

FirstNet and NG911:

Technology Changes in Emergency Communications

FirstNet is mandated by law to integrate its efforts with the ongoing rollout of Next Generation 911. Emergency communications officials believe the expansion of broadband networks, through the FirstNet build-out, will provide better access and help with leveraging the capabilities of Vermont's NG911 system.

"It's important that in our NG911 evolution that Vermont is well positioned to communicate with Vermonters in a manner they are accustomed to," said Barb Neal, executive director of the E911 Board and a member of the Public Safety Broadband Network Commission (PSBC). "The benefits of enhancing the state's cellular services in underserved areas of Vermont is emphasized by the increasing number of 911 wireless based and texting calls we receive. As the FirstNet build-out progresses, our hope is that broadband connections in those areas will become more reliable."

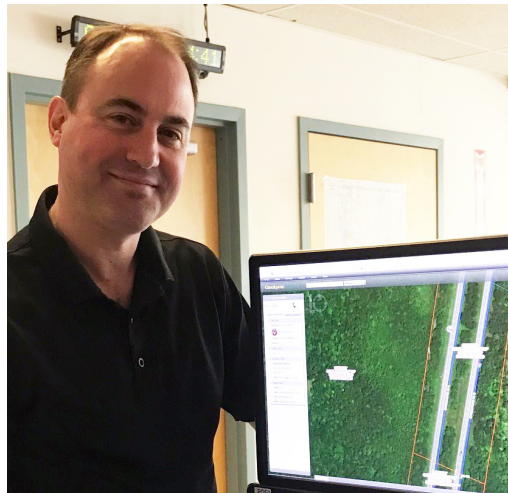
The move toward NG911 began a decade ago. Congress passed the New and Emerging Technologies 9-1-1 Improvement Act in 2008 that recommended a national plan for migrating to a national IP-enabled network. From a technical standpoint, NG911 networks have two essential elements: the ability to receive, process and share digitized information (including Enhanced 911 calls) from any networked communications device; and the ability for individual Public Safety Answering Points (PSAPs) to seamlessly connect to one another.

Vermont was one of the first states to implement a NG911 system statewide. In 2007, Vermont put into operation a statewide Emergency Services IP network (ESInet) that connected all of the state's regional PSAPs to each other. This interconnectedness ensures 911 calls are automatically routed to other PSAPs should one PSAP be unable to answer a call. Enhanced 911 capabilities are constantly being upgraded in Vermont and in other states. E911 capable systems automatically provide dispatchers with the location of a call. However, when it comes to wireless calls, identifying the precise location of a caller can be challenging without adequate broadband coverage.

Vermont State Police Communications Commander and PSBC member Tom Hango believes that with better cellular coverage in the state will come better response. He oversees two of Vermont's regional PSAPs located in Williston and Westminster. In terms of call volume, these PSAPs process the largest number of 911 calls made in the state, including more than 106,000 wireless calls last year. Jim Cronan is the PSAP Administrator in Williston and agrees improved coverage will make a difference.

"We have adapted to the increasing number of wireless calls," said Cronan. "If there is adequate coverage, a phase one map will come up that shows a shadowed area of coverage near the closest tower. Next, a phase two map comes up that pinpoints the location of the call. A dispatcher then verifies with the caller where they're located."

While increased coverage is a benefit to the emergency communication systems, it also brings a new challenge regarding how best to process large data files from the public to the first responder. A process must be put in place to determine what video and photos are needed to aid in an emergency response and how it is best transmitted. Questions regarding the security and storage of this information must also be addressed. National 911 professional organizations such as the Association of Public Safety Communications Officials are working on standards to address these challenges.



Williston PSAP Administrator Jim Cronan stands by a phase two map that shows the location of a wireless caller. Dispatchers may ask a caller about nearby landmarks to confirm a location.

Overall, such challenges are welcomed by emergency communication officials because it signals that Vermont's cellular coverage will be improving.

"Broadband coverage is vital in our emergency response," said Hango. "As a responder, if the FirstNet system works, I wouldn't have to think about the technology. I can just communicate."



Williston dispatcher Andrea Bushway responds to a 911 call. Last year, approximately 200,000 911 calls were processed statewide.



A phase one map shows the shadowed area of coverage near the tower closest to a wireless 911 caller.