Agenda

- Overview and Objectives
- National Emergency Communications Plan (NECP) and SAFECOM Nationwide Survey (SNS): Technology
- Emerging Technologies and First Responder Network Authority (FirstNet®)
- Resources and Actions
- Question and Answer Session
National Emergency Communications Plan

NECP Vision
To enable the Nation’s emergency response community to communicate and share information securely across communications technologies in real time, including all levels of government, jurisdictions, disciplines, organizations, and citizens impacted by any threats or hazards events
National Emergency Communications Plan

Mandate
The NECP is mandated by Title XVIII of the Homeland Security Act of 2002

Guidance
Provides guidance for those who plan for, coordinate, invest in, and use communications

Stakeholders
Helps stakeholders update policies, governance, planning, and protocols
NECP Goals

Goal 1
Governance & Leadership

Goal 2
Planning & Procedures

Goal 3
Training, Exercise, & Evaluation

Goal 4
Communications Coordination

Goal 5
Technology & Infrastructure

Goal 6
Cybersecurity
Technology Evolution Overview

Systems in Use

- 911 Telephony (e.g., basic, enhanced, NG911): 72%
- Cellular (e.g., 2G/3G): 60%
- Paging System: 59%
- Land Mobile Radio (LMR) System: 57%
- Wireless Local Area Networks (e.g., WiFi): 50%
- Wireline (e.g., Fiber, Copper): 29%
- HF Radio/AUXCOMM/SHARES/FNARS: 18%
- Microwave Backhaul: 12%
- Long-Term Evolution (LTE) System: 9%
- Satellite System: 6%
- LTE-LMR Converged System: 3%

60% of public safety organizations use a cellular system. 9% use a Long-Term Evolution (LTE) system.
SAFECOM Nationwide Survey (SNS)

The SNS consisted of 38 questions that span the 5 elements of the SAFECOM Interoperability Continuum, plus a security element that accounted for cybersecurity.
SNS: System Usage

Importance

Low
(used infrequently in support of mission)
- Cellular: 13%
- LTE: 12%

Medium
(used regularly in support of mission)
- Cellular: 42%
- LTE: 35%

High
(vital for mission function)
- Cellular: 45%
- LTE: 53%

>45% of organizations indicate their cellular and LTE systems are highly vital for mission function.
SNS: System Usage

Type of Use

<table>
<thead>
<tr>
<th>Type</th>
<th>Cellular</th>
<th>LTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data</td>
<td>65%</td>
<td>57%</td>
</tr>
<tr>
<td>Video</td>
<td>24%</td>
<td>18%</td>
</tr>
<tr>
<td>Voice</td>
<td>84%</td>
<td>71%</td>
</tr>
</tbody>
</table>

Of those using cellular and Long-Term Evolution (LTE) networks, more public safety organizations are using them for voice services than data services.
SNS: System Usage

Interoperability

>55% of respondents indicated that they use cellular and LTE systems for interoperability.

<table>
<thead>
<tr>
<th></th>
<th>Used for interoperability</th>
<th>Not used for interoperability</th>
</tr>
</thead>
<tbody>
<tr>
<td>LTE</td>
<td>62%</td>
<td>38%</td>
</tr>
<tr>
<td>Cellular (e.g., 2G/3G)</td>
<td>55%</td>
<td>45%</td>
</tr>
</tbody>
</table>

Charlee Hess
September 22, 2021
# SNS: Technology

## Factors that Affect Ability to Communicate

<table>
<thead>
<tr>
<th>Factor</th>
<th>Great Extent</th>
<th>Some Extent</th>
<th>Little Extent</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor Coverage (In-Building)</td>
<td>30%</td>
<td>35%</td>
<td>26%</td>
<td>9%</td>
</tr>
<tr>
<td>Unplanned System/Equipment Failure</td>
<td>30%</td>
<td>36%</td>
<td>28%</td>
<td>6%</td>
</tr>
<tr>
<td>Poor Coverage (Outdoors)</td>
<td>24%</td>
<td>34%</td>
<td>30%</td>
<td>12%</td>
</tr>
<tr>
<td>Deferred Capital Expenditures</td>
<td>20%</td>
<td>26%</td>
<td>24%</td>
<td>30%</td>
</tr>
</tbody>
</table>

91% of respondents report poor in-building coverage impacting their ability to communicate.

88% of respondents report poor outdoor coverage impacting their ability to communicate.
NECP Goal 5: Technology & Infrastructure

Improve lifecycle management of the systems and equipment that enable emergency responders and public safety officials to share information efficiently and securely

- Objective 5.1 - Research and Development
- Objective 5.2 - Information Sharing to Meet Mission
- Objective 5.3 - Data Interoperability
Success Indicators: Emerging Technology

Goal 1: Governance & Leadership
- Address legislative and regulatory issues
- Include information management

Goal 3: Training, Exercises, & Evaluation
- Include injects in exercises
- Implement tools and trainings

Goal 4: Communications Coordination
- Observe proficiency of users
- Execute repeatable testing process

Goal 5: Technology & Infrastructure
- Test and evaluate communications technologies
- Leverage Federal programs to address challenges
Planning Considerations for Emerging Technologies

Dr. Jennifer Harder
Director, Roadmap Domains
Agenda

- FirstNet Technologies
  - FirstNet Central
  - Deployables
  - MegaRange™
  - FirstNet Push-to-Talk (PTT)
  - Z-Axis

- Additional Planning Considerations and Use Cases
FirstNet Central

**ADMINISTRATION**
Provides resources used by agency administrators for the general management of their FirstNet account and services

**OPERATIONS**
Provides tools that can be used for situational awareness and to support operations when managing an incident or event
Network Status Map Features and Functionality

- View established network coverage
- Search for a specific location
- View pertinent, real-time information about the network
- Subscribe to and manage network alerts via e-mail, SMS text message, and/or push notification to FirstNet Assist app
- Jump to COVID-19 dashboard
- View planned maintenance

Network Status Map images are for demonstration purposes only and do not represent actual outages or notifications
Site-level outage information is available to account administrators and other authorized personnel, including Communications Lead, ESF #2, Communications Coordinator, and equivalent roles.

Network Status Map images are for demonstration purposes only and do not represent actual outages or notifications.
Uplift Requests

**Uplift Request Tool**

- Create and manage uplift requests
- Add users to uplift requests by phone number, group, or in bulk (via .csv file)
- Approve or deny uplift requests from FirstNet Assist app users

**FirstNet Assist App**

- View active uplift incidents within 50-99 miles of device’s location
- Initiate a request to be added to a given uplift incident

*Images are for demonstration purposes only*
Deployable Fleet

100+ FIRSTNET-DEDICATED deployable assets available nationwide, including 3 FLYING COWS, AN AEROSTAT, AND COMMUNICATIONS VEHICLE

SUBSCRIBING AGENCIES CAN REQUEST AT NO COST to support scenarios, from disasters to critical incidents and planned events

SERVICE INCLUDED: All expenses directly associated with FirstNet deployables are included at no cost to subscribing agencies
Deployable Types in the Fleet

SatCOLT

Communications Vehicle

Flying COW

Compact Rapid Deployable

Aerostat
Compact Rapid Deployables
FirstNet MegaRange and High Power User Equipment (HPUE)

- Increases transmission power for devices beyond what is allowed for commercial devices.
- This increased signal can only be transmitted using Band 14 which is unique to FirstNet.
- Improves coverage in rural areas and provides stronger building penetration in urban environments.
Range Information

Enhances Cell Edge Performance

FirstNet MegaRange

Traditional In-Vehicle Router (IVR)
FirstNet MegaRange Devices

- FirstNet devices operating on Band 14 are allowed to transmit according to the 3GPP standard for HPUE. **This is unique to FirstNet**

- Devices also operate on the other FirstNet bands at standard power levels

- Devices added to the National Institute of Standards and Technology (NIST) list of certified devices as of June 2020

- See FirstNet.com for additional information
Mission Critical (MC) Services Background

- MC Services are key components of the commitment to a differentiated public safety network experience
- FirstNet Authority Roadmap priorities include operationalizing FirstNet PTT
- FirstNet Authority is actively engaging public safety and AT&T to improve MC services
- On-going, collaborative effort with AT&T to ensure successful roll-out of MC solutions
Mission Critical Ecosystem

- Voice
- Video
- Data

- Group Voice
- Surveillance Cameras
- Proximity Services (Device-to-Device)
- Body Cameras
- Emergency
- Dash Cams
- Communications
- Sensors
- Applications
FirstNet Push-to-Talk

Announced and released into controlled introduction on March 31, 2020

Samsung® XCover FieldPro, Samsung Galaxy S9/S10/S20 family, Kyocera Dura Force Pro 2, Sonim XP8 devices

First ever nationwide mission critical standards-based PTT solution to launch in US

Highest priority traffic on the FirstNet network

LMR Interoperability RoIP Gateway

Focused on augmenting LMR and not replacing

What is it?

- 3GPP standards-based solution
- Only PTT solution integrated into the FirstNet network
- First-of-its-kind offering
- Evolutionary, growing product

What is it not?

- Replacement for LMR
- A perfectly mature product
- Just another over-the-top product

This slide does not constitute an endorsement by FirstNet Authority of any product or service, organization or company.

* Source: FirstNet.com, April 2020. See FirstNet.com for latest information on pricing.
Mission Critical Broadband Mutual Aid Governance Framework

Objective: Collaborate with key partners and stakeholder champions in NCSWIC and SAFECOM to help define requirements and determine best practices for the establishment and acceptance of a new broadband-based mutual aid framework.

- **Partner with CISA:** The FirstNet Authority will act as a technical resource and represent the voice of our stakeholders with CISA, as they leverage existing governance within SAFECOM and NCSWIC (i.e., Joint Committee or Governance Committee) and seek input to validate a framework and market a governance structure to:
  - Vet initial proposed technical and operational approaches
  - Discuss appropriate representation from public safety groups
  - Socialize the framework with the broader public safety communications community and seek feedback
  - Integrate the framework in the tribal, territorial, state, regional, and national plans
  - Include in training through various programs
First Responder Vertical Location and FirstNet

- Capability that could benefit public safety operations, especially the fire service
- Z-Axis for FirstNet® provides **altitude measurement** to X and Y locations using barometric pressure
- **Locates** first responders indoors and in **multi-storied buildings**
- Measured as **Height Above Terrain (HAT)**
- **Exclusively** available on FirstNet via Intrepid **Response for FirstNet** app
- Available in **major US metros**, covers 52 markets

Z-Axis services are not a required contract deliverable or formal FirstNet Service offering until March 30, 2023 (unless AT&T indicates an early delivery). Currently the FirstNet Authority is participating in Z-Axis informal beta testing.
Additional Planning Considerations and Use Cases
“We didn’t want to rely on people’s home internet because we know they can lose connectivity. We know we won’t lose connectivity with FirstNet.”

**Renee Gordon**  
Director, Dept. of Emergency & Customer Communications  
City of Alexandria, Virginia
Event Planning, Exercises, and After-Action Reviews

**Event Planning**
- Identify public safety agencies
- Identify locations where broadband capabilities are needed by public safety
- Identify broadband capabilities needed by public safety
- Identify technologies being used by public safety

**Exercises**
- Catalog of injects/questions for operations and discussion based exercises
- Injects/questions cover a wide range of public safety activities
- Homeland Security Exercise and Evaluation Program (HSEEP) compatible format

**After-Action Reviews**
- Pre-planning
- Logistics
- Operations
- Technology
Planning Considerations: Summary

- **Uplift**
  Know the who, when, and why; understand how to uplift

- **Deployables**
  Know who can request assets, how to coordinate requests, and how to make requests

- **FirstNet Central**
  Know how to look at planned and/or current network outages to inform operations

- **FirstNet PTT**
  Know how to support mutual aid especially with LMR interoperability
Thank You
Resources

- First Responder Network Authority Roadmap
- First Responder Network Authority App Catalog
- National Emergency Communications Plan
- SAFECOM Nationwide Survey
- Emergency Communications System Lifecycle Planning Guide
- Emergency Communications Technical Assistance and Planning Guide
How You Can Take Action

- Take steps to implement the NECP and achieve its success indicators
- Use system lifecycle best practices when adopting new technologies
- Identify and resolve regulatory, compliance, and/or legal issues associated with implementing new technologies
- Update governance, SOPs, use, training, and exercises programs to include new technologies
Questions?
Upcoming Webinars

Implementing the National Emergency Communications Plan Webinar Series

Addressing the Ransomware Threat to Emergency Communications

October 26

All webinars start at
1PM ET

To join, use:
Webinar link (for visual): https://share.dhs.gov/necpwebinars
Dial-in (for audio): 800-897-5813
For more information on the NECP:
www.cisa.gov/necp
NECP@cisa.dhs.gov