

Before the
National Telecommunications and Information Administration

In the Matter of)

Development of the State and Local)
Implementation Grant Program for the)
Nationwide Public Safety Broadband Network)

FR Docket No. 120509050–1050–01

To: The Agency

COMMENTS OF
NORTHROP GRUMMAN INFORMATION SYSTEMS

Northrop Grumman Information Systems (“Northrop Grumman”) is pleased to provide its comments to the NTIA in response to the Agency’s May 16, 2012 Public Notice soliciting comments on various issues relating to the development of the State and Local Implementation grant program which NTIA must establish pursuant to the Middle Class Tax Relief and Job Creation Act of 2012 to assist state and local governments in planning for a single, nationwide interoperable public safety broadband network. We have focused our response on subjects that draw upon our experience and expertise addressing the challenges of planning, building and operating a large-scale multi-agency first responder broadband wireless network.

Introduction

Northrop Grumman Information Systems (Northrop Grumman) is a business sector of Northrop Grumman Corporation. As a leading provider of IT, systems engineering and systems integration, we serve the Department of Defense, Intelligence Community, Federal civilian and state and local agencies, and commercial customers.

Northrop Grumman is a leader in public safety communications systems; we are one of the world's largest suppliers of 9-1-1 First Responder Computer-Aided Dispatch systems. With a major presence in domestic security initiatives, we are the number one provider of security solutions to the Federal government. Northrop Grumman has deployed next-generation secure broadband wireless networks and interoperable voice communications solutions for defense, intelligence, and public safety agencies across the world.

Our comments below cover two topics, Consultation Process and Leveraging Existing Infrastructure, are described in the following sections, with reference to the specific RFI topics.

The Consultation Process

1. ***Section 6206(c)(2) of the Act directs FirstNet to consult with regional, State, tribal, and local jurisdictions about the distribution and expenditure of any amounts required to carry out the network policies that it is charged with establishing. This section enumerates several areas for consultation, including:***
 - i. ***Construction of core network and any radio access network build-out:*** The States should understand the architecture of the nationwide Public Safety Broadband Network (PSBN) core network and the requirements for connectivity from the States' radio access network (RAN) aggregation points to the core network, including issues related to traffic management and path management that may impact the location of gateway components. The number of PSBN core network connectivity points need to be reduced to the greatest extent possible for purposes of maintenance and complexity as well as security. States may need to understand how to provision for backhaul from the regional aggregation point to the nationwide PSBN Core network.
 - ii. ***Placement of towers:*** Tower placement is predicated on the need for coverage, which is derived from a given area coverage objective and RAN design requirements. The States need to prioritize where to build new RANs and where to use commercial carrier networks to meet their coverage needs. It is also important to not only consider coverage but capacity and performance when designing the system. A coverage model without consideration of edge performance cannot create the type of consistent network performance that PS users require.

- iii. ***Coverage areas of the network, whether at the regional, State, tribal or local level:*** Preparing for a cost-efficient deployment of a broadband wireless network across diverse geography and populated areas for first responders requires careful assessment of their mission needs and resources that can be leveraged. Individual emergency events are difficult to predict; however, historical trends and locations of critical infrastructure can be used to define coverage area objectives where broadband connectivity is most desired to support first responder communication needs. Though commercial carriers' assets can be leveraged in many locations, rural areas with a dearth of commercial carrier wireless coverage and some dense urban areas with heavy user broadband demands should be evaluated as candidates for supplemental PS RANs builds.

Coverage requirements at the regional, State, tribal and local levels should be defined by FirstNet (based on inputs from States and Local PS entities) to help prioritize where new RAN sites will be built and where commercial carrier supplementation will be needed. Thus, States need to prepare data on the desired coverage objectives within their jurisdictions that will be used to determine the required capital spend and related operations budget for the nationwide PSBN.

- iv. ***Adequacy of hardening, security, reliability, and resiliency requirements:*** The extent to which States' existing infrastructure assets can be leveraged depends on their fulfillment of the nationwide PSBN requirements for RAN site hardening, security, reliability and resiliency, as well as the network design considerations. Thus, the States should request FirstNet to provide guidelines that incorporates processes and metrics for evaluating the suitability of the State and Local infrastructure assets for their use and integration in the nationwide PSBN.
- v. ***Assignment of priority to local users:*** To ensure local control (especially during local incidents), States should request from FirstNet what prioritization inputs at the local level are required for the nationwide identity and provisioning framework for the Long Term Evolution (LTE), Quality of Service (QoS) and Priority services to correctly operate within the architecture. While the nationwide QoS and Priority framework promotes interoperability and ensures consistent policy for role-based access, it should also clearly provide mechanisms that should allow for dynamic local access. The

system will require the “entire” network to be able to deliver services consistent with the role, status, and priority of users as they move about the nationwide PSBN.

- vi. ***Assignment of priority and selection of entities seeking access to or use of the nationwide public safety interoperable broadband network:*** The assignment of priority access and other user specific capabilities and privileges across the nationwide PSBN will be dependent on the identity management and provisioning framework for proper operation. To ensure the security of local information as well as the cybersecurity resiliency of the PSBN, agency networks that connect to the nationwide PSBN will need to follow a well defined set of interfaces and security standards. FirstNet will require a security team that certifies, monitors, and provides training to entities intending to connect and use the nationwide PSBN for distribution of critical information. This team in cooperation with the States will verify that all applicable Federal, State, and Local security standards are implemented across the nationwide PSBN.

2. ***The Act requires that each State certify in its application for grant funds that the State has designated a single officer or governmental body to serve as the coordinator of implementation of the grant funds.***

- g) ***How should State and Local Implementation grant program define regional (e.g., interstate or intrastate) and how might the grant program be structured to facilitate regional participation through the States?*** Northrop Grumman supports a grant implementation process that serves the mission-critical needs of public safety first responders within the limited available resources. The grant approaches and resulting business models must account for reuse of States and Local assets in addition to commercial assets but assure the nationwide PSBN is a single operable network. To achieve these objectives, we propose that States and Local implementation grant program be defined along regional lines (interstate) similar to the Federal Emergency Management Agency (FEMA) regional classification. The grants should concentrate on the on-boarding of agencies and other users within the FEMA region. The recommendation for interstate cooperation within a regional delineation presents opportunities for efficient use of the limited resources available to FirstNet while

promoting operability and interoperability within and across regional boundaries. Additionally, pooling resources at the regional (interstate) level minimizes the costs of standing up network operations support systems across the nation and the regional operations office. Coordination between FirstNet and regional entities will ensure that policies, programs, administrative and management guidance are implemented in the regions in a manner consistent with the overall goals of FirstNet.

- h) ***How should States plan to involve the Federal users and entities located within their States in the grant program?*** The use of the nationwide PSBN by Federal entities other than State and Local PS agencies will greatly enhance collaboration among Federal, State and Local first and secondary responders especially in incidents of national significance. It will also improve the return on investment of the nationwide PSBN allowing for efficient utilization of the network resources in times when first responders' needs are at a minimum as well as provide utilities the means to securely manage the operations of critical infrastructures such as the national power grid. Federal users should be treated as any other agency and required to follow policy and interface definitions as defined for the nationwide PSBN.

Leveraging Existing Infrastructure

5. *How should States and local jurisdictions best leverage their existing infrastructure assets and resources for use and integration with the nationwide public safety broadband network?*

- a) ***How should States and Local jurisdictions plan to use and/or determine the suitability of their existing infrastructure and equipment for integration into the public safety broadband network?*** Northrop Grumman supports leveraging States and Local jurisdictions' existing infrastructure assets and resources for use and integration with the nationwide PSBN. To build an enterprise network on a national scale with limited funding, the reuse of existing local infrastructure assets and resources can speed up the network deployment process and significantly reduce the initial capital outlay. However, not every infrastructure asset can be leveraged "as is" given the requirements for hardening, security, reliability and resiliency, as well as network performance requirements.

Northrop Grumman recommends a process driven approach that leverages the existing state and local infrastructure assets to defray costs of RAN deployment and backbone links that provide connectivity between the regional RANs and the nationwide PSBN core network.

One of the most important considerations for integrating the existing infrastructure assets into the nationwide PSBN is to determine their suitability based on design and other PS RAN site and nationwide PSBN core network infrastructure requirements. A high-level process driven approach for evaluating existing infrastructure assets to determine their suitability is presented in Figure 1.

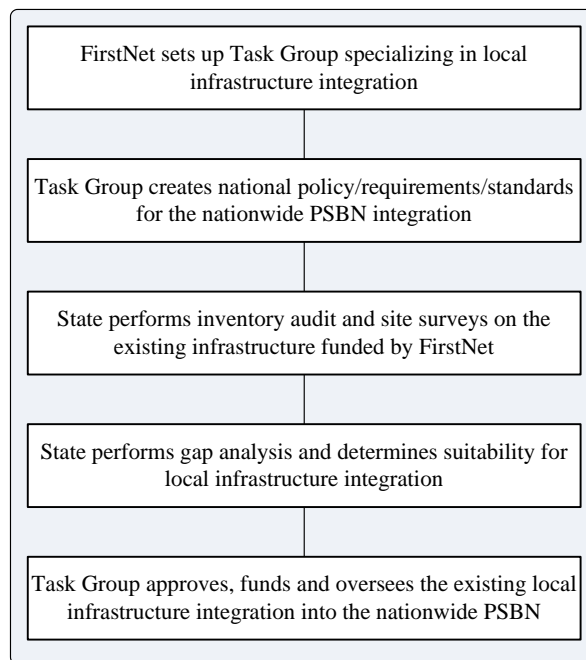


Figure 1 High-level Process for Evaluating the Suitability of State and Local Infrastructure Assets

- c) ***How will States include utilities or other interested third parties in their planning activities?*** Northrop Grumman agrees with the assertion that the States consider involving utilities and third parties in their planning for the broadband network. Such planning activities should include understanding the bandwidth demand and connectivity requirements of the utilities and third parties that may be interested in using the nationwide PSBN. Northrop Grumman’s experiences working with utilities and public safety agencies sharing a common infrastructure have shown that adequate planning is

required to successfully enable utilities and third parties use of public safety networks. We believe that FirstNet can benefit from the utilities and third parties participation by (i) increasing the pool of users to drive user equipment cost down, (ii) sharing cost in network build-out, operation and maintenance and (iii) enhancing interoperability between first responders and civil entities. Planning for integrating utilities' and third parties' requirements into the nationwide PSBN framework should include the following considerations:

- *Connectivity requirements:* The utilities and third party users are considered secondary users in the nationwide PSBN. The first step in planning for the secondary users' participation is to gather information on their connectivity requirements such as aggregate network capacity, bandwidth demand distribution and future demand. These are example parameters that the State can use to understand their network demand and other requirements and determine if the allocated resources available to FirstNet can be used to meet their needs.
- *Operational requirements:* The first responders are primary users of the nationwide PSBN and should always have first priority in accessing the network for mission-critical tasks. By provisioning the secondary users into the nationwide PSBN, the States must understand the impact of the secondary users to the first responders by including the following considerations in planning the nationwide PSBN:
 - QoS, Priority and Pre-emption – these functional characteristics and protocols must be built-in and established in the network to ensure the mission-critical first responders' network access. Impact of these protocols on secondary responders should be clearly defined.
 - Security Operations – refers to the network security operations that assure access control and separation of PS user traffic from non-PS users. In addition, the critical nature of the nationwide PSBN will require a tiered security approach that includes State, Local and nationwide security components that implements both technical and policy considerations.
- *Mutual agreements:* Cost sharing in operation and maintenance, economies of scale on devices, and interoperability among first responders and civil agencies are a few benefits from utilities/third parties' participation in the nationwide PSBN.

However, the success of this arrangement hinges on the terms of use and agreements on the network's modus operandi. The usage criteria, cost and resource sharing agreements must be established. Memorandum of Understanding (MOUs) should be developed to govern and bound the understanding among all the parties.

d) ***Should NTIA encourage planning for the formation and use of public/private partnerships in the deployment of the nationwide public safety broadband network?***

Northrop Grumman supports the formation and use of public/private partnerships (PPPs) in the deployment of the nationwide public safety network. Given the limited funding and coverage required of the nationwide PSBN, the formation of PPPs will potentially lower the per public safety user Capital Expenditures (CapEx) and (Operations Expenditures (OpEx), and facilitate sharing risks and benefits of the nationwide PSBN. The PPPs model is comprised of several areas such as frequency spectrum sharing, backhaul resources, tower sites and network operations, and maintenance resources. Northrop Grumman strongly recommends that FirstNet stands-up the nationwide PSBN network core in the early stages of the network deployment to enable progressively phased implementation of user and network policies and functions based on the public safety broadband network requirements.

The nationwide PSBN should limit the reuse of EPC components of third party entities in such a manner as to ensure the security and isolation of the nationwide PSBN from commercial network components and traffic patterns. This will protect the nationwide PSBN from loss of operation due to impacts on commercial networks during times of stress (such as regional-scale emergencies), and the PS users from security threats associated with public network use. These various reliability, performance, and security requirements are currently being finalized by Public Safety users, National Institute of Standards and Technology, and industry led by the National Public Safety Telecommunications Council.

Conclusion

Northrop Grumman commends NTIA for giving States and Local PS entities and the broader PS industry the opportunity to provide inputs that will govern the allocation of grants to support the build-out and operations of the nationwide PSBN. Our comments and recommendations are based on our experience working with and integrating systems for Federal, State and Local PS agencies. We look forward to working with the NTIA, FirstNet and others in the industry to help create a truly secure, interoperable, public safety broadband network that transforms the future operations of first responders and other government agencies.

Respectfully submitted,

NORTHROP GRUMMAN INFORMATION SYSTEMS

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