STATEWIDE EMERGENCY COMMUNICATIONS BOARD

INTEROPERABLE DATA COMMITTEE

February 16, 2016
10:00 a.m.
Chair: Mike Risvold

Call in Number: 1-888-742-5095

Call in code: 2786437892#

AGENDA

Call to Order

Approval of Agenda

Approval of the Previous Meeting's Minutes

Action Items

- FirstNet RFP Summary Presentation (Brandon Abley)

Discussion Items

Other Business

Announcements

Adjourn

STATEWIDE EMERGENCY COMMUNICATIONS BOARD
INTEROPERABLE DATA COMMITTEE

Chair: Mike Risvold
December 15, 2015

ATTENDANCE

Jackie Mines	Dept. of Public Safety	James Stromberg
Jim Johnson	MN IT Services	Ullas Kamath
Jim Mohn/Tim Lee	Dept. of Transportation	
Victor Wanchena	Dept. of Corrections	Steve Ouradnik
Thomas Humphrey	Metropolitan Council	Vince Pellegrin
Brian Askin	Dept. of Natural Resources	vacant
Steve Bluml	Minnesota State Patrol	Tim Boyer
John Hyde	Minnesota Sheriffs' Association	vacant
Michael Risvold, CHAIR	Minnesota Police Chiefs' Association	vacant
Wayne Kewitsch	Minnesota Fire Chiefs' Association	vacant
Mary Borst	Minnesota Ambulance Association	vacant
Vacant	League of Minnesota Cities	vacant
Tina Lindquist	HESM Region 4	vacant
Dave Deal	Association of Minnesota Counties	Nate Timm
Vacant	Minnesota Indian Affairs Council	vacant
Jake Thompson	Metropolitan Emergency Services Board	Rod Olson
Kristen Lahr	Central Emergency Services Board	Dean Wrobbel
Brian Zastoupil	Northwest Emergency Communications Board	Beryl Wernberg
Bruce Hegrenes	Northeast Emergency Communications Board	Monte Fronk
Brad Milbrath	South Central Emergency Communications Board	Andy Buckmeier
Rick Freshwater	Southeast Emergency Communications Board	Dave Pike
Stacy Tufto	Southwest Emergency Communications Board	Vacant

ALSO ATTENDING

Cathy Anderson, ECN
Rick Juth, ECN
Duane Oothoudt , Leech Lake PD
Brandon Abley, Televate
Marcus Bruning, ECN
Joe Reichstadt, Metro Transit
Randy Donahue, ECN

CALL TO ORDER

Chair Risvold calls the meeting to order at 10:07 with a quorum.

Victor Wanchena moves to approve the agenda.
Jake Thompson seconds.
Motion carries.

Wanchena moves to approve the November meeting minutes.
Kristen Lahr seconds.
Motions carries.

ACTION ITEMS

- LTE Pilot Project Summary Report (Brandon Abley)

Brandon Abley presents a summary of the Minnesota Public Safety Broadband Pilot Project through a power point presentation, as provided in the meeting materials. He reports that the purpose of the project was to explore a private-public partnership to deploy a Public Safety Broadband Network in Minnesota. One finding was that a partnership with Minnesota-based entities can be successfully leveraged to provide Public Safety Broadband service and the chief accomplishment was that we built a Band 14 Public Safety Broadband Network.

Stakeholders included DPS/Emergency Communications Network (ECN), Elk River Fire Department, Great River Energy, New Core Wireless, Motorola/Ericsson, Sonim, OnCall, nMotion, and Lociva. The contribution from the commercial partners in equipment and personnel time was easily in the tens of thousands in savings. Motorola and partner Ericsson provided the LTE site equipment and subscriber devices at no cost. Sonim provided the handheld devices. OnCall provided body worn cameras, nMotion provided an unmanned aerial system (drone with camera), and Lociva provided some test equipment – a deployable LTE network in a box that we used as test equipment. Other accomplishments include an extremely successful tabletop exercise and a successful functional exercise on a live dedicated public safety broadband network. The project served to provide more outreach and education on what FirstNet is and what it can offer, maintaining interest and building support for the Public Safety Broadband project. We also hosted had an extremely successful industry day showcase at the SECB meeting.

Abley talks about the process to get authority for FCC licensing, which is a lengthy and was a significant accomplishment. This was complicated because this is a special case. FirstNet has a license to the FirstNet spectrum nationwide in law, and FirstNet can enter into a lease, but in order to have access to spectrum, you need a lease from FirstNet, along with special authority from the FCC. That goes through a special agency at the FCC for special projects that's set up for experimental types of projects which takes even more time.

There were some technical difficulties experienced at the functional exercise. One major goal of the project was to demonstrate the capability of keeping a small piece of the bandwidth for a public utility company during a public safety incident. However, due to a number of factors this was not accomplished. Mines asks Abley to elaborate on Great River Energy inability to perform this test. Abley says guaranteed bitrate is an

LTE feature that allows you to set up certain devices or applications with a guaranteed amount of throughput. Great River Energy wanted to set up some sensors and elements of their SCADA network to always have service no matter what was going on in the network. It would be a very small amount, but they wanted to test it live during a real exercise with lot of traffic on the network. They were not able to include that in the exercise and test the feature. Due to Later in the project when they were getting prepared to set this up there was a feature that was not enabled on the equipment provided by Motorola, and we weren't able to get that activated within the time frame of the project and within the time frame of the legal authority to operate on the network. He adds that it is not that uncommon to get equipment that doesn't have a feature enabled, you need to get a software license, a technician to install it, etc. It just didn't come together in the timeframe available. Mines adds that when doing a test or pilot like this you can have all these different factors. Everyone is volunteering time, energy, and resources. We had this long lead time with the FCC waiting for approval. She says the vendors really couldn't or didn't dedicate their time until there was a deadline. Creating those deadlines for industry day and the tabletop exercise really moved along this volunteer activity. That's something to consider when asking companies to volunteer their time. Until there's a specific deadline, they won't fly people in and effective testing won't happen until right before the deadline is due.

Abley says that's a good point and uses Motorola as an example. They had support from their Government Affairs people, but they couldn't get permission to send us the equipment until we had the license in hand. During the first part of the project, there was a lot of waiting around because everything was contingent upon the license. He adds that the technology solutions demonstrated at the functional exercise required further testing and configuration. A lot of equipment was pre-market and not ready for primetime.
We also learned that consistent and effective project management is crucial; for example, each time a new person took over the project, it was disruptive to the project. Originally, Great River Energy was managing it then asked if ECN could project manage it. ECN project manager left state employment, then a new employee was assigned but did not continue through probation and ECN requested that Televate complete the assignment. Abley goes through the timeline of major events, which originated with the project starting in July 2014 and ending with the November 2015 functional exercise. As of December 2, 2015, the network has been turned down and is no longer broadcasting as of today.

Abley showed a simplified diagram of the LTE core network architecture. He went on to describe technical issues experienced with interference on the network.
An issue that impacted our Wi-Fi on exercise day is that one of our command trailers was aluminum, and you are not going to get a signal into an aluminum trailer, or not a very strong one anyway. That is probably the main reason dispatch had poor service in there. Wi-Fi uses unlicensed spectrum, so if you have a whole bunch of hot spots or Wi-Fi signals, you'll run out of channels and they will interfere with each other. That happens commonly in places like high-rise apartments.

Rod Olson says he noticed the benchmarking tool was an html-based tool and asked if he was able to do anything with the VPN – anything encrypted? Abley responds that we didn't do anything over encryption, and we didn't use any diagnostic tools. We were just trying to test under different scenarios how the throughput would be affected, so we would take a number of samples at each location.

Abley discusses fleets that were at the exercise – different pieces of hardware and software. The more interesting part of the fleet was a Push-To-Talk service that was operating over a broadband network provided on a hosted basis by Motorola. We also had body-worn cameras that were provided by FireCam, a

drone provided by nMotion and Toughbook computers provided by St. Cloud. We ran the exercise off of Elk River Fire Department's CAD system with client software and a smartphone to dispatch people and send updates back and forth.

The Industry Day in October 2015 at the SECB meeting included a panel presentation and a mini-conference by vendors and providers, which made the technology showcase beneficial and more effective, and it was very well-received by Board members and guests.

Mines says quite a few Board members remarked at the Industry Day that now FirstNet and what it can provide seems real and they were excited. That is one of the things we wanted out of the pilot was to demonstrate what a public safety dedicated broadband could do and to make it seem more real to people.

Abley reports on the tabletop exercise, which was held on August 26, 2015, with support from the US Department of Homeland Security. This is an activity that was not part of their program – staff had never done an exercise of this type before. We had to work together to create the exercise, and it was a challenge. The premise of the exercise was a train derailment near Elk River, with hazmat situations as a result. Cellular networks were down because of media activity and the general public, but first responders had a dedicated broadband wireless network to work with. The tabletop was well attended. There were 72 participants from 43 different agencies, which included federal government, all disciplines of state and local government and the army. The facilitator was excellent. It was a very successful event, and participants had a really good experience.

Mines says the tabletop yielded the most valuable information for us as to what we need to focus on in the future to prepare for FirstNet. We had a great advocate in the facilitator, who came up with an exercise focused on the fact that whether FirstNet comes into existence or not, they are using this technology today. We have to start looking at the future for what kind of changes we have to make in hiring, what kind of skillsets people need, what we have to communicate better about who's managing this data during and after the event, what role does dispatch play, how to engage emergency managers more in this process. There are a lot of takeaways from the tabletop to consider.

Abley says that the OEC has a report with recommendations. Many of the points came down to expanding outreach efforts related to public safety broadband. An interesting insight is that agencies that do use broadband should mentor other agencies that are just beginning to or don't today. They recommended establishing a working group to develop data sharing standards. They recommended including some specific technical proficiencies to support broadband in future hiring profiles, like modifying your job descriptions now to think ahead a few years about the people you want in those environments. Also to investigate opportunities to work with educational institutions to mentor students who can support public safety broadband in the future, and to provide training to agency IT staff on public safety technology so they can better understand responders in the field.

The functional exercise was held in Elk River on November 24, 2015. It was a live, functional exercise that used pilot network and demonstrated our technologies. It was originally envisioned as a culmination of all other project efforts. There were dozens of agencies in attendance, including law, fire, EMS, the US Army, and FirstNet. We had technical support provided by Washington County, Douglas County, Sherburne County, and St. Cloud. In particular, we had a lot of support by Washington County, with Nate Timm putting in long hours to get things set up. Participants were not allowed to use radios. They could communicate

with push-to-talk but only over broadband. There were some complaints about the audio quality, but that was probably the device and not the technology. We had streaming video via a body-worn camera (it was spotty during the exercise because the client software kept crashing but we could demonstrate how it worked) and streaming video by an aerial drone, which was not very reliable through the exercise. We could appreciate the novelty but couldn't include it as an effective part of the exercise, because the video was just not available. We used CAD terminals, and we sent some emails, as well.

The exercise was divided into four stations: field personnel, field dispatch, field EOC, and field incident command post. We operated out of trailers onsite, and participants completed two exercise rotations communicating only over the broadband network.

Successes of the functional exercise included demonstrating a dedicated broadband network to participants and new devices unfamiliar to many participants including apps that might be used in an emergency event. People were really interested in the cameras.

We had some challenges including significant technical issues, which made the exercise less effective than it could have been. A lot of this was driven by low throughput on exercise day, especially in command posts. There may have been increased interference on that particular day that they did not have on previous days. Again, one command post was in an aluminum vehicle, which they had not noticed until well into the exercise, which is why it was difficult to get Wi-Fi. Video feeds from body-worn camera and drone were sporadic – frequent software freezes/crash.

After the exercise, we issued a feedback survey. The majority said the exercise met or generally exceeded their expectations, but we didn't have the same enthusiasm as we did at the tabletop. Everyone said they learned something – nobody said they learned nothing, so it wasn't a waste of time.

Mines said the exercise was the hardest to pull off, partly because you don't know what you don't know. There was a lot of preparation dependent on volunteer time and personnel and time constraints. It was hard to envision how to make it work, and unfortunately, we did not have enough money to hire the tabletop facilitator to do the exercise. Then we could have had Abley working on technology in the background and troubleshooting and the facilitator in the foreground walking us through. It was a lot on Abley to make both work. Overall, it gave people a good perception of what could be different.

Mines adds that she appreciates all the hard work command staff put forward in providing their materials and also thanked Nate Timm for all his time and hard work over the course of the exercise. She thanked Brian Zastoupil for his hard work on the technology side, as well. It demonstrates over and over again that there is so much cooperation among all the public safety community and the stakeholders trying to make it a success and work together. That is a huge takeaway that we can be proud of in Minnesota.

Abley says to conclude, the project team feels the project was generally a success. It allowed project team members to evaluate and demonstrate public/private partnership opportunities. Outside of labor, the state didn't really need to invest much money. Most of the work and value was contributed by other people at their own cost. It was interesting to work with a small rural cellular carrier and utility company. The project team did deploy a Band 14 public safety broadband network, which is a significant undertaking.

Despite technical challenges, the functional exercise participants rated the exercise fairly well. Over 90% of participants reported they were satisfied or better, and 100% had learned something. Industry day and the table top exercise were big successes. The tabletop was also beneficial for communications in general.

Mines thanks Abley and says she really appreciates his dedication and effort throughout this whole process. She knows he's been moving on to other projects, and he has been very gracious to continue on with this and make it work with his schedule. She says we benefit quite a bit from his knowledge and experience and she relays her gratitude.

Mines adds that for the tabletop exercise, we received an After Action Report. She would like to do a strategic planning session around it and will send it out to everyone. She wants to dedicate one of the next meetings to that report and how we might achieve some of the outcomes.

Chair Risvold entertains a motion to approve the report and move it forward to the Board.

Wanchena moves to approve the LTE Pilot Project Summary Report.
Jake Thomson seconds.
Motion carries.

Meeting adjourns at 11:16 a.m.

Minnesota's FirstNet Consultation Project (MnFCP)

FirstNet RFP Briefing

presented by:
Jackie Mines, Director of Emergency Communication Networks (ECN), DPS
Brandon Abley, Consultant
Televate (contractor to ECN)

February 16, 2016

Overall Key Points

- The RFP is an "**objectives-based**"
  - Many **evaluation factors**, few **requirements**
  - Appears to be intentional strategy allows a wide variety of creative solutions from vendors
  - It is a massive document; **over 500 pages**; many attachments

- Any qualified vendor would likely have to be a **commercial cellular carrier**
  - OR—be partnered with a cellular carrier
  - A "greenfield" proposal is not likely

Overall Key Points

- The most important metric is **subscriber adoption**
  - The vendor is penalized for not reaching adoption targets
  - Many metrics and evaluation factors are tied to adoption
  - This is a clever strategy: good service will get a lot of subscribers

- The vendor assumes **nearly all aspects of the service**
  - The vendor handles implementation, operations, etc.
  - The vendor also handles sales and marketing
  - **The vendor has the right to market itself as "FirstNet"**, including the right to use FirstNet's trademarks

Key Dates

- Contract: November 1, 2016
- Vendor markets “FirstNet” service: 6 months after award
- State Plans: Q1/Q2 2017
- First Band 14 FirstNet RAN sites: April 30, 2017
- IOC-3: 24 months from award
- FOC: 60 months from award

IOC-3

- IOC-3, or “Initial Operating Capability Phase 3”
- **24 months from award is a key date**
- Vendor is required to:
  - Have over 50% of the proposed user base
  - Have over 60% of the proposed Band 14 spectrum
  - Provide mission-critical services **including PTT**
  - Provide public safety priority services

Schedule Breakdown

IOC-1 6 months	• State Plans Delivered • Nationwide Coverage (Band 14 or non-Band 14) • Deployment of “App Store” and application developer tools
IOC-2 12 months	• Complete CRM, sales, billing, and financial business support systems specific to FirstNet • 20% proposed urban and rural coverage • Consumer grade PTT • Band 14 devices available
IOC-3 24 months	• Achievement of 50% of Contractor’s IOC-5 public safety device connections target • 60% proposed urban and rural coverage • Mission-critical services including PTT and public safety priority • Core additions for state-deployed RANs
IOC-4 36 months	• 80% proposed urban and rural coverage
IOC-5 48 months	• Achievement of 100% of Contractor’s public safety device connections target • 95% proposed urban and rural coverage • Mission-critical video solution
IOC-6 60 months	• 100% proposed urban and rural coverage

Section M – Evaluation Factors

- **Objectives-based** procurement
  - Few requirements, many objectives
- Evaluation Factors:
  - Business Management
  - Coverage and Capacity
  - Products and Architecture
  - Offeror's Value Proposition Assessment
  - Past Performance
- 15% of coverage shall "include partnerships with rural telecommunications providers"

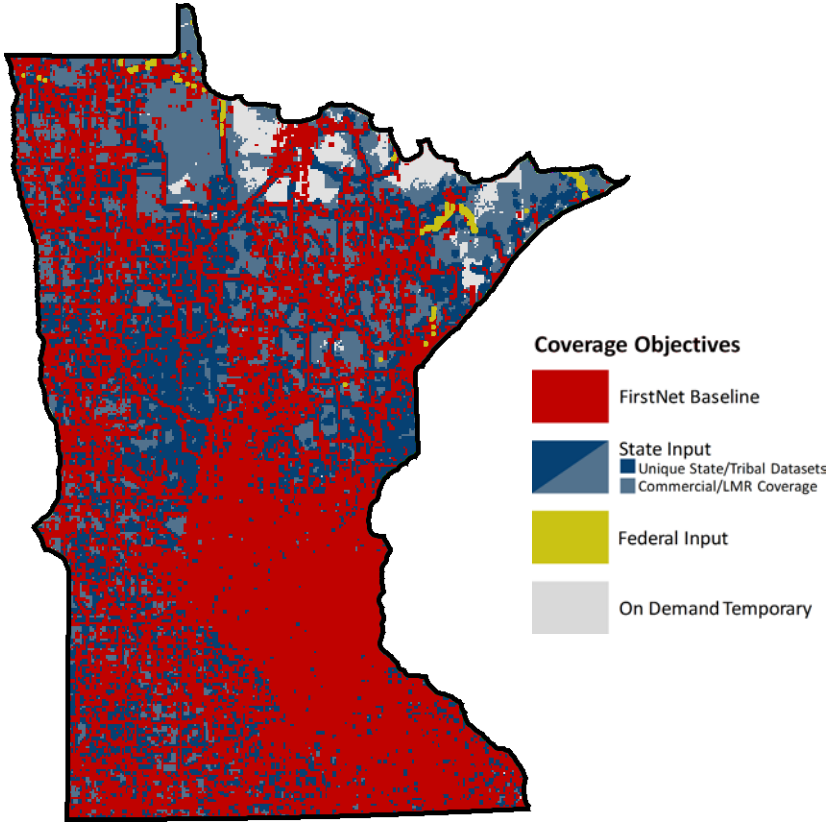
Section M – Evaluation Factors cont.

- Business Management:
  - Project Management and the ability to “achieve the state solution”
  - Customer Acquisition & Support
  - Life-Cycle Sustainment: activation, repair, tech assistance, retention, billing,
  - Financial Standing (of the offeror)
  - Device fleet
  - **Most heavily weighted factor in the RFP**
- Coverage and Capacity:
  - Non-Band 14 Coverage Area and Population Served
  - Band 14 Coverage Area and Population Served
  - Band 14 Network Capacity
  - **State coverage submission directly cited, but included in coverage objectives**

Section J-1 – Coverage and Capacity

- Coverage and Capacity:
  - No minimum coverage requirement in the RFP
  - However, coverage is a major evaluation factor
  - Coverage is defined ONLY in terms of throughput for an unspecified device
    - **3 feet, outdoor 50% uniform cell load, cell edge**
    - **768k down/ 256k up at the cell edge**
    - This is **sufficient for CAD, data transactions** and PTT. Not for video
    - Risk: Without specific engineering criteria, Offerors may have latitude to “play” with their projected coverage, or Offerors may use inconsistent criteria and not be easily comparable

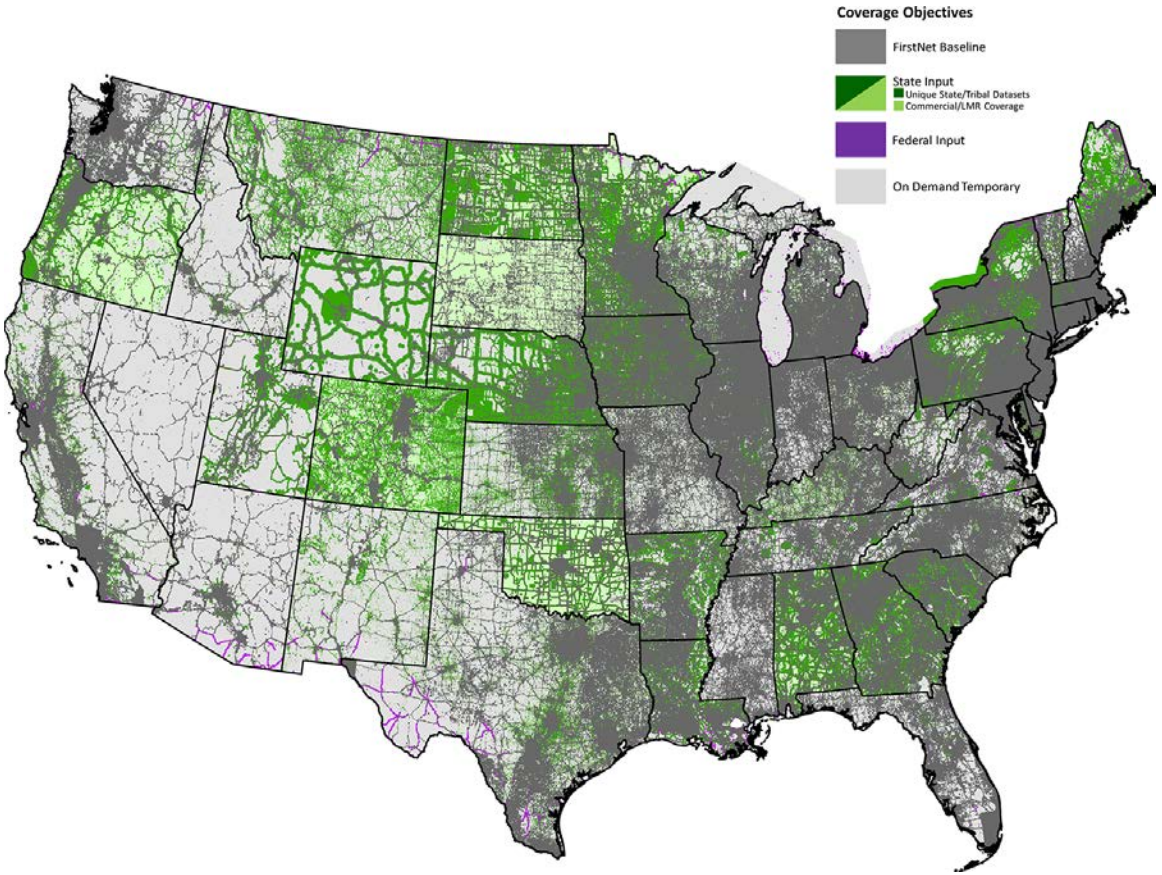
Coverage



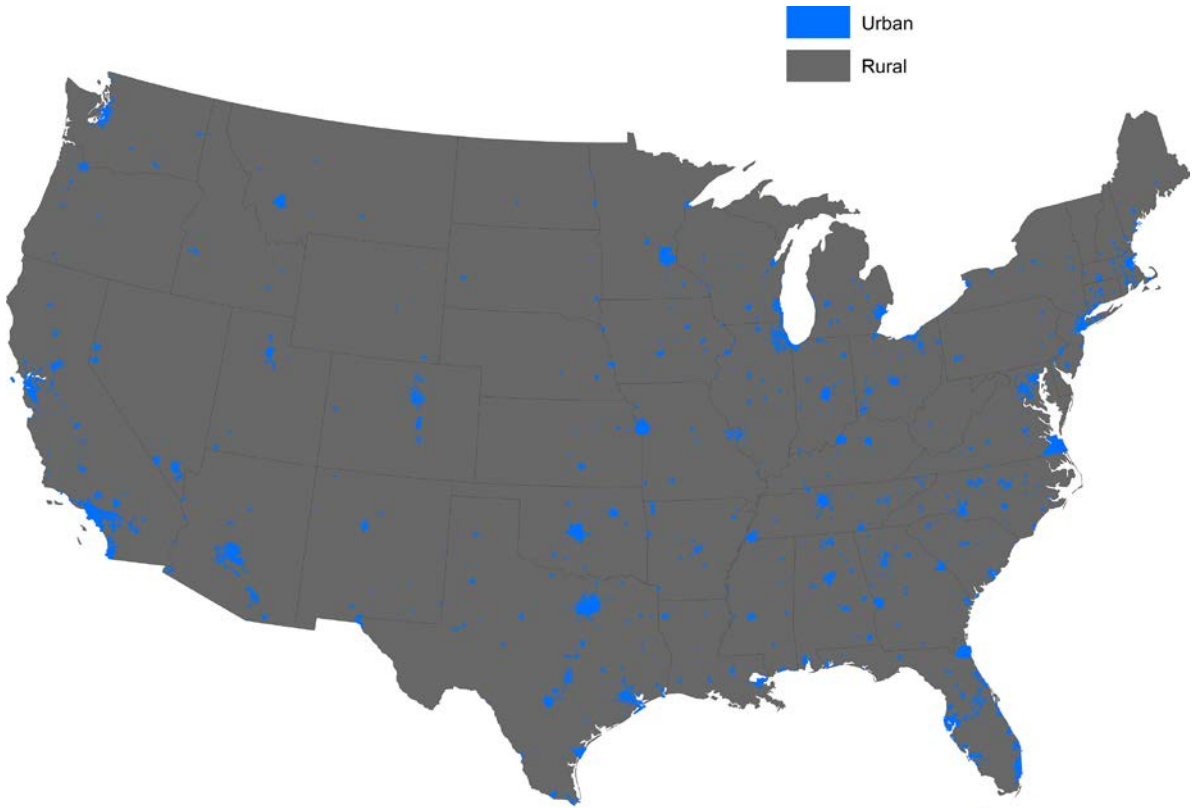
- FN coverage objective is FN baseline+state-submitted data
- Provides coverage for about 97% of the state
- **This is an objective, not a requirement**
- Offerors will be evaluated **state-by-state** based on how much of the FN coverage objective they meet

Category	% of State
FirstNet Baseline	67.38%
State Datasets	23.96%
Commercial/LMR Coverage	4.89%
Federal Input	0.67%
Temporary/Deployable	3.11%

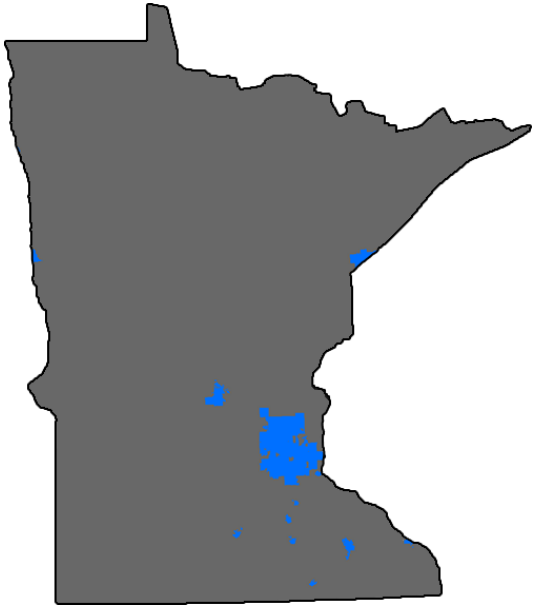
Coverage


Coverage Objectives
FirstNet Baseline
State Input
Unique State/Tribal Datasets
Commercial/LMR Coverage
Federal Input
On Demand Temporary

Rural Areas



Rural Areas



The definition of “rural” has some interesting results across different states.

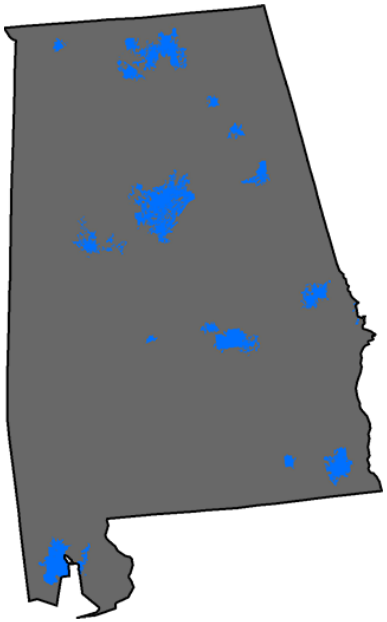
E.G. Minnesota and Alabama:

Minnesota:

- 1.91% urban; population 5.46 million
- Density 68.9 pops/sq mi
- Twin Cities MSA: 3.4 million people

Alabama:

- 4.53% urban; population 4.84 million
- density 95.4 pops/sq mi
- Birmingham MSA: 1.3 million



Applications & Security

- RFP includes an “app store”
  - Concern: This could segment the market
  - Play Store (Google) and App Store (iOS)
- Section J-4 System and Standards:
  - Calls for “Third Party Apps”, but mentions “(FirstNet certified)” for those third party apps
- Section J-10 Cybersecurity
  - This section has over 100 evaluation criteria—nearly all marked as “SHOULD”; a few are listed as “must”
  - **Encryption for traffic and stored data required**

Disincentive Payments

- The vendor is penalized if it does not achieve its target adoption rates
  - Vendor pays full payment at less than 70% of target adoption rates
- These payments increase over time, but average $2-$3M per year for Minnesota
  - Starting from year 6 (FOC) to year 25 (end of term)
- This is the main penalty engineered into the RFP to manage the vendor over the life of the service

Summary

- FirstNet's RFP is a **massive, detailed and creative approach** to providing NPSBN service to the nation
- The **vendor assumes most aspects of the NPSBN** including managing the service and all sales and marketing
- The **coverage objective for Minnesota is 97%**
- The RFP is almost entirely **objectives-based**
- Qualified vendors will likely have to be or be affiliated with a **major carrier**
- State plans and basic "FirstNet" service available after **6 months**
- **After year 2, the service is fairly mature** and provides most of what it will provide. **Later phases are mostly filling in coverage**.