

**Before the
Federal Communications Commission
Washington, D.C. 20554**

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| In the Matter of |) | |
| |) | |
| Request by Fairfax County, Virginia for Waiver |) | PS Docket No. 06-229 |
| of the Commission's Rules to Deploy a 700 MHz |) | |
| Public Safety Interoperable Broadband Network |) | |
| That Can Be Integrated into the Public-Private |) | |
| Partnership |) | |

REQUEST FOR WAIVER

Pursuant to Section 1.925(b) of the Commission's rules, the County of Fairfax, Virginia ("Fairfax County" or "the County") respectfully requests that the Federal Communications Commission ("FCC" or "Commission") grant a waiver of its 700 MHz public safety early deployment rules¹ to permit the County to construct and operate a 700 MHz interoperable public safety broadband network. The requested waiver will serve the public interest by improving communications for first responders expeditiously without sacrificing any of the policy goals the Commission is seeking to achieve in its 700 MHz rulemaking.

The County has identified public safety interoperable broadband services as a priority and is prepared to continue efforts to deploy a network as quickly as possible in the 700 MHz public safety broadband spectrum. As demonstrated below, the County's private fiber enterprise network will meet the technical specifications the FCC has proposed in the *Third Further Notice*² and the September 4, 2009 National Public Safety Telecommunications Council ("NPSTC") 700

¹ 47 C.F.R. § 27.1330.

² See *Service Rules for the 698-746, 747-762 and 777-792 MHz Bands; Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band*, WT Docket No. 06-150 and PS Docket No. 06-229, *Third Further Notice of Proposed Rulemaking*, FCC 08-230 (rel. Sept. 25, 2008) ("*Third Further Notice*").

MHz Broadband Task Force Report and Recommendations (“NPSTC Recommendations”)³ and can be integrated into a future interoperable public safety broadband network.

The County asks the Commission to act quickly on this request. A waiver will allow the County to take steps to deploy a public safety broadband network rapidly, while the network contemplated in the above-captioned proceeding remains years from deployment.

I. INTRODUCTION

Over the last few years, the Commission has taken significant steps to advance nationwide interoperable public safety broadband communications. Despite these efforts, Auction 73 did not result in a winning bidder for the Upper 700 MHz D Block license. Yet there is an urgent need to provide wireless broadband to our first responders. The County has already committed resources to developing a plan and program to put this critical 700 MHz spectrum to use and deploy interoperable Long Term Evolution (“LTE”) public safety broadband systems that could later be integrated into a nationwide public safety broadband solution.

In the *Second Report & Order*, the Commission recognized the need to balance two important goals as it crafted the 700 MHz public safety broadband policy: (1) foster a public-private solution to develop nationwide interoperable public safety broadband communications; and (2) enable jurisdictions with available resources to deploy public safety broadband systems on an accelerated basis in some circumstances.⁴ As to the second goal, though the Commission granted the D Block licensee the “exclusive right” to build out the 700 MHz commercial/public safety broadband network (the “Shared Wireless Broadband Network”),⁵ it created two

³ See NPSTC 700 MHz Broadband Task Force Report and Recommendations, (Sept. 4, 2009) (“NPSTC Recommendations”).

⁴ *Service Rules for the 698-746, 747-762 and 777-792 MHz Bands*, Second Report and Order, 22 FCC Rcd 15289 (2007) (“*Second Report & Order*”).

⁵ *Id.* at ¶ 470; 47 C.F.R. § 27.1330.

exceptions to this policy: (a) public safety entities were permitted to undertake an earlier build-out than would be provided for in the Network Sharing Agreement (“NSA”), with the public safety entities entitled to compensation up to the amount the D Block licensee would have incurred if had it constructed the network itself; and (b) public safety entities could build their own broadband networks in areas not included in the NSA.⁶ Thus, the current early deployment options are premised on D Block licensing and adoption of the NSA. With no D Block licensee and no NSA, and in any event with deployment years away, today there is no clear path for public safety entities in need of broadband solutions.

Accordingly, the Commission should allow jurisdictions to begin early deployments so long as they meet the technical requirements for 700 MHz public safety systems and make a commitment to facilitate, along with the eventual D Block licensee in its region, migration to the national Public Safety Broadband Network. The Commission has recognized the benefits of this approach in its recent grant of twenty-one similar waivers in the *Waiver Order*.

Today there is overwhelming agreement among public safety agencies and associations that the technology of choice should be LTE, an open standard technology that has been adopted by the major global commercial mobile service providers for deployment in the United States within the next year. The Commission has endorsed LTE as the most appropriate interface in its National Broadband Plan.⁷ In addition, APCO International, the National Emergency Numbering Association, the Public Safety Spectrum Trust (“PSST”), and NPSTC have all publicly endorsed LTE for use in the public safety 700 MHz spectrum space. Likewise, the overwhelming majority of the thirteen filed petitions for waiver on which the Commission has sought comment that also seek the authority to deploy public safety broadband systems on a

⁶ *Id.* at ¶¶ 471-84; 47 C.F.R. § 27.1330.

⁷ *Connecting America: The National Broadband Plan* at 86, 316 (March 15, 2010)

local or regional basis in the 700 MHz public safety broadband spectrum have declared that LTE is the technology of choice.⁸ The *Waiver Order*, accordingly, adopts LTE as the designated air interface for public safety systems in this band.⁹

Finally, as part of the Federal Communications Commission's recently released broadband plan, the Commission has acted to address potential funding by recommending a \$6.2 billion broadband federal grant program for state and local deployments consistent with our waiver request. Many in Congress support this section of the commission's plan, and the Commission should act to make the necessary spectrum available so that first responders will be able to take advantage of public safety broadband services while the Commission and other stakeholders work through the issues remaining to be resolved in the pending 700 MHz rule making proceeding. The simple waiver requested herein will accomplish this.

II. FAIRFAX COUNTY HAS A CURRENT CRITICAL REQUIREMENT FOR PUBLIC SAFETY BROADBAND COMMUNICATIONS, HAS DEVOTED RESOURCES TO DEPLOY AN INTEROPERABLE NETWORK IN THE 700 MHZ BAND, AND PLANS TO SEEK ADDITIONAL RESOURCES FOR NETWORK BUILDOUT WHEN THE WAIVER IS GRANTED.

Fairfax County is organized under the urban county executive form of government spread over a 399 square-mile geography inside and outside the capital beltway with other governments on all sides in the National Capital Region. The county has over one million residents.

In Fairfax County there is a great need for the broadband services that a newly-deployed 700 MHz public safety broadband system would provide:

- The County Police and Fire Departments have current first response applications that require wireless broadband capabilities for performance. These public safety

⁸ *Public Safety and Homeland Security Bureau Seeks Comment on Petitions for Waiver to Deploy 700 MHz Public Safety Broadband Networks, Public Notice*, PS Docket No. 06-229, DA 09-1819, ¶ 1 (rel. Aug. 14, 2009) (“*Public Notice*”).

⁹ *Waiver Order* at ¶¶ 37-40.

agencies must either fund prohibitively high recurring monthly charges for commercial wireless services, which are not designed for dedicated priority services and have poor continuity of service which can hamper response, or do without broadband wireless communications.

- Because of the lack of the needed public safety-oriented broadband wireless connectivity, certain data supporting law enforcement on scene will be deficient, for example, mug shots, fingerprint files, crime scene video and pictures, and geospatial information such as orthophotography and 3D imagery for tactical analysis. Also police officers must return to district stations to access routine criminal justice information, which hinders timely follow-through. This information would be readily available to officers in the field if broadband data access were available.
- County firefighters lack connectivity to wireless broadband service for all front line fire department companies, when en-route and on-scene. With a public safety wireless network, firefighters could access real-time full-motion video capabilities to provide situational information to other first responders and mutual-aid partners, while en-route or at the scene, as well as to supporting companies in response to an emergency.
- From 2005 to 2007 Fairfax County, along with 19 other jurisdictions, led efforts to create a seamlessly interoperable shared wireless broadband network for the National Capital Region. In 2007 the National Capital Region 700MHz Public Safety wireless broadband network waiver was approved authorizing Fairfax County to deploy. Subsequent rule changes by the FCC in August 2007 (2nd Rules and Order) subsumed the 700MHz PS broadband spectrum nationally, which had an adverse impact on Fairfax County's ability to deploy a private network at that time. The County wishes to continue its long-standing partnership with Washington, D.C., to ensure that first responders have seamless interoperability between the private 700 MHz LTE network planned in Washington and the private 700 MHz LTE network requested herein.
- With broadband wireless communications resources available to the first responder in the County:
 - Police officers would know quickly and silently that the vehicle they are stopping is stolen, know that the individual they are interviewing is wanted or dangerous, be able to conduct photo lineups of suspects while still at the crime scene, and be able to access Web-enabled surveillance cameras in public facilities to gain intelligence critical to the safe resolution of blockaded or hostage incidents;
 - Firefighters would know which routes were blocked due to construction or accidents, which hydrants are out of service, and what hazardous conditions exist as soon as the data is updated by police, water departments and building inspectors, and have 3D views of building features for planning safe entry;
 - Medics would be able to stream patient's vitals and video of the patient to emergency rooms, where doctors could better and more quickly diagnose and issue orders for treatment while the ambulance is en route to the hospital; and

- Emergency managers would be able to receive real-time data and video from incident sites, teleconference with the incident commanders, quickly share critical information, and mobilize essential resources to ensure the swift and safe resolution of the emergency situation.

The County seeks to deploy a public safety broadband network in the 700 MHz band in the near future (*i.e.*, before a nationwide commercial/public safety network could be established).

Deployment of such a network in the County will enhance day-to-day task force and mutual aid response through support of a full spectrum of interoperable IP multi-media applications, including:

- Streaming Video (surveillance, remote monitoring)
- Digital Imaging
- Automatic Vehicle Location
- Computer Aided Dispatching
- Email
- Mapping/GIS
- Remote Database Access
- Report Management System Access
- Text Messaging
- Telemetry/Remote Diagnostics
- Web Access

A broadband public safety network in the County will support applications that currently cannot be supported over existing narrowband or wideband wireless data technologies. Tasks that require substantial time to communicate between dispatchers and other officers on narrowband voice systems (such as database lookups and dispatch messaging) could be off-loaded to broadband spectrum, significantly reducing narrowband channel load. In addition, allowing police officers, for example, to have remote access to databases (*e.g.*, DMV, warrants, missing persons and stolen vehicle databases), remote form entry and reporting and Web access will enhance public safety by increasing officer efficiency, reducing paperwork and allow officers to spend more of their time on patrol.

Broadband networks will allow mission-critical information to be exchanged in real time, any time, anywhere. Distribution of images (floor plans, mug shots, incident stills), videos (surveillance feeds, on-scene video), messaging, and access to incident management databases provide a common operating picture and access to information from the field, enhancing both incident response and first responder safety. Finally, broadband networks will allow for the secure, easy and interoperable sharing of information (voice, video and multimedia data) among members of a task force. Further, in wide-event response situation, public commercial broadband networks can become saturated with the general public's use of popular capabilities such as PDA devices with videos and imagery and other social media.

To realize these benefits, however, the County needs the Commission's authorization to operate its own network until it can be integrated into the larger shared network. We believe the process for implementation could begin as early as 2010 with timely authorization of this waiver. Thus, the public interest would be served if the Commission grants the waiver requested herein. We request that the Commission grant this request expeditiously.

III. THE REQUESTED WAIVER IS IN THE PUBLIC INTEREST AND SHOULD BE GRANTED.

The public interest will be served by allowing the County to engage in early deployment. To obtain a waiver of the Commission's rules, a petitioner must demonstrate either that (1) the underlying purpose of the rule(s) would not be served or would be frustrated by application to the present case, and that a grant of the waiver would be in the public interest, or (2) in view of unique or unusual factual circumstances of the instant case, application of the rule(s) would be

inequitable, unduly burdensome, or contrary to the public interest, or the applicant has no reasonable alternative.¹⁰

Under either of these standards, the requested waiver allowing the County to deploy a public safety broadband network in advance of the contemplated Shared Wireless Broadband Network is justified, as in the similar waiver requests recently approved by the Commission.

A. Grant of the Waiver Will Enable the County to Deploy an Interoperable Broadband Network to Serve First Responders, Without Undermining the Commission’s 700 MHz Public-Private Partnership.

The tragic events of September 11, 2001, and Hurricane Katrina made clear that public safety entities need more interoperable communications capabilities. Regardless of whether the recently proposed rules succeed in attracting one or more commercial D Block licensees, deployment of a nationwide network from which local public safety entities can obtain broadband services is likely years away. The County is seeking additional resources to bridge this gap so that its first responders can utilize broadband technology immediately to protect life and property.

In Washington, D.C., the National Capital Region’s (NCR) Public Safety Broadband Network Agreement demonstrates that public safety entities are prepared to make use of this valuable 700 MHz spectrum in advance of a Public/Private Partnership deployment. As stated earlier, Fairfax County was one of the leaders in the efforts to create the National Capital Region’s private 700MHz network. Further, Fairfax County first responders are in regular mutual aid support for emergency response with neighboring jurisdictions in the NCR. Consistent with the cooperative efforts of the area jurisdictions at that time, Fairfax County seeks the same opportunity to provide its first responders with reliable, redundant, interoperable public

¹⁰ 47 C.F.R. § 1.925(b)(3). Waiver applicants face a high hurdle and must plead with particularity the facts and circumstances that warrant a waiver. *WAIT Radio v. FCC*, 413 F.2d 1153, 1157 (D.C. Cir. 1969) (*WAIT Radio*), *aff’d*, 459 F.2d 1203 (1973), *cert. denied*, 409 U.S. 1027 (1972).

safety-grade broadband wireless communications that the Commission previously afforded to Washington, D.C., and to improve its ability for the best possible and timely response.

Pending implementation of the Commission's plans for a national public safety network, the public interest requires that local authorities like the County be allowed to deploy their own interoperable, broadband public safety communications networks. In these unique circumstances, waiver of the rules limiting such deployment to the Upper 700 MHz D Block licensee will serve the public interest.

B. The Network Will Be Robust and Will Satisfy All of the Technical Specifications Proposed by the Commission in the *Third Further Notice*.

The County agrees that the selection of LTE as the common air interface technology for use in the public safety 700 MHz band is an essential first step to achieving the goal of nationwide interoperability. LTE is a commercial open standard technology which will be deployed by commercial wireless operators in the commercial portions of the 700 MHz band in early 2010. The County is planning deployment of a LTE network to support public safety operations. The County plans to deploy this LTE system to operate on a paired assignment of 5 MHz wide channels in the public safety broadband block between 793-798 MHz for mobile transmission and 763-768 MHz for base station transmission. The equipment operating band will be compliant with Band Class 14 as specified in the 3GPP standards.

LTE deployed in the Public Safety Broadband Block would meet the technical specifications proposed by the Commission in its *Third Further Notice*, as well as the NPSTC recommended requirements identified in the NPSTC Recommendations.¹¹ In particular:

- *Capacity, Throughput, and Quality of Service*. With user peak data rates of 31.7 Mbps (downlink) and 9.1 Mbps (uplink) when deployed on 2x5 MHz channels and quality of service support for real-time and non-real-time IP-based applications, LTE

¹¹ See NPSTC Recommendations *supra* at 2.

will support all the applications listed in Table 1 of proposed Section 27.1305 of the Commission's rules. Networks will be designed with effective cell edge data rates exceeding those listed in Table 2 of proposed Section 27.1305. In addition, the systems will provide QoS mechanisms and priority levels consistent with LTE standards.

- *Security and Encryption.* LTE is highly secure in view of its use of a variety of robust authorization and authentication mechanisms employing standard encryption techniques for both media and signaling traffic. IPSec is supported. The system will comply with commercial best practices.
- *Availability, Robustness, and Hardening.* Public Safety LTE networks will be designed for robustness and reliability. Using LTE, public safety networks exceeding 99.6% availability (excluding radio signal coverage and scheduled maintenance downtime) can be deployed. Furthermore, network equipment can be deployed at existing public safety Land Mobile Radio sites, which have typically been hardened to meet the needs of mission-critical public safety communications.

Over the past several months, public safety, equipment manufacturers and commercial wireless service providers under the auspices of the NPSTC's Broadband Task Force have worked to develop minimum recommendations for LTE-based systems, to ensure roaming and interoperability among the petitioners who plan to build ahead of the national network. The County supports the NPSTC Broadband Task Force recommendations as useful guidelines for achieving roaming and interoperability. The County supports the Commission's adoption of LTE as the standard interface in the *Waiver Order* and intends to build its planned network to that standard.¹²

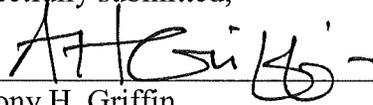
¹² See *Id.* at 2. In developing its set of technical recommendations, the task force took into account the roaming scenarios that would be encountered by state and local jurisdictions seeking to deploy 700 MHz LTE systems via a waiver, including: roaming between 700 MHz public safety LTE networks, roaming between private 700 MHz public safety LTE and D block shared LTE network, roaming between 700 MHz public safety LTE networks to commercial 700 MHz LTE networks, and roaming between 700 MHz public safety LTE networks to commercial and private broadband networks (3GPP and non-3GPP) in other bands.

The NPSTC Recommendations provide a sound set of requirements and technical implementation guidelines to support interoperability among public safety agencies deploying LTE-based systems via a waiver. The technical implementation guidelines take into account the evolution of LTE technology, as well as public safety users' immediate-term application needs. The report's proposed recommendation for a public safety broadband roaming exchange is a sensible and pragmatic approach to support inter-regional roaming.

IV. CONCLUSION

The Commission would significantly advance the cause of public safety by allowing Fairfax County, Virginia to deploy its own public safety broadband network that would operate until a Shared Wireless Broadband Network can be established. The County respectfully requests that the Commission promptly allow it to begin by granting the waiver requested herein.

Respectfully submitted,



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June ~~28~~, 2010