FirstNet™
U.S. DEPARTMENT OF COMMERCE

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National Sheriffs Association (NSA) Winter Conference

TJ Kennedy
FirstNet, Deputy General Manager
January 23, 2014

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January 23, 2014

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Sheriff, Story County, Iowa
January 23, 2014

Why FirstNet?

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Singular Focus

The First Responder Network Authority shall hold the single public safety wireless license and take all actions necessary to

<u>ensure the building, deployment, and operation of the nationwide public safety broadband network</u>

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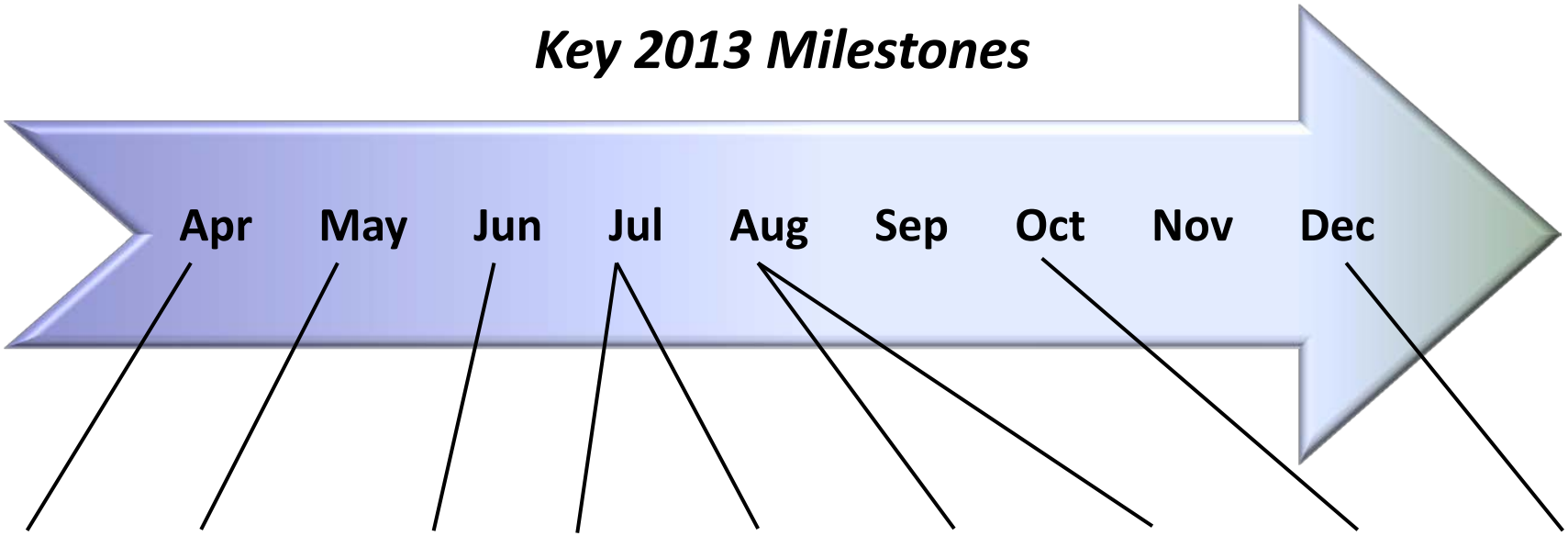
Progress Update

Key 2013 Milestones



- **Apr:** General Manager hired
- **May:** 6 Regional Consultation Workshops for states and territories started (completed in June 2013)
- **Jun:** LA-RICS Spectrum Lease Agreement
- **Jul:** 10 Technical RFIs Released
- **Aug:** Deputy GM and Government Affairs Director Hired
- **Aug:** New Mexico Spectrum Lease Agreement
- **Aug:** FirstNet Board Approves FY 2014 Budget and Operating Plan; Established Committee Structure
- **Oct:** Established Northern VA as Corporate HQ & the Boulder, CO Area as FirstNet's Technical, Engineering and Network Design HQ
- **Dec:** Adams County and NJ Spectrum Lease Agreements; Harris County Negotiations Extended

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Operation Plan

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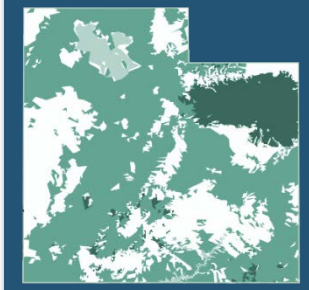
2014 Initiative and Priorities

Network Partners

Mandates



BTOP Early Movers

Mobile Network Concepts

Wireless Devices

Organization Foundation

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Network Build Considerations

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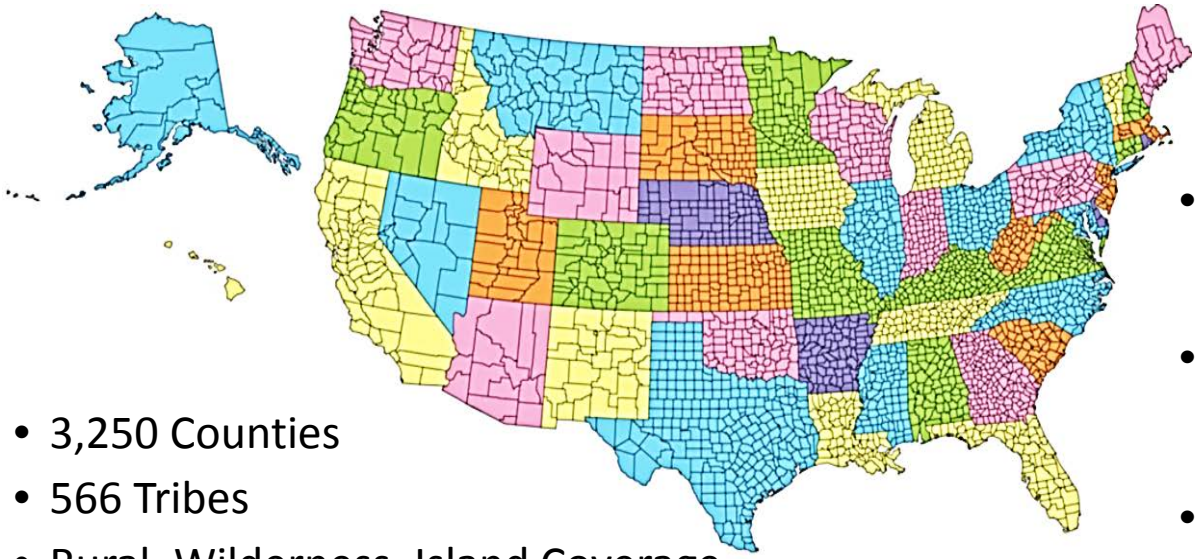
Challenges: Coverage



- 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

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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

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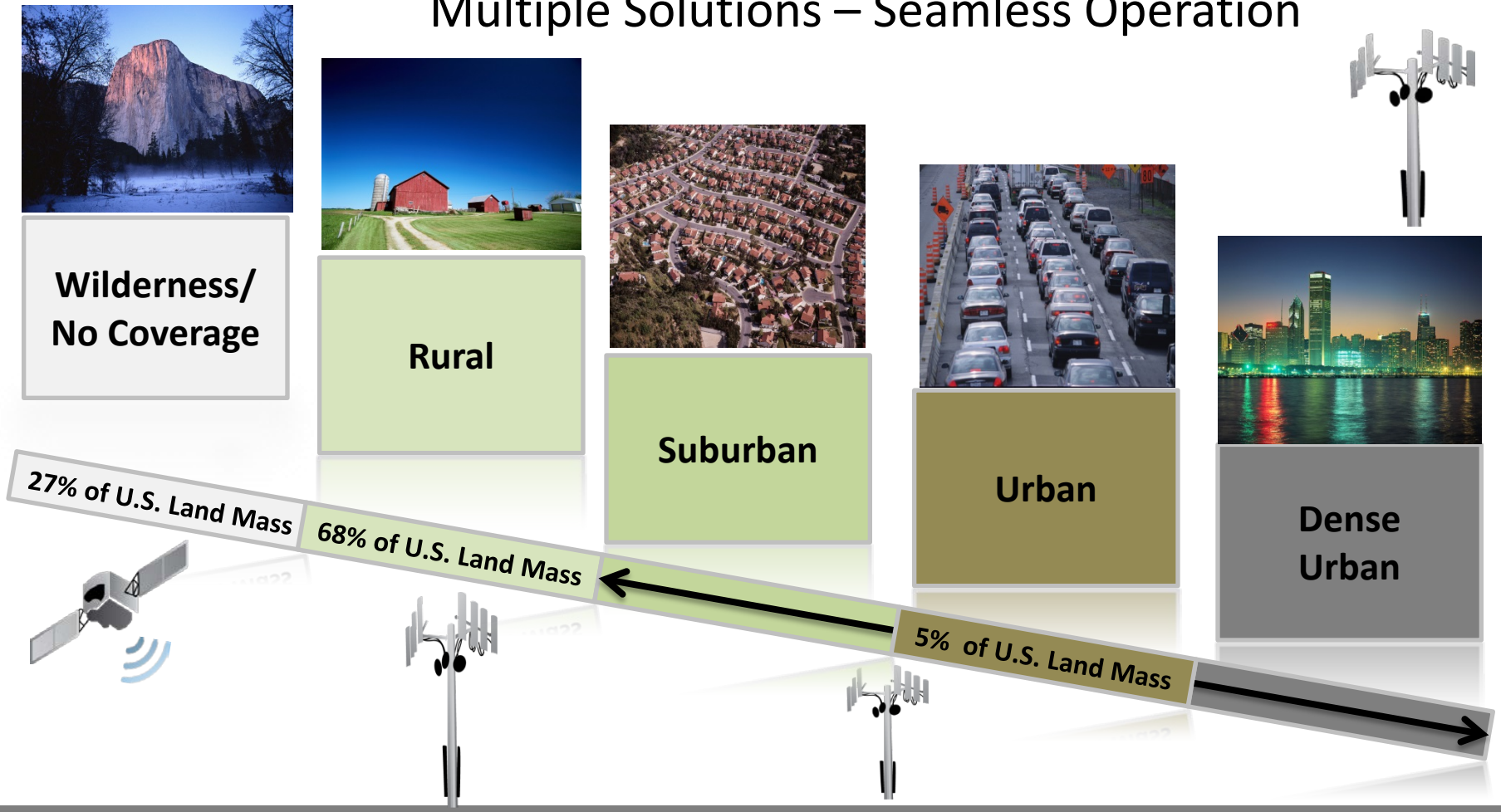
Five Unique Coverage Categories

Unique Geography and Demographics Require Multiple Solutions – Seamless Operation



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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.

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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	• Smartphone • Tablets • Modems	• Routers • Hotspots • Consoles	• Drones • Portable repeaters • Rovers	• Ruggedized cases • Battery packs • Chargers, mics.
Connectivity	• LTE, CDMA, HSPA • LMR/ P25 • Wi-Fi, Bluetooth • Direct mode	• LTE, CDMA, HSPA • Wi-Fi • Ethernet • USB	• LTE, CDMA, HSPA • LMR/ P25 • Satellite repeaters • Location services	• Bluetooth • USB • WiFi
Location Enabled	Yes	Yes	Some	n/a
Band 14 Support	2014	2013/2014	2015+	n/a

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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

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State Outreach and Consultation Updates

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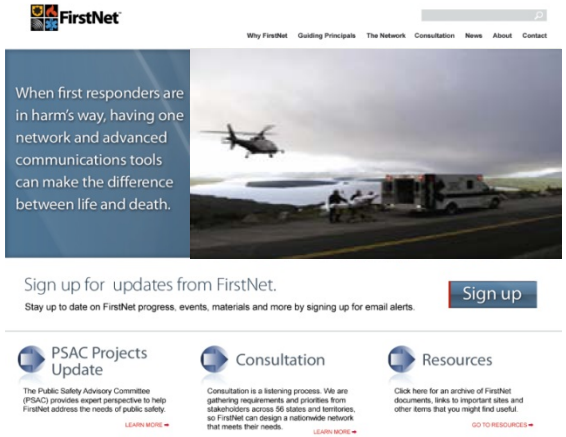
Outreach Overview

- **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



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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

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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

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State Consultation

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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

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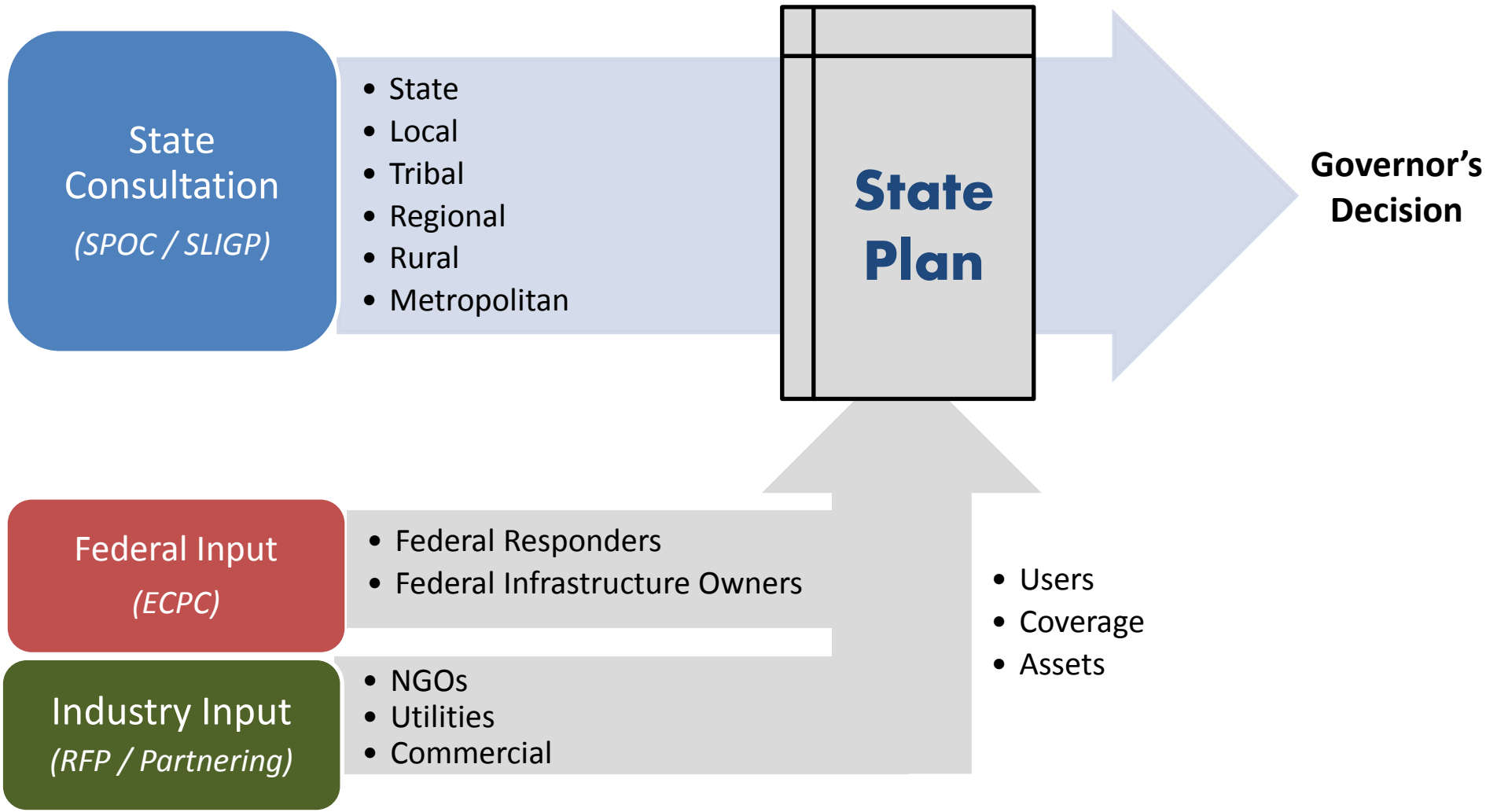
Wide Range Of Stakeholder Consultation



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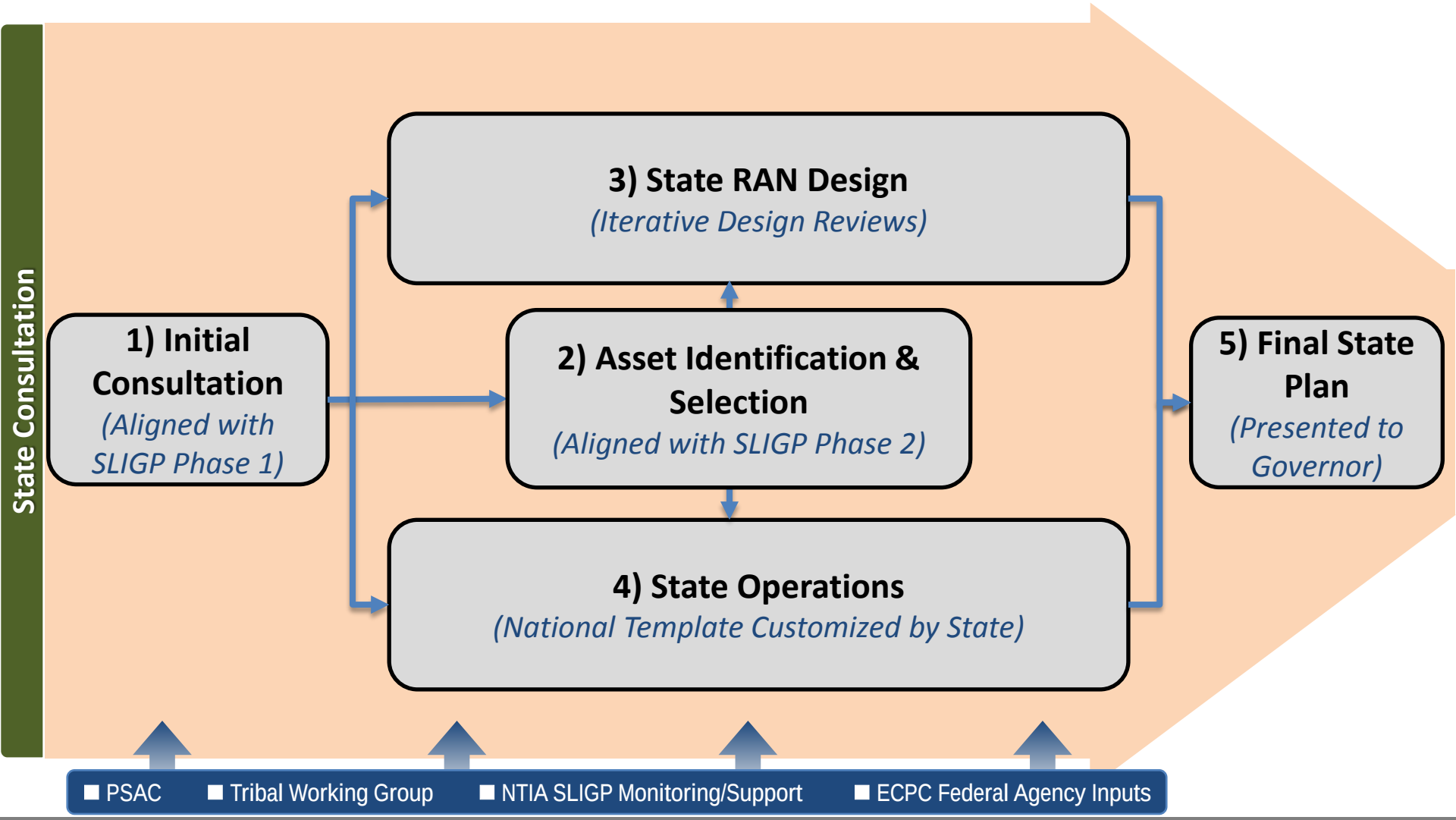
Defining the Process



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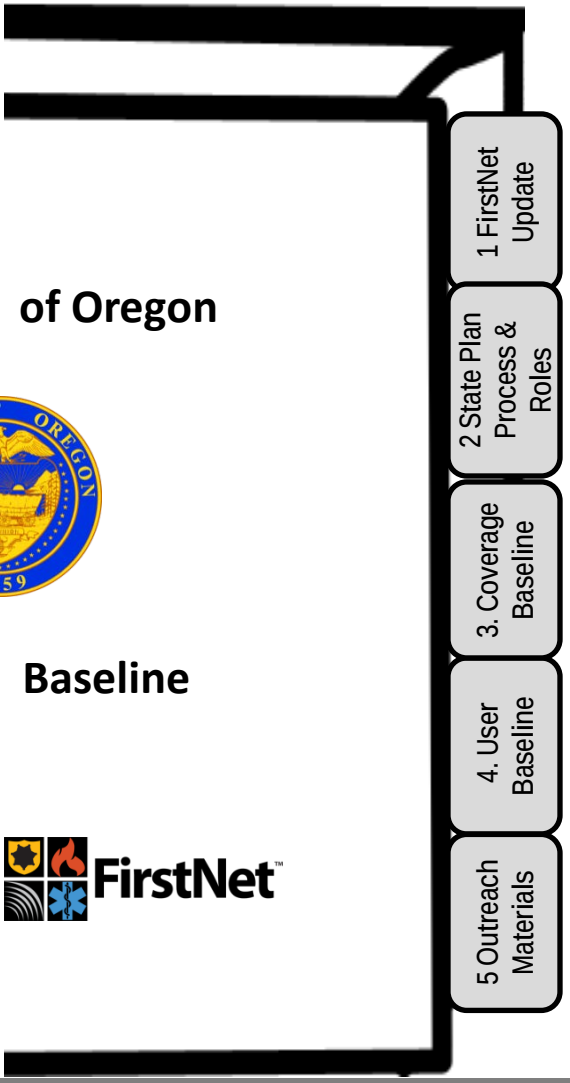
Initial Consultation – Baseline State Analysis (BSA) Getting Ready for Consultation



FirstNet to provide SPOCs with key information in the form of a BSA, including:

- Updated information on FirstNet progress to date
- High level process flow including stakeholder and FirstNet roles and responsibilities
- FirstNet preliminary coverage objective map for the state
- FirstNet collected information on primary responders in the state for verification
- FirstNet materials that can be used/customized by the state

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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:

Example

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

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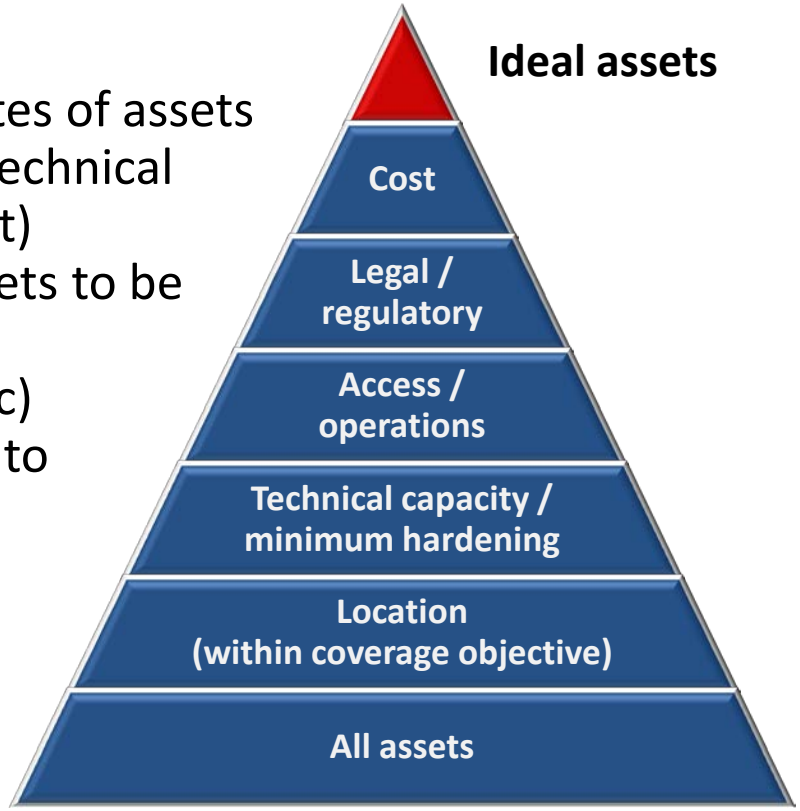
Asset Identification & Selection (Aligned with SLIGP Phase 2)

- 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



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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

Preliminary Design Review	Intermediate Design Review	Critical Design Review
Based on coverage and users from BSA response Preliminary infrastructure estimates	Incorporates revisions from preliminary review Targets best value sites from asset data collection Incorporates RFP/ partnering information	Incorporates revisions from intermediate review Includes tradeoffs/ prioritization based on state business plan

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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

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Final State Plan

- 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

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Public Safety Grade

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FirstNet: A Public Safety Grade Network

Cell tower technicians inspect generators that were burned north of Kandahar. The site is owned by mobile service provider Roshan.

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Working Together

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"

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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

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Resiliency

- 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

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Questions

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