



FloridaNet Technical Committee Meeting

7/17/14

The FloridaNet Technical Committee had a meeting on July 17, 2014. The following members and guests participated:

Name	Affiliation
TECHNICAL COMMITTEE	
Greg Holcomb, Technical Committee Chair	Lake County Public Safety
Rob Fortner, Region I	Bay County Sheriff's Office
Rolf Preuss, Region III	Flagler County
Terry Nehring, Region IV	City of Tampa
Rich Steiner, Region V	Orange County
Richard D'Orazio, Region VI	Collier EMS
Cindy Cast, Region VII	Miami-Dade County
Norm Poe, UASI	Orlando
OTHERS	
Kevin Herndon	Florida Fire Chiefs Association
Brett Boston	FloridaNet
Larry Gowen, FloridaNet Program Manager	FL Department of Highway Safety & Motor Vehicles
Bobby Brown	Seminole Tribe of Florida
Mike McHargue	FL Department of Health
Greg Rubin	Miami-Dade Fire Rescue
Tim Langdon	FL Department of Law Enforcement
Robert LeFiles	FL Department of Law Enforcement
Don Nagle	Kimball Consulting
Josh Mindick	Boca Police Department for FPCA
Tabitha Hunter	FL Department of Management Services
John Ford	FL Department of Management Services
Dan Keppel	Harris Corporation
David Gleason	Telecommunication Systems
Tony Rodriguez	FL Department of Law Enforcement
Dick Tenney	Department of Homeland Security
Rob Dew	SAIC, DHS/OEC vendor support

Called to order at 9:00am.

The following topics were discussed:

1. [Introductions and Overview](#)
2. [Project Status Update](#)
3. [Plans for Upcoming Coverage and Prioritization Workshop](#)
4. [Broadband Map Tool](#)
5. [Secure Portal](#)



6. [Data Analysis Process Presentation from DHS \(Dick Tenney/Rob Dew\)](#)
7. [Action Items](#)

1. Introductions and Overview

The Technical Committee was presented with six of the seven regional chairs. They represent different areas throughout the state and will be able to get information out locally. All technical committee members go through Greg Holcomb. Due to size of members and coordination efforts, it becomes a challenge to gather everyone, so we have a core committee of representation. This committee gathers the regional chairs and various other disciplines (e.g. EMS, fire, etc.). It is not a closed group, so if anyone should find that an area is not being represented, please speak up and let the committee know. Many various areas can be represented within the public safety group. These meetings are mainly for planning and not necessarily to be just informational or to exclude anyone.

2. Project Status Update

Overview of FloridaNet

**Project approach for designing a
National Public Safety
Broadband Network (NPSBN),
formally known as D-Block,
now called FirstNet**

July 2014



This presentation was prepared by FloridaNet using funds under award 12-10-S13012 from the National Telecommunications and Information Administration (NTIA), U.S. Department of Commerce (DOC). The statements, findings, conclusions, and recommendations are those of the author(s) and do not necessarily reflect the views of the NTIA, DOC, or FirstNet.

Challenge so far has been FirstNet. Thought that once Phase I items were complete, that consultation would start, but this has not been the case. It's an iterative process. There have been changes in direction from FirstNet, and as of now, they say that usable asset data collection is part of Phase II. In our situation, data collection might have to be done twice, unfortunately. Moving forward, there are two pieces that we're going to be focusing on. The first piece: DMS has been doing great work building a coverage map tool, under a separate grant unrelated to FirstNet, that FloridaNet can use to model



after. The second piece: FirstNet is following Florida and Dick Tenney, from NTIA, will discuss the national model.

There has been a lot lacking from FirstNet in direction, so it's been hard to move forward. They are unclear about MOAs, unclear of who's in charge (DOC, NTIA, OEC, FirstNet), despite the fact that DOC controls the money, whether or not FirstNet is an independent board, and there has been a lot of personnel changes within FirstNet. This has caused delays in project. As reassurance though, it is legislated to survive through change in administration. Other states (e.g. South Carolina, Tennessee) have also expressed their frustration. In other areas, groups of states have joined together to work together towards a common good (e.g. MACINAC). What we can do is follow the process and talk about coverage, users and contract vehicles. And the overall opinion is to use this to Florida's benefit and have meetings to further the project but also to work to better public safety for State of Florida.

Utility companies have been involved (i.e. FPL, Verizon), but it is not the intent of FloridaNet to do procurement. This is about working as a collaborative team, so no sales pitches.

3. Plans for the Upcoming Coverage and Prioritization Workshop

Originally 3 rounds of workshops planned. Round 1: Get out and inform. Round 2: Broadband data coverage. Round 3: Design the data coverage workshop.

Three main areas to focus on: Broadband coverage, contract instruments, and potential user groups.

Broadband coverage: get out and get maps of coverage from everyone; no one excluded. Bring data back and put together at a regional level using tool to create several layers. Look for coverage needs, prioritization. Each region would put together their prioritization needs. Each region would put together their own technical committees to get a cross-disciplinarian of representation. Essentially, there would be 67 mini committees based on the counties. Those counties would come together regionally. Then those regions would come together as a state and put forth the needs as a state. The tribal community is unique, since the federal government deals directly with them, but they should be included in the state talks.

Larry – Status update: Completed education and outreach. Relationship with FirstNet/NTIA is evolving. Revised and submitted new budget to reflect the better understanding of what FirstNet wants. NTIA has an upcoming visit (8/5/14) to review our status. New budget includes our proposed GIS tool and governance/local control. To continue promoting FloridaNet/FirstNet, if anyone needs education and outreach in their area, please speak up. We are trying to be as inclusive as possible.

RFI update – 19 responses from vendors showing how they would build FloridaNet/FirstNet. No one has reviewed them because the NTIA declined our request to use funds towards reviewing RFIs for educational purposes, because it seemed too much like procurement. Since this is not going to be funded by FirstNet, there's a thought that Florida Highway Safety & Motor Vehicles will use funds to review and create a white paper.



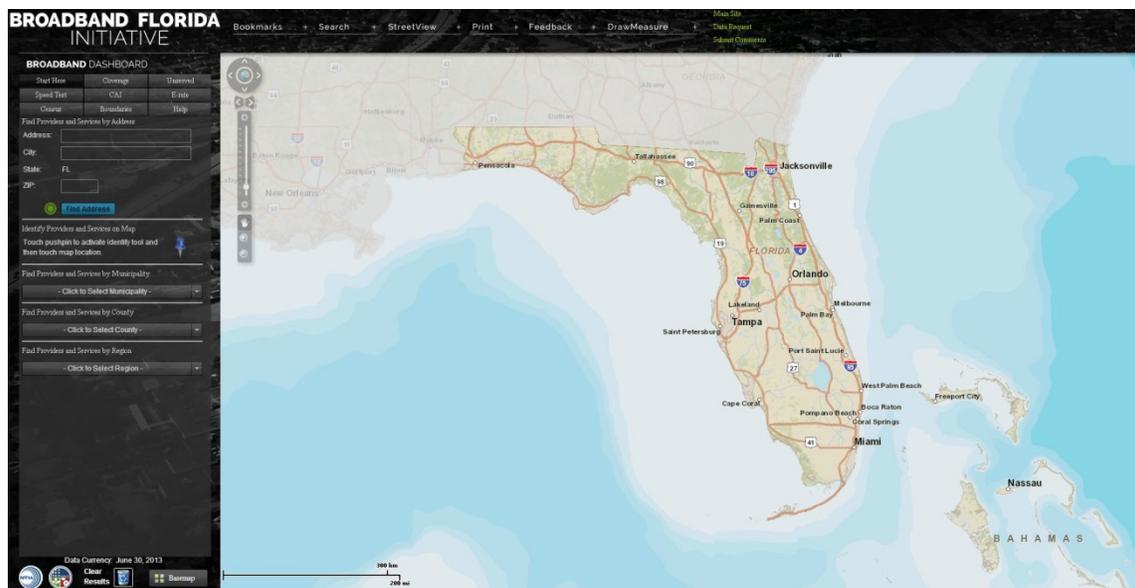
Is it possible to get other sign-up sheets from other coverage map session of other regions so we can coordinate? Yes. We will be able to break out that by region. Also, the website is available to promote outreach. Membership is available. Contact us, through website, for further information or questions.

Action Item: Get info to 7 Chairs on Workshop sign-up participation so they can reach out to locals.

4. Broadband Map Tool

Overview of broadband mapping tool that Florida Department of Management Services (DMS) created under the State Broadband Initiative (SBI) Grant. The SBI tool has a variety of layers including coverage and verification. Community anchor institutions (CAI) were used but not successful in retrieving information from them. Confidential information is not accessible. Since the tool is similar to what FirstNet-FloridaNet is looking for, FloridaNet will have a similar looking tool, but not this actual one. FloridaNet will work with DMS to assist in coverage information and provide verification.

Link to map: <http://map.broadbandfla.com>



Challenges: How do we collect data for upload/download speeds/capabilities and required upload/download speeds to do job? Data collection from public safety was not part of the SBI grant so they didn't have a way of requesting. As it stands, upload/download speeds were collected from the community anchor institutions.

Data requests were sent out to all providers, not just the four main ones, and any received data was put in the system. Information received from wireless and wireline providers is published data. DMS verifies that the information provided from the providers is fairly accurate. There is also the 'Speed Testing' method. This method helps with comparing what information has been provided and what is actually happening. But it won't be essential to acquire every square foot of area, but rather gather the



information pertinent to each county that way a governance structure can be formed that caters to each county. This also will help coordinate efforts between DMS and FloridaNet.

Username and password required to use tool. The tool will be used to refine and better accurately reflect the coverage provided, rather than editing. This will help with the LTE vs. LMR distinction.

Is there an automated system to handle collection? There are two: DMS was going to pay for an application called Mobile Pulse, but due security issues could not be used. The other is called Signal Alert which is an app for your mobile phone that documents the latitude and longitude of areas that drop service.

Essentially, we want to keep projects moving forward and use the funds to strengthen Florida. When information from SBI grant is sent up to Federal government, then they will take that information and attempt to provide coverage to areas that are lacking.

This tool will be helpful since it will be a systematic way of collecting data. Everyone will be using the same tool. So moving forward, when the tool is recreated then we can add new features that would be beneficial to public safety.

According to the NTIA, definition of broadband is 768kB. To get a better picture for Florida, DMS used the FCC's definition of 3MB and used only wireline. This showed a more accurate picture of gaps, whereas wireless showed complete coverage.

Concerns over two different things: Should we verify current coverage or figure out where critical coverage is provided? Yes to both.

Moving forward, possible things to think about for Phase I: What types of things you want to ask for and going forward what will we need? This process will take several iterations. We need coverage and capacity, especially during an event. Also what is your desire when the public safety broadband network is put together? Define what we need, despite the fact that there will be a huge spectrum available. The key will be to decide who will be the data gatherers in each county or area. We will provide them with the training on a stand-up version of the software. Part of the tool can have definitions to promote consistency.

As far as build out, will this eliminate the need for cell tower on wheels, portable assets, etc.? In an ideal situation, yes, but there might be a need for it when/if a network goes down, or an area doesn't allow for broadband.

For this phase, need to concentrate on coverage gaps/needs and contract vehicles. This will be a tiered validation process. We will need to get everyone involved. And some of this will be automated. This tool will be the centerpiece of this committee and is customizable.



Broadband Planning Toolkit – a tool provided by DMS to help with the process of understanding. Tabitha to provide link. *(DMS currently working on ensuring there's enough capacity to handle users before providing link.)*

Concern over coverage over water. FWC requesting 25 miles off shore, which might be a challenge for LTE. FirstNet has not made a requirement for this yet other than using satellite.

Discussing over propagation models, big four phone companies, reseller, carrying air cards from multiple providers. No matter what this information is, FirstNet is basically going to attempt to provide 100% coverage after we give them the gaps/needs. We will need to look at prioritization at the border of Florida.

5. Secure Portal

Problems we've looked at: 1) The information might not be sensitive, but when you start to aggregate data, then it might become sensitive. 2) We've been working for 7 months trying to figure out secure public safety information. We've approached the Federal government and they don't know how to protect it yet. Since Florida has their Public Records law, this is an issue. DMS was able to reassure providers about security because they entered into non-disclosure agreements with them. We've been looking into PCII model.

Everyone logs in and can only see what they put in. And moving forward there will be tiered levels so only a certain amount of people see the information as it gets more and more aggregated. Not necessarily to preclude anyone but to protect the information. But going forward, the Federal Government is going to have to define how we can protect that.

Utilities, schools, etc. included? Who has access? They will be included, but not sure if they're going to be primary or secondary and not sure about access. FirstNet has to define this also. Would we want every school to have a FirstNet connect? What about in-building coverage? Concluded that FirstNet will have a presence at every school.

Philosophy for this survey:

What do you want the survey to cover?

- Users (numbers of users, types of users, demographics, who are your first responders within an institution, data devices, potential subscribers)
 - For education: potential user in FirstNet's world is a current subscriber in today's world
 - Definition: Those users today (including education) that are currently equipped with entity provided devices
 - *Further discussion on education and their connectivity to FirstNet. Federal grant already in place to assist with broadband for schools, so there could be collaboration between that and what FirstNet is going to do. Costs could be offset.*

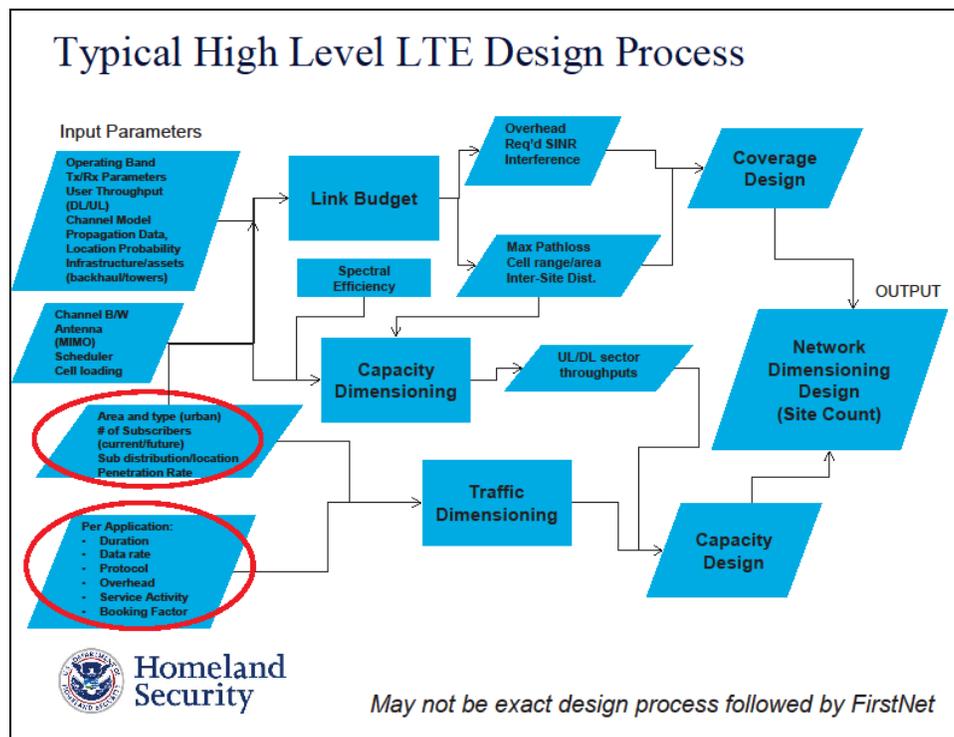
- Contract vehicles
- Coverage gaps/needs

Other potential questions: Bring Your Own Device (BYOD)? Is this a possibility? Cost provided?

6. Data Analysis Process Presentation from DHS (Dick Tenney/Rob Dew)

Discussion: FirstNet will be consulting with Maryland first, then Oregon, Washington, and Minnesota, running from July 29 to October 18. They will gather information and regroup moving forward to prepare for meeting with more states, possibly four or five at a time. It will be an iterative process.

Background: Rob Dew is an RF Engineer and has worked on wireless priority service and has an extensive background in commercial wireless industry. He was part of the original RFI process, so is familiar with what FloridaNet was looking for. Originally did a nominal design for Florida, parameters: 100,000 users, 200,000 users in 10 years, 98% probability, 1 Mb download/256kb upload at the cell edge, 25 nautical miles offshore and came up with approximately 5000 tower sites required.



Capacity and coverage limited design. Since FirstNet hasn't hired their RAN director, they don't know what their capacity guidelines will be. Capacity planning can easily be done by assuming a certain amount (upload/download speeds) per user, or per type of application. In Florida, the number of LTE sites required depends on a lot of factors, but possibly 1500-2000 sites would be adequate. Penetration

rates are all different depending where you are but on average 20-28dB penetration loss added to equation is what is used. Possibly 10% will have to be small cells not just for capacity but for in-building penetration. Keep cell loading to 50-60% to prevent interference or odd behavior. Originally designed a dream system, with nothing out there (green field), but this would be very expensive. It would be cost prohibitive to build own tower sites, so most likely it will have to be a shared system with the commercial carriers.

The following slide shows the critical information that we will need:

Traffic Model/Profile Input Data (High Level)

Areas circled in red on previous slide

- Number of subscribers/first responders
- Type and number of devices
- Location of subscribers/first responders
 - Distribution per deployment area (dense urban, urban, suburban, rural)
 - Indoor vs. outdoor
- Data usage/volume (MB) per application (both DL and UL)
 - Duration (s)
 - Data Rate (kbps)
 - Protocol Overhead
 - Service Activity
 - Overbooking factor

Ideally, would like get the above for both:

- Typical busy hour
- Public Safety Incidents (3 or more)
 - Type (e.g., RNC)
 - Scale (e.g., 3x, 5x, 10x overload)



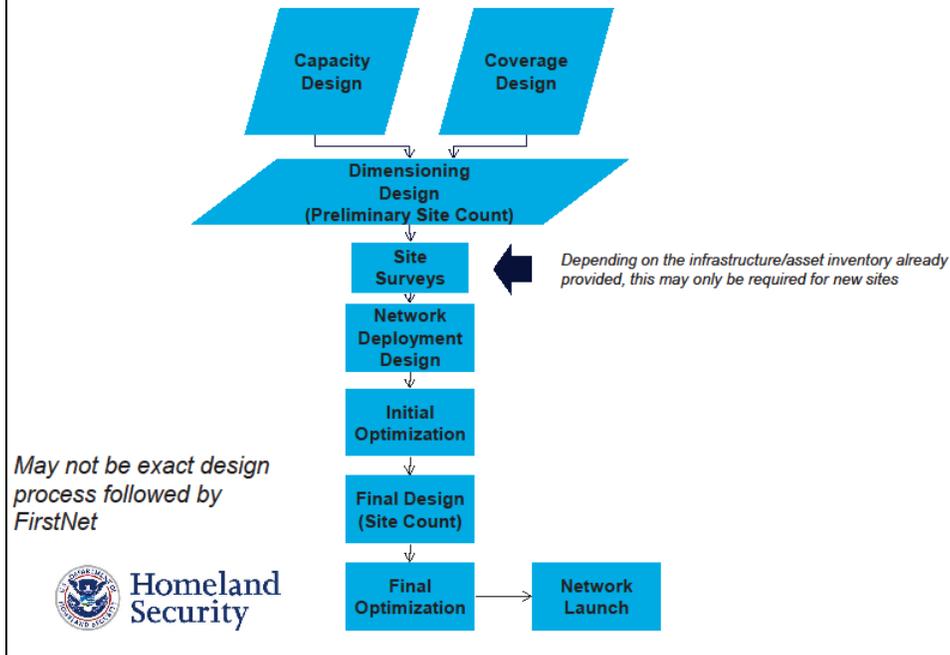
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NetMotion – Highway Patrol as an example. Great to have that as data collection, but how do we get from there to the local level? Offer survey that they can fill out.

Florida is 'tower-rich'. We have 10,141 towers in Florida, both public and private, so we should be in good shape as far as towers are concerned. We need a lot of factors that we don't have now, and so it's going to cost more.

How do we survey commercial carriers for applications that don't exist now but might be up five years into the future? Use the traffic profile model.

What Happens Next in Typical LTE Design Process?



Someone is going to have to do the site surveys, but it might be as a last resort. FirstNet is looking into how to do this better. Is there a tool to use without purchasing licenses? There are applications for the phone. A solution might be to have a concurrent sampling tool. Is this acceptable and how do we deploy around state because there might be security concerns with each agency? Is everyone willing to share their information? Other things to consider: people coming into the state.

Capacity planning will be crucial with spectrum sharing arrangements. Moving forward presents a challenge since FirstNet has not given any clear direction. Florida is trying to stay ahead and is willing to come up with the coverage model if necessary. Risk of invalidation. Do prioritization portion, critical coverage areas. And in 2nd phase catch what's missed.

Goals and Things to Think About:

- Information exchange
- Decision on what input parameters for traffic model/profile
- How to collect these input parameters?
 - Not every organization has S/W tools (e.g., NetMotion, RadioIP, MobileCEM, JDSU)
 - Surveys?
- Deliverable for FirstNet would be traffic profile/model
 - Will FirstNet even ask for this? There is interest but no formal format.
 - FirstNet primarily concerned with coverage at first! Flat rate method for capacity? (using FCC guidelines of 768 kbps DL/256 kbps UL?)
 - Capacity design will become more crucial pending spectrum sharing arrangements (with carriers, utilities, other non-responder tenants/roamers)
 - Exact format still not known, exact information FirstNet wishes to collect still not known but should have some feedback in next few weeks
 - Probably need to wait until SLIGP Phase 2 (data collection) and responses to FirstNet Comprehensive Network RFP to know for sure exact FirstNet direction
- Mobile data usage report will allow baseline/benchmark:
 - Determine if FirstNet is improving current mobile data usage
 - Determine baseline for future needs/trending
 - Determine which data plan (if not unlimited) to place first responders prior to FirstNet on-air and for commercial roaming (when FirstNet is on-air)



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Goals and Things to Think About:

- How to enhance, compliment traffic model/profile?
 - Merge Automatic Vehicle Location (AVL) tool data (includes location) with mobile data usage tools (e.g., NetMotion, RadioIP)
 - Request commercial carrier BH data for first responders
 - Call Detail Records (CDRs) data form commercial carriers
 - Identify data applications which can be loaded on SmartPhones to track data usage
- Traffic profile/model (current) for mobile data usage may not reflect future traffic model when FirstNet is deployed
 - New applications will be used (sensors, M2M, etc.)
 - Application use may shift
 - FirstNet will have priority mechanisms which may not be currently available on commercial networks during times of network congestion
 - Will also depend on roaming agreements with commercial carriers (if implemented in FirstNet)



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Collect the data, work on governance, and then wait on FirstNet to provide requirements for what assets we need to collect.



Challenge of reoccurring events in a city, town, etc.? X2 Interface positioned close to events- handle handovers, load balances, interference, where possibly small cells come in.

Commercial networks hesitation with FirstNet: Public safety user preempting public user for data usage in non-emergency situation through bearer connections. Deployables might be the solution. It all depends on the business case. Deployables are good when you don't need constant coverage in an area.

Access class barring – bars certain users depending on access class. At this time, for LTE, it's not dynamic. Might have with FirstNet, but in FirstNet, it's going to have to happen all the time. There will have to be advanced priority and vendors will have to implement that. A lot will depend on the roaming agreements with the carriers.

Device attaches to LTE network. When you attach the User Equipment (UE), handset looks for dip in energy, the center of the band (10MHz, 20MHz...). It looks for a DC subcarrier in the middle and then it knows what bandwidth it's looking for. Then it looks for a primary synchronization signal and a secondary synchronization signal. What's the physical cell ID of the enodeB that it's talking to? It gets the broadcast channel and relays the system parameters of the RF interface. It then goes through a Mobile Management Entity through to a Packet data gateway.

In the commercial world, you want to have quality of service priority and preemption. You will have different types of these bearers. These bearers set up the Quality of Service (QoS) parameters: what bandwidth you get at the enodeB, what your priority is going through the network, and what the delay is going through whatever application you're using. We're going to be interested in the guaranteed bit type bearers.

QoS class identifier – gives the priority to us based on who we are and what application we're using. Policy charge and rules function has all of those rules and how it's done and sends those rules to the packet gateway. The packet gateway enforces those rules. You get a default IP address. All of these items are stored in your subscriber profile. Preemption and arc have to be worked out and all depends on the agreements that FirstNet makes.

Rob's suggestions for survey: *(Survey Monkey design)*

1. How many users?
2. Where are they?
3. Coverage baseline from OEC Baseline
4. Area of operations
5. Where are most of your users ~~are~~ most of the time?
6. What data applications are you using?
7. How often are they using these applications?
8. How many people are there?



Rob will send an email with an outline with these items and other suggestions for survey, possibly similar to those that other states are using.

For design purposes, 1M download and 256KB upload is in the model. But in reality, on scene, responders are going to be uploading more than downloading, so why not a higher upload and balance it out? If design uses higher upload speeds then it might require more sites.

7. Action Items

- **Create GIS survey demo tool**
 - Unable to upload
 - Refer to DMS (Tabitha Hunter) to ensure tool is adequate
 - For reference

- **Create Survey Monkey to gather basic information (*User/contract vehicle survey*)**
 - Launch quickly to FloridaNet partner channels (By 9/1/14)
 - Main points: users, contract vehicles, coverage gaps/needs
 - Suggested survey questions
 - How many users?
 - Where are they?
 - Types of devices? Roof mounted vs. hand held?
 - Priority areas?
 - Coverage baseline from OEC Baseline
 - Area of operations
 - Where are most of your users ~~are~~ most of the time?
 - What data applications are you using?
 - How often are they using these applications?
 - How many people are there?
 - How many devices are you paying for today?
 - Rob to provide additional survey questions
 - Standardization of terms – definitions of what is being asked (i.e. rural, suburban, etc.)
 - Rob provided PowerPoint Presentation for reference

- **Develop NetMotion Strategy for State**
 - Major Williams to work with NetMotion
 - Get list of existing customers to include in sampling
 - Get deal for concurrent user license to fill in areas of state not currently on NetMotion
 - Get information to existing users on data needs
 - Share strategy with each uncovered entity on sharing of concurrent licenses and sampling protocol
 - How do we address security concerns with each entity when we attempt to deploy this?

- **Governance model for deployment of survey**
 - State Level>Regional I/O chairs > Counties (67)



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- Main: Fire, EMS, Police, Emergency Management, Sheriffs, Health
 - Others: Education, Utilities, any others who want to engage
 - Staff figure out educational data approach – central, local, DOE, etc...
 - Up to regional chairs to determine how to collect data
 - Federal government handles Coast Guard, still need to negotiate National Guard
 - Staff will put in state level data
 - If Federal/State data is collected, partition out data, don't want to double count
 - Share coverage mapping session sign-up sheets with regional chairs for coordination purposes, so they can reach out to the locals
 - If some areas don't participate, staff will assist with data survey
 - Steps for survey:
 - Draft survey
 - Technical Committee Review
 - Executive Committee approval
 - Out to Regional chairs by 9/1/14
- **Support Broadband Florida Initiative with verification**
- By assisting in upload/download speed testing
 - Determine if there is a mobile app that can assist with testing (capturing upload and download speeds)
 - Share testing protocol with all counties and partners
 - Communicate progress
 - Data will also be available to FloridaNet for its purposes
- **Develop FloridaNet Broadband GIS tool for gathering coverage**
- Deployment in October workshop, with first version available for testing September 1
 - Application will enable local partners, by county, to map broadband coverage.
 - Supply sampling strategy and approach in workshop and provide online WebEx training for use of tool
 - Develop governance model for management of tool deployment (NOT every entity needs to participate to get a solid picture of broadband data coverage in each county.
 - Select additional survey questions to include in GIS tool
 - Secure portal
- **Explore automated apps that might enable coverage mapping**
- Determine if coverage mapping can be facilitated by using phone apps to collect coverage data and speeds
 - Recognize that IT organizations may not permit apps to be loaded
- **WebEx on progress with Technical Team**
- **Review options for review of RFIs**
- FLHSMV to fund?



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- **Education and Outreach**
 - If anyone needs this in their area, contact FloridaNet.gov

 - **Think about what do we need when FirstNet is put together**
 - Coverage/capacity

Meeting adjourned at 3:37pm.