FirstNet Data Collection

Initial Consultation Meeting with Louisiana

Need State Specific Inputs
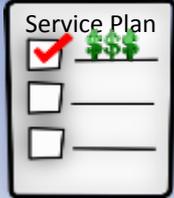
FirstNet Consultation

Plan Options · Data Usage · Deployables · Hardening · Applications · Core Network

Training · Users · Security · Coverage Objectives · Devices · Prioritization

$7B + **Excess Capacity Revenue** + **Fees** User, Core, Infrastructure Lease = **Deployment Costs** + **Operations & Maintenance Costs** + **PS Features** Priority, Security, Hardening, etc.

FirstNet Acquisition

Hardening Costs · Deployment Schedule · Available Devices · Core Design · Cost Estimates · Baseline Coverage · Adoption Estimates · Excess Capacity Valuation

Stakeholder Inputs Critical to Inform FirstNet Planning

Coverage

Where?

- **Where Needed (Objectives)**
- **Different Device Types**
- **Throughput levels**

Capacity

How Much?

- **# of Users and Devices**
- **Application Usage**
- **Data Consumption**

FirstNet Financial Team

- Request for Proposals (RFP) Development/Evaluation
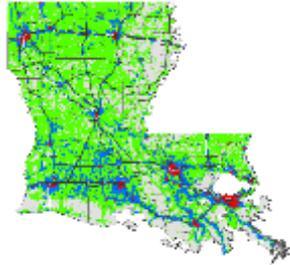- Economic Modeling

Nationwide Design

FirstNet Engineering Team

- RFP Development/Evaluation
- Core, radio access network (RAN) and Devices

Data Collection Categories

Coverage Objectives
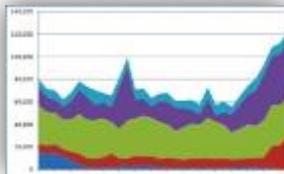

- Coverage
- Phased Deployment

- Applications
- Data Usage

Capacity

Louisiana

Users and Operations

- Public Safety Entity Info
- Devices
- Operational Areas

- Current Service
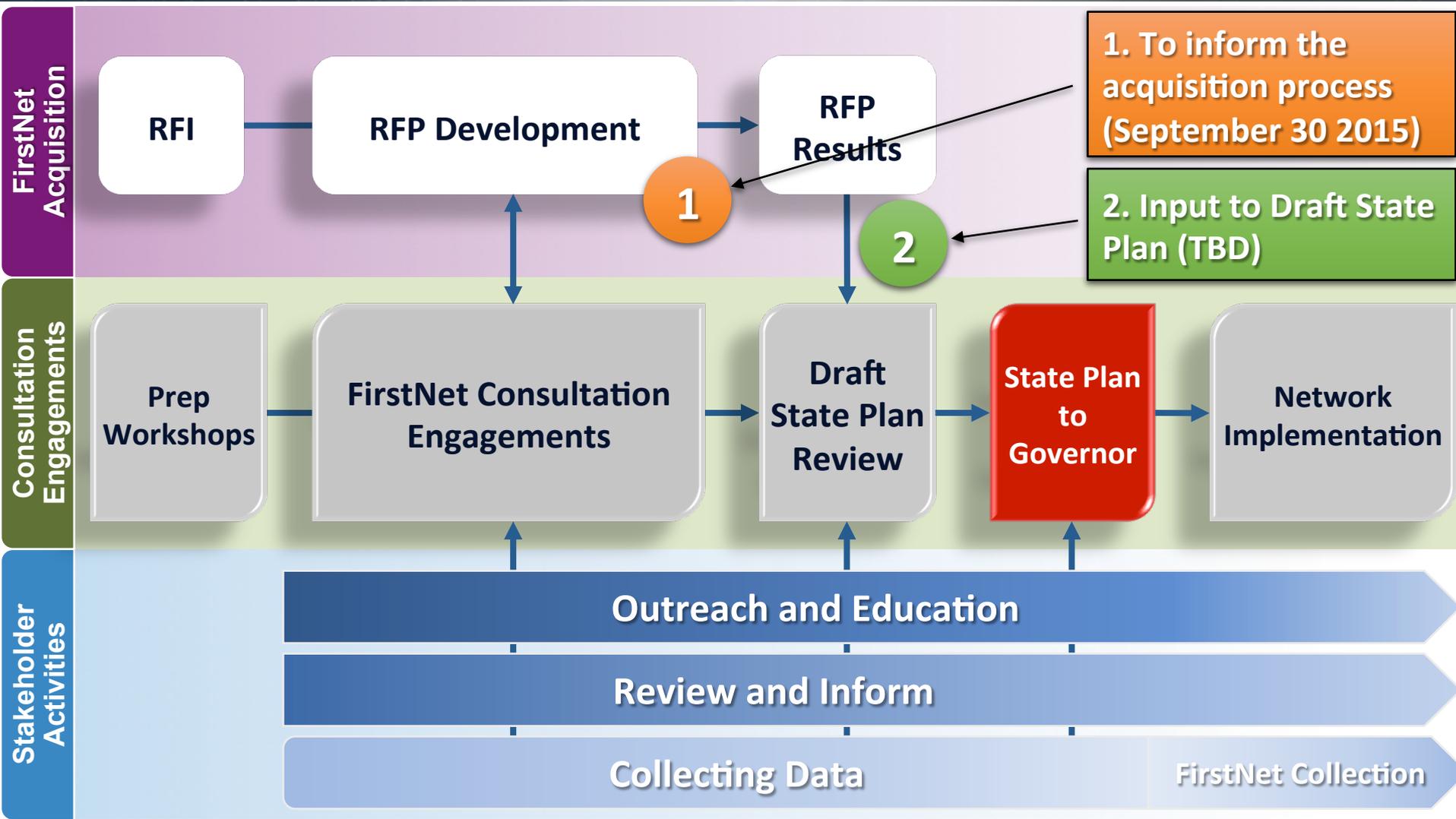- Procurement Vehicles
- Service Plans

Current Service

Guiding Principles for Data Requests

- **Critical Data:** only gather critically essential data

- **When Needed:** collect data close to when it will be used to ensure accuracy

- **Pre-populate:** where possible, FirstNet will collect as much data as possible from available sources for editing and validation

- **Specify Deliverables:** identify required deliverable formats, not necessarily specific tools and processes

- **Be Flexible:** allow flexibility given different stakeholders' existing use of tools, processes and resource constraints

- **Get Feedback:** socialize the process before formalizing

- **Advance Notice:** identify schedule, process and tools as early as possible for stakeholders to plan accordingly

- **Local Knowledge:** rely on stakeholder knowledge to help prioritize data collection

Data Collection Milestones

FirstNet

FirstNet Acquisition

| RFI | → | RFP Development | → | RFP Results |

1. To inform the acquisition process (September 30 2015)

1

2

2. Input to Draft State Plan (TBD)

Consultation Engagements

| Prep Workshops | → | FirstNet Consultation Engagements | → | Draft State Plan Review | → | State Plan to Governor | → | Network Implementation |

Stakeholder Activities

Outreach and Education

Review and Inform

Collecting Data   FirstNet Collection

(1) Coverage Objectives

Coverage Objectives vs. Coverage Maps

- **What is a Coverage Objective?**

Targeted areas within a state/territory/district identifying where FirstNet coverage is projected to be needed

- **What is a Coverage Map?**

A predicted coverage footprint showing where devices can reliably communicate with each other above a minimum data rate

Coverage Objectives are NOT Coverage Maps

FirstNet's Coverage Objective Goals

- ***GOAL:*** *Come up with a consistent, nationwide <u>starting point </u>to objectively identify Public Safety's coverage desires -- <u>**update through Consultation**</u>*

1. Set a FirstNet Nationwide Coverage Objective Baseline as a starting point
   - ❑ Identify initial coverage objectives relevant to Public Safety's desires
   - ❑ Develop a systematic, consistent and objective approach applied nationwide
   - ❑ Leverage feedback from the Office of Emergency Communications' (OEC's) Coverage Workshops
   - ❑ Generate maps to document the starting point

2. Facilitate coverage discussion for a phased build out
   - ❑ Include additional data to tailor needs for each state
   - ❑ Modify based on stakeholder input and feedback

FirstNet Envisions Continued Discussion and Revisions on Coverage Beyond Delivery of a State Plan

Starting Coverage Objectives Data

1. **Public Safety User Population** (*Source: HSIP, OEC provided*)
   - **Public Safety User Density** based on jurisdiction (OEC data to start)
   - ***Common response areas (CAD data)*** *– as it's made available with State collection*

2. **Public Safety High Risk / Areas of Interest** (*Source: HSIP*)
   - **Key facilities** – PS agencies, corrections, airports, EOCs, hospitals, PSAPs, schools, etc.
   - **Critical infrastructure** – manufacturing , energy, dams, etc.
   - **Large Public Venues** – stadiums, theme parks, malls
   - **Other major event locations** – if provided with initial consultation submission
   - ***Area for feedback*** *– tourist/recreational destinations (parks, hiking, waterways, etc.)*

3. **US Population** (*Source: 2012 US Census*)
   - **Population density**

4. **Developed Areas / Buildings** (*Source: 2006 National Land Cover Database*)
   - **Dense / Medium / Light / Open / None**

5. **Roadways** (*Source: Federal Highway Administration*)
   - **National Highway System**
   - **Average Daily Traffic Counts** to identify significant secondary roadways

6. **Tribal Land**

7. **Rural Metrics**

8. **Federal Land**

> These will be incorporated with additional considerations (i.e. FirstNet Rural milestones) or via separate consultation (i.e. Federal)

Nationwide Approach

1. **Employee count of Law Enforcement (LE), Fire, EMS agencies**
2. **Public Safety High Risk / Areas of Interest**
3. **US Population**
4. **Developed Areas / Buildings**
5. **Roadways / Avg. Daily Traffic**

Resulting Combined Map =>
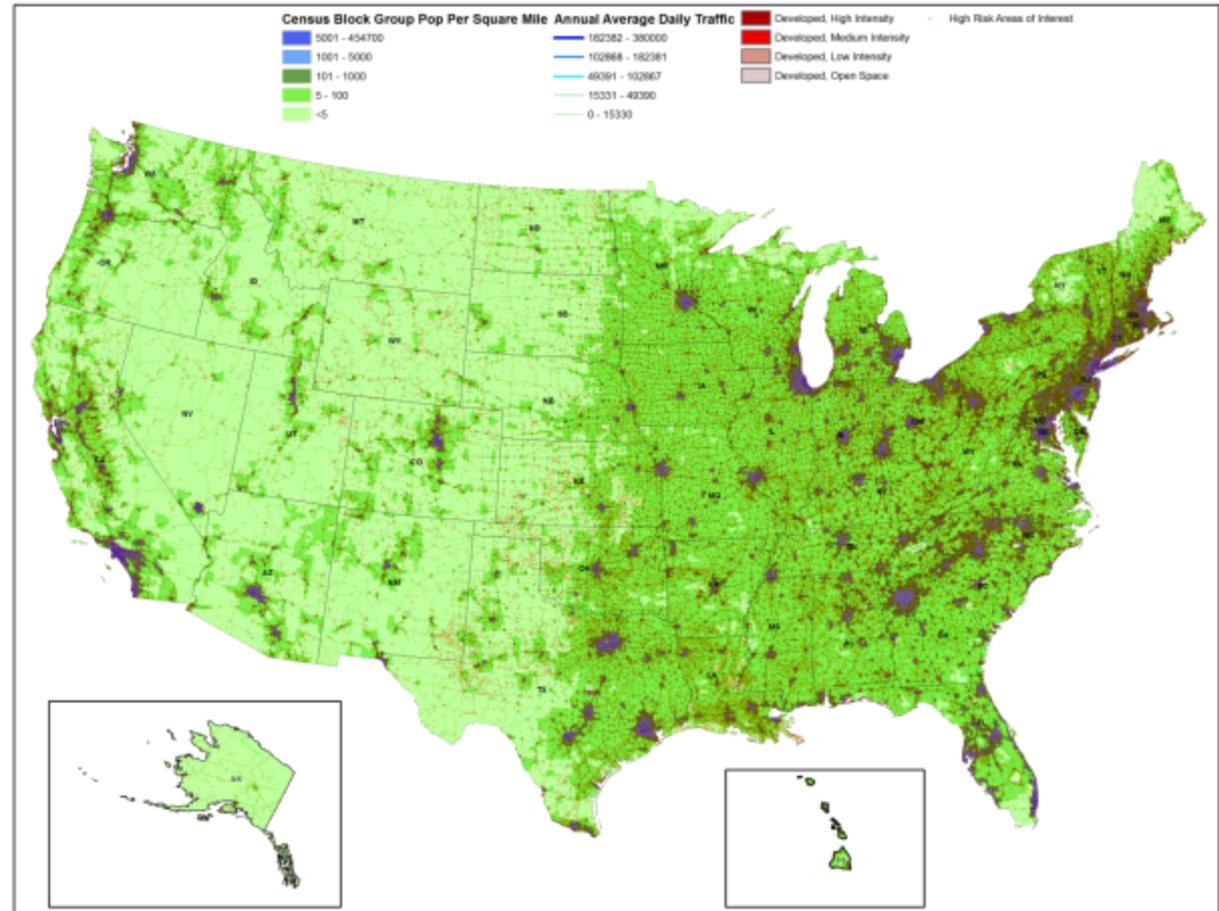
Converting Data into Coverage Objectives

1. **Employee count of Law Enforcement, Fire, EMS agencies**
2. **Public Safety High Risk / Areas of Interest**
3. **US Population**
4. **Developed Areas / Buildings**
5. **Roadways**

- A lot of data in different formats
  - Points, lines, polygons, etc.

- To evaluate these broad datasets, applied a 1x1 mile grid for uniformity

- Evaluated all data by grid to:
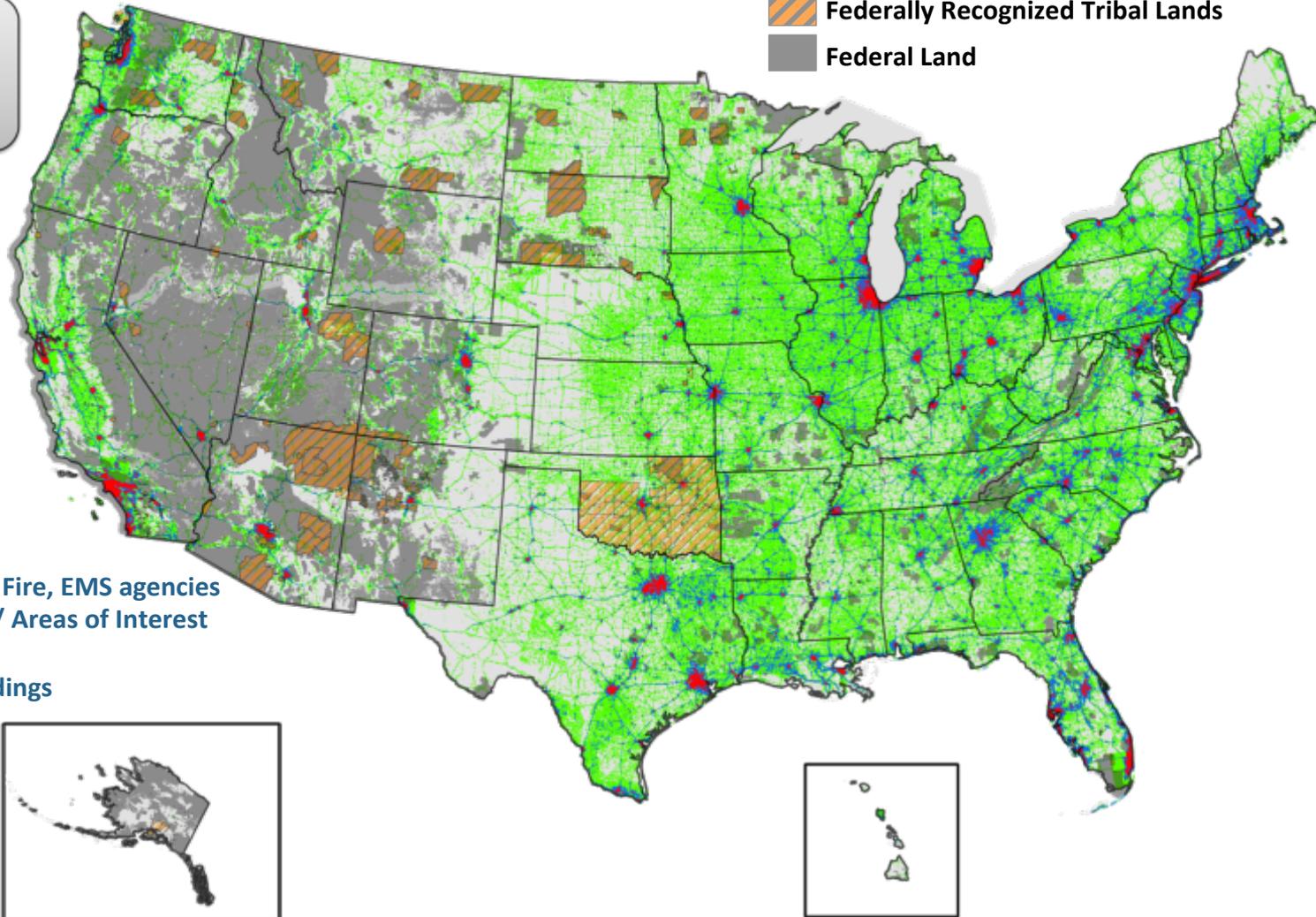 1) Identify areas that had data of interest to Public Safety
  2) Show concentration areas
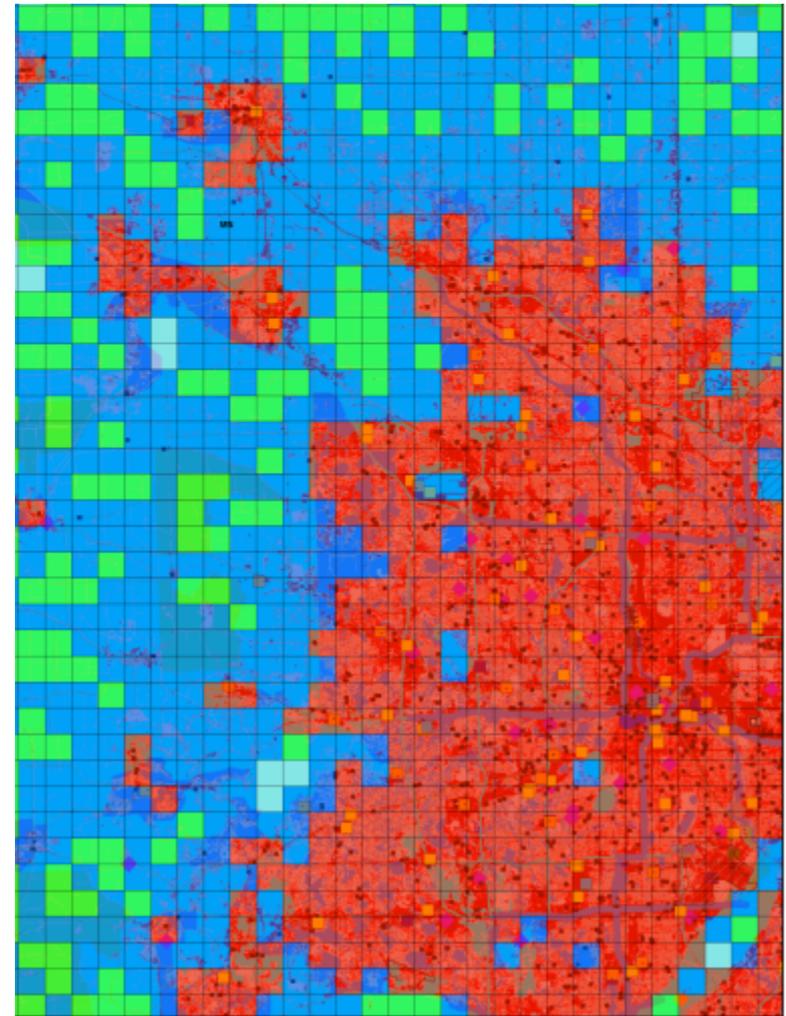
Nationwide Coverage Objective

FirstNet

Legend:
- High Concentration
- Moderate Concentration
- Low Concentration

Federally Recognized Tribal Lands

Federal Land

1. Employee count of L.E., Fire, EMS agencies
2. Public Safety High Risk / Areas of Interest
3. US Population
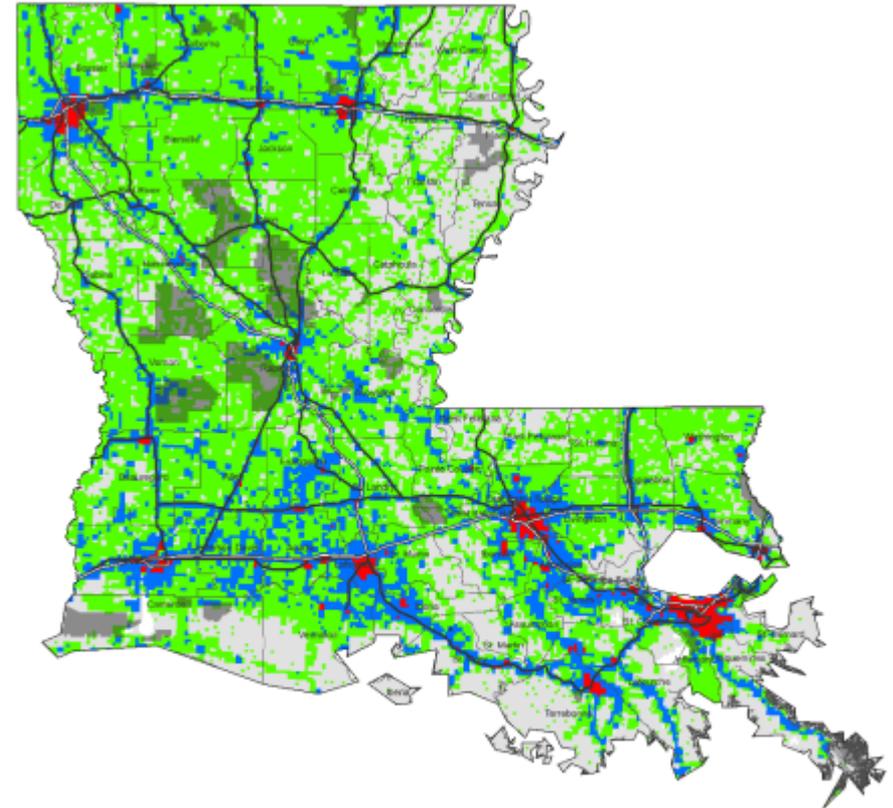4. Developed Areas / Buildings
5. Roadways

Results for Louisiana

1. **Employee count of L.E., Fire, EMS agencies**
2. **Public Safety High Risk / Areas of Int**
3. **US Population**
4. **Developed Areas / Buildings**
5. **Roadways**

Legend:
- 🟥 **High Concentration**
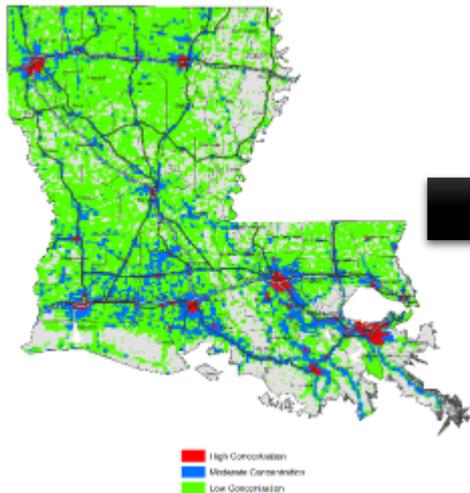- 🟦 **Moderate Concentration**
- 🟩 **Low Concentration**

▨ **Federally Recognized Tribal Lands**
⬛ **Federal Land**

🟥 High Concentration
🟦 Moderate Concentration
🟩 Low Concentration
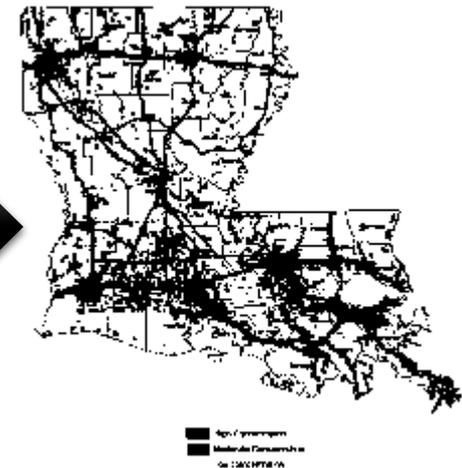
Where are Changes Needed?

Starting Coverage Objective

State to modify during consultation based on, for example:

- End User Local Knowledge
- Calls for Service Data
- Tourist/Recreational Areas
- Evacuation Routes
- Large Temporary Venues
- Mass Transit Routes
- Highly Navigable Waterways
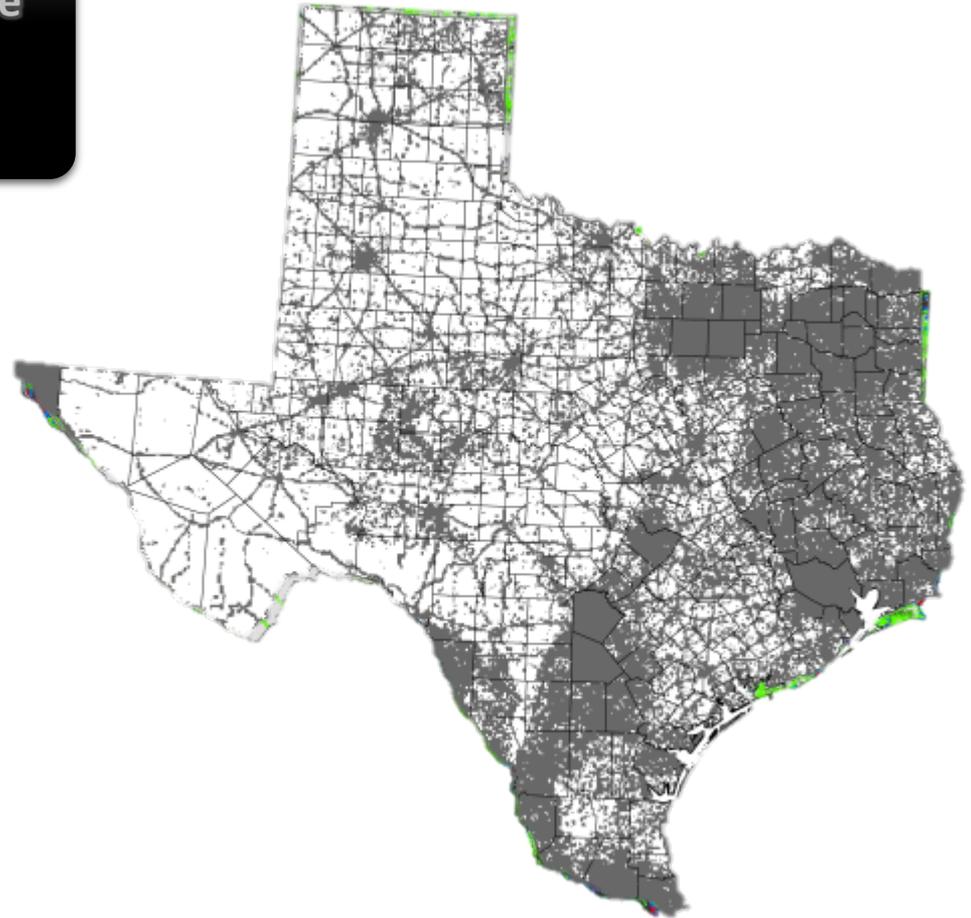- Etc.

Modified Coverage Objective

FirstNet's Coverage Objective as a Starting Point

LEGEND
- FirstNet Coverage Objective Baseline
- PSAP Call Data
- Urban Areas / Urban Clusters

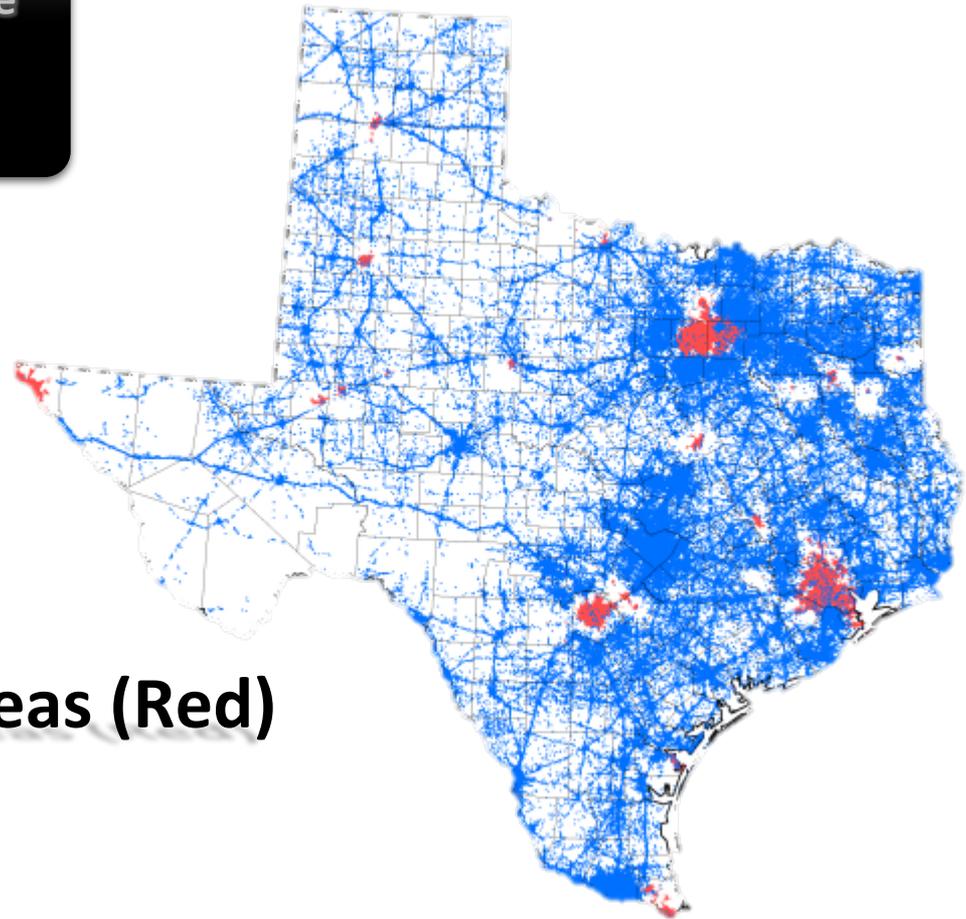## FirstNet Coverage Objective Baseline (Single Color)

Evaluating FirstNet's Coverage Objective

LEGEND

- ⬜ **FirstNet Coverage Objective Baseline**
- 🟦 **PSAP Call Data**
- 🟥 **Urban Areas / Urban Clusters**

PSAP Call Data

- 1 Year of Data
- Excludes some Urban Areas (Red)
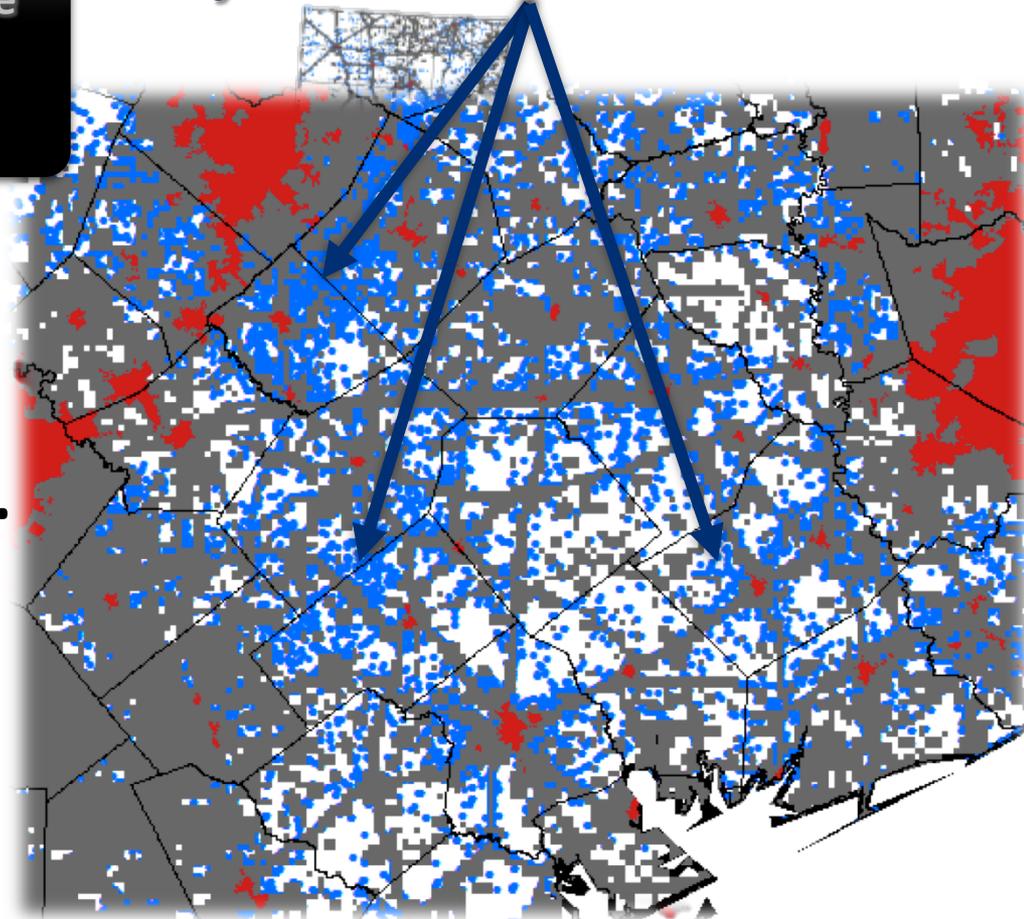
Evaluating FirstNet's Coverage Objective

LEGEND
- FirstNet Coverage Objective Baseline
- PSAP Call Data
- Urban Areas / Urban Clusters

Question: Does the Coverage Objective cover all the call data?

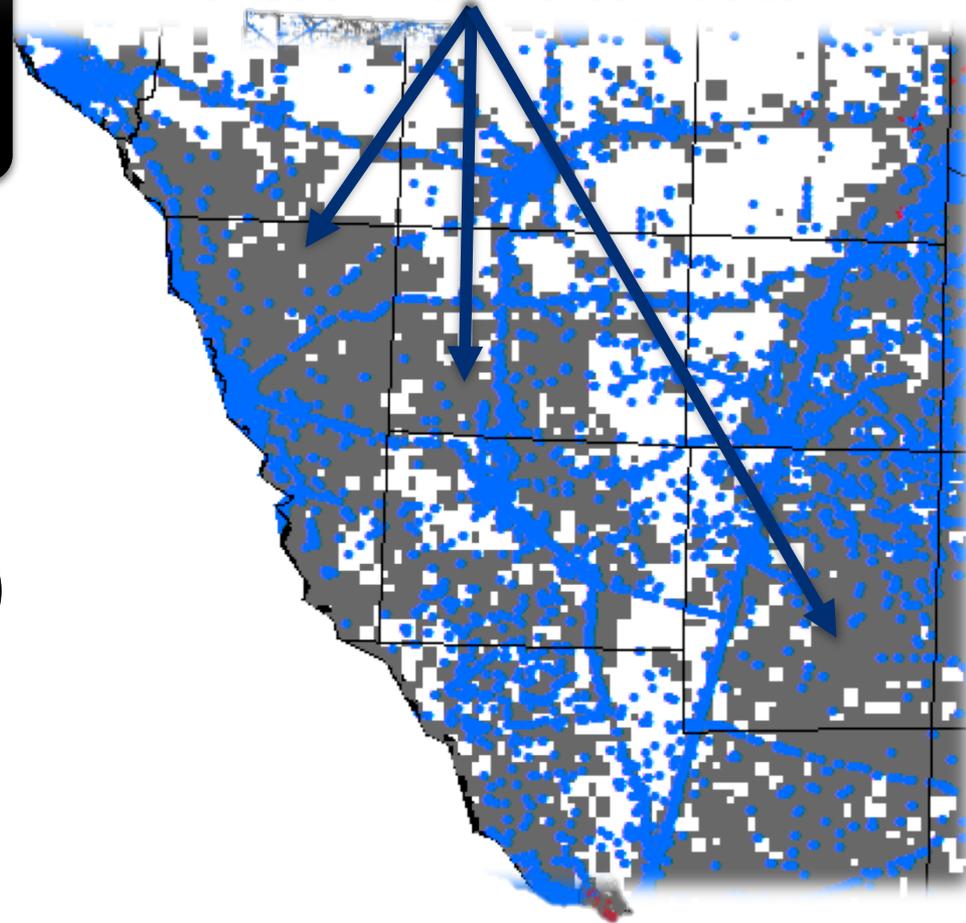**PSAP Call Data (bottom) vs. Coverage Objective (top)**

Evaluating FirstNet's Coverage Objective

LEGEND

FirstNet Coverage Objective Baseline

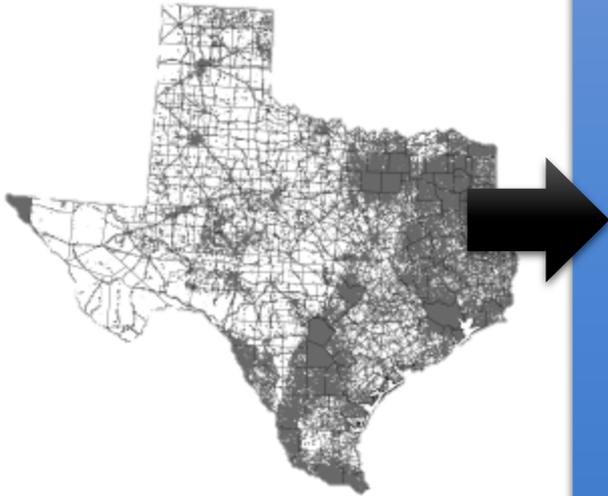PSAP Call Data

Urban Areas / Urban Clusters

Question: Is coverage needed in areas with no call data?

PSAP Call Data (top) vs. Coverage Objective (bottom)

Where are Changes Needed?

Starting Coverage Objective

Modified Coverage Objective

State to Modify During Consultation

- ✓ Calls for Service Data
- ☐ End User Local knowledge
- ☐ Tourist/recreational Areas
- ☐ Evacuation Routes
- ☐ Large Temporary Venues
- ☐ Mass Transit Routes
- ☐ Highly Navigable Waterways
- ☐ Etc.

?

Summary

- Goal of developing Coverage Objectives is identifying areas in need of fixed terrestrial coverage

- Call Data can be one data layer helpful in validating coverage objectives and identifying gaps

- Not a replacement for user input and feedback, just an aid

How Should FirstNet Phase a Deployment?

Coverage Objective	Deployment Phase
• Objective 1	Phase
• Objective 2	Phase
• Objective 3	Phase
• Objective 4	Phase
• Objective 5	Phase

Commercial LTE Build Out
2010-2014
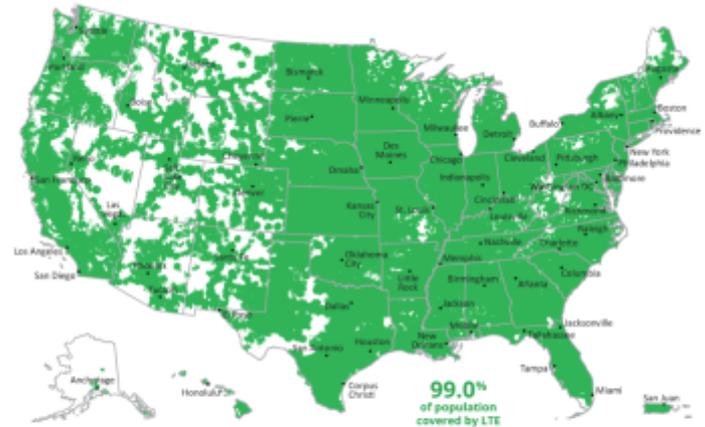
Aggregate LTE Coverage 2Q 2014

99.0% 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.

© 2014 Mosaik Solutions, LLC.

Mosaik.com

(2) Users and Operations
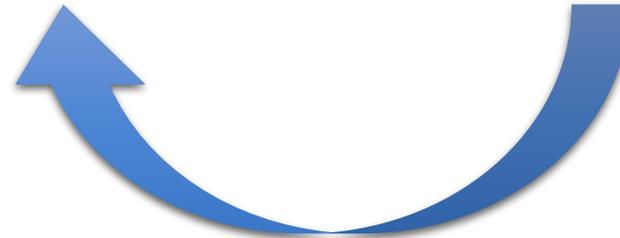
Estimate Total Eligible Users

Totals (Estimated)

Discipline	# Agencies	# Users	# Devices
LE	250	15,000	22,500
Fire	300	20,000	20,000
EMS	125	5,000	7,500
Emergency Mgmt	50	2,000	4,000
Transportation	25	3,500	3,500
Other	450	25,000	12,500

Surveyed Agencies

# Agencies	# of Users	# Devices
50	2,000	3,000
75	4,000	4,000
25	1,000	1,500
10	300	600
5	750	750
100	5,000	2,500

* Sample data only

Estimate Operational Areas

Totals *(Estimated)*

Discipline	# Agencies	# Users	# Devices
LE	250	15,000	22,500
Fire	300	20,000	20,000
EMS	125	5,000	7,500
Emergency Mgmt	50	2,000	4,000
Transportation	25	3,500	3,500
Other	450	25,000	12,500

User Density by Operational Area

All Public Safety Users
- 2 - 49
- 50 - 249
- 250 - 499
- 500 - 999
- 1000 - 4999
- 5000+
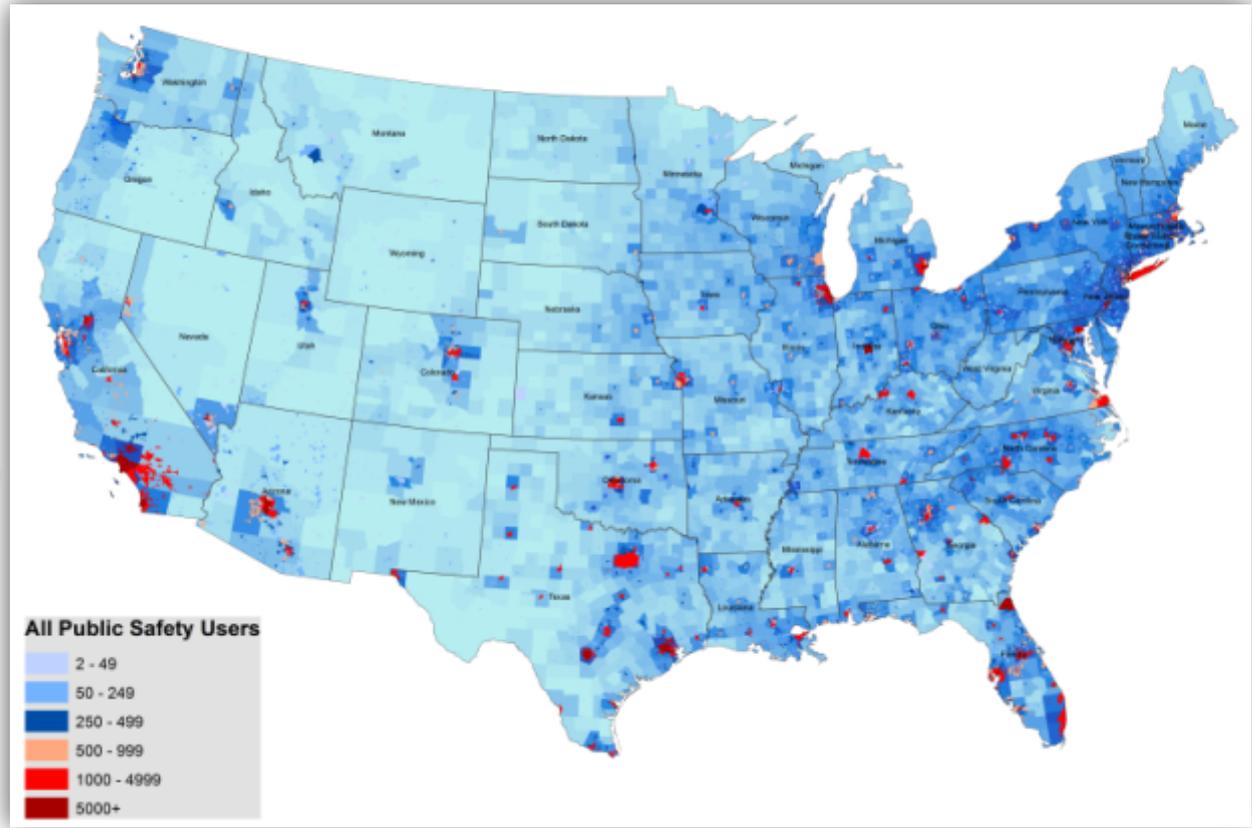
* Sample data only

(3) Capacity Planning

Capacity Planning

Application Survey

- Current application usage

- Frequency of use

- Desired applications

- Estimate of data consumption

Traffic Profiles *(Case Studies)*

- Quantify usage for specific use cases

- Vary by
  - Incident Types
  - Discipline
  - Area

Voice, Video, Data Usage Profile

Data Usage Profile

Data Usage Profile

Usage Profile

- Important Metrics
  - Number of responders and devices
  - Type of responders (discipline)
  - Location of responders
  - Variability by incident types and scale
  - Upload vs. Download
  - Data usage by application
  - Time data sent
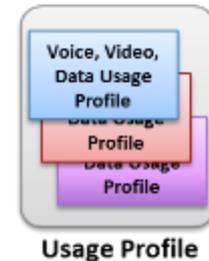
Law Enforcement User
xxx kbps voice calls
xxx kbps video
xxx kbps other data
xxx **kbps total usage**
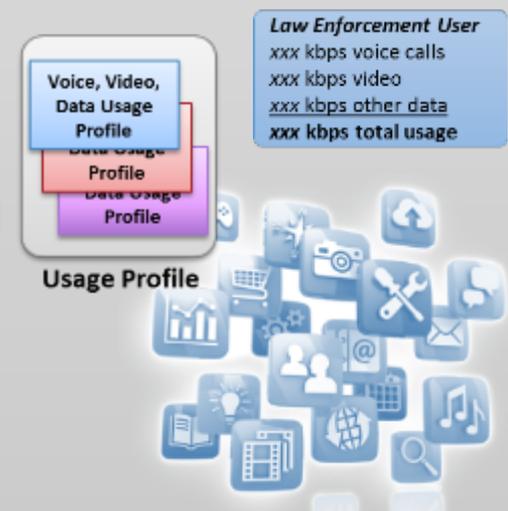
Combining All the Inputs

(1) Coverage Objectives
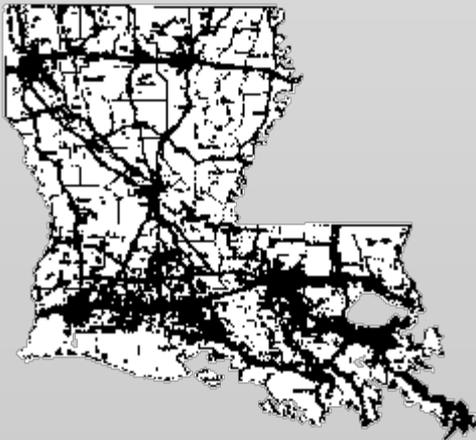
(2) Users & Operations

Totals *(Estimated)*

Discipline	# Agencies	# Users	# Devices
LE	250	15,000	22,500
Fire	300	20,000	20,000
EMS	125	5,000	7,500
Emergency Mgmt	50	2,000	4,000
Transportation	25	3,500	3,500
Other	450	25,000	12,500

(3) Capacity Planning

Voice, Video, Data Usage Profile

Data Usage Profile

Data Usage Profile

Usage Profile

Law Enforcement User
xxx kbps voice calls
xxx kbps video
xxx kbps other data
xxx kbps total usage

==> Inputs to RAN Design and State Plan Representative of State's Needs

(4) Current Service / Procurement

How do Agencies do Business Today?

- Identify major procurement vehicles / options

- Identify different service plan types and costs

- Capture any specialized services
  - Cells on Light Trucks (COLTs)/Cells on Wheels (COWs), network interfaces/customization, etc.

- Identify current barriers

Data Collection Wrap-up

Data Categories		Description	Survey	Other Method
1. Coverage		**Identify desired coverage and proposed deployment phases within the State/Territory**		
1a.	Coverage Objectives	Identify State/Territory coverage by developing a baseline or providing feedback and changes to the FirstNet baseline		X
1b.	Phased Deployment Approach	Provide recommendations on targeted areas or objectives for each deployment phase (suggest a minimum of 5 phases)		X
2. Users and their Operational Areas		**Gather information on the eligible user base and their respective operational areas**		
2a.	Public Safety Entity ("PSE")[1] Info, Personnel Counts	Basic PSE demographics: entity name, discipline, location, POC, total personnel. Please provide the same information for those entities that qualifying PSEs wish to designate as PSEs within the State/Territory (including Tribal lands) under the terms of the Act[2].	X	
2b.	Devices - Counts and Types	Number and type of agency issued voice/data wireless devices used by PSE personnel, estimates of usage growth and use of personally owned devices	X	
2c.	Users and Devices Summary	Estimate the total eligible user base within the State/Territory (including Tribal lands). Use the device/user ratio from surveyed data to estimate the total number of currently deployed devices.		X
2d.	Operational Areas	Provide geographic areas of responsibility as well as common response areas for each PSE (as available)		X
2d-i.	i. User maps based on jurisdiction	Baseline maps of user counts distributed across their respective areas of responsibilities		X
2d-ii	ii. Common response areas (Calls for Service data)	As available, provide calls for service response data from eligible PSEs, analyzing and mapping the results to show common and critical response areas		X
3. Capacity Planning		**Estimate current application and data usage**		
3a.	Application Usage	Data gathering on basic application usage to identify what PSEs are currently using, frequency of use, and projected growth. This information may also be used to estimate network capacity.	X	
3b.	Data Usage (Traffic Profiles)	Targeting a small subset of PSEs representing the different demographics of the State/Territory, capture data and conduct analyses to quantify how much data is used by different PSEs. This sampling of data could be gathered and analyzed, for example, by different size and scope of incident responses or planned events, by discipline types, by urban vs. rural, comparing uplink vs. downlink, etc. Supplemental information on planned growth, launch of new applications, limitations of current usage, etc. are all important to note while developing representative traffic profiles.		X
4. Current Providers / Procurement		**Information on current service provider's plans, procurement vehicles, and barriers to adoption**		
4a.	Procurement vehicles / restrictions	Provide how mobile services are procured today, contract duration, and what restrictions may exist with leveraging different procurement options	X	
4a.	Plan types / costs	Identify different plan types, periodicity, and their associated costs	X	
4a.	Any specialized services provided?	Provide additional services supplied (e.g., network/system interfaces, SLAs, unique APNs, separate VLANs, COLTs/COWs)	X	
4b.	Barriers	Identify current barriers that have limited or prevented fully operationalizing mobile data	X	
5. State Plan Decision		**Document the process and potential barriers for State Plan decision-making**		
5a.	Document State Plan Review Process	Document the State Plan review decision-making process, associated timelines, responsibilities, and windows of availability for delivering a state plan for proper FirstNet planning when scheduling the delivery of the final state plan to the Governor.		X

Different Methods of Collection

Survey

Other Method

Sample Questions & Excel Template

2a: Public Safety Entity Demographics

2b: Device Counts/Types

3a: Application Usage

4a, 4b: Info on Current Service / Procurement

Customized Process and Deliverables
(Maps, Word/PPT/PDF)

1a: Coverage Objectives (map) and annotations

1b: Phase Build Out Approach (Word/PPT)

2c: Users and Devices Summary (Excel)

2d: Operational Areas (map)

3b: Data Usage (Word/PPT/PDF)

5a: Document State Plan Review Process (Word/PPT/PDF)

Summary of Data Collection

- ❑ **What:** 5 Data Collection Categories
  1. Coverage Objectives
  2. Users and Operational Areas
  3. Capacity Planning
  4. Current Service / Procurement
  5. State Plan Review Process

- ❑ **When:** Two Main Due Dates
  1. September 30 – Inputs to inform acquisition *(prioritize as needed, collection to date, estimates)*
  2. TBD – Inputs to Draft State Plan *(more detailed, refined, analyzed data)*

- ❑ **Where:** To be submitted to FirstNet repository
  - In work; details to be provided

- ❑ **How:** State/Territory to determine most appropriate approach
  - FirstNet Data Collection spreadsheet to be used as a guide
  - Various tools can be used to collect desired data
  - Consider different strategies for the two deadlines and different data types

> Questions, issues, requests for support, etc. can be submitted to:
>
> *datacollection@firstnet.gov*

Meeting Evaluation

We want to hear from you!

- How was the meeting?
- What did you like?
- What can we improve?

Please provide us with your valuable feedback by completing your evaluation.

FirstNet®

First Responder Network Authority
Initial Consultation Evaluation Form

Please answer the following questions about your experience in this Initial Consultation Meeting according to the scale below:

1	2	3	4	5
Strongly Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Strongly Agree

1. The Initial Consultation Meeting met my expectations.
   Comments:

2. This initial consultation meeting improved my knowledge of FirstNet and the processes ahead of us.
   Comments:

3. The initial consultation presentations and materials were clear and easily understood.
   Comments:

4. I have a better understanding of the roles and responsibilities of FirstNet and my state/territory in the consultation process.
   Comments:

5. The detailed discussion about users was helpful.
   Comments:

6. The detailed discussion about coverage was helpful.
   Comments:

FirstNet Contacts

Name	Email
Dave Buchanan	David.Buchanan@firstnet.gov
Claudia Wayne	Claudia.Wayne@firstnet.gov
Rich Reed	Richard.Reed@firstnet.gov
Brian Hobson	Brian.Hobson@firstnet.gov
Doug Harder	Douglas.Harder@firstnet.gov
Amanda Hilliard	Amanda.Hilliard@firstnet.gov
Jeremy Zollo	Jeremy.Zollo@firstnet.gov
Carl Rebstock	Carl.Rebstock@Firstnet.gov
Ed Parkinson	Edward.Parkinson@firstnet.gov
Kevin Green	Kevin.Green@firstnet.gov
Chris Algiere	Christopher.Algiere@firstnet.gov
FirstNet Consultation Inbox	FirstNet.Consultation@firstnet.gov
FirstNet Data Collection Inbox	Datacollection@firstnet.gov

Thank You