

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

In re)
)
Public Safety Issues Related to Broadband)
Deployment in Rural and Tribal Areas and) GN Docket Nos. 09-47, 09-51, 09-137
Broadband Communications to and from)
Persons with Disabilities; National Broadband)
Plan Public Notice #14)
_____)

COMMENTS OF AT&T INC. — NBP PUBLIC NOTICE # 14

AT&T INC.
Robert Vitanza
Gary Phillips
Paul Mancini
AT&T Inc.
1120 20th Street, NW
Washington, DC 20036

Its Attorneys

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COMMENTS OF AT&T INC. — NBP PUBLIC NOTICE # 14

AT&T Inc., on behalf of itself and its affiliates (“AT&T”), respectfully submits these comments in response to the Federal Communications Commission’s (“FCC” or “Commission”) National Broadband Plan (“NBP”) Public Notice # 14 (“Public Notice”),¹ which seeks comment on the challenges to and progress of public safety broadband deployment in rural and tribal areas.²

I. INTRODUCTION AND SUMMARY

The Commission has made understanding the needs of public safety users a priority in developing the NBP.³ In the Public Notice, the Commission asks commenters to compare the

¹ Comment Sought on Public Safety Issues Related to Broadband Deployment in Rural and Tribal Areas and Broadband Communications to and from Persons with Disabilities, NBP Public Notice #14 GN Docket Nos. 09-47, 09-51, and 09-137, *Public Notice*, DA 09-2369 (rel. Nov. 2, 2009) (“*Public Notice*”).

² The Public Notice also seeks comment on public safety communications to and from persons with disabilities. In these comments, AT&T does not address this second set of issues.

³ *See, e.g.*, Additional Comment Sought on Public Safety, Homeland Security, and Cybersecurity Elements of National Broadband Plan, NBP Public Notice # 8, GN Docket Nos. 09-47, 09-51, and 09-137, PS Docket Nos. 06-229, 07-100, and 07-114, WT Docket No. 06-150, CC Docket No. 94-102, WC Docket No. 05-196, *Public*

broadband needs of rural and tribal public safety users in both the wireline and wireless contexts against the broadband needs of urban and suburban public safety users. The Commission also seeks input on how rural and tribal public safety users will interact with the interoperable 700 MHz public safety wireless broadband network.

Like their urban and suburban counterparts, public safety users in rural areas can also benefit significantly from the myriad broadband applications that allow first responders to do their jobs more efficiently and effectively. However, to realize those benefits in many rural and tribal areas, the construction of additional broadband infrastructure is required. The Commission can stimulate such rural broadband deployment – and thereby increase broadband services and applications for public safety – by removing outdated regulatory impediments that deter wireline and wireless investment in rural areas. Further, the Commission can assist the deployment of 700 MHz public safety wireless broadband networks in such areas by adopting the “leveraged network” model. As described below, this model presents a rapid and cost-effective vehicle to deliver to rural and tribal public safety entities the broadband services and applications they need now and in the future.

Finally, AT&T cautions the Commission not to rely on proposals centered on unlicensed spectrum and WiFi technologies, 4.9 GHz band technologies, or satellite broadband technologies to meet public safety’s broadband needs. Such solutions have inherent deficiencies that render them insufficient for mission critical public safety communications. They may, however, be useful to fill in gaps, provide backhaul, or provide a redundant back-up solution.

Notice, 24 FCC Rcd 12136 (rel. Sept. 28, 2009) (asking for detailed responses regarding the development of a public safety wireless broadband network).

II. PUBLIC SAFETY BROADBAND DEPLOYMENT IN RURAL AND TRIBAL AREAS

1. **Are adequate broadband services available for public safety use in rural and tribal areas?**

In order for rural and tribal public safety users to enjoy the full benefits of broadband and the wide variety of applications it supports, the construction of additional broadband infrastructure will be required in many areas. As AT&T explained in the Rural Broadband Strategy docket,⁴ rural areas – and the public safety entities therein – face unique communications challenges that make broadband deployment cost-prohibitive. Population density in rural areas is lower than in urban and suburban areas, which increases the per person cost to deploy, operate, and maintain broadband networks.⁵ But this only partly explains why most areas lacking broadband are located in rural America. Federal and state regulatory barriers also impede investment in rural broadband deployment. Particularly burdensome regulatory hurdles include: overly restrictive rights-of-way regulations (*e.g.*, local zoning authority delays in approving tower siting applications); outdated regulation of IP services; and universal service and intercarrier compensation rules that do not promote rational broadband investment and marketing in rural areas.⁶ The Commission should identify and work to remove these barriers to investment, which will in turn increase broadband in rural areas and for rural public safety

⁴ Comments of AT&T Inc., GN Docket No. 09-29, at 1-2 (filed March 25, 2009).

⁵ *See, e.g.*, George S. Ford, PhD, “Expanding the Digital Divide: Network Management Regulations and the Size of Providers,” Phoenix Center Policy Bulletin No. 23, at 8 (Oct. 2009), *available at* <http://www.phoenix-center.org/PolicyBulletin/PCPB23Final.pdf> (“Scale and density economies are prevalent throughout communications networks. The price of a high capacity circuit is not linear in capacity, and there may be density economies in other components of the network that relate to capacity expansion. In addition, evidence indicates that the absolute cost differences for bandwidth in rural markets are, in many cases, enormous. For example, some parties claim that the wholesale backhaul capacity to the Internet backbone costing \$4 per megabit per month in larger cities can cost \$300 per megabit per month in rural markets.”).

⁶ *See id.* at 2.

entities. AT&T expects that such actions also will increase broadband capabilities for public safety entities in tribal areas as tribal communities are frequently located in rural locales and face similar broadband deployment challenges.⁷

2. What broadband applications and services are most important to public safety agencies operating in rural and tribal areas?

The broadband applications and services desired by public safety entities operating in rural and tribal areas mirror those desired by the public safety community generally.⁸ Public safety, as a whole, hopes to leverage the upcoming 4G LTE network deployments⁹ and the associated increases in data speeds to support a broad array of beneficial new applications, services, and devices.¹⁰ Broadband technologies will enable public safety entities to engage in

⁷ In the May 2009 Report on a Rural Broadband Strategy, the FCC explained that “[t]o ensure a truly comprehensive strategy for addressing rural broadband deployment and adoption, it is important to maintain a continuing dialogue to address the unique issues presented in Tribal areas.” Federal Communications Commission, “Bringing Broadband to Rural America: Report on a Rural Broadband Strategy” at 5 (May 22, 2009), *available at* http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-291012A1.doc. The Commission also recognized that “although not all of Indian Country is rural . . . [t]o the extent that sections of Indian Country are rural in nature, they are likely to face the same—and some additional—difficulties in achieving increased broadband deployment as faced by ‘rural areas’.” *Id.* at n.54.

⁸ AT&T does not believe that public safety users in urban, rural or tribal environments will have differing data requirements. *See* Comments of AT&T Inc., GN Docket No. 09-47, at 15 (filed Nov. 12, 2009).

⁹ Public safety support for LTE as the broadband technology platform of choice is nearly unanimous. The Association of Public-Safety Communications Officials International (“APCO”) and the Executive Committee of the National Emergency Number Association (“NENA”) have both endorsed LTE as the network technology for public safety wireless broadband networks. *See* Press Release, APCO, APCO & NENA Endorse LTE as Technology Standard for the Development of Nationwide Broadband Network (June 9, 2009), *available at* http://www.apco911.org/new/news/na_endorse_lte.php. So too has the Public Safety Spectrum Trust (“PSST”) and the National Public Safety Telecommunications Council (“NPSTC”). *See* “PSST Endorses LTE for Nationwide 700 MHz Band Network,” TR Daily (July 24, 2009); “NPSTC Endorses LTE as Air Interface for Nationwide 700 MHz Band Network,” TR Daily (June 10, 2009).

¹⁰ LTE will support public safety’s need for voice, video, and data communications with high bandwidth and low latency, which can significantly improve first-responder access to mission critical high bandwidth communications applications. Moreover, the public safety community will reap substantial benefits by adopting LTE because it will capitalize on the research and development currently underway by many commercial wireless providers, including AT&T, Verizon Wireless, Cox Communications, Leap Wireless, MetroPCS, and US Cellular. Public safety will also benefit from the cost savings driven by using LTE, which has the advantage of global economies of scale derived from user pools exceeding two billion and compatibility with future networks. *See* Comments of AT&T Inc., GN Docket No. 09-47, at 11 (filed Nov. 12, 2009).

real-time visual networking, transmit videos wirelessly from camcorders, and download full-motion videos of road conditions and other hazardous situations.¹¹ Other examples of beneficial public safety applications that AT&T expects to arise from LTE include: mobile voice; push-to-talk (“PTT”) voice; location services; database transactions; messaging; network operations data; dispatch data; generic traffic; telemetry; and virtual private networking.¹² These applications will enhance public safety’s effectiveness and safety in both rural and urban areas.

3. Are there an adequate number of high-capacity (wireline or wireless) broadband connections linking together critical public safety facilities (e.g., police stations, fire departments, PSAPs, emergency operations centers, hospitals) in rural and tribal areas?

As detailed in AT&T’s response to Question 1, many rural and tribal areas will require the construction of additional broadband capabilities in order to meet fully the needs of consumers and public safety users in those communities. Accordingly, AT&T suspects that additional high-capacity broadband connections are also needed to link critical public safety facilities in rural and tribal areas. Commercial entities are well-positioned to play an important role in building and expanding these connections, and the FCC should do its part to remove regulatory roadblocks – such as those discussed in response to Question 1 – that discourage private investment.

4. How can the Commission ensure that rural and tribal areas are built out as part of a nationwide 700 MHz wireless public safety broadband network? What incentives can be provided?

The “leveraged network” approach provides the best path to ensuring that rural and tribal areas are built out as part of a nationwide 700 MHz wireless public safety broadband network. As AT&T has discussed previously, the “leveraged network” approach consists of several

¹¹ See Comments of AT&T Inc., GN Docket No. 09-47, at 7-8 (filed Nov. 12, 2009).

¹² *Id.* at 8.

steps:¹³ (1) reallocation of the 700 MHz D-Block (*i.e.*, 758-763 MHz and 788-793 MHz bands) to public safety to ensure state-of-the-art broadband capability with sufficient spectrum resources (*i.e.*, 20 MHz) to satisfy the bandwidth needs for the next-generation public safety applications discussed above;¹⁴ (2) the mandated use of the 3GPP LTE air interface standard to ensure interoperability nationwide and to share in economies of scope and scale with commercial providers in the 700 MHz band;¹⁵ and (3) the use of Requests for Proposals (“RFPs”) to allow eligible public safety entities to contract for the construction of regional public safety networks that would leverage existing commercial infrastructure to minimize costs, maximize efficiency, and ensure rapid deployment.¹⁶

The “leveraged network” model provides several funding solutions and opportunities for rural and tribal public safety entities. Although public safety entities in many larger markets may be able to fund the build-out of their networks without assistance,¹⁷ alternative funding likely

¹³ For a detailed discussion of the “leveraged network” model, *see* Comments of AT&T, Inc., PS Docket 06-229, at 12-20 (filed Oct. 16, 2009) (“AT&T Leveraged Network Comments”).

¹⁴ *See supra* 4-5.

¹⁵ This approach is consistent with the recommendations of public safety organizations. *See supra* note 9. The Commission also should mandate that local and regional public safety networks interconnect their backbone networks with adjacent public safety broadband networks as the networks deploy. Ultimately, nationwide interoperability would be achieved by linking the local and regional networks and establishing reciprocal roaming agreements and credentialing procedures between all public safety entities operating over 700 MHz networks. *See, e.g.*, City of New York Petition for Waiver, PS Docket No. 06-229, at 12 (filed June 8, 2009) (“NYC Request”) (“Regional interoperability would be achieved by adapting the dominant emerging 4G wireless technology (which, as noted, we believe will be LTE), operating within the same spectrum band and interconnecting our backbone network with adjacent public safety broadband networks as they are deployed. In a similar fashion, nationwide interoperability could be achieved by linking regional networks, and establishing reciprocal roaming agreements with other public safety 700 MHz broadband networks, enabling users with the proper credentials to access any deployed 700 MHz Public Safety broadband network in the nation.”).

¹⁶ This process would allow public safety entities to determine capital and operational expense projections and select the network management model that best meets their needs.

¹⁷ As demonstrated by the applications for waiver filed with the Commission to use the 700 MHz public safety spectrum, many larger markets will fund the build-out of their networks without assistance.

will be needed for rural public safety networks. Federal funding is one option, through existing or future grant programs.¹⁸ Another option is for the PSST to allow federal users to use the 20 MHz of spectrum in return for helping with funding, which is within the PSST's authority.¹⁹ Rural and tribal entities also can pool resources within their broader communities to aggregate funding, improve negotiating positions with vendors, and create economies of scale that drive down device and deployment costs.²⁰ Additionally, the "leveraged network" model would enable rural and tribal communities that do not need all 20 MHz of the 700 MHz public safety and D-Block spectrum to lease excess capacity to commercial partners.²¹ Although this sort of spectrum leasing on its own will not offset the build-out costs of a public safety wireless broadband network, AT&T believes that by combining spectrum leasing with leveraging commercial networks and government grants, a manageable financial model will emerge.

¹⁸ Local public safety organizations – including public safety entities in rural and tribal areas – should take advantage of existing grant and procurement programs to fund their deployments, such as Community Oriented Policing grants or grants from the Department of Homeland Security's Office of Emergency Communications.

¹⁹ The Commission has empowered the PSST – in its role as the Public Safety Broadband Licensee – with "sole discretion" to "permit Federal public safety agency use of the public safety broadband spectrum." Service Rules for the 698-746, 747-762 and 777-792 MHz Bands, WT Docket No. 06-150, *Second Report and Order*, 22 FCC Rcd 15289, 15428 ¶ 383 (2007).

²⁰ For example, Ohio's Multi-Agency Radio Communications System ("MARCS") is a successful project that demonstrates how to fund the ongoing operation of a public safety network. *See* Ohio Office of Information Technology, MARCS, "MARCS Facts," <http://www.oit.ohio.gov/sdd/marcs/> (last visited Nov. 10, 2009). MARCS is a voice and data network that utilizes state-of-the-art trunked technology to provide statewide interoperability in digital clarity to first responders and public safety providers throughout Ohio and a 10-mile radius outside of Ohio. The State of Ohio contracted with a private sector company to build the statewide network, which supports over 23,000 voice units and over 1,700 mobile data units from over 500 local, state, and federal agencies statewide. *Id.* Through this public/private partnership, the State negotiated substantial discounts to pass on to the individual agencies, which buy directly from the vendor. For voice services, the network charges an annual fee of \$240 per subscriber and for data services \$4,200 per subscriber. *See* Ohio Office of Information Technology, MARCS, "MARCS Frequently Asked Questions," <http://www.oit.ohio.gov/SDD/Marcs/FAQAnswers.aspx> (last visited Nov. 10, 2009).

²¹ *See* Written Statement of Stacey Black, Assistant Vice President – Market Development, Mobility Product Management, AT&T, before the U.S. House of Representatives, Committee on Energy and Commerce, Subcommittee on Communications, Technology and the Internet, at 4 n.2 (Sept. 24, 2009) ("Stacey Black Testimony").

With respect to the Commission’s inquiry into “incentives” to speed the build-out of the public safety network, AT&T emphasizes that a substantial *disincentive* would be “network neutrality” regulations. Such regulations would deter private investment and broadband deployment, and would marginalize the benefits of the “leveraged network” approach. Rural and tribal areas, which already suffer from insufficient broadband, would feel the impact of decreased investment most acutely. Indeed, a recent report details how restrictions on a broadband provider’s ability to manage its network “are likely to result in lower quality service and less availability in rural areas . . . as well as [a] reduc[tion] [in] the effectiveness of stimulus grants and other subsidies.”²² The study further explains that:

Building and operating broadband networks is an extremely expensive and difficult business, requiring the achievement of economies of scale and scope if prices are to be low enough for widespread consumption. These supply-side characteristics of communications networks are particularly potent deterrents of investment in rural markets, where populations are smaller (*i.e.*, low demand) and population density is low (*i.e.*, high cost).²³

The study correctly concludes that prudent rural broadband policy “should reduce deployment and operational costs wherever possible, thereby inducing private investment” and reject “calls for tighter regulatory control over the network management practices of broadband providers.”²⁴ The “leveraged network” model – not “network neutrality” regulations – will most effectively accomplish these objectives.

²² See, e.g., Ford, *supra* note 5, at 1 (Oct. 2009).

²³ *Id.* at 2.

²⁴ *Id.*

5. How can the Commission ensure that, as other national public safety initiatives (e.g., NG911) go forward requiring wireline or wireless broadband facilities, the requirements of rural and tribal areas are met?

As AT&T explained in response to Question 1, rural areas face unique challenges in broadband deployment. To facilitate the construction of broadband facilities in these areas, the Commission should identify and work to remove barriers to investment, which will in turn increase broadband deployment in rural areas for use by both consumers and public safety entities. Further, as described in response to Question 4, the “leveraged network” model will facilitate the availability of a broadband public safety network in these areas.

6. Are there synergies in the broadband backbone architecture of the nationwide 700 MHz wireless public safety network with other needs for wireline broadband facilities in rural and tribal areas?

As explained in the response to Question 4, AT&T anticipates that certain rural and tribal public safety users may not require the use of all 20 MHz of the combined 700 MHz public safety and D-Block spectrum for day-to-day needs, at least initially. In such instances, public safety could offer the excess capacity to other municipal or community entities for local use. Alternatively, public safety could lease excess capacity to commercial partners.²⁵

7. Should commercial providers be required to provide public safety users with priority access to commercial broadband wireless and wireline facilities to the extent they are deployed within rural and tribal regions?

Carriers already provide effective priority access service to public safety users – including public safety users in rural and tribal areas – through several voluntary public/private partnerships. Going forward, carriers will continue to work with local, state, and federal government partners to adopt and enhance these priority access programs as new circumstances arise. Accordingly, a priority access regulatory obligation is unnecessary.

²⁵ See Stacey Black Testimony, n.2.

The existing Government Emergency Telecommunications Service (“GETS”) supports federal, state, and local government, industry, and nonprofit organization personnel in performing their National Security and Emergency Preparedness (“NS/EP”) missions.²⁶ GETS provides emergency access and priority processing in the local and long distance segments of the Public Switched Telephone Network (“PSTN”). GETS is used during emergency situations when the probability of completing a call over normal or other alternate telecommunications means has significantly decreased. Similarly, the Wireless Priority Service (“WPS”) facilitates wireless communications among national security officials, emergency responders, and individuals in critical infrastructure industries during emergencies.²⁷ If wireless network capacity is strained during an emergency, the authorized users’ emergency calls receive precedence over other calls in queue. Carriers also participate in the Telecommunications Service Priority (“TSP”) program.²⁸ Under this program, wireline and wireless providers give preferential treatment to NS/EP users enrolled in the program when they need to add new lines or have their lines restored following a disruption of service, regardless of the cause.

These programs have proven successful during emergencies, providing public safety users with the communications capabilities needed to defuse emergency situations and improve recovery coordination. The Independent Panel Reviewing the Impact of Hurricane Katrina (“Katrina Panel”) explained in its report to the FCC (“Katrina Report”) that “[d]uring and after

²⁶ See AT&T, “Public Safety: A Guidebook for Government,” at 6 (2009), available at http://www.corp.att.com/stateandlocal/docs/gto8_att_pubsafety.pdf; see also National Communications System, U.S. Dept. of Homeland Security, “Government Emergency Telecommunications Service,” <http://gets.ncs.gov/> (last visited Nov. 12, 2009).

²⁷ *Id.*; see also National Communications System, U.S. Dept. of Homeland Security, “Wireless Priority Service,” http://wps.ncs.gov/program_info.html (last visited Nov. 12, 2009).

²⁸ Federal Communications Commission, “Telecommunications Service Priority (TSP),” <http://www.fcc.gov/pshs/services/priority-services/tsp.html> (last visited Nov. 12, 2009).

[Hurricane] Katrina, these priority services seemed to work well for those who subscribed to them.”²⁹ The Katrina Report further explained that “[t]hese priority services could be an *extremely useful tool* in network restoration efforts.”³⁰ The Katrina Panel noted, however, that these services were not “fully utilized” during the disaster and that a limited number of eligible public safety entities had signed up for the services.³¹ AT&T agrees with the Katrina Panel that the FCC should work with the National Communications System (“NCS”) to “actively and aggressively promote GETS, WPS and TSP to all eligible government, public safety, and critical industry groups.”³²

8. How would the spectrum demands of rural or tribal public safety broadband networks differ from those of networks operating in more densely populated areas? What can be done to ensure that the spectrum demands of rural and tribal public safety broadband networks are met, and that such networks are readily capable of being upgraded or expanded to support the many bandwidth-intensive, technologically advanced broadband applications and services that public safety users may adopt in the future?

AT&T anticipates that public safety users in rural, tribal or urban environments will not have significantly different data requirements from their counterparts in other areas.³³ As a practical matter, rural and tribal public safety users will typically operate with less than peak data rates more often than urban and suburban users. In mobile broadband systems, data rates depend in part on the distance between the mobile device and the fixed infrastructure transmitter or base

²⁹ Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks, “Report and Recommendations to the Federal Communications Commission,” at 21-22 (June 12, 2006), *available at* <http://www.fcc.gov/pshs/docs/advisory/hkip/karrp.pdf> (“*Katrina Report*”).

³⁰ *Id.* (emphasis added).

³¹ *Id.*

³² *Id.* at iv.

³³ Wireless streaming videos applications, for example, require the same amount of bandwidth for optimal performance, regardless of whether the application is used in a rural, tribal or urban area.

station. As the distance increases, the data rate is reduced to maintain a robust transmission with low bit error rates. This is more likely to occur in rural and tribal areas where the density of cell sites will be less than in urban environments. On the other hand, rural and tribal users will typically need to share the available capacity with fewer broadband users operating simultaneously in the same cell sector.³⁴ This will help maintain adequate data rates to individual users.

To satisfy public safety's current and future spectrum needs in rural and tribal areas, the Commission should reallocate the D-Block to public safety and adopt the "leveraged network" model discussed in response to Question 4. Reallocating the D-Block will ensure that public safety users have sufficient spectrum to meet their broadband needs, as the current 10 MHz allocation is inadequate.³⁵ The "leveraged network" approach will efficiently enable public safety to address fluctuating spectrum needs through network sharing agreements that address local needs based on typical daily uses, while also providing for additional capacity during emergencies that require the participation of first responders from neighboring jurisdictions. Leveraging commercial infrastructure will additionally enable public safety users to benefit from future upgrades that the underlying commercial operators make to their broadband networks.

³⁴ This will not be the case, however, during incidents involving wide-scale response in rural areas.

³⁵ NPSTC, "NPSTC 700 MHz Broadband Task Force Report and Recommendations," at 6, 11-12 (Sept. 4, 2009), *available at* http://www.npstc.org/documents/700_MHz_BBTF_Final_Report_0090904_v1_1.pdf ("BBTF Report"). Speaking about public safety broadband communications generally, NPTSC's broadband taskforce remarked that: "During the work of the BBTF, it was apparent ... that the current 5+5 MHz of spectrum available for public safety use for broadband data systems will not be sufficient to support disaster operations." *See also* AT&T Comments, GN Docket Nos. 09-47, 09-51, 09-137 (filed Nov. 12, 2009).

9. Can unlicensed technologies, such as Wi-Fi, or licensed-light services, such as in the 3650 MHz band, play a role in public safety broadband deployment in rural or tribal areas? How might these technologies and services be made interoperable via the Internet or gateways with 4G technologies such as LTE or WiMAX deployed elsewhere? Can these technologies meet the security needs and provide other features that are required for public safety communications?

Although there is a limited role for unlicensed technologies to play in broadband deployment generally, reliability issues render unlicensed spectrum inappropriate for mission critical public safety applications.³⁶ While public safety users may derive some benefit from leveraging existing third-party networks operating on unlicensed spectrum (*e.g.*, roaming on to a hotspot hosted at a local coffee shop while in the field), significant challenges exist due to the lack of standards on service quality, consistency of operations, and reliability obligations on the third party. Third-party hot spots are managed according to the desires of their owners and are unpredictable in terms of when and how effectively they operate. Thus, while access to such networks could potentially benefit public safety users, they are inherently unreliable and should play no part in a public safety wireless broadband deployment plan.

A public safety owned and operated network built on an unlicensed platform could resolve some of the operational reliability concerns inherent in the use of third-party unlicensed networks. However, even in this case, potential interference problems and privacy concerns would loom large due to the increased vulnerability of unlicensed networks. Regardless of whether these concerns could be further mitigated, there is no evidence that rural and tribal areas currently suffer from a lack of available licensed spectrum to satisfy the needs of public safety

³⁶ See City and County of San Francisco, City of Oakland, City of San Jose, Amended Request for Waiver, PS Docket No. 06-229, at 10 (filed May 27, 2009) (discussing reasons why unlicensed spectrum is unacceptable for public safety use) (“Amended Bay Area Cities Request”); City of Chesapeake, Virginia, Request for Waiver, PS Docket No. 06-229, at 6 (filed July 9, 2009) (finding that the existing regional unlicensed mobile network did not meet the operational and connectivity demands of public safety use).

entities. Assuming that the 700 MHz spectrum – including the D-Block – is made available for public safety users, as AT&T urges, rural and tribal public safety users will have sufficient amounts of licensed spectrum to accommodate any needs they may have. Thus, unlicensed spectrum should be no more than a secondary or tertiary backup solution.

11. Should rural and tribal public safety entities be permitted to enter into partnerships to share spectrum or infrastructure, such as with federal agencies, commercial providers, or critical infrastructure providers? How should the Commission's control rules and precedent be applied to such partnerships, or be modified to accommodate such partnerships, and how should network access (*i.e.*, for public safety communications) be prioritized?

Under the “leveraged network” model, which AT&T strongly supports,³⁷ public safety agencies would be encouraged to partner with commercial providers through a RFP process. This would empower public safety entities to negotiate with commercial providers to design and implement a shared network to meet their specific local needs. The “leveraged network” approach also has the benefits of speeding deployment and letting public safety agencies plan network build-out to fit their budgets, for example, by negotiating for access to various aspects of the commercial provider’s existing network and operations. In adopting the “leveraged network” model, the Commission should ensure that public safety users have sufficient flexibility in the use of their licenses to implement customized solutions. Nevertheless, certain technological standards and minimum system requirements should be established by the Commission to ensure interoperability and sufficient capability to meet public safety needs.

As AT&T recently explained before the House Subcommittee on Communications, Technology and the Internet, these sorts of partnerships can be particularly useful in deploying wireless broadband in rural or tribal communities.³⁸ Under the leveraged network model, to the

³⁷ See AT&T Leveraged Network Comments, at 12-20.

³⁸ See generally Stacey Black Testimony.

extent that smaller rural and tribal communities do not utilize fully their entire 20 MHz public safety allocation, they can and should enter into public-private partnerships to allow for commercial applications over the unused portion of the spectrum. “In this way, the local community could benefit from cutting edge wireless broadband technology and dedicated broadband capabilities for public safety; the spectrum would be fully and efficiently utilized for a range of applications; and the local community – through the partnership – would attain a revenue source to further fund its public safety and other initiatives.”³⁹

Also, as discussed in response to Question 4, public safety should be allowed to share their network with federal users in exchange for funding support, if they so choose. Such sharing could provide a helpful source of additional revenue to construct and operate the network, as well as facilitate interoperability among, federal, state and local first responders.

12. Are there any means for rural or tribal public safety agencies to obtain access to commercially-licensed spectrum or associated infrastructure? Are there opportunities to acquire spectrum through secondary market transactions (e.g., the partition or disaggregation of licenses or spectrum leasing) or other arrangements with commercial licensees? Are there existing or planned municipal wireless networks in rural or tribal areas that may be leveraged for public safety use?

Although secondary markets provide an efficient mechanism for redistributing unused spectrum, there is no evidence that public safety lacks access to spectrum in rural areas. Furthermore, public safety agencies have significant funding challenges that would need to be addressed before they could actively participate in the secondary spectrum market. Rather, and as explained earlier, the best way to address public safety’s current and future broadband spectrum needs is to reallocate the D-Block for public safety use.⁴⁰ To address immediate

³⁹ *Id.* at 4, n.2.

⁴⁰ *See, supra*, pages 6-8; AT&T Leveraged Network Comments, at 12-13. Further, under the leveraged network approach, public safety agencies could negotiate with commercial providers to gain access to commercial

broadband spectrum needs, the Commission should grant the pending public safety agency requests for early build-out of 700 MHz public safety networks.⁴¹ Although these requests are generally not for rural or tribal areas, these initial deployments will establish a roadmap for all of public safety, including in rural and tribal areas, to follow, and will help identify any challenges that communities might face in constructing a public safety wireless broadband network.

13. To what extent are rural and tribal Public Safety Answering Points (PSAPs) able to access broadband applications and services, and what can be done to improve that access? Are there unique economic and social issues or concerns that affect choice of technology or services as deployed?

The ability of rural and tribal PSAPs to access broadband applications and services will depend directly on the availability of broadband infrastructure in their area. As explained in response to Question 1, to facilitate the construction of broadband facilities in rural and tribal areas, the Commission should identify and work to remove barriers to investment, which will in turn increase broadband availability for use by both consumers and public safety entities. Further, as described in response to Question 4, the “leveraged network” model will facilitate the availability of a broadband public safety network in these areas.

networks – where needed – to satisfy any additional spectrum needs. Through this approach, public safety agencies could contract with commercial providers who would “host” their 700 MHz spectrum and allow them access to existing infrastructure. These arrangements could also involve the provisioning of dual mode handsets or other devices that would allow for seamless roaming on the commercial network or on other interoperable public safety networks when and if a public safety user were to travel outside the footprint of their “home” network. *See* AT&T Leveraged Network Comments, at 17-18.

⁴¹ *See* City of Boston Amended Request for Waiver, PS Docket No. 06-229 (filed May 28, 2009), as amended by City of Boston Erratum (filed June 19, 2009); City and County of San Francisco, City of Oakland, City of San Jose Amended Request for Waiver, PS Docket No. 06-229 (filed May 27, 2009) ; State of New Jersey Petition, PS Docket No. 06-229 (filed Apr. 3, 2009); NYC Request; District of Columbia Request for Waiver, PS Docket No. 06-229 (filed June 26, 2009); New York State Request for Waiver, PS Docket No. 06-229 (filed July 1, 2009); City of Chesapeake, Virginia Request for Waiver, PS Docket No. 06-229 (filed July 9, 2009); City of San Antonio, Texas Petition for Expedited Waiver, PS Docket No. 06-229 (filed July 10, 2009); State of New Mexico Petition for Expedited Waiver, PS Docket No. 06-229 (filed July 10, 2009); North Dakota Waiver-Expedited Action Requested, PS Docket No. 06-229 (filed August 18, 2009); Petition for Waiver of the City of Charlotte, North Carolina, PS Docket No. 06-229 (filed Aug. 4, 2009); Iowa Petition for Expedited Waiver, PS Docket No. 06-229 (filed Oct. 15, 2009); New EA, Inc. d/b/a Flow Mobile Request for Waiver, PS Docket No. 06-229 (filed July 7, 2009).

14. What issues are unique to public safety broadband deployments in tribal areas, whether or not rural? For example, are there jurisdictional issues that complicate efforts to deploy broadband to these areas?

As discussed above in response to Question 1, many tribal areas are situated in rural regions, and thus the challenges to deployment rooted in geography and population density are largely the same as in rural areas. To the extent that tribal areas are located in urban or suburban regions, deployment patterns will likely mirror those in such areas.

15. What role can deployments in the 4.9 GHz band play in augmenting public safety broadband communications in rural or tribal areas, particularly during emergencies or other large-scale events? What needs to be done to ensure that deployment of 4.9 GHz technologies occurs in rural and tribal areas?

There are significant technical and economic challenges to using the 4.9 GHz public safety spectrum to provide mobile access to a public safety wireless broadband network over a large area. In their requests for waivers of the Commission's 700 MHz service rules, public safety users themselves have identified the difficulties inherent in providing mobile broadband over this spectrum. As the City of Boston states, "4.9 GHz spectrum is no substitute for 700 MHz."⁴² Boston identifies three main drawbacks to using 4.9 GHz spectrum for public safety broadband purposes: (1) interoperability is undermined by the lack of technical standards and the absence of regional planning; (2) the band's poor propagation characteristics render it ill-suited for large area coverage; and, relatedly, (3) due to the large amount of network infrastructure that would be required to construct a wireless broadband network that would meet public safety's demands on an unlicensed, higher frequency platform, the costs are prohibitively high with 4.9 GHz spectrum.⁴³ Despite being unsuitable as a wide area mobile broadband access solution,

⁴² City of Boston Amended Request for Waiver, PS Docket No. 06-229, at 4 (filed May 28, 2009), as amended by City of Boston Erratum, PS Docket No. 06-229 (filed June 19, 2009) ("Amended Boston Request").

⁴³ *Id.* at 4-5.

experimentation has begun in this spectrum, and AT&T anticipates that the 4.9 GHz band will complement 700 MHz spectrum in many areas for fixed wireless purposes or as a backhaul solution.⁴⁴ However, as the San Francisco Bay Area cities concluded after examining all available options, “[t]he 700 MHz broadband spectrum is the only viable solution for a cost effective, regional wireless broadband system.”⁴⁵

16. To what extent can satellite broadband technologies fulfill the communications needs—including the need for mission critical voice—of rural and tribal public safety entities? From the user’s perspective, are there drawbacks to significant reliance on satellite-based technologies for broadband capabilities? Are there any barriers to the use of such technologies that need to be resolved? If so, what are they and how can they be addressed?

Interference concerns and unreliable service reception counsel against relying upon satellite broadband technologies as the primary vehicle for mission critical communications or for providing primary access to public safety wireless broadband networks in any environment. Rural and tribal public safety users, in particular, need widespread dependable access in a variety of environments – including indoors or where signals may be blocked by foliage or other obstructions – that is difficult to provide with satellite-based services. For these reasons, public safety wireless broadband networks should be built upon a more reliable terrestrial platform, such as can be supported by the 700 MHz public safety broadband and D-Block spectrum bands, which are ideally suited for these applications.

Satellite can, however, be very useful to fill in gaps in coverage and to provide redundant backup service. For example, AT&T recently announced a partnership with satellite-based

⁴⁴ See Comments of Pinellas County Emergency Communications, PS Docket No. 06-229, at 2 (filed Oct. 15, 2009) (indicating experimentation in the 4.9 GHz band).

⁴⁵ Amended Bay Area Cities Request at 10.

mobile telecommunications provider TerreStar Networks.⁴⁶ Through the agreement, AT&T will offer a dual mode smartphone solution that will allow users to access TerreStar's satellite communications services when AT&T's wireless network is unavailable. The potential for public safety users to take advantage of innovative partnerships such as this one is another example of the benefits of the "leveraged network" model.

17. Are there existing programs, administered through the FCC or other agencies (e.g., Department of Agriculture's Rural Utilities Service), that could spur deployment for public safety broadband communications in rural or tribal areas? What can be done to improve these programs?

As discussed elsewhere by AT&T, in addition to the National Telecommunications and Information Administration (NTIA) and Rural Utilities Service (RUS) grant programs funded by the American Recovery and Reinvestment Act of 2009, there are a number of federal and local programs that could provide funding or other support to spur deployment for public safety broadband communications, including programs administered by the Federal Emergency Management Agency (FEMA), the Department of Homeland Security, and the Department of Justice.⁴⁷ As AT&T indicated in public comments submitted to NTIA and RUS, programs intended to spur broadband through funding disbursement should follow three critical guidelines: (1) "[p]rioritize in both unserved and underserved areas direct grants to public and non-profit anchor institutions so that they can buy the broadband services and equipment they need to fulfill their missions;" (2) "[w]hen considering direct funding for service providers, focus the public benefits of the broadband programs on the areas most in need;" and (3) "[f]und programs that

⁴⁶ See Press Release, AT&T, AT&T Announces Agreement with TerreStar to Offer Integrated Cellular/Satellite Solution (Sept. 30, 2009), available at <http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=27180>.

⁴⁷ See AT&T Leveraged Network Comments, at 14 (specifically mentioning the Urban Area Security Initiative and the Public Safety Interoperable Communications program).

remove barriers to broadband adoption, particularly for low-income users.”⁴⁸ The Commission, through the NBP, should advocate for an increase in the amount of federal money directed to rural and tribal areas that is available to public safety agencies in a manner consistent with these proposed guidelines.

18. What sources of funding for rural and tribal public safety broadband deployments are available? Are there novel funding mechanisms that should be explored?

In addition to the government programs discussed in response to Question 17, the “leveraged network” model provides for elegant and innovative means of funding public safety broadband deployment. This approach would allow public safety agencies in the same community or region to pool funding in contracting with a commercial provider to develop and deploy an interoperable network. Additionally, these community- or regional-based coalitions would enhance public safety’s negotiating position and drive down device and deployment costs through the economies of scale inherent in a widespread public safety venture. Furthermore, this strategy would help guarantee interoperability within a region, serving the larger goal of the leveraged network model – creating a nationwide interoperable “network of networks” to service public safety needs.

The “leveraged network” model would also allow for some communities who do not have an immediate need for all 20 MHz of the 700 MHz public safety and D-Block spectrum to lease excess capacity to the commercial partner. Although it is unlikely that this sort of spectrum leasing on its own would be sufficient to offset the build-out costs of a new public safety wireless broadband network, AT&T believes that by combining spectrum leasing with

⁴⁸ See Comments of AT&T, In the Matter of American Recovery and Reinvestment Act of 2009 Broadband Initiatives, NTIA Docket No. 090309298-9299-01, at i-ii (filed April 13, 2009).

leveraging commercial networks and government grants, a manageable financial model will emerge.

III. CONCLUSION

The deployment of broadband to many rural and tribal areas – including to meet the needs of public safety – faces substantial challenges. As detailed above, the Commission can help to minimize these challenges by removing outdated regulatory impediments that deter wireline and wireless investment in rural areas, and by implementing the “leveraged network” model for the development and deployment of a nationwide 700 MHz interoperable public safety wireless broadband network. Unlicensed spectrum and WiFi technologies, 4.9 GHz band technologies, and satellite broadband technologies – while useful to fill gaps or as back-up solutions – have inherent deficiencies that limit their effectiveness for mission critical public safety communications.

Respectfully submitted,

/s/ Robert Vitanza

Robert Vitanza
Gary Phillips
Paul Mancini
AT&T Inc.
1120 20th Street, NW
Washington, DC 20036
202-457-3076

Attorneys for AT&T

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