

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Service Rules for the 698-746, 747-762 and 777-792 MHz Bands	)	WT Docket No. 06-150
	)	
Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band	)	PS Docket No. 06-229
	)	

To: The Commission

**COMMENTS OF  
NORTHROP GRUMMAN INFORMATION TECHNOLOGY, INC.**

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## SUMMARY

Northrop Grumman shares the Commission's vision of fostering broadband wireless services meeting the needs of public safety on a nationwide, interoperable basis, harnessing the technological advancements of the commercial wireless marketplace at costs that leverage commercial economies of scale.

It is vital that the Commission's focus remain on the central objective of ensuring mission-critical grade reliability for these services. The Commission and the public safety community must resist a "something is better than nothing" mentality that falls short of delivering secure mobile broadband wireless services reliably supporting mission-critical, life safety-dependent communications and applications.

The Commission's initial attempt at auctioning the D Block as part of the public/private partnership was unsuccessful due to many uncertainties that created prohibitive commercial risk for the D Block winner. These uncertainties can be meaningfully reduced through changes to the Commission's framework, leading to a re-auctioning of the D Block with the partnership obligations. These changes include:

- reducing the Commission's coverage and build-out requirements from 99.3% population coverage at end of license term to 95%, as well as eliminating the 99.7% "reliability" specification;
- establishing in advance of re-auction (with opportunity for public comment) specific network requirements for public safety sufficient to support economic modeling and business planning by potential bidders, and providing similar specificity clarifying the operational roles and financial relationships between the D Block winner and the Public Safety Broadband Licensee ("PSBL");
- modifying the procedural framework to curtail the substantial post-auction negotiation risk, by eliminating the winning bidder's exposure to binding adjudication and default penalties; and
- removing the minimum bid and auction reserve prices in re-auctioning the D Block.

Local and regional mission-critical public safety broadband wireless networks are developing, and will continue to do so as technologies further mature and economies of scale continue to reduce costs. These networks are potentially harmonious with the proposed public/public national shared network. But if for whatever reason the public/private partnership does not come to fruition, the continued organic growth of these networks over time can increasingly meet public safety's needs. If the shared national network does not come about, the Commission should reallocate the 700 MHz broadband Public Safety spectrum for use by local and regional public safety entities exclusively for mission-critical broadband wireless systems.

In any of these scenarios, the Public Safety Spectrum Trust Corporation (PSST), the entity designated as the PSBL, can play an important role in managing, organizing and coordinating public safety broadband activities. It has done an exceptional job of fulfilling its present role under challenging circumstances, and it is imperative that it be adequately funded, and given authority to raise and borrow funds, to accomplish its duties.

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Northrop Grumman Information Technology, Inc. (“Northrop Grumman”)<sup>1</sup> hereby submits its Comments in response to the *Second Further Notice of Proposed Rulemaking* in the above-captioned proceeding,<sup>2</sup> wherein the Commission revisits its previous decisions regarding the auctioning of the D Block of commercial spectrum in the Upper 700 MHz Band and the public/private partnership intended to create a nationwide broadband mobile wireless network infrastructure shared by both commercial and public safety users in combination with the broadband portion of the 700 MHz Public Safety Band.

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<sup>1</sup> Northrop Grumman Information Technology, Inc., a wholly-owned subsidiary of Northrop Grumman Corporation, is a leading provider of IT, systems engineering and systems integration for the Department of Defense, national intelligence, federal civilian and state and local agencies, and commercial customers. Northrop Grumman is a leader in public safety systems and one of the world’s largest suppliers of 911 First Responder Computer-Aided Dispatch systems, as well as a major presence in homeland security initiatives as the number one provider of security solutions to the federal government. Northrop Grumman deploys next-generation secure broadband wireless networks and interoperable voice communications solutions for defense, intelligence, and public safety organizations, and is now deploying the first large-scale secure mission-critical broadband wireless system for the public sector, covering the entire City of New York and serving a wide range of different public safety and government operations and entities.

<sup>2</sup> *Second Further Notice of Proposed Rulemaking, Service Rules for the 698-746, 747-762 and 777-792 MHz Bands*, WT Docket No. 06-150 *et al.*, 23 FCC Rcd 8047 (2008) [FCC 08-128 (May 14, 2008)] (“*Second Further Notice*”). A summary of the *Second Further Notice* was published in the Federal Register on May 21, 2008, 73 Fed. Reg. 29582.

## I. INTRODUCTION

Northrop Grumman has participated extensively in earlier stages of the rule makings concerning these matters, as well as the restructuring of the 700 MHz Public Safety Band enabling broadband mobile wireless. We share the Commission's vision of fostering broadband wireless services meeting the needs of public safety on a nationwide, interoperable basis, harnessing the technological advancements of the commercial wireless marketplace at costs that leverage commercial economies of scale. As set forth below, it is vital that the Commission not waiver from the central objective of ensuring mission-critical grade reliability for these services. The Commission's initial attempt at auctioning the D Block as part of the public/private partnership was unsuccessful due to a number of uncertainties that created unbounded and untenable commercial risk for the D Block winner -- uncertainties that can be meaningfully reduced through changes to the Commission's framework, leading to a re-auctioning of the D Block with the partnership obligations. These changes include:

- reducing the Commission's coverage and build-out requirements;
- reducing the scope and uncertainty of issues that are left for negotiation between the winning D Block bidder and the Public Safety Broadband Licensee ("PSBL"), through much greater specificity of the network requirements for public safety and of the financial and operating relationship between the two entities;
- eliminating the compounded risk from exposure to binding adjudication and default penalties; and

- removing the minimum bid and auction reserve prices in re-auctioning the D Block.

The Commission should also be mindful of the fact that the marketplace is already moving to bring affordable mission-critical broadband wireless to public safety on a local and regional basis, notwithstanding the barriers that the Commission has in place on local use of the 700 MHz Public Safety broadband spectrum. As described below, such networks are already rolling out and will continue to do so as technologies further mature and economies of scale increase. These networks are potentially harmonious with the proposed public/public national shared network or -- if for whatever reason the public/private partnership does not come to fruition -- the continued organic growth of these networks over time can increasingly meet public safety's needs. If the shared national network does not come about, the Commission should reallocate the 700 MHz broadband Public Safety spectrum for use by local and regional public safety entities exclusively for mission-critical broadband wireless systems. In any of these scenarios, the Public Safety Spectrum Trust Corporation (PSST), the entity designated by the Commission as the PSBL, can play an important role in managing, organizing and coordinating public safety broadband activities, and it should be provided with sources of funding and the authority to raise and borrow funds to meet its needs.

## **II. THE FOCUS MUST REMAIN ON BRINGING MISSION-CRITICAL MOBILE BROADBAND WIRELESS TO PUBLIC SAFETY**

As the Commission and nearly all commenters in prior rounds in this proceeding recognize, the benefits of mobile broadband wireless services for public safety are manifest. Notwithstanding the unsuccessful initial auction of the D Block, the Commission and the public safety community must resist a "something is better than nothing" mentality if that *something*

falls short of delivering secure mobile broadband wireless services that reliably support mission-critical, life safety-dependent communications and applications. Build-out and operation of such a network must continue to be driven by the needs of public safety and not just the commercial priorities of the D Block licensee. For such a network adequately to serve the needs of public safety, its build-out must include sufficient capacity and resiliency, and its operation must be set up with appropriate network management protocols, to ensure continuity of public safety mission-critical services both during normal operation and in times of disaster when it matters most. Regardless of how such service ultimately is brought to public safety users -- whether by a successful public/private partnership or by other means -- this core objective must be inviolate. To do otherwise would defeat the entire purpose of this undertaking.

### **III. THE PUBLIC/PRIVATE PARTNERSHIP FRAMEWORK SHOULD BE MODIFIED TO REDUCE UNCERTAINTY AND COMMERCIAL RISK**

The Commission's framework for the public/private partnership allowed for many uncertainties, which translated into prohibitive commercial risk for potential D Block bidders in the initial auction. Recognizing this phenomenon, the Commission now seeks suggestions of "measures that we might adopt that would help to give potential bidders additional certainty regarding the outcome of the process, or otherwise reduce the risks of the process for the D block winning bidder...."<sup>3</sup> Northrop Grumman believes these uncertainties and risks can be lessened substantially, without compromising the goals for public safety, making the D Block with the public/private partnership more attractive to potential bidders.

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<sup>3</sup> *Id.* at ¶ 154.

**a. Build-Out/Coverage Requirements Should be Reduced**

In the *Second Report and Order* establishing the requirements for the shared public safety/commercial network and the framework for the partnership between the winning bidder of the D Block and the PSBL,<sup>4</sup> the Commission established population-based build-out requirements, ultimately requiring 99.3% population coverage of the nationwide D Block license area by the end of the tenth year from the DTV transition date.<sup>5</sup>

Noting the disparity of this 99.3% benchmark from the requirements of the other 700 MHz commercial licenses that were auctioned successfully (*e.g.*, the C Block's 75% benchmark), the *Second Further Notice* seeks comment on whether the 99.3% standard should be lowered.<sup>6</sup> Obviously the most possible coverage is desirable for public safety, but the reality of wireless is that, in covering the last decile of the national population, there are very high costs for network infrastructure that steeply escalate as coverage is increased.<sup>7</sup> Inasmuch as 100% coverage is theoretical and not possible in actuality, some benchmark below that must be set. Northrop Grumman urges the Commission to adopt a coverage benchmark of 95%, a much more reasonable level for an especially cost-intensive build-out of new network service.<sup>8</sup> Just that change, from a 99.3% to 95% nationwide population coverage requirement, will improve the

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<sup>4</sup> *Second Report and Order, Service Rules for the 698-746, 747-762 and 777-792 MHz Bands*, WT Docket No. 06-150 *et al.*, 22 FCC Rcd 15289 (2007), *recon. pending* (“*Second Report and Order*”).

<sup>5</sup> *Id.* at ¶ 437. The Commission also required that this coverage include Interstate highways and incorporated communities with populations over 3,000, with some exceptions. *Id.* at ¶ 440.

<sup>6</sup> *Second Further Notice* at ¶¶ 91-94.

<sup>7</sup> For example, the Commission observes that the difference between 90% and 99.3% coverage is about \$1 billion in capital expenditures, and estimates that the difference between 95% and 99.3% might be in the range of \$3.1-\$6.1 billion. *Id.* at ¶ 92.

<sup>8</sup> We also urge that the Commission delete from the requirements narrative in the *Second Further Notice* and the *Second Report and Order* the parenthetical reference to “(*i.e.*, 99.7 percent or better reliability).” *Second Further Notice* at ¶¶ 59, 73; *Second Report and Order* at ¶ 405. The entire context of this parameter is unclear and it is without any apparent basis in the record. The Commission should “impose only the general requirement of ‘reliable operation throughout the service area consistent with typical public safety communications,’ leaving the specific level of reliability to negotiations.” *Second Further Notice* at ¶ 73.

commercial business case for D Block bidders by potentially billions of dollars, helping to bring into possible fruition this vital public safety resource for the 95% that would be covered.<sup>9</sup>

**b. Specific Public Safety Requirements for the Shared Network Should be Established in Advance of Re-Auction**

The Commission's existing partnership framework sets forth very general conceptual statements of what will be required of a winning D Block bidder and of the PSBL, but leaves the nearly all of the network parameters and other technical details, as well as the precise operational roles and business interrelationships of the two parties, to be determined only *after* the auction, in the negotiation of the Network Services Agreement (NSA). This leaves unanswered prior to auction important parameters for costing and other metrics essential to making the business case, and even some basics such as who charges what to whom and performs what functions in the "partnership."

Addressing network requirements, the *Second Further Notice* includes an *Appendix* identifying "potential technical parameters" for the public/private shared network.<sup>10</sup> Although the Commission has broken down these requirements into seven different categories, they are mostly general in nature and lack the specificity desired by a potential bidder to conduct a financial analysis of the cost and required investment for building the network.

Fortunately, significant groundwork has already been laid in achieving some consensus among public safety and wireless industry experts on the public safety parameters. The National

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<sup>9</sup> The other 5% of the population, presumably mostly in remote, sparsely populated areas, could receive coverage via alternatives such as mobile satellite service (MSS), or eventually via the shared national network as its coverage may grow over time beyond 95%. Northrop Grumman opposes allowing the D Block licensee to use MSS to help meet its build-out benchmarks, inasmuch as MSS is available over wide areas and therefore could constitute a loophole that would undermine the build-out rule. Other Commercial Mobile Radio Service licensees in the 700 MHz band or elsewhere are not allowed to satisfy their build-out requirements in this manner. There is no justification for public safety to get short-changed by such a loophole.

<sup>10</sup> *Id.* at ¶ 61.

Institute of Standards and Technology (NIST) has taken a leadership role in defining the technical requirements in support of the Broadband Working Group of the National Public Safety Telecommunications Council (NPSTC). At multiple meetings in 2007 including a two-day forum held in Boulder, Colorado, a wide-ranging group of public safety, industry and government stakeholders, including experts from Northrop Grumman, met to discuss and develop the requirements for the public safety aspects of the public / private network to be built by the eventual “D” block licensee. By consensus they created the *Public Safety 700MHz Broadband Statement of Requirements*,<sup>11</sup> a comprehensive manuscript intended to define for industry and spectrum bidders the general guidance necessary to determine the technological aspects and estimate costs of building and operating a network of this type.<sup>12</sup> Although this document was available in advance of the recent auction, it carried no authority or certainty upon which potential bidders could rely in gauging their business plans and decisions, and therefore was not useful in helping to attract bidders.<sup>13</sup> While there are still additional elements that should be fleshed out, this is an excellent starting point from which the Commission can work to set in place network parameters necessary for economic modeling and business planning. Northrop Grumman urges the Commission to establish a process to achieve this, with opportunities for public comment, in advance of any re-auction.

Beyond the technical parameters of the network, the Commission’s framework has left open to interpretation some very fundamental questions at the base of the shared network business model. For example: Between the D Block licensee and the PSBL, who “owns” what

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<sup>11</sup> *Public Safety 700MHz Broadband Statement of Requirements*, Version 0.6 (November 8, 2007); *Introduction to the 700 MHz Statement of Requirements* (November 13, 2007); *Public Safety 700MHz Broadband Statement of Requirements Contributors* (undated) (all available at <http://www.npstc.org/statementOfRequirements.jsp>).

<sup>12</sup> Drawing from that work, the PSST also developed and issued its *Public Safety Spectrum Trust Public/Private Partnership Bidder Information Document* in November, 2007. See *Second Further Notice* at ¶ 69.

<sup>13</sup> Similarly, the PSST’s *Bidder Information Document*, while intended to give guidance to potential bidders, did not substitute for, or restrict the wide scope of, the post-auction NSA negotiation framework.

users? Does either have exclusivity over any users? In fulfilling the Commission's requirement that D Block licensee "finance, construct and operate the shared network," what part, if any, of its capital and/or operating expenses must be "written off" as a subsidy to the PSBL and/or public safety users? Or can the D Block licensee over time recover all of those expenses attributable to public safety, through usage charges for public safety users? Between the D Block licensee and the PSBL, who if anyone is permitted to make a profit off of public safety users? Who can make a profit off of the other? In a normal business context, potential "partners" would work all such issues out in negotiation prior to committing by contract. The fault in the current framework is that this has been left up in the air until *after* the D Block bidder wins and thereby becomes committed. As we now see from the recent auction, that risk is commercially untenable.

As with the technical requirements, the solution is to bring as much certainty to these variables as possible, ahead of the re-auction. Northrop Grumman urges the Commission to adopt an objective method for the determination of fees, including a mechanism to segregate and define the charges to public safety users, with cost recovery using a "no profit, no loss" or similar framework.<sup>14</sup> This approach will align the incentives of the D Block licensee and the PSBL toward serving public safety's needs, and ensure that the costs of public safety's needs are met without conflicting with overall viability of the shared network.<sup>15</sup>

### **c. Risk of Binding Adjudication and Default Penalties Should be Eliminated**

Compounding the uncertainties and risks facing potential D Block bidders is the Commission's procedural framework, which can subject the winning D Block bidder to the

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<sup>14</sup> *Id.* at ¶¶ 131-34 citing *Request to Further Safeguard Public Safety Service* of Frontline Wireless, LLC, WT Docket No. 06-150 (filed September 20, 2007) ("*Frontline Request*").

<sup>15</sup> See *Frontline Request* at 1-4.

possibility of binding adjudication and to substantial monetary penalties in the event that no agreement is reached in the NSA negotiation with the PSBL following the auction. Even if the winning bidder has acted completely in good faith in the negotiation, a failure to come to terms with the PSBL either results directly in default and in having to accept business terms imposed by the Commission through binding adjudication in order to avoid default. In either case the winning bidder is denied any assurance of a safe way out from unacceptable business terms it might encounter in the NSA negotiation. In the FCC Inspector General's report on the unsuccessful D Block auction, he concluded that one of the factors that deterred bidding for the D Block was "the potential for default payment if negotiations failed."<sup>16</sup> Accordingly, the Commission should eliminate default penalties where the D block winner has negotiated for the NSA in good faith, and should eliminate binding adjudication to resolve impasses in the NSA negotiation.

**d. There Should be No Minimum Bid or Reserve Prices in the Re-Auction**

Now that the fiscal goals of Congress have already been exceeded with the proceeds of sale of the other 700 MHz licenses at the first auction, and where the goal now is to attract increased bidding interest in the D Block with the public-private partnership, it serves no useful purpose to impose a minimum bid or reserve prices on the re-auction of the D Block license. Northrop Grumman urges the Commission not to impose a minimum or reserve.

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<sup>16</sup> *Second Further Notice* at ¶ 19 quoting *Office of the Inspector General Report* from Kent R. Nilsson, Inspector General, to Chairman Kevin J. Martin (OIG rel. April 25, 2008) at 2.

#### **IV. LOCAL AND REGIONAL PUBLIC SAFETY MISSION-CRITICAL BROADBAND WIRELESS NETWORKS ARE DEVELOPING**

The Commission also seeks comment on “the extent to which some public safety providers already have established interoperable broadband networks.”<sup>17</sup> The marketplace is already moving to bring affordable mission-critical broadband wireless to public safety on a local and regional basis, notwithstanding the limitations on local access to the broadband Public Safety spectrum. Such networks are already rolling out and will continue to do so in growing numbers as technologies further mature and increasing economies of scale drive costs down. As discussed above, Northrop Grumman is in the process of building a full-scale public safety broadband wireless system in New York City serving public safety and other critical services agencies – a system that meets all of the Commission’s technological and policy objectives. In the Washington, D.C. area, local governments of the National Capital Region deployed the initial phase of a regional broadband network on 700 MHz Public Safety spectrum pursuant to a waiver issued by the Commission.<sup>18</sup> Paralleling the natural growth and evolution of the commercial wireless marketplace, the forces of technology and economy are taking hold in public safety, beginning in these major urban areas. With ever-growing economies of scale for these systems using open standards and Internet Protocol-based technology, reducing their costs, the number of such systems will continue to increase across the nation.

These networks are potentially harmonious with the proposed public/public national shared network. But if, for whatever reason, the public/private partnership does not come to

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<sup>17</sup> *Id.* at ¶ 36.

<sup>18</sup> *See Order, Request by National Capital Region for Waiver of the Commission’s Rules to Allow Establishment of a 700 MHz Interoperable Broadband Data Network*, WT Docket No. 96-86, DA 07-454 (PSHSB)(rel. January 31, 2007). The sustainability and growth of that network may now be in jeopardy due to future unavailability of the 700 MHz Public Safety spectrum it uses. The 700 MHz Public Safety broadband spectrum is assigned to the PSBL for the national shared network, with the remainder of the 700 MHz Public Safety spectrum either channelized and allotted for narrowband systems or used for guard bands.

fruition, the continued organic growth of such local networks can, over time, increasingly meet public safety's needs. Interoperability among these networks can be achieved by the tremendous inherent flexibility of IP-based networks. The robust adaptability of the latest broadband wireless user equipment (with software-defined characteristics and multi-mode capabilities) can provide imbedded interoperability for the physical (radiofrequency) layer without need for need for total nationwide homogeneousness. There may still be a role for the PSST or the Commission in fashioning competitively neutral interoperability standards if they prove necessary or useful to achieve network-level authentication or other specific elements of interoperability.

In such case as a national public safety mobile broadband wireless network does not come about, the Commission should adopt a means of reallocating the 10 MHz of broadband spectrum in 700 MHz Public Safety Band for use by local and regional public safety mission-critical broadband wireless systems. Use of this spectrum should remain dedicated to spectrally efficient broadband operations, and in no instance should use of the broadband portion of the 700 MHz Public Safety Band be permitted to regress to conflicting operations such as use of the much less efficient "wideband" (Scalable Adaptive Modulation (SAM) / TIA-902) transmission standard.

#### **V. THE PSST SERVES AN IMPORTANT ROLE AND SHOULD BE FUNDED AND GIVEN SUFFICIENT AUTHORITY TO FUND ITSELF**

In any of these scenarios involving the broadband Public Safety Band spectrum, the PSST plays or potentially plays an important role in managing, organizing and coordinating public safety broadband wireless activities. It has done an exceptional job of fulfilling its present role as the PSBL, especially under the regrettable circumstances in which it had to ramp up

quickly and operate without any identified source of funding. As the Commission is aware, it has only been able to fulfill its responsibilities through creative but legitimate means of self-financing its expenditures and its outside resources such as its attorneys and expert advisors, while at the same time having to endure criticism for doing so, unjustified in Northrop Grumman's view. Northrop Grumman welcomes the Commission's interest in identifying and facilitating a reliable source of funding for the PSST. It is imperative that it be adequately funded, and given the necessary authority to raise and borrow funds, to accomplish its duties.

## **VI. CONCLUSION**

Northrop Grumman urges the Commission to amend its rules and policies regarding the Upper 700 MHz D Block, the potential public/private partnership, the broadband 700 MHz Public Safety spectrum, and the PSST, as set forth above.

Respectfully submitted,

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