



# ANDREWSEYBOLD

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Public Safety Communications and the U.S. Congress

## Executive Summary

The Public Safety community has come together over a most important issue: Obtaining the needed spectrum, funding, and governance structure to build and operate a nationwide, fully interoperable, broadband network to add data and video capabilities to its existing voice and slow-speed data capabilities. Today's commercial networks offer these services but are not built to be mission-critical, which is a requirement of the Public Safety community. This paper discusses the issues and the differences between the U.S. Senate bi-partisan approach and the U.S. House of Representatives' majority leadership approach to solving this problem.

Over the course of the past two years, the members of the Public Safety Alliance (PSA) have, time and again, met with numerous Members of Congress and their staffers in an effort to explain why this issue is so important for the first responder community and why it must be resolved before work can begin in earnest on the first fully interoperable data and video broadband network to provide mission-critical services to the Public Safety community.

Last year Senators Rockefeller and Hutchinson introduced Senate Bill 911, a bipartisan bill that would reallocate the D Block to Public Safety, provide \$11 billion in funding, and set up a governance non-profit corporation to manage both the construction and the operation of the nationwide broadband network while providing local control over day-to-day operations. Late in 2011, the House introduced several bills, one of which was subsequently attached to the Omnibus tax bill, which while reallocating the D Block to Public Safety missed the mark on both funding and governance and contained a spectrum give-back provision that is opposed by the Public Safety community.

As the 2011 session of Congress ended, both houses dropped the spectrum auction portions of the tax bill and a temporary tax bill was passed. As Congress starts its 2012 session, the Public Safety spectrum issue has yet to be resolved and September 2012 will mark the 11<sup>th</sup> anniversary of the tragic events of 9/11 and the 7<sup>th</sup> year since the release of the 9/11 Commission report that called for Public Safety communications interoperability. Congress still has not acted on this one remaining item listed by the 9/11 Commission as an item that needs to be addressed.

The Public Safety community has been patient and has provided all of the data and information asked of it so that those in Congress would have the information it needs to pass the legislation that is required to move the Public Safety interoperable broadband network from a goal to fruition. As we begin 2012, is an election year, the Public Safety community remains solidified in its desire for the proper legislation to be passed. The issue of the reallocation of the D Block to Public Safety has now been addressed by both Houses of Congress and by both parties within both houses. However, there still remain some differences between what the Senate has proposed in S911 and what the House majority leadership is promoting. The differences are major. On the one hand the Senate bill provides for a governance organization and Federal funding that is acceptable to Public Safety while the House bill does not. Further, the House bill

requires the return of 700-MHz narrowband spectrum, which is spectrum that is vitally needed and being used to provide interoperable voice services across the United States today.

The Public Safety community is strongly in favor of the terms provided in S911 with the exception of the proposed shared broadband/narrowband use of the currently allocated narrowband spectrum. It is strongly opposed to the governance, funding model, and spectrum give-back included in the most current House bill that was attached to the Omnibus Tax bill passed by the House. It is now a new year and an election year. The Public Safety community is requesting that the two Houses of Congress agree to a bill that reallocates the D Block to Public Safety, provides sufficient funding to build and operate the network, and provides for a governance organization that gives the Public Safety community a majority say in the construction and day-to-day and emergency operation of the broadband network. Moreover, the Public Safety community opposes any legislation that imposes an arbitrary give-back of spectrum based on information provided by a third party (such as an Administrator) and not directly by those involved in the operation of Public Safety networks.

If the Public Safety community is to continue to provide the services to keep America safe, to protect life and property, it needs to advance its communications systems beyond voice and it needs to provide for a nationwide data and video network as it continues to move toward interoperable voice services over its existing narrowband voice service spectrum. The idea that broadband networks can provide voice, data, and video services on a mission-critical basis is a laudable vision, but unfortunately this capability does not currently exist and has not yet been shown to even be achievable.

The Public Safety community is once again calling on Congress to act, to work out the differences between S911 and the House bills, and to reach a conclusion that is in the best interests of the Public Safety community and, therefore, the best interests of all of the citizens of the United States. The Congressional session that begins in January of 2012 should be the last session of Congress to have to address this issue and the outcome should be one that is of maximum benefit to the First Responder community as well as the citizens of the United States.

## **Introduction**

After more than two years of effort on the part of a cohesive Public Safety community, Congress has once again failed to act on providing Public Safety with the additional broadband spectrum it desperately needs, the funding to build a nationwide network, and a governance structure that would permit the Public Safety community, which is solidified behind this effort, to be an important part of the organization that will oversee both the construction and the operation of the broadband network.

The Public Safety community is solidly behind the resolution of these issues as outlined in Senate Bill 911 introduced by Senators Rockefeller and Hutchinson that passed the Commerce Committee with a bipartisan vote of 21-4 in 2011. The House bill, including the bill that was attached as Title IV of the Omnibus spending bill H.R. 3630, is not acceptable to the Public Safety community for many reasons. First is the provision in this bill that requires the give-back of both the 12 MHz of 700-MHz spectrum now being heavily used for narrowband voice communications as well as the 2 MHz of guard bands that were designed to protect not only this spectrum but the Public Safety broadband spectrum from interference. Next is the funding model for the Public Safety broadband network that is less than half what has been proposed in S. 911 and is not sufficient to build the network. Finally, the governance proposed in the House bill that would award the governance of this network to a private firm called an "administrator" that would not be required to listen to, or take direction from, the Public Safety community or those who will be using this network.

## **The Spectrum Issue**

The Public Safety community is appreciative of the fact that the House of Representatives has now acknowledged that the Public Safety community needs the 700-MHz D Block to be reallocated to it. However, there also appear to be some who do not understand that the broadband network is to augment the use of current Public Safety mission-critical voice communications and not to replace this capability anytime in the near future. It is the long-term goal of Public Safety to

continue to work toward better voice interoperability while building out a new data and video-capable nationwide and fully-interoperable data and video network.

At some point in the future, if and when mission-critical voice capabilities become available over the Public Safety broadband network, the Public Safety community will be more than willing to sit down with members of Congress and/or the FCC to review the Public Safety spectrum allocations with the goal of returning some portions of the spectrum now used for narrowband mission-critical voice to the Federal Government. However, this cannot be accomplished until such time as all of the requirements for mission-critical voice included in the National Public Safety Telecommunications Council (NPSTC) document<sup>1</sup> can be met using the spectrum allocated for broadband services and equipment that will provide mission-critical voice services over the broadband network are readily available at an affordable price.

The spectrum that could then be returned to the Federal Government would have to be carefully determined and a timeline for its return developed to provide for the relocation of those Public Safety agencies now using that spectrum. The timing would have to be long-term such as to not place an additional financial burden on state and local communities. In any case, the current 700-MHz narrowband voice spectrum is today, and well into the future, playing an important role in providing interoperable mission-critical voice communications systems for states, regional, metropolitan, and other Public Safety voice communications systems. In reality, this spectrum should be the last portion of the existing Public Safety narrowband spectrum to be considered for reallocation for non-Public Safety use. It is on this spectrum that the most progress has been made toward providing the Public Safety community with interoperable mission-critical voice communications services.

This spectrum only became available to the Public Safety community in June of 2009 and already several \$billion have been spent deploying systems all across the United States that are, today, providing multi-agency interoperable mission-critical voice communications. The mere fact that its “give-back” is included in the House bills has caused many agencies to halt their plans to build new networks on this spectrum until the issue has been resolved. Until the give-back of this spectrum is taken off of the table, Public Safety agencies are not willing to invest in the new, much more interoperable voice communications systems they need. The end result is that the potential give-back of this spectrum has done serious damage to the implementation and planning for hundreds of Public Safety mission-critical voice systems. Since this spectrum became available only two years ago, the Public Safety community has done more to solve the interoperability issues for mission-critical voice with this spectrum than has been done by any Federal organization. And while some of the funds have been provided by Federal grants, most of the funding has been from the local communities that are committed to providing the best possible mission-critical voice systems to their first responders. Taking this spectrum away now will set the Public Safety community back to the days when Interoperability was only a vision rather than a goal that is now being realized in many areas of the United States.

### **Mission-Critical Voice Over Broadband**

There are apparently many people within the Federal Government who believe that mission-critical voice over wireless broadband services (LTE) is only a few short years away. This is a misconception. In reality, no one knows when or even *IF* LTE can and will support mission-critical voice, and at what cost. Today none of the commercial LTE network operators in the United States (AT&T, Verizon, Metro PCS, and Leap Wireless) or around the world have deployed standard non-mission-critical voice on their LTE networks. Commercial operators are still making use of their second-generation (2G) and third-generation (3G) networks for voice and most of them have no plans to shift this voice usage to their LTE networks for a number of years.

Yes, there is some experimentation with what is known as Voice over LTE (VoLTE), which is based on Voice over IP, but no network operator is ready yet to mix voice and broadband data services over LTE. It will be a number of years before they are ready to make this transition and they realize that adding voice to their LTE networks will reduce their broadband

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<sup>1</sup> NPSTC Mission Critical Definition Document [MCV Functional Description](#)

services capacity. They lived through their inability to provide enough broadband capacity on their existing 3G networks and are going to be slow to move voice to LTE because of the impact it will have on broadband capacity. For the time being, it is also less expensive to continue to use their 2G and 3G networks for voice services. The voice that will eventually be implemented over these commercial networks will *NOT* be mission-critical<sup>2</sup> in nature but rather the same type of voice services in use today on the 2G and 3G networks.

When a smartphone or other wireless device on a commercial network is out of range of that network or if the network is overcrowded as happens during major events (most recently the earthquake on the east coast followed by the hurricane), the device is useless to the customer. Likewise, if the customer is inside a building or in a basement where there is no coverage the device does not work and there are no communications at all. This may be acceptable to commercial network customers but it is *NOT* acceptable for the first responder community. First responders need to have communications all of the time whether they are in range of a network or not. When they are out of range of a network today they have the ability to communicate device to device, something that is not available on any commercial wireless network. This is only one, but one very important attribute of mission-critical voice communications. Another is one-to-many communications that are needed for day-to-day and emergency communications. This is not possible, today, over any commercial network except by using push-to-talk services that are not widely used and are not, in any case, mission-critical in nature.

Will it be possible to provide for full mission-critical voice communications over the Public Safety broadband network? It is hoped that it will be possible at some point in the future, but as of today there is no assurance that it will be possible or how far in the future it will be before it might become available. Therefore the idea of requiring the give-back of essential mission-critical voice spectrum in the 700-MHz band is not and will not be something that the Public Safety community or state and local government entities can support. Further, in the House version of the spectrum bill the determination of when mission-critical voice will be available over LTE would be made by a private company administrator and not by the Public Safety community—something that is totally unacceptable.

Another issue that has not been addressed by those who believe mission-critical voice over LTE is just around the corner is the fact that mixing voice and data services on the same broadband network means that some of the broadband capacity normally used for data and video services will be taken up by voice users. In major incidents, which tend to occur within confined areas that may only be covered by one, two, or three cell sectors, it is possible or even probable that mixing voice with broadband data and video will reduce the data and video capacity at a given incident enough that the data and video capacity will not be sufficient to meet the requirements of the incident.

One final note regarding the spectrum issue and the give-back of narrowband spectrum: If those within Congress and the Federal Communications Commission believe that broadband services will be able to handle voice, data, and video applications going forward, why is the FCC moving forward with its unfunded narrowbanding requirement for all land mobile radio (LMR) users between 150 and 512 MHz? This requirement with a January 1, 2013 deadline means that land mobile radio users including Public Safety are spending millions of dollars modifying existing equipment or buying new equipment in order to meet the mandate of operating wireless voice communications systems in even narrower portions of the radio spectrum. The implication is that while broadband is important for broadband services, narrowband voice systems will be in use for many years to come and therefore the FCC is requiring the narrowbanding of these land mobile radio systems in order to be able to add more voice radio channels within those portions of the spectrum affected by this order. If broadband is, indeed, the only future of wireless that is important, then why is the FCC moving forward with this unfunded mandate?

### **Public Safety Network Funding**

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<sup>2</sup> <http://andrewseybold.com/2772-mission-critical-voice-over-lte-what-when-and-how>

Senate Bill 911 calls for designating \$11 billion to be used for building the nationwide network plus \$100 million per year for four years for Public Safety research and development. The amount of funding in the House bill is a minimum of \$5 billion with an upside, depending on spectrum auction revenue of \$1.5 billion for a total of \$6.5 billion. In reality neither of these amounts is enough to build out the entire nationwide network, but the \$11 billion number contained in S911 is a lot closer to what the final bill will be than the \$6.5 billion contained in the House bill. Further, the money included in S911 for research and development can be used to help determine if mission-critical voice over LTE will be practical and within what timeframe. Without this funding the commercial industry would have to foot the bill for R&D and in today's uncertain financial climate this type of research is unlikely to be a priority for any of the companies that have the knowledge and expertise to make that determination.

The funding requested in S911 is closer to the figure arrived at by the FCC<sup>3</sup> and is by far the most realistic of the two amounts. In recent years cities, towns, counties, and states have already expended \$billions in Public Safety voice system upgrades, in narrowbanding its systems, and in deploying voice systems within the 700-MHz narrowband spectrum. In order to make this network a true nationwide and fully interoperable network to add data and video capabilities that will bring Public Safety communications into the 21<sup>st</sup> Century they will still have to spend additional \$millions if not several additional \$billions more. If the amount made available from the auctions is reduced even to the \$6.5 billion level, the time needed to build this network will more than double and in some areas of the United States it may never be built at all.

The reality is that the funds it will take to build and operate this network need to be made available from the proceeds of the spectrum auctions and they must be sufficient to ensure that the network is built in a timely manner and provides the 96% population coverage envisioned. This funding will have no direct impact on the national debt, and once the network is built and put into operation there are provisions in S911 that the network will become self-funded through public/private partnerships moving forward. The required funds need to be viewed in the proper context. This is an investment in Public Safety and first responders' ability to perform the tasks they face every day protecting our lives and property.

## **Governance**

Senate Bill 911 calls for the establishment of a non-profit governance organization known as the Public Safety Broadband Corporation. The board of directors of this organization would be made up of four Federal members and eleven non-Federal members. The non-Federal members would be made up of three members that represent states, localities, tribes, and territories; three Public Safety members; and five members with specific expertise in finance, technology, and other disciplines required by the BOD.

While the Public Safety community would rather see more representation from within the Public Safety community, the organizations making up the Public Safety Alliance believe this is a workable model and will provide for meaningful Public Safety input on the construction and operation of the network. The House bill, on the other hand, calls for a private company that would become the network administrator. This administrator would have the sole responsibility of building and operating the network and would not be required to have any oversight or control from the Public Safety community—the very community that will be using this network for mission-critical data and video applications.

There are a number of issues with this approach. Public Safety would have minimal control over this administrator model and would have to go to Federal District Court to challenge any decisions made by the administrator that ran counter to the needs of the Public Safety community. It is doubtful that any of the firms that typically provide this type of administration and oversight for Federal or local government networks have the qualifications to know and understand

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<sup>3</sup> FCC OBI White Paper: [http://download.broadband.gov/plan/fcc-omnibus-broadband-initiative-\(obi\)-technical-paper-broadband-network-cost-model-basis-for-public-funding-essential-to-bringing-nationwide-interoperable-communications-to-americas-first-responders.pdf](http://download.broadband.gov/plan/fcc-omnibus-broadband-initiative-(obi)-technical-paper-broadband-network-cost-model-basis-for-public-funding-essential-to-bringing-nationwide-interoperable-communications-to-americas-first-responders.pdf)

the requirements of the Public Safety community, which are different from requirements for non-mission-critical network construction and operation.

The Public Safety community currently has an appointed administrator to oversee the 800-MHz rebanding required because of interference to Public Safety communications by Sprint/Nextel. This arrangement has proven that in many cases the needs of the Public Safety community have gone unmet and that the administrator actually slowed the process down and added \$millions to the cost of the rebanding. This rebanding cost is borne by Sprint/Nextel but the cost overrun for the rebanding has added several significant costs to the final price tag for this project and has contributed to delaying completion of the process.

The Public Safety community is not in favor of the administrator approach to network construction and operations. The vision of the Public Safety community is that the proper governance organization modeled after the one contained in Senate Bill 911 is the best way to provide the governance needed as well as oversight of the network funding. This network is being built for use by the Public Safety community, and while it will be nationwide in scope, most of the day-to-day operational requirements will be met at the local level. Having a network administrator dictating how the network will be constructed and operated is not viewed with favor by the Public Safety community.

### Conclusions

There is now a bipartisan consensus in both Houses of Congress, the 700-MHz broadband spectrum known as the D Block should be removed from the auction block and reallocated to the Public Safety community. The issues remaining to be settled have to do with the appropriate amount of funding, the governance of the nationwide network, and the fact that Public Safety should not be required to give back spectrum as part of the bill that ultimately passes Congress.

Public Safety is committed to working with Congress and the Federal Communications Commission to discuss spectrum give-backs in the future, after the broadband network is operational and research has been conducted on the feasibility of providing mission-critical voice over LTE. It is too early at this juncture to require that a specific portion of the Public Safety spectrum be given back, especially if that determination is to be made by a network administrator.

More than ten years after the tragic events of 911, tremendous progress has been made by the Public Safety community to provide better interoperability between agencies. It is now time for Congress to act to add mission-critical data and video capabilities to the communications tools available to the first responder community. To that end, the Public Safety community is asking that Congress come together and support a plan that is fair for Public Safety and allocates it the spectrum, funding, and governance it needs to provide these important augmented services to first responders. Enabling first responders to go anywhere and be able to exchange data and video, and letting them retain the narrowband voice spectrum they need to continue to improve voice interoperability more than ten years after 911 is still of concern to those who provide assistance to the citizens of this nation 7 days a week, 24 hours a day.

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