



# FirstNet<sup>®</sup>

## FirstNet Roadmap Capabilities Discussion Follow-Up

Kristi Wilde and Bill Schrier

State of Washington Interoperability Executive Committee

June 20, 2019



# Vision to Reality: A Catalyst for Public Safety Communications



**VISION:** Create a dedicated and differentiated broadband communications experience that transforms public safety operations to save lives



**PUBLIC SAFETY'S NEEDS**



**ROADMAP**



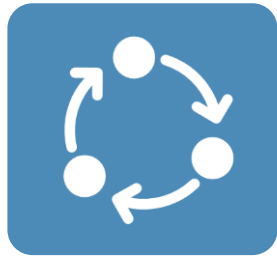
**INVESTMENT**



# Roadmap Overview



## Why a roadmap?



## How are we developing it?



## What will we do with it?

### A Roadmap for Transforming Public Safety Communications

The Roadmap provides a view of public safety's operational needs and technology trends for mobile broadband communications over the next five years. It will help guide the growth, evolution, and advancement of FirstNet.

The Roadmap is central to the delivery of a differentiated broadband communications experience for public safety. The FirstNet Authority will update the Roadmap on a regular basis to ensure FirstNet delivers the latest in innovation for public safety.

The FirstNet Authority collaborated with public safety stakeholders across the nation to develop the Roadmap. This includes targeted engagements with individual first responders, public safety agencies and associations, Federal government agencies, industry reps, and its network contractor, AT&T.

#### The Roadmap focuses on key technology areas ...

- COVERAGE AND CAPACITY**  
The FirstNet network presence within a given geography, with sufficient capacity for public safety to perform its duties
- VOICE COMMUNICATIONS**  
The ability of public safety professionals to speak with one another within and across agencies, jurisdictions, and platforms (e.g., voice over IP, push-to-talk)
- SITUATIONAL AWARENESS**  
The ability to aggregate and synthesize data in real time from multiple sources and present actionable insights to public safety on FirstNet
- USER EXPERIENCE**  
The tailoring of FirstNet capabilities, features, devices, and applications to the needs and requirements of public safety professionals
- SECURE INFORMATION EXCHANGE**  
The ability to access, exchange, and manage data securely and conveniently within and across public safety agencies and jurisdictions
- THE CORE**  
The FirstNet Core and associated services and enabling network technologies

#### The Roadmap will advance the FirstNet experience by driving ...

- FirstNet Authority Investments
- Public Safety Policies & Programs
- FirstNet Technology Ecosystem
- FirstNet - AT&T Partnership Activities

FirstNet  
Learn more at [FirstNet.gov](http://FirstNet.gov)

Public Safety Summit - June 2013

# For Public Safety, By Public Safety – Washington SIEC Survey April 18, 2019



[www.firstnet.gov](http://www.firstnet.gov)



# FirstNet<sup>®</sup>

[www.firstnet.com](http://www.firstnet.com)





# Survey Demographics and Background

Survey Respondents - Current Job Function	Number
Law Enforcement	5
Fire-and-Rescue	2
Emergency Management	1
Communication (Radio) Manager	1
Infrastructure Provider/Design	1

Job titles specified by respondents on their survey cards:

- Intersection of Infrastructure Provider and Design for 911 and Emergency Management
- Special Agent WSGC (Law Enforcement)
- Information Technology CIO (Emergency Management)

Does your Agency Issue Smart Phones to Responders?	Number
Yes, All Sworn Personnel	4
Yes, Selected Personnel (e.g. command staff)	6
No	0

# Survey Demographics and Background

App Name	Personal
Mapping	9
Email	8
Search	5
Social Media	3
Messaging/SMS	2
Waze	1
Finance	1
Smart Home Device	1
Call alerting	1
Radio broadcast	1
Microsoft Office Suite	1
VPN Access	1
GPS Tracking	1
Video	1
Real-time Monitoring Active Incidents	1

App Name	Work
Mapping	7
Search	5
Chat	2
Push-to-Talk Radio	2
Messaging/SMS	2
Communications	1
News	1
Info	1
Database	1
Remote File connection	1
Call alerting	1
Radio broadcast	1
AVL	1
Pulsepoint	1
CAD Access	1
Cellular Voice	1
Email	1

# Are these capabilities valuable for Responders?



Multi-Factor Authentication for Criminal Justice Information Systems data access on mobile devices

Drone connectivity to smart mobile devices



Personnel (and asset) location including Z-Axis

Smart Buildings' systems' access from mobile devices, e.g. video streams

Single-sign-on with Multi-Factor Authentication for apps on mobile devices



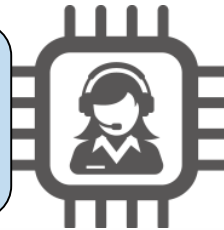
Device-to-device (peer-to-peer) comms between mobile devices, voice, video, data

Law enforcement or emergency medical virtual assistant ("Alexa for Cops")



Augmented Reality for cops, firefighters on mobile devices, e.g. building plans

Artificial intelligence to listen in and help 9-1-1 call-takers and dispatchers



Sensors on responders with remote dashboard, e.g. physiological, weapons, hazmat, body-worn video



Video analytics, both real-time and on archives, to detect vehicles, objects, actions

Audio analytics, both real-time and on archives, for context, language, translation

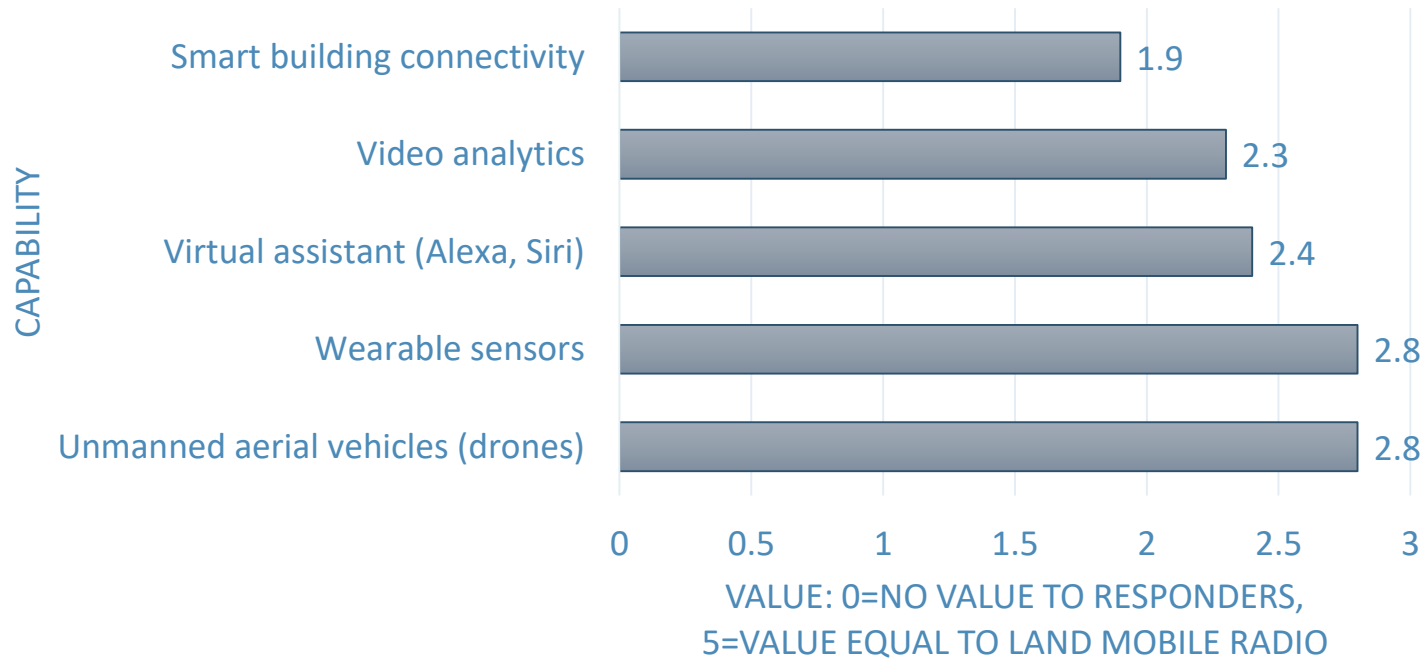


Some other cool thing which under development which potentially helps responders



# Survey Demographics and Background

Value Placed on Potential Mobile Wireless Capabilities by those Attending on April 18, 2019



## Additional capabilities mentioned by respondents on their survey cards:

- Real Time Video Monitoring
- Push-to-Talk with enhanced features
- Direct Device-to-Device Communications
- Personnel location
- Common Operating Picture (COP)
- Phones communicate in areas without normal cell coverage (or no coverage after a disaster)
- Small LTE deployables
- Van deployable cell sites (such as Satellite Cell-on-Light-Trucks SatCOLTs or cell-on-wheels COWs)



# FirstNet Authority Roadmap “Domains” for Discussion



## Core

- EPC
- IMS Core
- Services Platforms
- App Servers
- Service Enablers



## Coverage & Capacity

- Macro Coverage
- Capacity
- In-building Solutions
- Temporary/On-Demand Coverage
- Range Extension
- Device-to-Device
- Air-to-Ground
- Maritime Operations
- Availability/Reliability/Resiliency/Hardening



## Situational Awareness

- Location Services
- Sensors
- Wearables
- Cameras/Video
- Mapping/Geographic Information System (GIS)
- Data Analytics/Artificial Intelligence



## Voice Communications

- Mission Critical Push-to-talk (MCPTT)
- PTT Interworking



## Secure Information Exchange

- Data Access
- Data Sharing
- Cybersecurity
- Identity, Credential and Access Management (ICAM)/Single Sign-On



## User Experience

- Priority Services
- Applications
- Devices
- Accessories
- Hands Free Operations
- Augmented Virtual Reality
- Heads-Up Display



## Domain Definition

Presence of NPSBN within a given geography with sufficient capacity for public safety to perform duties

## Relevant Technologies

- Macro Coverage
- Capacity
- In-building Solutions
- Temporary/On-Demand Coverage
- Range Extension
- Device-to-Device
- Air-to-Ground
- Maritime Operations
- Availability/Reliability/Resiliency/Hardening

## Discussion

As we work to fill coverage gaps in today's network, what factors should we consider or weigh to prioritize our decisions?  
How do you operationally handle or work around coverage gaps today?  
In procurement decisions, how do you weigh coverage relative to other network features or benefits?



## Domain Definition

Ability to aggregate and synthesize data in real-time from multiple sources (e.g., human, machine, sensors) and present actionable insights to the public safety on the NPSBN

## Relevant Technologies

- Location Services
- Sensors
- Wearables
- Cameras/Video
- Mapping/Geographic Information System (GIS)
- Data Analytics/Artificial Intelligence

## Discussion

What does “situational awareness” mean to your organization?

Name the single most important piece of situational awareness data to you or your agency.

Aside from smart phones, what types of LTE technologies do you issue to your field personnel?

Aside from responders and vehicles, what other types of things do you consistently need to track the location of?





## Domain Definition

Ability for public safety to verbally communicate with one another across agencies, jurisdictions and platforms (e.g., VoIP, LMR)

## Relevant Technologies

- MCPTT
- PTT Interconnection

## Discussion

When can you envision your organization incorporating PTT over LTE into your operations?  
How do you anticipate incorporating PTT over LTE into your operations – ranging from not at all to a replacement for LMR?  
What features of PTT over LTE are most important to your organization when it comes to adoption/ procurement decisions?

# Contact Information

**Kristi Wilde, Senior Advisor**

**[Kristi.wilde@firstnet.gov](mailto:Kristi.wilde@firstnet.gov)** and 202-308-0974



**Bill Schrier, Senior Advisor, Products and Solutions**

**[bill.schrier@firstnet.gov](mailto:bill.schrier@firstnet.gov)** and 206-255-2156



**FirstNet Authority:**

**[www.firstnet.gov](http://www.firstnet.gov)**



**FirstNet as built with AT&T:**

**[www.firstnet.com](http://www.firstnet.com)**

