



Ed Reynolds

FirstNet Board Member



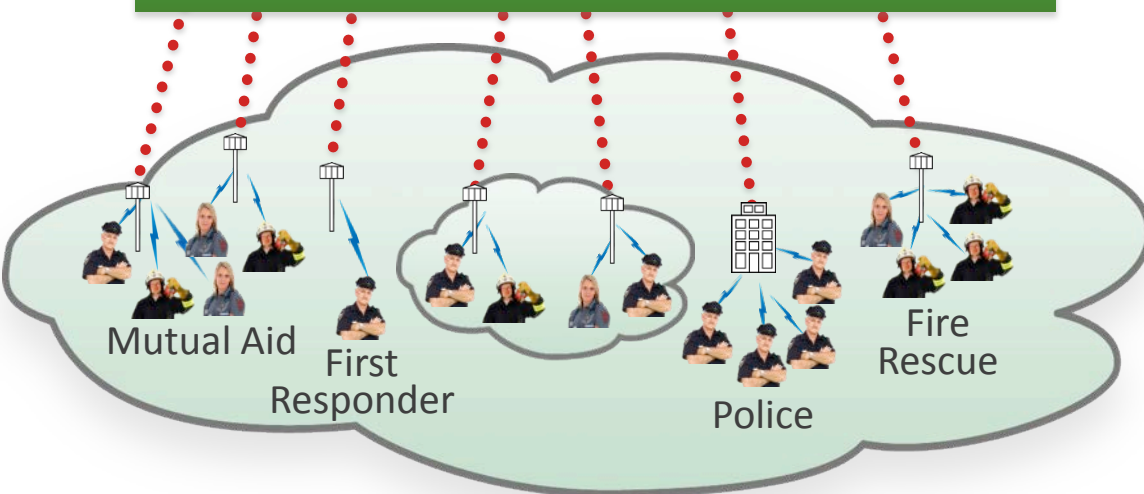
Annual Conference
August 27, 2013



Today, public safety communicates over different networks.

Voice

Over 10,000 Separate Private LMR Networks



Data

Commercial Wireless Networks



The Downside

- Communication barriers
- Limited buying power
- Higher costs

- Not public safety-grade
- Network overload or failure
- No priority access

Communications shortcomings are amplified during emergencies.



After 9/11, the public safety community fought hard to convince Congress that it needed a dedicated, reliable and interoperable network to provide advanced data communications capabilities nationwide ...fulfilling the last remaining recommendation of the 9/11 Commission.

**Middle Class Tax Relief
and
Job Creation Act
February 22, 2012
PL-112-96**



What We' ll Cover

What is FirstNet?

How Will FirstNet Impact Public Safety?

Who is FirstNet?

Plans for Creating FirstNet

Working Together to Benefit Public Safety



What is FirstNet?

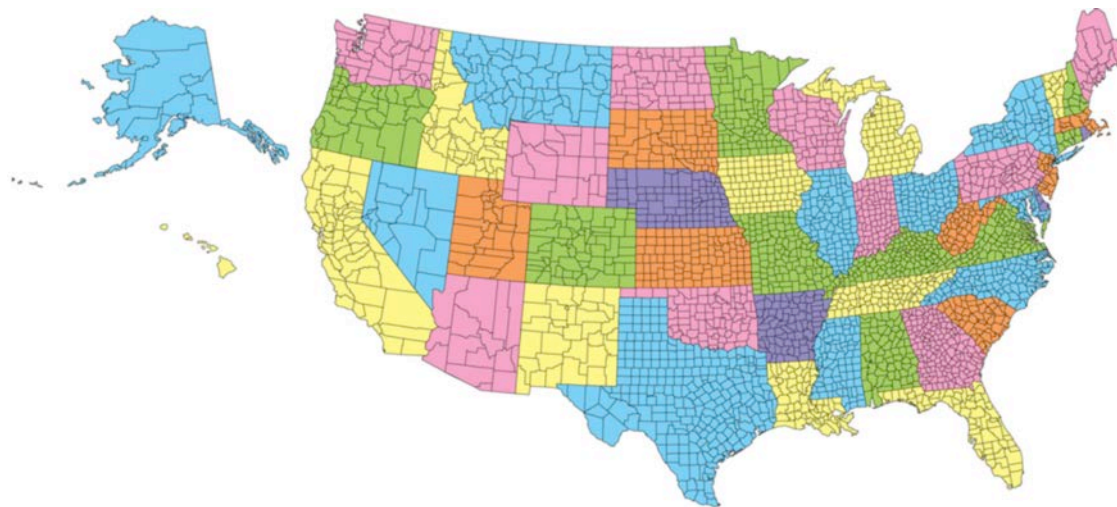


WHAT IS FIRSTNET?

FirstNet will be the first high-speed, broadband and data network dedicated to public safety.



FirstNet will be a single nationwide network.....



that facilitates communication for public safety users during emergencies and on the job every day.

FirstNet will be a bigger, more reliable, resilient and secure wireless “pipe”.

Public Safety-Grade

- Reliable
- Hardened
- Redundant
- Secure



Public Safety Applications

- 4G data for video & web
- Non mission-critical voice
- Existing and new applications

Public Safety Effectiveness

- Dynamic Priority Access
 - Force Multiplier

How will FirstNet Impact Public Safety?



“FirstNet will be a force multiplier, enabling collaboration that will help save lives, solve crimes and keep our communities and emergency responders safer.”

Jeffrey D. Johnson, Chief (Ret.)
CEO Western Fire Chiefs
Association
Acting Customer Advocacy Officer
FirstNet Board Member



Initially, FirstNet will augment land mobile radio networks.



- Public safety will rely on LMR for mission-critical voice for many years
- Where it makes engineering and economic sense, FirstNet can be co-located on existing LMR infrastructure
- Our goal is to allow voice to pass between the two networks
- FirstNet can't replace LMR until push-to-talk, off-network and other mission-critical voice functionality is available and until users embrace FirstNet.

FirstNet plans to launch mission-critical voice functionality (VoLTE) when it is proven.

Functionality

- Push-to-talk
- Direct mode
- Emergency calling
- Call set-up speed
- Public safety-grade performance



FirstNet will provide progress updates to help states make informed decisions about continued LMR investment.

FirstNet will provide fast access to today's applications and, in time, change the way public safety operates.

- Streaming video / surveillance
- Large file transfer / download
- Licenseplate reader
- Situational awareness
- Field fingerprinting
- Field reporting
- GIS/Mapping tools
- Database queries



FirstNet devices will be rugged, easy to use and designed to meet public safety requirements.



These are device type examples for illustration only.

In time, FirstNet devices, applications and services will change the way public safety operates.

Domestic Violence Example

- Access to domestic violence history
- Video and photos
- 9-1-1 call audio files
- Interface with NG 9-1-1



Who is FirstNet?



FirstNet is an independent authority within NTIA with a mandate by law including:

PURPOSE	To create a nationwide, wireless, interoperable public safety broadband network
Network	Single network architecture, LTE technology
Spectrum	700 MHz D Block
Funding	\$7B through spectrum auctions proceeds
Sustainability	Self-funded through fees

Name	Experience
Chuck Dowd	Assistant Police Chief – NYC
Paul Fitzgerald	Sheriff, Story County, Iowa
Jeff Johnson	Fire Chief (ret.), CEO Western Chiefs Association
Kevin McGinnis	Chief/CEO NE Mobile Health Services
Sam Ginn	Telecom Exec, FirstNet Chairman
Craig Farrill	Telecom Exec
William Keever	Telecom Exec
Ed Reynolds	Telecom Exec
Susan Swenson	Telecom Exec
Tim Bryan	Telecom Exec – Rural
Teri Takai	Former CIO for CA and MI
Wellington Webb	Former Mayor, Denver
Sylvia Mathews Burwell	Director of OMB
Eric Holder	U.S. Attorney General
Janet Napolitano	Secretary of Homeland Security

American Association of State Highway & Transportation Officials;
Association of Public-Safety Communications Officials-International,
American Public Works Association,
Forestry Conservation Communications Association,
Governors Homeland Security Advisors Council,
Interagency Board, International Association of Chiefs of Police,
International Association of Emergency Managers,
International Association of Fire Chiefs, International City/County Management Association,
International Municipal Signal Association, Major Cities (Police) Chiefs Association,
Major County Sheriffs' Association, Metropolitan Fire Chiefs Association, National Association of Counties,
National Association of Emergency Medical Technicians,
National Association of Regional Councils, National Association of State Chief Information Officers,
National Association of State EMS Officials, National Association of State 9-1-1 Administrators,
National Association of State Technology Directors, National Association of Telecommunications Officers and Advisors, National Congress of American Indians,
National Criminal Justice Association, National Conference of State Legislatures,
National Council of Statewide Interoperability Coordinators,
National Emergency Management Association,
National EMS Management Association, National Emergency Number Association,
National Governors Association, National League of Cities,
National Public Safety Telecommunications Council, National Sheriffs' Association, National Consortium of Justice Information Statistics,
U.S. Conference of Mayors, SAFECOM Exec,
Fire Non-Management First Line Responder,
Police Non-Management First Line Responder

- 41 PSAC Members
- Executive Committee had a two-day briefing with FirstNet technical team in March and met during PSCR in June
- Executive committee will meet monthly for updates with the General Manager
- Outreach for conferences
- Handling specific projects
 - User impacts of a shared network
 - Applications support
 - Training needs

Our GM is building the leadership team and making other key hires.

- FirstNet General Manager Bill D'Agostino Hired in April 2013
- \$50M Budget approved by Board at June meeting
- Ten full-time employees as of 8/13
- Contractors engaged to fill immediate technical, outreach and communications work.
- FirstNet working to staff up with full-time employees.
- Building outreach teams to work at the county and city level.

Plans for Creating FirstNet



An interoperability board within the FCC was established to lead the development of minimum technical requirements.

By May 22, 2012, the Interoperability Board, in consultation with NTIA, NIST, and OEC, was required to:

- Develop minimum technical requirements to ensure a nationwide level of network interoperability
- Submit them to the FCC for review

Minimum technical requirements are to be used:

- By FirstNet to develop RFIs and RFPs for building, operating, and maintaining the network
- By the FCC to evaluate the RAN deployment plans of states that wish to build their own RAN instead of accepting the FirstNet deployment plan

Public safety has provided more than 1,300 baseline requirements as the foundation for creating FirstNet.



NPSTC Requirements	# of Req' s
User Services	312
Network Services	209
Transport Requirements	154
System Design	66
User Equipment	60
Local Operations Support	157
Migration and Evolution	60
Governance	10
Policies and Procedures	94

FCC Minimum Interoperability Specifications	# of Req' s
Requirements (Must)	46
Considerations (Should)	55
Interfaces (Architectural)	11
Recommended Interfaces Requirements	9

FirstNet will:

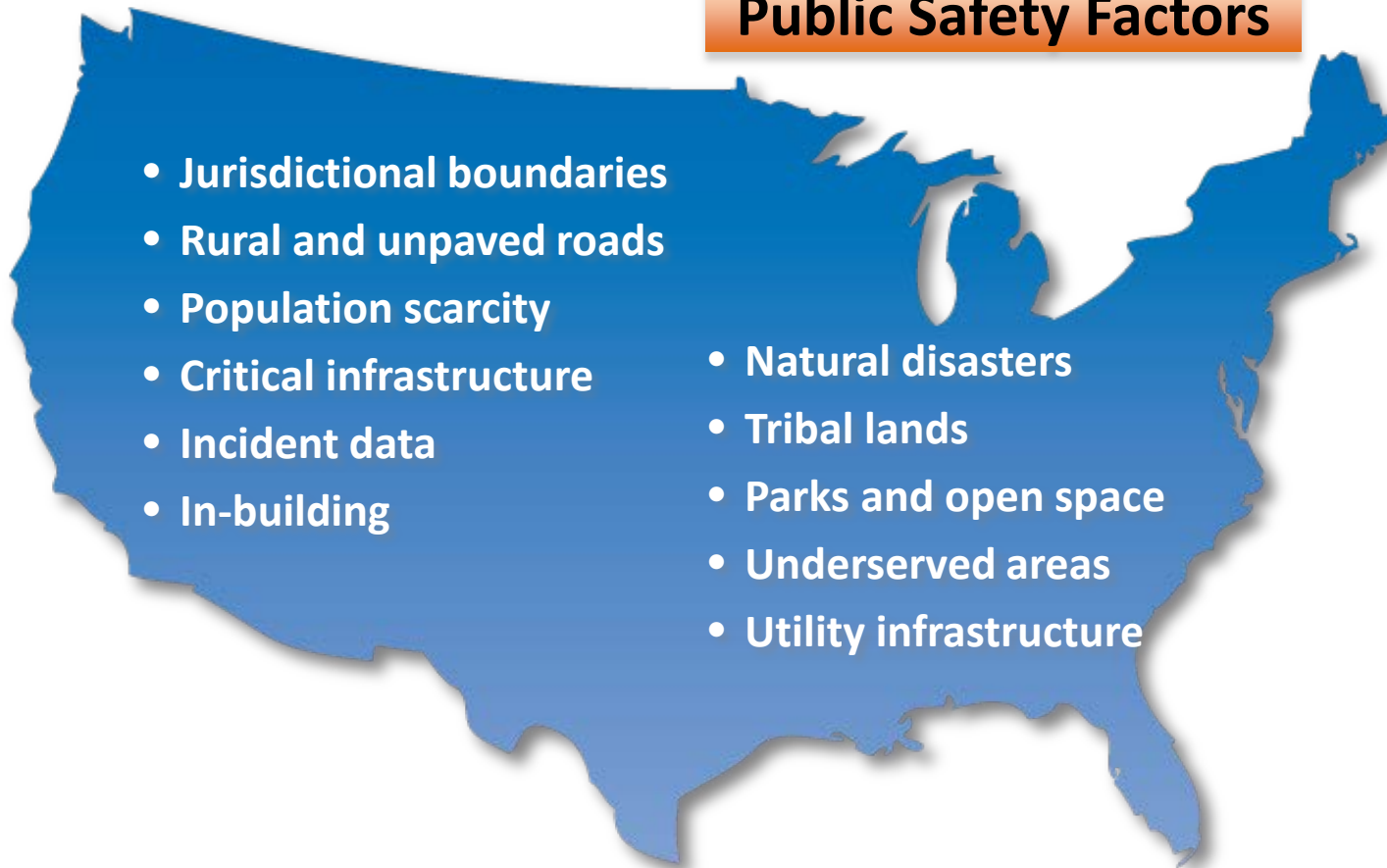
- Build on the foundation of early work done by public safety groups
- Seek vendors who will meet or exceed these requirements
- Broaden the requirements to increase flexibility and decrease costs

Working with the public safety community, we will define what “public safety grade” means.

FirstNet Attribute	Defining Public Safety Grade
Coverage Area	“Where Public Safety needs it” (Geographic)
Reliability	“You can bet your life on it”
Levels of Backup	“Multiple fallback options”
Emergency Communications	“Your trusted resource”
Group Communications	“Essential to teamwork”

FirstNet coverage considerations go far beyond those of commercial networks.

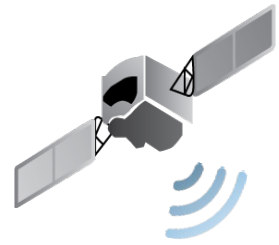
Public Safety Factors



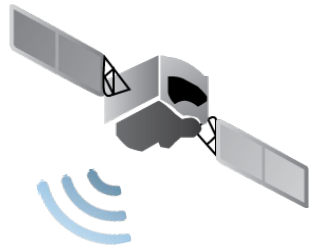
- Jurisdictional boundaries
- Rural and unpaved roads
- Population scarcity
- Critical infrastructure
- Incident data
- In-building

- Natural disasters
- Tribal lands
- Parks and open space
- Underserved areas
- Utility infrastructure

FirstNet is considering using terrestrial with satellite plus portable hotspots to provide coverage where public safety needs it most.



**#2:
Satellite as
back-up to backhaul to
connect to FirstNet Core**



**#1:
Multiple Terrestrial Mobile Systems**



**FirstNet Band
14 Network**

**Fallback
Commercial
Networks**



Public Safety User

**#3:
Portable Hotspots
Stand-alone or
connected to core**



FirstNet will work to accelerate standardization in several areas.

- Mission-Critical Voice
- Push-to-Talk (PTT)
- Direct Mode
- Higher Power Mobiles
- Dynamic Priority
- Cyber Security Aspects

First Responders are requesting these capabilities of FirstNet in our regional meetings



What we know to be true today:

- We will use **LTE technology**.
- We will build a **distributed core** nationwide wireless network.
- We will have a **single nationwide security** standard and a **single nationwide application engine**.
- We are considering the **use of portable hotspots** to effectively reach hard to get to rural and wilderness areas.
- We will leverage and apply insights and **learning from the early Broadband Technology Opportunity Program (BTOP)** projects.

What we know to be true today:

- State and Local Implementation Grant Program (SLIGP) Phase 1 awards began in late July.
- We are **building regional outreach teams** – who will work closely with states, counties, cities and tribes to really understand local needs and requirements.
- FirstNet's nationwide network service will be tailored to public safety first responder requirements and be a **higher public safety-grade than commercial** carriers data services.
- **Hardened, Reliable, Secure, Resilient**

What we still need to find out:

- ➡ What will the **final FirstNet network design** look like? We still need a lot of input from the states, tribes, locals and RFI responses.
- ➡ How exactly will we **leverage public/private partnerships**? What the ultimate requirements, strategies and deal points will be?
- ➡ What it **cost** for each and every city, county, tribe or public safety entity to use FirstNet services?
- ➡ What will the **final business model** look like?

RFIs and RFPs will help us create the FirstNet business model.

Break even and build a self-sustaining network

- Fee for service
- Leverage value of the spectrum
- Reflect value of contributed assets and partnerships



“FirstNet intends to offer public safety grade services at a cost that’s compelling to users.”

— FirstNet Tenet

To date FirstNet has issued 11 RFIs. Six more are in the works.

Devices

RAN RFIs

Network Partnering and RAN Provisioning

Antenna Systems

Microwave Backhaul Equipment

Deployables

Satellite Service

CORE RFIs

Enhanced Packet Core (EPC)

Transmission/Transport

Data Center

*Network Management Center/Operations Management Center
(NMC/OMC)*

Network Service Platform

Working Together to Benefit Public Safety

State Consultation Process



FirstNet must consult with regional, state, tribal, and local jurisdictions.

- Consultation must cover the distribution and expenditures of any amounts required to carry out FirstNet responsibilities, including:
 - Construction of a core and any radio access network build out;
 - Placement of towers;
 - Coverage areas of the network at the regional, state, tribal, or local level;
 - Adequacy of hardening, security, reliability, and resiliency
 - Assignment of priority to local users;
 - Assignment of priority and selection of entities seeking access to or use of the nationwide interoperable PSBN; and
 - Training needs of local users
- FirstNet consultation must occur through the single officer or governmental body designated by each state



FirstNet is in the process of planning state visits.

FirstNet will continue to consult with the states, tribes, territories and localities to gather requirements for developing state network build-out plans.

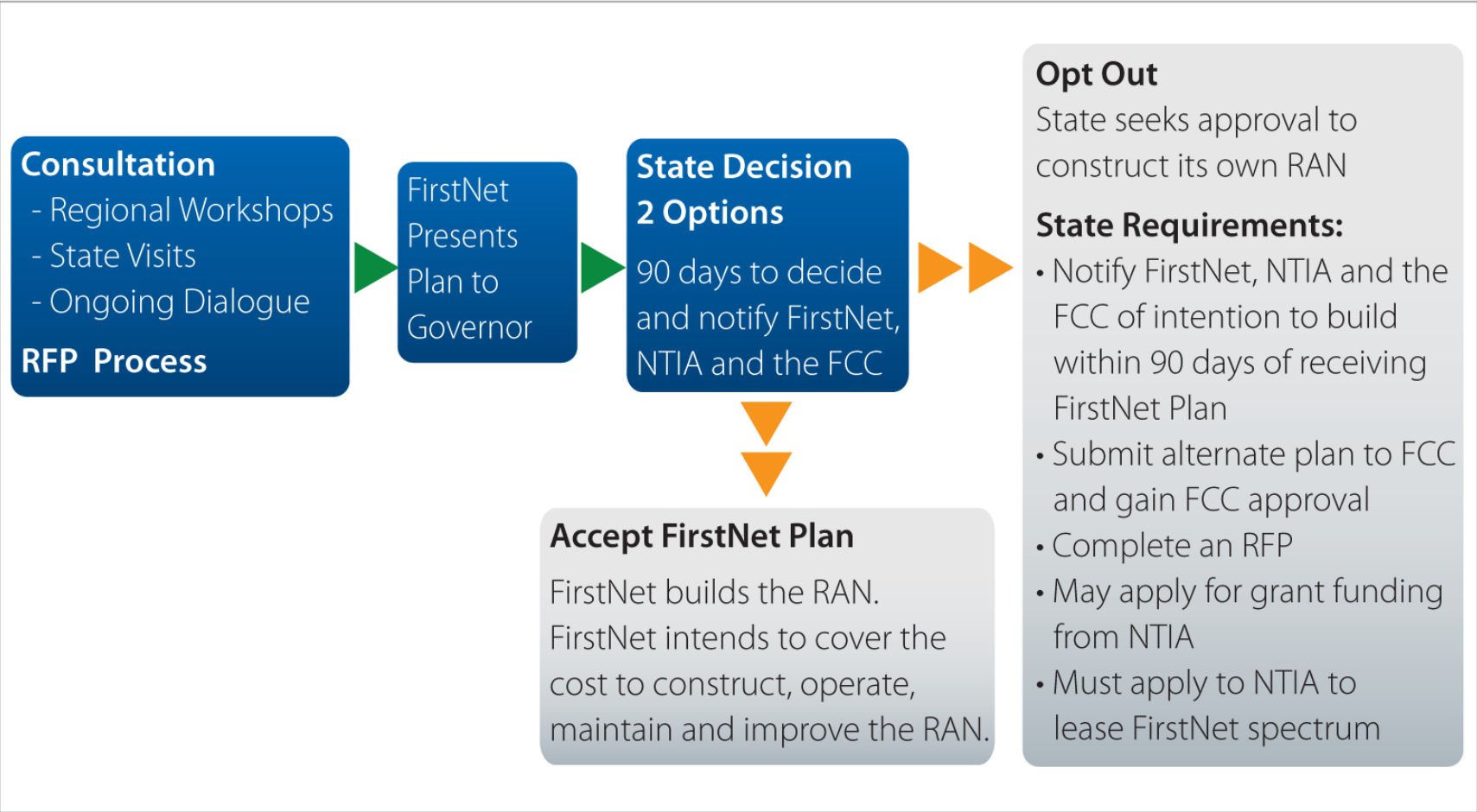
Activities	When
Nationwide, Regional Workshops	Conducted May – June 2013
Pre-Consultation Coverage Workshops	To be scheduled with DHS OEC prior to state visits
Individual State Visits	Beginning after staff is hired and pre-consultation coverage workshop/analysis with OEC is completed
Federal and Tribal Outreach	Planning is underway to address the needs of these key users
Association and Local Outreach	Underway
Data Gathering	Commencing with Phase 2 SLIGP funds release



Information and data needed.

- **Only what's needed:** The data request will be structured to be as efficient as possible.
- **What is needed:** FirstNet requires input and requirements from state, local and tribal entities to prepare network plans for state review. Examples include:
 - Architecture of an evolved packet core and radio access network
 - Required coverage areas of the network
 - Hardening, security, reliability, and resiliency requirements
 - Assignment of priority users and selection of secondary users
 - Training needs
 - Availability of assets that may be utilized

FirstNet will collaborate with states to develop and deliver a RAN deployment plan that meets their needs.



To build its own RAN, a state must create an alternate plan that meets stringent technical and operational requirements.

- The state RAN deployment plan must cover the construction, maintenance, and operation of the RAN.
- The plan must demonstrate:
 - Compliance with the minimum technical interoperability requirements
 - Interoperability with FirstNet
- If the FCC disapproves the plan:
 - The construction, maintenance, operation, and improvement of the network within the state shall proceed in accordance with the plan proposed by FirstNet

To obtain construction funding from NTIA and lease FirstNet spectrum, the state must meet additional requirements.

The state must :

- Demonstrate the technical capability to operate and fund the RAN
- Maintain ongoing interoperability with the FirstNet network
- Complete the project within specified comparable timelines
- Execute its plan cost effectively
- Deliver security, coverage and quality of service comparable to the FirstNet network

Funding implications exist if a state is approved to build its own RAN.

- States pay any fees associated with using FirstNet
- Grant program specifics are not developed yet
 - NTIA will determine:
 - eligible costs of a state's RAN;
 - whether a match will be required; and
 - funding levels





FirstNet will create a network for millions of public safety users who need to be able to send data and talk to one another to meet their mission.

Creating FirstNet will require an unprecedented level of public-private partnership, collaboration and shared commitment to the well-being of all Americans.

