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

Fulfill Our Public Safety Mandate

Be Judicious with Taxpayer Funds

Build the FirstNet Business Foundation

January 22, 2014

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Network Build Considerations
Challenges: Coverage

- 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

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

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

27% of U.S. Land Mass 68% of U.S. Land Mass 5% of U.S. Land Mass
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
# Device Considerations

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

<table>
<thead>
<tr>
<th>Device Considerations</th>
<th>Portables</th>
<th>In-Vehicle Routers</th>
<th>Specialized</th>
<th>Accessories</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Device Types</strong></td>
<td><img src="image1" alt="Portables" /></td>
<td><img src="image2" alt="In-Vehicle Routers" /></td>
<td><img src="image3" alt="Specialized" /></td>
<td><img src="image4" alt="Accessories" /></td>
</tr>
<tr>
<td><strong>Category Driver</strong></td>
<td>Build out to gain economies of scale</td>
<td>Special operational needs</td>
<td>Unique uses</td>
<td></td>
</tr>
</tbody>
</table>
| **Function**          | • Smartphone  
• Tablets  
• Modems  
• Routers  
• Hotspots  
• Consoles  
• Drones  
• Portable repeaters  
• Rovers | ![Function](image5) | ![Function](image6) |
| **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 | ![Connectivity](image7) | ![Connectivity](image8) |
| **Location Enabled**  | Yes | Yes | Some | n/a |
| **Band 14 Support**   | 2014 | 2013/2014 | 2015+ | n/a |
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 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

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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
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

Federal Input (ECPC)
- Federal Responders
- Federal Infrastructure Owners

Industry Input (RFP / Partnering)
- NGOs
- Utilities
- Commercial

State Plan

Governor’s Decision
- Users
- Coverage
- Assets

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Defining the Process

1) Initial Consultation
   (Aligned with SLIGP Phase 1)

2) Asset Identification & Selection
   (Aligned with SLIGP Phase 2)

3) State RAN Design
   (Iterative Design Reviews)

4) State Operations
   (National Template Customized by State)

5) Final State Plan
   (Presented to Governor)

State Consultation

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

1. FirstNet Update:
   - Updated information on FirstNet progress to date

2. State Plan Process & Roles:
   - High level process flow including stakeholder and FirstNet roles and responsibilities

3. Coverage Baseline:
   - FirstNet preliminary coverage objective map for the state

4. User Baseline:
   - FirstNet collected information on primary responders in the state for verification

5. Outreach Materials:
   - FirstNet materials that can be used/customized by the state
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
### 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

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Based on coverage and users from BSA response</td>
<td>Incorporates revisions from preliminary review</td>
<td>Incorporates revisions from intermediate review</td>
</tr>
<tr>
<td>Preliminary infrastructure estimates</td>
<td>Targets best value sites from asset data collection</td>
<td>Includes tradeoffs/prioritization based on state business plan</td>
</tr>
<tr>
<td></td>
<td>Incorporates RFP/partnering information</td>
<td></td>
</tr>
</tbody>
</table>
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
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
Public Safety Grade
Working with the PSAC and the public safety community at large, we will define what “public safety grade” means.

<table>
<thead>
<tr>
<th>FirstNet Attribute</th>
<th>Defining Public Safety Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coverage</td>
<td>“Where public safety needs it” (Geographic)</td>
</tr>
<tr>
<td>Reliability</td>
<td>“You can count on it”</td>
</tr>
<tr>
<td>Resiliency</td>
<td>“Multiple back-up options”</td>
</tr>
<tr>
<td>Emergency Communications</td>
<td>“Your trusted resource”</td>
</tr>
<tr>
<td>Group Communications</td>
<td>“Essential to teamwork”</td>
</tr>
</tbody>
</table>
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
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
Questions

www.firstnet.gov