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Radio Technology Services Update on FirstNet in Vermont

# 2019 Annual Report

**FirstNet, or the First Responder Network Authority, is a federal agency formed to ensure the building, deployment and operation of the first high-speed nationwide broadband network dedicated to public safety. AT&T was selected by the FirstNet Authority through competitive bid to build the Nationwide Public Safety Broadband Network (NPSBN). In Vermont, the FirstNet project is housed within the Office of Radio Technology Services in the Department of Public Safety. RTS provides administrative support for monitoring developments with the buildout in Vermont and communicating to the public safety community progress on the network. RTS also administratively manages a federal grant awarded to DPS from the National Telecommunications and Information Administration. The NTIA State and Local Grant Program provides states with funds for planning activities and for work to identify and document on-going coverage needs and gaps within a state as it relates to FirstNet.**

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## FirstNet Overview & 2019 Developments in Vermont

The Middle Class Tax Relief and Job Creation Act was signed into law on February 22, 2012. The law created the First Responder Network Authority (FirstNet). The law gives FirstNet the mission to build, operate and maintain the first high-speed, nationwide wireless broadband network dedicated to public safety. FirstNet will provide a single interoperable platform for emergency and daily public safety communications. The FirstNet organization is the first of its kind; never before has Congress established an independent government authority with a mandate to provide specialized communication services for public safety.

FirstNet has 20 MHz of nationwide spectrum with which to deploy the FirstNet network. The network was made possible by public safety's successful fight for D-Block 700 MHz spectrum, also known as Band Class 14. Congress not only allocated valuable spectrum, but also authorized up to \$7 billion in funding for the construction of the FirstNet network. To create a nationwide network, all 56 U.S. states and territories must have a Radio Access Network (RAN) that is connected to the FirstNet core network. In 2016, FirstNet released a Request for Proposals to select a private partner to buildout and manage the network. In March 2017, FirstNet announced that AT&T was the winning bidder.

With a contract awarded, FirstNet and AT&T began immediate work on coverage plans for each state. The plans outlined how they would build the RAN in each state and territory in the U.S. On June 19, 2017, draft state plans were transmitted to each state. In Vermont, the Public Safety Broadband Network Commission (PSBC) reviewed a draft and final plan and gave feedback to FirstNet. Governor Phil Scott received notice of the final FirstNet plan delivery on September 29, 2017. Upon receiving this notice, Vermont--and all of the states--were given 90 days to review their unique state plan and decide whether to opt-in or opt-out of the network. The deadline for governors to inform FirstNet of their decision was December 28, 2017.

The PSBC met on November 20, 2017 and voted to recommend to Governor Phil Scott that he should opt-in to the FirstNet plan for Vermont. Governor Scott announced on November 29 that Vermont would accept the federal buildout plan for FirstNet. For states that choose to opt-in, the responsibility and costs to fully build and manage the network rests on FirstNet and AT&T. States that choose to opt-out assumed the responsibility of establishing and maintaining the network for up to 25 years in their state. Opt-out states were required to meet stringent standards to ensure the nationwide system remains interoperable, reliable and sustainable. Opt-out states were also required to receive approval from the Federal Communications Commission, the National Telecommunications and Information Administration and FirstNet before work could begin on the RAN in that opt-out state. At the close of the state decision deadline, all 50 states, two U.S. territories, and Washington D.C. opted-in to the federal FirstNet system.

### **2019 Developments**

The federal contract with AT&T requires that the company have a nationwide network substantially in place by the close of 2022. This buildout includes new and improved coverage for under-served or unserved areas nationwide—particularly, rural areas. In Vermont, AT&T has committed to constructing 36 new sites. More than half of the new sites are being built at locations where there is currently no cell service. AT&T has contacted landowners at all new sites and continues work on the engineering process.

As reported to DPS by AT&T:

- Two new FirstNet sites will be active by the end of 2019. Those sites are located in Shaftsbury and Townshend.
- Five new FirstNet builds are forecast to be on-air by the end of the first quarter of 2020 in Bennington, Moretown, Richford, Winhall and West Bridgewater.
- Six of the 36 new tower sites are located in Essex County and will be built via a partnership with Great North Woods Wireless. Site acquisition and construction of the Essex County sites began in 2019. AT&T forecasts to have these sites active by the end of 2020.
- Five new FirstNet sites were recently activated in New Hampshire, along the Vermont border. Those sites are located in Colebrook, Columbia, North Stratford, Stewartstown and Stratford. Public safety practitioners in Vermont will benefit from improved coverage along the Connecticut River region.

An important part of AT&T's FirstNet buildout plan is to add Band Class 14 to existing towers throughout the country. Band Class 14 represents 20 MHz of highly desirable spectrum in the 700 MHz band that provides good propagation in urban and rural areas and decent penetration into buildings. In the original federal enabling legislation, Band Class 14 was licensed to the FirstNet Authority specifically for the creation of the public safety broadband network. In Vermont, there are now 26 towns with Band Class 14 equipment installed. Those towns having at least one Band Class 14 enabled location are: Barre, Barton, Bennington, Brattleboro, Burlington, Colchester, East Dover, Essex, Essex Junction, Hardwick, Manchester Center, Milton, Montpelier, Moretown, Morrisville, Norwich, Randolph Center, Shaftsbury, South Burlington, South Royalton, Springfield, Townshend, Waterford, West Dover, White River Junction and Williamstown. Adding Band Class 14 to existing towers should increase capacity and coverage for first responders.

As part of the state's opt-in agreement with FirstNet, Vermont will receive two deployable units that will be installed on Department of Public Safety vehicles. The term deployable refers to a communication resource that may be moved or deployed to a specific geographic area of need. The State will own the two units and the units can be deployed as needed. A deployable unit may be as large as a SatCOLT (Satellite Cell on Light Truck) or a smaller unit that may be transported on a trailer or physically carried into a remote area to provide broadband connectivity. Looking forward into 2020, DPS will work with FirstNet/AT&T to determine the type of deployable that will best meet the communication needs of the public safety community in Vermont.

The following is a chart listing the status of the 36 new FirstNet sites.

#	County	Planned	Preferred Location Identified	Site Acquisition Complete	Under Construction	Construction Complete	On-Air
1	Addison 1	X	X				
2	Addison 2	X	X				
3	Addison 3	X	X				
4	Bennington 1	X	X				
5	Bennington 2	X	X				
6	Bennington 3	X	X				
7	<b>Bennington 4 - Shaftsbury</b>	X	X	X	X		
8	Caledonia 1	X	X				
9	Caledonia 2	X	X				
10	Franklin	X	X				
11	Grand Isle	X	X				
12	Lamoille	X	X				
13	Orange 1	X	X				
14	Orange 2	X	X				
15	Orange 3	X	X				
16	Orange 4	X	X				
17	Orleans 1	X	X				
18	Orleans 2	X	X				
19	Rutland 1	X	X				
20	Rutland 2	X	X				
21	<b>Rutland 3 - Killington</b>	X	X	X	X		
22	Rutland 4	X	X				
23	Rutland 5	X	X				
24	Washington	X	X	X			
25	Windham 1	X	X				
26	<b>Windham 2 - Townshend</b>	X	X	X	X		
27	Windham 3	X	X				
28	Windsor 1	X					
29	Windsor 2	X	X				
30	Windsor 3	X	X				
31	Essex 1 *	X					
32	Essex 2 *	X					
33	Essex 3 *	X					
34	Essex 4 *	X					
35	Essex 5 *	X					
36	Essex 6 *	X					

\* As previously explained, the six sites in Essex County are being built by AT&T partner Great North Woods Wireless. Site acquisition and construction of these sites began in 2019. Information above is current as of September 2019.

## Governance Update

The Public Safety Broadband Network Commission (PSBC) was reconstituted into the Emergency Communications Advisory Council (ECAC) on July 9, 2019. As the PSBC had fulfilled its initial advisory role, the Governor renamed and reconstituted the commission by broadening its advisory charge to encompass other types of emergency communications.

As the initial deployment of the Nationwide Public Safety Broadband Network (NPSBN) continues through 2022, FirstNet, the Governor's Office and Vermont public safety organizations will require feedback and evaluation of the network rollout in Vermont. In forming the advisory council it was recognized that the NPSBN will interface with other types of emergency communication, such as Next Generation 911, Land Mobile Radio, microwave and fiber-based systems. The advisory council will provide input on how Vermont's public safety community may best use the evolving broadband technology with the current systems now in use.

### **Advisory Council Charge**

The purpose of the Council is to:

- Advise the Governor on issues related to the NPSBN and on emergency communications, generally, in Vermont;
- Advise on the needs of Vermont's public safety community as it relates to FirstNet and the need for an interoperable, robust, reliable and affordable cellular broadband network, including advice on the placement of fixed network assets and deployables;
- Advise on protocols and policies related to the NPSBN and, as needed, on emergency communications generally; and
- Advise on planning activities needed to prepare Vermont's public safety community for emergency communications technology transitions.

### **Council Composition**

Members will be appointed to the advisory council to three-year terms. The initial appointment of advisory council members will be staggered so that the terms of no more than four members will expire during a calendar year. Council members will be appointed from the Vermont State Firefighters Association; Professional Firefighters of Vermont; Vermont Fire Coalition; municipal law enforcement; Sheriffs; and Emergency Medical Service personnel.

The advisory council also will include the Commissioner of the Department of Public Safety, or designee; the Director of Vermont Emergency Management; the Statewide Interoperability Coordinator from the Department of Public Safety; the Colonel of the Vermont State Police, or designee; the Executive Director of the Enhanced 9-1-1 Board, or designee; the Commissioner of the Department of Public Service, or designee; the Secretary of the Agency of Transportation, or designee; and the Secretary of Digital Services, or designee.

In appointing council members, consideration will be given to the different geographical regions of Vermont and the need for balance between rural and urban areas. It is anticipated that advisory council members will be appointed soon.

### GOVERNANCE MEETINGS

The Public Safety Broadband Network Commission met once in 2019. The meeting was held on January 16, 2019 at the National Life Building in Montpelier. At the January meeting, commission members received an update from FirstNet and AT&T representatives on network developments in Vermont and discussed coverage validation approaches with Televate representatives. The PSBC selected Televate via competitive bid to assist with FirstNet planning services as part of the SLIGP 2.0 federal grant. On July 9, 2019 the PSBC was officially reconstituted by Governor's Executive Order into the Emergency Communications Advisory Council.

### CAT 4 STATEWIDE EXERCISE & TEST OF FIRSTNET/AT&T DEPLOYABLE

A test of the AT&T SatCOLT, based in South Burlington, was conducted as part of the DPS Emergency Management statewide recovery exercise in September. The goals of the deployable test were threefold:

- To conduct a Band Class 14 signal test of the FirstNet/AT&T SatCOLT to determine the geographic reach of the signal and the quality of the connection;
- To introduce the push-to-talk application to responders to gauge the ease at which they utilized this function; and
- To evaluate RTS procedures for deployable phone distribution, on-scene instruction, and general performance.

The test scenario was to support the communication needs of a Department of Forest & Parks sawyer team. The Forest & Parks Department contacted the State Emergency Operations Center and requested that a communication resource be provided for them in Bristol, Vermont to enable team members to talk with one another during the operation. The SatCOLT was deployed to provide cellular coverage over Band Class 14. General results indicated excellent signal quality and reach within one mile or less of the deployable. Line of sight and lack of obstructions were more indicative of coverage than distance from the deployable. With a clear path to the SatCOLT signal, some teams reported coverage as far as four miles from the deployable.

### SURVEYS & OUTREACH

One survey was concluded in 2019. In an effort to better understand how Vermont's first responders are currently using broadband, a 15-question online survey was created. The goals were to (1) determine responders' rating of current broadband coverage and their use of it; (2) examine current and projected uses of applications and determine those areas responders would like more information and education; and (3) identify factors that are limiting responders' use of wireless technology. There were 115 responses received. The majority of the responders described their current broadband coverage as "intermittent, where a signal is present in some areas/not present in others." The most common application used by first responders were mapping and location apps. The results will be used to assist in future education and outreach work for first responders and to inform FirstNet of the need for additional coverage. The full report on the survey is posted on the RTS web site at [RTS.Vermont.gov](http://RTS.Vermont.gov).

One formal presentation was requested in 2019. RTS Director Terry LaValley presented a FirstNet update to the Central Vermont Public Safety Authority on August 20. There was one newsletter

distributed in 2019, in both a printed and e-version. It was distributed to approximately 700 public safety agencies and individuals. The newsletter was published in May.

With the reconstitution of the PSBC, the old commission web site was retired and new pages were created on the Radio Technology Services web site. A page also was created for ECAC. The new pages are available at [RTS.Vermont.gov](http://RTS.Vermont.gov).

## **CONTRACTOR WORK**

In August, the NTIA grant manager approved the DPS proposal to expend SLIGP grant funds to conduct coverage validation testing in select locations of Vermont. In order to receive grant expenditure approval, DPS had to demonstrate that there were specific coverage concerns voiced by first responders in areas where FirstNet was indicating coverage should be present. Four locations were chosen for testing based on: (1) first responder coverage concerns; (2) locations that were in areas not scheduled for new FirstNet tower builds during the initial 5-year buildout period and were marked as having coverage by FirstNet; and (3) the presence of previously identified public safety priority areas within the testing area. The contractor selected by the PSBC to conduct the testing was Televate. Testing was conducted in September and October. As of this report, DPS is awaiting the final results of the testing. Once the results are received, they will be shared with FirstNet and the public safety community to ensure that Vermont's first responders have access to the coverage committed to the state. The results also will be discussed with the newly formed ECAC as it convenes in the near future. DPS anticipates doing additional testing within the grant period.

## **PERSONNEL**

No personnel were hired in 2019. Funding for the FirstNet program lead comes from the SLIGP federal grant. At present, the grant is scheduled to end February 29, 2020. DPS has requested a grant extension to 2021. The FirstNet administrative program in Vermont is funded by this grant.



## SLIGP: Grant Summary

FirstNet planning efforts are largely funded in Vermont through a federal grant received by the Department of Public Safety titled the State Local Implementation Grant Program (SLIGP). SLIGP is designed to provide resources to assist states and territories as they plan for the Nationwide Public Safety Broadband Network (NPSBN) overseen by FirstNet. The federal grant program is administered within the National Telecommunications and Information Administration (NTIA) of the U.S. Department of Commerce. Funding allocations per state are determined by the NTIA using a formula that considers both population and land mass. Most grant recipients, including Vermont, are required to provide matching funds (cash or in-kind) in the amount of 20 percent of the award. States receive access to the federal share only as it expends the money and solicits for reimbursement from NTIA.

Since 2013, the NTIA has awarded Vermont two SLIGP grants. Through the SLIGP 1.0 grant program, Vermont was awarded \$888,676. Of that, the federally authorized share was \$710,941 and the state authorized share was \$177,735. Vermont's SLIGP 1.0 grant expired on February 28, 2018.

In a second round of funding, the SLIGP 2.0 program provides funds for planning and policy work associated with the implementation of the NPSBN. Funds for SLIGP 2.0 were gleaned from unspent SLIGP 1.0 awards. At the close of SLIGP 1.0, Vermont deobligated \$281,884 of its federal award. In total from all states, the NTIA had \$41.8 million to redistribute to states for SLIGP 2.0. Vermont was informed in March 2018, that the Department of Public Safety was awarded \$541,235. Of that, the federally authorized share is \$432,988 and the state authorized share is \$108,247. The SLIGP 2.0 program is active from March 1, 2018 through February 29, 2020. The NTIA is allowing states to request a grant extension until March 31, 2021. DPS has made that request and is awaiting final approval. The following is the budget breakdown and the expenditures made to-date for SLIGP 2.0.

### SLIGP 2.0

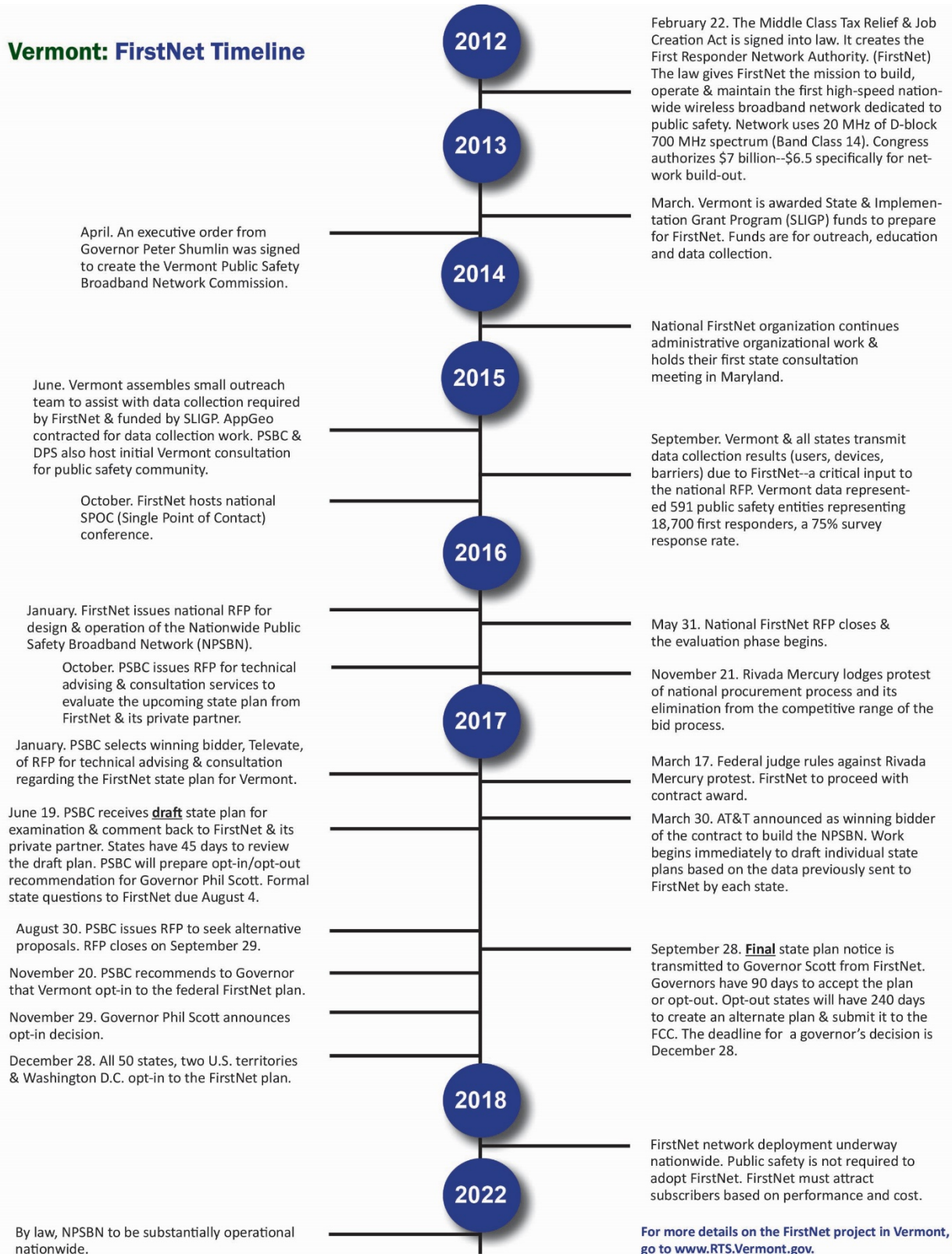
Budget Category	* Amount	**Expended 3/1/18 to 12/31/18	Expended 1/1/19 to 11/30/19
A. Personnel	244,674	82,739	100,536
B. Fringe Benefits	81,022	41,264	48,927
C. Travel	12,792	-	1,735
D. Equipment	-	-	-
E. Supplies	5,100	-	-
F. Construction	-	-	-
G. Consultants/Contracts	108,000	-	18,962
H. Other	8,500	1,018	1,806
<b>Total Direct Costs</b>	<b>460,088</b>	<b>125,021</b>	<b>171,967</b>
I. Indirect Costs	81,147	5,431	25,754
<b>TOTAL PROJECT COSTS</b>	<b>541,235</b>	<b>130,452</b>	<b>197,721</b>
Federal Share	432,988	75,624	129,216
Non-Federal Share	108,247	54,828	68,505

\* Total budget for SLIGP 2.0

\*\* SLIGP 2.0 grant started 3/1/18

# Historic Timeline

## Vermont: FirstNet Timeline



## Contact Information

Each state has a designated FirstNet Single Officer. In Vermont, that person is Terry LaValley, the Director of Radio Technology Services for the Department of Public Safety. Administrative support for the PSBC and the newly created ECAC is provided by the Department of Public Safety, Radio Technology Services, under the direction of the Single Officer.

Terry LaValley  
FirstNet Single Officer, Director of Radio Technology Services  
Phone: (802) 241-5215  
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Administrative support is provided by the Program Lead. This position plans and implements activities related to the FirstNet project in Vermont and reports to the Single Officer.

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Website for the project is at: [www.RTS.Vermont.gov](http://www.RTS.Vermont.gov).