

**Before the
FEDERAL COMMUNICATIONS COMMISSION**

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| In the Matter of |) | |
| |) | |
| Facilitating the Deployment of Text-to-911 and Other Next Generation 911 Applications |) | PS Docket No. 11-153 |
| |) | |
| Framework for Next Generation 911 Deployment |) | PS Docket No. 10-255 |
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REPLY COMMENTS OF BANDWIDTH.COM, INC.

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I. INTRODUCTION/SUMMARY

Bandwidth.com, Inc. (“Bandwidth”) agrees with the majority of comments that the widespread and growing use of texting necessitates an interim Text-to-911 solution while the industry transitions to the longer-term solutions available with Next Generation 911 (“NG911”). Commenters also generally agree that technology currently exists to support cost-effective Text-to-911 capability for wireless carriers and over-the-top application providers. With this consensus in support of an interim Text-to-911 solution, the Commission’s focus should be on how to achieve this goal while, at the same time, accelerating the migration to NG911.

In addition to its proposed interim solutions, the Commission should take several additional actions to achieve both of these goals. First, the Commission can promote cost savings and increased efficiency by encouraging collaboration among the providers of the technologies needed to support Text-to-911. In this regard, Bandwidth continues to support a centralized Text-to-911 clearinghouse that includes a text gateway, the database containing PSAP boundaries and delivery preferences, and the repository for subscriber location information, as a means to increase efficiency and accuracy and reduce costs.

Next, the Commission should require that, within a reasonable period of time following notification of a state's implementation of a NG911 solution, Wireline carriers, wireless carriers and VoIP service providers establish an interface with the NG911 system via Session Initiation Protocol ("SIP"). Industry and the Commission have acknowledged that the PSTN has a short remaining lifespan. Requiring timely implementation of a SIP interface with the NG911 system will reduce costs and shorten the time to implement N911. In Bandwidth's experience, there is widespread acceptance of the need for SIP interface to NG911. The real issue is not if SIP interfaces are necessary, but when they should be established.

Finally, the Commission should take the lead in influencing the economic model underlying the migration from E911 to NG911 and should establish the ground rules for a timely, efficient migration. In the long-term, migration to NG911 will create tremendous cost savings for all stakeholders. The Commission can use its existing authority to ensure that these savings are reallocated equitably and to encourage similar efforts by the states. Similarly, the Commission should use its existing authority to establish the framework for migration to NG911.

II. OVERWHELMING SUPPORT FOR COMMISSION'S POSITIONS

Overall, comments filed in this proceeding support the Commission's goal of facilitating Text-to-911 deployment in the near term. In particular, comments recognized that texting has become the primary mode of communication for many communities, that Text-to-911 services will benefit these communities and the public as a whole, and that Text-to-911 is best addressed long-term by accelerating the migration to NG911.

A. Proliferation of Texting as the Primary Mode of Communication

Texting has become commonplace in recent years. In fact, it is soundly accepted that texting has become the primary mode of communication for many groups, including and especially, the deaf and hard of hearing community. As such, most commenters agree, the time has come to enable the public to reach emergency services through this mode of communication.¹ The largest wireless carriers, in collaboration with the National Emergency Number Association (“NENA”) and the Association of Public-Safety Communications Officials (“APCO”), have endorsed this objective through their six-party voluntary agreements.² Text-to-911 is advancing, but, as many commenters point out, the final steps to complete the migration need to be taken as quickly and as feasibly as possible.³

B. Text-to-911 Services Will Alleviate Consumer Confusion

The comments generally support Bandwidth’s position that to avoid consumer confusion, interconnected texting applications of all types should provide Text-to-911 functionality. The comments also widely support the notion that current technology

¹ See e.g., Comments of the Association of Public-Safety Communications Officials – International (“APCO Comments”) at 1-2; Comments of Bolder Regional Emergency Telephone Service Authority (“Bolder Comments”) at 2; Comments of Intrado, Inc. (“Intrado Comments”) at 1; Comments of Motorola Solutions, Inc. (“Motorola Comments”) at 1; Comments of the National Emergency Number Association (“NENA Comments”) at 1-2; Comments of NTCA-Rural Broadband Association (“NTCA Comments”) at 2; Comments of the Samuelson-Glushko Technology Law & Public Clinic University of Colorado School of Law (“Samuelson-Glushko Technology Law & Policy Clinic Comments”) at 3; Comments of the Telecommunications Industry Association (“TIA Comments”) at 1-2; Comments of Sprint Nextel (“Sprint Comments”) at 1; Comments of Verizon and Verizon Wireless (“Verizon Comments”) at 1.

² See Letter from Terry Hall, APCO International, Barbara Jaeger, NENA, Charles W. McKee, Sprint Nextel, Robert W. Quinn, Jr., AT&, Kathleen O’Brien Ham, T-Mobile USA, and Kathleen Grillo, Verizon to Julius Genachowski, Chairman, and Commissions McDowell, Clyburn, Rosenworcel and Pai; PS Docket 11-153, PS Docket No. 10-255 (Dec. 6, 2012).

³ AT&T Comments at 12-13; generally, APCO Comments at 1-2; Motorola Comments at 1; CTIA Comments at 2; NENA Comments at 5-6; Sprint Comments at 2-3.

exists for tier 2 and tier 3 wireless carriers and over-the-top application providers to proficiently support Text-to-911.⁴ In light of this, these carriers and providers should be included in the Commission’s global Text-to-911 plan to satisfy the best interest of the safety of the public.⁵ Moreover, if the necessary infrastructure is intelligently shared, the service can be delivered at low cost and with minimal inconvenience to all service providers.⁶ As a result, there are not significant technical or economic reasons to exclude texting services that consumers are increasingly coming to expect to provide emergency communications.⁷

C. Addressing Text-to-911 in Conjunction with Migration to NG911

Commenting parties clearly acknowledge that Text-to-911 is ultimately addressed most effectively by accelerating the migration to NG911.⁸ Although the Commission has made recommendations to Congress to help address many of the impediments to the migration,⁹ implementing the recommendations will still take time. Accelerating the migration to NG911 and avoiding any deviations from that path must be paramount.¹⁰ However, because the migration to NG911 will take a significant amount of time, a pre-

⁴ Comments of AT&T, Inc. (“AT&T Comments”) at 1-7; APCO Comments at 3-4; Intrado Comments at 2-3; Motorola Comments at 1-2; NENA Comments at 2- 5 (advocating that *at least* for now obligations attach to integrated text originating service providers (“OSPs”) and interconnected text OSPs whose subscribers originate texts from an inherently mobile device); Sprint Comments at 8.

⁵ Comments of Bandwidth.com, Inc. (“Bandwidth Comments”) at 7 – 9.

⁶ *Id.* at 12-13.

⁷ *Id.* at 7-9.

⁸ Sprint Comments at 2-3, 17 (urging “Commission and Public Safety to recognize that this is an interim solution and to remain focused on the broader goal of NG911 deployment”); Intrado Comments at 4; Motorola Comments at 1-3; Samuelson-Glushko Technology Law & Policy Clinic Comments at 3, 5, 9; Bandwidth Comments at 12-13.

⁹ Legal and Regulatory Framework for NG911 Services, Report to Congress and Recommendations, WC Docket Nos. 10-255, 11-153, 12-333 (Feb. 22, 2013) (“*NG911 Report to Congress*”), Section 4.1.

¹⁰ *See* Bandwidth’s Comments at 14-15.

NG911 solution concerning Text-to-911 is necessary for the interim period.¹¹ The need for a more immediate Text-to-911 solution is broadly supported by the industry¹² and Bandwidth continues to support the Commission's commitment to deploy a clear text solution while migrating to a broadly deployed nationwide NG911 system. Such a path will avoid unnecessary confusion, delays and expense.¹³

III. ACHIEVING THE GOAL OF IMPLEMENTING TEXT-TO-911 WHILE ACCELERATING THE MIGRATION OF NG911.

Given the consensus supporting the Commission's objectives,¹⁴ next the Commission must consider how it can best achieve its goal of implementing a comprehensive Text-to-911 strategy while simultaneously accelerating the migration to NG911.

A. Collaboration Among Providers

First, the Commission should foster collaboration among the providers of the technologies needed to support Text-to-911 with a goal of containing costs and increasing efficiency. The current E911 network is substantially over-built and fraught with inefficiencies. The rollout of Text-to-911 should rely on core NG911 tenants, including: standard NG911 functions, standard NG911 interfaces and protocols, the use of standard off-the-shelf components, a focus on implementing the service in software instead of specialized, high cost, hardware, and built on the same "system of systems" approach

¹¹AT&T Comments at 12-13; Motorola Comments at 2-3; e4Samuelson-Glushko Technology Law & Policy Clinic Comments at 8; Sprint Comments at 3; Texas 9-1-1 Entities Comments at 3; TIA Comments at 3-4; T-Mobile Comments at 2-4.

¹² See e.g., footnote 8, *supra*.

¹³ Bandwidth Comments at 12-15.

¹⁴ See footnotes 1, 3-4, 6, *supra*.

specified in the NENA 08-003 standard.¹⁵ To foster this, the Commission can take several direct actions.

1. Single Clearinghouse

The Commission has recognized that some components of the architectural solution should be procured by the Commission and made available to all service providers.¹⁶ One result of this recognition is the support given to the standards being developed in ATIS.¹⁷ Bandwidth continues to support a centralized Text-to-911 clearinghouse, and believes that all components of the Text-to-911 clearinghouse architecture it proposed should be procured by the Commission.¹⁸ This architecture includes the text gateway (Emergency Services Routing Proxy (“ESRP”)), the database containing PSAP boundaries for text messages and the PSAP’s preference in the delivery of these messages (Emergency Call Routing Function (“ECRF”)), and the repository of subscriber location information (Location Information Server (“LIS”).¹⁹ Because of the capacity and efficiency of the systems used to implement this functionality, the configuration deployed to service a single carrier is more than adequate to support all carriers. For these reasons, Bandwidth urges the Commission to consider procuring a complete clearinghouse and making it available to all service providers.²⁰

¹⁵ T-Mobile Comments at 7-8; *generally*, Samuelson-Glushko Technology Law & Policy Clinic Comments at 8.

¹⁶ *In the Matter of Facilitating the Deployment of Text-to-911 and other Next Generation 911 Applications; Framework for Next Generation 911 Deployment*, PS Docket Nos. 11-153, 10-255, *Further Notice of Proposed Rulemaking*, FCC 12-149, 27 FCC Rcd. 15659, at ¶ 145 (2012) (“*FNPRM*”).

¹⁷ AT&T Comments at 21-22; TIA Comments at 11-13.

¹⁸ Bandwidth Comments at 3-7,14-15.

¹⁹ *Id.* at 14.

²⁰ AT&T Comments at 22-23.

If the Commission determines that this structure is not workable in a timely fashion, Bandwidth recommends that the Commission procure the implementation and management of the PSAP boundary and preference database (ECRF) from a single vendor and offer this function to all service providers. Under this approach, the clearinghouse should include the collection and management of the data from a provisioning perspective, but should also make the ECRF available at session setup time to provide routing and preference information in real-time. A single core instance of this function provides a single point of interface to the PSAPs, making it simpler and easier to administer while simultaneously supporting consumer educational efforts, including the production of PSAP coverage and preference maps. This approach will, in turn, reduce costs and increase efficiency and accuracy for all stakeholders. Eventually, this capability can evolve to the National Forest Guide identified in the Commission's Report to Congress.²¹ This option furthermore provides an obvious place for the Commission to invest in a shared resource. Bandwidth supports this direction and would welcome the opportunity to compete to participate in this plan.

2. Accelerate Migration to NG911

Next, the Commission should take additional steps to accelerate the migration to NG911. The Commission's Technology Advisory Council ("TAC") recommends a planned end of life for the PSTN in 2018. For this to happen, providers must be able to adopt NG911 within the next five years. The Commission's recent Report to Congress makes a number of excellent recommendations focused on what the states can do to

²¹ *NG911 Report to Congress*, Section 4.2.2.

organize and prepare for the migration to NG911.²² The Commission should use this framework to take immediate steps to ensure that carriers and current System Service Providers (“SSPs”) are prepared as well.

Currently, carriers interface with the existing E911 system using legacy Time Division Multiplexing (“TDM”) technology. States migrating to NG911 are allowing carriers to interface with the NG911 system using the same technology through the use of Legacy Network Gateways (“LNGs”).²³ Bandwidth’s experience in Alabama shows that approximately 25% of the non-recurring costs to deploy the statewide routing system comes from these LNGs. In addition to having a material, negative impact on the cost to implement NG911, the use of TDM circuits precludes the transfer of text messages directly to the NG911 system. In short, a NG911 system is no more capable of accepting text messages than a traditional E911 system if the carriers do not use a native SIP interface to the NG911 system. Thus, a compatible SIP interface is critical to full, effective development of Text-to-911 capability.²⁴ Experience demonstrates that this component can be accomplished without tremendous difficulties.

Bandwidth has witnessed wide-spread acceptance of an interface with the Alabama NG911 System by wireless carriers and the majority of wire line carriers.²⁵ In fact, publicly, the vast majority of carriers have endorsed a transition to an all IP

²² *NG911 Report to Congress*, Section 4.1.

²³ Bandwidth Comments at 13.

²⁴ *See* note 15, *supra*.

²⁵ *See* December 13, 2012 Comments of Bandwidth.com, Inc. at 3-5 filed in response to Public Safety and Homeland Security Bureau Seeks Comment on the Legal and Statutory Framework for Next Generation 9-1-1 Services Pursuant to the Next Generation 9-1-1 Advancement Act of 2012, PS Docket Nos. 10-255, 11-153 and 12-333, *Public Notice*, 27 FCC Rcd. 14070 (2012).

network.²⁶ The current challenge revolves around the timing of the migration to SIP. If wireless carriers in Alabama had been given more lead-time to establish an interface with the NG911 System, it is highly likely that all of these carriers would have used the implementation of NG911 and the establishment of two NG911 call routing facilities, as an opportunity to interface via SIP. In recognition of the realities of the marketplace, the Commission should use its existing authority²⁷ to mandate that, given a reasonable notification period, Wireline carriers, wireless carriers and VoIP service providers must interface with NG911 systems via SIP.²⁸

These actions will reduce costs and time to implement NG911 and will dramatically shorten the time until providers are able to natively deliver text messages to PSAPs using NG911 systems. Carriers must be prepared to interface to NG911 via SIP as the NG911 system is deployed. In many instances, state rules preclude the re-use of equipment (such as LNGs) in other projects. If LNGs must be purchased, deployed,

²⁶ See Remarks of FCC Commissioner Ajit Pai: “Two Paths to the Internet Protocol Transition”, Hudson Institute, Washington, D.C., March 7, 2013, “Carriers like AT&T, Verizon, and CenturyLink. The National Cable and Telecommunications Association. Next-generation operators like Bandwidth.com. Manufacturers like Alcatel-Lucent and ADTRAN. Organizations like the NAACP, the National Urban League, the Rainbow PUSH Coalition, the National Grange, and the National Farmers Union. Advocacy groups like the Minority Media and Telecommunications Council, the Asian American Federation, the League of United Latin American Citizens, Women Impacting Public Policy, the U.S. Chamber of Commerce, and the American Consumer Institute. Last but not least, Blair Levin, the father of the National Broadband Plan, has encouraged us to move forward with the experiments, saying they’re “worth a thousand pleadings.”; *see also*, AT&T Petition to Launch a Proceeding Concerning the TDM-to-IP Transition (filed Nov. 7, 2012); Petition of the National Telecommunications Cooperative Association for a Rulemaking to Promote and Sustain the Ongoing TDM-to-IP Evolution (filed Nov. 19, 2012); *see* “Pleading Cycle Established on AT&T and NTCA Petitions,” GN Docket No. 12-353, 27 FCC Rcd. 1545 (2012).

²⁷ 47 U.S.C. § 615c (the Twenty-First Century Communications and Video Accessibility Act of 2010 (“CVAA”) provides the Commission with authority to promulgate such rules); *see also* AT&T Comments at 23-26.

²⁸ *See e.g.*, Intrado Comments at 4; Comments of Texas 9-1-1 Entities (“Texas 9-1-1 Comments”) at 3; T-Mobile Comments at 7-8.

tested, and put into production, on a case-by-case basis, any opportunity to reduce costs and accelerate deployment will be lost.

B. The Commission Must Lead the Transition

1. The Commission Should Guide the Migration's Economic Model

Bandwidth also encourages the Commission to expand its view and influence over the economic model underlying the migration from E911 to NG911. Bandwidth's experience in Alabama provides valuable guidance on this issue. For instance, this experience, when viewed from a macro-economic perspective, demonstrates that migration to NG911 results in a reduction in the costs incurred by stakeholders. Under these circumstances, Bandwidth supports efforts to reclaim and reallocate the financial benefits of these cost reductions.²⁹ It is important that the Commission establish a framework that sets the right balance between federal mandates and funding and the flexibility necessary for states to implement NG911 consistent with their own unique circumstances.

For example, carriers operating in the state of Alabama will see cost reductions in a variety of areas. First, providers offering services on a state-wide basis will disconnect from the current seven selective routers and interconnect at just two NG911 routing facilities. Second, Bandwidth actively encourages that providers switch from costly TDM circuits to relatively inexpensive, SIP interconnect. Third, the NG911 system eliminates obsolete, inefficient practices implemented by the existing SSP that caused all carriers to dramatically overbuild the network to the E911 system. Fourth, when the state deploys the Location Validation Function ("LVF"), it will no longer be necessary for

²⁹ See *NG911 Report to Congress*, Section 4.1.4.

carriers to purchase additional services to help validate accurate location information in the ALI database. In other words, shortsightedness is costly for everyone. On the other hand, carriers that embrace a long-term view will experience welcome cost reductions.

There is no question that, in the short-term, during the migration, costs for both carriers and Public Safety will rise; however, over the long run, there are significant savings for all stakeholders. In order to help offset these potential costs, the savings recognized from migration to NG911 should not accrue solely to carriers. Instead, the Commission, states, and 911 Administrators should take steps to share these savings with Public Safety. The Commission has existing tools to help this reallocation of savings. In addition to these existing options, the Commission could provide further clarification of the types of costs incurred by wireless carriers that would qualify for cost recovery. Also, the Commission could clarify what costs associated with interconnection to the NG911 system should be borne by carriers and which costs should be incurred by other parties. For example, a state could establish fees for interconnecting to the N911 system that are less than the carrier's current costs but that could generate enough new revenue to help fund the NG911 system. Similarly, the Commission could support or encourage efforts by states to generate addition revenue through the provision of LVF services to carriers and service providers. All of these methods of reallocating cost savings can be accomplished through the implementation of state regulations. However, in order to promote consistency and an equitable sharing of cost saving, they can, and should, be established by the Commission in its role of fostering the migration to NG911.³⁰

³⁰ *NG911 Report to Congress*, Sections 4.1.1.2. (1); 4.1.4.2(3).

2. Ground Rules Must be Established for Existing System Service Providers

The unfortunate reality is that today, the existing 911 SSPs are using their incumbent status to slow down the migration to NG911 and increase the costs and complexity of migrating from their legacy 911 systems. Given this landscape, a relatively small set of “ground rules” -- established for all existing SSPs -- is necessary to facilitate the migration to NG911. Such rules would eliminate significant barriers and help foster a truly competitive market for vendors competing for business at a state level. While the report to Congress touched on these concepts,³¹ Bandwidth encourages the Commission not to wait for Congressional action, but to use its current authority to establish these ground rules uniformly across the country.

Bandwidth welcomes the opportunity to participate in a Commission-sponsored forum to establish the ground rules. Any such process should include appropriate representation from all stakeholders – regulators, Public Safety, SSP, carriers and service providers. However, regardless of what entities are involved in the process, it is critical that the Commission establish the framework and lead the effort. If the Commission does not step up to provide the leadership needed to facilitate this transition, individual states will be forced to wrestle with this issue without the Commission’s expertise and experience and without a view toward a national NG911 system. As a consequence, the industry and consumers will be left with an unnecessary, inefficient patchwork of regulations, thereby diminishing the potential reduction in cost and complexity that can otherwise be recognized through NG911.

³¹ *NG911 Report to Congress*, Section 4.1.1.2.(2).

IV. CONCLUSION

Bandwidth is encouraged by the broad consensus supporting many of the Commission's recommendations, and urges the Commission to move forward with these recommendations as quickly as practicable. At the same time, by taking action in the four areas recommended above, the Commission can refine its current trajectory and take additional, meaningful steps to ensure Text-to-911 and the migration to NG911 are implemented in a cost-effective and efficient manner that benefits all stakeholders. The Commission has both the opportunity and the authority have an immediate, dramatic affect on the pace of NG911 implementation. It should not let this opportunity slip out of its grasp.

Respectfully submitted,

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