


Users and Coverage

Initial Consultation Meeting with South Dakota





Users and Coverage Goals



1. First Responder Users / Operations
 - Identify potential user base and their operational areas
 - Estimate current usage of mobile data today
2. Coverage
 - Review FirstNet Initial Coverage Objectives
 - Discuss District Inputs and Approach to Objectives

April 1, 2015 2

Key Inputs to FirstNet Design



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

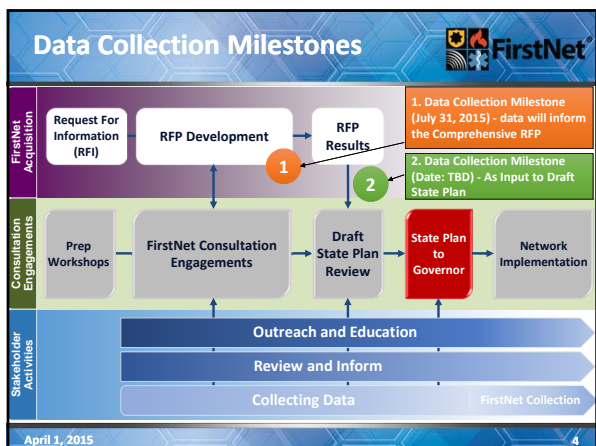


Nationwide Design

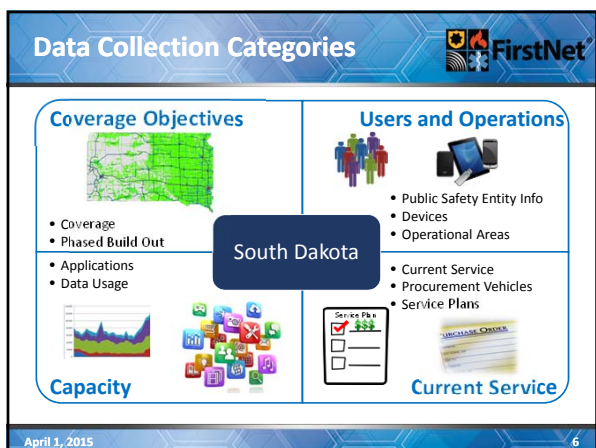
FirstNet Engineering Team

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


April 1, 2015 3



- ### 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
- April 1, 2015 5



Users



Users / Operations Overview

Estimated Total		From Samples	Estimated Total	From Samples
Disc.	# Agencies # of Users	LE: 1.5	LE: 22,500	Voice, Video, Data Usage Profile
LE	250 15,000	Fire: 1.0	Fire: 20,000	Emergency Usage Profile
Fire	300 20,000	EMS: 2.0	EMS: 10,000	Other Usage Profile
EMS	125 5,000	Other: 1.5	Other: 75,000	
Other	500 50,000			

of Agencies and Users (Just Example Totals) Device per User Factor* # of Potential Devices Usage Profile (where available) Location and Amount of Responses (where available)

=> Inputs to RAN Design representative of Public Safety Operations

*Several inputs: current usage, adoption rate, growth projections, new devices, etc.

April 1, 2015 8

Users / Operations Collection


CASM NextGen – Communications Assets Survey and Mapping Next Generation
 MDST – Mobile Data Survey Tool
 OEC – Office of Emergency Communications

CASM NextGen

MDST

State Collection

OEC Coverage Workshop Data

Disc.		# Agencies	# of Users	LE: 1.5	LE: 22,500	Voice, Video, Data Usage Profile
LE	250	15,000	Fire: 1.0	Fire: 20,000	Emergency Usage Profile	
Fire	300	20,000	EMS: 2.0	EMS: 10,000	Other Usage Profile	
EMS	125	5,000	Other: 1.5	Other: 75,000		
Other	500	50,000				

of Agencies and Users (Just Example Totals) Device per User Factor # of Potential Devices Usage Profile Operational Area & Location/Amount of Responses

*In the absence of any of this data, FirstNet will use baseline assumptions and estimates


April 1, 2015 9

Users / Operations Collection


- FirstNet will provide a spreadsheet template defining requested fields (similar to example below)
- CASM NextGen could support this type of data capture and reporting
- District may already have existing database and/or tools for use
- FirstNet looking at comprehensive tool to support all data uploads

Disc.	# Agencies	# of Users
Fire	200	10,000
Police	100	5,000
EMS	150	7,500
Other	500	25,000

LE: 1.5	LE: 2.0	LE: 2.5	LE: 3.0	LE: 3.5
Fire	20,000	30,000	40,000	50,000
Police	10,000	15,000	20,000	25,000
EMS	15,000	20,000	25,000	30,000
Other	50,000	75,000	100,000	125,000



Full Time Personnel



Part Time Personnel

Agency	POC	Discipline	County	State	Jurisdiction	Full Time Personnel	Part Time Personnel	Volunteer Personnel	Total Personnel	# of mobile data devices	Calls for Service data
Spreadsheet template for Agencies, Users and Devices											
										If available	If available

April 1, 2015 **10**

Users / Operations Collection

- Usage profiles will include important information on how public safety entities may use FirstNet
- Historic use is also helpful to show growth trends
- Important metrics include:
 - 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
- Data can be averaged by:
 - Discipline
 - Area
 - Incident types
- Leverage same upload portal mentioned previously

Voice, Video, Data Usage Profile


Law Enforcement User (Busy Hour):
 xxx kbps SMS/text
 xxx kbps voice calls
 xxx kbps video
 xxx kbps other data
 xxx kbps total usage


Usage Profile

April 1, 2015 **11**


Current Service / Procurement

- 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






April 1, 2015 **12**

Users / Operations Collection Summary 			
Data Type	FirstNet Use	Deliverable Format	Possible Resources
# of Agencies and Users	Estimate total number of potential FirstNet users	Excel file (FirstNet template)	Statewide database, CASM, Commercial sources, gov't & association census
Device per User Factor	Factor to estimate number of potential devices on the network	Excel Table (FirstNet template)	Statewide survey, MDST
# of Potential Devices	Estimate of potential devices for technical design and economic model inputs	Excel Table (FirstNet template)	Samples from agency surveys, calculate from agency/user counts
Usage Profiles (where available)	Technical design input to estimate how public safety may use the network	Excel Table (FirstNet template)	Commercial tools
Operational Areas	Identifies where public safety needs coverage; capacity input	GIS maps and/or from Agency File	Agency jurisdiction (city, county, state, etc.), State/local GIS offices
Location/Amount of Responses (where available)	More precise inputs to operational area	Excel files (FirstNet template)	Participating agencies
Current Providers / Procurement	Identify current service plans, procurement methods and potential procurement restrictions	Excel Table (FirstNet template)	Statewide survey, MDST

April 1, 2015 13

Coverage Objectives

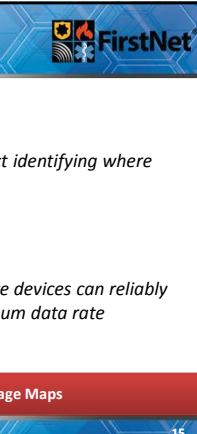


Coverage Objectives vs. Coverage Maps

- **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



April 1, 2015 15

FirstNet's Coverage Objective Goals



- **GOAL: Come up with a consistent, nationwide starting point to objectively identify Public Safety's coverage desires**

1. Set a FirstNet Nationwide Coverage Objective Baseline
 - ❑ Identify initial coverage objectives relevant to Public Safety's desires
 - ❑ Develop a systematic, consistent and objective approach applied nationwide
 - ❑ Leverage feedback from 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
3. Generate coverage maps based on culmination of acquisition process

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

April 1, 2015
16

Starting Coverage Objectives Data




1. **Public Safety User Population** (Source: HSP, 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: HSP)
 - Key facilities – PS agencies, corrections, airports, EDCs, 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)

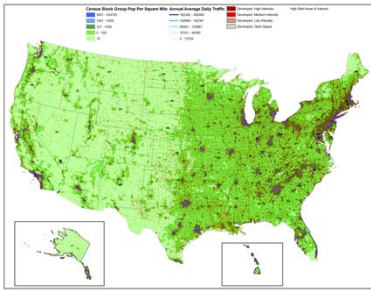
April 1, 2015
17

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 =>

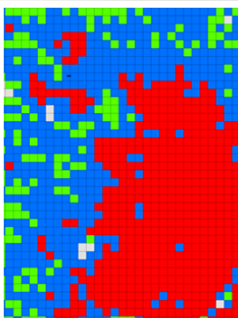


April 1, 2015
18

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

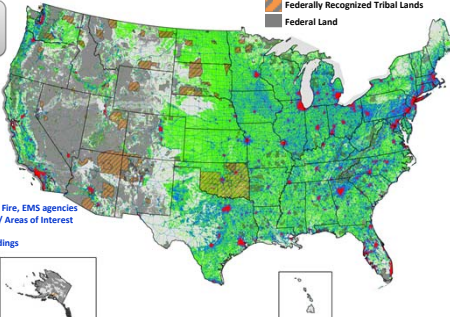


April 1, 2015 19

Nationwide Coverage Objective

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

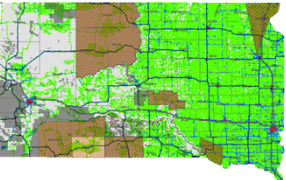
April 1, 2015 20

Results for South Dakota

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


Legend:
■ High Concentration
■ Moderate Concentration
■ Low Concentration

■ Federally Recognized Tribal Lands
■ Federal Land



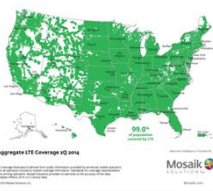
April 1, 2015 21


How Should FirstNet Phase a Build Out?



Coverage Objective	Phased Build Out
• Objective 1	Build out
• Objective 2	Build out
• Objective 3	Build out
• Objective 4	Build out
• Objective 5	Build out


Commercial LTE Build Out
2010-2014





April 1, 2015 22

Adjusting to Other Deployment Considerations





Coverage Objective	Build Out	**EXAMPLE ONLY**
<ul style="list-style-type: none"> • Co-location / Common Areas of Need (Population, Developed Areas, Highways, etc.) • Rural Areas (FirstNet Rural milestones) 	Partner(s) Co-Location / Common Need	
<ul style="list-style-type: none"> • Remaining PS Areas of Risk/Interest • Remaining Areas of Need 	Site Acquisition	Public Safety Gaps (State/Local/Other Asset Considerations)
<ul style="list-style-type: none"> • Tribal Lands • Federal Land 	Site Acquisition	Tribal, Federal Needs (Tribal/Federal/Other Asset Considerations)
<ul style="list-style-type: none"> • User Feedback • Capacity Growth 	Site Acquisition	FirstNet User Needs (All Asset Considerations)
Funding Source	<ul style="list-style-type: none"> • Partner(s) Co-location (Excess Capacity Exchange) • Initial Capital (\$7 Billion), where required 	Network Revenue

Proposed build out will be refined after RFP Award, ongoing discussion and additional build out considerations and tradeoffs

April 1, 2015 23

Users and Coverage Wrap-up


Summary

- Identifying the potential user base and their current use of mobile data is important
 - Both Engineering and Financial needs
- Identifying coverage needs and a potential phased build out is also important
 - Acquisition, State Plan Development and Eventual Build Out
- Coverage will be an ongoing discussion throughout consultation and into network deployment

April 1, 2015 25

Call to Action... Next Steps

- Continued Outreach and Education
- Potential Users and Operations
 - Estimate current potential user base
 - Identify operational areas
 - Estimate current usage of mobile data
- Coverage Objectives
 - Identify coverage objectives
 - Provide a phased build out approach



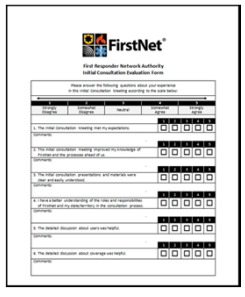
April 1, 2015 26

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.



April 1, 2015 27

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
Chris Algieri	Christopher.Algieri@firstnet.gov
FirstNet Consultation Inbox	FirstNet.Consultation@firstnet.gov
FirstNet Data Collection Inbox	Datacollection@firstnet.gov

April 1, 2015 28

 **FirstNet**® 

Thank You