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November 1, 2012

Samuel Ginn, Chairman of the Board  
First Responder Network Authority  
National Telecommunications and Information Administration  
United States Department of Commerce  
1401 Constitution Avenue NW,  
Herbert C. Hoover Building Room 7324, Attn: FirstNet NOI  
Washington, DC 20230-0001

Re: Docket No: 120928505-2505-01

RIN: 0660-XC002

Dear Chairman Ginn:

On behalf of the members of the Washington State Interoperability Executive Committee (SIEC), I am writing to provide information under the First Responder Network Authority (FirstNet) Notice of Inquiry (NOI) seeking public comment on the conceptual network architecture presentation made at the FirstNet Board of Directors' meeting held on September 25, 2012, as well as to invite input on other network design and business plan considerations.

Overall, the Washington SIEC concurs with the FirstNet objectives to create a reliable, ubiquitous, redundant, interoperable nationwide wireless network. We support leveraging investments and combining the efforts of the public sector and the commercial wireless industry, assuming this will reduce costs and accelerate network availability and that acquiring or building a standalone network is unworkable.

*However, the Washington SIEC has multiple concerns and questions regarding how FirstNet will mitigate the complex business relationships while leveraging existing and emerging technologies in order to create a coherent, nationwide network comprised of multiple wireless networks and systems.*

Recognizing the interdependencies and risks between the categories and questions, we have segmented our remarks into five general categories for organizational purposes: Infrastructure and Architecture, Equipment and Applications, Governance and Partnerships, Users and Stakeholders, and Innovation Considerations.

*Infrastructure and Architecture*

The September 25, 2012 proposal assumes that existing and future public and private infrastructure will be shared and leveraged. Furthermore it assumes FirstNet will drive the Request for Proposal (RFP) process with suppliers and Mobile Network Operator (MNO) partners to develop and construct the nationwide network infrastructure. The proposal assumes that wireless operators will have the opportunity to serve a critical nationwide need, while at the same time increase their subscribers, usage, and commercial coverage. The Washington SIEC proposes that the following questions and concerns be addressed to validate the approach and assumptions:

- The proposal appears to be workable from traditional cellular network architecture where roaming between commercial carriers is well-understood from both a technical and governance viewpoint. However, Long Term Evolution (LTE) and an all-Internet Protocol network will be fundamentally different. It is our understanding roaming between LTE networks has never been implemented in the United States. Is the multiple network operation envisioned on Slide #11 technically feasible?
- How does the commercial architecture differ from the requirements for a public safety architecture?
- If available for FirstNet use, how would existing publicly owned infrastructure (fiber and microwave backhaul, radio sites and potential radio sites, highly secure data centers) be incorporated into the proposed architecture?
- How would technical risks, and perhaps competing technology, from publically owned infrastructure be incorporated into the proposed architecture?
- Commercial networks identify users and devices primarily for purposes of billing. Public safety has many mandates to identify, restrict, and track the access of individual users to specific data (e.g. Criminal Justice Information Sharing and Health Insurance Portability and Accountability Act). Can the proposed architecture accommodate the varied security needs?
- Washington State has unique challenges in its mountainous geography, international border, extensive coastline, and susceptibility to disasters such as volcanoes and major earthquakes. What are the impacts to resiliency and redundancy for a relatively remote state such as Washington if the network core is located outside of the state? Is there an "ultimate" vision for a loop or self-healing architecture? Will there be a Network Operations Center (NOC) that could redirect traffic?
- How can public safety be assured that multiple ways to rapidly provision and de-provision services to customers will be available to avoid becoming dependent on a single carrier or service provider?
- How can public safety entities determine their spectrum capacity to support FirstNet?
- Will States and local governments be allowed to supplement FirstNet by adding their own Radio Access Network (RAN)?

#### *Equipment and Applications*

The September 25, 2012 presentation assumes that FirstNet will aggregate purchasing for devices and services on behalf of the public safety agencies and other first responder users. The proposal further suggests an opportunity for network and handset suppliers to participate and serve critical nationwide needs while at the same time increase product lines, sales volumes and revenues. Application developers will also have the opportunity to develop applications, or apps, that increase security and safety while at the same time increase product lines, user bases and sales volumes. The Washington SIEC proposes that the following questions and concerns be addressed to validate the approach and assumptions:

- How will public safety be assured that multiple ways to provision services to customers are available and therefore avoid dependence on a single carrier or service provider?
- Is it feasible to include radios and chipsets for all public safety bands in a single, cost effective device? Does this technology exist today?
- Is it feasible for a single device to roam across multiple networks, including potential satellite networks? Would such a device be cost effective for agencies and users? Are there limitations to such devices that could affect public safety operations (e.g. increased scan latency, reduced battery life and /or reduced effective coverage)?

- Commercial vendors, public safety and general government have already developed and use a wide variety of applications on wireless networks. Can these be immediately accommodated on the FirstNet Nationwide Network (FNN)? What changes to these existing apps are required so the FNN is immediately useful?

#### *Governance and Partnerships*

The September 25, 2012 proposal assumes that the overall network operations of the nationwide network are continuously evolving to meet or exceed the needs of users and stakeholders. The proposal assumes FirstNet will share in the responsibilities for identification, quantification, and characterization of the needs of first responders across the nation and to work with state, territory and tribal public safety organizations to define geographic coverage requirements. The Washington SIEC proposes that the following questions and concerns be addressed to validate the approach and assumptions:

- How do we incorporate FirstNet future plans and needs beyond the initial deployment?
- How do we incorporate plans that public safety agencies are making right now for their Land Mobile Radio (LMR) and other networks into helping the FNN deploy rapidly and in a robust fashion?
- How will spectrum coverage and operations be addressed along international borders and coastlines?
- How does FirstNet plan to cooperate with other federal agencies and the Department of Defense as potential users on the FNN?
- How does FirstNet define publicly owned infrastructure? How does the definition address administrative support such as licenses and contracts?
- What impediments to user revenue sharing in support of FirstNet exist in each state? How can states and tribes be assured that revenues associated with the FirstNet partnership are used for public safety communication?
- What, if any, or is there, a relationship that exists between FirstNet and Broadband Technology Opportunities Program (BTOP) grant funded projects such as Northwest Open Access Network (NoaNet) here in Washington State? BTOP has already funded infrastructure potentially available for the FNN.

#### *Users and Stakeholders*

The September 25, 2012 proposal assumes that the ongoing operations, administration and maintenance plan for the nationwide network fulfills federal, state, tribal and local requirements. Furthermore, the proposal assumes an integration of inter-agency communications services, reduced costs, and improved efficiency and response time. The Washington SIEC proposes that the following questions and concerns be addressed to validate the approach and assumptions:

- Can and will FirstNet ensure backwards compatibility or interoperability with recently acquired LMR equipment and hardware?
- In the Spectrum Act, Congress essentially broadened the definition of “public safety” for potential users on the FNN to include utilities, transportation, public works, other government users as well as commercial users. How does FirstNet plan to include these other users in its planning, network design, and business modeling processes?
- What will be tribal, state and local government involvement (roles and responsibilities) to dynamically allocate system priority, bandwidth, and access to applications during incidents and events?

- Will FirstNet construct last mile infrastructure and leverage it for other purposes in order to contain costs and ongoing maintenance? If so, who will control this?
- How does the architecture differ for rural vs. urban needs?
- Will the architecture be modified to meet rural needs? Will the architecture be modified to meet rural, yet mountainous terrain?

*Innovation Considerations*

The Washington SIEC also proposes that a multi-state pilot project be initiated as soon as possible in response to the request for innovative ideas for how FirstNet can deploy an interoperable broadband network for public safety.

Washington State and its tribal nations, in conjunction with other states such as, but not limited to, Oregon, California, and Idaho, are uniquely situated and possess a confluence of unique man-made and naturally occurring borders, characteristics, hazards, and situations that should be addressed as part of detailed network planning. Washington State, its tribal nations, and the contiguous States that comprise the Pacific Northwest are also uniquely qualified to forge a forward-looking partnership with FirstNet. Qualifications are demonstrated by the early region-wide requests for 700 MHz waivers, initial support for LTE, and proactive pursuit of grant applications from the National Technology and Information Administration (NTIA) for this work. The subject matter expertise, experience, and access to private sector LTE innovation make Washington State a very appropriate partner to test any proposed Nationwide Public Safety Broadband Network governance and financial framework.

Washington State and its tribal nations are very interested in hosting and facilitating discussions with FirstNet regarding such a pilot project and to identify the most appropriate financial structure and operational expectations for conducting a pilot project. Washington State and its tribal nations are also interested in discussing the specifications for the multiple (regional) secure, hardened facilities to house the distributed core network. We request documentation on the specific size, location, security, operational, and other technical specifications to enable the State to assess potential direct and private/public partnership solutions to expedite the deployment of core infrastructure to support the FirstNet proposed technical solution.

Thank you for this opportunity to provide input on the FirstNet conceptual network architecture. Please feel free to contact me by email at Doug.Mah@ofm.wa.gov, or by calling (360) 902-3574 if you have questions regarding our comments.

Sincerely,



Doug Mah, Chair  
Washington State Interoperability Executive Committee