Introduction

Three years ago, public safety communications gained a much needed spark in innovation. After a competitive public procurement process, AT&T was awarded a public-private partnership with the First Responder Network Authority for a twenty-five year contract to deploy FirstNet, the nation’s first interoperable LTE broadband network specifically dedicated to public safety.

Today, first responders subscribed to FirstNet have access to unthrottled connectivity, a separate, purpose-built network core with end-to-end encryption, priority and preemption capabilities, local control of users and applications¹, and over seventy-five deployable solutions like land-based Satellite Cell on Light Trucks and Flying Cells on Wheels². These benefits represent the most advanced innovations in public safety communications technology, and some were nonexistent prior to FirstNet’s launch.

“Now, with the launch of preemption on FirstNet, for the first time, public safety is ensured a ‘fast lane’ to connect.”
– Chief Richard Bowers, Fairfax County Fire and Rescue³

First responders were instrumental in driving this change forward. FirstNet was designed on the objectives and standards provided by the First Responder Network Authority based on years of consultation with public safety.⁴

With the world in the midst of fighting a global health pandemic the mission of FirstNet to deliver robust, resilient, and technologically advanced communications for our nation’s first responders is more critical than ever.

This report serves as a reflection on FirstNet’s progress since 2017 in terms of subscriber levels, network build out, and agency usage. It also offers a look at FirstNet’s roadmap for the future.
In less than two years, the number of public safety agencies and organizations subscribed to FirstNet has increased tenfold. As of February 2020, 11,000 public safety agencies and organizations have subscribed and 1.2 million devices have been connected to the network.\(^5\)

In addition to increasing subscriptions, between January and July 2019 AT&T’s level of device connections significantly outperformed monthly targets. In July 2019, with regard to primary users (fire, law enforcement, and EMS) AT&T was at approximately 196% of the target.\(^6\)

Figure 2 below from the United States Government Accountability Office (GAO) illustrates AT&T’s monthly FirstNet device connections relative to targets between January and July 2019.

In May 2019, a majority of agencies and nearly 50% of FirstNet’s total connections were new subscribers (not AT&T migrations).\(^8\) This along with the above data suggests that first responders are seeing FirstNet as a credible, value-add proposition. This type of transparency is valuable and First Responder Voice encourages AT&T to continue to be transparent about the percentage of FirstNet subscribers that are new subscribers versus...
Network Build-Out One Year Ahead of Schedule According to AT&T

“AT&T has met, and exceeded, the first required nationwide, network-coverage milestone.”
– United States Government Accountability Office, January 2020

In March 2018, the First Responder Network Authority gave AT&T the green light to deploy the network’s Band 14 spectrum across dedicated radio access networks in all states and territories. As of March 2020, FirstNet network deployment is 80% complete, one year ahead of the contractually obligated schedule.

The company has deployed Band 14 spectrum on existing cell sites in more than 675 markets nationwide (see below for additional information on Band 14). Further, AT&T added over 170,000 square miles to its LTE network coverage in 2018 and 2019. That’s an area equal to the size of Louisiana and New Mexico together.

Complicating this picture are statements from AT&T’s FirstNet network build out partners. Jeffrey Stoops the CEO of SBA Communications, a cell tower company working on a portion of the FirstNet build, said in February 2020 that SBA believes the buildout of the FirstNet network was “closer to 50%”. ATN International, another FirstNet build out partner, confirmed that its portion of the buildout had been delayed slightly, to the first quarter of 2020.

Ultimately, the build out of the FirstNet network is a gradual process and a significant portion of the network is still in the design and construction phase. Both the First Responder Network Authority and AT&T are required to consult with each state via the FirstNet single point of contact (SPOC) regarding the state-specific commitments that were made as a result of the state opt-in process i.e. radio-access build out, placement of cell towers, and
coverage areas. According to the GAO’s January 2020 report two of these state-specific commitment reports were due by July 2019, but only one had been completed by AT&T and accepted by the First Responder Network Authority and as of October 2019 still had not been shared with the states. Numerous stakeholders interviewed for GAO’s report said that “FirstNet had communicated little to no information on AT&T’s progress deploying the network in their area”.  

First Responder Voice encourages AT&T to deliver the past-due state-specific commitment report to the First Responder Network Authority and FirstNet SPOCs as soon as practically feasible. AT&T should also work to deliver the contractually obligated semi-annual reports in a timely manner going forward. Making this a priority will address stakeholders’ dissatisfaction with the current level of transparency and will also serve to improve first responders’ knowledge of the viability of the network in their area. If first responders are making decisions about their wireless carrier based on knowledge of the network in 2017 or earlier, FirstNet may be losing potential adoptions due to lack of and/or inaccurate information.

 Thousands of Band 14 Cell Sites Delivered Across the Nation

As part of the FirstNet federal contract, AT&T was given exclusive access to 20 MHz of spectrum in the 700 MHz frequency band, known as Band 14, on which to operate the FirstNet network. As of March 2020, AT&T has delivered thousands of Band 14 cell sites to increase network coverage nationwide. The company delivered over one-third of the total Band 14 cell sites planned for the entire network by July 2019.

Below is a selection of the areas benefiting from new, purpose-built FirstNet cell sites.

- Rancho Tehama, California
- East Carroll Parish and Lake Providence, Louisiana
- Baltimore County and Tilghman Island, Maryland
- White Earth Reservation, Minnesota
- North Hampton, Pembroke, R umney, and Stoddard, New Hampshire
- Warren County, North Carolina
- Slope, McLean, and Stark Counties, North Dakota
- Yamhill County, Oregon
- Bedford and Clinton Counties, Pennsylvania
- Fairfax and Prince William Counties, Virginia
- Preston County, West Virginia
- Red Cliff Reservation, Wisconsin
- Mule Creek Junction and Owl Creek, Wyoming
Band 14 is spectrum specifically set aside for public safety by the federal government via the First Responder Network Authority. First Responder Voice supports the 2012 Act which requires the First Responder Network Authority to consult with FirstNet SPOCs regarding the placement of cell towers. Band 14 is public safety’s spectrum and as such, the locations of those cell sites should be made readily accessible to first responders upon inquiry.\footnote{13}

### Major FirstNet-Subscriber Agencies and Jurisdictions

“Implementing FirstNet at full scale across the City is key to helping us create a new standard for public safety. We believe this is a model for cities across the country to ensure those charged with maintaining the safety of our residents and communities have the tools they need to stay connected during disasters and emergencies.”

- Sam Liccardo, Mayor of San José

The following is a small sampling of some of the public safety agencies and jurisdictions across the nation that have subscribed to FirstNet.

#### FEDERAL AGENCIES
- Federal Emergency Management Agency
- United States Coast Guard
- United States Department of the Navy

#### MUNICIPALITIES

“The decision to go with FirstNet was a no-brainer for us.”

– Stephen Willoughby, Executive Director, City of Richmond, VA Department of Emergency Communications

- City of Annapolis, Maryland
- City of Colorado Springs, Colorado
- City of Columbia, South Carolina
- City of Richmond, Virginia
- City of San Jose, California

#### CAREER FIRE DEPARTMENTS

“With FirstNet in place, we have increased confidence in our communication methods for use during highly attended public events.”

– Chief Harold Scoggins, Seattle Fire Department

- Las Vegas Fire and Rescue Department
- Miami-Dade Fire Rescue
- Seattle Fire Department
VOLUNTEER FIRE DEPARTMENTS
“Firefighters deserve whatever tools we can give them to help them stay safe and do their jobs to the best of their abilities. This is opening FirstNet up for all of our volunteers, giving them an equal opportunity to access this potentially lifesaving technology.”
– President Richard T. Perillo, Delaware Volunteer Firefighter Association

• Beaver Springs Fire Company (Snyder County, Pennsylvania)
• Bedrock Road Volunteer Fire Department (Allegany County, Maryland)
• Delaware Volunteer Firefighter Association

LAW ENFORCEMENT AGENCIES
“By subscribing to FirstNet, we can help our officers stay connected to the critical information they need and will help ensure we can easily and quickly communicate with one another during everyday situations, big events, or emergencies.”
– Edward “Woody” Davis Jr., Chief Technology Officer for the Baltimore Police Department

• Anchorage Police Department
• Baltimore Police Department
• Chicago Police Department
• Kansas Highway Patrol
• New Mexico State Police

EMERGENCY MEDICAL SERVICES
“Whether it’s during a routine call, a widespread disaster or even just a large event, FirstNet gives us the connectivity we need to give patients the best possible care. With wide-scale adoption, FirstNet can make solutions that we’ve only dreamed of a reality.”
– Joey Branton, Director of Technology for Acadian Ambulance

• AAA Ambulance Service
• Acadian Ambulance
• American Medical Response
• MetroAtlanta Ambulance Service
EMERGENCY MANAGEMENT

“Without having the use of FirstNet and the FirstNet devices in Newport, it would have taken us hours to compile the data, relay it from one location to another, bring it in to the state emergency operations center, and then display it for the decision-makers. Having that real-time access to data and the guarantee that we wouldn't be interrupted by commercial network overloading in any particular area really made our response much more efficient.”
- Christopher McGrath, Operations Support Branch Chief for the Rhode Island Emergency Management Agency

- Georgia Emergency Management Agency
- Rhode Island Emergency Management Agency

TRIBAL NATIONS

“Knowing the mission was focused in an area with limited coverage, we requested a FirstNet SatCOLT to boost our connectivity. Communications were in place within hours of our request, helping us to carry out our operation.”
– Chief Chris Saunsoci, Yankton Sioux Tribal Police

- Citizen Potawatomi Nation
- Nez Perce Tribe
- Oglala Sioux Tribe
- Yankton Sioux Tribe

A Foundation for Continued Innovation for Public Safety

HIGH-POWER USER EQUIPMENT (HPUE)

In March 2020, Mark Golaszweski, the director of applications for the FirstNet Authority, indicated that high-power user equipment (HPUE), which has been projected to almost double the coverage range for FirstNet subscribers using 700 MHz Band 14 spectrum, is expected to be available within the next month. The equipment is going through the certification process currently and early deployment is expected to be devices like in-vehicle routers. AT&T is working with Assured Wireless to develop HPUE devices. AT&T is working with Assured Wireless to develop HPUE devices.34

Normal cellular devices transmit signals usually using ~200 milliwatts of power. HPUE devices operating on Band 14 are able to transmit signals using ~1.25 watts, which improves the effective range for users six fold. The HPUE capability of Band 14 spectrum is what differentiates it from other LTE airwaves in nearby bands. According to Bob LaRose, Vice President of Business Development at Assured Wireless, HPUE increases the range of a cell sector by ~80%, so for an isolated cell site total coverage area for that cell site would triple if the environment around the cell site was consistent. HPUE could be particularly helpful in rural areas where cell sites are often limited and other challenging environments.36

MISSION CRITICAL PUSH TO TALK (MCPTT)

In 2018, AT&T signed a product agreement with Motorola Solutions for its Kodiak carrier-integrated PTT product (not MCPTT-compliant)37, along with the eventual MCPTT version of the Kodiak service.38 In January 2019, AT&T procured its second carrier-integrated MCPTT provider. AT&T expects 3GPP-standard compliant FirstNet Push-to-Talk service to be available during the first quarter of 202038
ROADMAP FOR THE FUTURE
The public-private partnership model that the First Responder Network Authority established with AT&T guarantees that financial resources are invested to advance the FirstNet network. The First Responder Network Authority has established an investment process to evaluate the initiatives that stem from the agreed upon priorities and select projects will become a part of the First Responder Network Authority’s investment portfolio each year. The Board of the FRNA is made up of experts and practitioners in the field of public safety communications, ensuring strong oversight from the first responder frontline. In short, the roadmap is shaped by developing a deep and shared understanding of public safety’s operational needs and by collaborating with public safety to realize the operational benefits of the FirstNet experience.


9. “Among our case-study states as of July 2019, for example, device connections for primary users in one state were more than 5 times the target, whereas in another state, AT&T had met only 33 percent of the target by July 2019.” https://www.gao.gov/assets/710/704058.pdf


18. “AT&T may deliver these cell sites through a combination of constructing new sites, retrofitting existing AT&T sites, or acquiring or contracting with local providers, such as rural telecommunications carriers.” https://www.gao.gov/assets/710/704058.pdf


First Responder Voice is a project of the Communications Workers of America (CWA).

CWA represents 700,000 workers in the U.S., Canada and Puerto Rico, working in telecommunications and IT, the airline industry, news media, broadcast and cable television, education, health care and public service, law enforcement, manufacturing and other fields.

CWA was an active member of the Public Safety Alliance that was instrumental in supporting the creation of FirstNet.

FirstNet is being built, operated and maintained by AT&T, the union wireless carrier. CWA represents 40,000 technicians, retail associates and customer care agents at AT&T Mobility across the country.