

**TESTIMONY OF JOSEPH L. HANNA  
PRESIDENT, DIRECTIONS**

**CREATING AN INTEROPERABLE  
PUBLIC SAFETY NETWORK**

**Before the**

**Committee on Energy and Commerce  
Subcommittee on Communications and Technology**

**UNITED STATES HOUSE OF REPRESENTATIVES**

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**Introduction**

Good morning Chairman Upton, Ranking Member Waxman, and members of the Subcommittee. My name is Joe Hanna and I currently serve as the President of Directions, a public safety wireless telecommunications consulting practice. Prior to starting this practice, I retired from the public safety communications and public policy arena after 30 years of service. Additionally, I had the privilege to serve on the Association of Public Safety Communications Officials – International, or APCO, International Board of Directors from 1996-2000 and I served as its President during the 1999-2000 period. Since starting my consulting practice, I have remained an active member of APCO, the National Emergency Numbering Association (NENA), and have actively participated in meetings of the National Public Safety Telecommunications Council (NPSTC), Federal Communications Commission (FCC) events related to public safety, and have had the privilege to speak at numerous national conferences on topics related to public safety wireless communications. I have served as a public safety advisor to the 800 MHz Transition Administrator and currently serve as a Senior Fellow for the Center for Digital Government. I was an active participant in the DTV clearing process that led to the availability of the 700 MHz spectrum now under discussion, and was among the first to introduce the concept of broadband to the public safety community. Thank you for inviting me to join this panel to address the need for a nationwide interoperable network for first responders. The comments I have prepared

for today's hearing are solely my views and should not be construed as representing any client or past affiliations.

### **Summary**

Everyone in this room agrees that our first responders should have the tools they need to serve the public, including access to state-of-the-art communications systems. Congress has provided public safety with 24 megahertz of spectrum in the 700 MHz band. If prudently utilized, this allocation can provide public safety entities with the capacity they require for day-to-day needs. Using that capacity in connection with commercial spectrum in the 700 MHz band, as proposed in the FCC's National Broadband Plan, will also give public safety the bandwidth necessary in disaster situations. Equally as important, partnering with commercial entities will allow first responders to take advantage of the benefits of widely deployed commercial networks and the state-of-the-art functionality of devices that consumers take for granted.

### **Public Safety Must Have a Nationwide Interoperable Network**

As I am sure that you will hear from all of the panelists, it is inexcusable that almost ten years following the tragic events of September 11<sup>th</sup> and the devastation inflicted upon the residents of the Gulf Coast following Hurricane Katrina, America's first responders still find themselves ill-equipped to communicate to the degree they need and deserve. The catastrophic tornados that ripped through the Southeastern part of the United States and the wildfires that consumed over a million acres in my home state of Texas during the past two months only serve to highlight this point.

Today, my real estate agent can take me to a home, take out her laptop computer and pull up photos of the interior of the house, tax records, surveys and plats, and a list of comparable values in the neighborhood. But if that same house is burning, a firefighter cannot pull up a floor plan to aid in a search and rescue or identify known hazardous conditions inside. A pedophile in a park can sit on a bench with a smart phone, take photographs of vulnerable children, and then instantly send his pictures to other pedophiles around the world. But a police officer who has responded to that park to investigate this suspicious person cannot upload or download a photograph or scanned fingerprint of that person to a local, state or national database to help determine if this subject is indeed a known threat to the community.

I believe that every member of this panel can agree on a common set of principles for a public safety broadband network that will best serve our Nation. First, America's first responders deserve and require at least the same communications capabilities used every day by our real estate agents and junior high school students. Second, these core communications capabilities should be centered around a dedicated, public safety grade broadband network. Third, America's first responders' need for these communication capabilities recognize no distinction between urban, suburban, and rural boundaries. In fact, rural America may have the greatest need for high-speed data. An accident victim in the Upper Peninsula of Michigan or Webster County, West Virginia bleeds just as fast as an accident victim in New York City or Los Angeles, California. The only difference is that the time it takes to respond to that victim and to transport him or her to the nearest medical facility may be measured in hours rather than minutes. The Deputy stopping a suspicious van on a dark highway in

Brewster County, Texas recognizes that his closest backup may be 20 to 30 minutes away. The volunteer fire fighter understands that fire burns as quickly in Kirkland, Illinois as it does in Dallas, but the nearest resources will take considerably longer to respond.

### **Public Safety Users Need Funding and a Plan for the Efficient Use of the Existing Spectrum Allocation**

I also believe that every member of this panel will agree that, at a minimum, there are two fundamental tools for providing America's first responders with a wireless broadband network -- dedicated spectrum and funding. I assume that my fellow panelists will agree that the widespread financial crisis facing cities, counties, and states throughout the Nation will not allow America to realize the nationwide implementation of a dedicated, public safety broadband network without a massive, unprecedented infusion of federal funds. At a time when we are seeing major cities laying off substantial numbers of police officers, and as fire departments are not able to upgrade critical equipment with more reliable or efficient models, communications systems far too often fall victim to these fiscal realities. One need look no further than the 22 jurisdictions that have been granted waivers by the Federal Communications Commission for early deployment of 700 MHz public safety broadband networks. Only 8 of these 22 jurisdictions have initiated meaningful steps to actually deploy their network. The remaining 14 jurisdictions have not. The difference between the 8 who are actively attempting to deploy and the 14 who are not? Funding from the federal government in the form of a grant from the Broadband Technology Opportunity Program, or BTOP or

other federal grant programs. While I agree with the views of some of my fellow panelists on the overwhelming number issues surrounding a dedicated, public safety broadband network, unlike some of them, I don't believe that first responders need be the licensees of all the spectrum they may need to use. Working through one of the most ambitious schedules imposed by the Obama Administration, the FCC was charged with development of a National Broadband Plan. One key element of that Plan was the proposal for the deployment of a nationwide, interoperable dedicated public safety wireless broadband network. The proposal was made possible through tens of thousands of person-hours of intensive research, interviews, and a thorough understanding of technical requirements needed to implement this network. While the FCC's proposal is not perfect, I believe that the National Broadband Plan fundamentally "got it right." In addition to the proposal's recognition of the need for funding, the cornerstone of the proposal is a dedicated public safety broadband network utilizing the 10 megahertz of spectrum allocated to public safety by Congress in 1997. Recognizing that a September 11 or Hurricane Katrina situation could tax any dedicated spectrum allocation, the National Broadband Plan also proposed to allow first responders to utilize the capacity of commercial wireless carriers on a priority basis. The fundamental assumption of the National Broadband Plan was that the 10 megahertz of public safety spectrum would be more than adequate for the day-to-day, routine needs of the national network. This basic assumption remains true today. The question is how to address spectrum needs when faced with infrequent, but critical events that require additional capacity.

This question is faced every day by every public safety entity in the nation. While designing and managing my communication center in Richardson, Texas, I had to evaluate our daily, annual, and average call volumes to determine the number of call takers, dispatchers, and support personnel. While we all try to provide resources based on our heaviest need, no public safety entity can provide enough telephone trunks, radio channels, or personnel to handle the extreme cases such as September 11 or the unprecedented outbreak of tornados that ravaged the Southeast this past month. I could have equipped my suburban call center with 500 trunk lines instead of 7, but I would not have 500 people to answer the overload of calls if faced with any catastrophic situation. Even if I could produce 500 people to answer the phones, there would not be 500 first responders on the street to respond to the 500 calls being answered.

### **There are other Avenues to Meet Public Safety Broadband Spectrum Needs**

While I don't believe that the reallocation of the D Block is the key to an effective first responder broadband network, I do strongly support provisions of the currently introduced and draft proposals circulating on the Hill that will help public safety use the spectrum they are already allocated more effectively. For example, language in several legislative proposals would provide for the flexible use of the 700 MHz public safety spectrum currently allocated for narrowband communications. While the early reviews of this provision by public safety entities have not been unanimously favorable, failure to provide this flexibility will result in critically needed spectrum to remain fallow in many parts of this Nation. New York City representatives, for example, have made multiple public statements that they have no desire to deploy any new voice systems that utilize

narrowband land mobile radio, or LMR, technology. If New York City's position remains unchanged, the 12 MHz of beachfront 700 MHz spectrum currently assigned to them for narrowband technology will lie fallow in one of the most spectrum-pressed jurisdictions in the Nation. While use of the same spectrum for narrowband and broadband applications in neighboring jurisdictions can be challenging, it can be accomplished and this flexible use can provide additional broadband capabilities within the current public safety allocation.

Public safety has multiple other spectrum resources; in particular, the 50 megahertz of spectrum in the 4.9 GHz band already allocated for first responders is well suited for many emerging broadband applications. Public safety cannot allow this, or any spectrum to lie fallow or under-used in an era in which a "spectrum crisis" has been identified by the Administration. While the 4.9 GHz spectrum is not necessarily an appropriate backbone for a national public safety broadband network, it can certainly be used to put flesh on the skeleton.

### **LTE Technology Allows Public Safety Sharing of Commercial Networks**

One of the principal reasons that the National Broadband Plan does not call for the allocation of the D Block for public safety is that there is a viable alternative for first responders accessing *non-public safety* spectrum in an overloaded broadband network. As you may be aware, the public safety community has embraced, and the FCC has recently required that it use, a technology known as Long Term Evolution, or LTE, as the technology for the proposed national public safety broadband network. The FCC has, for justifiable cause, broken a longstanding tradition of technical neutrality and

required LTE as the communications protocol for the future public safety broadband network. While this requirement will not only satisfy the critical feature of interoperability within the public safety network, this same technology will enable first responders to seamlessly and automatically tap into the networks operated by commercial carriers on a priority basis. Those commercial networks will also be using LTE technology.

Public safety has correctly specified and demanded preemptive capabilities that will give it priority over all users in an emergency. Current LTE standards provide this capability today. Through a mutually agreeable partnership between the public safety broadband network and a commercial wireless operator, public safety can be guaranteed automatic and seamless access to additional capacity on a priority basis-providing the functional equivalent of “ruthless preemption” in today’s circuit switched networks. From a functional perspective, this process gives public safety control of this shared spectrum when it needs it, a requirement that public safety has identified as critical. This critical access to commercial spectrum will flow from implementation of the National Broadband Plan, which contemplates that a commercial carrier operating in the 700 MHz D Block will build a network that public safety can use, reducing the building requirements of a public safety-only network.

The fly in the ointment for the shared spectrum concept is the willingness of current or future wireless carriers to agree to such an arrangement. Some national carriers have made public statements that they have no desire or intent to enter into a spectrum sharing arrangement with public safety, as they do not wish to potentially degrade services to their subscriber base. Their position is both unreasonable and contrary to the public interest. Commercial users of shared spectrum in an LTE world

will not be totally preempted, but just put at the rear of the network access line in emergencies. Thus, the policy question is whether an additional ten megahertz of spectrum should be made available to commercial carriers who would be required to make their networks available for first responders, or to give that ten megahertz to first responders who have neither the routine need for it or funds to deploy it. The choice should be simple. Commercial carriers hold their FCC licenses to serve the public interest and should not be permitted to decline participation in a shared network. In an environment in which spectrum is a national resource, slower access to commercial applications in emergencies is a relatively minor trade-off for having a more robust public safety network more quickly.

**A Public – Private Partnership with the D Block Licensee will Provide First Responders with Significant Benefits**

The greatest flaw with Congressional reallocation of the D Block to public safety in lieu of the current law and the National Broadband Plan, however, is the unintended consequence of creating an island technology – a technology that only first responders will use. Even though public safety has been given billions of dollars over the past 20 years, there is still little interoperability in traditional land mobile communications. Quite simply, public safety land mobile communications has been balkanized into a number of technologies scattered over thousands of jurisdictions. With the limited public safety equipment market, technology has changed relatively little (in terms of basic functionality), but costs have soared. It is the norm for a single, portable land mobile radio, or LMR handset to cost \$5,000, with some models costing considerably more.

Contrast that with the commercial wireless market over its 20 year life span, where prices for terminal products have decreased significantly, while the capabilities of these devices have developed exponentially. The difference? The scope of the marketplace.

Current estimates for the total number of first responders range from 2 to 3 million users, a fragmented market divided among thousands of independent purchasing units. Trade press reports estimate that Verizon sold 1 million iPhones during their first week of sales. Another report noted that Samsung delivered over 10 million units of one phone model in the last six months of 2010, plus 1 million tablet computers during the month of December.

Additionally, the cost of public safety broadband network would be driven down if it were built in conjunction with carrier LTE networks. Co-located sites, sharing of key network components, and simultaneous deployment will unquestionably result in reduced costs. These simultaneous or shared build outs would also permit public safety to access commercial sites where they might have elected to forego infrastructure deployments. As noted in the current round of early deployment as proposed by the City of Los Angeles, the initial public safety network will be built with approximately 350 sites. In that same geographic area, one of the nation's four largest carriers currently has over 5,500 sites already in operation. A public safety network with a limited number of sites requires each site to work at higher power levels – meaning greatly diminished cell-edge coverage and performance. There are two ways to overcome those limitations. One is to add significantly more spectrum to the network. The other – which commercial carriers use – is to add cell sites. Under the National Broadband Plan, which envisions that public safety entities will have access to those additional

commercial sites, public safety could take advantage of this more responsible strategy as well.

Budget figures in legislation pending before the Congress are already below the cost projections made in the National Broadband Plan's concept of a *shared* build out. If the paradigm shifts to one in which public safety builds a stand-alone network that includes the D Block, projected costs will soar dramatically. With a shortfall in federal funds, public safety will be faced with the difficult choices of implementing an inadequately designed and underperforming network, forced to return to Congress for billions of additional dollars in funding, or to choose where the network will be built and where it will not. Instead of building a bridge to nowhere, giving public safety more spectrum with inadequate funding and no access to commercial infrastructure is building half a bridge, then forcing the unnecessary expenditure of additional billions of dollars to complete the bridge or leaving the remainder of the bridge unbuilt – with a substantial portion of America's first responders not having the broadband services they deserve.

### **The Critical Element of Governance Must Be Addressed**

While various legislative proposals have addressed many of the key elements needed to make a nationwide, dedicated public safety network a reality, most of these proposals have missed one key element-- the governance and administrative structure required for the deployment of this complex undertaking. The decades-long absence of a national strategy to manage public safety land mobile communications has created an unacceptable lack of interoperability. While billions of local, state, and federal funds

have been poured into legacy land mobile voice communication systems, those funds have generally been allocated and spent with no national strategy to ensure interoperability. As complex as interoperability within land mobile voice systems may be, it pales in comparison to the complexity of ensuring an interoperable broadband network. If we fail to address the issue of governance and administration of this proposed network at the outset, we are guaranteed extended delays in implementation, massive needless costs, and failure to have services implemented on a nationwide basis in an acceptable timeframe.

Public safety is well suited to define its operational needs, but has relatively little sophistication in network architecture. It is also unreasonable to expect any project for which billions of dollars are allocated to be managed by a small group of well meaning associations and their volunteer members. Given the fact that we have already watched 12 years pass from the time that the 700 MHz band was first allocated until it was made available to public safety, and, given the fact that we have been actively trying to take concrete steps to get broadband services in the hands of first responders for almost 6 years, any legislation proposed by this Congress should ensure the creation of a multi-disciplinary governance/management structure that can deliver this network to those that critically need it without having to wait another 6 or 12 years. If we fail to find an appropriate alternative to the practices of the past, we are doomed to repeat the failures of the past.

As I mentioned earlier, 22 waivers granted have been by the FCC which allow public safety to build out 700 MHz broadband spectrum today. While there has been discussion about creating a “network of networks” within these waiver jurisdictions, each

of these waiver jurisdictions is effectively proceeding on its own – initiating procurements, negotiating and implementing interoperability plans, and engaging in certification and compliance testing protocols. Each jurisdiction will build and staff a network operating center to manage these complex centers. Without a governance structure that understands and controls issues such as these from the outset, the road to a nationwide interoperable broadband system is guaranteed to be bumpy and paved with expensive, redundant capabilities.

### **There are Competing Public Safety Needs That Must be Recognized**

Last, we must recognize the impact of this debate on other public safety-related communications issues that face us today. While most of the national spotlight on public safety telecommunications has focused on the need for the nationwide interoperable broadband network, we cannot overlook the other side of the equation—that of how citizens communicate with public safety. Over the past several years, the concept of Next Generation 9-1-1, or NG9-1-1 has moved from theory to reality. There are far too many similarities between the fragmented public safety land mobile radio world and our 9-1-1 network. As we now look at the challenges of deploying a next generation 9-1-1 system that makes it as easy to reach a public safety answering point as it is to reach hundreds of millions of wireless users around the world, we must acknowledge that it, like a nationwide broadband network, will require significant public resources. Representatives Shimkus and Eshoo, both co-chairs of the NextGen 9-1-1 Congressional Caucus have demonstrated outstanding leadership on this issue and can, far better than I, share their views on the critical need for a major infusion of federal

funds if we are to realize the implementation of this next generation 9-1-1 system. I will assume that all members of this Subcommittee appreciate the finite amount of funds in the coffers and recognize that the decisions made regarding the distribution of those finite funds for a public safety broadband network have a direct impact on equally significant needs in the public safety communications world.

### **Conclusion**

I again commend Chairman Upton for his leadership in making this issue a priority. At the end of the day, my greatest fear is that this debate will linger far too long. In the six years since I helped introduce the concept of broadband to the public safety community, we have seen the commercial sector move through three generations of broadband technology. In the midst of high-minded policy debates and national policy discussions, it is easy to overlook the simple fact that broadband is not a political issue; it is not a “I win, you lose” contest, but instead, is a matter of life and death for our first responders on the street and the citizens they serve. We should ask ourselves why it took 12 years for public safety to gain access to the 700 MHz spectrum that it desperately needed and why it has been another 6 years since the debate over a dedicated public safety broadband network has lingered with no results. The bottom line is that there are two fundamental approaches that can provide the same functional product to the police officer, fire fighter, or EMT on the street. In one model, public safety can forge ahead on its own as it has in the narrowband world—a world that does not take full advantage of the power of the opportunities available in the broader marketplace. The other option is to leverage the fundamental constructs of the National

Broadband Plan that will allow the most prudent stewardship of both our limited spectrum resources and precious federal funds.

I appreciate your time and look forward to working with you on this critical issue.