TESTIMONY OF JOSEPH L. HANNA

PRESIDENT, DIRECTIONS

SAFEGUARDING OUR FUTURE:

BUILDING A NATIONWIDE NETWORK FOR FIRST RESPONDERS

Before the

Committee on Commerce, Science and Transportation

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Introduction

Good morning Chairman Rockefeller, Minority Leader Hutchison, and members of the Committee. My name is Joe Hanna and I currently serve as the President of Directions, a public safety focused 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 served as 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. Thank you for inviting me to join this distinguished panel to address the need for a nationwide interoperable network for first responders.

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. We differ on the most effective path to get to that result. Congress 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 give public safety the bandwidth necessary for disaster situations. Equally as important, partnering with commercial entities will allow first responders to take advantage of the benefits of commercial networks and handsets that consumers have come to enjoy.

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 11th and the carnage 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.

My real estate agent can take a client 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 a firefighter at a burning building cannot pull up a floor plan to aid in a search and rescue or identify known hazardous conditions inside the building. 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 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 to 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 Brewster County, Texas or Webster County, West Virginia bleeds just as fast as an accident victim in New York City or Houston, Texas. 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 Hillsville, Virginia recognizes that his closest backup may be 20 to 30 minutes away. The volunteer fire fighter understands that fire burns as quickly in Mountain View, Arkansas as a house fire 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 believe that every member of this distinguished panel will also agree that, at a minimum, there are two fundamental elements for providing America's first responders with the wireless broadband tools that we need -- 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 21 jurisdictions that have been granted waivers by the Federal Communications Commission for early deployment of public safety broadband networks. Only 7 of these 21 jurisdictions have initiated steps to actually deploy their network. The remaining 14 jurisdictions have not. The difference between the 7 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.

While I agree with the views of my fellow panelists on most issues, unlike 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 the National Broadband 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 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 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 the 10 megahertz allocation, the National Broadband Plan proposed to allow public safety 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. This is no different than my counterparts here at the table. 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 and Hurricane Katrina. 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 an event the magnitude of a September 11 or Hurricane Katrina. 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.

While I don't believe that the reallocation of the D Block as proposed by S.28 is the key to an effective first responder broadband network, I do strongly support another provision of the bill that will help public safety use the spectrum they are allocated more effectively. S.28 would provide for the flexible use of the 700 MHz public safety spectrum allocated for narrowband communications. While the overwhelming majority of public safety entities have voiced opposition to this concept, 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 coordination of narrowband and broadband spectrum is 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, 50 megahertz of spectrum in the 4.9 GHz band 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 no one would argue that the 4.9 GHz spectrum suited for the backbone of 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

The difference between current spectrum use and the paradigm envisioned in the National Broadband Plan is that there is a viable alternative for accessing spectrum needs in an overloaded broadband network. As you may be aware, the public safety community has embraced a technology known as Long Term Evolution, or LTE, as the technology of choice for the proposed national public safety broadband network. The FCC has, for justifiable cause, broken a longstanding tradition of technical neutrality and proposed codifying LTE as the communications protocol for the future public safety broadband network. While this choice will not only provide for the critical requirement of interoperability within the network, this same technology provides for the ability of the proposed public safety broadband to seamlessly and automatically tap 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. An analysis of the current LTE standards shows that this capability exists today. Through a mutually agreeable partnership between the public safety broadband network and a commercial wireless operator, public safety can be guaranteed automatic, seamless, access to additional capacity on a priority basis-with priority including the functional equivalent to “ruthless preemption” in today’s circuit switched networks. From an operational, functional

perspective, this process also gives public safety control of this shared spectrum, a requirement that public safety has identified as critical. This element provides the cornerstone for the National Broadband Plan's notion that a commercial carrier operating in the 700 MHz D Block can bear the burden of building that portion of a network and reducing the building requirements of the public safety portion the 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 unreasonable and contrary to the public interest. Commercial users in an LTE world will not be totally preempted, but just put at the rear of the network access line. Thus, the policy question is whether commercial carriers – who hold their FCC licenses to serve the public interest -- should be permitted to decline participation in a shared network. In an environment in which spectrum is a national resource, slower access to commercial applications is a relative small price for the needs of public safety.

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 proposal in the National Broadband Plan, however, are the unintended consequence of creating an island technology – a technology that only first responders will use. With expenditures of billions of dollars over the past 20 years, the shortcomings of public safety reaching interoperability through traditional land

mobile communications is beyond debate. Quite simply, public safety land mobile communications has been balkanized into a number of technologies scattered over thousands of jurisdictions. With the limited market in which public safety operates, the technology has changed relatively little (in terms of basic functionality), but costs have soared. It is the norm for a single, portable LMR radio 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. Press reports released last week estimates that Verizon will sell 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.

Under the National Broadband Plan, the public safety broadband network would have access to the 700 MHz D Block, plus possible access to other 700 MHz band commercial networks at such time that technology allows. On the other hand, if the D Block is reallocated to public safety, it is less likely that public safety entities will have access to commercial networks. AT 700 MHZ, equipment is expected to operate within designated spectrum bands, known as band classes, but not necessary across band classes. The current public safety and D Block comprise the entire band class 14. Therefore, if public safety were reallocated the D Block, there would be no incentive for

any commercial operators using other band classes to include band class 14 into the handsets they order from manufacturers. With no commercial orders for use of band class 14, there is no incentive for baseband chip vendors to design band class 14 into their baseband chipsets. With no commercial economies of scale, public safety will again find itself held hostage by a limited number of providers, thus resulting in the current low demand, high cost marketplace.

Additionally, the network budget estimates calculated by the National Broadband Plan were based on a model in which the dedicated public safety network would be built in conjunction with commercial deployments of their LTE networks. Co-located sites, sharing of some key components, and simultaneous deployment will 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 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. Based on the reduced number of sites being built in the public safety network, those sites must work at higher power levels and will have greatly diminished cell-edge coverage and performance. The only viable path in this design to enhance coverage and performance is to add significantly more spectrum to the network. Commercial carriers address these same issues without additional spectrum by adding cell sites. Under the National Broadband Plan, public safety entities could take advantage of this more responsible strategy as well.

Budget figures in S.28 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 in the D Block, there will be additional costs of building a national broadband network. With a shortfall in federal funds, public safety will be faced with the difficult choice of determining either how to ask 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, we are now faced with building half a bridge, then forcing the unnecessary expenditure of additional billions of dollars to complete the bridge or leaving a substantial portion of America's first responders without the broadband services they deserve.

The Critical Element of Governance Must Be Addressed

While S 28 has addressed most of the key elements needed to make a nationwide, dedicated public network a reality, the proposed legislation misses one key element-that of the governance and administrative structure required for the deployment of this complex undertaking. The decades-long absence of a national strategy to manage land mobile communications within public safety has fostered the 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 broadband networks. If we fail to address the issue of governance and administration of this proposed network at the outset of this effort, we

are guaranteed extended delays in implementation, massive needless costs, and failure to have services implemented nationwide 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 can be managed by a small group of well meaning associations. 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.

To emphasize the critical nature of the role of an effective governance and management structure, there are 21 waivers granted by the FCC, 7 of which are actively in the process of deploying LTE systems. While there has been discussion about creating a “network of networks” within these 7 jurisdictions, each of these waiver jurisdictions is effectively proceeding on its own – initiating procurements, negotiating and implementing interoperability plans, and 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.

Conclusion

I again commend Senator Rockefeller for his leadership in bringing awareness of this critical issue to the forefront. 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. 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 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 control its own destiny as it has in the narrowband world-a world that does not take advantage of new technology or a widely built network paradigm. The other option is to take advantage of 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.