Response to the NTIA Notice of Inquiry Regarding the Development of the Nationwide Public Safety Broadband Network Issued on 2012 09 28

Department of Commerce Docket Number 120928505-2505-01

Illinois SWIC and the City of Chicago
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Illinois appreciates the opportunity to submit comments to the Department of Commerce - National Telecommunications and Information Administration Notice of Inquiry (NOI) regarding the development of the Nationwide Public Safety Broadband Network issued on September 28, 2012. Illinois commends the efforts of FirstNet and NTIA in starting to put a framework around this nationwide project.

Illinois has some observations on the process to date. There is a general vagueness in the instructions offered by FirstNet in soliciting information in this NOI. While this is appropriate for the mission set by FirstNet, but the information should be monitored closely. We are in desperate need for more detailed information. Our next concern is how much the vendor community is involved upfront. Certainly the vendors are the key to the implementation of the network through their technical personnel and solutions. But what is important is that the needs of public safety (First Responders) are addressed first and foremost. Finally, realistic time expectation should be used going forward, there is an unwritten notion that an accelerated time schedule is driving this initiative. Time is on our side; let's use it to our best advantage.

This response is an Illinois joint effort between team members from the Illinois Statewide Interoperability Coordinator and the City of Chicago. Our approach was to consider our usual multi-jurisdiction and multi-discipline approach to our response. Below we have addressed both inquiries from the NOI - *Network Design* and *Applications Framework*.

Network Design

Efficient/Scalable Design: Of the options presented in the slide deck by FirstNet in September 2012, Illinois thinks a hybrid approach using your "Create a diverse nationwide network with multiple wireless networks and systems" as a starting point provides the mechanism to implement a scalable, phased implementation of the system. Conceptually, we view the FNN as a virtual private network totally independent of the transport methodology (with the FNN distributed Core providing the administrative part of the network the actual transmission media (terrestrial wire line, commercial cellular data, private/FirstNet RAN and possibly satellite) can be perceived as separate but equal ways to move the data to and from the subscriber. We realize that these various media have unique characteristics that must be managed appropriately to achieve the goal but those details can be worked out over time. Illinois is in favor of using existing commercial infrastructure to start the build out of the network. Using the existing commercial networks to initially cover the bulk of the land mass, while starting the build out of a dedicated public safety LTE network to cover the population centers and key strategic infrastructure locations (major highways, power plants, airports, seaports, rail, schools, federal installations, etc.) embodies the phases or step by step network build out concept in a more cost-effective manner. As we build our own private LTE RAN we will need to analyze commercially available sites and use best practices on how to better harden commercial carrier towers.

Mission Critical Voice: As public safety personnel begin to use the NPSBN for email; database inquires, image/video transfer and general information exchange, it is critical to keep

in mind that they will need to continue using their legacy Mission Critical Voice systems. Features like peer to peer simplex communications, one to many communications, encryption, dispatcher controlled communications, and push to talk communications will need to be present before any public safety agencies will consider moving over to a single device. Having redundant communications (Today: LMR and cellular phones) methods carried by each first responder is a sound practice and should be considered. Illinois views LTE technology today as a data system that will eventually support voice, it does not replace traditional voice communications methods. Continuing to invest into traditional LMR is the only option for maintaining Mission Critical Voice communications today. The devices that have hit the market recently to operate on the 4G LTE band classes 13 and 14 look like "smart" phones. An alternative would be for the vendors to take current production LMR subscriber units and modify / upgrade them to work on the LTE network. Certainly modifications will need to be made (larger screen, etc.), but the public safety ergonomics have been refined already by users and vendors. Most importantly, the power of the user equipment as proposed on a NPSBN or commercially available LTE network is 500 micro-watts. This concerns us greatly, mostly due to the penetrating power of a 500 micro-watt radio for peer to peer communications if and when the network fails as well as in-building penetration in the urban areas. Having a device that looks like a traditional LMR radio but operates on the NPSBN in a lower power mode may be acceptable when inside or outside of a vehicle or when the network is fully functioning. But when a first responder is off the network due to being out of the coverage footprint or a network outage due to a significant natural disaster occurs, a 2 or 3 watt radio should be

available for critical communications. For day to day operations, a vehicular repeater may need to be standard equipment to provide key communications linkages to the network.

Control: For first responders coming on to a scene, rules of engagement and control are the first thing that is established. Equally important in the rollout of the NPSBN will be the establishment of rules of engagement and control. Priority, Quality of Service, and Pre-emption are features that will prove important to discuss well in advance because of the complexity around these as well as the importance and impact to locals using this network. National guidelines will need to be established for consistency across the network, but we will need to devise a way to control Priority, Quality of Service, and Pre-emption at a local level per incident and stay within the parameters set up nationally. Without this local control/rules of engagement the network is doing nothing more than what a commercially available network can accomplish today. The use of ICS COMCs (Communication Coordinator) or PSAPs to be the "gatekeepers" facilitators at the local should be considered. This will allow operating in a sovereign manner within the rules set at the national level while allowing the locals the flexibility to properly control their situation, this keeping responders connected, data flowing, while saving lives and property.

FirstNet Consultation: Although the guidance from FirstNet has not yet been issued, an early deliverable for each state will be identifying state, local, federal, and commercial carrier communication assets (towers, shelters, fiber, microwave, etc.) available within the state. We recommend that FirstNet collect this data on a <u>national level</u> for federal government and commercial carriers and make this information available to each state's broadband governing

body. Each state would then be responsible for only collecting data on state and local infrastructure. FirstNet should develop a consultation matrix so states can better prepare for the consultation. This matrix will include the items FirstNet needs to author the national RFP, which will include each state's requirements. This matrix should be sent to the states for review and comment prior to "locking it down" for the start of consultation. <u>More</u> information flow <u>earlier</u> in the process will help us all achieve our mutual goals in a more timely fashion. Any information, even preliminary and subject to change would be extremely valuable at this point. We can't lose sight of the ultimate goal, which is to build out a single nationwide broadband network for first responders to communicate on.

Federal Agencies Integration: Illinois is curious on how we should incorporate our federal agency partners into the governance, use, and administration of the network at a local level while staying in sync with the federal agencies' national goals and objectives. Currently we work together during incidents, but do very little in the way of joint planning. One way to work together to align our agency goals for the build out of FirstNet may be through the FEMA Regional Emergency Communications Coordinating Working Group (RECCWG). These are multi-agency/multi-discipline groups that already meet to discuss communications issues at a strategic level.

Applications Framework

Network: Network access and security will be extremely important. Cyber-attacks to disrupt or gain access to the public safety information and databases will be a real threat. High security measures for log in and data transmissions will need to be robust but not cumbersome. Timely access to login should not be greatly hindered by a multistep procedure. The network will need to be constructed around open architecture and standards so that authorized interface requests can be achieved.

Applications: With the multitude of applications that will be created to assist first responders to do their job, an open architecture and standards certification program will need to be in place. For the development of the applications a centralized application clearinghouse will need to be established to approve the application for public safety use. The delivery of the application is ideally handled over the air and should be downloaded from a single secure applications store that will require a user-specific login and proper vetting.

Local Accessibility/Local Information Exchange: Illinois has identified a need for locally developed applications. These will still be vetted through the App-Store as spelled out above. The distribution of a locally developed app will be limited to only those who are authorized. For example this could be for GIS info, public safety assets, shelter locations, etc. that are shared amongst a group of local communities.

Conclusions

Illinois is excited about the progress being made as it relates to the NPSBN. Keeping the momentum is a great way to finish a project. Constant communications between FirstNet and the states will be crucial going forward. As we work our way through the questions in the NOI it is obvious the traditional "radio shop" will need to start branching out to actively engage the Information Technologies experts across the state. With the amount of 'broadband' activities going on at a national and local level, it may make sense to integrate all broadband type initiatives in one, this would include, Last Mile, BTOP, College and University Broadband, urban and rural broadband, etc.

Thank you again for this opportunity to send in comments. Illinois looks forward to the next opportunity to provide input. If you have any questions or need further clarification please contact the Illinois SWIC.

Respectfully Submitted,

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