

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of:)	
)	
Procedures for Commission Review of State Opt-Out Requests from the FirstNet Radio Access Network)	PS Docket No. 16-269
)	
)	
Implementing Public Safety Broadband Provisions of the Middle Class Tax Relief and Job Creation Act of 2012)	PS Docket No. 12-94
)	
)	
Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band)	PS Docket No. 06-229
)	
)	
Service Rules for the 698-746, 747-762 and 777-792 MHz Bands)	WT Docket No. 06-150
)	

**THE COLORADO PUBLIC SAFETY BROADBAND
GOVERNING BODY’S REQUEST FOR COMMISSION
CLARIFICATION ON GUIDELINES FOR COMMERCIAL
NETWORK INTEROPERABILITY FOR THE NATIONWIDE PUBLIC
SAFETY BROADBAND NETWORK (NPSBN)**

This request is filed by the Colorado Public Safety Broadband Governing Body (CPSBGB), formally the FirstNet Colorado Governing Body, on behalf of public safety stakeholders within the state of Colorado concerning the guidelines and requirements for interoperability and roaming between the NPSBN and commercial wireless carriers.

I. INTRODUCTION

As part of the Middle Class Tax Relief and Job Creation Act of 2012 (“the Spectrum Act” or “the Act”) the Federal Communications Commission (“the Commission”) was tasked with several direct responsibilities as part of the process to implement the NPSBN including:

- License the identified spectrum to the First Responder Network Authority (“FirstNet”) and, subject to FirstNet’s fulfillment of its duties and responsibilities under the Act, renew the initial license after 10 years;¹
- Establish the Minimum Technical Standards for Interoperability through the Technical Advisory Board for First Responder Interoperability;²
- Review all opt-out network plans for technical interoperability;³
- Establish roaming and priority access rules, if necessary in the public interest.⁴

Each of these provisions may impact the manner in which interoperability of public safety communications is ensured both across the NPSBN and between the NPSBN and other networks serving public safety users.

As part of the process for reviewing both the ‘opt-in’ and ‘opt-out’ options for the FirstNet implementation in Colorado, the Governor’s Office of Information Technology (OIT) retained independent technical consultants to provide necessary support. One specific report commissioned focused on the implementation of Push-to-Talk (PTT) and eventually Mission Critical Push-to-Talk (MCPTT) as well as the integration of PTT and MCPTT functions with the state’s existing Land Mobile Radio (LMR) networks. The final report “Mission Critical Push-To-Talk (MCPTT) Implementation For Colorado” is attached as Exhibit A to this request and analyzes the possible implementations of MCPTT within the state. The report was based on both public and proprietary information and included interviews with multiple companies in the MCPTT space. The conclusion of the report was that based on information received, the implementation of PTT and MCPTT in the FirstNet network would likely lead to interoperability issues within the state.

¹ Middle Class Tax Relief and Job Creation Act of 2012 (Spectrum Act), 47 U.S.C § 1421.

² Spectrum Act, 47 U.S.C. § 1423.

³ Spectrum Act, 47 U.S.C. § 1442.

⁴ Spectrum Act, 47 U.S.C. § 1426.

The findings of the report were based on the assumption that given the current market share distribution between the two largest cellular carriers within Colorado (Verizon ~ 65%, AT&T ~ 15%) and coupled with the local control nature of the state we believe it is unlikely that a single network will serve the majority of public safety users with implementation of the NPSBN taking place via a commercial carrier. As a consequence, LTE-based communications will continue to operate over multiple commercial entities offering public safety based services. Both national and regional commercial carriers have announced their intentions to enter the public safety market with the same services offered by AT&T⁵ and we anticipate that trend to continue. While increased competition for advanced public safety services is likely to benefit first responders through enhanced features and lower pricing, it is likely to simultaneously undermine the primary tenant of the NPSBN effort—interoperability. FirstNet, AT&T and Motorola were all asked to be interviewed for the report to provide certainty and clarity surrounding the long-term implementation of PTT and MCPTT but declined to participate.

Recent statements by AT&T and FirstNet indicate that there is presently no intention to establish standards or agreements with other commercial carriers to ensure prioritized interoperability for critical public safety applications and access⁶. We fear that without standards or agreements to ensure prioritized interoperability, first responders will continue to experience issues related to interoperability that will effectively leave the status quo unresolved.

Specifically, when looking PTT and eventually MCPTT, we are concerned that absent

⁵ See, press releases: <http://www.verizon.com/about/news/verizon-build-dedicated-network-core-public-safety> and <https://www.southernlinc.com/pressroom/93-southern-linc-selects-sonim-technologies-to-produce-rugged-handsets-for-new-mission-critical-lte-network.aspx>

⁶ <http://urgentcomm.com/public-safety-broadbandfirstnet/att-exec-discusses-core-core-interoperability-verizon-proposal-first>

additional guidance from the Commission we will be presented with fractured, non-interoperable public safety communications systems. Through our outreach, research and testing, it is clear that while LMR networks will continue to be the primary mission critical communications platform and should continue to be supported, PTT and MCPTT will be heavily utilized and if implemented with the necessary bridges to traditional LMR networks will be a key determinant for adoption of public safety based LTE applications and services. Through information made available to the CPSBGB during the FirstNet Consultation process as well as information gleaned from the development of the referenced white paper it appears the network level PTT/MCPTT (different than over-the-top or ‘OTT’ software applications) implementation will be a closed offering, available only to those on the “FirstNet” service offering with its network thus limiting overall interoperability. This poses numerous potential threats to interoperability as users of other commercial carrier networks may arrive on a scene and be unable to communicate with users of AT&T’s network and the NPSBN in a secured, prioritized manner.

We believe that the Commission is the appropriate entity to establish rules to ensure true interoperability because of the breadth of impact surrounding this issue, has the procedural and structural infrastructure necessary (e.g. public dockets, rule making public hearings), necessary technical knowledge (Public Safety & Homeland Security Bureau) and as we will discuss later, the statutory authority to adopt rules.

II. THE POTENTIAL SCENARIO

On July 20, 2012 first responders in and around Aurora, Colorado were put to the ultimate test. A mass shooting occurred in a confined area of a movie theater where 12 individuals perished and 70 others were wounded. In need of help, Aurora’s first responders

reached out to its neighbors and received an outpouring of support. In all, 27 unique public safety jurisdictions responded to the call. This assistance and mutual aid helped the City mitigate the impacts of the event and saved many lives as noted directly in the after action report:

“Overall, the combined efforts of Aurora public safety agencies - police, fire, communications – with timely assistance from neighboring jurisdictions, the FBI and ATF, achieved the best possible outcomes following the shooting”⁷.

As the implementation of the NPSBN takes shape, Colorado is beginning to integrate all public safety communications offerings into the planning process for future emergencies. Specifically, Colorado is examining how communications will be impacted by the increasing utilization of LTE-based technologies. If we examine the Aurora theater shooting as a case study, it becomes clear that when multiple jurisdictions respond to an incident, public safety communications are likely to occur on multiple networks operated by different commercial carriers⁸. At the national level both AT&T (through FirstNet) and Verizon have committed to offering prioritized public safety services⁹ to their customers. Given the current market share in Colorado, (Verizon ~ 65%, AT&T ~ 15%¹⁰) it is likely that a future scenario involving multiple jurisdictions¹¹, multiple commercial networks may provide public safety services. Based on the current implementation of network based applications such as PTT (and eventually MCPTT),

⁷ Aurora Century 16 Theatre Shooting: After Action Report for the City of Aurora <https://justiceclearinghouse.com/wp-content/uploads/2017/10/C16-AAR.pdf>, Page x.

⁸ Informational interviews performed during FirstNet review process showed public safety jurisdictions in Denver metropolitan areas currently use Verizon, AT&T and Sprint. With a majority of public safety agencies responding to the event it is assumed multiple networks were utilized.

⁹ <http://www.govtech.com/public-safety/2018-Poised-to-be-the-Year-for-Public-Safety-Networks.html>

¹⁰ Based on statewide research survey done by Colorado Governor’s Office of Information Technology during FirstNet review process.

¹¹ This is equally important regardless of whether the incident requires a response from many jurisdictions like the Aurora theater shooting, or a smaller incident where a rural county may be assisted by a handful of small towns or a neighboring regional public safety agency.

we foresee a situation where first responders will be unable to securely and directly communicate with other jurisdictions in the way they expect, and as is currently provided on an interoperable, statewide P25 LMR network along with regional P25 compliant systems¹². In this theoretical scenario, agencies assisting the primary agency would not have interoperability or priority access in a roaming situation, which may prevent utilization of PTT and MCPTT functionality. This is problematic. As previously mentioned, during the CPSBGB's planning process, technical consultants reviewed the current PTT implementation and proposed MCPTT implementation and the included report highlighted this very scenario as a likely outcome.

III. THE COMMISSION HAS AUTHORITY TO ADOPT RULES

The Spectrum Act foresaw this very situation and specifically tasked the Commission with ensuring that FirstNet implement its network in a manner that satisfies a minimum level of interoperability,¹³ while also requiring that any state choosing to opt-out of FirstNet also meet a minimum level of interoperability.¹⁴ The importance of interoperability is not limited to public safety users in opt-out states. Even in states that “opt in” to FirstNet, local public safety entities are still expected to use networks provided by an array of commercial carriers and interoperable communications between these users is essential¹⁵.

¹² Current Land Mobile Radio (LMR) technology allows for two systems to be ‘patched’ together replicating functionality between the disparate systems. Colorado currently uses multiple methods depending on the two systems interacting.

¹³ See *Recommended Minimum Technical Standards Requirements to Ensure Nationwide Interoperability for the Nationwide Public Safety Broadband Network*, at 3.1 Objective, 20 (Technical Advisory Board for First Responder Interoperability, May 22, 2012), https://apps.fcc.gov/edocs_public/attachmatch/FCC-12-68A3.pdf (hereinafter Minimum Technical Standards Report).

¹⁴ Spectrum Act, 47 U.S.C. § 1442.

¹⁵ There is no mandate in the Spectrum Act for any local/state jurisdiction to utilize the FirstNet network. Jurisdictions will continue to make decisions based on pricing and services necessary

The Commission’s authority is not limited to issues related to the opt-out process. The Commission’s broad licensing authority gives it both the authority and the responsibility to ensure that FirstNet satisfies its various duties and responsibilities under the Act.¹⁶ It may not simply rubber-stamp FirstNet’s performance but must meaningfully assess whether FirstNet is meeting those duties including, necessarily, its duty to support interoperability.¹⁷ To be sure, this includes developing network arrangements that ensure interoperability among and between different public safety users.¹⁸ However, it includes other provisions of the Act as well. In particular, Section 1426(b)(2) requires FirstNet to promote competition in the equipment market by, among other things, requiring that equipment for use on the network be “built to open, non-proprietary, commercially available standards”, and are “capable of being used by any public safety entity and by multiple vendors across all public safety broadband networks operating in the 700 MHz band.”¹⁹ AT&T’s closed product offering for PTT/MCPTT does not meet this open and interoperable standard.

The Commission also has authority to address the interoperability issue through the establishment of roaming rules.²⁰ While the Spectrum Act does not mandate roaming, it does require FirstNet to “negotiate and enter into, as it determines appropriate, roaming agreements with commercial network providers,” and gives the Commission authority to adopt roaming rules.²¹ Specifically, the Act states: “The Commission may adopt rules, if necessary in the public interest, to improve the ability of public safety networks to roam onto commercial

to fulfill their individual needs.

¹⁶ Spectrum Act, 47 U.S.C. § 1421.

¹⁷ See Procedures for Commission Review of State Opt-Out Requests from the FirstNet Radio Access Network et al., Report and Order of Notice of Proposed Rulemaking, 31 FCC Rcd. 10253, para. 45 (2016) (recognizing FCC’s “need to oversee FirstNet’s performance”).

¹⁸ See Spectrum Act, 47 U.S.C. §§ 1422, 1426.

¹⁹ Spectrum Act, 47 U.S.C. § 1426(b)(2).

²⁰ Spectrum Act, 47 U.S.C. § 1426.

²¹ *Id.*

networks and gain priority access to commercial networks in an emergency”²² This language makes clear there was anticipation of roaming with priority access between the NPSBN and commercial networks. Additionally, the Minimum Technical Standards Report designated in the statute as the sole measurement of technical interoperability anticipated and addressed this roaming scenario as well.²³

While AT&T has stated that it will enable standard roaming agreements with carriers, it has also stated it will not provide for Core-to-Core interoperability,²⁴ a requirement for the prioritized interoperability anticipated in both the Act and the Minimum Technical Requirements.

It is highly unlikely that AT&T, the awarded FirstNet partner, will have 100% of public safety traffic, and therefore, it is foreseeable in future emergencies that multiple commercial networks will be active during a public safety emergency. It is imperative that those networks work together. While the Commission does not have the authority to place rules on the other commercial carriers for interoperability, it can place requirements on the FirstNet Evolved Packet Core (EPC), which will encourage true interoperability for public safety across all networks.

IV. CPSBGB’s Request

The Commission has clear authority to require that FirstNet implement the NPSBN in a manner that ensures interoperability with other networks serving public safety, as such a requirement is clearly in the public interest. Accordingly, the CPSBGB requests that the Commission clarify that ensuring interoperability is a fundamental responsibility of FirstNet

²² Spectrum Act, 47 U.S.C. § 1431.

²³ Minimum Technical Standards Report, *supra* note 13, at 4.5.3 Roaming from NPSBN onto Commercial Mobile Networks, 60.

²⁴ *See*, footnote 6, *supra*.

and that FirstNet must ensure that interoperability is supported at all levels including network, services, applications, and devices.

Second, the CPSBGB requests that the Commission establish rules for all roaming arrangements to ensure interoperability, and requests that such rules accommodate the bi-directional nature of such roaming arrangements.

Specifically, the CPSBG requests that the Commission open a rule-making docket to address the critical issue of roaming and prioritization as it applies to applications such as PTT and MCPTT, as well as to other applications that will face the same issues. Rule-making will facilitate clear and moderated public input through a transparent process that will culminate in clear and established rules that will guide all participants and give public safety confidence in any service offering or carrier it chooses for LTE technology.

V. CONCLUSION

While much of the focus in recent years has been on the implementation of the physical network associated with the NPSBN, we must ensure the primary objective of interoperability is met. Evolution is inherent with large-scale technology projects as requirements and environments change throughout the implementation process and life cycles of the project, and the NPSBN is no different. FirstNet's ultimate model for implementation was unknown at the time the Act was developed, however, the Act was crafted with this very scenario in mind. The Act understood the potential need for Commission action by specifically empowering the Commission to create and/or modify rules related to the interaction between the multiple networks throughout the country. As illustrated, there remains a need for secure, prioritized, interoperability between all networks to ensure the original objective of true nationwide interoperability is achieved.

Respectfully submitted,
The Colorado Public Safety Broadband Governing Body



By:

Brian Shepherd
Colorado Broadband Office
601 E. 18th Ave.
Denver, CO 80203
(303) 764-7826
Brian.Shepherd@state.co.us

July 6, 2018