



FirstNet™

U.S. DEPARTMENT OF COMMERCE

www.firstnet.gov

National Sheriffs Association (NSA) Winter Conference



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January 23, 2014

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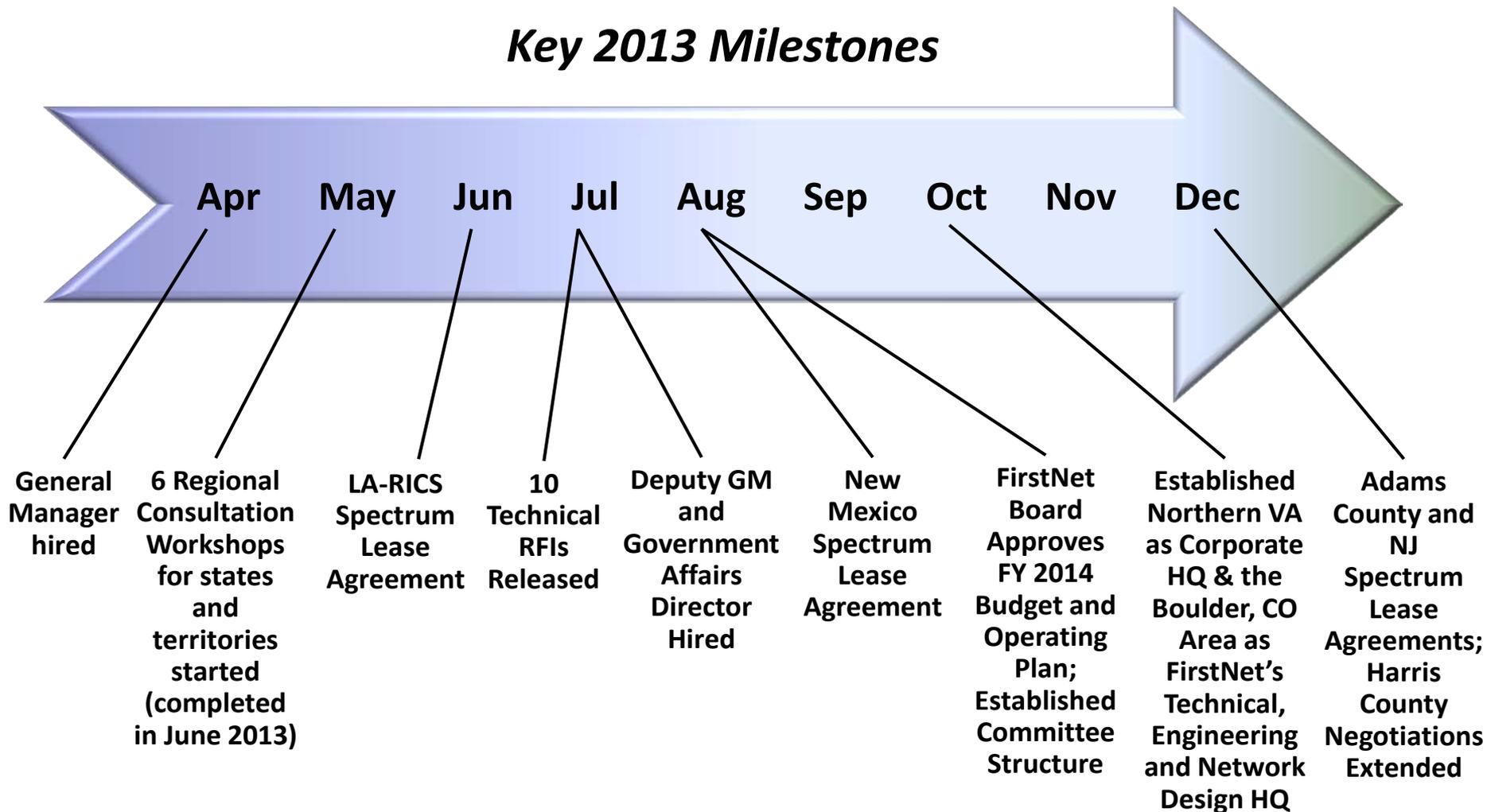
Why FirstNet?



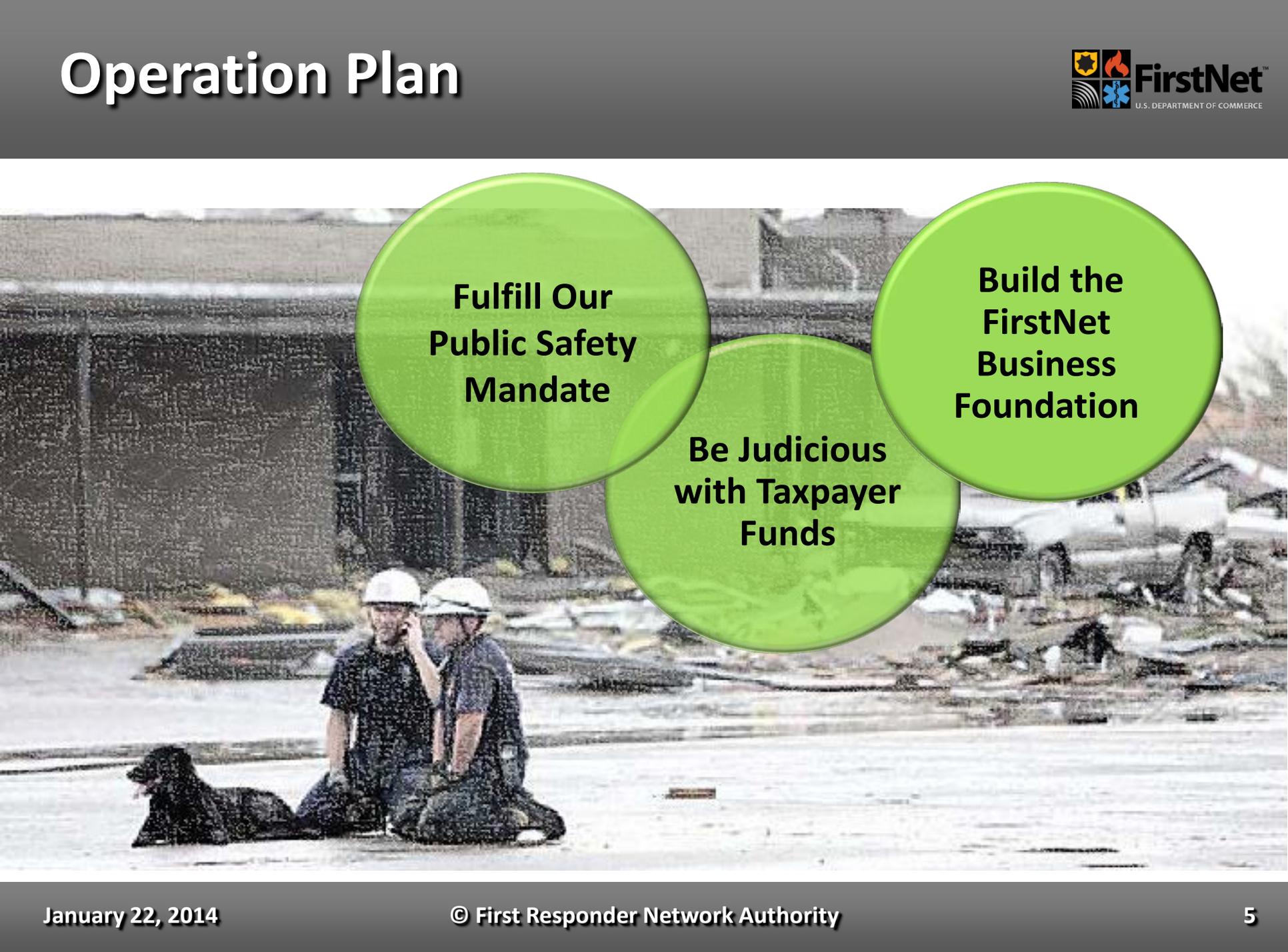
***The First Responder Network Authority
shall hold the single public safety wireless license
and take all actions necessary to
ensure the building, deployment, and operation
of the nationwide public safety broadband network***

Progress Update

Key 2013 Milestones



Operation Plan



**Fulfill Our
Public Safety
Mandate**

**Be Judicious
with Taxpayer
Funds**

**Build the
FirstNet
Business
Foundation**

2014 Initiative and Priorities



**Network
Partners**



Mandates



**BTOP
Early Movers**



**Mobile
Network
Concepts**



**Wireless
Devices**



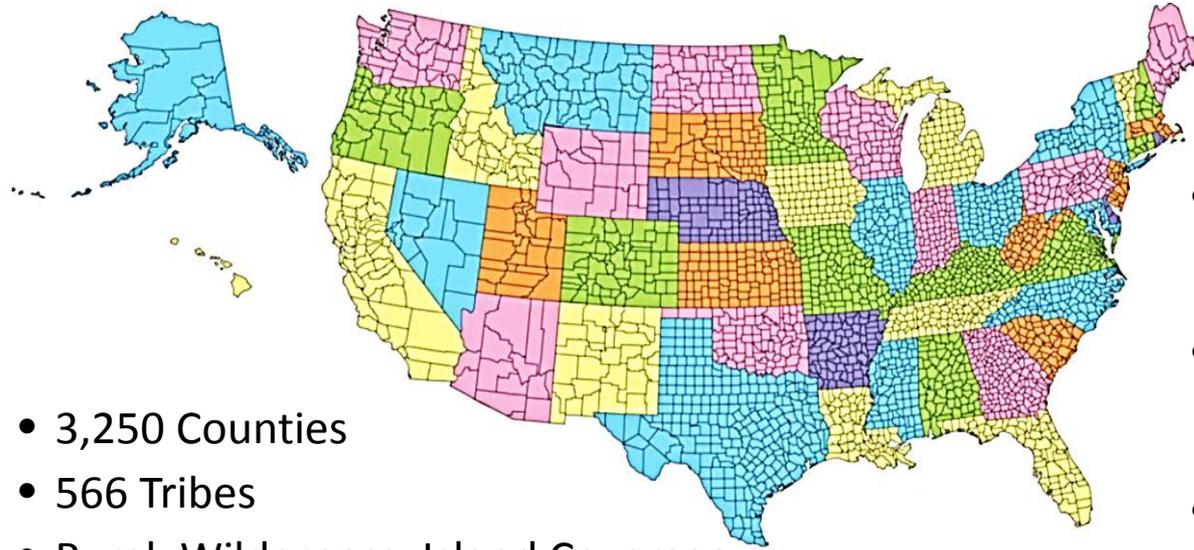
FirstNet™

Organization Foundation

Network Build Considerations



Challenges: Coverage



- 3,250 Counties
- 566 Tribes
- Rural, Wilderness, Island Coverage
- 60,000 Public Safety Agencies
- 3.8 Million Square Miles

- Provide coverage to public safety in every state and territory
- The network must be designed to public safety-grade standards
- FirstNet must build and operate a core network



DC



Puerto Rico



Virgin Islands



American Samoa



Guam



Northern
Mariana
Islands

Challenges: Capital and Cost

- Cell site capital investment
- Site operating costs
- Hardening investment
- Limited number of public safety users
- City, county, state, tribal and federal financial constraints



Five Unique Coverage Categories

Unique Geography and Demographics Require Multiple Solutions – Seamless Operation



Wilderness/
No Coverage



Rural



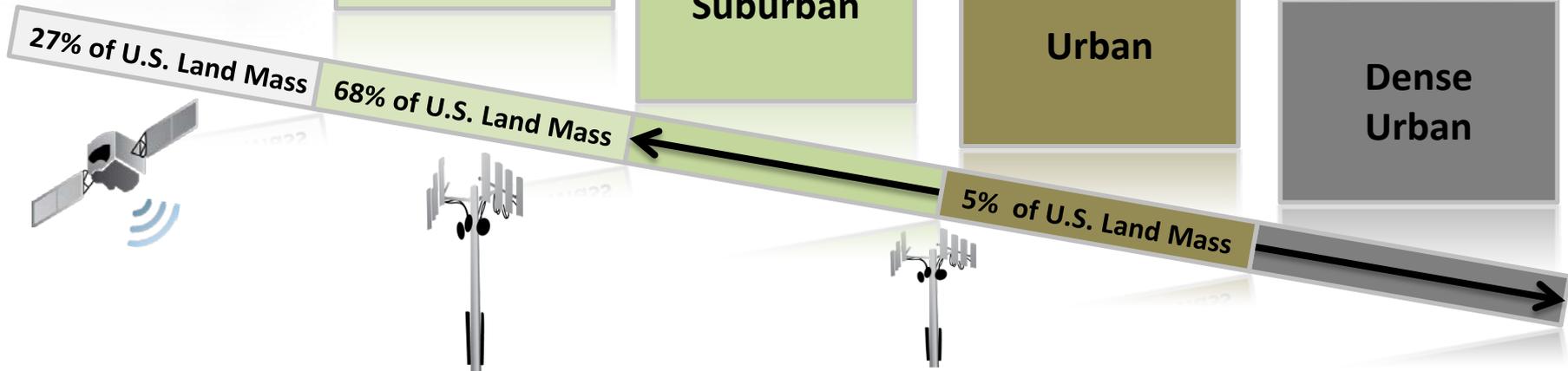
Suburban



Urban



Dense
Urban



LTE Value Creation & Innovation

Open, commercial standards - economies of scale - time to market

Rapid Technology Development

Increased Device Capabilities

Improved Infrastructure Deployment Capabilities

Affordable Device Costs



Image courtesy of Apple Inc.



Device Considerations

FirstNet will work with the vendor community on portable devices and in-vehicle routers

	Portables	In-Vehicle Routers	Specialized	Accessories
Device Types				
Category Driver	Build out to gain economies of scale		Special operational needs	Unique uses
Function	<ul style="list-style-type: none"> • Smartphone • Tablets • Modems 	<ul style="list-style-type: none"> • Routers • Hotspots • Consoles 	<ul style="list-style-type: none"> • Drones • Portable repeaters • Rovers 	<ul style="list-style-type: none"> • Ruggedized cases • Battery packs • Chargers, mics.
Connectivity	<ul style="list-style-type: none"> • LTE, CDMA, HSPA • LMR/ P25 • Wi-Fi, Bluetooth • Direct mode 	<ul style="list-style-type: none"> • LTE, CDMA, HSPA • Wi-Fi • Ethernet • USB 	<ul style="list-style-type: none"> • LTE, CDMA, HSPA • LMR/ P25 • Satellite repeaters • Location services 	<ul style="list-style-type: none"> • Bluetooth • USB • WiFi
Location Enabled	Yes	Yes	Some	n/a
Band 14 Support	2014	2013/2014	2015+	n/a

Complementing LMR with LTE

Public safety will rely on land mobile radio (LMR) for mission-critical voice until LTE capabilities exceed current functionality

Elements to be evaluated:

- **Push-to-talk**
- **Direct mode**
- Emergency calling
- Enhanced broadcast
- High-power mobile
- Public safety-grade performance



State Outreach and Consultation Updates



Outreach Overview



- **FirstNet is increasing outreach to the states through:**
 - Monthly conference calls with SPOCs
 - Quarterly webinars with SPOCs
 - Outreach materials
 - FirstNet website launch
 - Outreach and coordination with SLIGP team
 - Tribal community outreach efforts

- **FirstNet is increasing outreach to Locals/Associations through:**
 - PSAC and FirstNet team coordination
 - Briefings for National Association reps
 - Individual outreach as needed
 - Event outreach

The screenshot shows the FirstNet website with a navigation bar at the top. The main content area features a large banner with the text: "When first responders are in harm's way, having one network and advanced communications tools can make the difference between life and death." Below this is a "Sign up" button and a link to "Sign up for updates from FirstNet." The website also has sections for "PSAC Projects Update", "Consultation", and "Resources". A prominent section titled "The Promise of FirstNet" contains several key messages:

- What is FirstNet?** FirstNet will be the first high-speed wireless, broadband 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. Think of FirstNet as a bigger, more reliable, secure and resilient "wireless pipe". This new network will be public safety-grade, providing access to applications and coverage where public safety needs it most.
- What will be possible with FirstNet?** Inside FirstNet will be used to send data, video, images and text and make cellular-quality voice calls. Users will get fast access to information they need to meet their mission. Unlike commercial wireless networks, FirstNet will allow for priority access among public safety users. FirstNet will also give incident commanders and local officials control over the network so, for example, they can assign users and talk groups and determine who can access applications.
- Why was FirstNet created?** After 9/11, the public safety community fought hard to fulfill the 9/11 Commission's last standing recommendation and convince Congress that it needed a dedicated, reliable network to provide advanced data communications capabilities nationwide. During emergencies, public safety requires priority service and preemption.
- How will FirstNet benefit public safety?** Using FirstNet will improve situational awareness and decision-making. Just as smartphones have changed our personal lives, FirstNet devices and applications will ultimately change the way public safety operates. FirstNet will save time during emergencies when seconds count. FirstNet will save money for states by leveraging nationwide purchasing power and scale economies. Using FirstNet can help save lives, solve crimes and keep our communities and emergency responders safer.
- How will states and agencies participate in the buildout of FirstNet?** To make FirstNet a nationwide network, all states must have a local radio access network (RAN) that connects to the FirstNet core. FirstNet is responsible for working through the designated state point of contact to consult with states, local communities, tribal governments and first responders to gather requirements for developing its RAN deployment plan. If the FirstNet plan is accepted by a state, FirstNet will construct the RAN. If a state prefers to build its own RAN, the state must secure FCC approval and may seek funding support from NTA. State-built RANs must meet FirstNet security, hardening and interoperability requirements.
- What will users pay for FirstNet services?** FirstNet intends to offer services at a compelling and competitive cost to attract millions of public safety users and make FirstNet self-sustaining. The use of FirstNet services and applications will be voluntary. The costs for FirstNet services and devices have not yet been set.

At the bottom of the page, it says "WIRELESS BROADBAND, DEDICATED TO PUBLIC SAFETY" and "FirstNet U.S. DEPARTMENT OF COMMERCE".

FirstNet Regional Structure

The FirstNet operational outreach model aligns with 10 FEMA regions.

- 10 Regional Teams to:
 - Work with the state SPOCs
 - Outreach to cities and other localities
 - Current Focus: state consultation
 - Future Focus:
 - Solution sales
 - Support
 - Account management
 - Outreach
 - Education and training

- 2 Nationwide Teams to:
 - Gather input and requirements
 - Serve users



FEDERAL
TEAM

TRIBAL
TEAM

Preparing To Support FirstNet



- Develop deep understanding of how public safety works
- Leverage LTE to deliver cost efficiency
- Develop rapidly deployable products – small cell technology
- Continue to participate in PSCR Demo Network
- Meet Public Safety quality reliability standards
- Monitor and provide complete responses to our RFI, RFPs

State Consultation



Overview Of Consultation Process



- Consultation is an iterative process, not a single event
- FirstNet will communicate the consultation process and necessary roles and responsibilities
- Consultation will focus on critical information and data
- Plan development will be iterative
- Consultation culminates with the creation of the state plan

Together, stakeholders and FirstNet will have engaged in a process that provides meaningful and thorough information for the state plans

Wide Range Of Stakeholder Consultation

State Consultation (SPOC / SLIGP)

- State
- Local
- Tribal
- Regional
- Rural
- Metropolitan

State Plan

Governor's Decision

Federal Input (ECPC)

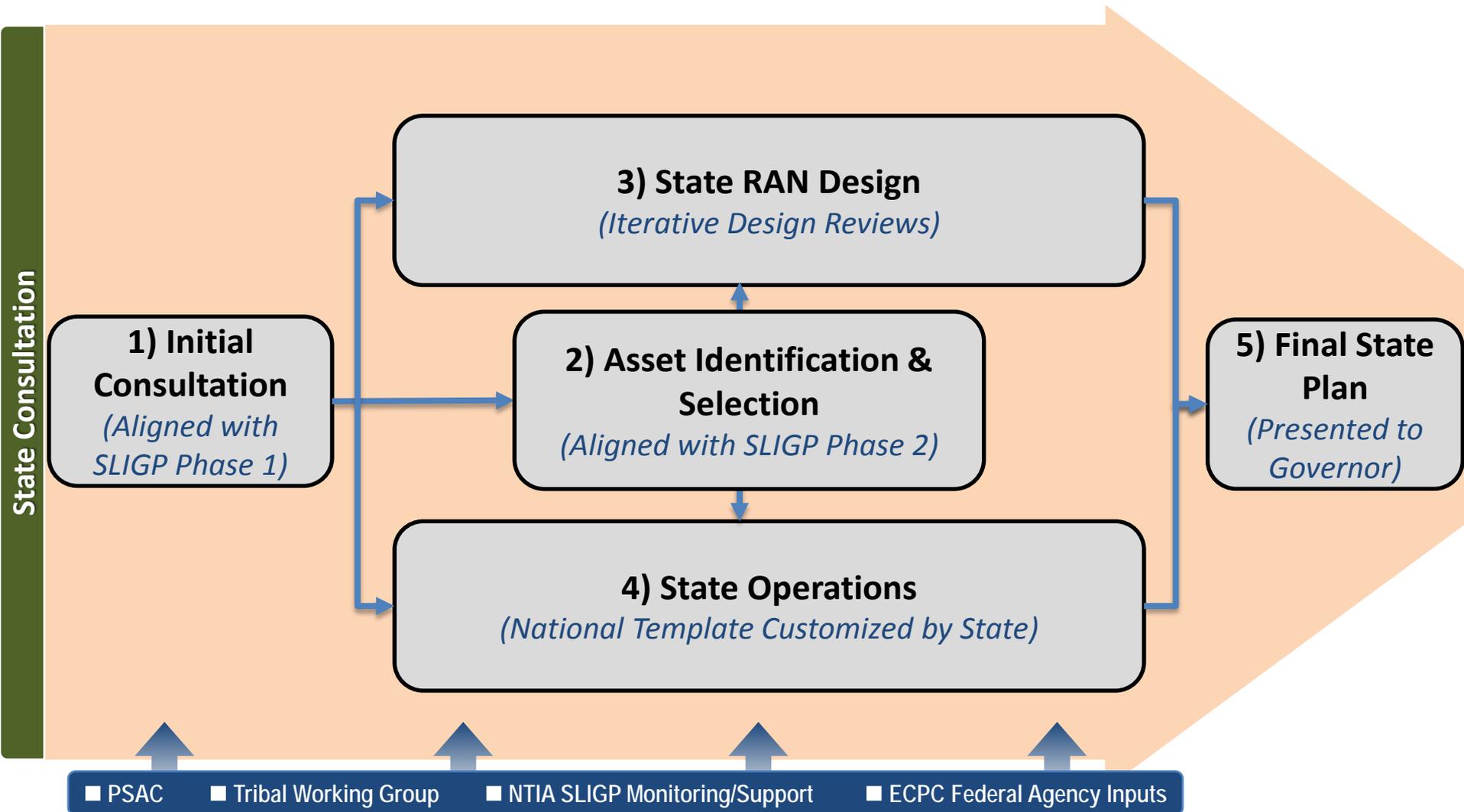
- Federal Responders
- Federal Infrastructure Owners

Industry Input (RFP / Partnering)

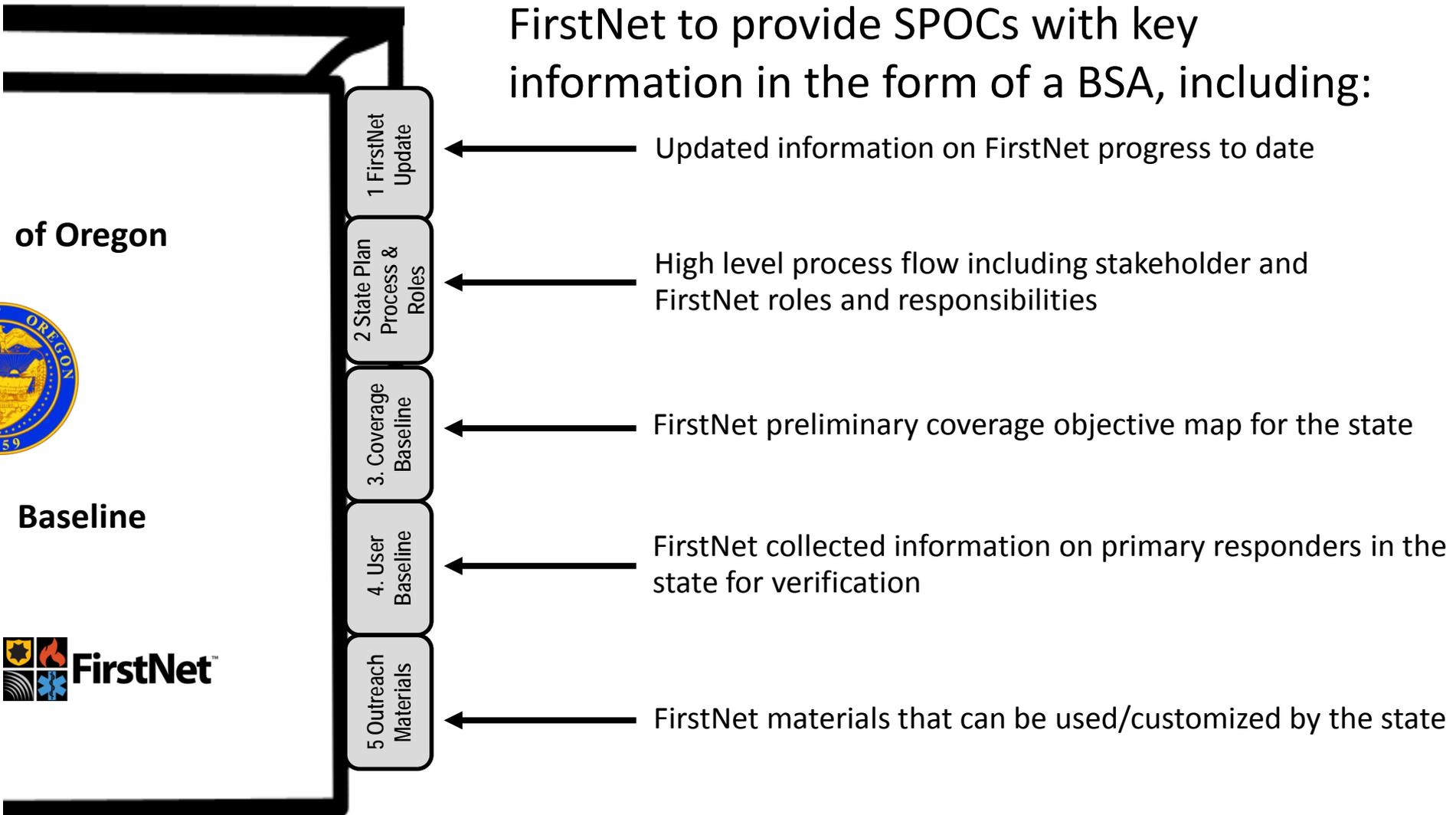
- NGOs
- Utilities
- Commercial

- Users
- Coverage
- Assets

Defining the Process



Initial Consultation – Baseline State Analysis (BSA) Getting Ready for Consultation



Getting States Ready For Consultation (cont.)



- Consultation readiness checklist
 - FirstNet is developing a checklist for SPOCs to use as a guideline prior to consultation
 - This checklist's topics are consistent with deliverables required by SLIGP
- Examples of consultation checklist items may include:

Governance:

- Functioning governance body in place
- Date/time of next governance body meeting
- Formal relationships documented with state's tribes

Assessment and Validation:

- User agencies identified / proposed
- Secondary users identified / proposed
- Key stakeholders with assets that could assist with the network build out are identified

Outreach and Education:

- Statewide outreach plan created
- Large metropolitan area contact list built
- Tribe contact list built
- Rural contact list built
- Established email list for all public safety leadership in state
- Calendar of existing state, regional, and national public safety association events

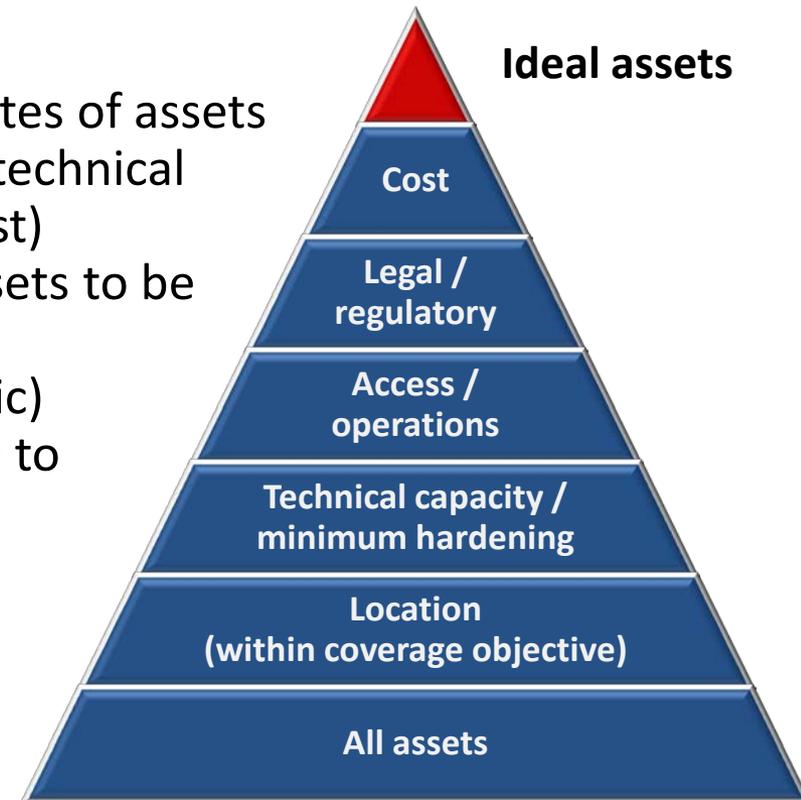
Asset Identification & Selection (Aligned with SLIGP Phase 2)

■ Key Steps

- Define minimum recommended attributes of assets for consideration (Coverage objective/ technical capacity/site access/operations/low cost)
- Request data collection on available assets to be considered
- Assess all assets (commercial and public)
- Select assets based solely on best value to the FirstNet network

■ Guiding Principles

- Limit data collection to viable assets to save the state time/effort
- Leverage assets to provide better coverage at a lower cost
- Leverage assets to deploy quicker



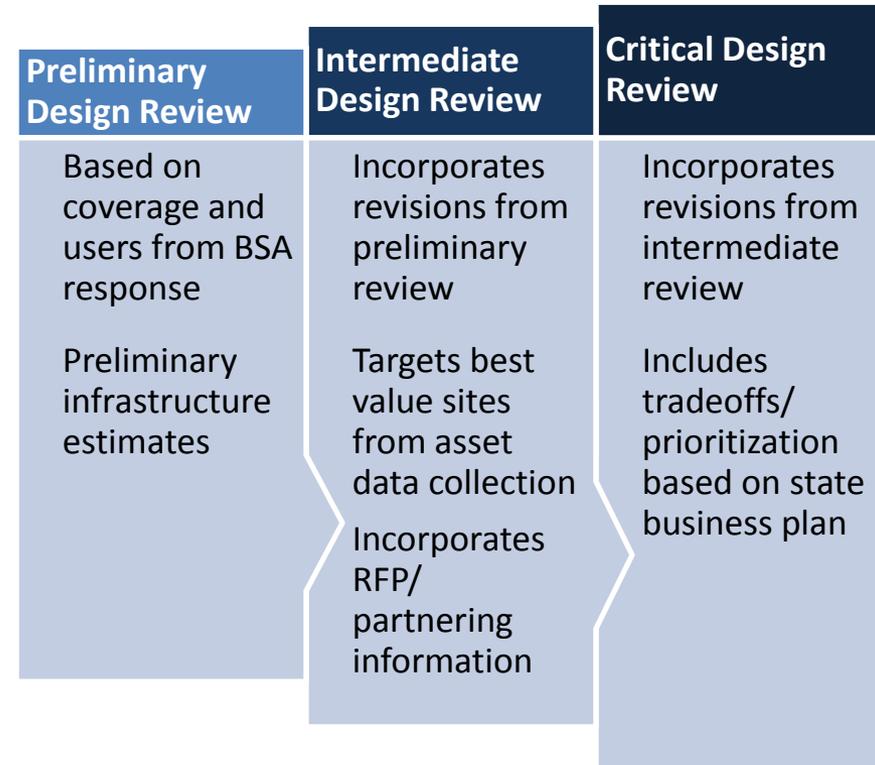
State RAN Design Process

■ Key Steps

- Multi-phase (preliminary/intermediate/critical design) reviews with state to refine design based on identified priorities
- Incorporate feedback and additional data as it is collected (SLIGP Phase 2/RFP Process)

■ Guiding Principles

- Ensure on-going review/refinement process with state
- Jointly develop tradeoffs and priorities



State Operations

■ Key Steps

- Leverage PSAC and others to discuss overall approach to:
 - Local control
 - Prioritization
 - Training
 - Security
- Develop operations template with areas for input/customization
- Develop system cost structure/business plan for state based on preliminary RAN design and potential user base
- Customize based on public safety stakeholder input

■ Guiding Principle

- Address areas of consultation required by law
- Ensure state RAN design is supported by business planning and cost considerations



■ Key Steps

- Document proposed coverage and associated cost
- Supply projected funding level
- Provide final review opportunity by state's SPOC / governing body
- Submit to the Governor

■ Guiding Principles

- Address areas of consultation required by law
- Ensure public safety stakeholders have had robust involvement before state plan is presented

State Plan Requirements

- Completion of the RFP process
- Details of proposed build-out in the state
- Funding level for the state



Public Safety Grade



FirstNet: A Public Safety Grade Network



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

FirstNet Attribute	Defining Public Safety Grade
Coverage	“Where public safety needs it” (Geographic)
Reliability	“You can count on it”
Resiliency	“Multiple back-up options”
Emergency Communications	“Your trusted resource”
Group Communications	“Essential to teamwork”

Reliability

- Public safety-grade design includes:
 - Extended life battery systems
 - Back-up power systems (uninterruptible, generators)
 - Diverse routing of cell site links (overhead, underground, thru air)
 - Diverse cell site link technology (fiber, coax, microwave, telco, optical, satellite)



The majority of cell site outages are due to loss of power and data links

- Physical
 - Diverse Routing of cell site links
 - Mirrored Databases
 - Geographically Distributed Processing
- Operational
 - Mobile Hotspots
 - Bring Your Own Cell (BYOC)
 - Cells on Wheels (COWs)
 - Systems on Wheels (SOWs)
- Capacity Management / Load Shifting
- Spares Management



Recovering quickly after a network incident is imperative

Questions

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