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Constructing a Nationwide, Interoperable, Public Safety Broadband Network

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Good morning Chairman Boucher, Ranking Member Stearns and Members of the Subcommittee. It is a privilege to be with you this morning to discuss public safety communications and to share my company's views on recommendations to construct a nationwide, interoperable, public safety broadband network.

Ensuring Interoperable Emergency Communications

It has been nearly nine years since the events of September 11, 2001 focused national attention on the critical importance of effective, interoperable communications for the nation's first responders. While this need is especially crucial during times of national emergency, it is also important on a daily basis wherever and whenever a police officer, firefighter, or other public safety official needs to respond. In the years since 9/11, public safety officials have made considerable progress in working to make their existing voice communications systems interoperable, and those efforts must continue. However, as policymakers consider how first responders should be provided access to new and advanced broadband capabilities, we must ensure that the interoperability

problems of the past are not repeated. The effective implementation of a nationwide, interoperable, public safety broadband network will provide that assurance.

While the events of 9/11 may have focused public attention on the problems associated with ineffective public safety communications, those problems were well understood long before 2001. In fact, it was the recognition that significant changes to public safety communications were needed that led Congress to enact legislation in 1997 that reallocated certain 700 MHz spectrum for public safety's use. It took more than a decade to complete the DTV transition so that this spectrum could be made available. Now that it is, we must be absolutely sure that it's put to the most effective use to serve the American public.

A Nationwide Public Safety Broadband Network

The *National Broadband Plan* released by the FCC in March was a significant step toward that goal.¹ For public safety, it represents a watershed event. Never before has an FCC made such a bold recommendation – one that, if implemented effectively, promises to change forever the way that public safety officials communicate. The construction of a nationwide public safety broadband network, as the Commission proposes, will ensure that all first responders in all parts of the country will benefit from the broadband revolution.

In my company's view, the FCC's plan offers a number of important advantages. First, it proposes to implement a network (or "network of networks") on a local, state, or regional basis, which will ensure that the network is designed to meet the specific needs of public safety in each area of the country. If there is one thing that has been made clear

¹ FCC, *Connecting America: The National Broadband Plan* (Mar. 16, 2010), available at <http://download.broadband.gov/plan/national-broadband-plan.pdf>

through the Commission's multi-year review, it is that public safety's needs are not homogenous. While all first responders require access to reliable, effective, and interoperable communications, the types of communications applications that are needed and the way in which those applications are delivered may be very different in a major city like New York as compared to a rural part of Minnesota. Consequently, it is important that state and local officials have control over how these networks are designed, and I applaud the FCC for providing that assurance in its plan.

Second, the FCC's plan lays out a path to achieving interoperability across departments and jurisdictions. Deployment of a variety of citywide, statewide, or region-wide systems across the country certainly creates a potential risk of interoperability problems. But the Commission addresses that risk through its recommendation to develop a national framework to ensure interoperability and establish an Emergency Response Interoperability Center (ERIC) to oversee the process. This national framework includes the use of a common technology standard, LTE, which is expected to be widely deployed by commercial providers.

That brings me to the third key advantage of the FCC's plan – its reliance on commercial technologies. The decision to employ commercial technologies in the nationwide public safety broadband network will produce considerable benefits for public safety because it will yield lower cost and more rapidly available equipment, ensure continued innovation and regular technological enhancements, and facilitate roaming arrangements with commercial providers.

Fourth, the Commission rightly recognizes that the costs associated with building and operating the nationwide public safety broadband network can be further reduced

through public-private partnerships. We have long advocated the benefits of such partnerships as a means for public safety to leverage the considerable investments that companies like Verizon Wireless have already made, or will make in the future. Even where public safety deploys broadband networks that are dedicated for their use, the sharing of towers, buildings, power equipment, backhaul facilities, and other infrastructure can reduce the cost of building and operating the proposed network by 50% or more and will reduce substantially the time required for deployment.

Verizon Wireless supports the Commission's recommendation and stands ready to work with public safety in this endeavor. Of course, Verizon Wireless is not the only company with whom the public safety community can potentially partner. Indeed, it is not even necessary for a carrier to hold licenses in the 700 MHz band in order to share its towers, buildings, and other infrastructure with public safety. AT&T, Cellular South, MetroPCS, Sprint Nextel, T-Mobile, U.S. Cellular, the Rural Cellular Association and the Rural Telecommunications Group have all endorsed the FCC's proposed "leveraged network" approach. The establishment of public-private partnerships through open and competitive "request for proposal" (RFP) processes that are conducted on a local, state, or regional basis will ensure that there are opportunities for all carriers to participate and that public safety will be able to choose the best possible partner(s) in a given region.

The Commission's plan also promises to advance broadband deployment in rural areas. In addition to providing opportunities for public safety to leverage carriers' existing rural investments, it would also promote investment in new facilities by providing public safety with funds to support the construction of new towers and associated infrastructure where commercial coverage is lacking and allowing public

safety to share those facilities with its commercial partners. We believe this forward-thinking approach will enable both public safety and commercial carriers to maximize their broadband investments. This is the same kind of creative approach that Verizon Wireless had in mind in establishing its program to advance “LTE in Rural America.”² Under that program, Verizon Wireless will lease 700 MHz spectrum to rural carriers and work with them to collaboratively build and operate a 4G network in areas where they already have, or plan to build, existing infrastructure.

While the costs associated with building and operating a nationwide network for public safety’s use can be reduced through public-private partnerships and some funds will be provided by state and local governments, significant funding will need to be available from federal sources. Consequently, I commend the House Energy and Commerce Committee for promptly considering legislation that would authorize federal funds to support the proposed nationwide public safety broadband network. We believe that the best means for providing that funding is through spectrum auctions and that the aggressive efforts by Congress and the FCC to identify additional spectrum will provide substantial revenue sources for the future. Although we have had only a short time to review the Committee staff’s discussion draft legislation (“*Discussion Draft*”), our preliminary view is that, by providing for funding through spectrum auctions and incorporating the Commission’s recommendation to rely on commercial technology and infrastructure, the draft bill effectively provides two of the three elements that public safety needs – funding and infrastructure. The third element is spectrum, to which I now turn.

² Verizon Wireless, *LTE in Rural America*, available at <http://aboutus.vzw.com/rural/Overview.html>

An Effective Spectrum Policy Framework

A principal focus of the FCC's *National Broadband Plan* was the key spectrum policies that are necessary to ensure the long term availability of radio frequency spectrum, and as a result, the continued development of wireless broadband technologies and services. The *Plan* appropriately recognizes the critical importance of wireless broadband and demonstrates a strong commitment to providing the spectrum resources necessary to continue the wireless industry's phenomenal growth. It establishes a laudable goal of making 500 MHz of new spectrum available within the next ten years, and it identifies specific frequency bands comprising 300 MHz of spectrum that could be made available in the next five years.

The spectrum identified by the FCC as being available in the near term includes, at least in part, the spectrum specified in the *Discussion Draft* to be auctioned to fund the construction and operation of the nationwide public safety broadband network. The 2155-2180 MHz band is spectrum currently allocated for Advanced Wireless Services ("AWS"), and the FCC's *National Broadband Plan* noted that this spectrum would be best used if paired with additional spectrum in the 1755-1850 MHz band that is currently allocated to the federal government. The *Plan* recommended that NTIA investigate the potential reallocation of this spectrum and that the FCC and NTIA produce a joint report in October of this year.

We concur with the Commission's recommendation to pair 2155-2180 MHz with 25 MHz of contiguous spectrum in the 1755-1850 MHz band. Both of those spectrum bands are harmonized globally for advanced mobile services, and the pairing arrangement recommended by the Commission is consistent with the current AWS band plan.

Configuring the spectrum in this manner would extend the AWS band by 50 MHz, and the expansion of globally harmonized spectrum would yield considerable advantages including lower cost equipment and more rapid deployment of advanced wireless networks.

Unlike the Commission's recommendation, the *Discussion Draft* specifies that 2155-2180 MHz should be paired with spectrum in the 1675-1710 MHz band, spectrum that is adjacent to the current AWS band but is not globally harmonized. While Verizon Wireless believes that the 1675-1710 MHz spectrum could provide a suitable alternative if it could be made available for use in a reasonable period of time, we believe that every effort should be made to allocate a significant portion of the 1755-1850 MHz band, as the advantages associated with the use of harmonized spectrum are significant.

Regardless of which course is taken, the reallocation of additional spectrum is critical to promoting the deployment of wireless broadband services. Congress' efforts to establish a spectrum inventory process will aid these efforts by requiring the FCC and NTIA to conduct an exhaustive review of spectrum that could be made available for future use. Verizon Wireless applauds the Congress and the Commission for their vision and aggressive efforts to meet the future spectrum needs of the wireless industry.

As additional spectrum is made available, however, it is critical that it not be burdened with restrictions or onerous conditions. In particular, the Commission should not, as some have advocated, impose ownership restrictions or auction limitations. Such rules would risk harm to carriers and their customers by impeding carriers' ability to acquire and deploy the spectrum they need, where and when they need it, to meet

customers' growing demands. As a result, spectrum ownership limits would impede, not advance, the development of wireless broadband services.

Verizon Wireless understands the importance of promoting competition. However, expert economists have concluded that spectrum ownership limitations would actually limit competition by restricting output and preventing an operator from growing both as the industry grows and as a result of innovation. In repealing previous spectrum ownership limits, the Commission determined that it could best evaluate the impact of spectrum aggregation on a case-by-case basis and that it can most effectively ensure opportunities for new entry through its competitive auction process.

By aggressively allocating new spectrum for commercial use and ensuring that spectrum can be used flexibly without ownership restrictions or onerous operational conditions, Congress and the FCC can be assured that spectrum will be put to its most valuable uses and that wireless broadband technologies and services will continue to grow at a rapid pace for the benefit of wireless consumers. Importantly, the establishment of such market-based spectrum policies will also increase spectrum auction revenues and maximize the government's return on this valuable public resource. That will help Congress to fund various initiatives – including the construction and operation of a nationwide public safety broadband network. Given the critical importance of federal funding, Verizon Wireless urges the Committee to include in its legislation a provision that would ensure that the spectrum auctioned for the purposes of funding the nationwide public safety broadband network is subject to open and competitive bidding by any carrier without restriction.

Public Safety's Need for the 700 MHz D Block

As visionary as the Commission's plan is for addressing public safety's broadband needs, there is one aspect of that plan with which we disagree – the decision to auction the 700 MHz "D Block" spectrum for commercial use. While we appreciate the Commission's efforts to make more commercial spectrum available, the D Block represents an important element of any plan to meet public safety's long term communications needs.

The development of a nationwide, interoperable, public safety broadband network holds out the promise that first responders across the country will have access to the most advanced communications capabilities available. If effectively implemented, it will enable police officers to gain immediate access to various law enforcement databases, use automated license plate recognition and biometric technologies like mobile fingerprint readers and iris identification to prevent and respond to criminal activities, and use high quality video surveillance networks capable of identifying known terrorists through the use of video analytics. It will enable firefighters to access building blueprints and databases that identify the presence and location of toxic or flammable materials, and facilitate the use of high quality video capabilities that enable them to know exactly what's happening inside a burning building. By having access to a public safety broadband network, emergency medical personnel will have access to high resolution video and patient records at the scene to speed the delivery and increase the effectiveness of medical care. These are only just some examples of the ways in which a nationwide broadband network can help first responders and the public they serve.

The technologies necessary to implement this vision are available today. However, in order to successfully take advantage of these capabilities, the proposed nationwide public safety broadband network must have sufficient capacity to meet public safety's communications needs over the long term. Various experts have concluded that the 10 MHz of spectrum currently allocated for public safety broadband use will not be sufficient to meet this demand. The New York Police Department, for example, recently completed a study that concludes that anticipated demand for advanced wireless services in New York City will exceed 10 MHz in just six years.³ Analyses conducted by Motorola, a company recognized as an expert in the areas of wireless technology and public safety communications, indicate that available spectrum capacity may be exceeded before then, especially when one considers the extensive use of video applications.⁴

Even the FCC has conceded that public safety will require more than 10 MHz of spectrum in the future. Although it has suggested it will try to find some unspecified spectrum when that time comes, the reality is that having a public safety network operate on two separate blocks of spectrum with different propagation and other characteristics will create technical challenges and substantially increase costs. By contrast, because the D Block is contiguous with the spectrum that public safety already has, it represents a unique opportunity to make sure public safety's long term needs are met in a cost-efficient manner. With LTE technology, the cost of deploying a network using 20 MHz of contiguous spectrum is effectively the same as a network using just 10 MHz of

³ City of New York, *700 MHz Broadband Public Safety Applications and Spectrum Requirements*, PS Docket 06-229 (FCC filed Feb. 23, 2010).

⁴ See, e.g., Ex Parte Letter from Steve Sharkey, Senior Director, Regulatory and Spectrum Policy, Motorola, to Marlene Dortch, Secretary, FCC, PS Docket 06-229, WT Docket 06-150 (Apr. 12, 2010); Ex Parte Letter from Steve Sharkey, Senior Director, Regulatory and Spectrum Policy, Motorola, to Marlene Dortch, Secretary, FCC, PS Docket 06-229, WT Docket 06-150 (Mar. 15, 2010).

spectrum, because it requires only a simple software change. If the D Block were not available for public safety's use, however, the cost of deploying an extended 20 MHz network would, minimally, be twice as much because the two non-contiguous spectrum bands would require two separate radio networks.

The D Block is an investment in public safety's future whose return will be measured in both lives saved and cost savings to the government over the long term. And, while the D Block would have short term value for supporting commercial services, it is only a very small portion of the 500 MHz that the Commission's *National Broadband Plan* recommends be made available for commercial use over the next ten years. Moreover, auctioning the D Block is not necessary to fund the construction and operation of the proposed public safety broadband network. To the extent that auction proceeds from the 50 MHz identified in the *Discussion Draft* is not itself sufficient (and, assuming the auction is not burdened by exclusions and restrictions as noted above, it may well be), a small piece of the proceeds from subsequent auctions will certainly provide enough funding. The D Block offers unique benefits to public safety and provides Congress with a unique opportunity to address public safety's long term needs. We recommend it be reallocated for public safety's direct use.

It should come as no surprise that public safety now needs more spectrum than Congress or anyone else envisioned when it designated a portion of the 700 MHz band for interoperable, public safety communications twelve years ago. That allocation was based on a report by a Public Safety Wireless Advisory Committee ("PSWAC") jointly established by the FCC and NTIA to assess the status of public safety communications and to make recommendations for meeting public safety's future needs through 2010. In

1996, the PSWAC issued its final report, concluding that improvements were needed in three basic areas: interoperability; enhanced capabilities such as data and video; and additional spectrum to address both.⁵ After Congress allocated additional spectrum to public safety, the FCC designated part of that spectrum for interoperable voice communications and part for wideband data communications, and the wideband data segment was re-designated for broadband in conjunction with the establishment of the Commission's initial D Block public-private partnership rules.

Verizon Wireless does not mean to diminish the important steps already taken by Congress and the FCC in improving the state of public safety communications. However, it is important to note that the studies on which these actions were based were completed almost fifteen years ago. Much has changed over that period of time. While public safety and wireless industry experts at the time certainly had an idea about the potential benefits of so-called "broadband" technology, few really appreciated its true potential or the impact that it could have on the way U.S. citizens live, work, and play.

Few also understood the tremendous demand that broadband applications would place on the nation's spectrum resources. Data experts like Cisco have recently estimated that wireless data traffic will increase 40x over the next five years.⁶ As a result, there is now virtual consensus – as reflected in the FCC's *National Broadband Plan* – that this growth in wireless data usage will substantially increase the amount of spectrum needed in the future.

⁵ Final Report of the Public Safety Wireless Advisory Committee to the FCC and NTIA (Sept. 11, 1996), available at www.ntia.doc.gov/osmhome/pubsafe/pswac_al.pdf.

⁶ Cisco, *Global Mobile Data Traffic Forecast Update, 2009-2014* (Feb. 9, 2010), available at www.cisco.com/en/US/solutions/collateral/ns341/ns525/ns537/ns/705/ns827/white_paper_c11-520862.html.

Why should we expect it to be any different for public safety? Just as commercial use requires far more spectrum for broadband uses than was expected in 1997, the same is true for public safety. Verizon Wireless believes that first responders will be heavy users of broadband services – if provided with a broadband network designed for their use. We encourage Congress to update its plan for addressing public safety’s communications needs and provide first responders with the funding, infrastructure, and spectrum resources they need based on our current understanding of those needs and not based on information that is more than a decade old. That should include, we believe, reallocating the D Block for public safety use.

Verizon Wireless appreciates the difficult decisions that Congress must face in addressing the extensive and varied budgetary needs of the country, and the challenges associated with funding an initiative as significant as the construction and operation of a nationwide public safety broadband network. However, the successful implementation of that initiative is crucial to the future of public safety communications, and we believe the Commission’s plan to make available substantial amounts of new spectrum over the next ten years provides the opportunity to fund its public safety plan – without auctioning the D Block.

Moreover, just as important as the need for federal funding, Congress must ensure that adequate spectrum is available so the national broadband network has adequate capacity to serve all of public safety’s needs over the long term. If these future spectrum needs are not met, Congress, the FCC, and the public safety community will have other difficult questions to face. Will the broadband applications used by first responders be slower or less reliable because of capacity constraints, or will only certain first responders

be afforded the benefits of wireless broadband? And, if it's the latter, which law enforcement officers will have access to state-of-the-art communications tools that will enable them to do their jobs more safely and efficiently, reduce crime and deter terrorism, and which will not? Which firefighters will have access to helmet cameras, health-monitoring sensors and GPS tracking systems to help ensure their safety while they work to protect the lives and property of American citizens, and which will be forced to risk their lives each day without these tools? Which accident victims will be attended to by emergency medical personnel equipped with high resolution video equipment that enables doctors to assess their status while still at the scene, and which will have to wait to arrive at the hospital to get the treatment they need?

The President and Congress share a common goal – that every U.S. citizen, including our first responders, should have access to broadband services. Verizon Wireless supports that goal, and is committed to working with Congress, the Commission, and public safety to achieve it. Thank you again for the opportunity to appear before the Subcommittee to address these important issues.