstNet's mission is to deliver a nationwide broadband network dedicated to public safety to help strengthen their emergency communications abilities, making them safer and more effective on the job. As designated by law, FirstNet was to secure a private partner to deploy the Nationwide Public Safety Broadband Network. Following a competitive RFP in 2017, AT&T was awarded the contract to build, operate and maintain the network.

### VERMONT SUPPORT TEAM

For questions, or to arrange a presentation for your team:

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## VERMONT UPDATE

# FirstNet for First Responders

Department of Public Safety

May 2019

## First Responders Describe App Use

Whether at work or home, Vermont's first responders rely on their cell phones to communicate. The Department of Public Safety and the Public Safety Broadband Network Commission (PSBC) recently concluded an online survey of responders to better understand the specific ways cellular technology was being used. The survey also sought to determine those areas responders would like more information and education on.

"We appreciated the participation of our first responders in this online survey," said PSBC Chair Terry LaValley. "One goal of the survey was to determine if there were notable contrasts between how responders used cellular technology at work versus personal use. We found none. Even though a majority of responders described their cell coverage as intermittent or weak, it was not deterring them from having a cell phone. A continuing goal of the FirstNet program is to secure better coverage for our public safety community."

The survey asked participants to select the ways they used broadband at work and in their personal lives. Responders reported less texting in their work activities than in their personal lives, but phone calls and accessing the internet were both used equally regardless of setting. Approximately 80 percent of the responders reported using some kind of app on their cell phone.

An app, or application, is typically a small, specialized software program downloaded onto a mobile device such as a cell phone or tablet. The survey asked responders to identify the most common apps they used and also to identify the apps they would likely use if they had reliable and secure coverage. The top four application areas Vermont responders reported they were currently utilizing were: mapping and location apps; Computer Aided Dispatch; messaging apps; and hazardous materials guides. CAD applications can be self-contained

*(App Use continued pg. 3)*



**Approximately 80 percent of the responders reported using some kind of app on their cell phone.**

- VT App Survey

## FirstNet Buildout Continues in Vermont

FirstNet is a federal program managed by the FirstNet Authority within the U.S. Department of Commerce's National Telecommunications and Information Administration. Following a competitive RFP in 2017, AT&T was awarded the contract to build, operate and maintain the network. In Vermont, AT&T continues work on new site builds. AT&T has until 2022 to fulfill its commitment to build 36 new tower sites in Vermont. Six of the new tower sites are in Essex County and will be built via a partnership with Great North Woods Wireless. Construction of the Essex County sites will begin this year, with plans for the sites to be on air by the end of 2020 or sooner.

*(Buildout continued pg. 3)*

### In This Issue

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There's more information at [www.PSBC.Vermont.gov](http://www.PSBC.Vermont.gov)





## TRENDING

Check out these stories on FirstNet, interoperability and public safety technologies.

GCN

### DHS seeks better tech for first responders

<https://www.gcn.com>. On site, enter headline in search field.

To speed the delivery of life-saving technologies to first responders, the Department of Homeland Security's Science and Technology Directorate has issued a broad agency announcement calling for white papers on technologies that address 12 common challenges.

EMS1.com

### 911 FaceTime: New tool lets dispatchers access your phone's camera

<https://www.ems1.com>. On site enter headline in search field.

A new tool allows 911 dispatchers to access cell phone cameras and provide assistance and gather critical information.

FireRescue1

### First responders use heat-seeking drones in deadly tornado aftermath

<https://www.firerescue1.com>. On site enter headline in search field.

Heat-seeking drones reassure searchers that they hadn't overlooked anyone in the aftermath of the twister that killed 23 people.

## (Evaluate Coverage continued pg. 4)

First responders want not only a signal, but also the ability to quickly move information through the mobile broadband network. You need an internet connection. This connection is usually made by the telephone service provider or through a wireless mobile hotspot. The official broadband definition for mobile services by the Federal Communications Commission (FCC) requires network download speeds of 5 Mbps and upload speeds of 1 Mbps. Download speeds refer to how quickly information can be sent to you. Upload speeds refer to how much data you can send in a given second. Why are required download speeds so much higher than upload speeds? In general, Internet Service Providers (ISP) have a much greater demand for downstream bandwidth and there's a technical limit on how much traffic their lines can carry.

## Broadband Speed Guide

The FCC has compiled a guide to the minimum download speeds generally required for specific activities. To view the entire guide, go to [www.fcc.gov](http://www.fcc.gov), select the "For Consumers" tab at the top of the page, scroll down to consumer guides, select "Broadband and Internet."

ACTIVITY	MINIMUM DOWNLOAD SPEED (MBPS)
General Browsing, Email & Social Media	1
VoIP Calls	Less than 0.5
File Downloading	10
Streaming Standard Definition Video	3-4
Streaming High Definition (HD) Video	5-8
Standard Personal Video Call (e.g. Skype)	1
HD Video Teleconferencing	6

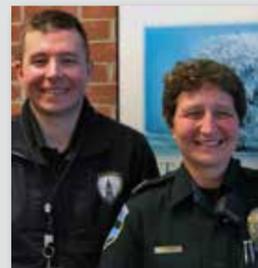
A fact sheet on "What to consider before adopting FirstNet," with recommendations on evaluating carrier services, is posted at [www.PSBC.Vermont.gov](http://www.PSBC.Vermont.gov). Scroll down the main page and click on the link in the middle of the page.

## FirstNet Performance Update

### UVM Police Services & Rutland County Sheriff's Office

It has been almost one year since AT&T began offering FirstNet subscriber plans in Vermont. The plans are based on the current AT&T network, with the promise of new tower builds and expanded coverage in Vermont by 2022. Regardless of which cellular carrier a public safety agency uses, coverage must be a first consideration. So, for those agencies working in service areas with strong AT&T coverage, how has the FirstNet system been performing? We spoke with two FirstNet subscribing agencies about their experience with the service. There are longer stories on each organization on our web site at [www.PSBC.Vermont.gov](http://www.PSBC.Vermont.gov).

### UVM Police Services



Police Chief Lianne Tuomey & Emergency Manager Zach Borst

UVM Police Services has 36 employees--23 sworn officers and an around-the-clock dispatching center. Police Services averages 10,000 calls per year. Key divisions include the patrol division, bike patrol, criminal investigation, emergency dispatch, and community engagement and outreach. Their primary means of communication is LMR. Cell phones act as a parallel primary communication source.

#### Why did you subscribe to FirstNet?

**Tuomey:** We needed a defined lane of communication just for public safety. Officer safety is of primary importance to me. Anything we can do to enhance communication only improves safety. We subscribed as soon as it was offered.

**Borst:** Prior to subscribing, Police Services had to utilize the campus Wi-Fi. The priority and pre-emption features are huge to us. Ease of use is also important. Previously, we relied on GETS and WPS. It was very underutilized. You must dial an extra number for priority service. As a Tier 3 agency, we never saw any discernable difference in service. With FirstNet, we don't have to dial an extra number and we are already in the priority lane.

#### How has FirstNet influenced your technology plans?

**Tuomey:** We are now updating our dispatching consoles. The update is being done with a goal of maximizing our use of technology. I continue to hope that all of the towers promised to Vermont will go up and that the national system will work as planned. We need to be prepared for that.

**Borst:** With the dedicated connections and coverage provided through FirstNet, we hope to make more use of streaming on-scene video back to dispatch or the Incident Commander. This could greatly enhance our situational awareness. The FirstNet team has been very helpful. They've brought services and devices to us and showed us our options. The service has been good.

### Rutland County Sheriff's Office

The Rutland County Sheriff's Office has 43 employees--36 full and part-time deputies and a dispatching center. They average 6,435 calls per year. Their jurisdiction encompasses 945 square miles. Their primary means of communication is LMR, with laptops and printers in all cruisers. All of their full-time patrol officers have FirstNet subscribed cell phones and nine Mi-Fi units provide mobile hotspots.



Rutland County Sheriff Stephen Benard

#### You were the first public safety department in Vermont to subscribe. Why?

We already had good AT&T coverage in our service area and the government service costs were very affordable. We are saving \$350 a month compared to what we had been paying with another carrier. Having priority service and access to deployables was also important. In 2016, there was a large gathering in the national forest of 10,000 people called a Rainbow Gathering. In that location, communication was difficult. Our radios wouldn't work. If we had access to a FirstNet deployable then, it would have been a big help in communication.

#### What applications are you using?

We are using the AT&T Enhanced Push-to-Talk service which mimics how your two-way radios work. We've set up talk groups to allow us to make group calls and contact everyone simultaneously with the push of a button. We have found there are areas where we have tough radio coverage, but our EPTT is functioning.

#### Any advice for agencies considering FirstNet?

Subscribing to FirstNet is different than buying cell phones. You need to be familiar with what they offer and take advantage of the free training to learn how to use features. Also, stay up-to-date on buildout plans. It all hinges on connectivity.

## (Buildout continued pg. 1)

As last reported in the October newsletter, more than half of the new tower sites are being built at locations where there currently is no cell tower. AT&T has contacted landowners at all of the new tower sites and continues work on the engineering process. Currently, AT&T forecasts that seven new FirstNet sites will be activated in 2019. Additionally, AT&T continues to develop its existing commercial network. They forecast that three new commercial sites will be on-air by the end of this year. All of these sites will have FirstNet capabilities.



FirstNet deployable in Vermont.

An important part of AT&T's FirstNet buildout plan is upgrading existing towers with Band 14 throughout the country. In Vermont, there are now 14 towns with Band 14 equipment installed. FirstNet subscribers have priority and preemption on all bands of the network. Adding Band 14 to existing towers should increase capacity and coverage for first responders and ensure they will always have access to the network, regardless of the volume of users.

AT&T reports that 7,000 agencies nationwide have subscribed to FirstNet, with 600,000 activated lines. In interviews with AT&T executives, the subscriber trend is described as being led by existing customers who have shifted to a FirstNet plan. In Vermont, there is a similar trend as existing AT&T public safety customers subscribe to take advantage of competitive prices and a growing product line. As previously reported to the Department of Public Safety by AT&T, there were almost 2,000 FirstNet subscriber lines that had been activated in Vermont.

DPS provides administrative support for the Public Safety Broadband Network Commission. If you have questions about FirstNet or need assistance, please contact us via email at [DPS.PSBC@Vermont.gov](mailto:DPS.PSBC@Vermont.gov) or by calling (802) 241-5535.

## (App Use continued pg. 1)

or can enable field personnel to integrate activities with their dispatching software. Among vendors who have created apps for their systems are Spillman Technologies and Hitech Systems.

When asked what applications a responder might use if coverage was available, a survey participant wrote, "I checked 'other' because of the poor service in our area. All uses are very limited to IF we have service. It's frustrating, but I know you're working on it."

Incident command apps topped the list of uses responders would like to utilize. These applications enable command and dispatch functions that can include displaying elements of an emergency incident, alarm call taking and handling, and the integration of data to allow the monitoring of critical systems. Next, responders would like to use apps to manage data and reports. Rounding out the top four areas were paging apps and video streaming.

The survey concluded with four questions taken from a 2015 survey of first responders on their limits to the use of wireless technology. DPS/PSBC wanted to see if the challenges to adopting wireless technologies had changed. As in 2015, the majority of responders indicated that the availability and quality of coverage were the most significant factors limiting their use of wireless technology. The cost of services and personal expertise at using the technology were cited as among the least barriers to use of wireless technology.

In response to the interest shown in learning more about particular application areas, DPS hopes to facilitate app demonstration sessions for first responders to enable them to see and learn firsthand how these programs can enhance their operations. The complete results of the survey are posted on the PSBC web site. Go to <https://psbc.vermont.gov/vt-first-responder-data> to read the report.