

**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
	)	
Former Nextel Communications, Inc. Upper 700 MHz Guard Band Licenses and Revisions to Part 27 of the Commission's Rules	)	WT Docket No. 06-169
	)	
Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band	)	PS Docket No. 06-229
	)	
Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Communications Requirements Through the Year 2010	)	WT Docket No. 96-86
	)	

To: The Commission

**COMMENTS**

**CYREN CALL COMMUNICATIONS  
CORPORATION**

\_\_\_\_\_/s/  
Morgan E. O'Brien  
Chairman of the Board  
7601 Lewinsville Road, Suite 201  
McLean, Virginia 22102  
(703) 760-4830

Counsel:  
Elizabeth R. Sachs  
Lukas, Nace, Gutierrez & Sachs, Chartered  
1650 Tysons Blvd., Ste. 1500  
McLean, VA 22102  
(703) 584-8678

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## TABLE OF CONTENTS

	<u>Page</u>
TABLE OF CONTENTS .....	ii
EXECUTIVE SUMMARY .....	iii
I. OVERVIEW .....	2
II. DISCUSSION .....	7
A. Provisions Establishing an Appropriately Balanced Public/Private Partnership at 700 MHz Must be Embedded in the Commission's Rules .....	7
1) Public Safety Must Be a True Partner in the Development of a Nationwide Broadband Network, Not Merely a Preferred Customer .....	7
2) The Commission Should Take Actions To Create and Maintain the Requisite Degree of Public Safety Control in a Frontline-Type Encumbered Auction Scenario .....	10
3) The Commission Should Consider Implementing Measures To Prepare For and Respond to Potential E Block Licensee Defaults .....	18
4) Certain Minimum Requirements and Commitments Should Be Summarized in the Rules Governing the E Block License .....	20
B. The Rules Governing the Non-Broadband 700 MHz Public Safety Spectrum Should be Sufficiently Flexible to Accommodate Both Narrowband and Wideband Operations as Determined by the Regional Planning Committees .....	23
C. The Interests of Public Safety Must Take Precedence Over Regulatory Engineering Approaches Intended to Satisfy Other Public Policy Goals .....	23

D.	The FCC Should Maximize the Amount of Spectrum Dedicated To a Shared Public/Private Network in Selecting a 700 MHz Band Plan .....	29
E.	The Commission’s Broadband Public Safety Rules Should Leverage Technological Advances to Provide a Truly Nationwide Platform While Preserving Local Autonomy as Appropriate.....	33
F.	The 700 MHz CMRS Auction Rules Should Promote the Creation Of a Nationwide Interoperable Public Safety Broadband Network And Otherwise Should Provide Competitive Opportunities for All Size Carriers and in Rural As Well As Urban Markets.....	38
III.	CONCLUSION .....	40

**ATTACHMENTS**

- Attachment 1 700 MHz Band Plan
- Attachment 2 Spectrum Impact on Rural Build
- Attachment 3 Public Safety Local Control Discussion

## EXECUTIVE SUMMARY

This proceeding offers an historic opportunity for the Commission to achieve several long-standing, critical public policy objectives. The most urgent is the need to develop a nationwide, broadband, interoperable network capable of delivering next generation communications capabilities to the nation's first responders. For too many decades, the Public Safety community has lacked sufficient contiguous spectrum and adequate financial resources, both short-term and long-term, to undertake development of such a system. The nation also continues to struggle with the failure of existing wireless networks to extend advanced broadband capabilities to areas of limited population density.

The instant proceeding represents a critical step in the Commission's efforts to address both these problems. The FCC has proposed a number of innovative regulatory changes that, if adopted, could propel the Public Safety community into the vanguard of telecommunications capabilities and simultaneously deliver advanced broadband services to rural America – without requiring financial support from the Universal Service Fund. The shared public/private network outlined in the Further Notice of Proposed Rulemaking would act as the vehicle for providing these services. The model for that network was first recommended by Cyren Call just one year ago. Its proposal was the catalyst for many of the rule changes proposed in this proceeding and Cyren Call congratulates the Commission for moving so promptly to help turn a vision into a meaningful possibility.

The Cyren Call proposal called for the reallocation of 30 MHz of 700 MHz CMRS spectrum to a single Public Safety entity charged with entering into spectrum lease agreements with commercial operators that, in turn, would provide the necessary funding to build and operate a nationwide broadband network. Because that approach required Congressional action, the FCC instead has requested comment on an alternative plan wherein an "E Block" 700 MHz auction winner would acquire the right to build a nationwide broadband network to Public Safety specifications and would gain secondary, pre-emptible access to Public Safety broadband spectrum pursuant to a Network Sharing Agreement to be negotiated with the Public Safety licensee of the adjacent nationwide broadband Public Safety allocation.

As proposed to the FCC, this public/private arrangement raises a number of concerns. It offers, at most, a marginally adequate pool of spectrum to support an economically viable shared Public Safety/Commercial network. Further, the arrangement would not provide Public Safety with the necessary levels of network control. The commercial "E Block" licensee would have disproportionate leverage in negotiations both at the outset and throughout the life of the "partnership" assuming an agreement was reached. The proposal also would **require** the "E Block" licensee to adopt a business model that is unproven in the marketplace and that would have the effect of deterring auction participation by established wireless carriers of any substantial size. Thus, the negative economic consequences of reducing the available spectrum could not be offset by the cost efficiencies that could be derived by entering into a network hosting arrangement with an entity with existing infrastructure and other network components. For these reasons, it is doubtful that the "E Block" proposal, as crafted, would achieve the FCC's policy objectives.

Therefore, Cyren Call has recommended certain measures that would enable the FCC to address these structural defects in the “E Block” proposal and create a regulatory environment that could support a true public/private partnership. The most critical provision is one that the FCC already has tentatively recommended; the Commission has proposed not to issue the “E Block” license to the auction winner until that entity has negotiated a Network Sharing Agreement with the Public Safety National Licensee that ensures Public Safety requirements will remain paramount in network decision making. This is essential to leveling the otherwise entirely uneven playing field between the negotiating leverage of the “E Block” and the Public Safety licensee. Cyren Call also has suggested a number of steps the Commission could take to discourage unqualified or uncommitted “E Block” auction participants, and has recommended an active role for the Commission in overseeing the continued primacy of Public Safety throughout the life of the network.

In its comments, Cyren Call also has addressed a number of related issues that will have a significant impact on the success of the FCC’s proposal:

- It has recommended that the Commission modify the 700 MHz Public Safety rules to permit both narrowband and wideband systems in the upper portion of the Public Safety allocation as determined by the Regional Planning Committees.
- It has urged the Commission to reject efforts to impose “regulatory engineering” obligations such as open access, roaming and wholesale-only operations on the “E Block” since those restrictions would compromise the viability of the public/private network the “E Block” licensee is committing to deploy. Cyren Call does not object to adoption of a business model that includes some or all of those components as the result of the negotiation of a Network Sharing Agreement, but opposes them as mandatory for a licensee whose primary obligation is to provide advanced communications capabilities to our nation’s first responders.
- It has proposed a 700 MHz band plan that addresses all Public Safety requirements while also promoting highly efficient spectrum utilization and a hospitable environment for vigorous competition among CMRS operators.
- It has developed an approach that maintains important responsibilities for local Public Safety entities and that would accommodate broadband deployment at the local level under certain circumstances, including coordination with the Public Safety National Licensee and assurance that any local system could and ultimately would be integrated into the nationwide broadband network.
- It has encouraged the Commission to adopt rules that promote the introduction of a “third pipe” for broadband services.

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**COMMENTS  
OF  
CYREN CALL COMMUNICATIONS CORPORATION**

Cyren Call Communications Corporation ("Cyren Call") respectfully submits its Comments in the above-entitled proceeding.<sup>1</sup> The instant Further Notice of Proposed Rulemaking promises to be the catalyst for an entirely new era of Public Safety communications with capabilities that at last will permit the nation's most critical users to enjoy truly advanced features and functionalities with equipment and usage prices that leverage the efficiencies of the broad consumer marketplace. While thorny issues still must be resolved and the Commission

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<sup>1</sup> In the Matter of Service Rules for the 678-746, 747-767 and 777-792 MHz Bands, WI Docket No. 06-150, FCC 07-72, 72 Fed. Reg. 24238 (2007) ("FNPR" or "Notice").

will need to chart a careful course to ensure that promotion of Public Safety interests remains its lodestar, Cyren Call is pleased to participate in what it believes will be viewed as a watershed proceeding by Public Safety providers and the public they serve for generations to come.

## I. OVERVIEW

One year ago, a national debate was ignited. The Federal Communications Commission (“FCC” or “Commission”) was urged to consider how the 700 MHz band, spectrum with unparalleled, irreplaceable suitability for mobile communications, might be reconfigured to support a nationwide, broadband, interoperable shared public/private network.<sup>2</sup>

In the twelve months since submission of the Cyren Call Petition, the Public Safety community, the FCC, Congress, and numerous other interested parties all have devoted serious attention to the issue of future Public Safety communications requirements and how they can best be satisfied. There now is broad consensus on several integral aspects of a potential solution:<sup>3</sup>

- Public Safety must have access to advanced communications capabilities that are at least equal to those already available to or under development for the general consumer market;
- Public Safety must drive toward true, nationwide interoperability, including satellite coverage in the event that terrestrial facilities fail, and must provide for gateways that permit ad hoc interoperable communications back to existing Public Safety communications systems;

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<sup>2</sup> See Petition for Rulemaking of Cyren Call Communications Corporation, RM 11348, filed April 27, 2006 (“Cyren Call Petition”). The Cyren Call Petition was placed on Public Notice on October 30, 2006, and assigned RM-11348. *Public Notice*, Report No. 2794 (rel. Oct. 30, 2006). The FCC dismissed the Cyren Call Petition on November 3, 2006, stating that because the Cyren Call Petition proposed the reallocation of 30 MHz of 700 MHz spectrum from commercial to public safety use it required Congressional action and was beyond the scope of the FCC’s authority. RM 11348, *Order*, DA 06-2278 (rel. Nov. 3, 2006). However, the Commission left the proceeding open even after dismissal of the Cyren Call Petition. More than 1,300 comments were filed, virtually all of which supported the principles of Cyren Call’s proposal.

<sup>3</sup> A recent report from the highly-respected Silicon Flatiron Telecommunications Program reaffirmed these conclusions. Report, Silicon Flatiron Telecommunications, *Toward a Next Generation Network for Public Safety Communications* (May 16, 2007) at [http://www.siliconflatirons.org/conferences/Hatfield\\_Weiser\\_PublicSafety-Communications.pdf](http://www.siliconflatirons.org/conferences/Hatfield_Weiser_PublicSafety-Communications.pdf).

- A nationwide IP-based broadband network built to Public Safety specifications on a single technology platform would serve these critical needs;
- The unique propagation characteristics of 700 MHz make it the only suitable spectrum band for deployment of such a network;
- The 24 MHz of Public Safety 700 MHz spectrum should be reconfigured to consolidate 12 MHz of narrowband spectrum at the upper end of the allocation, leaving the remaining 12 MHz that is adjacent to the Commercial Mobile Radio Service (“CMRS”) 700 MHz allocation to be licensed to a single national Public Safety licensee for deployment in a nationwide broadband network;
- Because there is no identified or realistically anticipated governmental funding source for the approximately \$15-20 Billion needed to construct such a network, or the additional billions of dollars that are expected to be required each year to operate, maintain and refresh it, a public/private partnership is the only viable means to finance critical, advanced technology Public Safety communications capabilities;
- A public/private partnership must properly balance the communications requirements of Public Safety and commercial subscribers: the former have episodically significant capacity demands during emergency situations and an ongoing need for a network that is more robust and reliable and that has more extensive coverage than a typical commercial system; the latter must have sufficient capacity on a routine basis to generate the revenue needed to justify the greater than normal investment required to build the network to Public Safety specifications and to cover debt service, operating costs and an acceptable return on investment,
- Although build-out costs will be the responsibility of the commercial partner, Public Safety entities will share responsibility for the network’s ongoing operation, maintenance and upgrades through monthly service fees, helping assure that a reasonable degree of financial discipline will play a role in managing network usage; and
- A shared broadband network built to Public Safety specifications would extend broadband capability to consumers residing and working in more sparsely populated rural communities that have not yet participated in the nation’s communications revolution and would do so without support from the federal Universal Service Fund.

The Commission has been at the forefront of this effort. Late last year it initiated on its own motion a further inquiry into Public Safety use of 700 MHz in which the FCC sought comment on critical questions such as: the restructuring of Public Safety’s 24 MHz at 700 MHz

to permit broadband operation; the issuance of a single, nationwide license to a national broadband Public Safety licensee (“National Licensee”); and the promotion of public/private partnerships that would facilitate deployment of a nationwide Public Safety broadband network.<sup>4</sup> The record developed in response to the Ninth NPR and the earlier Cyren Call Petition offer a rich lode of information supportive of the innovative concepts being explored by the FCC.<sup>5</sup>

The instant FNPR represents a vital next step in the Commission’s effort to address Public Safety communications needs. This proceeding takes a holistic view of the 700 MHz band and, for the first time, consolidates in a single item issues from three separate rulemaking proceedings involving this band. Those issues, in particular the configuration of spectrum currently allocated among CMRS, Guard Bands, and Public Safety, are inextricably interrelated and will need to be reconciled to ensure optimal use of this spectrum. To that end, Cyren Call has developed what it considers the optimal 700 MHz band plan, a plan that maximizes the amount of shared network spectrum available for Public Safety use, including addressing its need for a narrowband allocation in regions along the Canadian border, but that is consistent with statutory restrictions and rejects unnecessary transactional costs as described more fully in Section D below. Because the 700 MHz band plan adopted by the Commission will drive many of the other decisions relating to this spectrum, it is essential that the FCC give this matter its most careful consideration so that we “get it right” while we still have that opportunity.

The first proceeding involves proposed service rules for the 700 MHz channels allocated for CMRS use.<sup>6</sup> Thirty MHz of the 60 MHz under consideration in that proceeding was

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<sup>4</sup> Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band, *Ninth Notice of Proposed Rulemaking*, PS Docket No. 06-229, 21 FCC Rcd 14,837 (2006) (“Ninth NPR”).

<sup>5</sup> Cyren Call urges the Commission to incorporate by reference in this proceeding the more than 1,300 comments submitted in support of the principles in the Cyren Call Petition. *See n. 2 supra*.

<sup>6</sup> In the Matter of Service Rules for the 698-749, 747-762 and 777-792 MHz Bands, WI Docket No. 06-150, Revision of the Commission’s Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems and Section 68.4(a) of the Commission’s Rules Governing Hearing-Aid Compatible Telephones, CC Docket No. 94-

proposed to be reallocated from CMRS to Public Safety use in the Cyren Call Petition. A smaller subset of the CMRS allocation, 10 MHz, now has been requested by Frontline Wireless, LLC (“Frontline”) to be set-aside for an auction of an encumbered “E Block.” The high bidder in that auction would be obligated to build-out a single, shared nationwide broadband network for both Public Safety and commercial use in accordance with rules adopted by the FCC, provided it reaches agreement on a “Network Sharing Agreement” with the National Licensee.<sup>7</sup>

The second proceeding examines a number of proposed changes to the rules governing 700 MHz Guard Band spectrum.<sup>8</sup> In particular, the Commission is considering the future use of the B Block Guard Band spectrum returned by Nextel Communications, Inc. (now Sprint Nextel Corporation) as part of the 800 MHz reconfiguration decision.<sup>9</sup> However, since the primary purpose of the Guard Bands was to protect Public Safety narrowband systems from potential interference from adjacent broadband CMRS facilities, a realignment of Public Safety’s 700 MHz allocation to provide for broadband use on channels adjacent to CMRS operations also calls into question what role this spectrum should play in the optimization of the 700 MHz band.

Finally, in recognition of what it described as widespread Public Safety support for a 700 MHz Public Safety broadband allocation,<sup>10</sup> the Commission in the third proceeding has reached certain tentative conclusions with respect to proposals on which it sought comment in the Ninth NPR. The FCC has tentatively concluded to (1) redesignate the Public Safety wideband

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102, WT Docket, no. 01-309, *Notice of Proposed Rule Making, Fourth Further Notice of Proposed Rule Making and Second Further Notice of Proposed Rule Making*, 21 FCC Rcd 9345 (2006).

<sup>7</sup> See Frontline Comments in PS Docket No. 06-229 and in WT Docket Nos. 06-150 and 96-86. See also Frontline *ex parte* filings in those same proceedings.

<sup>8</sup> In the Matter of Former Nextel Communications, Inc., Upper 700 MHz Guard Band Licenses and Revisions to Part 27 of the Commission’s Rules, Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Communications Requirements Through the Year 2010, WT Docket No. 06-169 and 96-86, *Notice of Proposed Rule Making*, 21 FCC Rcd 10413 (2006).

<sup>9</sup> Improving Public Safety Communications in the 800 MHz Band, WT Docket No. 02-55, *Report and Order, Fifth Report and Order, Fourth Memorandum Opinion and Order, and Order*, 19 FCC Rcd 14969 (2004).

<sup>10</sup> FNPR at ¶ 252.

spectrum for broadband use exclusively, consistent with a nationwide interoperability standard; (2) consolidate the existing narrowband allocations in the upper half of the 700 MHz Public Safety allocation and locate broadband communications in the lower half of that allocation; and (3) establish an internal guard band between the narrowband and broadband allocations.<sup>11</sup> These tentative findings are consistent with the overall objective of establishing a 700 MHz Public Safety allocation that can support a single, nationwide, broadband license in a band location that facilitates development of a shared public/private network.

This consolidated proceeding presents an extraordinary opportunity for the FCC and for Public Safety. Having dismissed the Cyren Call Petition on the basis that statutory limitations prohibited the FCC from reallocating the 30 MHz in question from CMRS to Public Safety, the Commission nonetheless has continued to explore alternative approaches that might facilitate deployment of a nationwide broadband Public Safety network. While the issues presented in the instant FNPR parallel the proposals in the Cyren Call Petition in many respects, there are critical areas in which they differ, as detailed below. These will require careful attention to ensure that the interests of Public Safety remain paramount in whatever regulatory structure is adopted. Thus, Cyren Call is pleased to provide the following recommendations on matters it considers essential to development of a successful, shared, nationwide public/private broadband network at 700 MHz: (A) Provisions establishing an appropriately balanced public/private partnership at 700 MHz must be embedded in the Commission's Rules; (B) The Rules governing the non-broadband 700 MHz Public Safety spectrum should be sufficiently flexible to accommodate both narrowband and wideband operations as determined by the Regional Planning Committees, (C) The interests of Public Safety must take precedence over "regulatory engineering" approaches intended to satisfy other public policy goals, (D) The FCC should maximize the amount of

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<sup>11</sup> *Id.* at ¶ 250.

spectrum dedicated to a shared public/private network in selecting a 700 MHz band plan, and (E) The Commission's broadband public safety rules should leverage technological advances to provide a truly nationwide platform while preserving local autonomy as appropriate.

## II. DISCUSSION

### A. Provisions Establishing an Appropriately Balanced Public/Private Partnership at 700 MHz Must be Embedded in the Commission's Rules

#### 1) Public Safety Must Be a True Partner in the Development of a Nationwide Broadband Network, Not Merely a Preferred Customer

The cornerstone of the broadband proposal advanced by Cyren Call was the requirement that Public Safety hold the license for **all** of the spectrum on which the shared Public Safety/commercial broadband network would be built. That position was rooted in the conviction that licensee status was the optimal way of ensuring the necessary level of control by Public Safety over a single, shared network to be built by private funds pursuant to a public/private partnership. Prior to filing its Petition in April 2006, Cyren Call considered, but rejected, approaches that would allow commercial entities to hold the spectrum license since, if commercial entities were to serve both as licensees and network financiers, there was no clear and effective way to preserve the necessary level of control for Public Safety.

In Cyren Call's view, placing the spectrum in the hands of a national Public Safety licensee-trustee would have permitted that licensee to establish its rights to control from the outset, based on its ability to select one or more qualified commercial partner(s) from among multiple potential candidates. The foundation for the relationship would have been a deliberate selection process on Public Safety's part based on criteria it had established. Most important, it would have created a fully symbiotic relationship between the two entities: Public Safety would rely on its commercial partner(s) to provide funding to build, and expertise to operate, maintain

and update, the network to Public Safety specifications while its partner(s) would rely on Public Safety to provide the spectrum on which a commercial business model for a viable public/private partnership could be established. Both would have an ongoing incentive to negotiate workable decisions as to network construction, operation, management and upgrades since neither could be successful without the other – the essence of a mutually beneficial relationship.

Assuming the FCC instead adopts rules that provide for a shared network using the “E Block” spectrum and the broadband spectrum licensed to the National Licensee, Public Safety’s ongoing need to maintain control over essential aspects of the network will only be intensified. This need is not theoretical; it is absolutely critical to ensuring that the network serves its primary purpose – meeting the future communications requirements of the nation’s first responders.

The proposed network will leverage modern, open standards based on commercial technologies for all major mobile network elements, user devices, Operational Support Systems, Network Management Systems, applications, transport and signaling methods, air interface specifications, commercial-off-the-shelf subscriber equipment and customized Public Safety applications. To ensure that Public Safety technical requirements are not an afterthought, but an essential upfront consideration in commercial offerings and technology, the National Licensee will require direct involvement in and ultimate control over the development of Public Safety-specific technical standards and requirements to be incorporated in the network. The National Licensee also will need direct interfaces with suppliers and vendors of Public Safety-specific network equipment and devices, as well as with application developers interested in developing Public Safety-oriented solutions for deployment over the network.

This will not be a one-time effort. It must be an on-going, standardized process conducted pursuant to a clearly defined role for the National Licensee, in conjunction with the commercial operator, to ensure a true partnership approach in key decisions regarding network planning, implementation and operation. This must include appropriate deference to the National Licensee's views in areas of legitimate concern to the Public Safety network user groups – for example, assuring automatic priority access to network capacity, meeting Public Safety- specified levels of network performance, reliability, survivability and redundancy, achieving the desired breadth of geographic coverage of the terrestrial network and similar matters

The National Licensee also must be confident that the commercial operator will permit it to assign – among the service quality and priority levels on the network that will be restricted to Public Safety users – the quality and priority of the communications services that relevant Public Safety users require for both daily and emergency incident communications. To this end, Public Safety – on a local, regional and nationwide basis – must be able to assert rights management control over levels of quality and priority for Public Safety services delivered over the shared public/private network.

Of course, the National Licensee cannot overreach in its control requirements lest it jeopardize the operational efficiency and/or the financial viability of the network. Among the major benefits sought for Public Safety under the contemplated public/private partnership are the ability to access the economies of scale available in a significant commercial wireless network operating environment, and the ability to keep pace with technological advances by employing commercial off-the-shelf equipment incorporating standardized technologies as the core network

building blocks, modified as necessary to meet Public Safety's unique communications needs and ergonomic requirements.

To receive these benefits, the Public Safety community must be willing to accept that a certain level of standardization in network and subscriber equipment and in network operational approaches inevitably will be required. Demands on its commercial partner – beyond those appropriate to ensure the delivery of network performance legitimately expected by our nation's first responders in carrying out mission critical tasks – must be balanced against practical realities, including cost.

Accordingly, Public Safety's commercial network operator/partner should be permitted the right to operate the shared network pursuant to a business model that anticipates successful commercial operation, provided it also meets its commitments to Public Safety – and to the FCC. It is precisely because Public Safety has more stringent requirements than the consumer marketplace, that the relationship between Public Safety and its commercial partner must be a true partnership, not one in name only or a mere label attached to what is in reality a service provider-customer relationship.

2) The Commission Should Take Actions To Create and Maintain the Requisite Degree of Public Safety Control in a Frontline-Type Encumbered Auction Scenario

For the reasons noted above, Cyren Call formulated its view that licensee status for all of the network spectrum would have been Public Safety's best insurance against problems that might arise during the negotiation of a Network Sharing Agreement, during ongoing operations pursuant to that Agreement or, subsequently, from the faltering or even failure of a commercial partner. However, the Commission rejected Cyren Call's proposal that Public Safety hold the licensee for the entire broadband network on the basis that it did not have the statutory authority

to assign to Public Safety the 30 MHz of CMRS 700 MHz spectrum on which the proposal was premised. Instead, the FNPR seeks comment on a public/private proposal submitted by Frontline which is described in the Notice as follows:

Frontline proposes that the Commission alter the upper portion of the band plan and service rules in the 700 MHz Commercial Services Notice in order to auction a single nationwide 10 megahertz license (a new “E Block”) near the 700 MHz Public Safety Spectrum that would be subject to specific conditions...the new paired “E Block” licensee would construct and operate a common infrastructure to support a broadband public safety network as well as its own commercial broadband network.<sup>12</sup>

In addition to the requirement that the high bidder for the “E Block” build and operate the infrastructure described above, Frontline has proposed that the “E Block” auction winner would be required to satisfy certain construction/coverage obligations, that it would be responsible for managing and operating the Public Safety broadband network for a “reasonable” management fee, and that it would agree to provide priority access to Public Safety broadband operations on the “E Block” spectrum during emergencies.<sup>13</sup>

Although this approach represents a fundamental restructuring of the partnership proposed by Cyren Call, such a relationship could be workable if subject to appropriate regulatory oversight. However, adoption of the Frontline proposal without express regulatory protections and appropriate regulatory oversight would deprive Public Safety of the ability to exercise a meaningful degree of control over the network intended to serve its critical communications needs.

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<sup>12</sup> FNPR at ¶ 272. This language could be read to suggest that the FCC anticipates a common infrastructure supporting two, discrete networks, operating on the spectrum assigned to the National Licensee and the “E Block” licensee, respectively, with overflow rights as defined by rule or agreement. Since that approach would fail to capitalize on many of the real benefits of advanced broadband technology, Cyren Call urges the Commission to clarify in its rules that the “E Block” winner must build a single, shared network using both spectrum blocks.

<sup>13</sup> *Id.* at ¶ 274. Frontline also has recommended that the “E Block” licensee be required to adopt a particular business model, one that is both untested and likely to preclude auction participation by incumbent wireless operators. The implication of those Frontline proposals is discussed in Section II(C) below.

This would manifest itself first in the initial stages of establishing the structure for the public/private shared network and the associated relationship between Public Safety and a commercial network operator. The Frontline approach would require Public Safety to negotiate exclusively with the proposed “E Block” auction winner as Public Safety’s only commercial partner option.

The Frontline approach also contemplates two fundamentally different service delivery arrangements for Public Safety, depending on the spectrum involved. On Public Safety’s allocation, Frontline would be entitled to collect an undefined “reasonable management fee,” and first responders would enjoy automatic priority, while commercial subscribers would be subject to unconditional pre-emption of service to the extent required to provide priority service to first responders. However, on the “E Block” spectrum, Frontline proposes that first responders would only be entitled to some form of “wireless priority service” (supposedly to be modeled after the “wireless priority service” already offered by existing commercial wireless carriers – presumably including the premium “wireless priority service” charges imposed by those carriers), and then only in “emergencies,” which term Frontline proposes should be defined in the Network Sharing Agreement.

Although Frontline states that Public Safety would need to make its spectrum available for use by the winning bidder for the “E Block” spectrum only if the parties are able to reach a Network Sharing Agreement, it suggests that both parties be subject to a “good faith negotiation” standard to aid in the achievement of that goal,<sup>14</sup> and it recommends that the parties submit to a process of binding arbitration to resolve deadlocks. In sum, Frontline seeks arrangements that

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<sup>14</sup> The FCC has imposed the obligation to negotiate in good faith in other instances. *See, e.g.,* In the Matter of Improving Public Safety Communications in the 800 MHz Band, WT Docket No. 02-55, *Supplemental Order and Order of Reconsideration*, 19 FCC Rcd 25120 at 25152 (2004).

are more consistent with separate networks under the control of a single operator than with a single network operated in a “joint tenancy” type of partnership arrangement.

This approach is undesirable, and should be significantly altered by the Commission in its rules. As proposed, the arrangement exacerbates an already lopsided negotiating situation, placing Public Safety at a significant further disadvantage. As the marketplace experience of companies such as MetroPCS Communications, Inc. and Leap Wireless International, Inc. demonstrate, with the minimum of 10 MHz of spectrum represented by the “E Block” – especially given its assumed nationwide coverage footprint and the favorable propagation characteristics of 700 MHz spectrum – it would be realistic to expect that a successful “commercial service only” business model could be developed on that spectrum alone. Although such a business model might be even more attractive if it included access to Public Safety’s broadband allocation, the lack of that spectrum would not be fatal

By contrast, in the absence of agreement with a commercial operator/partner, Public Safety would find itself unable to self-finance the construction or operation of a nationwide broadband network on the spectrum it holds. Thus, under the Frontline proposal, it is apparent that these parties – Public Safety and the “E Block” high bidder – will have drastically unequal negotiating leverage.

Without FCC rules that correct that imbalance, the inherently inconsistent interests of public and private entities presumably would drive the decision-making process. The primary responsibility of commercial companies is to promote shareholder/investor value while that of Public Safety entities is to protect the safety and property of citizens. If the “E Block” licensee’s commercial business opportunities are not reliant on access to the spectrum provided by the National Licensee, then the rules must protect against the very real possibility that in the initial

negotiations and/or in the ongoing course of network operations, the leverage imbalance described above might be expected to favor shareholder/investor financial preferences over the best interest of Public Safety and the public.<sup>15</sup>

The FCC already has identified the best antidote to correct these inherently unequal bargaining positions at the outset of the relationship. In the FNPR, the Commission notes that it has reached a tentative conclusion on what Cyren Call considers the most critical regulatory protection for Public Safety once the “E Block” auction has concluded. It has determined, albeit tentatively, that “the Commission would not grant a license to the bidder winning the “E Block” at auction until the winning bidder files a Network Sharing Agreement [governing the arrangements agreed to by the auction winner and the National Licensee] with the Commission for approval.”<sup>16</sup>

If the FCC were to adopt no other rule governing the “E Block” license, it is essential that it not issue that license unless and until negotiations with Public Safety have reached a satisfactory conclusion as evidenced by the National Licensee entering into a Network Sharing Agreement that the FCC deems satisfactory. The Commission and the wireless industry are all too familiar with promises made by applicants that are not met once the license has been issued. Whether that is due to bad faith, bad judgment, bad market timing or bad karma is not important. Once the license has been issued, the FCC finds itself in always difficult and sometimes impossible positions when seeking to recover the authorization or, more important, the spectrum it represents. That is a bad outcome under any circumstances, but it would be a disastrous result in this instance.

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<sup>15</sup> As discussed above, Public Safety must manage its own requirements so as not to jeopardize the economic sustainability of the network.

<sup>16</sup> FNPR at ¶ 282.

The Commission cannot permit an “E Block” auction winner the opportunity to take advantage of the system, to secure a spectrum license at a discounted price and thereafter slough off the very obligations that depressed the value of the spectrum. It must adopt its tentative conclusion not to issue the “E Block” license until a Network Sharing Agreement has been executed by the parties and approved by the Commission. In fact, Cyren Call recommends that the Commission engage in an ongoing review process as the proposed Network Sharing Agreement is being developed by the parties and to require status reports on a regular basis as the negotiations progress to avoid the possibility that the final agreement reached by the parties fails to satisfy the FCC in some critical respect.

Even then, however, it is possible that negotiations will falter. Should that occur, the Commission should act as a facilitator and seek to resolve the outstanding issues in a *de novo* review process, not pursuant to binding arbitration as recommended by Frontline. Should those matters not be resolved under the Commission’s guidance, the National Licensee, as representative of the nation’s first responders, should not be forced to accept as its long-term commercial partner, its partner in building, operating, managing and upgrading the advanced broadband network intended to propel Public Safety into the forefront of technological capability, an entity determined exclusively by the size of its entity’s auction bid. Instead, the National Licensee should be permitted to terminate the negotiation process and, at its discretion, consider partnership arrangements with other commercial 700 MHz licensees with authority to permit them secondary access to Public Safety’s broadband spectrum.<sup>17</sup>

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<sup>17</sup> Should the National Licensee make that election, the Commission should relieve the original winning bidder of its financial obligations and move promptly to reauction the “E Block” license, subject to the regulatory rights and obligations adopted in this proceeding. The Commission has extensive experience in reauctioning spectrum that either was not awarded because the final payment was not made or that was recovered for some other reason. In this case, no license would have been issued, and the FCC would be free to commence another auction to select Public Safety’s commercial “E Block” partner. Alternatively, the Commission could adopt rules that would accelerate the process of selecting a new “E Block” winner. For example, instead of conducting an entirely new auction, the FCC

Assuming a Network Sharing Agreement is reached by the parties and approved by the FCC, Public Safety still will need to retain an appropriate measure of control in the network build and operation phases for all the reasons detailed above. Moreover, given the novel nature of the proposed relationship, even the most prescient of parties cannot be expected to have anticipated in their arrangement every matter on which agreement might some day be required. Negotiations will be ongoing throughout the life of the partnership.

For example, Cyren Call assumes that the parties will need to enter into Service Level Agreements, as well as agree to Key Performance Indicators and process co-development arrangements that may go beyond the terms of the Network Sharing Agreement, which will require future assessments of performance, and which may benefit from constructive involvement by appropriate regulatory authorities. The National Licensee also will need to endorse not only the initial base open standard technology to be deployed on the network, but any future technology choices that might affect Public Safety access to or use of the network, consistent with Public Safety requirements. Importantly, it will need to review the usage fees to be assessed on Public Safety users accessing the network, which, like normal commercial subscriber rates, should be adjusted over time. The National Licensee will need audit rights *vis-à-vis* its commercial partner's records. The Commission undoubtedly will want to establish a process by which it reviews those matters on a regular basis as well to confirm that Public Safety entities are able to "afford to exercise their right to access the network."<sup>18</sup>

Public Safety users will not and should not be required to subscribe to this network; participation will be entirely voluntary. It is conceivable that a commercial network operator

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could offer the license to unsuccessful bidders in the original auction in descending bid price rank. The Commission could determine that they must pay the price offered by the unsuccessful applicant, the price offered by the bidder to whom the license then was being offered, or some mean or average between those two parties' bid prices.

<sup>18</sup> See FNPR, Statement of Commissioner Michael J. Copps.

might be tempted to devote network capacity and resources to the requirements of the more numerous and more profitable commercial subscribers, and less inclined to make the network desirable to the more demanding, but less profitable priority user groups. However, it may be possible to transform this voluntary usage characteristic into a strength. If the network is not built to Public Safety specifications or if its ongoing operation, maintenance and upgrading does not preserve Public Safety usage priority and enhance its advanced communications capabilities, the first responder community will make that known by not migrating to the network. The adoption rate of and utilization patterns on the network by Public Safety personnel will serve as a bellwether for how well the network is performing its intended functions and fulfilling its inherent promise. The Public Safety adoption rate should, therefore, be included as a topic of inquiry in any regulatory oversight processes.

All of this argues in favor of the creation of a mechanism to assure ongoing governmental involvement in the enterprise, perhaps through the establishment of FCC and even Congressional oversight processes to monitor network deployment and operation so that problem areas are more certain to be resolved in ways that will ensure meeting Public Safety communications needs remains the supreme network obligation. At a minimum, the rules should require an annual report from the parties, one that provides status updates on key Network Sharing Agreement elements and, more generally, keeps the FCC apprised of the “State of the Network.”

Finally, the Commission’s new “expectancy of renewal” procedures for CMRS licenses should, in the case of the “E Block” license, solicit the viewpoints of the National Licensee and Public Safety network users.<sup>19</sup> Doing so would provide an additional source of motivation for the commercial operator to take steps beyond those required for mere minimum satisfaction of its contractual obligations. In the end, success must be measured by the network’s ability to attract

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<sup>19</sup> FNPR at ¶¶ 73-79.

Public Safety users and satisfy broadband Public Safety's broadband communications requirements.

3) The Commission Should Consider Implementing Measures To Prepare For and Respond to Potential "E Block" Licensee Defaults

The possibility that the "E Block" licensee will default on, or otherwise be unable to fulfill, its obligations under the Network Sharing Agreement or the other conditions associated with its FCC authorization should be addressed in the Commission's rules, in the structure of the auction and in the processes relating to the financing and operation of the network. Although it will not be possible to anticipate and provide an appropriate solution for every possible scenario, the worse alternative would be to leave such matters to be considered only after a crisis has occurred.

Like any other wireless business, the public/private partnership that will be responsible for the build out and operation of a nationwide broadband network designed to meet Public Safety's communications requirements could encounter difficulties that may ripen into instances of default either in the course of the network build phase, after the network is built and is being operated, or at each of those stages. Although those defaults could have a variety of causal factors, as in most businesses the more likely cause will be financial.

If financial problems arise in the course of the network build phase, the network build inevitably will fall behind schedule, and a primary goal will be to take actions that will get the build completed successfully and as close as possible to its original schedule. If they arise in the course of operating an already constructed network, the principal concerns likely will be assuring lack of disruption to Public Safety use of the network, and returning the network's financial condition to one consistent with its long term sustainability and viability as soon as possible. In both those contexts, it will be critical to assure that the license to the "E Block" spectrum, and

rights to use the related Public Safety broadband allocation, be re-assigned as rapidly as possible from a defaulting licensee who seems incapable of correcting the problematic financial conditions to a viable successor party. While that process is taking place – and given applicable legal requirements and the legitimate interests of the defaulting party and its relevant constituency groups (e.g., key investors, lenders, vendors) to attempt to implement corrective measures, the length of time could be significant – it will be imperative that there is an acceptable source of back-stop financing to keep matters on as normal a track as reasonably practical in the interim.

Measures such as obtaining performance bond arrangements are likely not to be available at a reasonable cost – especially where they would be most needed.<sup>20</sup> Likewise, requiring as a remedy that a defaulting network operator/partner turn over both network infrastructure and the “E Block” license, subject to prior FCC approval, would make obtaining financing for the network infrastructure a virtual impossibility – no rational lender would allow items that normally would serve as collateral for the funds loaned to buy those items to be transferred to a third party without recourse.

Given these business realities, Cyren Call believes that a more workable approach would require the “E Block” licensee to put in escrow arrangements, structured by the National Licensee, a sizeable deposit (enough funding to support several years of network operations fixed costs) at the time of the award of the “E Block” license. Those escrowed funds could be tapped during the existence and continuance of a default to avert significant delays that might be caused by a construction stage default. For example, such funds could be used to pay required

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<sup>20</sup> The less financial substance and resources a commercial operator/partner has available, the less likely it will have access to the funds required to pay the premium on such a completion bond. Conversely, if a commercial operator/partner has ample net worth and financial resources to handle network construction funding requirements with ease, the dollars spent on a completion bond would be a poor use of funds that could better be used to improve network features (more or better coverage) or lower costs of service for the Public Safety user population.

deposits to contractors, site rental payments and similar items that may preserve in place arrangements that then could be re-activated by a replacement network operator/partner. They also could be used after network operations had commenced to permit the network to meet its fixed obligations (for utility services, core network operating resources and personnel and similar items), if net service revenues were insufficient for that purpose, to assure continuation of an acceptable level of service, particularly for the Public Safety users of the network, while cure measures are attempted or while negotiations with replacement network operator/partner candidates are ongoing.

4) Certain Minimum Requirements and Commitments Should Be Summarized in the Rules Governing the “E Block” License.

If the Commission proceeds with a Frontline-like approach, there are a number of other measures it should adopt to promote the best possible outcome for Public Safety. First, the FCC should coordinate with appropriate representatives of Public Safety (including, if it then exists, the National Licensee) to develop rules that identify certain provisions applicable to the “E Block” license. This will enable auction participants to consider obligations they will be assuming and commitments they will be making should they become Public Safety’s commercial operator/partner. By establishing rules for areas such as construction and coverage requirements, basic technical standards including the requirement to build a single, advanced technology, open standard network to Public Safety specifications,<sup>21</sup> and a general outline of renewal expectancy, the FCC will minimize the likelihood of a successful bidder later arguing that it was unaware of the practical and/or financial impacts of the relevant license encumbrances when it placed its bid.

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<sup>21</sup> Cyren Call assumes that the “E Block” license, like the Public Safety broadband license, will be issued on a nationwide basis. All of the concerns about Public Safety’s negotiating position would be magnified if it was required to reach agreement with an unknown number of different parties.

This level of forewarning will be crucial for the successful operation of an encumbered auction as, in a very real sense, it may be considered to be a two-stage auction: the first stage will establish the payment due the Treasury for the award of a license for the encumbered “E Block;” the second stage determines the compensation – whether in cash, in kind or in conduct – that must be provided for the benefit of Public Safety, consistent with the Network Sharing Agreement that permits the auction winner to combine the “E Block” with Public Safety’s broadband allocation in a single, Public Safety-grade wireless network shared by commercial and Public Safety users.

The Commission must make every effort to guard against parties bidding recklessly in “stage one”, based on an incorrect assumption that there is no “stage two” or on an incorrect perception of the significance of the “stage two” negotiation process. It also must prevent a winning bidder subsequently attempting to justify a failure or refusal to meet Public Safety’s legitimate network design and performance criteria on the basis of the size of the winning bid entered in “stage one”.

Thus, Cyren Call recommends that the rules governing the “E Block” licensee include the following:

- Construction requirements -- Cyren proposes the following as an appropriate standard for a nationwide network:
  - 50% population coverage at Year 4;
  - 80% population coverage at Year 7;
  - 99% population coverage at Year 10.
- Emission limits
- Renewal expectancy criteria.

The “E Block” licensee is committing to deploy a shared network using common infrastructure on its own spectrum and the spectrum contributed by Public Safety. The network

must be built to Public Safety specifications and must provide for the Public Safety control mechanisms outlined above. This will require the parties to agree on a number of design and operational considerations, some of which will be applicable to the network as a whole while others will be Public Safety-specific requirements, but all of which will need to be addressed in the Network Sharing Agreement. Cyren Call recommends that the Commission work with appropriate representatives of Public Safety upon adoption of rules in this proceeding so that those items can be identified in the final “E Block” auction rules as necessary elements of the Network Sharing Agreement to provide even further guidance to prospective “E Block” bidders. Elements to be included in the Network Sharing Agreement should include, but are not necessarily limited to, the following:<sup>22</sup>

- Public Safety priority control mechanisms;
- Network supported services, application, features and functionality;
- Service fee schedule and structure;<sup>23</sup>
- Service level agreements based on key performance indicators;
- Network technology standards;
- Network technology and service evolution roadmap;
- Network and elements reliability, maintainability, availability requirements;
- Network build out schedule;
- Milestone-based coverage requirements by geography and population;
- Disaster and emergency response scope and requirements;
- Local jurisdiction and entity services management and control;
- Temporary coverage and capacity augmentation requirements;
- Compliance reporting and audit procedures;
- Non-compliance penalties and credits;
- Operational Support Systems and Network Management Systems access;
- Services usage and other services-related data requirements; and
- Metrics by which network performance will be measured.

Moreover, recognizing that certain of these elements may require further elaboration for the benefit of prospective bidders, Cyren Call also recommends that the FCC sanction, and

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<sup>22</sup> The rules should not be so specific as to require potentially costly and time-consuming waiver requests should the parties agree to an arrangement that is not contemplated expressly in the FCC’s regulations.

<sup>23</sup> As discussed above, the FCC may determine that its oversight responsibility requires it to review commercial as well as Public Safety usage fees to confirm that the two are balanced appropriately. *See* Section II(A)(2) above.

perhaps even host, a formal pre-auction conference between potential auction participants and Public Safety representatives. Such a conference would provide an opportunity for interested parties to gain a more detailed understanding of Public Safety's requirements in an open forum. In this way, all participants will have a common understanding of obligations they will be expected to assume and commitments they will be expected to make if they are the successful high bidder in the "E Block" auction. The FCC also may want to recommend that Public Safety, through the National Licensee if already formed, develop a Request for Proposals specifying subject areas in which Public Safety is interested in receiving proposals from potential "E Block" auction participants for possible inclusion in a Network Sharing Agreement in advance of the "E Block" auction. The Commission may even wish to review the document with Public Safety before it is released.

B. The Rules Governing the Non-Broadband 700 MHz Public Safety Spectrum Should be Sufficiently Flexible to Accommodate Both Narrowband and Wideband Operations as Determined by the Regional Planning Committees

The FCC has concluded that the 5 MHz of Public Safety spectrum adjacent to the CMRS allocation should be dedicated to a nationwide broadband network and not be available for wideband operations.<sup>24</sup> Cyren Call agrees. There simply is insufficient spectrum proposed for deployment of a shared Public Safety/commercial network to permit diversion of capacity for wideband use on an ad hoc localized basis and still maintain an economically viable broadband operation.

However, Cyren Call also understands that some Public Safety entities, particularly those in more rural areas, may believe that wideband facilities are a preferable solution for technical, economic and/or timing reasons.

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<sup>24</sup> FNPR at ¶ 250.

While Cyren Call recognizes that there are differences of opinion regarding the cost differential of wideband versus broadband, it also appreciates that wideband equipment is available today and that some agencies already have made decisions predicated on their ability to deploy wideband systems in the relatively near-term future. Therefore, Cyren Call urges the Commission to modify the 700 MHz rules to permit the authorization of both narrowband and wideband systems on the upper portion of the Public Safety allocation, leaving to the Regional Planning Committees (“RPCs”) in each region the optimal combination of systems.<sup>25</sup>

The RPCs already have proven themselves to be fully capable of managing the regional spectrum requirements of Public Safety users at 700 MHz. They are in the best position to evaluate requests for both narrowband and wideband authority and to assign channels so as to promote efficient use of this spectrum. Since wideband operations are most likely to be deployed in less urbanized areas, there should be sufficient 700 MHz capacity to accommodate both narrowband and wideband use. However, in the unlikely event that additional capacity is needed to satisfy both requirements, there should be available spectrum at 800 MHz to fulfill any narrowband needs.<sup>26</sup>

C. The Interests of Public Safety Must Take Precedence Over “Regulatory Engineering” Approaches Intended to Satisfy Other Public Policy Goals

In addition to rules defining “E Block” licensee commitments specific to Public Safety requirements, such as the obligation to build a nationwide broadband network to Public Safety specifications, Frontline also has proposed that the “E Block” licensee be required to operate

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<sup>25</sup> As discussed, *infra*, Cyren Call’s alternative band plan for 700 MHz attached hereto as Attachment 1 recommends a 1 MHz guardband between the 5 MHz allocation adjacent to CMRS spectrum and the 6 MHz of Public Safety narrowband spectrum. In addition to primary wideband use on the latter allocation, the RPCs should have the authority to determine whether wideband systems could be deployed on the 1 MHz of guard band spectrum without compromising the interference-free operation of systems on either side.

<sup>26</sup> At the end of the 800 MHz reconfiguration process, Public Safety will have exclusive access for three years to the very substantial amount of 800 MHz spectrum that will be vacated by Sprint Nextel. *See n. 9*

exclusively as a wholesale provider, that it provide open access to the network<sup>27</sup> and that it be required to offer roaming to any party operating technically compatible equipment.<sup>28</sup> The last two conditions would apply not only to the 700 MHz network under consideration herein, but to all systems owned or controlled by the “E Block” licensee.<sup>29</sup> The inevitable result should these requirements be adopted is that no existing wireless carriers of anything approaching national scope would participate in the “E Block” auction directly or engage in activities in support of the auction winner and the network.

The Commission’s consideration of Frontline’s proposal will require a careful balancing act. Historically, the effect of encouraging new competitors has been to stimulate innovation and accelerate the pace of technological development. The wireless industry and the many millions of American consumers whom it serves have benefited from the periodic introduction of new competitors, entities with no need to preserve or protect capital investments in existing infrastructure. The Commission has an excellent record of ignoring the complaints from those who fear competition and of breaking down regulatory barriers that may impede the entry of new players. Cyren Call, among whose principals are several members of the early Nextel team, are keenly aware of the dangers of concentration of control in wireless and were beneficiaries of Commission decisions to lessen that control (at a time when there were far fewer significant carriers in place than there are at present) in the name of promoting new users of technology and introducing more competitive offerings in the marketplace.

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<sup>27</sup> Frontline has not described precisely what it means by “open access,” nor has it indicated whether that obligation is intended to apply only to the wholesale operation the “E Block” licensee would conduct or also to the retail providers buying capacity on that wholesale network.

<sup>28</sup> See n. 7 *supra*.

<sup>29</sup> Frontline also has taken the position that as a wholesale provider the “E Block” licensee should not be subject to CALEA, E911 or other obligations common to all CMRS operations since those responsibilities should instead be assumed by its retail customers. See n. 7 *supra*.

Cyren Call strongly supports innovation and rejects any notion that the established wireless providers need or deserve protection from the introduction of more competition. In the case at hand, however, there is a countervailing public interest goal that suggests a more nuanced view of what steps the Commission should take. Without a doubt, the explicit preclusion of wireless operators from participating in the “E Block” auction would create the certainty that a new player will emerge to operate the shared public/private network and, thus, to compete with the established wireless players. While that outcome, viewed in isolation, is potentially the “right” public interest decision, it must be weighed carefully against the very negative consequences it could have for Public Safety. Cyren Call urges the Commission to consider those negative effects which are set forth below and to conclude that it would cause more harm than good to take any action that will have as its effect the preclusion of existing wireless carriers from choosing to participate in the “E Block” auction, or from choosing to enter into network hosting or other arrangements after the auction with the winning “E Block” bidder.

The most important negative effect has to do with spectrum, specifically the amount of spectrum and the adequacy of that amount to support a viable business plan for a nationwide broadband network. Over the past year and a half, Cyren Call has built and continued to refine a model which seeks to balance the amount of spectrum available for such a network and its coverage parameters versus the capacity of the network and the effects of both on the capital required to build and operate it. Attachment 2 provides illustrations of how that analysis responds to an input of 30 MHz on the one hand versus 22 or 24 MHz on the other. What this analysis makes clear is that there is a heavy price to pay – in terms of additional capital investment required to support the same sized aggregate customer base while maintaining the same coverage footprint, or in terms of loss of geographic coverage and, to a smaller extent, a

reduction in the total number of users supported on the network, if capital investment is held constant – when the spectrum amount is reduced.

By far, the best solution to this problem is to change one key assumption in the model, namely that the network is totally a “green field build.” There are profound improvements in the economics of the model if the assumption changes to assume a “hosted” or integrated build with an established wireless network operator. Such a network hosting arrangements may make it as much as thirty percent (30 %) less costly to build such a network. Moreover, the potential for ongoing joint use or sharing of certain network elements (such as site backhaul facilities) not only can reduce upfront capital dollars, but also can generate substantial recurring savings in network operating expenses, compared to what they would have been under a “stand-alone” network scenario.

For those reasons, and driven by the reality that 22-24 MHz is the greatest amount of spectrum that will be available for the shared broadband network, Cyren Call believes that every reasonable effort should be made to encourage established operators to participate in the auction and/or to favorably entertain network hosting and other cost savings arrangements with the “E Block” auction winner.

This conclusion is not driven by the obvious fact that the greater the number of bidders, the higher the likely price paid to the Treasury. It is based on the much more important point that certain bidders, based on their infrastructures representing billions of dollars of sunk costs, are uniquely qualified both to place high bids or to facilitate the network build in what is just a barely adequate amount of spectrum, or to play both roles. This undeniable fact means that the Commission should conclude that the benefits of including these operators in the process – whether directly as bidders or indirectly as potential network deployment partners of a winning

bidder – outweigh the imposition of regulatory restrictions which, however well-intentioned, will produce the opposite result.

There is a further, equally compelling reason for rejecting the requirement of the “open access” “wholesale” model. A shared Public Safety/commercial broadband network will have demanding requirements, such as multiple levels of priority access and traffic prioritization; encryption and other forms of secured communications; and, in general, the hardening and specialization of network elements that, at a minimum, raise significant, as yet unanswered questions *vis-à-vis* an “open access” requirement. Can it be said that the intangible benefits of such a restriction are certain to outweigh the unknown and untested effects of such a regime on our nation’s first responder network? In a proceeding that already requires levels of innovation and experimentation to get this balance of a public/private partnership “just right,” is it wise to add another layer of experimentation and regulatory engineering on this particular 12 MHz of spectrum?<sup>30</sup> Since the auction will include 50 MHz on which no such sharing obligations will be imposed, would it not be more prudent to experiment on some of that spectrum if the FCC decides, based on the record in this proceeding and on its own view of competition in today’s wireless environment, that the public interest would be best served by a requirement that will serve to exclude existing wireless carriers from participating in whatever role they might choose?

Cyren Call itself views this critically important issue with decidedly mixed emotions. As a potential bidder for the “E Block,” there is an obvious appeal to a rule which would eliminate from that auction the deep-pocket players with resources that a start-up such as Cyren Call can only dream about. This reality caused us to study the Frontline proposal with great care. In the end, however, Cyren Call came to the same conclusion which it urges the Commission to adopt: The crucial importance of getting this right for Public Safety means that the economics of the

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<sup>30</sup> Cyren Call proposed band plan has a 6x6 “E Block”, *See* Attachment 1.

shared network must realistically work, and work for the long-term. With spectrum reduced from 30 MHz to 22-24 MHz, the stark reality is that established wireless operators have the potential of becoming powerful and effective partners with Public Safety. Of course, whether (and in what capacity, as a bidder, or a potential network host, or both) to participate must be left up to them and the outcome of the bidding will determine what player from all those eligible is willing to put the highest price on the opportunity. If that process runs its course, and if Frontline, or Cyren Call, or any other new industry entrant places the highest bid, then it will have the opportunity to make a compelling case to Public Safety for its business plan and its preferences, which could well involve, in whole or part, an “open access,” “wholesale-only” model. However, the FCC should adopt no rules to mandate that outcome for the “E Block” license, to inextricably tie the nation’s only realistic prospect for delivering modern, interoperable, Public Safety-grade broadband services to first responders nationwide to the uncertain commercial reception and unknown level of acceptance and adoption of that business model in the marketplace.

D. The FCC Should Maximize the Amount of Spectrum Dedicated to a Shared Public/Private Network in Selecting a 700 MHz Band Plan

It is essential that the Commission and the Public Safety community understand the compromises that must be made in light of the smaller amount of spectrum that the FCC is contemplating for this shared public/private network. In its Petition, Cyren Call called for the reallocation of 30 MHz of upper 700 MHz CMRS spectrum to a single nationwide licensee for Public Safety use. It did so recognizing that achieving that objective would require Congressional action. It embraced the obligation to press for Congressional relief because the detailed analysis Cyren Call conducted of the commercial capacity needed to support a

nationwide, broadband network built to Public Safety's more rigorous specifications concluded that 30 MHz at 700 MHz was the optimal spectrum foundation.

Cyren Call recognizes that the FCC cannot allocate 700 MHz spectrum to Public Safety beyond the authority granted to the Commission by Congress and that the current boundaries of that authority do not permit an additional 30 MHz Public Safety allocation.<sup>31</sup> Nonetheless, both the Commission and the Public Safety community must remain mindful that the implacable economics of broadband network deployment and operation dictate that less spectrum will result in an earlier exhaustion of network capacity in certain areas. Although the shortfall can be addressed by adding capacity cell sites in the affected markets, that solution extracts a substantial cost, initially in terms of build-out expenses and longer-term by increasing operating costs and thereby reducing the anticipated rate of return on money invested in the network. Alternative solutions might be to reduce rural coverage or curtail service offerings for Public Safety users or commercial subscribers or both. However, those approaches, jeopardize the fundamental objective of building an advanced technology, shared nationwide, broadband public/private network

To minimize this impact, Cyren Call urges the FCC to consider all 700 MHz band plans from the perspective of seeking to maximize the amount of spectrum freely available for inclusion in this shared network. In particular, the various 700 MHz band realignment proposals suggested by Guard Band licensees must be evaluated against that standard. Those that expand Public Safety's usable 700 MHz allocation up to the maximum 24 MHz currently authorized by Congress, that address the other 700 MHz issues identified by the National Public Safety

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<sup>31</sup> FNPR at ¶ 10

Telecommunications Council,<sup>32</sup> and that assign channel blocks logically for maximum spectrum efficiency should be given serious consideration. Those that fail to serve some or all of those criteria should be rejected.

To that end, Cyren Call has developed the band plan depicted in Attachment 1, which is a modification of Proposal 4 that the Commission outlined in the FNPR.<sup>33</sup> This proposed band plan resolves all of the critical elements that a reconfiguration of the upper 700 MHz band must address and positions Public Safety most advantageously for a nationwide, broadband network of sufficient capacity for economic viability.

The plan creates a C and D Block of 5 MHz each and an “E Block” of 6 MHz.<sup>34</sup> Contrary to the assertions of Access Spectrum LLC and other proponents of the Broadband Optimization Plan, there is no record support from any broadband equipment manufacturer or vendor indicating that 5.5 MHz of contiguous spectrum is needed for a successful, commercial broadband system. Any entity that wishes to acquire that much spectrum could do so by purchasing the D Block and then negotiate to acquire the A Block license. The existing 1 MHz A Block would be moved to a location between the D and E Blocks. Placing the A Block here instead of between the “E Block” and Public Safety is critical.<sup>35</sup> Assuming the Commission adopts rules permitting the type of shared public/private broadband network contemplated in the FNPR, relocating the A Block to a position between the “E Block” and Public Safety effectively dictates that the “E Block” auction winner and/or the national Public Safety licensee will be

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<sup>32</sup> See, e.g., *NPSTC letter*, WT Docket No. 06-169, WT Docket No. 96-86, WT Docket 06-150, and PS Docket 06-229 (dated March 14, 2007).

<sup>33</sup> FNPR at ¶ 200.

<sup>34</sup> Contrary to the assertions of Access Spectrum LLC and other proponents of the Broadband Optimization Plan, there is no record support from any broadband equipment manufacturer or vendor indicating that 5.5 MHz of contiguous spectrum is needed for a successful, commercial broadband system. Any entity that wishes to acquire that much spectrum could do so by purchasing the D Block and then negotiate to acquire the A Block license.

<sup>35</sup> Cyren Call agrees with the FCC that band reconfiguration plans involving the A and B Block licensees will need their unanimous concurrence and anticipates that it would be forthcoming.

forced to purchase the A Block licenses if they intend to develop a broadband network on contiguous spectrum.

If it were essential to meeting Public Safety requirements that A Block licensees be relocated to that prime location and allowed to reap the resulting economic windfall, then the public interest might be served by such a decision. That clearly is not the case, as demonstrated by the proposed band plan shown on Attachment 1. Moreover, placing the A Block between the “E Block” and D Block as recommended herein would permit acquisition of the A Block by either the “E Block” or the D Block winner if either identifies a need for additional spectrum.<sup>36</sup>

Thus, adoption of this proposed band plan would promote a number of important interests.<sup>37</sup> First, it addresses Public Safety’s Canadian border concern since channels 63 and 68, which are being cleared by Canada now, would overlap Public Safety’s 700 MHz narrowband channels.<sup>38</sup> Assigning each of the C and D Blocks 5 MHz also enables creation of a 6 MHz “E Block” which, combined with the proposed, adjacent 5 MHz Public Safety broadband block, would create a contiguous 22 MHz block (with the potential of a 24 MHz block should the “E Block” licensee choose to acquire the 1 MHz A Block) on which to build a public/private broadband network designed to serve critical Public Safety requirements. Alternatively, it would permit the D Block licensee an opportunity to expand its holdings and even would create an

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<sup>36</sup> The A Block could be combined with the C and D Blocks to form an 11 MHz contiguous spectrum holding, which has been identified as a key feature of interest to certain potential 700 MHz auction participants. Other commenters, however, have questioned whether an 11 MHz block truly would confer any meaningful advantages, or would enable any significant features, capabilities or services, not already available through access to a block of 10 MHz. Cyren Call expresses no view on this topic, other than placing the A Block where proposed on Attachment 1, as from that location, it is readily capable of being assigned to its highest and best use – whether that might be to increase 10 MHz blocks to 11 MHz or to increase the usable spectrum in the shared Public Safety/commercial network from 11 MHz blocks to 12 MHz.

<sup>37</sup> Importantly, it would not increase the 24 MHz that Congress has directed be assigned to Public Safety at 700 MHz.

<sup>38</sup> If the FCC adopts the proposed band plan described on Attachment 1, it should condition award of the “E Block” license on assumption by the licensee of the obligation to pay the costs associated with retuning any 700 MHz narrowband systems that must be relocated to the new narrowband Public Safety channels. By all accounts, that amount is not expected to be significant, particularly by comparison with the other financial obligations that will be incurred by the “E Block” winner.

opportunity for a single entity to acquire the contiguous C, D and A Blocks and thereby create a 22 MHz channel block.

Consistent with Cyren Call's position from the outset that a 30 MHz block of spectrum is the optimal spectrum foundation on which to deploy a shared public/private nationwide, Cyren Call urges the Commission to adopt rules that will facilitate the consolidation of as close to that amount of spectrum as possible. Cyren Call believes that adoption of the band plan described in Attachment 1 would serve the interests of Public Safety as well as the overall public interest and urges the FCC to endorse it.<sup>39</sup>

E. The Commission's Broadband Public Safety Rules Should Leverage Technological Advances to Provide a Truly Nationwide Platform While Preserving Local Autonomy as Appropriate

The need for a nationwide, broadband Public Safety network can no longer be in doubt. There is a clear national consensus in support of its development. There also is general agreement that the extraordinary technological advances that will be delivered on next generation wireless systems will permit this network to be implemented pursuant to a public/private partnership. For the first time it will be possible to integrate seamlessly the communications of Public Safety and commercial subscribers on a single shared network. No longer will transmissions of discrete user groups need to be segregated on specific channels with provisions for overflow access to one another's spectrum. Instead, the broadband pipe will manage information flow based on pre-determined protocols and priority schemes.

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<sup>39</sup> Cyren Call assumes that a number of requirements would be associated with any Guard Band plan modifications that are adopted by the Commission. While the Commission proposes to implement rule changes of benefit to licensees of the A and B Guard Band blocks, it should condition those rule changes on unanimous agreement of the non-FCC guard band licensees to consent to the relocation of their spectrum as the FCC determines in its final rules, and also to consent (in the case of the non-FCC B Block licensees who are to have a portion of their licensed spectrum included in the new "E Block") to transfer licenses to this portion of their relocated B Block spectrum to the eventual E Block licensee for reasonable compensation, to be established by the FCC in its final rules. A similar arrangement should be instituted and made applicable to each A Block licensee, in the event that one or more of the D Block licensees, or the "E Block" licensee, as the case may be, desires to buy A Block licenses.

These advances are the technical foundation for the proposal submitted by Cyren Call which outlined a shared, nationwide broadband network built on a single, open technology platform pursuant to a license held by one representative Public Safety licensee. Although the FNPR seeks comment on a different approach, one in which the “E Block” and Public Safety licensees each will hold an authorization, the economic principles underlying a viable public/private shared network remain the same. They assume a common technology platform throughout the nation and across the combined spectrum holdings dedicated to the network by Public Safety and its “E Block” partner.

While the Commission presumably shares this vision, it would be possible to interpret its tentative conclusion to “redesignate the public safety wideband spectrum for broadband use consistent with a nationwide interoperability standard”<sup>40</sup> as potentially contemplating individual states, counties or other jurisdictions being permitted to select their own technology, provided it is labeled broadband and includes an interoperability gateway of some type. Of course, that would effectively negate the benefits of a nationwide authorization, would produce the same hodge-podge of incompatible Public Safety systems that have proliferated for decades in the lower bands, would perpetuate the, at best, ad hoc interoperability that historically has proved inadequate, and would call into question the economic viability of the entire undertaking. Therefore, it is important that the FCC leave no doubt in its final rules that the broadband platform technology choice must be made at the national level.

However, Cyren Call also has given serious consideration to the concerns expressed by those who fear existing broadband plans might be placed on hold until the national network contemplated in this proceeding is built out in a given market. Like so much else in this proceeding, the Commission must balance carefully national versus local interests. One of the

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<sup>40</sup> See, e.g., NPR at ¶ 250.

compelling rationales for deployment of this nationwide Public Safety broadband network is the inherent interoperability it will provide for network subscribers. First responders who operate on the network will have real-time, always on interoperability with all other Public Safety subscribers. This can be accomplished only if the network is built to a single technology standard. To determine otherwise would be to accept the current situation wherein each jurisdiction, indeed each agency within each jurisdiction, makes an individual decision about what technology to deploy. The result, as has been all too painfully apparent during events such as 9/11 and Hurricane Katrina, is a woeful failure of interoperable communications.

Fortunately, Cyren Call believes that these seemingly inconsistent interests can be balanced for the benefit of all Public Safety. It recommends that if an agency or jurisdiction has committed funds and a timetable for building broadband facilities in its locale, that it first contact the National Licensee to determine if construction of the national broadband network will satisfy local timing requirements. If it will, then the funds that would have been used to build infrastructure instead can be used for other purposes, such as acquiring necessary subscriber equipment or paying any charges that the National Licensee may determine to impose for access to the nationwide broadband network.

If, on the other hand, it is determined that the construction schedule developed by the National Licensee in cooperation with the “E Block” licensee will not accommodate the local timetable and is not susceptible to acceleration to meet that deadline, then the local jurisdiction or agency should be free to proceed with broadband deployment upon a showing that its system will be compatible with, and ultimately will be integrated into, the nationwide network. Procedures will need to be developed – presumably on a case by case basis as such

circumstances should not rise to the level of routine developments – governing how and when that occurs and under what financial conditions.

Cyren Call also wishes to emphasize that overarching national responsibility does not negate the important functions that will continue to be handled at more local levels. While the technology selection will be made nationally, the platform must be an open one without any restraints based on intellectual property rights or other proprietary claims that historically have stifled competition and increased the cost of subscriber equipment. As long as the user devices are compatible with the network and have been determined not to pose a risk to its effective operation, they should be approved for use by Public Safety.<sup>41</sup>

Thus, it is important to recognize that the network's national scope will not diminish the role of Public Safety users at the more local level. It is a fact that in the shared public/public network the commercial operating partner will be required to build and operate the radio and core IP backbone elements of the network. This network will be built to the negotiated specifications with the National Licensee. In essence, this will create bandwidth that each of the local Public Safety organizations can use much like they use their own networks today, but without the significant capital and operating expenses of building and running their own networks.

Thus, local Public Safety groups will have the ability to create virtual logical networks that they control, without having to worry about the physical network. First and foremost the individual jurisdictions will have control over the priority levels for their users and the ability to manage their own user/talk groups. This ability will exist on a real time basis so whether they are simply adding users or, more critically, managing user groups during incidents, they will have control over this functionality. They will also have the ability to select from a wide variety

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<sup>41</sup> *In the Matter of Use of the Carterphone Device in Message toll Tel. Srvs. v. AT&T et al.*, 13 F.C.C.2d 420 (1968).

of network compatible devices that they want to use. These devices will range from an aircard that can be installed in a laptop to sophisticated integrated data, voice and satellite devices that they could carry with them at all times.

In addition to devices, the local Public Safety organizations still will control the applications they want to use over this network. The deployment of the broadband network will allow them to access information and add new applications that previously could not be used due to the data speeds of the legacy networks.

Under the current proposed architecture, the National Licensee will have visibility into the operating performance of the shared network. While it will not be responsible for the operation of the network, it will have the ability to monitor it in terms of system availability, network outages, capacity utilization and performance. With the deployment of remote monitoring capabilities, the local Public Safety organizations will have real time access to this information at their command centers if they choose. Some large jurisdictions may require this capability while others may simply leave these network monitoring and managing functions to the National Licensee and commercial operator.<sup>42</sup>

The timing of the deployment of the national network and ongoing coverage enhancements for local jurisdictions will be critical. The National Licensee, working with the RPCs and the local jurisdictions, will establish the baseline rollout that will be negotiated with the commercial operating partner. However, this will need to be modified and enhanced over time. This network will continually evolve and local jurisdictions will have the ability to work with the National Licensee to prioritize coverage improvements that will be coordinated with the commercial partner on no less than an annual basis.

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<sup>42</sup> See Attachment 3 for a more detailed description of these various options.

Similar to the coverage requirements, local jurisdictions will have the ability to prioritize on-going feature and functionality requirements. We would suggest that the National Licensee might establish an advisory group comprised of representatives from local jurisdictions. Such a group could be responsible for defining requirements and then working with the National Licensee, the commercial partner, and the vendor and application developer communities to deliver the desired enhancements.

The shared public/private network is truly a partnership between the National Licensee, the local Public Safety end users and the commercial operating partner. These three groups working together will drive the requirements, the deployment and the ongoing enhancements to this network with Public Safety's needs and preferences in mind, while maintaining significant control of its use for Public Safety communications in the hands of the local jurisdictions.

F. The 700 MHz CMRS Auction Rules Should Promote the Creation of a Nationwide Interoperable Public Safety Broadband Network and Otherwise Should Provide Competitive Opportunities for All Size Carriers and in Rural As Well As Urban Markets

Cyren Call supports the Commission's conclusion that, if an "E Block" is to be created and made the subject of an encumbered auction for the purpose of facilitating development of a shared public/private broadband network built to Public Safety specifications, then the "E Block" (like the broadband spectrum allocation held by the National Licensee) should be licensed on a nationwide basis. The network developed on this combined spectrum position will be focused largely on meeting the communications requirements of first responders everywhere they serve the public, but also can be expected to bring broadband communications capabilities to more sparsely populated areas where other broadband communications alternatives may not exist or may not be available at affordable rates.

For instance, vis-à-vis other 700 MHz CMRS licensees the “E Block” licensee will be subject to more aggressive build-out obligations to meet the enhanced terrestrial network coverage footprint required by Public Safety. Therefore, the Commission’s rules might permit that licensee to be credited with achieving its coverage requirement in any area where the shared network is built initially incorporating all of the available spectrum from the National Licensee.<sup>43</sup>

In light of the assumed award of any “E Block” license on a nationwide basis, Cyren Call likewise concurs in the Commission’s view that the remaining upper 700 MHz CMRS spectrum blocks should reflect a mix of license area sizes, so that the auctions of these blocks of spectrum will hold appeal for a wide range of bidders, including small businesses, rural operators and new market entrants. Cyren Call recommends that the C and D blocks should be composed of 5 MHz spectrum pairs and should be available for license on a CMA basis (for one of the blocks) and an EA basis (for the other), this will assure an ample assortment of available license areas of multiple sizes to meet the varying requirements and resources of different types of potential bidders.

If the Commission believes that special measures should be adopted to encourage the creation of a “third pipe” for broadband services, it could consider permitting combinatorial bidding on a nationwide basis for the C Block, the D Block, or both (with or without the A Block) only to auction participants who do not own or control, either directly or through their affiliates, an existing broadband terrestrial delivery network (wired, wireless or cable) that covers areas containing a set amount (say, 20% or more) of the country’s population. It may be that the

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<sup>43</sup> Such an approach would permit the “E Block” licensee to economize on its network build expenses by deferring full spectrum and related network infrastructure build-out – and staging available network capacity – in areas until the combined Public Safety and commercial customer base on the network justifies such activity – a topic that could be among those covered in the Network Sharing Agreement. The later the network investments may be made, and the more closely they are permitted to be made to the revenue streams they are intended to generate, the easier it will be to achieve a given level of return on investment.

Commission is concerned with the concentration of spectrum ownership in particular parts of the country, or wishes to limit perceived accumulations of market power in particular markets for communications services. If so, it could limit the areas where package or regional bids could be made by particular auction participants to those that would not cause the total quantity of CMRS spectrum owned or controlled by such bidder or its affiliates to exceed specified total megahertz thresholds, or to those where the share of the market for particular communications services (e.g., cellular, PCS or similar mobile wireless voice communications services) held by a particular auction participant and its affiliates did not exceed specified percentages of the total addressable relevant customer base.

### **III. CONCLUSION**

The instant proceeding represents an historic opportunity for the Commission to adopt rules that could permit the nation's first responders, for the first time, to be in the vanguard of communications capabilities. The rules proposed herein, with the modifications suggested by Cyren Call, should be adopted as promptly as possible so that the journey to advanced, interoperable Public Safety communications can, at last, begin.

## **ATTACHMENT 1**



## **ATTACHMENT 2**

# Spectrum Impact on Rural Build

## (0) Base Case

Spectrum Position Scenarios (PS contributes 10 MHz usable spectrum, balance acquired through auction or acquisition)

- (I) Maintain urban capacity, lose rural coverage
- (II) Maintain urban capacity, lose rural coverage
- (III) Maintain urban capacity, maintain rural coverage

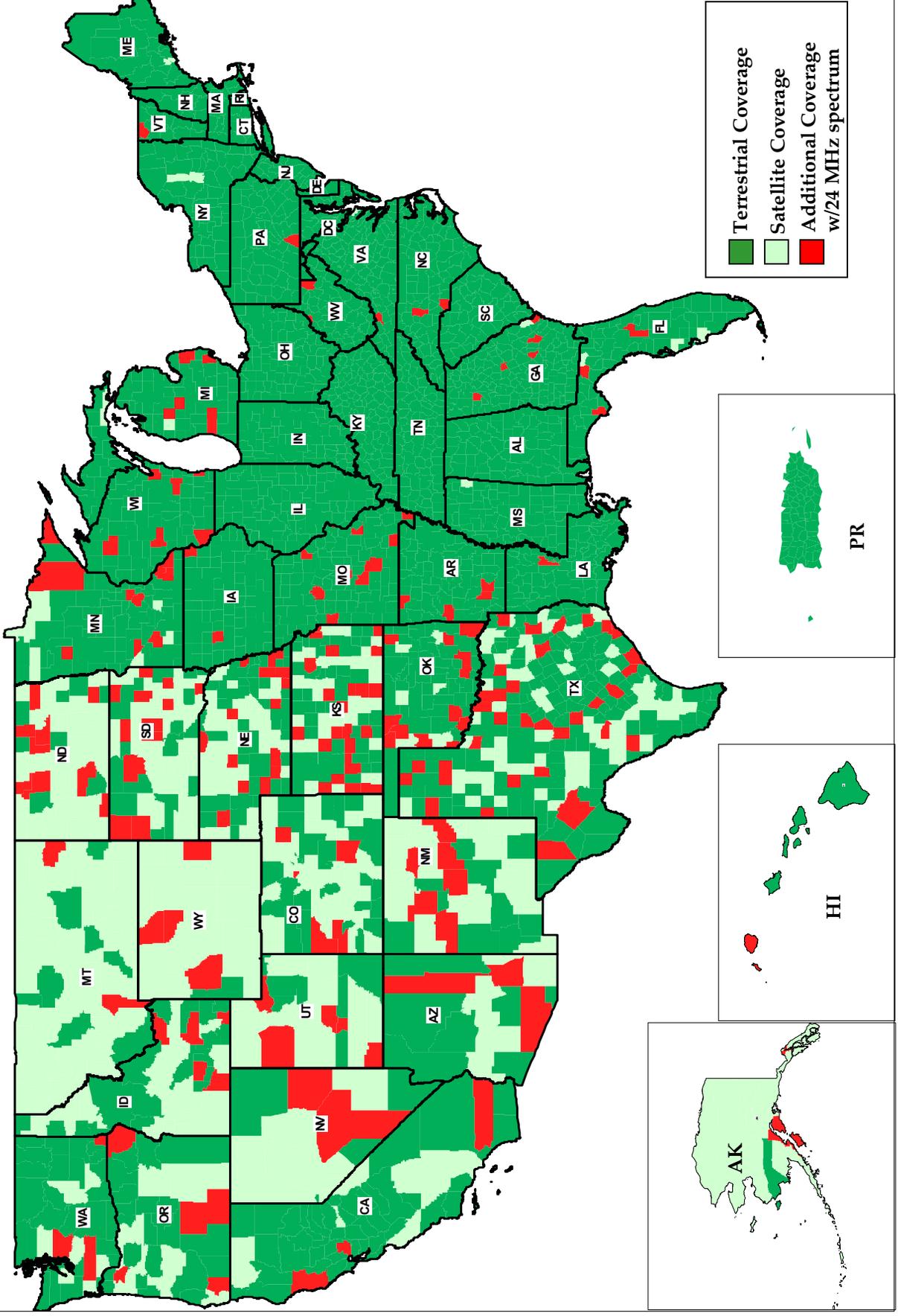
	(0)	(I)	(II)	(III)
<b>Total Sites</b>	Base 30 MHz	24 MHz	22 MHz	22MHz
<b>Total Rural Sites</b>	37.0K	37.0K	37.0K	41.4
<b>Population Covered</b>	16.8K	14.8K	12.4K	16.8K
<b>Geography Covered</b>	99.3%	98.9%	97.9%	99.3%
<b>CONUS Covered Geography</b>	63.5%	57.3%	50.0%	63.5%
<b>Population Density Threshold</b>	75.0%	67.8%	59%	75.0%
	≥ 5	≥ 8	≥ 14	≥ 5

**Less Spectrum = Less rural build for the same dollar investment or more cost to maintain the same rural build**



# 24 MHz Allocation – Additional Network Coverage Gains vs 22 MHz

## 37K Cell Sites



## **ATTACHMENT 3**

# **Public Safety Local Control**

## **Introduction**

A key element of the current public debate and Federal Communications Commission (“FCC”) rulemaking process that will determine the rules and use of the upper 700 MHz DTV spectrum centers on the issue of Public Safety “control” in a public private network environment. The context in which the term “control” is used in this debate has evolved into gaining specific definition of local decision and operational controls.

The public private mobile broadband network will be national in scope based on commercial mobile network technologies that will be enhanced and modified to care for the specific needs of the Public Safety community. The design and technical specifications of such a network will have to meet or exceed those that exist within the Public Safety environment. As the initial vision is for this to be a data centric network, voice services offered on this network will be used by Public Safety on a secondary basis with the goal to evolve the level of capability to be on par with those that exist for mission critical voice services today. The ability for state and local entities to use their existing and planned data applications and devices on this network will be a key design and services requirement. In summary, a public private Public Safety mobile broadband data network will be designed and built for Public Safety’s use and needs.

Specifically, the major areas of discussion surrounding local control have centered on eleven topic areas. The following will provide illustrations and examples of the types of local control that will be provided for in each area.

## **Scope of Control**

Many large Public Safety entities have the ability or require full control over every aspect of their communication networks. Others may opt to have a third party manage many elements of their communication needs or combine with bordering jurisdictions to form a central control group that manages all the communication needs across the combined jurisdictional area of responsibility.

A national Public Safety IP based mobile broadband data network will not take away from an agency or jurisdiction’s local control of authorizations and access permissions, user and service prioritization, standard and ad-hoc user group membership, secure and classified operations configurations, internal investigative requirements, content determination and delivery methods, enterprise/LAN/WAN access or extensions, access and use of local applications, data and web enabled services, and configuration of incident and emergency services, no matter what level of engagement a given group may desire to retain or manage. This flexibility will allow organizations to choose the level or degree of self-management and control they desire within the boundaries of capabilities available under such a network arrangement.

The national operator will manage the major components of the network such as cell sites and equipment, network transmission (e.g. fiber, T1’s, etc), core network switching and signaling centers and equipment, as well as network based services platforms (e.g. voice mail, SMS, text messaging).

## **Public Safety Local Control**

In essence the mobile operator and Public Safety agent will become much like a local Public Safety jurisdiction's existing engineering and local field operations staff in regards to expertise, response focus, and network management capability.

There is a high degree of sophistication in the configuration of IP mobile networks. A national operator will be of benefit to local Public Safety organizations in its ability to provide this expertise to assist in optimizing the delivery of data services and ensure that the configuration meets the local entity's specified requirements in addition to providing national inter-connectivity to nationally based services.

### **Coverage**

A national mobile network design considers two key components: (1) geographic coverage, and (2) population coverage. To ensure that both elements meet Public Safety's needs, requirements from local and state agencies, jurisdictions, entities and organizations will be incorporated into the national licensee's network design plans.

The Public Safety national licensee, in conjunction with the Regional Planning Committees "(RPC)", will solicit coverage requirements from the aforementioned groups and ensure that these needs are folded into the operators' local design. This will include remote areas, underground, in-building, and other special considerations that are required by an individual jurisdiction. In this way, even though the network is national in scope it will in reality be composite in nature with each Public Safety entity providing its unique requirements to be folded into the overall design.

### **Capacity**

All networks have a finite amount of capacity including today's local Public Safety networks. A national Public Safety broadband network that combines commercial and Public Safety spectrum together will offer higher capacity than has been previously available to Public Safety. The network operator will put priority access and quality of service mechanisms in place that will allocate up to 99.9% of the available spectrum and, therefore, capacity to local Public Safety entities and/or in times of emergency local entities plus other supporting agencies and organizations. Local groups will be able to further sub-divide priority access to capacity via priority groupings that allow for the formation of "information groups" that are similar to talk groups in the voice world. This capability will be controlled via configuration terminals that will be installed at a local jurisdiction or entity's command, dispatch, or Public Safety Answering Point ("PSAP") location(s) and will allow local decision authority and real-time configuration management to remain in the control of a given local entity.

### **Performance**

Performance in mobile IP based networks involves many elements. These include, but are not limited to, latency and jitter management, traffic prioritization and shaping, network congestion avoidance, routing schemes and designs, IP addressing schemes, application design, client / server interaction, and others.

## **Public Safety Local Control**

Determination of performance requirements for all delivered network services and functions will be specified by the local entity. As this will be a fourth generation IP network, it will in all likelihood meet or exceed the performance capabilities of private networks.

Since the local entity will specify the level of performance it requires and the network operator will be required contractually to deliver this performance level, all Public Safety entities served shall be assured that their data network performance needs are met.

Additionally, each subscribed entity will have visibility into performance via local status terminals and monthly reports delivered by the operator. These performance indicators will be based on industry standard Key Performance Indicators (“KPIs”) as stipulated in the service contract’s Service Level Agreements (“SLAs”).

Special or unique performance needs will be managed on a case-by-case basis within the boundaries of the technical capabilities of the network.

## **Applications**

A national Public Safety mobile broadband data network will enable the implementation and use of advanced applications or provide the means to evolve existing applications beyond current limits.

In most cases this network will be the transmission medium, delivering agreed upon performance levels, to connect Public Safety users to their jurisdictional fixed network capabilities and applications. Most wireless applications make use of a mobile client loaded on the mobile terminal. These clients communicate with its host applications. The ability of any given local entity to load mobile clients onto the terminals will not change. The ability to leverage existing or new applications that enhance or evolve a local Public Safety entity’s capacity to perform its mission will not change. The only change will be the medium that connects the users, applications, and devices together -- the national broadband network.

A benefit of this arrangement will be to interconnect across a common network many agency’s applications and allow for forms of national standards to evolve. Another benefit will be the ability of the agency to gather statistics, usage patterns, and other performance information that can be used to quickly identify issues or modifications required to enhance the application and the user experience. The national operator can deliver this focused information to a given local entity via reports or in near real time by way of local maintenance and network monitoring terminals.

## **Devices**

Today the major commercial device manufacturers produce handsets, terminals, and other wireless devices for a variety of air interfaces and mobile technologies -- not just single type. Since this will be a commercially based network with a specified air interface and standardized network protocols, local Public Safety groups will have a much broader selection of devices from which to choose for their specific local needs.

## **Public Safety Local Control**

The ability to produce multi-mode, multi-band devices that will enable a local Public Safety entity to leverage local network capabilities, in addition to the national mobile broadband network, increases the quantity and types of devices from which to choose and to put into service.

Each device will come pre-configured to ensure connectivity to the national network; however, this will not preclude the local entity from either requesting customization that will be delivered by the national operator or having the ability to further configure and manage the device locally, including disabling the device if required. For example, configuration of “information groups,” the ability to load locally developed mobile clients such as device pool assignments, will be managed at the local level or, if desired, by agents of the national Public Safety licensee.

## **Network Technology**

As previously outlined, all mobile network elements will be engineered, deployed, managed, and operated by the national operator. However, prior to the start of the network build, consensus will be reached as to the choice of technology.

This consensus will be reached between appointed representatives of Public Safety and the national operator. Since this network is national in scope, the goal will be to balance local jurisdictional and national requirements. One of the most important national goals is to achieve nationwide-level interoperability. With a single technology this is achievable. Local technology choices and uses of 4.9GHz solutions, for example, will still be available to local jurisdictions.

In summary the key decision for network technology will be national consensus on a nationwide Public Safety mobile broadband data network technology that is jointly agreed upon among representatives of Public Safety and the national network operator.

## **Support**

Network and services support for all facets of Public Safety communications is tied to network performance and the ability of any given local Public Safety entity to be assured that its needs are met in the manner to which they are accustomed.

Support is not just centered on fault management. It entails services such as delivery, provisioning, billing, general customer care, network fault management, and emergency and incident support across all of Public Safety’s functional areas. Local support in this sense will be the prime focus for the national operator, the Public Safety national licensee and its agents.

Network field operations, fault management and resolution, services assistance, and all other support roles will be national in scale but local in execution. In this way local entities will know who their support staff is and can develop the critical relationships needed to assure that a true public private partnership is in place from the beginning.

## **Public Safety Local Control**

### **Availability during Disasters**

During disasters local Public Safety jurisdictions and entities are dependent upon their supply of spare assets and access to key suppliers in addition to the actual staff on hand when the disaster or incident occurs.

As outlined in the section on support, the national Public Safety mobile broadband data network will be national in scope and local in execution. Local and regional operations staff as well as nationwide response teams representing the operator and the national Public Safety licensee agent will be on-scene to support the local entity during any emergency.

The network operator will have assets such as cell sites on wheels (“COWs”), transportable network elements, national level network equipment spares, inventories of handsets and terminals, portable fuel assets, generators, and other equipment available to support the local entity.

Emergency services and national network operations centers will be available to off-load and assist local entities with configuration and communications coordination and management.

Lastly, the network will be required to be built to specifications that meet or exceed the most stringent physical, logical, and security requirements of Public Safety. In this way, from the beginning, the network will be designed to the highest levels of reliability, availability, and performance so that normal and emergency needs are incorporated and designed into the national Public Safety mobile broadband data network.

### **Monthly Fees**

The national Public Safety licensee will set rates for all services with the national network operator. This will be, in reality, a fee schedule with the goal of providing local Public Safety jurisdictions and entities the most optimal rate for services. Use of the network is voluntary in nature. There will be both bundled and a la carte choices that will provide Public Safety with the ability to tailor the level of service to their needs and budgets.