

***Overview of  
National Public Safety  
Broadband Network, formally  
known as D-Block, now called  
FirstNet***

February 2014





# ***Introduction to FirstNet***

- FirstNet will be the first nationwide, high-speed wireless, broadband data network dedicated to public safety.
- This new network will be public safety-grade, providing access to applications and coverage where public safety needs it most.
- FloridaNet will be the state version of this network and is expected to provide an interoperable, state-wide, public safety data network linking public safety agencies across the state.
- Agencies benefiting from FloridaNet will likely include law enforcement, emergency management, fire service, public works, health, Tribal public safety agencies, emergency medical services, and others.



# *Introduction to FirstNet*

- The first high-speed wireless, broadband network dedicated to public safety
- Ensures seamless communication for public safety use
- Dedicated network was a recommendation of the 9/11 Commission (D-Block)
- U.S. Dept. of Commerce is lead federal agency
- Congress has allocated \$7 Billion for the build-out
- 15 member FirstNet Board created to run process within Dept. of Commerce.
- Florida has been awarded \$4.9 Million through a State and Local Implementation Grant. Grants are to assist states with planning efforts.



## ***What Will Be Possible with FirstNet?***

- FirstNet will be used to send data, video, images and texts as well as make non-mission critical voice calls.
- FirstNet will not replace Florida's Land Mobile Radio System (e.g. SLERS).
- Users will get larger bandwidth and faster access to information they need to meet their mission.
- Unlike commercial wireless networks, FirstNet will allow for priority access among public safety users.
- New applications, appliances and technologies for first responders are developed or will be developed

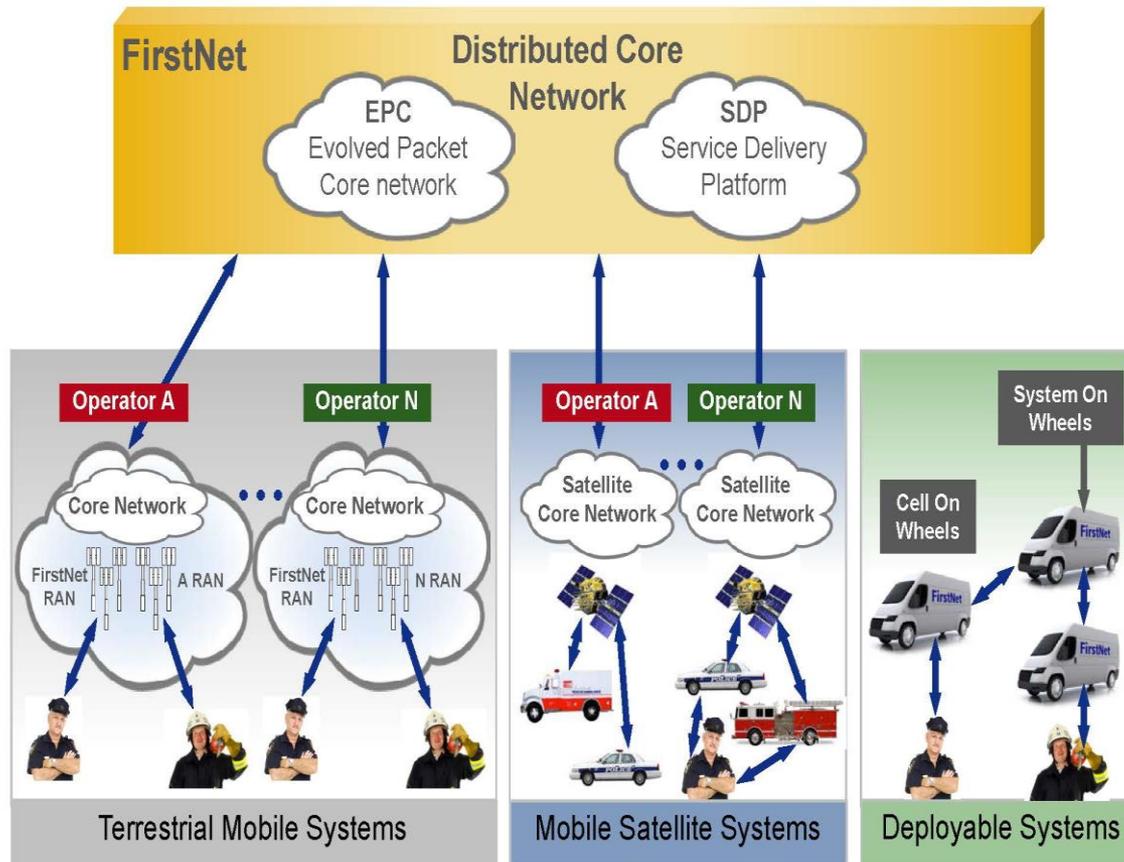


# LTE 101

- Long-Term Evolution = Worldwide wireless broadband standard
- Same standard used by Verizon, AT&T, and most other carriers
- Bigger market = better technology & price (compare to P25)
- Data, NOT mission-critical voice (at least for a long while)
- Will not replace LMR in the near-to-medium term
- Three parts
  - Core – owned run by FirstNet
  - Devices – responsibility of agencies/users
  - Broadband Access Network (BAN) – opt in vs. op



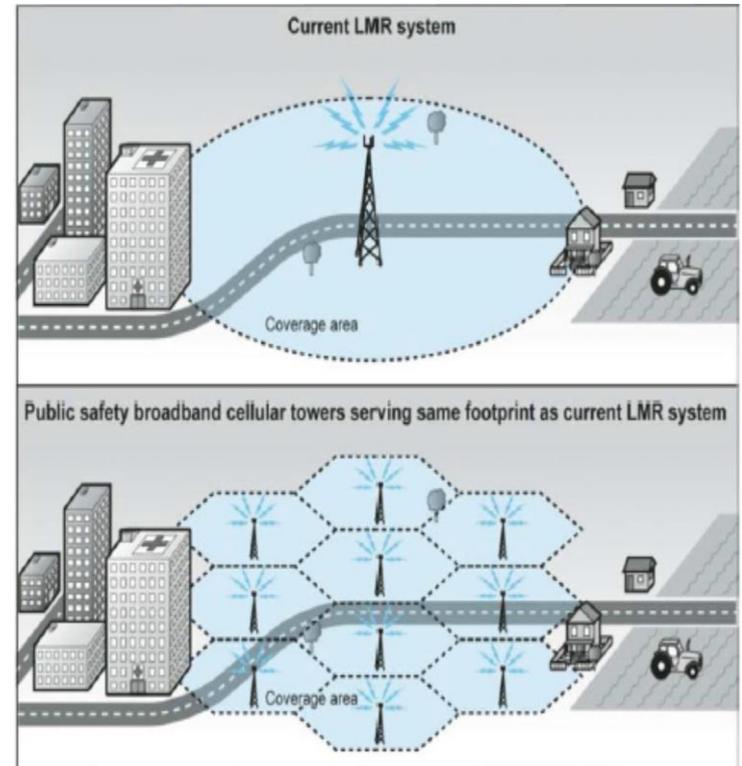
# Possible FirstNet Architecture



Devices

# LTE vs. LMR

- **LTE – less coverage per tower than LMR**
- **LTE – larger antennas on the tower than LMR**
- **Capacity increase**
  - LMR – add frequencies
  - LTE – add sites
- **Performance vs. distance**
  - LMR – you can understand or you can't
  - LTE – data rates drop as you get farther from tower



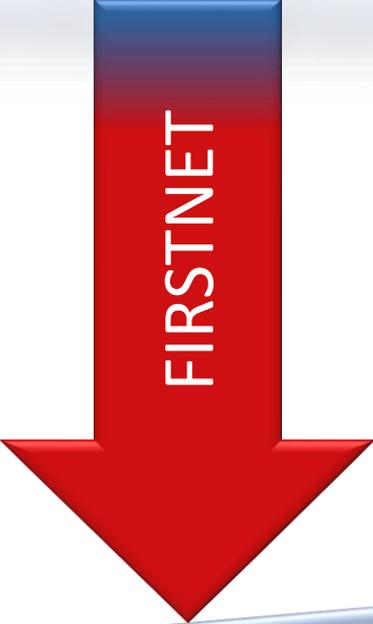
Source: GAO.



# Other Issues

- **Apps**
  - Will open possibilities from creative people
  - Will be able to access general Internet as required
- **Profiles**
  - Profile should reside in network, not on device
  - Profile can include priorities, skills, etc.
- **Hardening**
  - Florida hardening (hurricanes) will be different than California (earthquakes)
- **Cybersecurity**
  - Must protect public safety data!
  - Large focus from Federal level

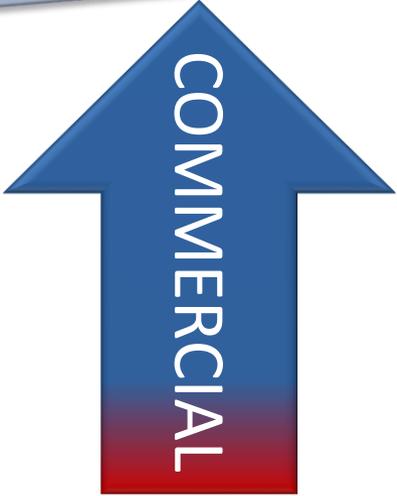
# NO COMMERCIAL PARALLEL TO FIRSTNET



FIRSTNET

- Created by law
- \$2 billion funded **without plan, board** or management team
- **Mandated** Initiatives
- Empowers states to **opt-in or opt-out**
- **Geographic coverage requirements**
- **Public safety economics** coupled with finite number of users
- Start-up **constrained by government realities; e.g.,** hiring process, procurement process , pay scale.

- 
- Created by market need
  - Funding dependent on **plan and management experience**
  - Time-to- market and **customer driven initiatives**
  - **Defined competitive playing field** to gain customers
  - **Capacity** and financially viable user coverage
  - **Entrepreneurial** spirit, energy and incentive alignment



COMMERCIAL



# *Key Understandings*

## VISION & GUIDING PRINCIPLES

**FirstNet will provide dedicated spectrum, a single technology and funding to create a nationwide network dedicated to public safety.**



### Public Safety Effectiveness

- Dynamic Priority Access
  - Force Multiplier

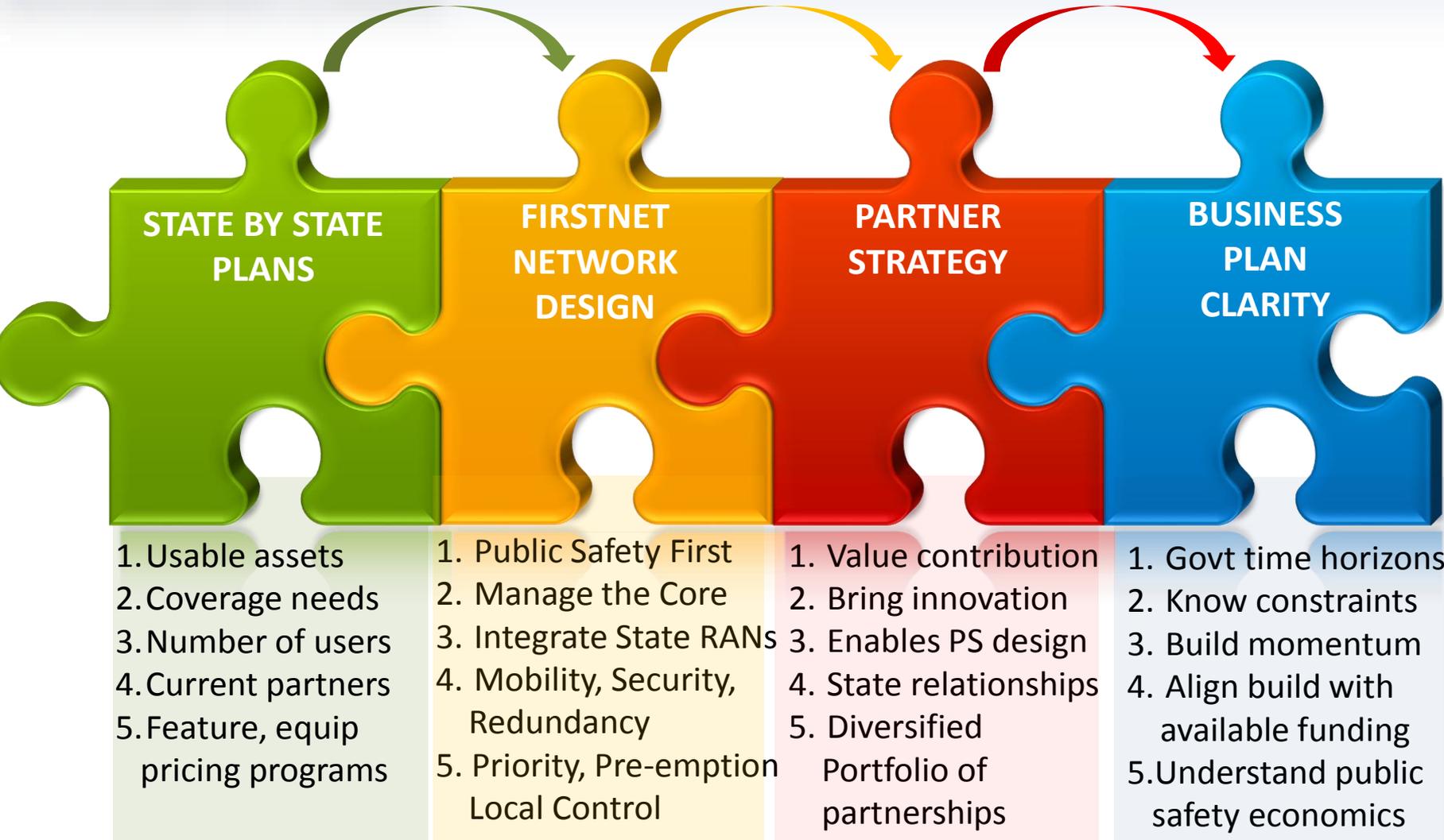
### Public Safety Grade

- Reliable
- Hardened
- Redundant
- Security

### Public Safety Applications

- 4G data for video and web
- Non mission-critical voice

# BUSINESS PLAN



# MULTIPLE PARTNERSHIPS

Strong Partnerships are important ensure optimal value creation for FirstNet



Wireless Network Operator Partner (s)



Supplier, Infrastructure Owner/Equity Investment Partner(s)



Federal  
State  
Local

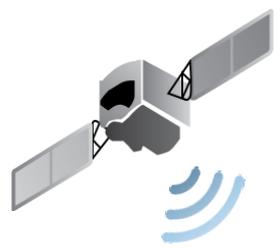
FirstNet,  
Federal, State,  
Stakeholder  
Asset Partner(s)

- Fulfill Public Safety Requirements
- Value Contribution
- Achieve Nationwide Interoperability and Coverage
- Control and Governance
- Contractual Terms & Pricing

Preferred path(s)

# GEOGRAPHIC COVERAGE PRIORITY

Multiple network coverage solutions operating across 5 distinct geographic categories



**Wilderness**  
27% of U.S. Land Mass

**Rural**  
68% of U.S. Land Mass

**Suburban**   **Urban**   **Dense Urban**  
5% of U.S. Land Mass

# FIRSTNET REGIONAL STRUCTURE

The FirstNet operational outreach model aligns with 10 FEMA regions.



- 10 Regional Teams**
- Work through the State POCs**
- Reach into cities and other localities**
- Current Focus: State consultation**
- Future Focus:**
  - Solution sales
  - Support
  - Account Management
  - Outreach
  - Education and training

FEDERAL  
TEAM

TRIBAL  
TEAM

- 2 Nationwide Teams**
- Gather input and requirements**
- Serve users**

# 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"> <li>• Smartphone</li> <li>• Tablets</li> <li>• Modems</li> </ul>	<ul style="list-style-type: none"> <li>• Routers</li> <li>• Hotspots</li> <li>• Consoles</li> </ul>	<ul style="list-style-type: none"> <li>• Drones</li> <li>• Portable repeaters</li> <li>• Rovers</li> </ul>	<ul style="list-style-type: none"> <li>• Ruggedized cases</li> <li>• Battery packs</li> <li>• Chargers, mics.</li> </ul>
Connectivity	<ul style="list-style-type: none"> <li>• LTE, CDMA, HSPA</li> <li>• LMR/ P25</li> <li>• Wi-Fi, Bluetooth</li> <li>• Direct mode</li> </ul>	<ul style="list-style-type: none"> <li>• LTE, CDMA, HSPA</li> <li>• Wi-Fi</li> <li>• Ethernet</li> <li>• USB</li> </ul>	<ul style="list-style-type: none"> <li>• LTE, CDMA, HSPA</li> <li>• LMR/ P25</li> <li>• Satellite repeaters</li> <li>• Location services</li> </ul>	<ul style="list-style-type: none"> <li>• Bluetooth</li> <li>• USB</li> <li>• WiFi</li> </ul>
Location Enabled	Yes	Yes	Some	n/a
Band 14 Support	2014	2013/2014	2015+	n/a

# COMPLIMENTING 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



# 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.**

# 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 known
- 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

**This process will begin with FirstNet communicating to states about the process, roles, and responsibilities; states will be asked to validate and enhance (not recreate) existing information.**

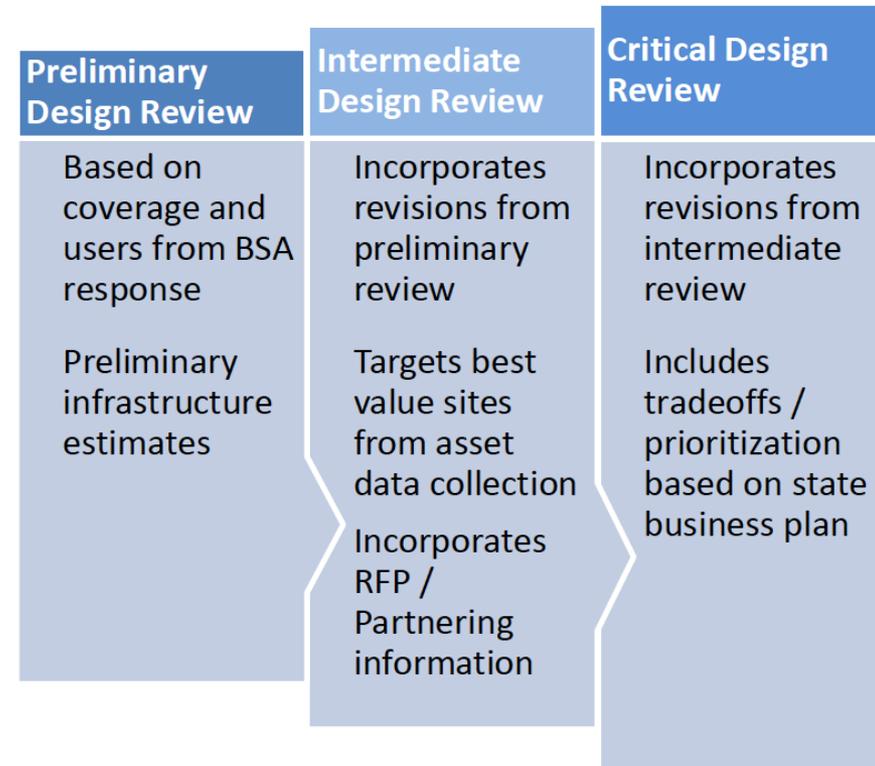
# 3 - STATE RAN DESIGN PROCESS

## 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 Principle

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



# 4 - 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 Principles

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



# 5 - 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

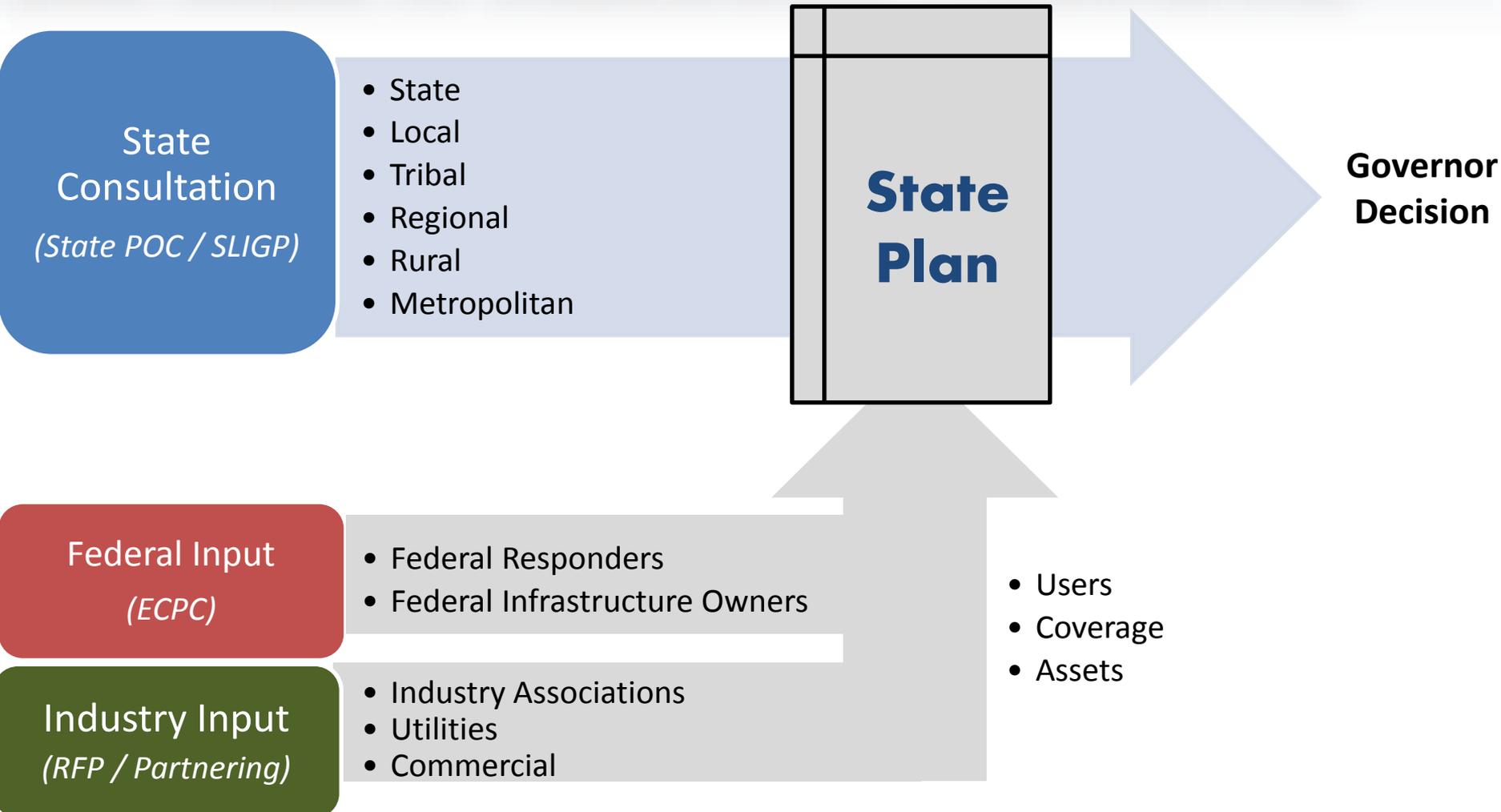
- Address areas of consultation required by law
- Ensure public safety stakeholders have had robust involvement before state plan is presented

## State Plan Requirements

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

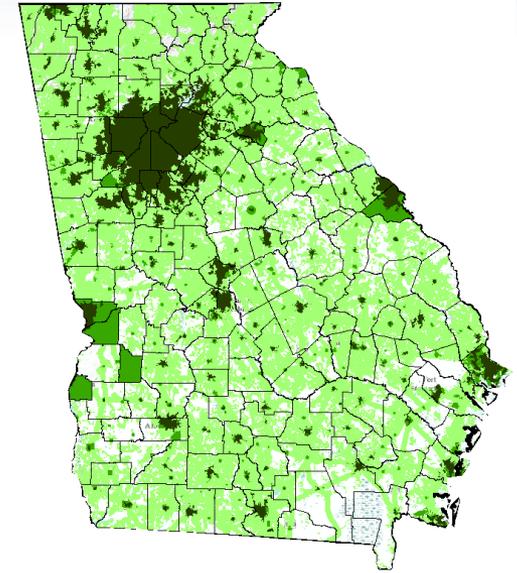


# WIDE RANGE OF STAKEHOLDER CONSULTATION



# DEFINING COVERAGE OBJECTIVES

- FirstNet will provide a GIS map showing proposed coverage objectives in four major categories:
  - In Building
  - Handheld / Partial In-Building
  - Vehicular Modem / Partial Handheld
  - Satellite / Deployable
- States will provide updated coverage objectives through an updated GIS file
- States will be encouraged to gather input from all, local, state, and tribal agencies
- Voluntary OEC Coverage Workshops can help states get an early start and better understand this process
- Coverage objectives will be used to focus subsequent SLIGP Phase 2 data collection
- Parallel effort will occur with Federal agencies through federal outreach via ECPC



## Coverage Baseline Example

- In-Building
- Handheld/Partial In-Building
- Vehicular Modem/ Partial handheld
- Satellite/Deployable

# IDENTIFYING POTENTIAL USERS

- FirstNet will provide User baseline data (as available) for primary responders in each State to include:
  - Number of agencies by discipline
  - Number of personnel by discipline
  - Detailed agency user database
- FirstNet will also provide potential categories of secondary responders for consideration by the State with guidance provided from PSAC
- States will provide updated data on primary responders and estimated user counts for secondary responder groups whom they believe should be eligible users on the network
- Parallel effort will occur with Federal agencies through Federal Outreach via ECPC
- Voluntary OEC workshops will provide this baseline data as part of the delivery.
- Data will be used to support subsequent data collection during SLIGP phase 2, as well as inform capacity planning



# 2 - ASSET IDENTIFICATION & SELECTION

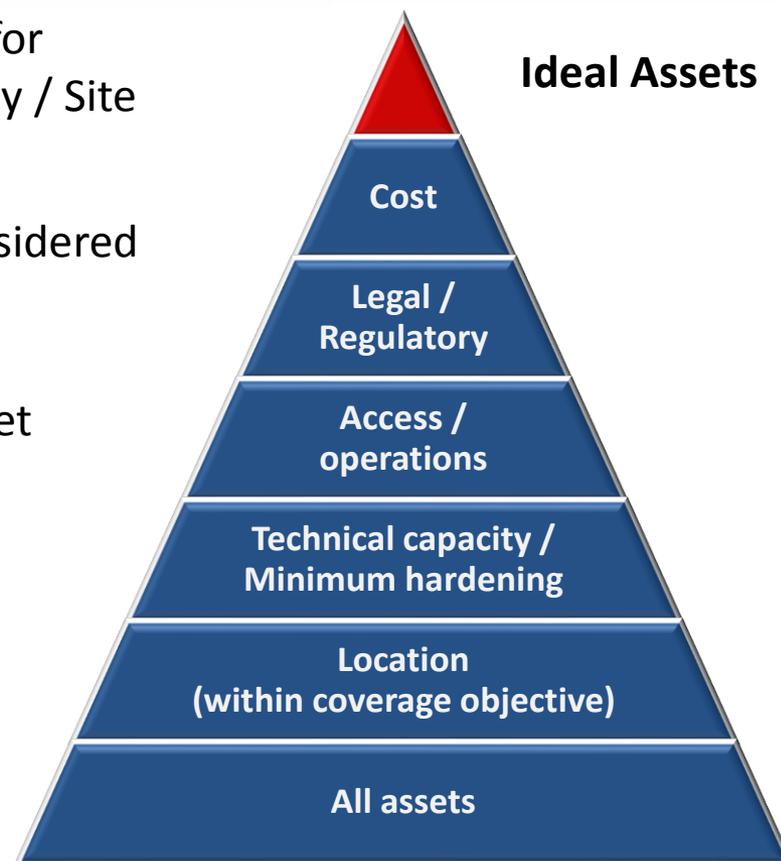
*(Aligned with SLIGP Phase 2)*

## 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 & public)
- Select assets based solely on best value to the FirstNet network

## Guiding Principle

- 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





## *Key Understandings*

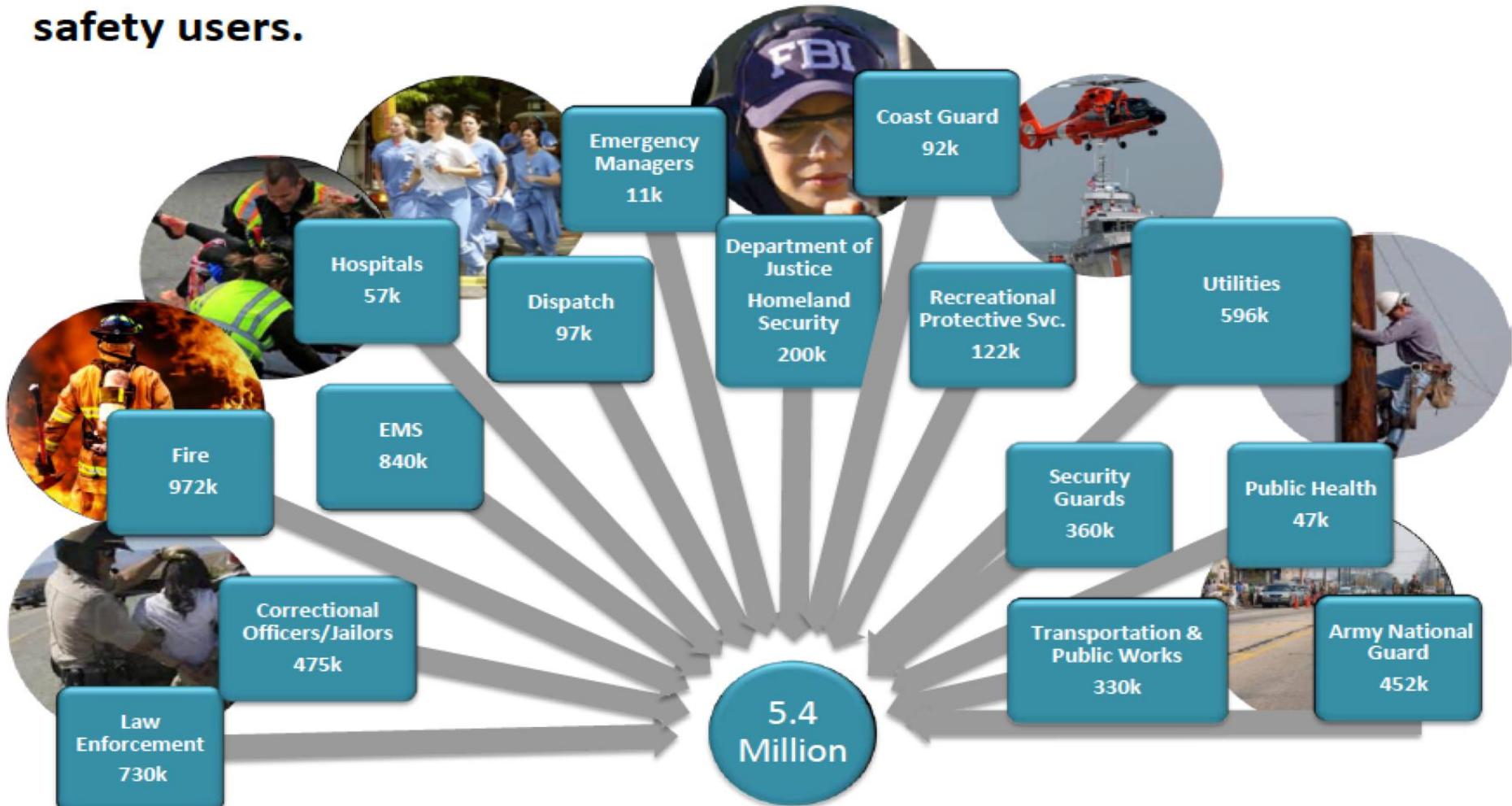
- Given the spectrum's value, excess capacity will be leased to the commercial sector to underwrite the public safety build-out.
- This will facilitate FirstNet partnering with the private sector but does not require piggy-backing on the private sector network.
- FirstNet will be a dedicated service. Priority and management will be given to and driven by public safety (local control).



# Key Understandings

## VISION & GUIDING PRINCIPLES

FirstNet has the potential to support a broadly defined set of public safety users.





# ***How Will FirstNet Work?***

## **How will states and agencies participate in the build out of FirstNet?**

- ✓ To make FirstNet a nationwide network, all states must have a local broadband access network (BAN) that connects to the FirstNet core.
- ✓ The FirstNet core is a common data sharing architecture.
- ✓ 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 BAN deployment plan.

## **What will users pay for FirstNet services?**

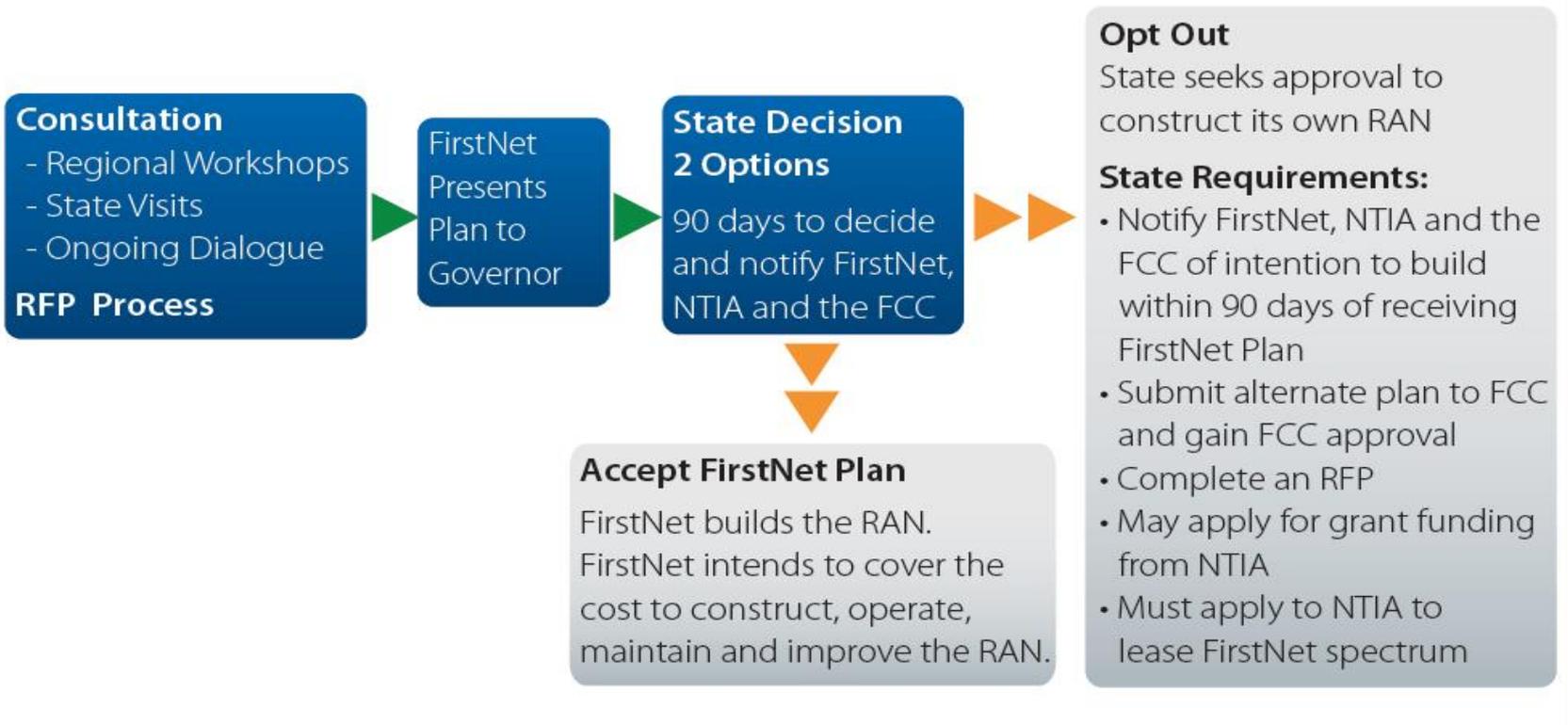
- ✓ FirstNet intends to offer services at a compelling and competitive cost to attract millions of public safety users and make FirstNet self-sustaining.
- ✓ The use of FirstNet services and applications will be voluntary.
- ✓ The costs for FirstNet services and devices have not yet been set.



# State Decision Process

## State Decision Process

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





# ***State Decision Process – Funding the Build-Out***

## **OPT-IN**

- State accept FirstNet Plan;
  - ✓ FirstNet builds the BAN.
  - ✓ FirstNet intends to cover the cost to construct, operate, and maintain and improve the BAN.

## **OPT-OUT**

- If the state's plan is approved by the FCC, the state may apply for grant funding from NTIA.
- To obtain federal funding to construct a BAN, a state must:
  - ✓ Demonstrate the technical capability to operate and fund the BAN;
  - ✓ Maintain ongoing interoperability with the FirstNet network;
  - ✓ Complete the project within specified comparable timelines;
  - ✓ Execute its plan cost effectively; and
  - ✓ Deliver security, coverage and quality of service comparable to the FirstNet network



## ***Next Steps***

- Begin State Consultation Process between FloridaNet and FirstNet
- Get data collection requirements from FirstNet (Available March)
- Get FirstNet preliminary coverage maps and business models (Available April)
- Continue coordinating with Southeastern States (8 - FEMA Region 4 States) on border coverage, priorities, application development, and other regional issues