



Initial Consultation Meeting

Working together to bring broadband to Public Safety Entities



May 21, 2015
Boise, Idaho

Initial Consultation Goals



 <p>Strengthen Our Relationship</p>	 <p>Provide FirstNet Updates</p>	 <p>Learn about Idaho's Unique Needs</p>	 <p>Discuss Next Steps</p>
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← Meeting Goals →

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First Responder Communications



Non-Mission Critical **The Current State** *Mission Critical*



Commercial LTE Service / Devices



Data **Voice**

Land Mobile Radio (LMR) for Public Safety



Voice

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First Responder Communications



Non-Mission Critical **The Near-Term Vision** *Mission Critical*

FirstNet will ensure that emergency responders are provided with the first nationwide, high-speed, wireless broadband network dedicated to public safety



FirstNet[®] LTE Service / Devices



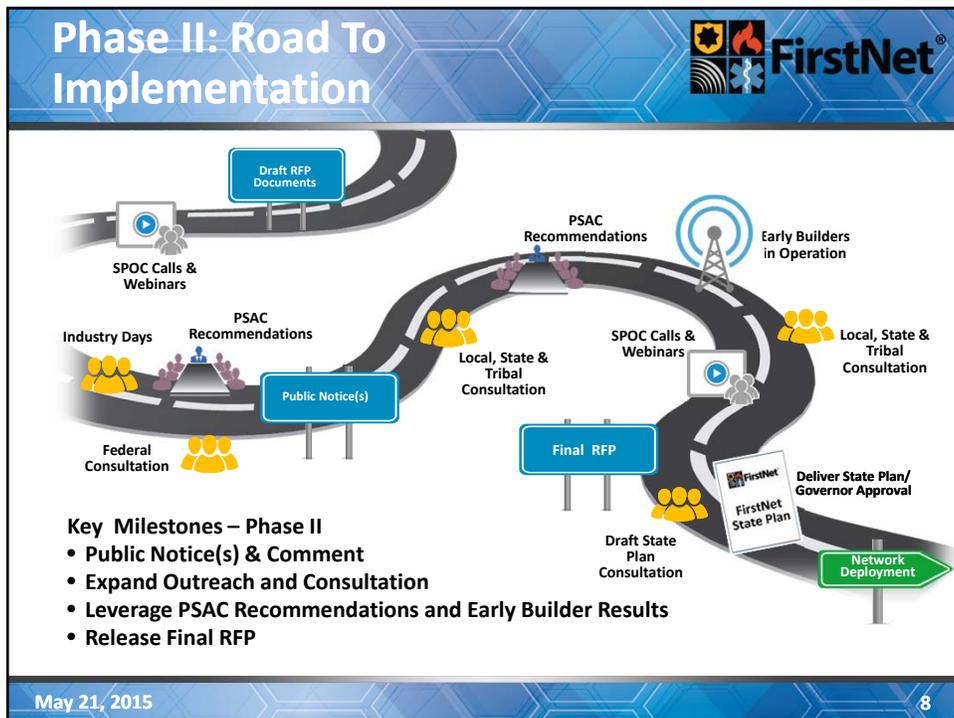
Data **Voice**

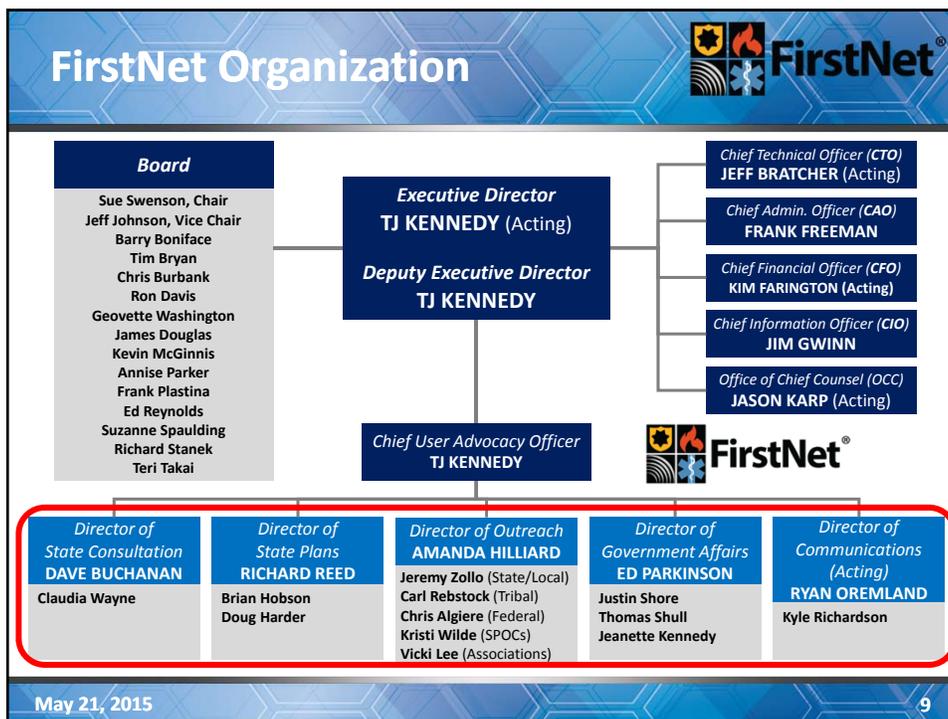
Land Mobile Radio (LMR) for Public Safety



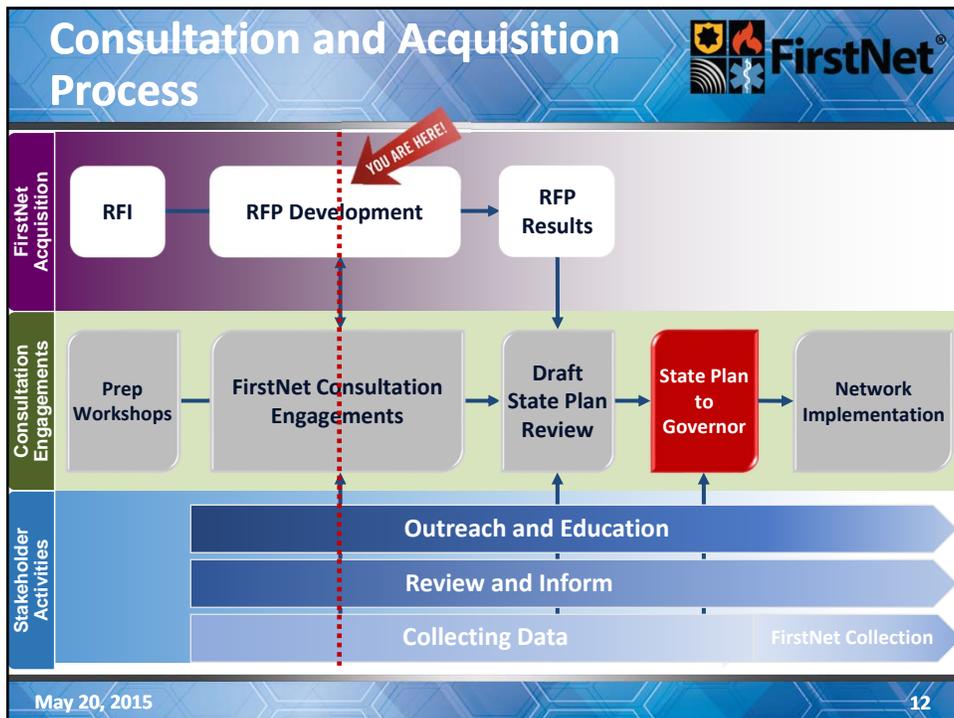
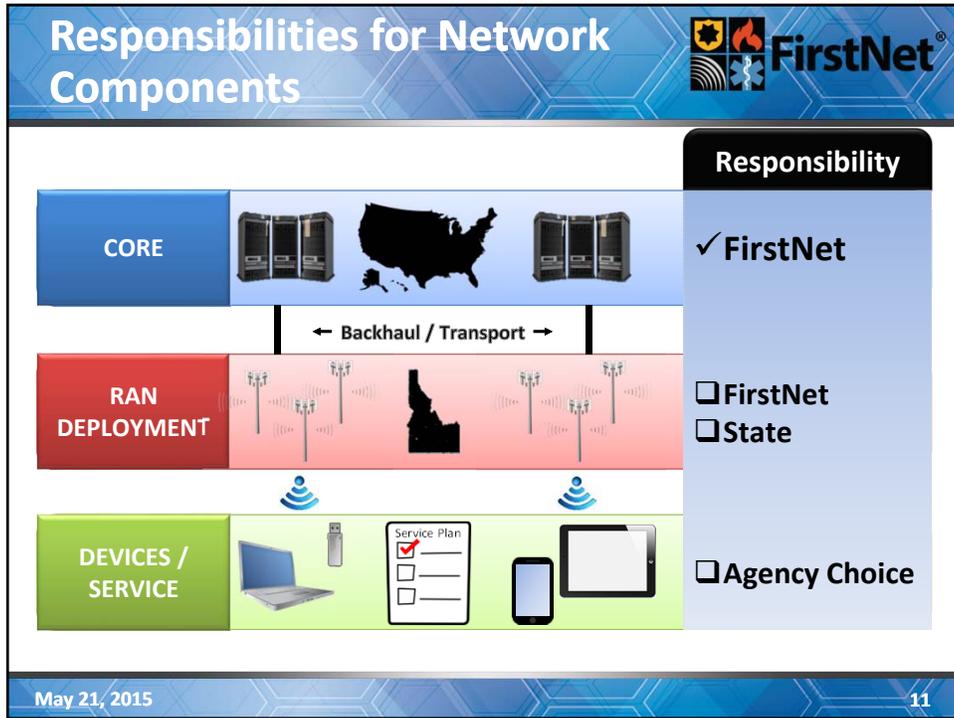
Voice

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FIRSTNET NATIONWIDE STRATEGY



Need Inputs to Get Answers



Plan Options



Training

Data Usage



Users

FirstNet Consultation

Deployables  Hardening 

Security  Coverage Objectives  Devices 

Applications



Prioritization

Core Network



Self-Sustaining Network

Excess Capacity Revenue

\$7B

Fees

Operations & Maintenance Costs

PS Features
Priority, Security, Hardening, etc.

Hardening Costs



Available Devices

Deployment Schedule 

Core Design

Cost Estimates 

Baseline Coverage

Adoption Estimates 

Excess Capacity Valuation



FirstNet Acquisition

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Leveraging an Evolving Landscape





Aggregate LTE Coverage 3Q 2014

99.3% of population covered by LTE

Network Intelligence Provided by Mosaik SOLUTIONS

All coverage illustrated is derived from public information provided by terrestrial mobile operators. Not all operators choose to market coverage information. Standards for coverage representation vary among operators. Mosaik Solutions provides no warranty to the accuracy of the data. Analysis reflects 2010 U.S. Census Data.
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PUBLIC SAFETY NEEDS

- ✓ Dedicated Spectrum
- ✓ Priority / Preemption
- ✓ Public Safety Grade
- ✓ Cybersecurity
- ✓ Public Safety Applications

LEVERAGING INDUSTRY

- ✓ Existing Infrastructure
- ✓ Built & Maintained
- ✓ Global Standard
- ✓ Interoperability
- ✓ Economy of Scale

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Why Leverage Industry?



- Follow the marketplace to leverage economies of scale and keep costs low
- Commercial service providers lease sites from large tower companies
 - Site Management is their business
 - Tools and services in place for site acquisition
 - Some own 10,000s of sites
- An LTE RAN site has high demands
 - Multiple, large antennas
 - High bandwidth connectivity requirements
- RAN share options are attractive to share costs and speed deployment times
- Public Safety Grade requirements will be addressed when economically feasible



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FirstNet Spectrum – A Valuable Resource



- FirstNet is the license holder for Public Safety's Broadband allocation – **Band Class (BC) 14**
- Commercial Carriers also operate in several bands outside of 700 MHz

BC 17		BC 17		BC 17		BC 12	BC 13	BC 14	LMR	BC 13	BC 14	LMR	
AT&T	Dish	AT&T	Verizon	PS Broadband	Verizon	PS Broadband	Verizon	PS Broadband	Verizon	PS Broadband	PS Narrowband	PS Narrowband	
UL	UPLINK	DL	DOWNLINK	DOWNLINK	DOWNLINK	DOWNLINK	DOWNLINK	DOWNLINK	UPLINK	UPLINK	PS Narrowband	PS Narrowband	
6 MHz	12 MHz	6 MHz	12 MHz	11 MHz	10 MHz	6 MHz	11 MHz	10 MHz	6 MHz	10 MHz	6 MHz	6 MHz	
												↑ 1 MHz Guard Bands	

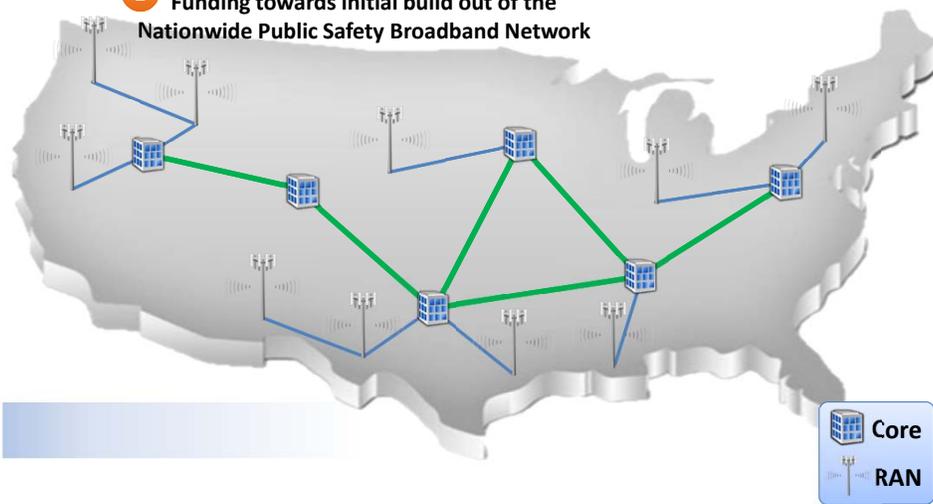
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Revenue, Architecture & Priority



1 Funding towards initial build out of the Nationwide Public Safety Broadband Network

1. \$7B Initial Funding from Auction Proceeds



 Core
 RAN

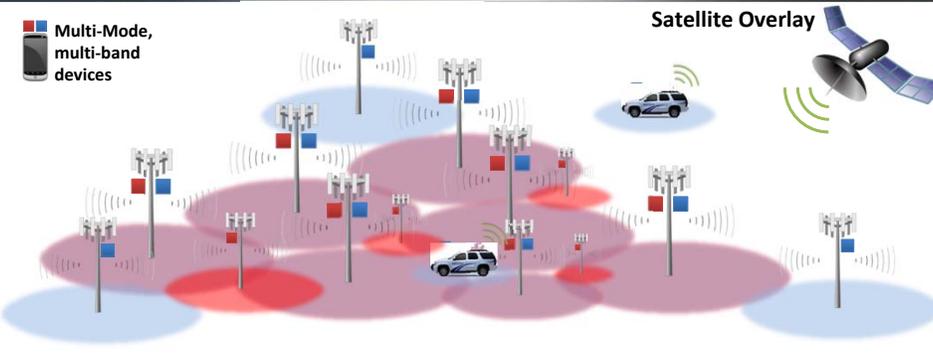
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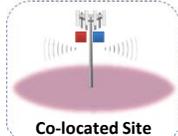
Conceptual Design Approach



 Multi-Mode, multi-band devices

 Satellite Overlay





Co-located Site



FirstNet RAN Only



Existing RAN Only

■ = FirstNet RAN (Band 14)

■ = Existing RAN (Band ??)

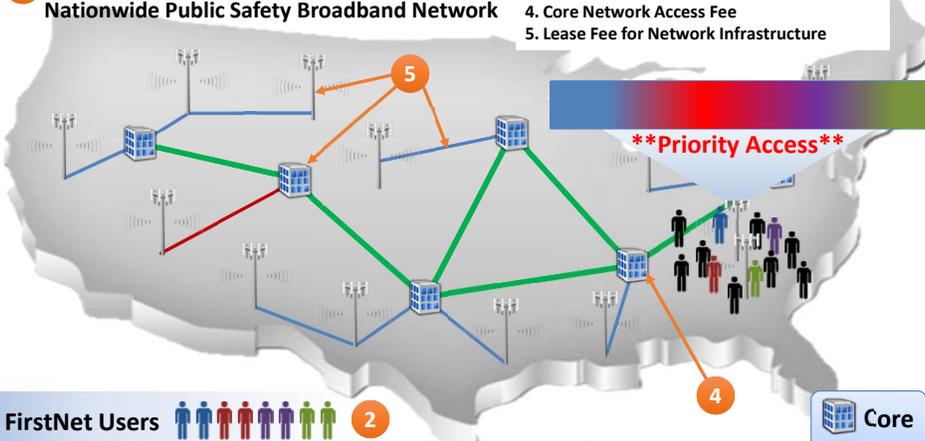
⤴ = Satellite Overlay

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Revenue, Architecture & Priority



1. \$7B Initial Funding from Auction Proceeds
2. Network User Fee (Service Plan)
3. Lease Fee for Excess Network Capacity
4. Core Network Access Fee
5. Lease Fee for Network Infrastructure



FirstNet Users  2

Commercial Customers of Secondary User  3



Core
RAN

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The FirstNet Opportunity



$$\begin{matrix}
 \text{\$7B} & + & \text{Fees} & + & \text{Synergies} & + & \text{Excess Network Capacity} & - & \text{Costs} & = & \text{Financial Sustainability}
 \end{matrix}$$

Contract Award
For illustrative purposes only. Not to scale.
End of Contract

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Rural Deployment



Requirements of the Act

"...shall require deployment phases with substantial rural coverage milestones as part of each phase of the construction and deployment of the network"

- State Consultation Topic – identifying coverage objectives and inputs on a phased deployment

Potential Technical Options

- High power ("boomer") sites
- High power devices
- Deployable solutions (including SATCOM)



Fiscal Approach

Nationwide Reinvestment of Revenues

(As proposed in 2nd public notice)



Contractual Measures

- Considering RFP incentives for rural
- Network policies with partner(s) to evaluate existing infrastructure beyond initial deployment

Note: The definition of rural does not determine coverage, our resources will determine coverage. The definition of rural will be used to measure whether substantial rural milestones have been included in each phase of deployment. Being included in the definition of rural does not guarantee coverage, nor does being excluded from it deny coverage.

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FIRSTNET Acquisition Strategy



FirstNet Released a Special Notice with Draft Documents

- FirstNet is working to maximize feedback and input through the acquisition process
- The Special Notice contains instructions for industry and Public Safety to provide feedback around:
 - FirstNet’s approach to serving public safety
 - Deployment and operation of the network
 - Early collaboration and teaming







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Statement of Objectives

<ul style="list-style-type: none">  Build, Deploy, Operate and Maintain the NPSBN  Financial Sustainability  Compelling and Competitively Priced Services  Device Ecosystem  Application Ecosystem  Accelerate Speed to Market  User Service Availability  Service Capacity 	<ul style="list-style-type: none">  Cyber Security  Priority Services  Integration Of Opt-out State RANs  Integrate Existing State /Local /Commercial/Federal Infrastructure To Support NPSBN Services  Lifecycle Innovation  Program and Business Management  Customer Care and Marketing  Facilitate FirstNet’s Compliance With the Act and Other Laws
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Technical Documents Released with the Special Notice

- Within the SOO, key technical objectives are outlined with regard to coverage, service availability, and key public safety features

C: Statement of Objectives

- Coverage objectives maps in both image format and shape files. Coverage priorities are shown in a 1 mile grid.

C-1 Coverage Objectives

- Formally titled "Recommended Minimum Technical Requirements to Ensure Nationwide Interoperability for the NPSBN"

C-3 FCC-TAB

- SV-1 is systems/services interfaces
- StdV-1 technical standards description of interfaces at IOC-1

C-4 System and Std View

- Detailed description of the architecture and standards that the NPSBN must include at FOC

C-5 Standard View StdV-2

- Monitors perf. metrics to ensure offerors meeting objectives of final contract
- Draft limited to representative metrics

C-6 QASP

- High level summary of operational architecture for NPSBN
- Notes FirstNet and contractor responsibilities

C-7 Oper. Architecture

- Timeline for FirstNet features and functionalities
- Correlates with the 3GPP release timelines
- Phases of deployment

C-8 IOC/FOC Timeline

- Illustrative use cases
- Outlines scenarios that highlight features, functions, and operational responsibilities

C-9 Use Cases

- Defines acronyms and key terms used throughout the RFP

Terms of Reference

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The Special Notice Identifies Potential Nationwide and Regional RAN Approaches

PROPOSED ACQUISITION APPROACH

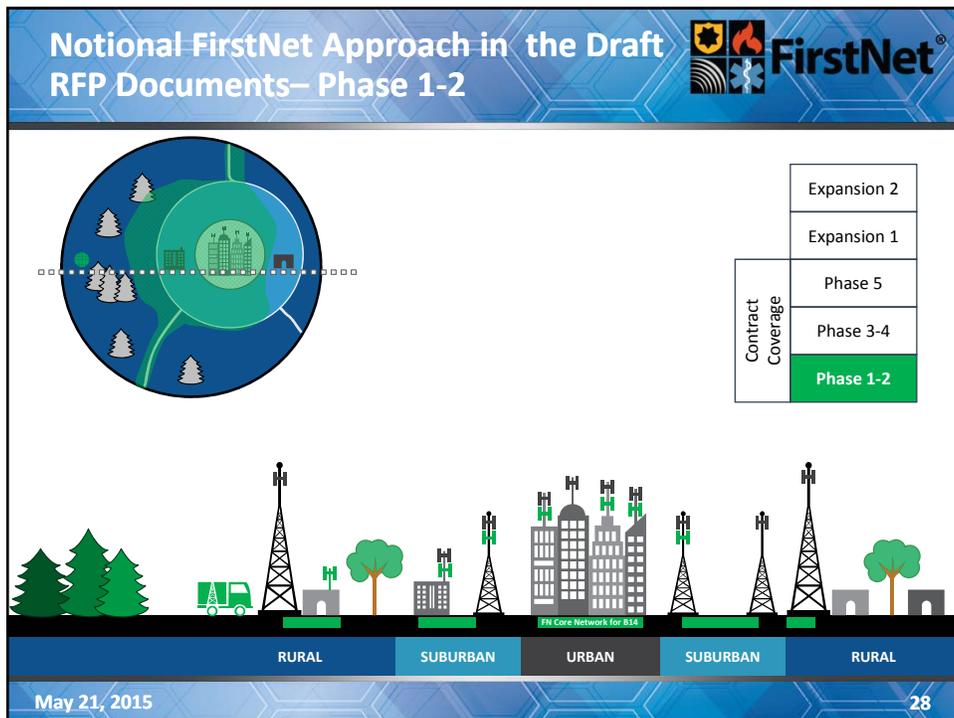
Nationwide Proposal Category 1

Nationwide Core Network													CLA	CLA	
Covered Leasing Agreements (CLA)													RAN	RAN	
Radio Access Network (RAN)													State	State	
State	State	State	State	State	State	State	State	State	State	State	State	State	Terr.	State	State
CLA			CLA			CLA			CLA			CLA			
RAN			RAN			RAN			RAN			RAN			
State	State	State	State	State	State	State	State	State	State	State	State	State	Terr.		

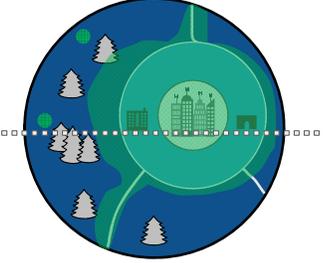
Regional RAN Proposal Category 2

State	State	State	State	Terr.
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Notional FirstNet Approach in the Draft RFP Documents— Phase 3-4



Contract Coverage	Expansion 2
	Expansion 1
	Phase 5
	Phase 3-4
	Phase 1-2

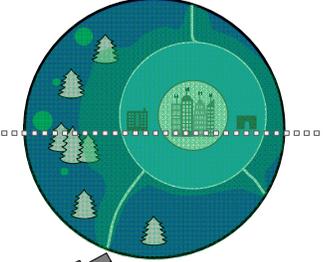


FN Core Network for B14

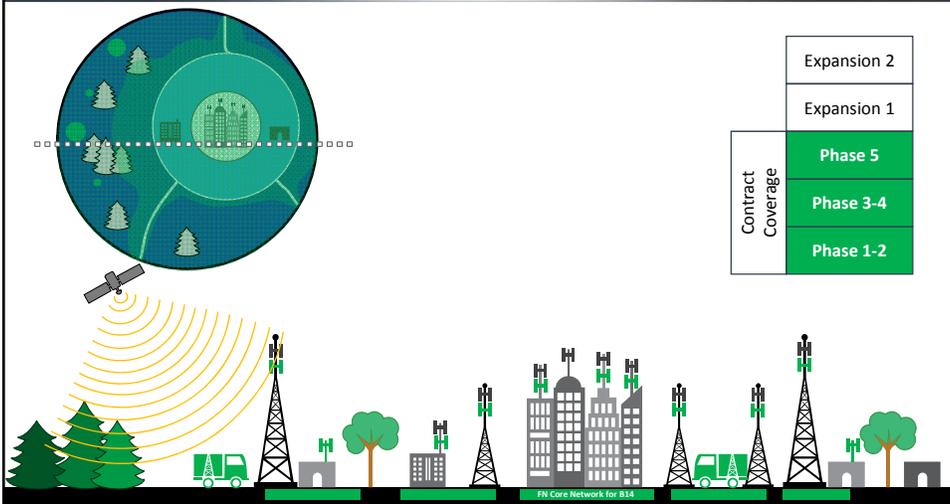
RURAL
SUBURBAN
URBAN
SUBURBAN
RURAL

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Notional FirstNet Approach in the Draft RFP Documents— Phase 5



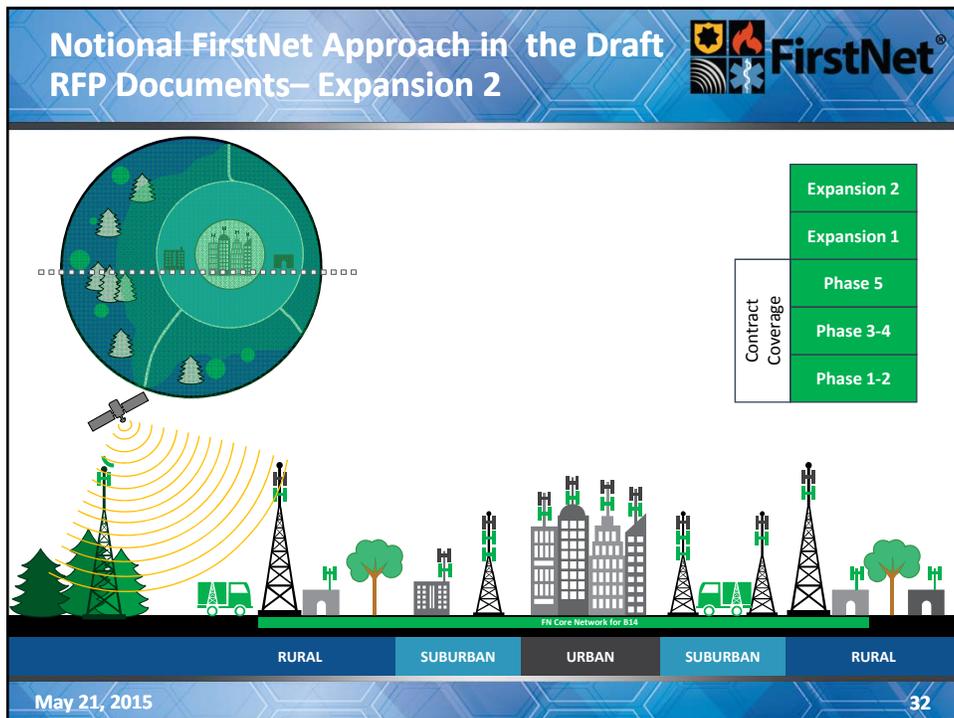
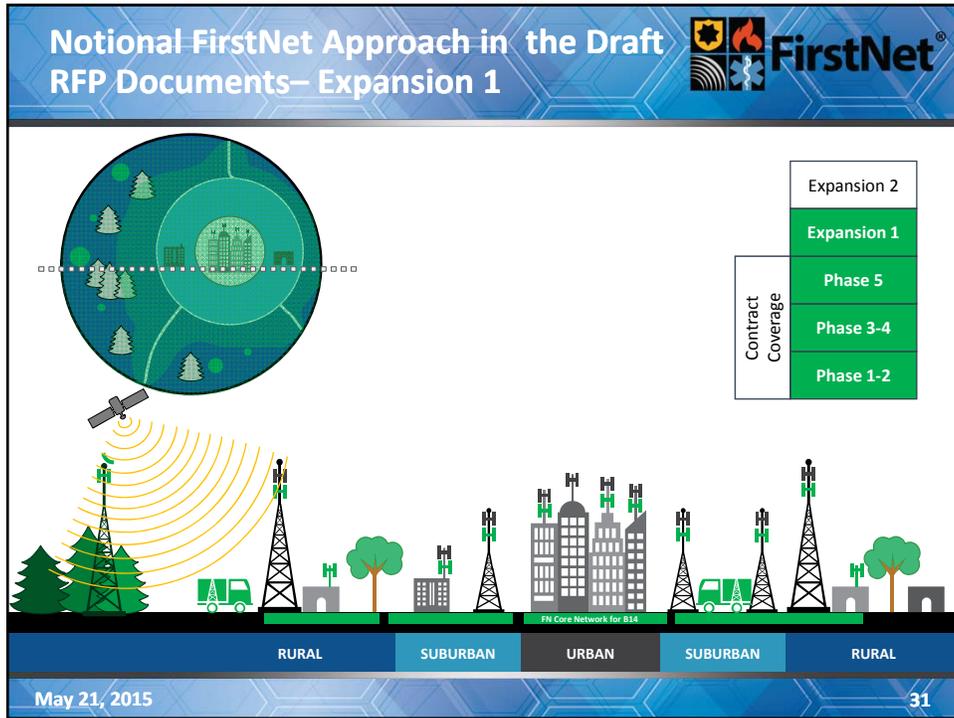
Contract Coverage	Expansion 2
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	Phase 5
	Phase 3-4
	Phase 1-2



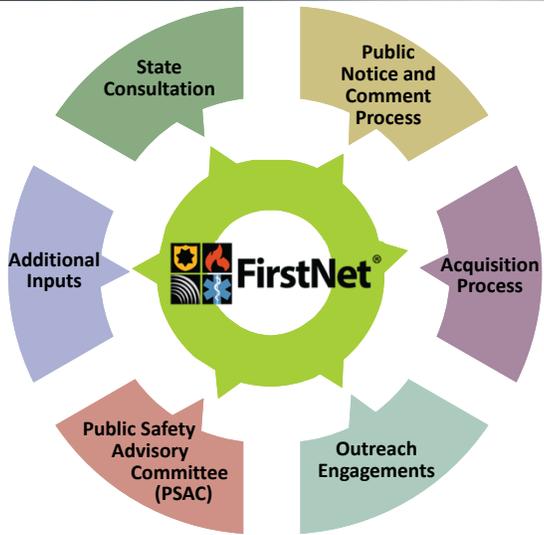
FN Core Network for B14

RURAL
SUBURBAN
URBAN
SUBURBAN
RURAL

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Stakeholder Inputs



State Consultation

1. Construction of a Core and RAN build out
2. Placement of towers
3. Coverage areas of the network
4. Adequacy of hardening, security, reliability, and resiliency
5. Assignment of priority to local users
6. Assignment of priority and selection of entities seeking access to or use of the network
7. Training needs of local users

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Learning Through Consultation

- Use cases discussed included events such as:
 - Active Shooters
 - Wild fires
 - Flooding
 - Bridge collapse
 - Hurricanes
 - Mudslide
 - Fugitive tracking
 - Super Bowl Victory Parade
 - National level sporting & musical events
 - Search & Rescue (Over Water & Land)





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State Consultation Partnership

Elements of State Consultation

Outreach and Education

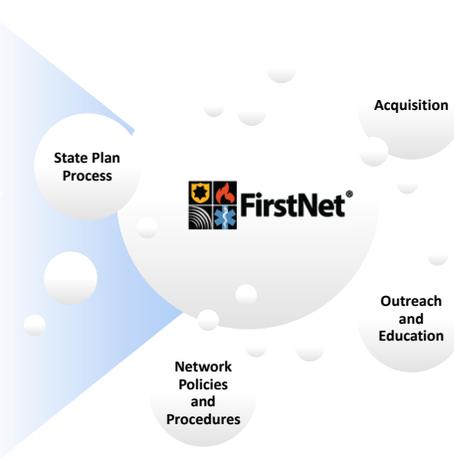
- Webinars
- Meetings
- Surveys
- Training

Review and Inform

- Stakeholder Needs
- Technology and Economic Topics
- Legal Interpretations
- Network Policies and Procedures

Collect Data

- Coverage Objectives
- User and Operational Areas
- Capacity Planning
- Current Service / Procurement



Idaho

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Data Collection

Coverage Objectives



- Coverage
- Phased Build Out

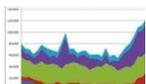
Users and Operations



- Public Safety Entity Info
- Devices
- Operational Areas

Idaho

Capacity




- Applications
- Data Usage

Current Service



- Current Service
- Procurement Vehicles
- Service Plans

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**STATE PLAN –
BRINGING EVERYTHING
TOGETHER**

What is a State Plan?

- Contains the Information the Act Requires
- Contains the Information the State Desires
- Captures a Snap Shot in Time
- Allows the Governor to Make an Informed Decision on the FirstNet Value
- Is a Non-Binding Document
- Is Implementable and Affordable
- Supports the FCC and NTIA in Evaluation of a State's Alternative RAN Plan

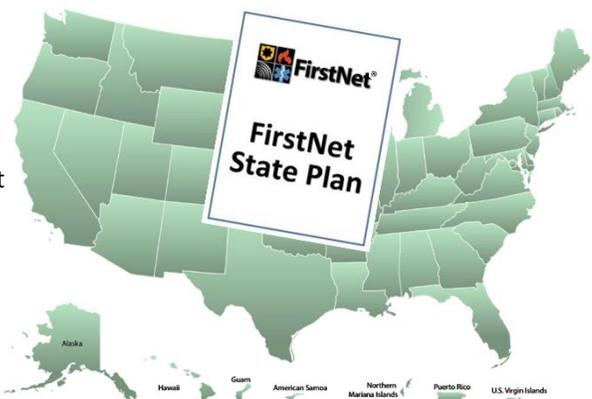
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State Plan Process



Under the Act, the Governor has 90 days to choose whether to

1. Participate in the FirstNet proposed radio access network (RAN) deployment or
2. Assume responsibility to conduct its own state RAN deployment



Alaska
Hawaii
Guam
American Samoa
Northern Mariana Islands
Puerto Rico
U.S. Virgin Islands

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“FirstNet must provide a service that is compelling to public safety in order to earn your business.”

Sue Swenson
Chairwoman, FirstNet

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FirstNet[®]



FirstNet and Idaho are working together to bring wireless broadband to Public Safety

