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RM 11348

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

FILED/ACCEPTED
JAN - 9 2006
Federal Communications Commission
Office of the Secretary

In the Matter of)
)
Reallocation of 30 MHz of 700 MHz) RM 11348
Spectrum (747-762/777-792 MHz))
From Commercial Use)
)
Assignment of 30 MHz of 700 MHz)
Spectrum (747-762/777-792 MHz))
to the Public Safety Broadband Trust for)
Deployment of a Shared Public Safety/)
Commercial Next Generation Wireless Network)

To: The Commission

REPLY COMMENTS

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EXECUTIVE SUMMARY

Cyren Call believes that the record overwhelmingly supports all the major aspects of its Petition for Rule Making:

- 1) Additional spectrum is needed by Public Safety to establish a nationwide, next-generation mobile broadband network.
- 2) The 30 MHz allocation of spectrum at 700 MHz that is now scheduled by Congressional mandate to be auctioned in 2008 is ideal for such a network.
- 3) The network should be licensed to a Public Safety Broadband Trust (PSBT) that Congress would authorize.
- 4) The network would operate as a governmental/commercial partnership. It would be constructed by private entities to standards developed by the PSBT. On a day-to-day basis, the network would serve subscribers exactly as cellular networks do today, except with added features and functionalities required for Public Safety operations. In emergency situations that threaten the safety of life and property, Public Safety would have access to whatever capacity is required to coordinate the necessary personnel and resources.

The record shows almost universal recognition that Public Safety needs the network set forth in the Petition, and does not include any alternative to the approach advanced by Cyren that has support from critical stakeholders. The scant opposition is concentrated on purely competitive considerations, on a concern that implementation of the Petition could delay the 700 MHz DTV migration that is statutorily scheduled for completion in February 2009, and on budget considerations should auction revenues be reduced.

The first issue, if anything, supports FCC action on the Petition. The second can be addressed satisfactorily without compromising Public Safety broadband requirements. Indeed, Public Safety and Cyren Call also favor the vacating of this band by TV stations and would not support a plan that jeopardized timely completion of that migration. There is no reason why pre-auction procedures cannot go forward on schedule pending legislative action that might impact the spectrum available for competitive bidding. The auction itself also would occur on schedule; the only issue would be the amount of spectrum to be auctioned.

The third issue has been addressed in the draft legislative proposal supported by key Public Safety representatives. The PSBT would be organized as a non-stock, non-profit, government-chartered corporation authorized to raise money by selling debt instruments to investors in private financial markets. The monies raised would be used, first, to purchase 30 MHz of 700 MHz spectrum from the FCC at a price to be determined by the Commission, but not to exceed Five Billions Dollars, thereby replacing the funds that otherwise might have been raised at auction.

Because the needs of Public Safety are so imminent and critical, Cyren Call already is actively engaged in the Public Safety equipment standardization process in the context of a national broadband network, in reaffirmation of network capacity requirements, and in consideration of optimal interoperability approaches. For this same reason, while the Public Safety community pursues the legislative relief that will be required for ultimate FCC action, Cyren Call urges that the first step, issuance of an appropriate Notice of Proposed Rule Making, be initiated at the earliest opportunity.

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

In the Matter of)	
)	
Reallocation of 30 MHz of 700 MHz Spectrum (747-762/777-792 MHz) from Commercial Use)	RM 11348
)	
Assignment of 30 MHz of 700 MHz Spectrum (747-762/777-792 MHz) to the Public Safety Broadband Trust for Deployment of a Shared Public Safety/ Commercial Next Generation Wireless Network)	
)	
To: The Commission		

REPLY COMMENTS

On October 30, 2006, the Federal Communications Commission (“FCC” or “Commission”) issued a Public Notice¹ in which it invited public comment on the April 27, 2006 Petition for Rule Making (“Petition”) filed by Cyren Call Communications Corporation (“Cyren Call”).² The public, and most specifically the Public Safety community, responded. Only thirty days later, the FCC already had received over 1,300 comments on this innovative proposal, virtually all of which supported in all material respects the principles set out in the Cryen Call Petition.

¹ *Public Notice*, Report No 2794 (rel. Oct. 30, 2006).

² Petition for Rulemaking of Cyren Call Communications Corporation, RM 11348, filed April 27, 2006.

This extraordinary outpouring of support from Public Safety associations, emergency response provider organizations, governmental entities, and the public at large³ confirms that the Public Safety communications problem described in the Petition is compelling and demands resolution. It confirms that the public/private partnership proposed by Cyren Call, the only solution advanced to date for deploying a sustainable, nationwide, next generation, broadband, mobile wireless network to support 21st century emergency responder communications requirements, warrants meaningful consideration by the FCC and Congress.

The Commission has taken a vital first step in opening a vigorous dialogue on this issue by allowing development of a public record on the Cyren Call Petition. That record is compelling: the Public Safety community has seized the opportunity to confirm the vital importance of the network described in the Petition for meeting both interoperability and other critical communications needs. While the Commission has broad authority to address the needs of Public Safety and take other action in the public interest, it is apparent that legislative action will be necessary to ensure the full realization of the Public Safety benefits identified in the Cyren Call Petition.

I. THE RECORD CONFIRMS THAT PUBLIC SAFETY ENDORSES THE PRINCIPLES IN THE CYREN CALL PETITION

Earlier this year, Cyren Call issued a call for action. Its Petition urged the FCC to reallocate the remaining 30 MHz of uniquely suitable Upper 700 MHz spectrum from exclusively commercial use and to authorize the use of this spectrum under a single license issued to the Public Safety Broadband Trust ("PSBT") for creation of a shared governmental/commercial network. The network would provide nationwide, interoperable, next-generation technology, mobile broadband services for the Public Safety community while also

³ See Attachment 1.

meeting important commercial needs, including, but not limited to, the delivery of advanced broadband capability to consumers in rural markets as discussed in more detail below.

An essential element of Cyren Call's proposal is a public/private partnership because a network of the scope needed by Public Safety, if reserved exclusively for Public Safety use, could not be financed at the outset or sustained throughout the years. The allocation of spectrum without a practical plan for financing network deployment, ongoing operations and upgrades would not address the chronic funding problem faced by the emergency response provider community. Further, because Public Safety capacity requirements are relatively modest on a routine basis, but spike dramatically during times of emergency, the network necessarily would have capacity on a day-to-day basis to accommodate substantially more than just Public Safety usage. Therefore, Cyren Call recommended that the PSBT hold the license for the spectrum and determine the specifications to which it must be built to ensure conformance with stringent Public Safety standards. However, the Petition also recommended that the PSBT be required to lease the spectrum to commercial operators who would build, maintain and upgrade the system thereby permitting the co-existence of both Public Safety and commercial usage on the same network.

This innovative governmental/commercial relationship would advance several key FCC goals. First, it would establish a viable funding mechanism to support deployment and routine refreshment of a network capable of satisfying the expanding and increasingly complex communications needs of Public Safety well into the 21st century. Second, the network would be available to local, state and federal governmental entities, providing truly integrated interoperability among all levels of emergency response providers on a national scale. Third, because Public Safety requires extensive coverage to fulfill its own obligations, the network

would deliver next generation broadband service to consumers throughout the country, most particularly those who have yet to see in their rural communities the advanced communications capabilities that are delivering economic, educational, medical, and other benefits to the public in more populated areas. Fourth, without in any way diminishing Public Safety access to necessary capacity and services, it would promote appropriately intensive utilization of a national resource that must be employed for the benefit of and held in trust for the American public. Finally, and critical to the Public Safety community, the Cyren Call proposal would not delay ongoing planning and deployment activities in Public Safety's existing 700 MHz allocation.⁴

The more than 1,300 parties that supported the Petition did so because they endorse these Commission objectives and see in the Cyren Call approach a vehicle for advancing them. A mere handful, less than 1%, of the comments were filed by parties that opposed the Petition. The origins and focus of certain of those filings were entirely predictable. The commercial wireless industry, which is dominated by a few large operators, seemingly views the Petition as a competitive threat to its entrenched economic interests.⁵ Cloaked in a mantle of concern for Public Safety, representatives of those interests have interposed objections to Cyren Call's proposal, but have failed to refute the problem identified in the Petition or to advance a viable, alternative solution that is acceptable to the interested stakeholders. A very few commenters focused almost exclusively on their concern about the financial impact on the Federal Treasury of replacing a scheduled auction with the approach recommended by Cyren Call, seemingly

⁴ See Letter of the Association of Public-Safety Communications Officials International, Inc., International Association of Chiefs of Police, International Association of Fire Chiefs, Major Cities Chiefs Association, Major Counties Sheriffs Association, and National Sheriffs Association in WT Docket No. 96-86.

⁵ See Comments of Cingular Wireless, LLC, CTIA-The Wireless Association, MetroPCS Communications, Inc, The MetroPCS comments reflect an almost shocking lack of understanding with respect to the use of and limitations on current Public Safety spectrum allocations and the communications needs of this critical user community. Its statement that the need for interoperability is most often "local, pedestrian, mundane, and constant" confirms that it is ill-qualified to provide any meaningful recommendations regarding Public Safety spectrum requirements.

without consideration of the Public Safety benefits that would flow from the proposal.⁶ One or two entities questioned particular aspects of the proposal, while acknowledging the underlying problem and the need for appropriate action.⁷

Cyren Call is pleased to have the opportunity to address the reservations of those with legitimate, rather than purely anti-competitive, concerns. In particular, it wishes to reaffirm its position that neither the Petition nor the legislative activities detailed below would require or should result in any delay in the current deadline for completion of the transition from analog to digital broadcast television, a deadline that is at least as critical to Public Safety as it is to commercial entities.⁸ The Public Safety community has spoken with a loud, clear and unified voice on this point.⁹ It surely would not have supported the Cyren Call principles as it has if Public Safety believed that doing so would jeopardize timely recovery of spectrum it views as essential for both immediate and long-term communications purposes.

Similarly, consideration of the Petition should not delay normal Commission activities in preparation for a 700 MHz auction. Irrespective of the outcome of Cyren Call's proposal, the "Lower 700 MHz" spectrum will be available for competitive bidding. Presumably the Commission will proceed with its normal processes, recognizing that changes might be required before the auction itself commences. This would not be the first time that the FCC undertook to conduct an auction only to have to modify its plans, even after having accepted upfront payments and almost up to the very day when the bidding was scheduled to begin.¹⁰ In this instance, there is no question that there will be an auction; only what spectrum will be included in it. The FCC

⁶ See Comments of National Taxpayers Union and Citizens Against Government Waste, Consumer Electronics Association and the United States Chamber of Commerce.

⁷ See Comments of Wyoming Department of Transportation and Region 24 (Missouri) 700 MHz Regional Planning Committee.

⁸ See Comments of Telecommunications Industry Association and Motorola, Inc.

⁹ See n. 4 *supra*.

¹⁰ See Auction No. 44, originally scheduled for June 19, 2002 and postponed on June 19, 2002; See also Auction 35, Auction 46 and Auction 66.

undoubtedly will be prepared to auction whatever 700 MHz spectrum is consistent with Congressional directives at the time the auction begins.

Finally, it has become apparent to Cyren Call that the broadband requirements of Public Safety, however critical and however unable to be satisfied without this additional 700 MHz spectrum, do not outweigh budget considerations and funding commitments already made. Therefore, and as described in further detail below, the draft legislative proposal supported by Public Safety representatives includes a mechanism for addressing the perceived budget shortfall from removal of the "Upper 700 MHz" spectrum from the auction.

While all of these matters are essential to the regulatory aspect of this debate, it is important to note that Cyren Call's efforts in recent months have expanded substantially beyond the regulatory arena. It has supported the vigorous efforts of the Public Safety community to draw Congressional attention to the unique opportunity presented by this 30 MHz portion of still available 700 MHz spectrum. Those efforts have begun to generate substantial interest in Congress, where the focus on enhanced Homeland Security activities and the continued lack of interoperability among emergency response providers at the local, state and federal levels is expected to be increasingly intensive.

Cyren Call also has devoted significant resources to the issues involved in deploying an advanced technology network that, first, satisfies Public Safety communications requirements, and, second, permits robust commercial usage at a level that will attract the necessary private investment. It is preparing to assist Public Safety in navigating the complex steps that lead from a list of requirements to delivered network products, user devices and services tailored and designed for their particular specifications. This standardization process will be new to the comparatively small and historically fragmented Public Safety community, but promises to

produce important rewards in terms of equipment capabilities and cost. The preliminary work that is underway with equipment vendors and other technology resources already has validated the viability of the Cyren Call public/private network proposal and will provide the PSBT with a rich lode of technical data to consider once it has secured the license for this 30 MHz allocation.

II. THE DEBATE HAS MOVED FROM WHETHER PUBLIC SAFETY MUST HAVE ACCESS TO A NATIONWIDE ADVANCED, MOBILE BROADBAND NETWORK TO THE TASKS INVOLVED IN DEVELOPING SUCH A NETWORK

A. Public Safety-Supported Draft Legislative Proposal Would Resolve Statutory Issue and Address Perceived Budget Shortfall

1) Congress Should Revisit the Statutory Restrictions It Enacted with Respect to the 700 MHz Band

More than a decade ago, Congress enacted legislation specifying a band plan for the 700 MHz spectrum that was to be recovered from the broadcast industry in 2007¹¹, a date that subsequently was pushed back to February 17, 2009 in the Digital Television Transition and Public Safety Act of 2005 (“DTV Act”).¹² Congress determined that 84 MHz of that 700 MHz spectrum should be reserved for commercial operations and assigned by auction, with 24 MHz allocated for Public Safety services.

At that time, now ten years past, it was not yet apparent that Public Safety, like the commercial wireless industry, would need significant, contiguous broadband spectrum to address a growing range of advanced communications requirements.¹³ Public Safety traditionally has

¹¹ See The Balanced Budget Act of 1997, Pub. L. No. 105-33, 111 Stat. 251 § 3004 (1997), codified at 47 U.S.C. §337.

¹² See Deficit Reduction Act of 2005, Pub. L. No. 109-171 (2006). In that same legislation, Congress committed funding for, among other items, for a Public Safety Interoperability Grant Program and a program to provide converter set top boxes for consumers who rely on non-digital over-the-air television. The funding for these initiatives was to come from 700 MHz auction proceeds. As detailed below, Congressional and FCC actions with respect to 700 MHz allocations must not undermine either of those important programs.

¹³ At that time, the Commercial Mobile Radio Service (“CMRS”) industry itself still was in the early stages of migrating from analog to digital technologies and was not yet fully cognizant that the conversion from narrowband channels to broadband techniques would happen on an even more accelerated basis.

been a voice-centric segment of the industry with a focus on always available, wide-area coverage. While that requirement has not in any way diminished, the explosion in broadband features and functionalities in recent years has created communications possibilities that could not have been contemplated when Congress acted in 1997. Capabilities such as streaming video, helmet cams, heat sensors, and instantaneous fingerprint and retina scan verification all have obvious benefits for emergency response providers and will complement existing and future voice operations.

Thus, the premise on which that legislative action was based has proven inaccurate. The spectrum balance struck by Congress in 1997, with 84 MHz designated for commercial use and only 24 MHz allotted for Public Safety operations, may have represented a reasonable allocation when it was assumed that Public Safety would continue to need “more of the same” with respect to system capabilities and, therefore, spectrum resources, but it is invalid when next-generation broadband requirements are considered. Significant planning and resources have been devoted to Public Safety’s use of its existing 24 MHz, spectrum that is critical to satisfying immediate on-going communications needs.¹⁴ Meeting the future requirements of the nation’s most critical user community will require more. It will require that Congress revisit its ten-year old allocation decision before the only spectrum that offers a practical, affordable vehicle for addressing broadband Public Safety usage has been auctioned for purely commercial use.

2) Public Safety Representatives, in Collaboration with Cyren Call, Have Developed a Draft Legislative Proposal that Addresses Both Spectrum and Financial Considerations

Cyren Call has recognized from the outset that Public Safety must hold the license for this 30 MHz of 700 MHz spectrum. It recommended in its Petition that the license be awarded

¹⁴ See n. 4 *supra*, see also various Comments of the National Public Safety Telecommunications Council in WT Docket No. 96-86.

to a PSBT. It suggested that the PSBT should consist of representatives from key local, state and federal Public Safety organizations that would be responsible for ensuring deployment of a broadband network designed to public safety specifications, but built and maintained by commercial service providers who would lease the spectrum and use the excess capacity to provide service to the general public.

The PSBT concept has been supported by key Public Safety representatives who have participated in developing draft legislation incorporating that concept for Congressional consideration. However, since its original conception, the purpose and structure of the PSBT has been enhanced significantly, in large part to address the concern that reallocating this 700 MHz spectrum and removing it from the auction process would deprive the Federal Treasury of anticipated auction proceeds.¹⁵

Under the draft proposal, the PSBT would be organized as a non-stock, non-profit, government-chartered corporation for the express purpose of acquiring and holding spectrum to provide mobile, broadband, wireless communications services for Public Safety use on a prioritized, but non-exclusive basis. It would be a corporation comparable to other successful corporations (e.g., the Tennessee Valley Authority, St. Lawrence Seaway Authority and Corporation for Public Broadcasting) that operate under the authority of federal legislation, and it would be authorized to raise money by selling debt instruments to investors in private financial markets.

The proposal specifies that the monies raised would be used, first, to purchase 30 MHz of 700 MHz spectrum from the FCC at a price to be determined by the Commission, but not to exceed Five Billions Dollars, and, second, to provide incremental funds to promote network

¹⁵ See n. 6 *supra*. In fact, the Petition proposed the reallocation of only half of the 700 MHz spectrum designated for auction by Congress. The remaining "Lower 700 MHz" spectrum remains slated for auction and might be expected to generate even greater proceeds if the laws of supply and demand hold true.

deployment in less populated rural areas. The debt instruments funding the purchase would be guaranteed by the United States Government, with the 700 MHz license serving as collateral to secure the repayment of the guaranteed debt. The debt obligations would be repaid from lease payments from commercial operators on the network, net of expenses. Federal loan guarantees are used frequently to facilitate private capital formation for commercial projects that have significant public benefits. Importantly, this structure would permit the PSBT to “replace” the revenues that might have been raised in an auction and thereby ensure funding of the \$1 B Interoperability Grant Program and the public safety interoperability and up to \$1.5 B for a consumer set-top box converter program and other earmarked funding.¹⁶

Directors of the PSBT would consist of a broad cross-section of representatives from local and state first responders and other Public Safety organization across the county. It also would include the U.S. Attorney General, representatives from appropriate federal government agencies such as the Departments of Defense, Homeland Security, and Transportation, as well as the FCC. The directors would set major policy directives and ensure that the network fulfills the key objective of providing nationwide interoperability for all levels of government. Contrary to the concern expressed by at least one commenter, the PSBT would not usurp control from local Public Safety personnel.¹⁷ Rather, it would act as a vehicle for consolidating and addressing the needs of local entities in ensuring optimal network operation and interoperability on a national scale while leaving control over day-to-day use of the network where it must be – in the hands of

¹⁶ See National Telecommunications and Information Administration, Notice of Proposed Rulemaking: Implementation and Administration of a Coupon Program for Digital-to-Analog Converter Boxes, Docket No. 060512129-6129-01 (July 25, 2006). The DTV Legislation also earmarked funds for the National Alert and Tsunami Warning Program, for Enhanced 911 Program, for Essential Air Service Program and certain other initiatives

¹⁷ See Comments of Region 24 700 MHz Regional Planning Committee

local Public Safety entities with responsibility for protecting the lives and property of their citizenry.

Consistent with the governmental/commercial partnership concept recommended in the Petition, the draft proposal specifies that the PSBT would be required to lease rights to use the 700 MHz spectrum to commercial entities that would construct and operate an advanced technology, broadband, mobile, wireless network. The network would be built to Public Safety specifications as determined by the PSBT and commercial operators would “host” Public Safety operations with the right to offer service to the public. Given the significant capacity associated with next generation, IP-based technology deployed at 700 MHz, both commercial and Public Safety usage would be accommodated except in the most extraordinary emergency situations in which case commercial operations would be required to give way to higher priority emergency response requirements.

The PSBT will have broad, varied and demanding responsibilities. Therefore, the legislative proposal also contemplates engagement of agents, consultants or other parties with specialized expertise to assist it in performing these duties, subject to the PSBT’s direction and control. Of course, Cyren Call expects that it will compete to be selected as a PSBT agent, but the draft proposal imposes no obligation of the PSBT in that respect. The PSBT will be free to select whatever entities or organizations it believes are best equipped to permit it to fulfill its responsibilities.

B. Ongoing Technical and Operational Activities Confirm the Viability of the Cyren Call Proposal

Appropriate spectrum and adequate, ongoing financial resources are essential elements in the development of the network envisioned by Cyren Call. Creation of the PSBT also is a necessary ingredient when the objective is deployment of a nationwide, interoperable system

available to emergency responders within local, state and federal government agencies. But these elements must be coupled with an intelligent, aggressive plan for translating the concept of a shared governmental/commercial system into a deployable, affordable network in a timeframe consistent with the anticipated availability of this spectrum.¹⁸ It is to this effort that Cyren Call has devoted substantial resources since submission of its Petition.

One of the key areas of activity has been working with commercial equipment vendors, application developers, and other suppliers to map out a standardization process whereby the more demanding technical specifications of emergency response communications as set out in the SAFECOM and Project MESA studies and other reports are integrated into the development process at an appropriately early stage. This requires, first, a detailed understanding of, then an evaluation and prioritization of, Public Safety requirements, both at a user and a functional level, for an entirely new type of network. The process whereby these requirements are then codified into technical specifications and finally incorporated into actual product development is complex and demanding.¹⁹ Moreover, it will be a new experience for many in the Public Safety community which, for the most part, has been both too small and too fragmented in its equipment choices to dictate a technology roadmap. To the extent this preliminary work undertaken by Cyren Call proves useful to the PSBT, it may help short-circuit the time between license grant and network deployment, thereby accelerating the date by which emergency responders at last have access to the communications network they so richly deserve.²⁰

Because flat, IP-based architectures are less costly to construct and operate than traditional circuit-switched systems, long-term evolution suggests that broadband networks will

¹⁸ See Attachment 2.

¹⁹ See Attachment 3.

²⁰ Of course, the timing of network deployment also will depend on when the broadcast industry vacates this spectrum. Cyren Call urges the Commission and the Congress to stand firm on the already-extended February 17, 2009 deadline for band clearing.

dominate future global communications activity. But for the governmental/commercial relationship proposed in the Cyren Call Petition and affirmed in the draft legislative proposal, Public Safety's lack of market power would be even more pronounced in this broadband world where market size will be calculated in tens or even hundreds of millions of units. A shared network that is built to Public Safety specifications, but built by commercial operators for general public use, would represent a powerful force in broadband product development. Requiring the selection of a single, open standard, next generation, digital transmission technology for the network would secure for Public Safety users the economies of scale already enjoyed by the typical wireless subscriber while providing commercial network users with Public Safety grade capabilities and features that might not be available on other systems.

Because Public Safety alone cannot finance even the initial deployment of a network of this scope, much less its ongoing maintenance and appropriate upgrades, it is essential that sufficient capacity be available to attract the necessary commercial financial engine. To that end, and based on its even greater familiarity with Public Safety user and functional requirements acquired in the standardization process described above, Cyren Call has continued to test its assessment that 30 MHz of contiguous spectrum at 700 MHz will be needed to support Public Safety needs while also offering an attractive opportunity for commercial system operators.

All such evaluations are driven by their underlying assumptions. Cyren Call has reaffirmed that those used in its calculation are valid and its previous conclusion has been confirmed: 30 MHz of 700 MHz spectrum is the minimum allocation that will support a shared governmental/commercial network able to host Public Safety's day-to-day and interoperability requirements while simultaneously providing a commercial service at quality levels competitive in that marketplace.

Cyren Call also is working to address the key issue of interoperability. The current definition of interoperability focuses largely on "Push-to-Talk" narrowband voice capabilities that permit agencies either to communicate over a shared trunked network or to tie together disparate, pre-existing voice communications systems through permanent gateway solutions or on an *ad hoc* basis during emergency situations. The ongoing efforts by local, state and federal agencies to improve this level of interoperability are important, are the most common means for addressing the problem in today's environment, and should be encouraged. Intermediary bridging techniques such as mesh networks permit a somewhat higher level of interoperability functionality that allows communications among users operating on different systems and even in different bands. These will prove useful as well, at least in the short-term.²¹

However, deployment of the nationwide, advanced, broadband system under consideration herein creates the opportunity to achieve true "integrated information interoperability," permitting seamless information delivery across many mediums (voice, video, text file transfer, etc.) with functionalities that are unachievable without a common backbone network.²² It will permit effectively instantaneous sharing of information such as tactical resources and incident management capabilities across all mediums. Its signaling command and control layer also will facilitate interoperability with off-network users, assuming the existence of appropriate gateways.

Perhaps most meaningful to emergency response providers, interoperability on the proposed Cyren Call network will be premised on a single standard mobile broadband technology with homogenous delivery of applications and services throughout all levels of

²¹ For example, CoCo Communications Corporation and Motorola, Inc. both are exploring approaches to interoperability.

²² Cyren Call also is a full NG-911 program partner with the National Emergency Number Association (NENA) and is working with NENA to incorporate E-911 requirements into planning considerations and analyses for a national Public Safety wireless broadband data network.

government and across the nation. Firefighters from Santa Barbara, if called to assist their brethren in Los Angeles, will be using the same unit that they rely on for day-to-day operations in their own community with the same features and functions. The ability to operate a communications device based on the familiarity of repeated use, without having to recall what was taught in a training exercise months earlier perhaps for a different piece of equipment or application, can mean the difference between life and death for first responders.

In sum, while opponents of the Petition have focused on regulatory challenges and obstructions, Cyren Call has devoted its efforts to consideration of the Public Safety equipment standardization process in the context of a national broadband network, to confirmation of Cyren Call's original capacity calculations, and to evaluation of optimal interoperability approaches. Those efforts have confirmed the viability of the Cyren Call proposal and will provide valuable information for consideration once Public Safety has secured the 700 MHz license recommended in the Petition and requested in the draft legislative proposal.

III. A GOVERNMENTAL/COMMERCIAL PARTNERSHIP WILL BRING ADVANCED BROADBAND CAPABILITIES TO RURAL CONSUMERS

Chairman Martin, in a recent address to the US Telecoms 2006 Symposium, reaffirmed his long-standing commitment to promoting broadband deployment stating the following:

Since arriving at the Commission, I have made broadband deployment my highest priority at the Commission.²³

The Chairman described the importance of broadband access in the following terms:

Broadband technology is a key driver of economic growth. The ability to share increasing amounts of information, at greater and greater speeds, increases productivity, facilitates interstate commerce, and helps drive innovation. But perhaps most important, broadband has the potential to affect almost every aspect

²³ See Remarks of FCC Chairman Kevin J. Martin, Phoenix Center, US Telecoms 2006 Symposium, December 6, 2006.

of our lives. It is changing how we communicate with each other, how and where we work, how we educate our children, and how we entertain ourselves.²⁴

Yet he also noted that “overall penetration rates in rural areas still lag behind those in urban areas.”²⁵

Other Commissioners also have expressed deep concerns about our inability as a nation to bridge the broadband digital divide between affluent and poor, but even more between urban and rural, consumers. For example, Commissioner Copps has described the problem this way:

“...having access to advanced communications – broadband – is every bit as important as access to basic telephone services was in the past. Providing meaningful access to advanced telecommunications for all our citizens may well spell the difference between continued stagnation and economic revitalization. Broadband is already becoming key to our nation’s systems of education and commerce and jobs and entertainment and, therefore, key to America’s future. Those who get access will win. Those who don’t will lose...”²⁶

The limiting factor clearly is not spectrum. Over the past two decades the FCC has made ample spectrum capable of supporting advanced broadband services available for commercial operators pursuant to authorizations that cover both urban cores and the most rural of our communities.²⁷ What the Commission has not done by regulatory fiat, however, is to direct that these commercial entities build out non-urban facilities in addition to those that now blanket our urban markets and the corridors that connect them. Because the FCC’s rules do not mandate rural construction, commercial operators have built systems that are designed to maximize shareholder value; they have built in the

²⁴ *Id*

²⁵ *Id*

²⁶ See Statement of Michael J. Copps before the Senate Committee on Commerce, Science, and Transportation January 14, 2003.

²⁷ See, e.g., the spectrum already allocated and assigned to commercial wireless operations in Auctions 4, 5, 22, and 35 among others.

more populated areas where revenues are likely to provide the greatest return on investment.

In fact, their actions have been entirely proper absent a contrary regulatory obligation. But the result is precisely the problem noted by the Chairman and by Commissioner Copps: there is no motivation, but rather a clear disincentive, for commercial deployment of advanced broadband networks in sparsely populated areas in the county.

This problem will be addressed by the Cyren Call proposal. Unlike commercial systems that concentrate their facilities in areas of highest population, the network proposed in the Petition necessarily would be built out on a truly national scale. Emergency response providers do not have the luxury of bypassing low population impoverished and/or regions; they are obligated to provide service wherever there are people or property to protect. As described in the Petition, the network proposed by Cyren would consist of 37,000 transmitter sites that collectively cover 99.3% of the nation's population. This represents coverage of 90% of all counties throughout the nation, and 100% of counties with a population density of greater than 5 people per square mile.²⁸ The result is 75% terrestrial geographic coverage of the contiguous United States and 63.5% of the entire nation.²⁹ This is vastly superior to any terrestrial broadband commercial service available today or anticipated in the foreseeable future.

While the impetus for building out these rural areas is Public Safety coverage requirements, the resulting network will be available to all consumers through the

²⁸ Site availability should be significantly simplified since the Broadband Trust will hold the license and presumably will have access both to existing public safety sites and to the powers of eminent domain.

²⁹ See Attachment 4. Hawaii and Puerto Rico are not shown on the map, although these areas have 100% terrestrial coverage.

spectrum lease arrangement with commercial operators. Indeed, the draft legislative proposal specifically authorizes the PSBT to use monies raised from private investment to help fund build in less populated areas out that otherwise would not be commercially viable. Thus, the imposition of public safety coverage needs on into this national network design will, for the first time, provide a voluntary, fundable mechanism for ensuring delivery of advanced broadband services to rural America.

IV. CONCLUSION

The Commission invited the Public Safety community and other stakeholders to comment on the Cyren Call Petition. The response was a resounding affirmation of the principles of that Petition. The record in this proceeding, coupled with the necessary legislative action described herein, will provide the necessary foundation for the Commission to address this compelling Public Safety communications need, consistent with the proposal recommended by Cyren Call.

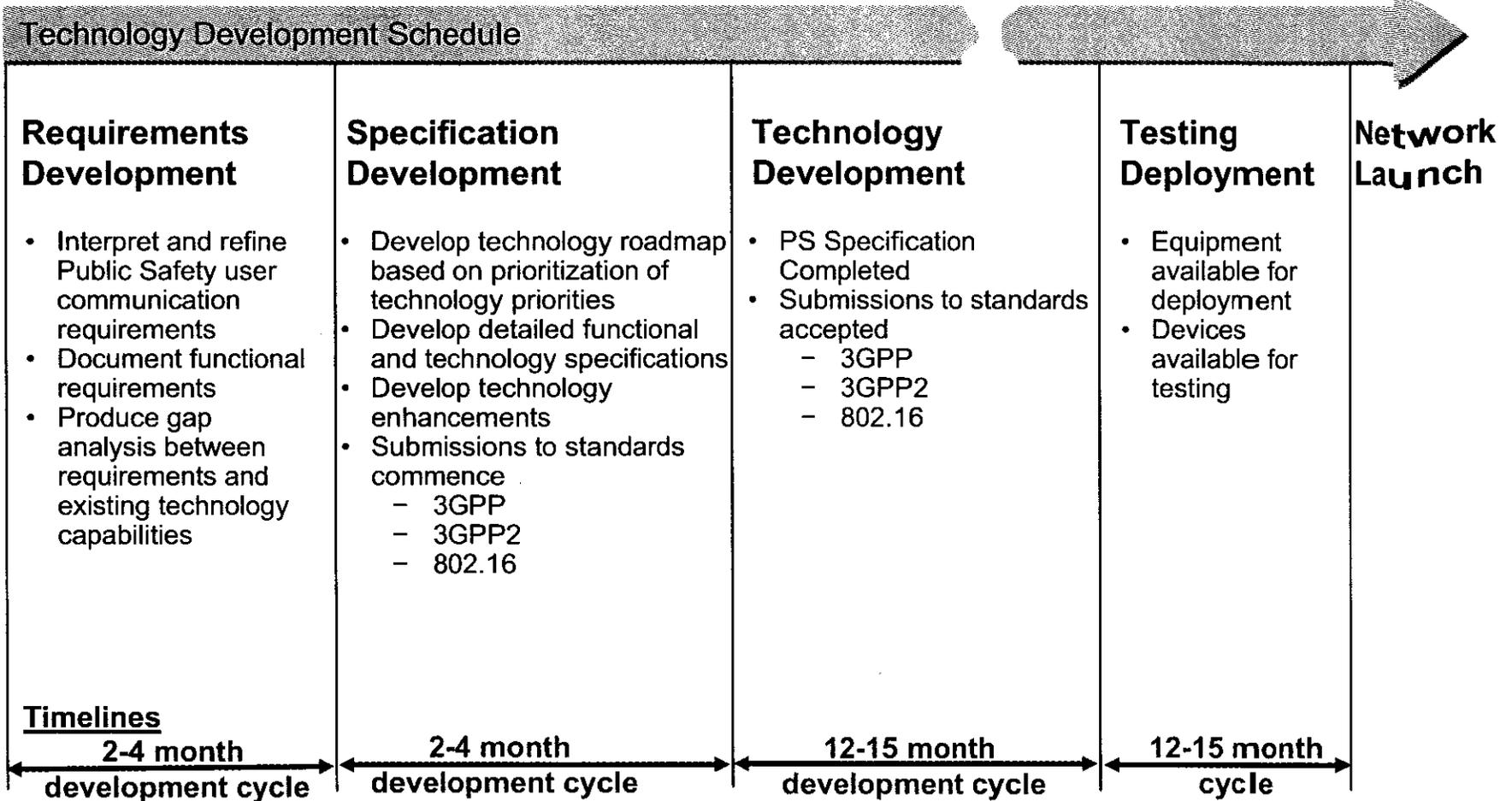
ATTACHMENT 1

REPRESENTATIVE SUPPORTING COMMENTS

Alameda County (CA) Fire Department
Arizona Fire Chiefs Association
Association of Public Communications Officials
Charlottesville, VA Fire Department
Charter Township of Kalamazoo, MI Police Department
City of Chicago Fire Commissioner
Dubuque County, IA Sheriff's Office
DuPage (IL) Public Safety 9-1-1
Illinois Association of Chiefs of Police
International Association of Chiefs of Police
International Association of Fire Chiefs
International Municipal Signal Association
Louisiana Statewide Interoperability Executive Committee
Major Cities Chiefs Association
Major County Sheriffs' Association
Metropolitan Fire Chiefs Association
Michigan Association of Chiefs of Police
Michigan Association of Fire Chiefs
National Association of Emergency Medical Technicians
National Association of State EMS Officials
National Emergency Number Association
National Public Safety Telecommunications Council
National Sheriffs' Association
National Troopers Coalition
National Volunteer Fire Council
Northern California Chapter of APCO
Oregon Fire Chiefs Association
Rural Cellular Association
Southeastern Michigan Association Chiefs of Police
Southeastern Michigan Association of Fire Chiefs
State of California
Utah Communications Agency Network

ATTACHMENT 2

Technology Development Schedule



ATTACHMENT 3

STANDARIZATION PROCESS FOR PUBLIC SAFETY REQUIREMENTS

Background -

Public safety's use of mobile wireless broadband data services delivered via commercial technology leverages the economies of scale that commercial enterprises can deliver, allows for the continued technology evolution, and provides advanced services to our first responders.

Currently, commercial technical standards do not consider public safety requirements. The cost and incentive for commercial equipment vendors, application developers, device & terminal manufacturers to undertake the incorporation of public safety's requirements into commercial technology offerings requires a market that offers the scale needed to justify the investment. Cyren Call's proposal provides this economic incentive

If one assumes that such an economic environment exists a process to insert and incorporate public safety technical requirements into the full eco-system of technology suppliers will be a major endeavor. In the near term, Cyren Call, in conjunction with 4DK, is investing considerable resources to bridge the gaps that currently exist and is diligently working with the public safety community to foster an awareness of public safety's requirements to the major wireless broadband technology suppliers. Cyren Call and 4DK have also proposed a framework and processes that could be initiated to create a self-perpetuating life cycle for the on-going development and management of public safety commercial technology requirements product and services.

Commercial Requirements Process Overview -

At a high level there are four major steps that would take user needs and translate those into delivered network products, user devices, and services tailored and designed for use by public safety.

These can be described as follows:

Step 1 – User Requirements

Public Safety personnel knows better than any what their needs are and how voice and data communications should operate. As these individuals in many cases are not engineers, the descriptions or definitions of what technology and services should be developed are captured in high level narrative descriptions and illustrations. For technology development it provides a starting point but is insufficient to fully engineer and design a final product.

These are sometimes referred to a Stage 0 specifications.

Step 2 – Functional Requirements

User requirements provide in non-technical terms descriptions what the public safety community desires in regards to services and capabilities. Functional requirements put technical boundaries, parameters, and descriptions within specified categories so that standards organizations can develop engineering design documents that manufacturers and vendors can use to develop and produce products.

These are sometimes referred to as Stage I specifications.

Step 3 – Standards Based Technical Requirements & Specifications

Within commercial telecommunications, both wireline and wireless, sanctioned and ad-hoc standards organizations such as TIA, 3GPP, 3GPP2, IETF, IEEE, and groups like the Wi-Max and TM Forum, all publish technical specifications and guidelines that telecommunication suppliers use in the design, fabrication, and coding of their respective technologies.

Functional requirements are delivered, dependent on subject, to the various sub-committees that exist within the aforementioned standards bodies. Due to the complexity of telecommunication / information systems, most standards bodies are sub-divided, perhaps as many as 3-4 levels down, into various sub-committee's so that the complexity can be managed.

The standards bodies develop the detailed engineering specifications required by suppliers and vendors to build their products and solutions. This covers the range from network equipment to devices, applications to the description of the data the application will support, and so forth.

These are referred to as Technical Standard Specifications.

Step 4 - Production of Technology

The last step is the development of hardware and software products built to standard and agreed to technical specifications. Typically vendors and suppliers will have representation within the standard bodies and use this participation to incorporate their patents and designs into standards (e.g. Qualcomm). This is why its imperative for public safety to have representation with the vendor at a technical level to ensure these companies fully understand the requirements and bolster public safety's position in the standards bodies.

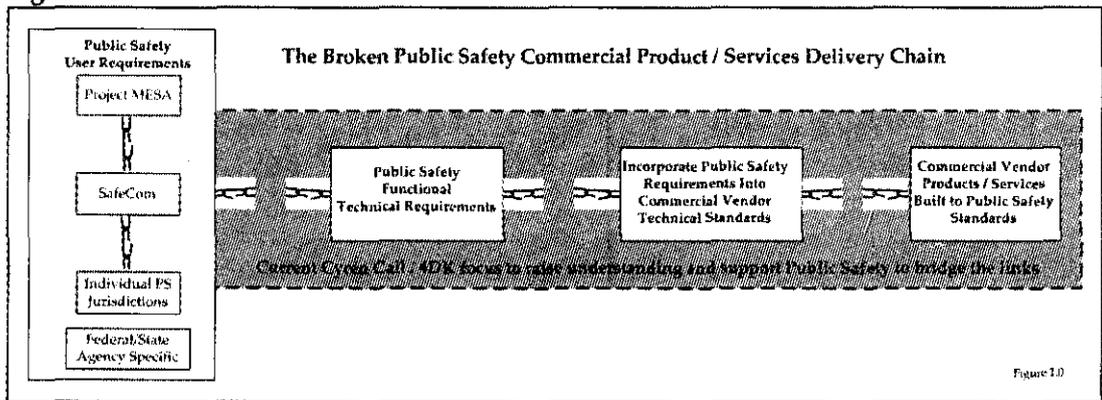
Some standards bodies have certification laboratories or methods to certify compliance to their specifications, other times it is incumbent upon the telecommunication operator to verify the compliance. Either way this compliance is tested against the technical specifications produced by the standards bodies.

As public safety does not have a formal and nationally recognized wireless broadband data certification entity nor the current means to have input into the existing commercial standards process it will be incumbent on the local or state public safety organizations who procure technology or services to validate in some or fashion, the ability of vendor products to meet the goals of their mission.

Current Public Safety Requirements Issue -

With previous high level description as background the following will be used to overview the current issues regarding the incorporation of public safety’s technical mobile broadband data requirement into the commercial communications standards process. Figure 1.0 illustrates where the linkage between the four major steps should occur, where it is broken today, and the interim role that Cyren Call and 4DK are playing to bridge this gap.

Figure 1.0



1. User Requirements Development Efforts

Currently the SAFECOM program within DHS and the trans-Atlantic efforts of Project MESA has sought input from various representatives within the public safety community to develop user requirements. This effort while valid and a positive first step does not address the total content, approach, and format required by the standards bodies for delivery of functional requirements. This ability to standardize user requirements in a commercial context is the primary issue within this step.

Cyren Call and 4DK have undertaken an effort to put these user requirements into a framework which can be used by the standard bodies. This effort has received positive endorsement from both SAFECOM and the participants engaged with Project MESA.

2. Functional Requirements Development Efforts

Today there is no entity that provides linkage between the general public safety population, the SAFECOM program, or Project MESA developed user requirements and the approved commercial standards organization responsible for the development and delivery of technical specifications and requirements. Some ad-hoc efforts have been made but the lack of a formal process hinders the delivery and acceptance of public safety’s functional specifications into these bodies.

Cyren Call and 4DK identified this shortfall and has engaged many companies within the mobile broadband data technology vendor community to promote a standardized and uniform framework for the presentation of the SAFECOM and Project MESA user requirements and a suggested process to develop public safety wireless broadband data functional requirements.

Additionally 4DK has taken a lead role within Project MESA and is in dialog with representatives of the SAFECOM program to further this goal.

3. Standards Based Technical Specifications

Due to the scope of the eco-system required to support end to end commercial based public safety services many standards organizations will have to be engaged. This will ensure that the hardware, software for the network elements, user devices, applications, data types, and transmission protocols are harmonized and integrated for the delivery of seamless capabilities to public safety.

Today, public safety has representation at the TIA for project 25 related standards development. This activity is specifically focused on narrowband voice and low-speed data technologies. Some activity is underway to develop standards for the 4.9GHz band to be used for static wireless broadband data services.

However, within the commercial standards specification arena there is an international scope for wireless mobile broadband data technology suppliers. Thus, both domestic U.S. standards and for example, European Union standards bodies have to be engaged to ensure commercial products used by U.S. mobile services¹ operators can be connected in a standardized fashion.

To ensure that public safety's requirements are fully met in the commercial mobile broadband data technology environment a process needs to be formalized and put in place so that their specifications are incorporated into the larger on-going commercial standards development methods and procedures. This does not exist today.

Incorporated within the premise of Cyren Call's proposal is a recognition by these standards bodies of need to insert public safety requirements into all standards development consideration and a method to assure compliance to these agreed upon specifications.

Summary -

Today the links to incorporate public safety requirements into the commercial technology standards process are non-existent. Cyren Call identified this issue and partnering with 4DK, a technology innovation company, has been meeting with the vendor community, SAFECOM representatives, and has become engaged with Project MESA to promote the

¹ Defined by the FCC as encompassing Commercial Mobile Radio Services, Advanced Wireless Services, Special Mobile Radio Services, Mobile Satellite Services, and in limited cases Private Land Mobile Radio.

inclusion of public safety 700 MHz wireless mobile broadband data requirements into the commercial standards specification process.

As an example, at a recent Project MESA meeting in Europe, public safety's user representatives were vocal in their frustration over the lack of progress on the part of the vendor and operator community to facilitate the development of functional and standards based specifications for public safety wireless mobile broadband data technology. 4DK, at the request of Cyren Call, was in attendance at this meeting. They introduced an analysis of how to approach the development of functional requirements, categories / classes of requirements, and a formal process to achieve

the delivery of these requirements to the standards bodies. This approach was met with strong approval, so much so that 4DK has been tasked with leading this effort. Additionally representatives from DHS have approached 4DK to explore how to potentially assist them with their SAFECOM requirements implementation.

These are stop gap measures that Cyren and 4DK have fostered to engage the commercial vendor sector to assist in keeping a focus on public safety broadband mobile data network device, services, and applications delivery.

As part of the longer term solution, the Cyren Call proposal outlines the formation of a Public Safety Broadband Trust.

It is envisioned that the Trust or a like entity would be the organization that would fill the role required to provide end to end stewardship of the aforementioned and described public safety commercial technology standards development process.

This entity would provide the long term and permanent solution needed to fill the void that exists today and will ensure the links are in place that tie the entire end to end requirements process together so that public safety in the U.S. has the ability to utilize and leverage advanced commercial mobile wireless broadband services and technology.

ATTACHMENT 4

