

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

In the Matter of	)	
	)	
Implementing a Nationwide, Broadband, Development of Operational, Technical 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

**REPLY COMMENTS**

**CYREN CALL COMMUNICATIONS  
CORPORATION**

\_\_\_\_\_/s/  
Morgan E. O'Brien  
Chairman of the Board  
601 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 .....	i
EXECUTIVE SUMMARY .....	ii
I. INTRODUCTION.....	1
II. THERE IS BROAD SUPPORT FOR A NATIONWIDE BROADBAND PUBLIC SAFETY NETWORK .....	4
A. Nationwide Broadband Public Safety Network .....	5
B. Nationwide Broadband Public Safety Licensee.....	5
C. Sufficiency of Public Safety Allocations .....	8
D. Public/Private Partnership - Spectrum Requirements .....	10
III. THE RIGHT TO ENTER INTO A PARTNERSHIP WITH PUBLIC SAFETY FOR DEPLOYMENT, OPERATION AND MANAGEMENT OF THE NATION’S PUBLIC SAFETY BROADBAND NETWORK MUST NOT BE SOLD TO AN UNKNOWN COMMERCIAL ENTITY THROUGH THE AUCTION PROCESS .....	13
IV. CONCLUSION .....	20
EXHIBIT	

## EXECUTIVE SUMMARY

The record in this proceeding provides compelling support for a finding that public safety must have access to a nationwide, mobile, broadband interoperable network and that a single licensee, representative of local, state and federal users, is best suited to hold this nationwide authorization. The record also confirms that financing for this network must come from private sources since there has been no demonstration of available, continuing governmental funding for its initial deployment or its ongoing operation and enhancement. A number of well-qualified parties have validated the conclusion in the original Cyren Petition that 30 MHz of 700 MHz spectrum will be needed to attract private investment for an innovative shared public/private network since there must be sufficient capacity to accommodate both public safety requirements and a large enough commercial customer base to produce an adequate return on that investment.

Further, the record includes ample evidence to refute any claim that public safety already has adequate spectrum to satisfy its mobile broadband requirements. The FCC is well aware that most public safety spectrum is both interleaved with non-public safety uses and assigned in increasingly narrowband frequencies. It is the antithesis of the large block of contiguous spectrum to which commercial wireless providers have access and which is essential for cost-effective broadband deployment. Even if the argument was true and public safety had an allocation suitable for its own broadband requirements, which clearly is not the case, it still would not answer the fundamental problem that public safety needs both appropriate spectrum and adequate funding if it is to have the broadband capabilities for which the FCC previously has found a compelling requirement and which all parties concede are necessary. Cyren and other knowledgeable parties to this proceeding have reaffirmed that the necessary private investment

will not be forthcoming unless an additional 30 MHz of 700 MHz spectrum is allocated for this specific public safety purpose.

It also is essential that public safety have licensee-level control over all aspects of its 21<sup>st</sup> Century communications network. To do so, it must hold the FCC authorization for the spectrum on which this network is deployed. The comments filed by Frontline Wireless, LLC propose that the Commission allow an auction to determine the entity with which the national public safety licensee will be required to partner for deployment, operation and management of the mobile broadband network on which the lives of our first responders and the lives of the public they have committed to protect will depend. Public safety will have no say in the selection of that entity, but will be required to negotiate critical issues such as the terms and conditions of construction, coverage, preemptibility rights, blocking rates, service charges and myriad other factors essential to public safety-grade operations after the entity already has secured the auction license. The imbalance of the parties' respective negotiating positions under this approach, with public safety in the distinctly disadvantageous position, compels the FCC to reject this proposal. The responsibility for the future communications capabilities of our emergency response providers cannot be determined by a party selected on the sole basis that it was the highest bidder in an FCC auction.

The 700 MHz spectrum necessary to fulfill the FCC's objective will be auctioned and irretrievable unless prompt action is taken. Because this spectrum currently is scheduled for auction no later than January 2008, Cyren urges the Commission to report to Congress that a more critical public interest need has been identified for its use and to ask Congress for authority to reallocate this 30 MHz to public safety as expeditiously as possible.

Cyren Call Communications Corporation (“Cyren”), in accordance with Section 1.415 of the Federal Communications Commission (“FCC” or “Commission”) Rules and Regulations, respectfully submits its reply comments in response to the Ninth Notice of Proposed Rulemaking in the above-entitled proceeding.<sup>1</sup>

## I. INTRODUCTION

The record in the proceeding reflects broad support for a number of major elements of the FCC’s 700 MHz public safety broadband proposal. Virtually all parties endorsed the Commission’s conclusion that the public interest demands deployment of a nationwide, mobile broadband, advanced technology, interoperable public safety network at 700 MHz. There was general appreciation for the need to have a single public safety entity hold the FCC license for the spectrum on which the network will be deployed. Most parties also recognized that a public/private partnership will be essential in financing the initial build out, maintenance, ongoing operation and enhancement of such a network since adequate, continuing governmental commitments do not appear likely as a funding source.

Moreover, many commenting parties agreed with Cyren that private monies would not be forthcoming unless sufficient spectrum was made available to support not just public safety communications, but also a commercial customer base large enough to justify the necessary investment. They concluded that the 12 MHz of existing public safety spectrum proposed by the FCC as the home for this broadband network would be inadequate for that purpose as it does not offer sufficient capacity to support even public safety’s own broadband requirements.<sup>2</sup> Further,

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<sup>1</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*” or “*NPR*”).

<sup>2</sup> Virtually all parties questioned the Commission’s suggestion that cognitive radio technology was at a sufficiently mature stage to permit non-disruptive broadband operations on the 12 MHz of 700 MHz public safety spectrum already being used for narrowband voice communications. *See, e.g.*, Comments of Motorola, Inc. at 9; Comments of M/A-COM, Inc. at 3-4; Comments of Northrop Grumman Information Technology, Inc., at 11.

the public safety community reaffirmed that those 12 MHz already have been designated for a variety of essential local, state and regional communications systems that will be deployed once the channels have been cleared of broadcast stations and emphasized that this long-awaited spectrum should not be diverted for national broadband purposes.

While the Commission's innovative regulatory proposal attracted widespread support for its overall framework, it also has brought into sharp focus distinctly different perspectives with respect to the importance of the FCC's licensing authority and the manner in which that authority should be exercised. A number of public safety organizations and entities expressed support for the proposal described in Cyren's Petition for Rulemaking filed in April 2006.<sup>3</sup> That proposal provided for establishment of the Public Safety Broadband Trust ("PSBT") to hold the license for the 30 MHz of upper 700 MHz spectrum that the Petition recommended should be reallocated to public safety – the spectrum on which the broadband network would be deployed. The Petition called for a governmental/commercial partnership whereby the PSBT would lease spectrum usage rights, consistent with the Commission's secondary licensing procedures,<sup>4</sup> to commercial operators who would build a shared public/private nationwide broadband network on those 30 MHz under the direction of and pursuant to the licensing authority held by the PSBT. Subject to FCC requirements, the PSBT, as licensee, would retain ultimate control over all activities relating to the construction, operation, management and enhancement of its network.

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<sup>3</sup> See Petition for Rulemaking of Cyren Call Communications Corporation, RM 11348, filed April 27, 2006 ("Petition"). The 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 Petition on November 3, 2006, stating that because the 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 seeking comment on the Petition open even after its dismissal. More than 1,300 comments were filed, virtually all of which supported the principles of Cyren's proposal.

<sup>4</sup> *Promoting Efficient Use of Spectrum Through Elimination of Barriers to the Development of Secondary Markets, Report and Order and Further Notice of Proposed Rulemaking*, WT Docket No. 00-230, 19 FCC Rcd 20604 (2003).

The comments submitted by Frontline Wireless, LLC (“Frontline”) in this proceeding propose a fundamentally different approach, one in which public safety would not hold the FCC license for all spectrum on which its broadband network would be deployed. Instead, Frontline recommends that the Commission use an auction to award spectrum rights that essentially would establish a “partnership” between the auction winner and public safety with respect to deployment of a broadband network. While the broad parameters of the auction winner’s responsibilities *vis-à-vis* its public safety “partner” would be defined in the FCC rules, the economic and other business terms of their arrangement would not even be discussed until the parties – a commercial auction winner and public safety – met at the negotiating table.

This proposal would turn the auction process on its head. Rather than being employed as a fast and efficient means for selecting from among competing commercial applicants demonstrating basic qualifications,<sup>5</sup> the auction recommended by Frontline would be used to designate public safety’s broadband “partner.” It would base that crucial decision and bestow that vital role solely on an entity placing the highest bid in an auction -- without any input from the public safety community on whose lives successful deployment of this network will depend.

It is unthinkable that the FCC might reverse its multi-decade policy that public safety must control the spectrum used to carry its critical transmissions. It is not conceivable that the Commission, when presented with the opportunity to propel public safety communications into

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<sup>5</sup> See generally *Implementation of Section 309(j) of the Communications Act – Competitive Bidding, Second Report and Order*, PP Docket No. 93-253, 9 FCC Rcd 2348 (1994). It is important to remember that the winning applicant in a commercial auction is granted a license to use spectrum to provide commercial service in a market with competing providers of comparable offerings. If the marketplace allows the “wrong” applicant to win, the marketplace will correct the problem. In this situation, the auction winner would be the one and only provider of mobile broadband services for public safety and would be entitled to use not only the spectrum it purchased, but also public safety’s own, separately awarded spectrum, in its network.

the forefront of the 21<sup>st</sup> Century wireless revolution, would relinquish oversight of that effort in favor of an entity whose only demonstrated qualifications would be financial.<sup>6</sup>

This issue is fundamental to the future of broadband public safety communications -- whether public safety itself will hold the FCC license for the spectrum on which its 21<sup>st</sup> Century network is deployed or whether the Commission might permit unfettered marketplace forces to determine the party with which public safety must negotiate for access to that network. Cyren is confident that the Commission will remain true to its statutory purpose and reject suggestions that the FCC's competitive bidding procedures properly can be used to select not only the licensee of a block of commercial spectrum, but also the owner, operator and manager of the network on which the nation's emergency response providers will rely in the years and decades to come.

## **II. THERE IS BROAD SUPPORT FOR A NATIONWIDE BROADBAND PUBLIC SAFETY NETWORK**

In the *Ninth NPR*, the FCC identified certain objectives it associated with a 21<sup>st</sup> Century public safety network: broadband, network interoperability, adequate funding, cost-effectiveness, efficient spectrum use, and flexible modern architecture.<sup>7</sup> It proposed the following regulatory structure for achieving those objectives:

- (1) reallocate 12 MHz of wideband public safety spectrum to broadband use;
- (2) assign this 12 MHz to a single, national, broadband, public safety licensee;
- (3) permit the national broadband licensee to operate on the 12 MHz of narrowband public safety spectrum on a secondary basis;
- (4) permit the national broadband licensee to provide broadband service for a fee to public safety entities;
- (5) permit the national broadband licensee to lease its spectrum to commercial service providers on a secondary, unconditionally preemptible basis;
- (6) facilitate public safety shared use of commercial mobile radio service ("CMRS") infrastructure;
- and (7) establish performance requirements for the national broadband licensee

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<sup>6</sup> The FCC has retained foreign ownership restrictions as required by the Communications Act of 1934, as amended, 47 U.S.C. § 310, but those regulations clearly would permit a properly structured foreign entity to oversee the operation and management of the nation's public safety broadband network.

<sup>7</sup> *Ninth NPR* at ¶¶ 12- 18.

for interoperability, build out, preemptibility of commercial use and system robustness.<sup>8</sup>

A. Nationwide Broadband Public Safety Network

Commenting parties agreed with the FCC's assessment that public safety access to a nationwide, advanced technology, mobile, broadband, interoperable network will be essential for satisfying public safety requirements. For example, the National Public Safety Telecommunications Council ("NPSTC") emphasized that such a network "is enormously important for emergency responders at all levels of government: local, state and federal. It will be an essential tool for addressing the expanded domestic defense and emergency response obligations of all public safety agencies."<sup>9</sup> Sprint Nextel Corporation noted that "broadband technologies may provide the public safety community with the benefits of integrated voice and high-speed data services, and might facilitate such applications as video surveillance, real-time text messaging and the sharing of high resolution digital images. These applications may yield enormous real-time benefits to public safety entities in responding to a crisis or other emergency event."<sup>10</sup> In fact, no party suggested, or reasonably could suggest, that public safety does not need access to the advanced capabilities that will be available on a mobile broadband network.

B. Nationwide Broadband Public Safety Licensee

A number of commenting parties also recognized that deployment of a truly nationwide network would be facilitated by issuing a nationwide license to a single entity broadly representative of the public safety community.<sup>11</sup> Some specifically identified the Public Safety Broadband Trust proposed in the Cyren Petition as the appropriate entity. NPSTC expressed its support in the following language:

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<sup>8</sup> *Id.* at ¶ 4.

<sup>9</sup> NPSTC Comments at 1-2.

<sup>10</sup> Sprint Nextel Corporation Comments at 3.

<sup>11</sup> *See, e.g.*, Comments of the State of Nebraska Division of Communications.

A trust, organized, populated and controlled by the public safety community, would be established to administer these channels and develop funding sources to build and maintain the network...The PSBT would establish the technical parameters of the network to ensure public safety standards, pervasive interoperability among agencies and open architecture. It presents a governing body embracing public safety representation and a management structure promoting public/private spectrum use.<sup>12</sup>

The Association of Public-Safety Communications Officials-International, Inc. (“APCO”)

adopted a similar position:

As discussed in the *Ninth NPRM*, there are particular advantages to having a single licensee for a national broadband network. This is also a key element of the public safety-supported Public Safety Broadband Trust...which proposes that the license for 30 MHz of newly allocated spectrum be assigned to a trust controlled by state/local government and public safety organizations. The trust, as licensee, would then enter into arrangements to build a nationwide network and lease capacity to non-public safety entities.<sup>13</sup>

To the extent parties raised questions about the nationwide licensee concept, they arose from two interrelated concerns. First, those parties generally were public safety entities that had developed localized plans for use of the long-awaited 12 MHz of public safety spectrum that the FCC proposed be assigned on a primary use basis for deployment of a nationwide broadband network. Since the Commission’s proposal would require jettisoning those efforts in favor of a nationwide system, the affected parties understandably expressed reservations about the Commission’s plan, including the proposed nationwide licensee.<sup>14</sup> Similar concerns were expressed by companies such as Motorola, Inc. (“Motorola”) and M/A-COM, Inc. (“M/A-COM”).<sup>15</sup> Second, certain parties wanted assurance that issuance of the broadband license to a single nationwide entity would not undermine the ability of local, state and regional entities to

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<sup>12</sup> NPSTC Comments at 7.

<sup>13</sup> APCO Comments at 5-6.

<sup>14</sup> See, e.g., Comments of the Region (22) Minnesota Public Safety Regional Planning Committee at 2-3.

<sup>15</sup> Motorola Comments at 5-8; M/A-COM Comments at 6.

utilize the broadband capability thereby provided in response to specific, localized requirements.<sup>16</sup>

The first concern cannot be resolved if the Commission assigns the 12 MHz in question for exclusively nationwide broadband service. As indicated in its Comments in this proceeding, Cyren does not support that aspect of the FCC's proposal because it would deprive the public safety community of spectrum needed for a number of vital communications purposes that otherwise could be accommodated as soon as this spectrum is vacated by individual broadcasters in particular markets. Moreover, as detailed in those Comments and as discussed below, there is nothing in the record to support (and Cyren respectfully disagrees with) the FCC's assumption that those 12 MHz would be adequate to meet even public safety's broadband requirements, much less to provide the additional capacity needed to attract the public/private partnership on which deployment of a public safety broadband network will depend. The Commission must look elsewhere -- to the 30 MHz proposed in the Cyren Petition -- for the spectrum needed to support the network the Commission has proposed.

With respect to questions about localized control, Cyren wishes to emphasize that while a nationwide broadband network must be built to a single standard if it is to provide meaningful interoperability, that standard must be IP-based and non-proprietary, as recommended both in the Cyren Petition<sup>17</sup> and in the *Ninth NPR*. Further, it must permit locally based compartmentalized access, control and management of services and network capacity through "software locks and keys" as suggested in the Cyren Petition. This could be accomplished by segmenting the network into "logical" networks, with each logical segment managed separately from the others. Compartment "owners" such as individual public safety agencies would be free to operate and

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<sup>16</sup> See, e.g., Comments of Region 39, Tennessee, 700 MHz Regional Planning Committee; Comments of the City of Philadelphia at 2-3.

<sup>17</sup> This subject was discussed extensively on pp. 54-60 of Exhibit II to the April 2006 Cyren Petition.

manage their networks as best fits their mission. Interoperability would be maintained through service agreements or could be implemented by utilizing a common logical network.

This approach is similar in concept to public safety interoperability channels in other bands that are used primarily for narrowband, mission-critical communications. In this way, each logical network would have access to the available capacity of the broadband network while maintaining local autonomy over the uses to which that capacity is put. In the event of extreme network congestion, each logical network still could have a minimum capacity allowance, subject to PSBT-determined prioritization decisions, and each network public safety agency “owner” could have its own policies on the priority of use under those conditions. This approach provides the optimum balance of a shared technologically advanced network, with its advantages of cost economies and optimal utilization of scarce resources, and the rigorous public safety requirements in security, administration, resource access prioritization and interoperability.

### C. Sufficiency of Public Safety Allocations

A few parties argued that public safety already has sufficient spectrum to deploy an advanced technology, nationwide broadband network, often claiming that current public safety spectrum utilization is inefficient. Some relied on a recent report prepared by Criterion Economics to support that position.<sup>18</sup> Thus, MetroPCS Communications, Inc. (“MetroPCS”) expounded as follows:

The Criterion Report supports the view that “10 MHz is sufficient for traditional commercial wireless networks to operate over an extensive population of users, and that a network only requires 2.5 MHz of paired spectrum to provide broadband data rates.” Therefore, the 12 MHz proposal by the Commission should be adequate, as it is 20% more than then that [sic] found sufficient by the Criterion Report and almost five times that [sic]the Criterion Report found required to provide broadband data rates.<sup>19</sup>

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<sup>18</sup> Criterion Economics, “Improving Public Safety Communications,” Peter Cramton, Thomas S. Dombrowsky, Jr., Jeffrey A. Eisenach, Allan Ingraham, and Hal Singer, February 6, 2007 (“Criterion Report”).

<sup>19</sup> MetroPCS Comments at 4 (footnote omitted).

AT&T Inc. (“AT&T”) took a similar position, also in reliance on the Criterion Report. While acknowledging -- in a presumably unintentional model of understatement -- that “public safety entities have special requirements that may prevent them from achieving the same level of spectrum efficiency as CMRS networks,”<sup>20</sup> AT&T nonetheless took the position that if public safety does not have sufficient spectrum on which to deploy a nationwide, broadband, interoperable wireless network, the fault lies with public safety’s failure to use existing allocations in “an efficient, integrated manner.”<sup>21</sup> CTIA – The Wireless Association (“CTIA”) echoed that perspective claiming that “public safety can do much to make more efficient use of spectrum.”<sup>22</sup>

These comments demonstrate a dangerous lack of understanding of public safety communications allocations and requirements. Their recommendations cannot be accorded any weight when the subject matter is of the most vital importance to all Americans – the capabilities of the communications systems on which our first responders rely for their own safety and the safety of the public that these emergency providers have committed to protect.

Cyren has attached an Exhibit detailing its critique of the Criterion Report, a report released seemingly as an independent academic analysis, but whose origins are transparently traceable to its commercial wireless operator proponents. Fortunately, the Commission itself is fully familiar with the capabilities of the spectrum it has allocated for public safety use over the years. It is well aware that the FCC has pursued increasingly narrowband frequency assignments as the means for enhancing spectrum efficiency in the interleaved private land mobile services

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<sup>20</sup> AT&T Comments at 8.

<sup>21</sup> *Id*

<sup>22</sup> CTIA Comments at 8.

bands, including the bands where public safety traditionally has operated.<sup>23</sup> These allocation decisions present inherent limitations that preclude the use of that spectrum for broadband purposes.

D. Public/Private Partnership – Spectrum Requirements

The record in this proceeding confirms the fundamental premise of the Cyren Petition: a public/private partnership is absolutely essential to the deployment of a nationwide, mobile, broadband, advanced technology, interoperable public safety network. In its Comments, Cyren explained why the 12 MHz proposed by the FCC would not be adequate to attract the private investment needed to fund such a network. That position was confirmed by a diverse group of commenting parties.

Thus, Northrop Grumman Information Technology, Inc. (“Northrop Grumman”), a company with current, hands-on experience implementing a public safety broadband network in New York City, reached the following conclusion:

...the 12 MHz available for broadband is not enough to meet the needs of public safety while yielding capacity and material economic value for any commercial carriers....It is highly unlikely in any urban area of any scale that a system developed to pool the needs of public safety entities would have any useful excess capacity at all operating on just 12 MHz of Public Safety spectrum.<sup>24</sup>

That company went on to say that, “There is a very real prospect of substantial economic value deriving from carrier grade commercial services operating on the unused excess capacity of a 30 MHz public safety shared system.”<sup>25</sup> It is significant, albeit not surprising, that a company such as Northrop Grumman has validated the conclusion reached by Cyren and other parties regarding

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<sup>23</sup> See Implementation of Sections 309(j) and 337 of the Communications Act of 1934 as Amended; Promotion of Spectrum Efficient Technologies on Certain Part 90 Frequencies, WT Docket No. 99-87, *Third Memorandum Opinion and Order, Third Further Notice of Proposed Rule Making and Order*, 19 FCC Rcd 25045 (2004).

<sup>24</sup> Northrop Grumman Comments at 6-7.

<sup>25</sup> *Id.* at 7.

the ability to finance a shared governmental/commercial nationwide, mobile, broadband network with access to 30 MHz of 700 MHz spectrum.

APCO, an organization eminently qualified to speak to public safety communications requirements, made the same finding with respect to the inadequacy of a 12 MHz allocation for funding purposes. “In much of the nation, 12 MHz is likely to be woefully short of what public safety agencies will require to support *their own* operations on a nearly constant basis. There will be little or no “excess capacity” to lease to non-public safety users in those areas.”<sup>26</sup> This position was reiterated by Motorola, a company with substantial expertise in both public safety communications needs and the economics of mobile broadband network deployment. Motorola stated that, “Because of the limited amount of spectrum available under this proposal, there may be limited interest from commercial entities to help fund deployment of the network.”<sup>27</sup>

NPSTC used the following language in identifying the inadequacy of the proposed allocation as a fatal flaw in the FCC’s proposal:

Critically, the PSBT approach presents a path toward a nationwide public safety broadband network because it addresses the systemic under-funding of government radio systems on an ongoing basis. It will be able to do so, however, only if there is sufficient spectrum to attract commercial interest to invest in a shared government/commercial network. The shared environment that would emerge provides adequate spectrum to protect all interests and a funding base to construct and maintain the network, a forceful incentive for coexistence. It is this essential element that is absent in the Ninth NPR which proposes only 12 MHz of already allocated public safety 700 MHz spectrum for this critical purpose.<sup>28</sup>

It went on to note:

NPSTC has made inquiries of private interests regarding commitments to invest and use the spectrum under the circumstances proposed by the Ninth NPRM. Responses were negative and premised on the lack of adequate spectrum to coexist with public safety given the preemptible status of commercial service on the network. *The use of 12 MHz simply will not provide even the capacity to*

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<sup>26</sup> APCO Comments at 4.

<sup>27</sup> Motorola Comments at 13.

<sup>28</sup> NPSTC Comments at 7.

*accommodate the enormous expansion of domestic defense and emergency responsibilities of local, state, and federal government agencies, much less present viable opportunities for shared commercial usage.*<sup>29</sup>

GEOCommand, Inc. (“GEOCommand”), a company that provides advanced GIS mobile mapping solution to the public safety community, confirmed those assessments:

...The FCC’s proposal to utilize a mere 12 MHz of spectrum already allocated to public safety for this endeavor seriously undermines the successful construction and operation of a national broadband interoperable public safety network. And while the FCC has observed that, without Congressional intervention, it has no choice but to consider existing public safety spectrum for this proposal, GEOCommand believes that it would be more harmful to attempt to implement a much needed national broadband interoperable public safety network without incorporating the very tools needed to ensure its success -- that is: a sufficient amount of spectrum other than the spectrum already needed to meet existing public safety needs. The allocation of 12 megahertz of spectrum simply is not enough to support the contemplated commercial *and* public safety use of the network.<sup>30</sup>

The record is clear. Consistent with the Comments above, and as indicated in the Cyren Petition and confirmed in Cyren’s earlier-filed Comments in this proceeding, the 12 MHz proposed by the Commission as the foundation for a broadband network that would support a public/private partnership is entirely inadequate for that task. Cyren explained that, “...contrary to [the FCC’s] assumption, the private financing expected to fuel this national priority will not be available if only 12 MHz of spectrum is assigned for this purpose. An allocation of that size built to public safety’s technical specifications and coverage requirements would result in a network cost that could never be recovered. 12 MHz would not support the approximately Thirty Million commercial subscribers needed at network maturity to justify investing in the network’s initial construction and its ongoing operation.”<sup>31</sup> That position has been confirmed by numerous other parties in this proceeding. Cyren again urges the Commission to seek

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<sup>29</sup> *Id.* at 8 (emphasis added).

<sup>30</sup> GEOCommand Comments at 4

<sup>31</sup> Cyren Comments at 15.

Congressional authority to reallocate 30 MHz from the upper 700 MHz band for assignment to a nationwide public safety licensee such as the PSBT for the deployment of a nationwide, mobile, broadband, interoperable public safety network.

**III. THE RIGHT TO ENTER INTO A PARTNERSHIP WITH PUBLIC SAFETY FOR DEPLOYMENT, OPERATION AND MANAGEMENT OF THE NATION'S PUBLIC SAFETY BROADBAND NETWORK MUST NOT BE SOLD TO AN UNKNOWN COMMERCIAL ENTITY THROUGH THE AUCTION PROCESS**

The Communications Act commands the Commission to “make available, so far as possible, to all the people of the United States...a rapid, efficient, Nationwide... radio communication service...for the purpose of the national defense, for the purpose of promoting safety of life and property....”<sup>32</sup> Central to that obligation is the FCC’s responsibility to ensure that public safety providers, the entities with the most direct responsibility possible for protecting safety of life and property, have access to adequate spectrum in an appropriate regulatory framework to permit fulfillment of their primary functions.

The Commission always has treated that statutory directive with the utmost seriousness. Indeed, initiation of the *Ninth NPR* underscores the FCC’s commitment to exploring innovative avenues by which public safety communications capabilities can maintain pace with the expanding responsibilities with which these emergency response providers continue to be charged. The record in this proceeding already has confirmed that it no longer is a question of whether public safety requires access to a nationwide, interoperable, broadband network, but how that need should be met, including the question of how the system will be built, operated, maintained and expanded.

One theme common among comments submitted in response to the *Ninth NPR* was the essential qualifier that whatever changes are made to the Commission’s regulatory structure to

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<sup>32</sup> 47 U.S.C. § 151.

accommodate a broadband network, public safety nonetheless must remain in control of that network and the associated license. For example, APCO issued an unequivocal directive:

Therefore, under no circumstances should the licensee be, or be controlled in any way by, a commercial entity. This is public safety spectrum, and must be controlled and managed by public safety entities.<sup>33</sup>

Motorola echoed that position:

Finally, Motorola believes that the FCC must make certain that public safety spectrum remain firmly in control of public safety to ensure access to critical data communications.<sup>34</sup>

Control – The network and license must remain under the control of public safety.<sup>35</sup>

NPSTC described the issue as follows:

This path requires action by the Congress, Administration and the Commission. The public safety controlled PSBT must have the requisite statutory or regulatory authority to assume daily management of the spectrum...with discretion to take such action as necessary to respond to expanded or emergent needs, all subject to the Commission's regulatory authority and to Congressional oversight.<sup>36</sup>

Each of these parties exhibited an appropriate respect and appreciation for the important rights and responsibilities associated with an FCC-issued authorization. Those rights have been codified over many decades of FCC decision making, as well as judicial adjudications. While the more recent availability of spectrum leasing opportunities represents a creative, important adjunct to the Commission's primary licensing authority,<sup>37</sup> the gold standard for determining the party with ultimate control over the use of any spectrum segment remains the FCC authorization. These parties' cautionary comments with respect to the inter-relationship between license

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<sup>33</sup> APCO Comments at 14.

<sup>34</sup> Motorola Comments at 4.

<sup>35</sup> *Id.* at 14.

<sup>36</sup> NPSTC Comments at 9.

<sup>37</sup> *See* n. 4 *supra*

authority and preservation of public safety control appear particularly prescient in light of the proposal outlined in the Frontline Comments.

It would be difficult for Cyren to find fault with certain aspects of Frontline's proposal since they are so strikingly similar to elements of the Petition filed by Cyren last April. Both parties have determined that a public/private partnership of some type will be needed to provide financing for deployment of a nationwide, broadband public safety network. Both have concluded that private funding would be available for this undertaking if there is adequate spectrum to support both public safety and commercial operations.<sup>38</sup>

Yet there is at least one absolutely critical difference between the approach recommended by Cyren versus the plan outlined in the Frontline Comments. The core element in the former is that public safety, through the PSBT, must retain total control over the spectrum used to deliver broadband capabilities to emergency response providers. This level of control can be ensured only if a public safety-controlled entity such as the PSBT holds the FCC license for the entire spectrum on which that network is built.

By contrast, under the Frontline approach, the broadband public safety network that the FCC has determined "will maximize public safety access to interoperable, broadband spectrum in the 700 MHz band, and, at the same time, foster and promote the development and deployment of advanced broadband applications, related radio technologies, and a modern, IP-based system architecture"<sup>39</sup> will be built for and accessible by public safety if, and only if,

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<sup>38</sup> Frontline's expectations as to the financeability of the undertaking are even more optimistic than Cyren's. Frontline believes that it can raise sufficient private capital to pay the auction price upfront and also fund a nationwide public safety-grade network build-out. Of course, the auction price will be depressed, consistent with the conditions placed on the authorization (which, contrary to Frontline's assertion, could reasonably be defined as a "cost" to the taxpayer). Deployment cost estimates will be highly dependent on factors such as the number of sites needed to satisfy public safety requirements.

<sup>39</sup> *Ninth NPR* at ¶ 4.

public safety is able to conclude successful negotiations with a commercial auction winner.<sup>40</sup>

Since public safety will have little or no leverage in those negotiations for the reasons described below, the outcome of that process could be disastrous for public safety and the public it serves.

Under the plan advanced by Frontline, the high bidder for the 700 MHz commercial spectrum most immediately adjacent to the 700 MHz public safety allocation would be issued a license conditioned on building a broadband network at no cost to public safety using its own and public safety's 700 MHz spectrum. The network would be built to public safety specifications,<sup>41</sup> including the more extensive coverage such a network would require.<sup>42</sup> The auction winner also would be required to permit public safety access to its 10 MHz of commercial capacity during emergencies.<sup>43</sup> In exchange, subscribers of the commercial providers to which the auction licensee would provide wholesale service on the network would have exclusive, secondary, preemptible access to the 12 MHz of public safety spectrum.

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<sup>40</sup> Frontline Comments at 33-34.

<sup>41</sup> It is not clear from the Frontline Comments how those network specifications would be developed. For example, on page 16 of its filing, Frontline states that the FCC should "establish an IP-based, common infrastructure for both public safety and a commercial operator." Presumably that decision would be the outcome of a notice and comment rulemaking proceeding and then codified in the FCC rules, a process that often takes substantial time to complete and even longer to later revise in light of technology advances. By contrast, Cyren has recommended that the PSBT itself, in which the FCC would be an active participant, would select an IP-based, open architecture network standard which it thereafter would be able to amend as appropriate in response to technology improvements, provided, of course, that it met applicable interference-avoidance requirements.

<sup>42</sup> Frontline also proposes bidding credits for promises to exceed the build-out requirements it has proposed as a means of overcoming the "economic obstacles" of providing coverage in under populated areas. Frontline Comments at 32. Cyren has a deep appreciation for the extraordinary costs, by commercial wireless standards, of providing coverage, whether terrestrial or via satellite, in all areas where public safety requires communications capabilities, and Cyren has accounted for those economic challenges in its proposal. Since the Frontline proposal contemplates issuance of a single, nationwide license, it would be irrational for any auction applicant not to claim bidding credits in advance for service to be provided in the future. Thus, it must be assumed all bidders would seek those credits. The Frontline Comments are silent on the ramifications of failing to satisfy those expanded build out commitments for which bidding credits would be awarded.

<sup>43</sup> Certain other conditions proposed by Frontline have no apparent role in advancing the communications interests of emergency response providers. For example, Frontline would obligate the auction winner to act as a spectrum wholesaler rather than provide a commercial service itself. *See, e.g.*, Frontline Comments at 9. Not only does that aspect of the proposal invoke chilling memories of the spectacular failure of NextWave Telecom, Inc., an auction winner whose business model also was predicated on wholesale operations, but appears designed to discourage auction participation by existing carriers who would not be interested in an exclusively wholesale opportunity. This condition clearly would be beneficial for Frontline and other new entrants into the commercial wireless arena. Its benefit to public safety users is not obvious.

Moreover, the auction winner would assume responsibility for operation and management of the entire network.

What is not discussed in the Frontline Comments is what happens if the auction winner and the licensee of public safety's 12 MHz cannot reach agreement on the terms and conditions of construction, coverage, service charges and the myriad other matters that must be addressed in a network of this size and scope. Moreover, those Comments do not address the outcome should the auction winner fail to deliver on one or more of its many commitments for reasons either within or outside of its control after the negotiation process has been concluded.

The Frontline Comments proceed on the following assumption:

...the [auction winner] and the National Public Safety Licensee would have strong, mutually reinforced incentives to successfully complete negotiations that is, the [auction winner] will want to assure secondary access to excess capacity on the public safety broadband network spectrum and the National Public Safety Licensee will want to assure that public safety users have emergency, "peak" access to the [commercial] spectrum.<sup>44</sup>

Yet the reciprocity of those incentives is far more illusory than real.

The auction winner will have acquired 10 MHz of commercial 700 MHz spectrum, presumably at a significantly reduced price due to its public safety encumbrances. Yet its obligations are dependent on the outcome of its negotiations with what Frontline refers to as the National Public Safety Licensee. Those negotiations will determine the parties' arrangements regarding substantially all important topics -- specific coverage requirements, preemptibility rights, blocking rates, service access charges and numerous other factors that collectively will define with particularity the obligations that the FCC rules will describe only generally. Should those negotiations prove unsuccessful, that is if auction winner and public safety are not able to come to terms, the auction winner still will have an authorization for sufficient spectrum to

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<sup>44</sup> Frontline Comments at 33-34

provide a commercial wireless service – an authorization that likely will have been acquired at a heavily discounted rate.

By contrast, if those negotiations prove unsuccessful, the public safety community will be in an entirely untenable position. It will hold 12 MHz of spectrum that it cannot use for nationwide broadband service since its legal and economic fate in that regard is tied inextricably to its auction licensee “partner,” but which cannot be utilized for local, state or regional communications services either.

Thus, the auction winner will have sufficient, low-cost spectrum on which to build a commercial business. Public safety will have inadequate spectrum even to satisfy its own broadband requirements, no funding to build a network, and an entirely uncertain, ongoing relationship with a “partner” not of its own choosing. The imbalance in the parties’ negotiating positions could not be more dramatic.

Moreover, even if initial negotiations are successful, the FCC is all too familiar with the exceedingly difficult legal problems that arise when a licensee fails to satisfy its regulatory obligations, thereby triggering an FCC revocation proceeding.<sup>45</sup> It has become even more painfully aware of the intractable problems that follow when a licensee falls into bankruptcy. Unfortunately, there is no necessary correlation between being the high bidder for this auction license and having the competence needed to meet highly exacting public safety construction and operational specifications. Indeed, the reverse might well prove true. A party might overpay for the license because it has underestimated the cost of meeting its FCC and negotiated obligations. If that occurs, public safety will need regulatory as well as contractual relief to right the situation.

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<sup>45</sup> At page 3 of its Comments, the Network Division of the State of Maryland Dept. of Budget and Management noted that, “History demonstrates that public safety agencies were promised a level of quality of service from commercial carriers that was not delivered in times of emergencies.”

Yet, the issuance of an FCC authorization carries with it certain procedural rights that must be recognized even when a licensee does not meet its FCC requirements. Efforts to dislodge parties from their licensee status can take years of protracted battle and the outcome is neither as clear-cut nor uniformly favorable as regulators might wish.<sup>46</sup> The NextWave debacle eliminated any doubt as to the hierarchy of bankruptcy law principles *vis-à-vis* communications regulations and confirmed that the Commission can be rendered largely impotent to act to recover spectrum once bankruptcy has been declared.<sup>47</sup> Thus, under the approach outlined in the Frontline Comments, even if negotiations are successful and a broadband network is built (or at least begun), the failure of the auction winner in fulfilling its ongoing FCC commitments or the terms of its negotiated agreement with public safety or, worse, its descent into bankruptcy would leave public safety without access to the network, to the spectrum that might attract other willing partners, even if only on a temporary or stop-gap basis, or to any other certain recourse to preserve its broadband operations.

The fault for these fundamentally unbalanced negotiating positions does not lie with the auction winner, whether that entity might be Frontline, the newly constituted NextWave Wireless, Inc.,<sup>48</sup> or a hedge fund with wireless aspirations. Auction participants are understood to be pursuing their own economic betterment. They are not charged with promoting the overall public interest, a responsibility that falls upon the FCC. But because the approach proposed in the Frontline comments seemingly mirrors so many elements of the original Cyren Petition, it is essential that neither the FCC nor the public safety community misapprehend this critical, indeed fundamental, difference in the two approaches.

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<sup>46</sup> See *R K O General, Inc. v. Federal Communications Commission*, 670 F2d 215 (DC Cir. 1981) and its progeny.

<sup>47</sup> *Federal Communications Commission v. NextWave Personal Communications, Inc.*, 537 U.S. 293 (2003).

<sup>48</sup> This entity emerged from the bankruptcy reorganization of NextWave Telecom, Inc. and the purchase by Verizon Wireless of many of the PCS C Block licenses originally acquired by NextWave.

#### **IV. CONCLUSION**

The record in this proceeding is compelling. Public safety must have access to a nationwide, mobile, broadband interoperable network. As there is no governmental funding available for the deployment or ongoing operation of such a network, financing must come from private sources. Attracting private investment in a shared public/private network requires sufficient capacity to accommodate both public safety requirements and a large enough commercial customer base to produce an adequate return on that investment.

Cyren and other knowledgeable parties to this proceeding have reaffirmed that the necessary private investment will not be forthcoming unless an additional 30 MHz of 700 MHz spectrum is allocated for this specific public safety purpose. Moreover, implementing this absolutely essential undertaking will require a governmental/commercial partnership wherein the PSBT holds the authorization for the 30 MHz on which the network will be deployed and enters into lease arrangements with commercial providers for system construction, always subject to PSBT and FCC oversight and control. Because the spectrum needed to support this effort currently is scheduled for auction no later than January 2008, Cyren urges the Commission to report to Congress that a more critical public interest need has been identified for its use and to ask Congress for authority to reallocate this 30 MHz to public safety as expeditiously as possible.

**EXHIBIT**

**SETTING THE RECORD STRAIGHT:  
A CRITIQUE OF  
CRITERION ECONOMICS’  
*“IMPROVING PUBLIC SAFETY  
COMMUNICATIONS: AN ANALYSIS OF  
ALTERNATIVE APPROACHES”***

**CYREN CALL COMMUNICATIONS CORPORATION**

March 7, 2007

## TABLE OF CONTENTS

Public Safety Broadband Trust Proposal Summary .....	1
Executive Summary of Criterion Critique.....	3
A. Distortions of the Legislative and Regulatory History .....	5
B. Distortions of the PSBT Proposal .....	6
C. Distortions Regarding the DTV Transition Process .....	9
D. Distortions of Public Safety Spectrum Allocations and of the Operation of Public Safety Communications Systems.....	11
E. Grapes to Watermelons and Other Nonsensical Comparisons .....	16
Conclusion .....	23
Exhibit	

## **PUBLIC SAFETY BROADBAND TRUST PROPOSAL SUMMARY**

Before discussing and critiquing the contents of the report prepared by Criterion Economics, we first summarize briefly the key elements of the Public Safety Broadband Trust proposal (“PSBT Proposal”). The concepts and ideas reflected in the PSBT Proposal have gained near-unanimous support and endorsement from all quarters of the public safety community in the United States.

The PSBT Proposal is directed at solving a problem that virtually everyone agrees is long overdue for a solution: our nation’s first responders deserve, but do not have, access to a public safety-grade, state-of-the-art, 21<sup>st</sup> century communications network. The PSBT Proposal would dramatically change this status quo by utilizing innovative public-private partnership arrangements that would deliver a nationwide, next generation, wireless broadband network, meeting the needs of public safety, while also being used and supported by the commercial sector.

This public safety network would provide the modern broadband communications capabilities that are essential tools for our first responders in fulfilling their charge to safeguard lives and property in times of national and regional emergency. In exchange for the right to sell excess capacity on the network to a significant commercial subscriber base, commercial operators would supply the financing required to build, maintain and operate the network, and would assure that public safety users automatically and always receive priority access to the network. The network will be designed to provide coverage to all areas of our country where first responders must go through an extensive terrestrial coverage footprint supplemented by seamless fill-in coverage supplied by an integrated satellite network. This means that, in addition to benefiting first responders and the public they serve nationwide, the network also will extend its coverage to rural and other sparsely populated areas, increasing the reach of wireless broadband into numerous underserved communities in America.

To generate the sizeable network capacity needed to provide robust and reliable service both to the public safety user base and to a significant commercial subscriber population, the network requires 30 MHz of spectrum. Because of its ideal propagation characteristics and its availability now, a portion of the spectrum in the upper 700 MHz band, recovered analog spectrum that is currently scheduled to go to auction, is ideally suited

for this network. The PSBT Proposal contemplates that, instead of auctioning all 60 MHz of this available spectrum, a license for half of it, 30 MHz, should be assigned to a non-profit corporation controlled by public safety - the Public Safety Broadband Trust ("PSBT"). The PSBT will pay the federal government for the spectrum with borrowed funds raised in the private capital markets, backed by federal loan guarantees, under arrangements just like those that have been made available to other industries (e.g., airlines, shipping companies and pipeline operators).

The PSBT in turn would lease spectrum usage rights to commercial operators, who will build out a secure national broadband network meeting public safety specifications. Public safety will control the development of the network in order to ensure that it satisfies the requirements and needs of the public safety community. The PSBT will hold and exercise control over the license to the 30 MHz spectrum and will determine the network's technology, build requirements and operating rules. Although such control would assure that public safety users would have priority access to the network capacity they need whenever they need it, the formidable capacity of such a network also would provide commercial subscribers with a high degree of confidence that the resources of this highly reliable, secure and redundant broadband network would be available to meet their reasonable communications needs except in times of true public emergency, when their access to the network could be interrupted in favor of public safety's urgent communications requirements.

The PSBT Proposal represents a truly innovative approach to solving our national public safety communications problem. It combines public safety control over the spectrum asset with the strength of private sector funding to deliver - for the first time - a national, interoperable, broadband wireless communications network for public safety. Such an outcome requires the investment of billions of dollars, which realistically will not be made available in the form of initial and ongoing government funding commitments. In the absence of that source of funding, the PSBT Proposal is designed to attract the necessary financing from the commercial market.

## EXECUTIVE SUMMARY OF CRITERION CRITIQUE

In its February 6, 2007 report entitled “Improving Public Safety Communications: An Analysis of Alternative Approaches,” Criterion Economics<sup>1</sup> misrepresents key facts, ignores reality and distorts the record. In particular, the Criterion Economics report (“CE Report”) mischaracterizes key aspects both of the PSBT Proposal, filed by Cyren Call Communications Corporation (“Cyren Call”) with the Federal Communications Commission (“FCC”) in April 2006<sup>2</sup>, and of the related legislation that the public safety community is seeking to have introduced in Congress. The CE Report also attempts to craft an argument and analysis that purports to show the lack of financial viability for a shared public safety/commercial network, but instead ignores the history and the current condition of the domestic wireless industry.

The CE Report takes (out of context) various “facts” regarding public safety’s spectrum position and implies that public safety’s own decision-making is responsible for the inadequate condition of existing public safety communications networks. Furthermore, it diverts attention from the lack of government-supplied financing - funding that will be required to meet public

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<sup>1</sup> This document is available on Criterion Economics’ web site through the following link: [http://www.criterioneconomics.com/docs/Improving\\_PublicSafetyComm\\_020507.pdf](http://www.criterioneconomics.com/docs/Improving_PublicSafetyComm_020507.pdf). The list of Criterion Economics’ clients on that web site notably includes Verizon Communications, Inc. which, together with Vodafone Group plc (another listed Criterion Economics client), owns Verizon Wireless, one of the major U.S. cellular network operators. Verizon Wireless also is one of the members of the High Tech DTV Coalition, a CE Report patron. The Verizon and Criterion Economics relationship is long-standing: a cursory Internet search reveals that Criterion Economics has frequently expressed their opinions on behalf of Verizon: *see, e.g.*, “The Effect of Ubiquitous Broadband Adoption on Investment, Jobs, and the U.S. Economy”, dated September 2003 (a report/study nominally “conducted” for the “New Millennium Research Council” but identified as “prepared for Verizon Communications”); Expert Declaration of Robert W. Crandall [former Chairman of Criterion, since replaced in that position by Jeffrey A. Eisenach] and Hal J. Singer on behalf of Verizon Communications, Inc. (submitted to the Federal Communications Commission (“FCC”) on October 18, 2004 in connection with an FCC proceeding reviewing the Section 251 Unbundled Network Access Elements obligations of Incumbent Local Exchange Carriers); Expert Declaration and Expert Reply Declaration of Messrs. Crandall and Singer on behalf of Verizon Communications, Inc. and MCI, Inc. (submitted to the FCC on March 10, 2005 and May 23, 2005, respectively, in connection with the FCC’s review of Verizon’s acquisition of MCI); and “Is State Taxation of the Wireless Industry Counterproductive?” (a report authored by J. Gregory Sidak, the CEO of Criterion Economics, dated April 2, 2003 and indicated as “prepared on behalf of Verizon Communications”). Although these reports and declarations all carry the disclaimer that the “opinions expressed . . . are the author’s,” Verizon presumably paid for or contributed to the payment for those submissions and the opinions expressed are consistent with what one would presume to be Verizon’s opinions on those same topics.

<sup>2</sup> The PSBT Proposal, complete with related Exhibits and Appendices, is available on Cyren Call’s web site, [www.cyrencall.com](http://www.cyrencall.com).

safety's needs for a robust, reliable and up-to-date nationwide wireless broadband communications network.

Finally, using questionable assumptions, the CE Report constructs a faulty microeconomic argument, claiming that public safety has "selected" a sub-optimal mix of spectrum and communications equipment, and that the situation could remedy itself by denying public safety more spectrum.

This paper seeks to set the record straight on these and other inaccuracies and unsupported assertions contained in the CE Report. We draw your attention to these key points:

- The CE Report provides a misleading inventory of public safety spectrum assets. Today, public safety has access to less than 25 MHz of spectrum that is suitable to meet their mobile communications needs. The majority of the spectrum cited in the CE Report is either unsuitable for use in a mobile communications environment or cannot be used in many of the largest population centers in the U.S. due to the continuing operations of TV broadcasters in those markets.
- Comparing the relative sizes of the "customer bases" served by commercial networks and public safety systems is inappropriate. Considering that these two vastly different types of networks have spectrum resources, customer populations, service requirements and sources of funding that could scarcely be less comparable, the analysis provided in the CE Report is rendered largely meaningless.
- The CE Report misrepresents the goals and impact of the PSBT Proposal. The PSBT Proposal will not interrupt the timetable for the DTV transition and will not cause the cost burden of building the public safety broadband network to fall on the government.

## A. Distortions of the Legislative and Regulatory History

Contrary to the claim contained in the CE Report, the Deficit Reduction Act of 2005 (“DRA 2005”) did not “set aside an additional 24 MHz of spectrum for public safety use”<sup>3</sup>. That action was taken a decade ago in the Balanced Budget Act of 1997 (“BBA 1997”),<sup>4</sup> which in turn mandated the allocation of such additional spectrum for public safety use based on recommendations contained in the Final Report authored by the Public Safety Wireless Advisory Committee (“PSWAC”)<sup>5</sup>. The PSWAC Final Report contained the following three recommendations for more spectrum “to meet the immediate and future needs of the Public Safety community:”

- (1) Immediately, 2.5 MHz of spectrum should be identified for interoperability from new or existing allocations;
- (2) In the short term (within 5 years), approximately 25 MHz of new Public Safety allocations are needed. The present shortages can be addressed by making part of the spectrum presently used for television broadcast channels 60-69 [*i.e., the “upper 700 MHz band” frequencies*] available as soon as possible; and
- (3) Over the next 15 years, as much as an additional 70 MHz of spectrum will be required to satisfy the mobile communication needs of the Public Safety community.<sup>6</sup>

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<sup>3</sup> CE Report at ii.

<sup>4</sup> Pub. L. No. 105-33, Section 3004, 111 Stat. 251 (1997), codified at 47 U.S.C. Section 337(a)(1).

<sup>5</sup> *Final Report of the Public Safety Wireless Advisory Committee to the Federal Communications Commission and National Telecommunications and Information Administration*, dated September 11, 1996 (“PSWAC Final Report”). The PSWAC was established in 1994 by the FCC and the National Telecommunications and Information Association (“NTIA”) to evaluate the wireless communications needs of local, tribal, state and federal public safety agencies through the year 2010. *See NPSTC: The Collective Voice of Public Safety Communications*, by Douglas M. Aiken and Jackie Siegel, in IMSA Journal, March/April 2005, at p.29 (“IMSA Article”). The PSWAC itself was formed to assist the FCC in carrying out Congress’ earlier-expressed contemplation that the FCC would commence development of a framework to ensure that public safety communications needs were met through the year 2010. *See Omnibus Budget Reconciliation Act of 1993*, Pub. L. No. 103-66, Title VI, Section 6002, 107 Stat. 312 (1993) [codified at 47 U.S.C. Section 309 (j)(10)(B)(iv)].

<sup>6</sup> PSWAC Final Report at page 3; emphasis (underlining and italicized language) supplied

To implement the directives contained in the BBA 1997 regarding the allocation of additional spectrum in the upper 700 MHz band to public safety use, the FCC commenced a rulemaking proceeding, and in 1998 issued a *First Report and Order and Third Notice of Proposed Rulemaking* (“*First Report*”), in which (among other things) it established the initial band plan and adopted the initial service rules needed for public safety’s use of the then newly allocated 24 MHz of 700 MHz spectrum.<sup>7</sup> Subsequent iterations of that proceeding continue to investigate the various uses to which public safety users should or could put that spectrum – when the remaining incumbent TV broadcast licensees finally vacate that spectrum in February of 2009 and it at last becomes available to public safety on a nationwide basis.<sup>8</sup>

## B. Distortions of the PSBT Proposal

Having misstated the relevant legislative history, the CE Report moves next to provide a similarly distorted summary of the PSBT Proposal. For instance, the CE Report contains numerous references to the supposed “deeding” of the subject 30 MHz of spectrum to the PSBT.<sup>9</sup> Although that concept appears multiple times in the CE Report, it appears nowhere in the actual PSBT Proposal, which instead speaks clearly and repeatedly of “a single licensee known as [the PSBT],”<sup>10</sup> “[the PSBT] that will hold the license,”<sup>11</sup> “[The PSBT] will hold the license,”<sup>12</sup> and “Issuance of a license for the 700 MHz Spectrum to [the PSBT].”<sup>13</sup> This seemingly deliberate misreading of the PSBT Proposal conveys the entirely false impression that the FCC is being asked to convey spectrum rights to the PSBT that are

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<sup>7</sup> *First Report* at page 3; available on the Internet at [www.fcc.gov/Bureaus/Wireless/Orders/1998/fcc98191.pdf](http://www.fcc.gov/Bureaus/Wireless/Orders/1998/fcc98191.pdf).

<sup>8</sup> See, e.g., 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, *Eighth Notice of Proposed Rulemaking*, 21 FCC Rcd 3669 (2006) (“*Eighth NPRM*”; in this rulemaking proceeding, the FCC principally solicited comments and input in assisting it to decide whether the 12 MHz of 700 MHz spectrum previously set aside for wideband uses by public safety also should be available for broadband uses by public safety), and *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 NPRM*”; in this rulemaking proceeding, the FCC set forth certain of the details regarding its proposal to use the 12 MHz of spectrum at issue in the *Eighth NPRM* as the primary spectrum on which to deploy a nationwide, broadband interoperable network for public safety through public-private partnership arrangements, and sought comments on this proposal).

<sup>9</sup> See, e.g., CE Report at pages 2, 4 and 11.

<sup>10</sup> PSBT Proposal at page v.

<sup>11</sup> PSBT Proposal at page vi.

<sup>12</sup> PSBT Proposal at page 13.

<sup>13</sup> PSBT Proposal at page 23.

greater than those granted to every FCC licensee, including those whose spectrum is acquired at auction.

Similarly, the CE Report asserts, without reference to any supporting language in the PSBT Proposal or elsewhere, that “the burden of that debt [i.e., the \$5B the PSBT would raise by borrowings, supported by government guarantees, in the capital markets] (and the debt from the construction and maintenance of the network) would be borne by the U.S. government.”<sup>14</sup> As to the cost of construction and maintenance of the network, the PSBT Proposal unambiguously did not make the U.S. government responsible. Contrary to the unsourced representation in the CE Report that this would be a debt supported by government loan guarantees, the PSBT Proposal states that all of those costs are to be borne by the commercial entities that will lease excess capacity on the network from the PSBT.<sup>15</sup> To allege otherwise, as the CE Report does, is to ignore the plain language of the PSBT Proposal in favor of scaremongering tactics intended to confuse and mislead the government and the public.

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<sup>14</sup> CE Report at page 10 (emphasis supplied). The details of the PSBT borrowing, and of the related government guarantee arrangements, are outlined in draft legislation that representatives of the public safety community have endorsed and currently are attempting to have introduced in Congress. A respectable argument can be made that, if the business case for network construction and operation were not to exist as contemplated and outlined in the PSBT Proposal, the guarantees supporting the \$5 billion borrowed by the PSBT (which funds in turn would have been paid over by the PSBT to the Treasury in return for the spectrum license) would likely be called upon. In those circumstances, the burden of that debt could fall on the government. (However, one also could respectably argue that (i) in the first place, the recipient of the \$5 billion that the PSBT borrowed was the U.S. Treasury (itself part of the government) and (ii) the draft legislation containing the borrowing and guarantee authority also makes clear that the guarantee obligations would be secured by a pledge of the license held by the PSBT. If that pledge were acted upon due to payment default by the PSBT and resulting guarantee payments made by the government, the government could reclaim the licensed spectrum, offer it for auction for commercial or any other uses it deemed appropriate, and apply the auction proceeds received to reimburse any guarantee payments made. Under even that “worst case” scenario, the government would be no worse off than if the spectrum had been licensed through a commercial auction at the outset).

<sup>15</sup> See, e.g., PSBT Proposal at page v: “[The PSBT] should be required to lease capacity on this 700 MHz spectrum to commercial operators who will fund network infrastructure deployment”; at page 21: “[H]ave the infrastructure build out financed by the commercial operations”; and at page 23: “Shifting the infrastructure build-out cost to the commercial side of the partnership is critical to the success of this proposal”. Additionally, the PSBT Proposal contains many references to its core financial logic, which is to substitute the financial resources generated primarily by the commercial operation of the network for the only other potential source of such funding, the Government (which, it is repeatedly noted, is either unable or unlikely – or both – to supply the needed funding): see, e.g., the section of the PSBT Proposal at pages 19 through 23 titled “Only A Commercial Engine Will Drive Broadband Deployment.” Once more, it is not clear to us how anyone draws from the above-cited language the notion that the U.S. Government somehow will bear the burden of debt that is presented as being incurred by private commercial entities to build and maintain the network.

There are other examples in the CE Report of similar untruths.<sup>16</sup> However, the CE Report seems to reserve the greatest of its distortions for those matters of highest concern and relevance to public safety.

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<sup>16</sup> For instance, the CE Report concludes authoritatively that the PSBT Proposal is entirely devoid of business viability because (to summarize the substance of their main arguments, which appear at page 4 and again in more detail at pages 11-13 of the CE Report): (1) it requires the commercial operators to bear significant costs not imposed on incumbent wireless carrier competitors; and (2) it correspondingly would require these operators to price their services at a premium to cover those excess costs, which, by implication, commercial subscribers would not pay, since lower priced wireless services would be available from competitors. As to argument (1), Sprint must have failed to grasp that business principle when, in 1994 and 1995, it participated in FCC auctions for PCS A and B block spectrum, paying in excess of \$2.3 billion [the results for these auctions are available on the Internet at the FCC Auction Web Site, [http://wireless.fcc.gov/auctions/default.htm?job=auction\\_summary&id=4](http://wireless.fcc.gov/auctions/default.htm?job=auction_summary&id=4), Final Results All Bidders downloadable xls spreadsheet. The high bidder for licenses covering areas with a then-total population of about 145 million persons, "WirelessC", - for which the high bids totaled slightly in excess of \$2.1 billion - was the Sprint PCS entity; additionally, the license acquired by the Cox Communications entity for almost \$252 million dollars--and covering the more than 19 million persons in the Los Angeles market--later was added to the Sprint PCS initial licensed footprint.] to acquire the spectrum needed to go into business where their principal competition - the regional Bell operating company forbearers of the present day Verizon and Cingular/AT&T operations - not only already had existing cellular businesses up and running but had deployed them on a comparable quantity of superior 800 MHz spectrum that those companies had received *for free* from the FCC the better part of a decade before. The Regional Bell Operating Companies (the so-called "Baby Bells", or "RBOCs") were granted licenses to a 25 MHz spectrum block in the 850 MHz band by the FCC for their use in offering cellular services to the public. These wireless licenses were granted without charge and, for the most part, on a noncompetitive basis. Besides obtaining their licenses quickly and at no cost, the RBOCs were able to build out their initial cellular systems and to commence their operations anywhere from 1 to 3 years ahead of their only then-contemplated competitors in each of their market areas, various non-wireline companies who were awarded substantially identical 25 MHz licenses for spectrum in the 850 MHz band by the FCC, in a largely identical award process, to assure that the RBOCs would not indefinitely enjoy a monopoly, but merely a formidable head-start market advantage over their later-to-enter rivals. See *An Inquiry Into the Use of the Bands 825-845 MHz and 870-890 MHz for Cellular Communications Systems*; and Amendment of Parts 2 and 22 of the Commission's Rules Relative to Cellular Communications Systems, CC Docket No. 79-318, *Report and Order*, 86 FCC 2d 469, Rel. May 4, 1981, at para. 29 ("FCC Cellular Order"). Under the CE Report's reasoning, Sprint could not rationally enter such a business with such cost disadvantage in relation to the existing entrenched competitor-incumbents. As to argument (2), we can only wonder why Verizon does not pay more attention to its consultants who are authors of the CE Report. We say this based on information that appears in the periodical *Consumer Reports*, which annually conducts a survey regarding cell phone service and rates, and discusses the major carriers on factors such as network quality, coverage, customer service and pricing. In its January 2006 survey, *Consumer Reports* noted that "Verizon Wireless tended to be more expensive than, for example, T-Mobile." In its January 2007 survey, *Consumer Reports* included the following specific market price package example: "[W]hen we recently checked rates for Tampa, Fla.,... Verizon ... [was] offering 450-minute plans for \$39.99 a month, or about 9 cents a minute. T-Mobile ... instead offered 600 minutes for the same \$39.99, or about 7 cents a minute." Verizon apparently has found that premium pricing can be a successful business strategy even in a competitive environment. This is true if, for example, that pricing is based on better service - better coverage, better network performance and better overall customer experience. The same would be true of the public-safety grade network contemplated in the PSBT Proposal. It would have better than commercial coverage, better than commercial hardening of critical network elements, and other superior features that would benefit - and be highly valued by - the public safety and commercial subscribers of that network alike.

### C. Distortions Regarding the DTV Transition Process

The main distinction between the distortions treated in this section and those reviewed in the preceding sections lies in their intended impact – to introduce an element of fear. The CE Report confidently and repeatedly pronounces that the PSBT Proposal threatens to destroy the DTV transition process, puts at risk the \$1 billion in new funding already earmarked for aiding public safety agencies to promote interoperability on their mission-critical voice networks, and endangers all of the goals sought to be achieved by the most recent Congressional legislation on these topics.<sup>17</sup> In so doing, however, it leaves out how the PSBT Proposal would do any of these things, or why it would be in the interest of any of the supporters of the PSBT Proposal to want any of these outcomes. This section therefore compares these CE Report claims with the PSBT Proposal and the related draft legislation.

First, the CE Report repeatedly claims that the PSBT Proposal threatens public safety's receipt of the \$1 billion in already allocated interoperability funding.<sup>18</sup> There is absolutely nothing in the PSBT Proposal itself, or in any statement made by any of its public safety supporters or any representative of Cyren Call, that even contemplates, much less endorses, such an outcome. In fact, the payment to be made by the PSBT to the U.S. Treasury – clearly set forth and provided for in the related draft legislation – was arrived at to assure that the combination of that payment and the auction proceeds for the remaining 30 MHz of 700 MHz spectrum (that will continue on the established auction path) together will supply funding adequate to meet all funding commitments and allocations contained in the DRA 2005. The fact that a portion of that total cash amount may now be raised by PSBT borrowings, which in turn are paid to the U.S. Treasury, rather than all of the funds coming from auction bidders, is irrelevant to the question of will the Government be at least as likely to have sufficient funds to meet its aggregate funding commitments and allocations, for the purposes and in the amounts set forth in the relevant DRA 2005 provisions.<sup>19</sup>

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<sup>17</sup> See, e.g., CE Report at pages 7 -10.

<sup>18</sup> See, e.g., CE Report at pages 7, 9. The same basic argument, reasoning and response applies with equal force whether the funding allegedly placed at risk is for the DTV converter box subsidies, for federal deficit reduction or for miscellaneous other programs, and so each of those supposed "threats" will not be refuted separately.

<sup>19</sup> If there are possible auction outcomes that would raise more total net proceeds than the \$10.2 billion required to meet the aggregate DRA 2005 funding target, those may well present fundamental policy questions that would be legitimate topics for differences of opinion and debate. However, they are not

Second, the CE Report claims that the PSBT Proposal will endanger or delay the DTV Transition by preventing the timely clearing of all spectrum in the 700 MHz band for use by whomever it has been allocated to under law, be it public safety or winning bidders in a commercial auction.<sup>20</sup> Again, such consequences cannot be sourced to any language in the PSBT Proposal, the related draft legislation, or the public statements of public safety officials or anyone representing Cyren Call. In fact, to our knowledge, there have not even been any public statements by any of the incumbent broadcast licensees that still occupy this spectrum that they would intend – viewing the PSBT Proposal as justification for – prolonging their stay on those frequencies beyond the legislatively mandated departure date of February 17, 2009. Instead, it appears that the authors of the CE Report are the only ones calling forth such scenarios as virtual certainties if the PSBT Proposal were to advance. The only basis hinted at for such a prediction is the veiled suggestion that opening up the DRA 2005 legislation somehow would set a chain reaction in motion that would destroy all of the carefully crafted, legislatively bargained objectives that it contains. Unfortunately such a prediction is not supported by the facts, and it also is belied by the legislative path that brought the DRA 2005 itself into existence.<sup>21</sup>

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relevant to the disastrous scenarios called forth in the CE Report – lack of sufficient aggregate funding to meet known, quantified commitments – which may be fully assessed and rationally resolved by resorting to nothing more than the relevant data and simple addition.

<sup>20</sup> See, e.g., CE Report at page 10.

<sup>21</sup> As the authors of the CE Report – and its patrons – are aware, the DRA 2005 itself came into being as a proposed change to, as the CE Report eloquently characterizes, a “carefully crafted compromise Congress reached in passing legislation to facilitate the DTV transition”, albeit that change was successful, and the “carefully crafted compromise” was one Congress reached eight years earlier, as reflected in the BBA 1997. However, the relevant parties at that time – including CTIA, Verizon and other members of the High Tech DTV Coalition (which itself was formed for the express purpose of seeking the change in law ultimately reflected in the DRA 2005) – identified the language in the BBA 1997 that they found troublesome, concluded that it would not lead to a good or desirable result, proposed alternate language to take its place, and so, deciding that it was worth the risk, succeeded in opening the Congressionally crafted Pandora’s Box and . . . nothing bad happened! Once more, the CE Report does not identify why the currently advocated amendments to this legislation – which amendments seek only limited, specific changes in the law, and only for public safety’s benefit, while expressly leaving everything else untouched – would trigger any of the disastrous outcomes that the prior round of amendments clearly managed to avoid.

#### D. Distortions of Public Safety Spectrum Allocations and of the Operation of Public Safety Communications Systems

The CE Report claims that the public safety community itself, through its own free choices and willful behavior, is the prime architect of its own communications problems.<sup>22</sup> This line of argument (which includes a particularly inappropriate lecture on efficient uses of available spectrum that will be responded to in more detail later in this paper) lacks an understanding of the history behind the assignment of frequencies to public safety, the usage rules applicable to those frequencies, and the extent of the financial resources available to public safety. This section therefore provides such background.

One primary challenge faced by public safety is the type and amount of spectrum that public safety actually has had assigned to it over the years and that it actually can use throughout the country **today**. That spectrum is spread over 10 different spectrum bands, ranging from 25 MHz to 4.9 GHz, which in and of itself represents a degree of spectrum separation that would challenge even the most resourceful commercial carrier to combine and operate in any way that made any physics or economic sense.<sup>23</sup> Moreover, the vast majority of public safety's spectrum holdings are grouped into channel sets that are well below the minimum size of the contiguous frequency blocks needed to deploy most currently available, open standard (the so-called "2G" or "3G") transmission technologies typically deployed in the commercial carriers' existing networks.<sup>24</sup>

The reason why this current set of facts regarding the licensed spectrum holdings of public safety is in place is not the obstinacy of that community or its determined refusal to accept more "policy correct" spectrum assignments from the FCC in the past. Rather, some of the explanation can be attributed to the fact that certain of the earliest public safety spectrum assignments are more than half a century old,<sup>25</sup> whereas the earliest modern commercial spectrum assignments (the first spectrum

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<sup>22</sup> See, e.g., CE Report at pages 5-7.

<sup>23</sup> Most commercial carriers operate their networks using no more than two frequency bands, and they normally are much closer together – a mixture of 800 MHz spectrum and 1.9 GHz spectrum in a particular operator's spectrum holdings would represent a fairly common set.

<sup>24</sup> For instance, a 1.25 MHz paired channel assignment (i.e., 2.5 MHz total) is the "design minimum" frequency holding required for utilization in an EV-DO (Qualcomm Incorporated's current CDMA technology variant) network.

<sup>25</sup> See FCC Staff Paper, Private Land Mobile Radio Services: Background, dated December 18, 1996.

assigned to commercial operators for cellular systems) date back only to the 1980s.<sup>26</sup> Needless to say, there have been many significant technological developments on the path from “crystal” radios to the still elusive “cognitive” radios, and many related (and sometimes, unrelated) “re-thinkings” of regulatory policy and spectrum assignment practices. Along these lines, most significantly, all non-Commercial Mobile Radio Service (“CMRS”) licensees (i.e., essentially everyone but the commercial network operators, normally described collectively as “land mobile radio” or LMR, licensees, including public safety, but also encompassing utilities, transportation, manufacturing, industrial and other types of users of private, internal wireless communications systems), have been herded down an entirely opposite path, largely by the FCC and the equipment manufacturer community, for at least the better part of the past two decades.

The received wisdom generally prevailing in the LMR community over that time frame, on the topic of getting more intensive use out of spectrum, was to go to narrower and narrower channel assignments. Until very recently<sup>27</sup>, broadband was entirely off the radar screen for this part of the mobile user community – as well as for their equipment manufacturers and regulatory overseer<sup>28</sup>. That “ever narrower” approach to maximizing spectrum utilization was carried over by FCC action into the so-called NPSPAC frequencies (used by public safety in the 800 MHz band) and then to public safety’s 700 MHz narrowband frequencies allocation (even though those allocated channels, especially in many major markets<sup>29</sup>, cannot be used

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<sup>26</sup> See the FCC Cellular Order covering the original assignments of cellular spectrum licenses at page 7, footnote 19, *supra*; see also Cellular Communications Systems Order and Reconsideration, 89 FCC 2d 59, 86-89 (1982); see also Rural Cellular Service Radio, 4 FCC Rcd. 5272, 5274 (1988).

<sup>27</sup> The *Eighth NPRM* and the *Ninth NPRM*, each released by the FCC in 2006, were the first regulatory proceedings relating to public safety’s 700 MHz spectrum assignments that expressly contemplated either broadband and wideband uses, or exclusively broadband uses, for a portion of that spectrum. See page 6, footnote 8, *supra*.

<sup>28</sup> In fact, in the 1990s, the FCC commenced a rulemaking proceeding that continued until as recently as 2005 and that ultimately concluded that all public safety stations must operate on channels with a bandwidth of 12.5 kHz or less beginning January 1, 2013, unless the operations meet the efficiency standard of Section 90.203(j)(3), unless specified elsewhere. See 47 CFR § 90.209. These proceedings accurately reflected the prevailing regulatory thinking regarding public safety’s assigned narrowband frequencies, the purpose of which was to take existing LMR spectrum and require users to go from the then current 25 kHz channel bandwidths to 12.5 kHz bandwidth by a date certain, with the objective ultimately of getting channels down to 6.25 kHz, so that more licensees could be packed onto the same amount of spectrum. Both the equipment manufacturing industry and the LMR user communities have been understandably focused on this issue, in view of the January 1, 2013 deadline ultimately adopted by the FCC to get all LMR users, including public safety, to 12.5 kHz channel assignments.

<sup>29</sup> See the report titled “700 MHz TV Clearing, its Impact on TV Viewership, and Options for Accelerating Public Safety Access”, prepared by Motorola, Inc., and dated February 2, 2004, at pages 4 -10 (detailing – in words and pictures – the severe blocking problems caused by continuing operation of TV Stations in

by public safety at present because they are occupied by, or would result in interference to or from, the remaining incumbent TV broadcast licensees in the 700 MHz band). Against this backdrop, the public safety community deserves praise for its recent decision to step back from this path to consider its broadband options (and to request successfully that the FCC and the manufacturing community do likewise), rather than the vilification to which the CE Report subjects it, merely for acting in accordance with the limitations imposed on it by its assigned spectrum holdings and the FCC's regulatory guidance. The public safety community should instead be credited for innovatively supporting a proposal, which requires a willingness to change thinking and position on "sharing spectrum" with commercial users and other public safety users. It truly requires a significant step for public safety licensees who rely routinely on their radio systems in life-and-death situations to consider relinquishing direct, day-to-day, hands-on physical operation of their radio system.<sup>30</sup>

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many major markets throughout the country, depriving public safety of practical access to its assigned 700 MHz frequencies in those markets. As that report summed up the situation (on page 10 of the report): "In total, 70% of the country's population lives in these totally blocked and half-blocked areas. It is no surprise that these blocked areas are in our nation's densest population centers, where public safety urgently needs access to the [assigned 700 MHz] spectrum." [footnotes omitted].

<sup>30</sup> There is one exception to the lack of large, contiguous spectrum assignments currently available for public safety use, and it is the 50 MHz block in the 4.9 GHz band that was allocated for public safety use in 2002 (*See The 4.9 GHz Band Transferred from Federal Government Use and Designated for Use in Support of Public Safety*, WT Docket 00-32, *Second Report and Order and Further Notice of Proposed Rulemaking*, 17 FCC Rcd 3955, (2002)). While that sounds like an impressive amount of spectrum – and it is – the characteristics of spectrum located that high in the band map make it particularly ill-suited for the mobile communications applications that public safety users in particular require and rely on in their daily activities. That spectrum is in a so-called TDD ("time division duplex", or "unpaired") configuration, and so is unusable for the commercial standard digital and broadband technologies that were designed for so-called FDD ("frequency division duplex", or "paired") spectrum configurations. Although some broadband technologies are designed for and operate well in a TDD spectrum setting – such as Wi-Fi, Wi-Max and the "ad-hoc" or "mesh" networking technologies, those also are designed for use in fixed (e.g., "hot spot") or small area portable networks, as opposed to mobile networks ("portable" generally is understood to mean "slow moving" – as in users who are on foot or in slow speed conveyance mode, and is distinguished from "mobile", which is generally understood to mean "fast moving", as in users routinely in vehicles moving at open highway speeds). When one considers the pace at which police cars must respond to their calls, or fire trucks maintain on their way to the blaze, or ambulances employ en route to a medical emergency or in transporting a victim to a hospital, the reason why mobile networks – and suitable spectrum for that purpose – are what is required to meet public safety personnel's communications needs should be readily apparent. Other important reasons why 4.9 GHz spectrum is not particularly useful for public safety mobile communications needs include: (i) its poor propagation characteristics – meaning the signals have a relatively limited geographic coverage area, and also are subject to considerable signal strength degradation when passing through obstacles such as dense foliage (e.g., trees and leaves), buildings or walls and floors and (ii) as one of the by-products of that poor propagation, the very large number of cells sites that would be needed to cover and deliver good signal penetration over any sizeable geographic area – more cell sites cause both higher network construction expenses at the outset and higher ongoing network operating and maintenance expenses, making typical wide area network deployments using these frequencies prohibitively expensive. *See, e.g., Technology Whitepaper, titled "Broadband Public Safety Data Networks in the 4.9 GHz Band: Potential, Pitfalls & Promise", prepared by Tropos Networks and dated March 2004*

Another challenge faced by public safety communications systems is the context in which they are deployed – including most significantly the size (and dispersion) of the population to be served, the breadth of the geographic coverage (including in-building penetration) required and the funding realistically available to public safety for this purpose (as well as where those funds come from). Briefly, no matter how you count them, the total number of public safety personnel nationwide will come in at fewer than 3 million.<sup>31</sup> The vast bulk of those personnel are spread over a wide geography in small-sized groupings, located in a huge number of politically separate jurisdictions.<sup>32</sup>

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(detailing, in the section titled “Pitfalls” at pages 3-5, the main shortcomings associated with 4.9 GHz spectrum).

<sup>31</sup> The CE Report, at page 29, estimates that there are 1.9 million first responders working in the United States. The PSBT Proposal put the number of what we term “core first responders” (a group that we constructed to include the roughly 2.5 million state and local law enforcement personnel, members of the fire services, and emergency medical service (or EMT) workers, plus their federal and tribal counterparts, and also supplemented with other personnel, clearly numbering less than 500,000 in total, who are arguably not thought of as within the traditional first responder categories but who frequently find themselves playing those roles in times of emergency – the prime example being domestically based members of the National Guard) at “fewer than 3 million persons.” PSBT Proposal at page 7. We are aware of numerous sources that confirm the approximate size of the general police/fire/EMT community at all levels of government to be around 2.5 million. See, e.g., the IMSA Article (cited in footnote 5, *supra*) at page 29; the 2006 National Interoperability Baseline Survey, dated December 2006 and prepared by SAFECOM (“SAFECOM Survey”), at page 2; Report prepared by the Government Accountability Office, dated July 2004, titled “HOMELAND SECURITY – Federal Leadership and Intergovernmental Cooperation required to Achieve First Responder Interoperable Communications” (“GAO Report”) at page 8 (citing to SAFECOM Survey); and A Guide for Public Officials, prepared by the National Task Force on Interoperability, dated February 2003, titled “Why Can’t We Talk” at page 15. To verify the accuracy of these estimates, and to compile an occupation-based “add-on” supplemental group like that described above, see the Department of Labor’s Bureau of Labor Statistics web site (at <http://stats.bls.gov>), which maintains detailed online information segmenting the workforce into numerous Standard Occupational Categories (“SOC”) and as well as organizing it by geographic location; a more user friendly source of much the same type of SOC and geographic area-based employment information is available at several free commercial web sites, including [www.zapdata.com](http://www.zapdata.com). We are confident that, based on such sources and corroborating detailed information, and allowing some leeway for a few judgment calls on which groups properly may be regarded as supplementing the basic police/fire/EMI categories, you would likely arrive at an estimate for the “core first responders” population in this country that is higher than 2.5 million and lower than 3 million – since that is the process we followed and that is the result we got. We do not know where the authors of the CE Report got their significantly lower estimate, nor do we know why they chose to leave the “fewer than” out in indicating – inaccurately – that our estimate totaled 3 million persons, or why they failed to cite any sources for, or to describe the methodology they used to derive, their own estimate. See CE Report, at page 29, footnote 80.

<sup>32</sup> Many of the same sources cited in the preceding footnote contain estimates of the number of employing organizations, e.g., “18,000 local and State law enforcement agencies, 26,000 fire departments, and more than 6,000 rescue departments”. See IMSA Article at page 29; also see GAO Report at page 8; “Statement of Requirements for Public Safety Wireless Communications & Interoperability”, Version 1.0, dated March 10, 2004 and prepared by SAFECOM (“SAFECOM SoR”) at Section 1 (titled “Public Safety Requirements and Roles”), page 1; but see SAFECOM Survey at page 2 (putting the count of public safety agencies nationwide at “60,000+”). The SAFECOM SoR notes that “[a]pproximately 95 percent of these [law]

So, if you are in public safety communications, first you must provide service to a largely atomized user population scattered across the relevant geography. Then you must assure that the coverage area of the system is adequate for the “reach needs” of the relevant public safety force (who may have law enforcement, fire fighting or emergency medical responsibilities well beyond the core areas of their relevant population centers, and who often find themselves performing their jobs inside structures). From a radio coverage perspective, these realities suggests a few things, among them a so-called high-site, high-power transmit source – to cover a broad geographic area most efficiently for a small number of users – and also high-power handsets or other mobile receivers (typically in the 3-watt range for handsets and 10 watts or more for vehicle-installed mobile units, as contrasted with the 0.6 watt power limit – increased to 1 watt in certain cases, based on the technology used – that are the common power limits for the handsets used on commercial cellular networks)<sup>33</sup> – since boosting the wattage of user devices also improves reception, and therefore coverage.

Since public safety typically does not charge for its services, it must depend on a variety of (primarily) governmental funding sources to pay for the communications services it requires – as it must for the vehicles it requires, the uniforms it requires, the other specialized equipment it requires, etc. Such funding is difficult to obtain, unreliable in amount and source and can come with a variety of funding source-imposed “strings” – not many of which, until recent years, involved interoperability requirements (and still may not, if funding is sourced through the local community, which it often is). However much policy sense it might make in the abstract, in the real world, if interoperability features might add to the costs of construction or operation of a system, that increase in costs can expect to meet real resistance where finite financial resources must be spread across equally

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enforcement agencies employ fewer than 100 sworn officers.” SAFECOM SoR, at Section 1, page 1. Similarly, a web site maintained by the North Carolina Wesleyan College provides detailed information (including data sources) about law enforcement agencies in the U.S., and states that “There are more municipal police departments (over 15,000) in the U.S. than any other kind of agency .... The vast majority of municipal departments are small, having 10 or fewer officers.” (available on the Internet at <http://faculty.ncwc.edu/toconnor/polstruct.htm>).

<sup>33</sup> Out of concern for potential health hazards associated with a radiation source – like a digital cellular handset – in close proximity to a user’s body (especially the soft tissues of the brain), the FCC has adopted rules limiting the wattage levels in the cellular handsets that may be used on commercial digital wireless networks. The handsets used in public safety narrowband operations, particularly if transmissions are in analog mode, as is the case in most existing public safety communications systems, pose no similar health risks to the user and so may utilize higher wattage levels.

legitimate funding needs. Proposing to build a spectrally efficient, state-of-the-art network, capable of serving thousands in an area where the combined public safety population may only number in the dozens, is practically impossible considering the constraints in municipal budgets. Moreover, the push back on these points could be expected to be particularly severe where the added cost features – be they related to spectral-efficiency or interoperability - are not clearly of day-to-day or regularly anticipated benefit to the community or taxpayer group from which the funding is sourced.

In short, public safety has wound up with the legacy mission-critical voice communications systems that it has, and without the nationwide broadband data and video communications network that it needs, largely because of the hand it has been dealt – in spectrum assignments, in regulatory leadership, in manufacturer influence and in realistic availability of funding sources. This is not to say that lack of cooperation and coordination, lack of uniform and consistent planning and a more forward-looking orientation, and a certain degree of adherence to the comfortable status quo rather than an active willingness to embrace change are not contributing factors to the unfortunate circumstances in which public safety communications finds itself. But accepting the claim that such things are the principal explanations for the problems – especially the lack of a nationwide broadband public safety communications network and related capabilities – is absurd. The fact that certain things, if done, might make a barely tenable situation somewhat better, is not a litmus test for identifying the essential elements required to overcome the problems and implement the solutions.

#### E. Grapes to Watermelons and Other Nonsensical Comparisons

This section treats only two issues – although they take up much of the page count in the CE Report<sup>34</sup>: (i) the highly suspect claims surrounding the spectrum resources currently held by public safety, the corresponding spectrum resources currently held by certain commercial network operators, and the alleged “spectrum surplus” enjoyed by the former group while the latter group is portrayed as laboring under a “spectrum deficit;” and (ii) the depiction of a supposed “resource allocation” problem – complete with graphic presentations of alleged tradeoffs and optimal mixes of supposedly readily available commodities (in this case, spectrum and communications

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<sup>34</sup> These topics form the bulk of the discussion appearing from pages 19-38 of the CE Report.

equipment) to support the production of a particular good (in this case, public safety communications services).

The claims in the first category already have been treated in part in the discussion in the preceding section of this paper. It should be reasonably beyond debate that the 50 MHz of spectrum at 4.9 GHz, because of its incredibly poor propagation characteristics, is of little good for deploying wide-area public safety mobile communications networks, whether narrowband or broadband, which is what public safety needs and is (as to the broadband variety) what the PSBT Proposal intends to deliver.<sup>35</sup> Removing that spectrum from the relevant quantity – consistent with the principal purposes for which public safety personnel require spectrum – reduces the size of the claimed hoard from slightly less than 100 MHz to slightly less than 50 MHz. But even if we assume that public safety will receive, in February 2009, full nationwide access to the 24 MHz allocation in the 700 MHz band that it has been promised for a decade, maintaining that public safety today actually has access to slightly less than 50 MHz of spectrum clearly is not accurate. In fact, the unavailability of that spectrum for public safety use today tends to be most true in the major metropolitan areas where it is most needed to help remedy long-standing public safety narrowband voice system congestion.<sup>36</sup> Additionally, any incremental public safety spectrum gains in the 800 MHz frequency band will not be established with certainty until the end of the ongoing re-banding exercises, which were

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<sup>35</sup> The ample reasoning to support this conclusion was fully laid out in footnote 30 and the accompanying text, *supra*.

<sup>36</sup> The substantiation for these statements was provided in footnote 29 and the accompanying text, *supra*. In addition to the incumbent occupancy problems affecting this spectrum allocation, there are multiple rulemakings now open at the FCC that may affect such fundamental topics as: (i) the purposes for which public safety may use this spectrum; (ii) where permitted spectrum usage decisions will be made – at the FCC, at the Regional Planning Commissions or elsewhere; (iii) what operating, interference protection and similar rules will be adopted for particular spectrum allocations; (iv) what the particular locations in the relevant frequency bands will be finally established for narrowband, wideband (if any) and broadband authorized frequency allocations; (v) whether guard bands will exist in the relevant frequency bands, where they will be located, and whether they will be made available for public safety use on a primary or secondary basis; and (vi) other matters of lesser importance. See *Eighth NPRM*; Former Nextel Communications, Inc. Upper 700 MHz Guard Band Licenses and Revisions to Part 27 of the Commission's Rules, WT Docket 06-169, *Notice of Proposed Rulemaking*, 21 FCC Rcd 10413 (2006); Service Rules for the 698-746, 747-762 and 777-792 MHz Bands, WT Docket 06-150, *Notice of Proposed Rulemaking*, 21 FCC Rcd 9345 (2006); and *Ninth NPRM*. Needless to say, with so many critically important matters remaining up in the air, the appetite and realistic ability of public safety users and equipment manufacturers to plan for, commit to or begin implementation steps for future use of these frequency bands has been somewhat dampened.

originally scheduled to be concluded next year and certainly do not appear headed for any earlier termination.<sup>37</sup>

In reality, public safety therefore has less than 25 MHz of spectrum that is usable for mobile communications purposes nationwide. Moreover, the facts also show that, even assuming all allocated but not-yet-available-for-use spectrum becomes available roughly on schedule, in the next two years, public safety's spectrum position for those same purposes should roughly double, to slightly less than 50 MHz total. Of this future total spectrum position, only 12 MHz is configured, has usage rules and has (or is presumed to have the ability to obtain) suitable interference protection from adjacent frequencies, to enable it to be used for mobile broadband communications purposes.<sup>38</sup> As also discussed at some length in the preceding section, public safety failed to achieve as efficient a network build as the largest commercial carriers for a number of perfectly understandable reasons, especially given that the maximum total public safety subscriber base nationwide that ever would require coverage is less than one percent of

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<sup>37</sup> See e.g., Letter to Chairman Martin from the Association of Public Safety Communications Officials, International Association of Chiefs of Police, Major City Chiefs Association, National Sheriffs Association, Major County Sheriffs Association, International Association of Fire Chiefs, and Sprint Nextel Corporation, dated February 15, 2007 (seeking reconfiguration benchmarks from the Transition Administrator). Additionally, some of these speculative frequency pick-ups by public safety may be premised on public safety's presumed use of certain "guard bands" in the 800 MHz band, which public safety may use, but without the benefit of normal interference protections. See *Improving Public Safety Communications in the 800 MHz Band, Report and Order, Fifth Report and Order, Fourth Memorandum Opinion and Order*, WT Docket 02-55, 19 FCC Rcd 14969 at 15054 (2004).

<sup>38</sup> Although the CE Report attempts to credit public safety with current access to all spectrum allocated to it, whether or not it had yet been given practical access to that spectrum nationwide, it ironically follows a far more conservative approach in counting the spectrum allocations of the major commercial carriers, excluding from its totals in Table 2 on page 29 the sizeable spectrum position that Sprint Nextel holds in the 2.5 GHz BRS band, itself almost equal to public safety's entire spectrum holding and almost double public safety's entire holdings of spectrum that are suitable for mobile communications applications; and, since that entire spectrum allocation (as its Broadband Radio Service description implies) is configured and authorized to support mobile broadband applications, it represents almost 6 to 8 times the broadband capable spectrum to which public safety in a few years will have, but today does not yet enjoy, access). Moreover, although the CE Report also fails to point this out, public safety spectrum allocations tend to involve assignments of a uniform spectrum position nationwide, whereas the commercial carriers tend to structure their spectrum holdings so that they have more spectrum where it is needed most, in the major metropolitan areas. The modest commercial carrier spectrum holdings disclosed in the CE Report – 25 MHz for T-Mobile, 40 MHz for Verizon, 50 MHz for Sprint Nextel and 52 MHz for Cingular – all nationwide averages – in most cases increase sharply if the view focuses on the top 50 metropolitan area markets and includes both Sprint Nextel's BRS Spectrum and the AWS spectrum won at auction by the other three: 43 MHz for T-Mobile, 54 MHz for Verizon, 79 MHz for Cingular and 148 MHz for Sprint Nextel. See *Cingular Wireless LLC, 2005 SEC FORM 10-K* at 10 (released Feb. 24, 2006); *Celco Partnership, 2005 SEC FORM 10-K* at 11 (released March 14, 2006); and *Public Notice, Auction of Advanced Wireless Services Licenses Closes, DA 06-1882, 21 FCC Rcd 10521* (2006).

the total population of the United States – which the nationwide carriers tout as almost equivalent to their “licensed POPs,” or addressable customer base.

Beyond the factors addressed earlier in this document, the public safety customer base is composed of persons with an understandably high need for communications reliability and a legitimate need for absence of network access issues. It simply will not do for a first responder attempting to communicate on his or her mobile device to find the words “system busy” on the screen, and there is little tolerance in the emergency services community for dropped calls and garbled transmissions. As you engineer a wireless network to deliver higher levels of reliability and system access, achievement of those objectives frequently comes at the cost of losing some portion of network capacity. One of the reasons that commercial networks can accommodate the millions of customers that they do is that they target measures like a “2% blocked call rate.”<sup>39</sup> Commercial subscribers will put up with this because, to them, a dropped or blocked call, or a system busy message, is typically a nuisance or an aggravation, not (as it would be for our first responder community) a potential life-threatening event. Public safety users demand and deserve essentially zero blocked call rates, and undoubtedly their systems pay a price for that requirement in some diminishment in capacity.

Commercial operators have been consciously structured to serve a market characterized by its large volume demand, and so both can expect to generate significant revenues from correspondingly large-scale operations and to enjoy substantially greater access to capital of all types. Consequently, that type of enterprise not only can, but must, sensibly perform like what it is – a modern, large, commercial organization. Public safety, however, has a very different orientation—it is not in its activity to make a profit, or to achieve scale economies to increase its profitability, or to enhance its competitive position, or both, but rather to achieve well-defined safety goals given the constrained set of resources that realistically are at its disposal. However, when the CE Report holds up the inflated network capacity achievement of the cellular carriers and uses it as part scold, part target for the public safety community with regard to the

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<sup>39</sup> This normally is interpreted to mean that, during the busiest hour of network usage on a normal day, the network is engineered to deliver available capacity sufficient to permit 98 out of every 100 calls (based on the relevant “call model” – the type, length and other features of the assumed call – or mix of calls – used in planning and deriving the rated capacity of the network) attempted during that time frame to be completed successfully

performance of their own communications networks, it makes no sense and flies in the face of social responsibility.<sup>40</sup> Such a comparison, complete with resulting inapposite conclusions, is like comparing grapes to watermelons – and claiming to have found meaning in significant differences when all that truly is revealed is vastly different types of operations.

That brings us to the microeconomic graphing exercises in the CE Report, which purport to sort out, explain and solve public safety's communications services optimization problems. This part of the CE Report, however, suffers from two problems: first, it is based on faulty assumptions; and second, it should depict both the different commodities and the different outputs that are germane to public safety, on the one hand, and to the commercial wireless operators, on the other.

As to the faulty assumptions, the graphing exercises nowhere take into account, and so fail to depict the associated outcomes produced, when very different constraints – in terms of both access to spectrum and access to equipment (or, more appropriately, the necessary funding) – are faced by public safety and commercial carriers. Public safety's recent decade-long dry spell in receiving more spectrum stands in sharp contrast to the virtual spectrum deluge occurring in the commercial wireless space during that same period. Unfortunately for public safety, this experience has shown that it faces significant and persistent constraints, not only in terms of its access to spectrum, but also in terms of its access to adequate amounts of funding, and, hence, to equipment.

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<sup>40</sup> Seeking to employ such tactics as justification for awarding additional broadband spectrum to the commercial carriers and denying it to the public safety community is particularly inappropriate when one examines the record from the assignment of spectrum to commercial uses through FCC auctions conducted between 1998 – the year after the public safety community was first promised its long awaited and still not received 24 MHz of additional spectrum in the 700 MHz band – and the present, and even then restricting the focus only to spectrum located at or below 3 GHz, generally acknowledged to be the appropriate portion of the frequency band for mobile communications purposes. *See* report authored by NTIA, titled "Land Mobile Spectrum Planning Options", dated October 24, 1995, Executive Summary ("spectrum options for land mobiles were limited to those below 3 GHz because of propagation considerations"); *see* also "A White Paper on Future Federal Communications Commission Spectrum Policy", by Motorola, Inc., dated August 30, 2002, at pages 15-17 (setting upper end of "preferable" spectrum for mobile radio systems at 3.7 GHz). During that time frame – while public safety was waiting to gain clear access nationwide to the only meaningful block of spectrum allocated to it within that same frequency range that could meet its own mobile communications needs through 2010 – as identified in the 1990's – at least 180 MHz was made available for commercial broadband services.

The commercial carriers, as a practical matter, do not face the same process, or the same constraints, in obtaining the funds they require to make the spectrum vs. equipment choice. Moreover, based on the last decade, the commercial carriers seem more adept at gaining access to spectrum, which only serves to compound their demonstrable advantage in gaining access (both from their commercial operations and in the capital markets) to necessary funds, in comparison to the public safety community. So, all the graphs in the CE Report demonstrate (even if one assumes that public safety and commercial carriers access the same inputs/resources, i.e., spectrum and equipment, and produce basically the same output/product, i.e., communications services, and so should have similar isocost curves) is that, if both parties were similarly free of relevant constraints on their abilities to access the two types of needed inputs/resources, and the inputs/resources were properly “priced” to each of them, they could and should each gravitate to an “optimal mix” of inputs/resources to cause them each to produce an “optimal amount” of the desired output/product. However, if there is reason to conclude that the parties face very different constraints – as there is here – then such an optimal input/resource mix and optimal output/product amount – for the more constrained party, anyway – may be prevented for reasons having very little to do with skewed pricing of inputs (even assuming it exists).<sup>41</sup>

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<sup>41</sup> The CE Report assumes that spectrum is “free” to public safety – because it does not obtain it in a market process, such as an auction, whereas equipment is not “free,” since public safety must spend money to get it. Although that may appear to be very logical on its face, if one were to step back and consider how public safety gets the money to pay for the equipment, then using similar logic, one may persuasively contend that it gets its money for “free”, because it gets it pretty much the same way it gets spectrum – by asking a government body for it, rather than by engaging in a “market process,” such as exchanging assets owned by public safety for cash, trading labor of public safety personnel for cash, etc. While some might argue that the money that public safety may “choose” to spend on equipment is not available for other things that public safety might need, often funding is granted for specific purposes and therefore is subject to somewhat perverse “use it or lose it” imperatives. To the extent such logic accurately mirrors the reality faced by public safety in its procurement of funding for communications equipment, it might lead one to conclude that public safety is likely to have more communications equipment than it needs as well. Such conclusions regarding supposed surpluses of spectrum and/or equipment do not comport with the reality of a real flesh-and-blood public safety organization, complete with its antiquated equipment and its congested communications system. Based on that experience, one instead might be led correctly to surmise that public safety has neither the equipment nor the spectrum that it needs – which are the very two shortages addressed by the PSBT Proposal. Additionally, there clearly are market forces at work in determining the mix between the spectrum and equipment inputs/resources available to public safety – it is just that those forces operate on the dispenser of those inputs/resources, rather than on the recipient. Every MHz the Government allocates to public safety is a MHz not available to be sold to commercial carriers in an auction – hence each award of spectrum to public safety can be viewed, in a very real sense, as costing the Government money. Similarly, every dollar that the Government awards to public safety to purchase equipment is a dollar that the Government cannot award to public safety or to any other recipient for any other purpose – presenting yet another classic case of decision making with respect to scarce resources. Must the CE Report then conclude that not only is public safety making bad decisions in selecting among

As mentioned, although there are surface similarities in the “production of communications services” by each of public safety and commercial carriers, which leads the CE Report to the implicit conclusion that public safety’s and commercial carriers’ spectrum and equipment inputs are essentially interchangeable, important differences in the cost and pricing conditions facing each party in addressing demand from their separate markets suggest a different assumption set and thus, different graphical depictions. Those different assumption sets and resulting graphed outcomes are shown on the attached Exhibit 1. Not surprisingly, different assumptions produce both different starting points and different results, with ours suggesting instead that the problems public safety faces in reaching its optimal output quantity of “communications services” to meet the particular needs of its distinct market and customer base are best solved by providing both more spectrum and more cash (to buy more/better and more costly required equipment) to public safety as inputs.<sup>42</sup>

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available inputs/resources, but that the government entities with whom public safety deals to obtain those inputs/resources is making equally bad decisions in providing them?

<sup>42</sup> This section of the CE Report also contained some conclusory statements that public safety in fact could support more subscribers by either obtaining more equipment or more spectrum, used to bolster the basic proposition that, since spectrum was regarded as “free”, whereas equipment carried a “cost”, public safety would be biased incorrectly to put more spectrum than advisable in its input mix. CE Report at pages 33, 35. Without regard to the effects of an artificial cost differential problem – if there is one – the assumption that either more spectrum or more equipment will deliver more communications services for public safety is not one borne out by past experience. All that can be said with certainty is that more spectrum in the same frequency band as already deployed in existing public safety systems – assuming there is excess production capability in the existing system equipment – should be as effective as more equipment of the same basic type as already deployed in existing public safety systems in supporting more users on those systems. However, since public safety spectrum assignments in the past have tended to be scattershot across the frequency band, a new spectrum assignment might have the perverse effect – if it is in a frequency band not utilized by the particular existing public safety communications system – of requiring public safety also to “buy” (i.e., seek additional funding for) more equipment in order to make use of that spectrum and to support new customers using it. Commercial operators rarely deploy their networks with more than a few frequency bands—and sensibly pick the spectrum they want to purchase (either from the government at auction or from other operators in privately negotiated transactions) to supplement the spectrum they already have. So, unlike public safety, commercial operators rarely find themselves facing a situation of “that’s all the spectrum that is available now, take it or leave it.” Thus, the spectrum vs. equipment trade-off is and has been more reliably a relevant and predictable one for the commercial operators than it has been for public safety.

## CONCLUSION

The CE Report is a shameful attempt to use specious data and faulty arguments to deny public safety its rightful place as a partner in the next generation of telecommunications in America. We are disappointed to have been required to craft this paper to respond to the CE Report, not so much to defend the PSBT Proposal and the related legislation, but to provide basic factual and logical corrections for the multiple misstatements and errors in the CE Report.

However, we are optimistic that the benefits, to the public safety community and to the public at large, of the ideas and concepts contained in the PSBT Proposal and the related legislation are being recognized and appreciated by a growing number of people. Those people are not just from the public safety community, they are ordinary citizens from cities and towns – and especially far outside them, in rural areas – and also include many that represent them at the local, state and federal levels. The concepts and ideas contained in the PSBT Proposal and the related legislation can be complex. That can make them easy to misstate and distort as the CE Report attempts to do. However, the goal is actually simple, getting this right for public safety and putting them in control of their communications future. The PSBT is the only solution put forward to date that solves the public safety communications problem comprehensively and it continues to stand up to the harshest scrutiny.

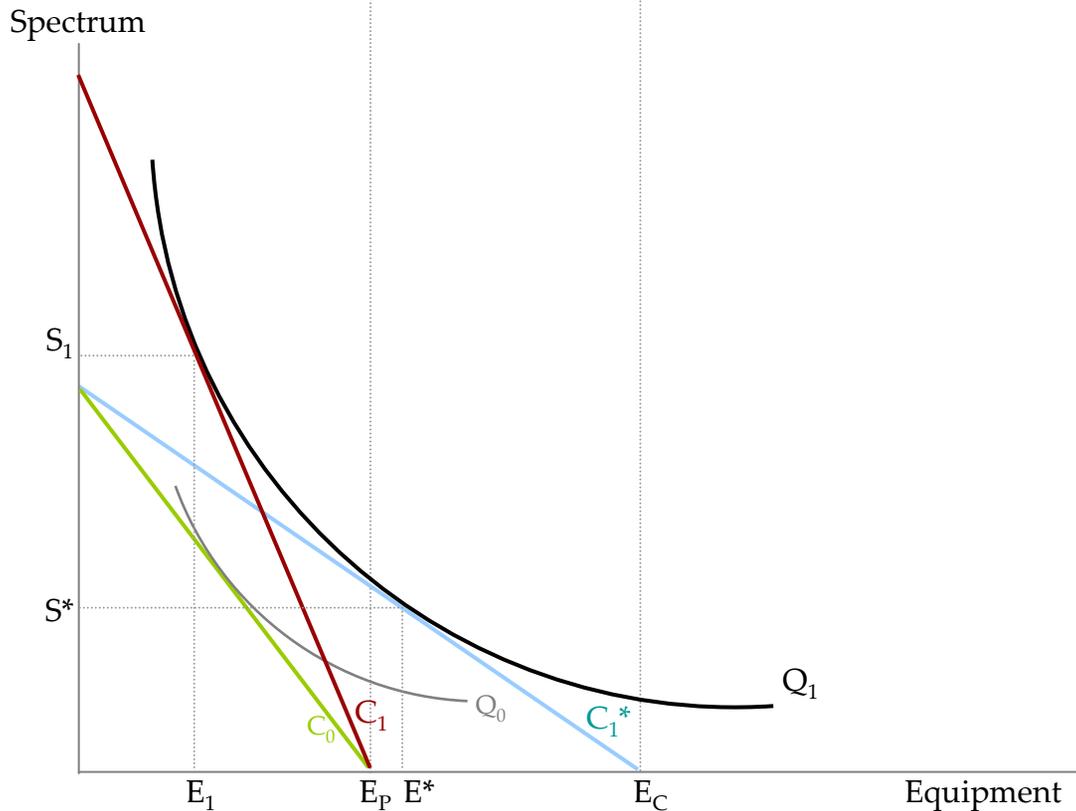
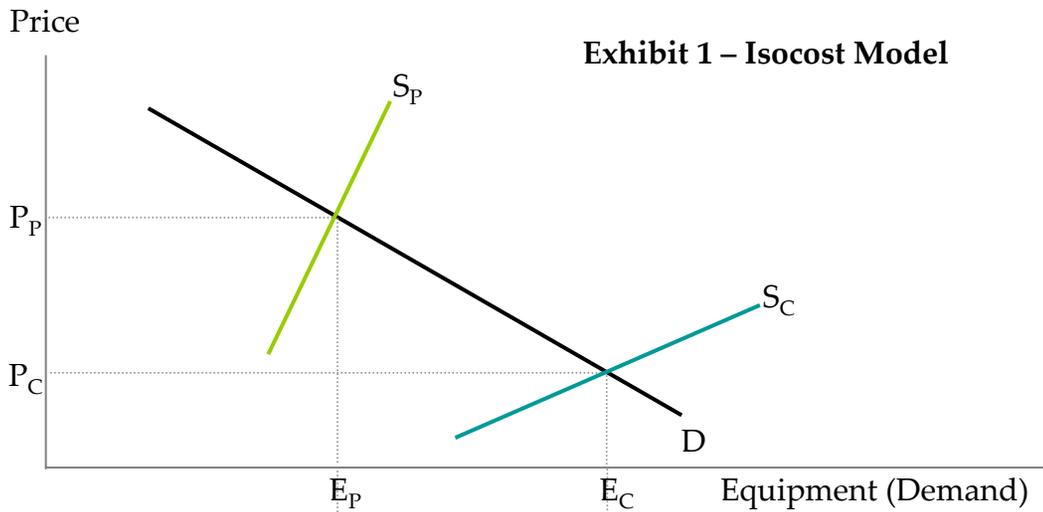
We close this critique with a quote from a federal statute that we and we suspect public safety would rather like: the language which begins the Communications Act of 1934, and which states the purposes of that Act, in words that are most relevant to public safety and this endeavor:

“[T]o make available, so far as possible, to all of the people of the United States, without discrimination on the basis of race, color, religion, national origin, or sex, a rapid, efficient, Nation-wide ... radio and wire communications service with adequate facilities at reasonable charges, for the purpose of the national defense, for the purpose of promoting safety of life and property through the use of wire and radio communication ...”<sup>43</sup>

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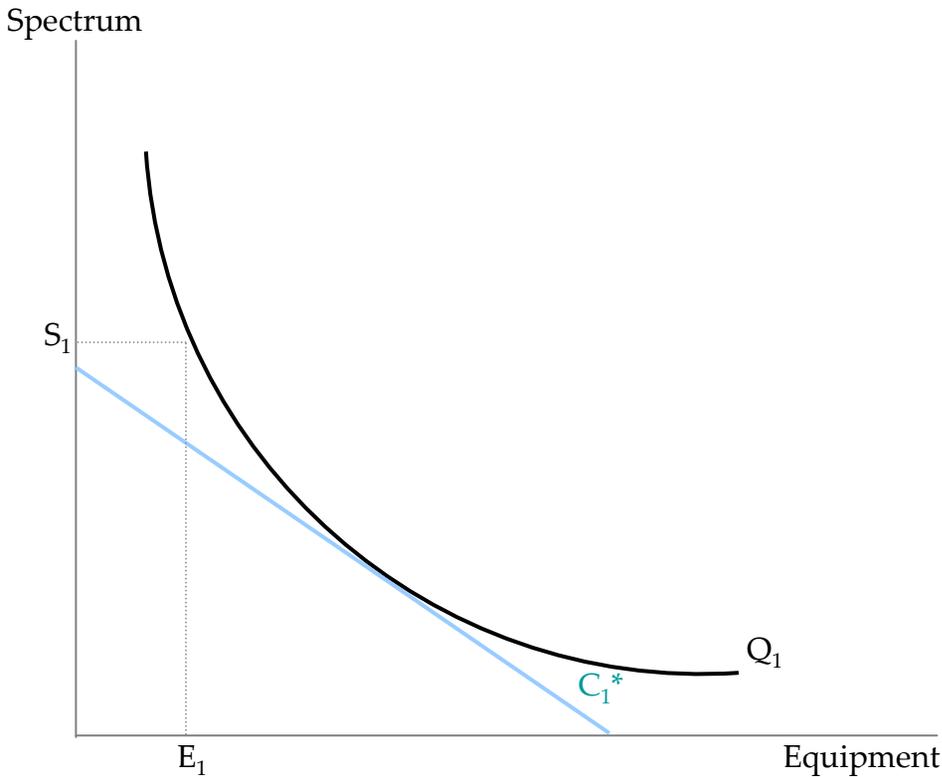
<sup>43</sup> Communications Act of 1934, Section 1 (codified at 47 U.S.C. Section 151).

Although that language was intended to establish and inform the roles and responsibilities of the FCC, it sets forth a sound and sensible policy prescription for each of us to heed – and hopefully, for some of us to act on.

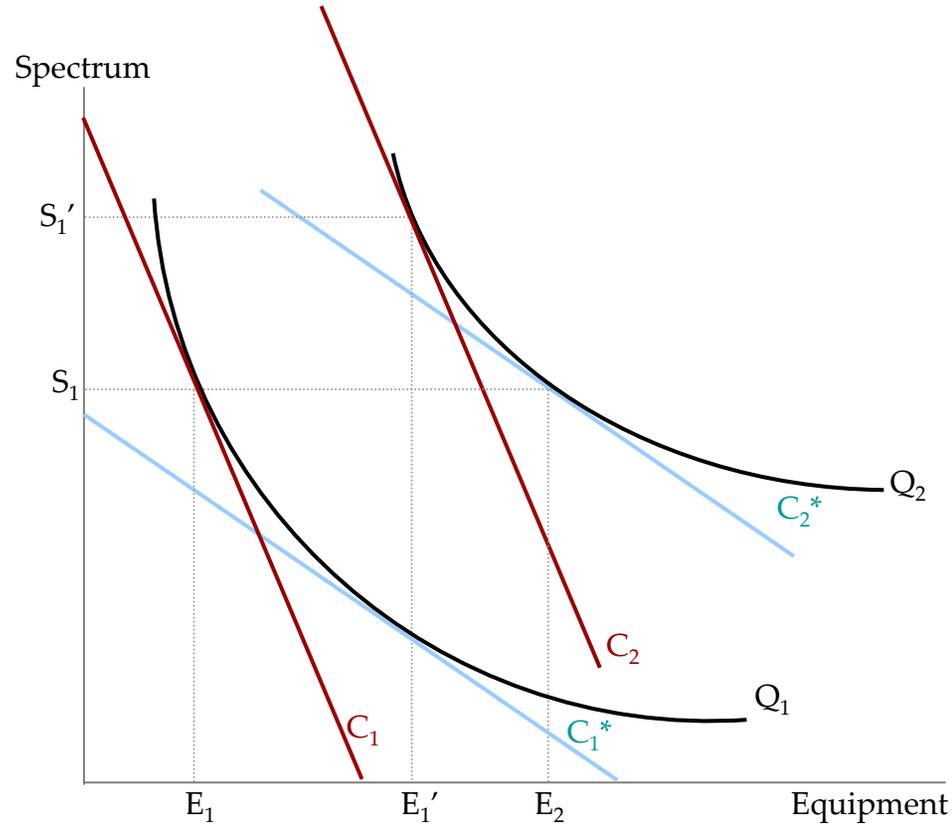


- Subscript “C” stands for Commercial
- Subscript “P” stands for Public Safety
- Public Safety has to pay higher price because of the unique characteristics of its market segment
- Since different segments have different pricings, their isocost curves should also be different, or have different slopes
- Public Safety, with its equipment pricing disadvantage, is faced with the prospect of a lower output ( $Q_0$ ) with the same amount of spectrum...
- ... Or Public Safety can move up to higher output enjoyed by Commercial ( $Q_1$ ) through having access to more spectrum
- Both Public Safety and Commercial are at their respective optimal mix of spectrum and equipment

### Exhibit 1 – Isocost Model



What Criterion Showed...



... What Criterion Should Have Shown

In order to get to output level  $Q_2$ ,  
Public Safety needs more of both  
funding and spectrum