BEFORE THE

FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Facilitating 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
	)	

COMMENTS OF TELECOMMUNICATIONS FOR THE DEAF AND HARD OF HEARING, INC.; DEAF AND HARD OF HEARING CONSUMER ADVOCACY NETWORK; ASSOCIATION OF LATE-DEAFENED ADULTS, INC.; DEAF SENIORS OF AMERICA; NATIONAL ASSOCIATION OF THE DEAF; HEARING LOSS ASSOCIATION OF AMERICA; CEREBRAL PALSY AND DEAF ORGANIZATION; COMMUNICATION SERVICE FOR THE DEAF; AND CALIFORNIA COALITION OF AGENCIES SERVING THE DEAF AND HARD OF HEARING

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I. Introduction

Telecommunications for the Deaf and Hard of Hearing, Inc. ("TDI"), Deaf and Hard of Hearing Consumer Advocacy Network ("DHHCAN"), Association of Late-Deafened Adults, Inc. ("ALDA"), Deaf Seniors of America ("DSA"); National Association of the Deaf ("NAD"), Hearing Loss Association of America ("HLAA"), Cerebral Palsy and Deaf Organization ("CPDO"), Communication Service for the Deaf ("CSD"), and the California Coalition of Agencies Serving the Deaf and Hard of Hearing ("CCASDHH") (collectively, the "Consumer Groups") respectfully submit these comments in the above-captioned proceedings. The Consumer Groups applaud and support the work the Commission is doing to accelerate the deployment of Next Generation 911 ("NG911") technology and the Commission's continued efforts to ensure that all Americans, including those with disabilities, have access to fundamental

public safety resources. The Consumer Groups appreciate this opportunity to provide the perspective of the deaf and hard of hearing communities regarding measures to accelerate the transition to NG911 systems and interim text-to-911 solutions.

II. Most People Who Are Deaf Or Hard of Hearing Already Use Broadband Technologies and Expect to Be Able to Use These Technologies and NG911 to Better Communicate with Emergency Responders in the Near Term

The widespread availability, ease of access and practicality of text-capable communications devices has fostered a rapid migration away from specialized legacy devices such as TTYs in the deaf and hard of hearing community. As a result, the use of telecommunications relay service ("TRS") over the PSTN has been plummeting, with the average monthly usage for TTY-voice based relay services dropping 87% between 2000 and 2010.[1] The Emergency Access Advisory Committee ("EAAC") conducted a recent survey of people with disabilities and found that: "48.1% of respondents stated that they would prefer to use text messaging to contact 911," 45.7% indicated they would like to use Real-Time Text ("RTT"); 45.1% indicated they would like to use Short Message Service ("SMS"), and only 10.8% indicated they would like to use TTY.[2] Consistent with these results, the Department of Justice ("DOJ") observes that many individuals with disabilities are now relying on IP-based and digital wireless devices instead of TTYs as their primary mode of telecommunications "and that 9-1-1 call-taking centers are shifting from existing traditional telephone emergency services to new IP-enabled NG 9-1-1 services.[3]" The National Emergency Number Association ("NENA")

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[1] *Facilitating the Deployment of Test-to-911 and Other Next Generation 911 Applications, Framework for Next Generation 911 Deployment*, PS Dockets Nos. 11-153, 10-255, at ¶ 36 (Sept. 22, 2011) (emphasis added) ("NPRM").

[2] EAAC, Report on Emergency Calling for Persons with Disabilities Survey Review and Analysis 2011, July 21, 2011, at 22-23; NPRM, at n.55.

[3] NPRM, at ¶ 19; Nondiscrimination on the Basis of Disability in State and Local Government Services; Accessibility of Next Generation 9-1-1, 75 Fed. Reg. 43446 (Jul. 26, 2010) ("DOJ NPRM").

has observed that "more than 70 percent of 911 calls now come from wireless devices."[4] More importantly, NENA noted that "it's clear that text messaging is the preferred mode of communication" among the public.[5]

This data shows that there has been tremendous change in the way individuals, including people who are deaf or hard of hearing, use technology to not only communicate but also to access emergency services. Despite these changes, public safety answering points ("PSAPs") have not kept pace but have only maintained services as required to make and receive voice and TTY calls, except for a few areas in which trials of SMS-to-text and other technologies are underway.

The networks and PSAPs must adopt newer emergency access technologies to keep pace. While TTYs are still in use, the majority of people who are deaf or hard of hearing prefer not to use traditional TTYs and have moved to newer and efficient Internet-based Telecommunications Relay Services ("iTRS") and other broadband technologies for their communications needs, such as Video Relay Services ("VRS"), Internet Protocol Relay ("IP Relay"), RTT, and Internet-Protocol captioned telephone services ("IP CTS"). People who are deaf or hard of hearing expect and need access to 911 services through the Internet from computers and wireless devices, and need the capability to send text-to-911 using SMS, RTT and other technologies. Since iTRS technologies are not designed for transmitting 911 calls directly to PSAPs, current 911 systems must be upgraded to ensure that people who are deaf or hard of hearing can effectively and efficiently reach emergency responders *using their preferred mode of communication* (voice, text and/or video) and *their preferred devices* in times of crisis without the need for additional specialized devices, specialized training or excessive costs.

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[4] Jerome Burdi, *911 system to go digital in Palm Beach County*, Sun Sentinel, (Feb. 17, 2011).

[5] Jerome Burdi, *911 system to go digital in Palm Beach County*, Sun Sentinel, (Feb. 17, 2011).

The Consumer Groups concur with the Commission's observations that adding video, text, and image capabilities to the 911 system "will significantly improve emergency response, save lives, reduce property damage and make *the system more accessible to the public, both for people with disabilities* and for people in situations where placing a voice call to 911 could be difficult or dangerous."[6] Modernizing the current voice-based 911 system to move to a NG911 system that supports text-to-911 and will enable the public to send texts, photos, videos, and other data to 911 call centers is a vital public safety goal. Sending text messages, photos, and video clips has become commonplace for all users of mobile devices on broadband networks, including users with disabilities. In fact, all consumers, including people with disabilities, increasingly expect that they will be able to use such media in addition to voice to communicate with the 911 system. NG911 has the potential and flexibility to greatly benefit people who are deaf or hard of hearing, and to meet the needs of people with hearing disabilities who have more than one disability such as low vision/blindness or cerebral palsy.

III. The Commission Should Require Deployment of SMS-to-911 Technologies in the Short Term as a Rapid and Practical Means of Significantly Enhancing Accessibility to the 911 System for People Who are Deaf and Hard of Hearing and Addressing the Silent Call Scenario

In the NPRM, the Commission explores the potential for using SMS[7] as an interim solution for text-based communications to 911 on the path toward full fledged NG911 capabilities, and states that it "believes that PSAPs, providers, and vendors should have the option to implement SMS-to-911 as a short-term alternative."[8] The Commission seeks comment

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[6] NPRM, at ¶ 1 (emphasis added).

[7] NPRM, at ¶ 28 ("In SMS-based systems, the caller uses a mobile phone to send a short text message to the destination, which is typically either another mobile phone or an Internet-connected receiver. SMS messages are usually limited to 160 characters . . . . SMS messages do not contain any information about the caller's location and do not identify the cell tower that received the SMS message.").

[8] NPRM, at ¶¶ 5, 34, 49, 53-54, 80, 82.

on this view and on "whether the benefits of leveraging SMS-to-911 on an interim basis outweigh the limitations of SMS."[9]

The Consumer Groups maintain that SMS is a viable interim text-to-911 solution that can be rapidly deployed and is particularly beneficial to people with disabilities, including people who are deaf, hard of hearing, or have speech impediments, who increasingly use technologies such as SMS, smart phones, and the Internet to communicate instead of TTYs and other legacy devices.[10] SMS-to-text and equivalent "over the top" text messaging applications will make 911 mobile for deaf or hard of hearing people.[11]

As the Commission noted "*[a]lmost all existing mobile phones support SMS.*"[12] Those mobile systems that do not support SMS often support over the top applications that provide functions similar to SMS (such as Blackberry Messenger). Some nations have taken advantage of the widespread availability and popularity of SMS technologies, such as in Sweden, Estonia, Finland, and Iceland.[13] The experience of these countries establishes that it is technically feasible today to use SMS to supplement voice-based 911, demonstrates that the use of SMS to contact emergency services has provided substantial benefits to people with disabilities, and proves that the benefits of SMS clearly outweigh the costs of implementation. In each of these

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[9] NPRM, at ¶¶ 53-54.

[10] A TTY "is a text device that employs graphic communication in the transmission of coded signals through a wire or radio communication system." As noted by the Commission, the "disabilities community considers TTY an antiquated technology with technical and functional limitations, including its slow speed and half duplex mode; the inability of TTY tones to travel well using IP audio compression, transmission, and packet loss repair techniques without introducing text errors; and its Baudot text encoding standard used in the United States that does not include all of the characters used in modern text communication." NPRM, at ¶ 26, n.23.

[11] City of Durham Press Release, *Durham 911 Center Launches Texting Trial* (Aug. 4, 2011).

[12] NPRM, at ¶ 28 (emphasis added).

[13] *See, e.g.*, KoKom Report, *SMS in Emergency Communications*, at 9 (Nov. 2009) ("To the operators in the 112-centre the introduction of the facility for the public to make calls to 112 via SMS was merely an add-on to the already implemented system for using SMS for dispatching resources. The need for further training was thus very limited.").

countries the use of SMS to access the emergency service system is primarily directed towards people with disabilities.[14] In Sweden, SMS has been used by people who are deaf, hard of hearing and people with speech impediments since 2006 to make actual emergency calls with "positive" results.[15]

SMS-to-911 trials in the United States have also been successful, and have recently been conducted in: Black Hawk County, Iowa; Durham, North Carolina; and Harris County, Texas.[16] In Iowa, the SMS-to-911 system has been successfully used in a "silent call" situation where a woman used SMS-to-911 to quietly alert police that her ex-boyfriend had broken into her home while she remained hidden in the house. Had she used a traditional voice call to alert police, the boyfriend would have heard her and discovered her location in the house before help could arrive which would have compromised her safety.[17] As demonstrated by this situation, deployment of SMS-to-911 capability is highly beneficial to the general public in the so-called "silent call" scenario (*i.e.*, in situations where the caller needs to contact the PSAP silently or surreptitiously because placing a voice call could put the caller in danger) and should be facilitated by the Commission. The director of the Black Hawk County 911 center has reported that some of the text messages received by the 911 center "were from children or domestic-abuse victims," and they have had "some calls that could have gone bad if the person couldn't text 911."[18]

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[14] NPRM, at ¶¶ 46-47.

[15] European Emergency Number Association, *SMS 112 in Sweden*, at 4 (Feb. 11, 2010) ("Experiences with the SMS 112 service have been positive."); NRPRM, at ¶ 46.

[16] NPRM, at ¶¶ 42-45; City of Durham Press Release, *Durham 911 Center Launches Texting Trial* (Aug. 4, 2011).

[17] Jimmy Issac, *Longview's 911 System Purchase Keeps Texting Capability* (July 17, 2011); NPRM, at ¶ 37 ("Commonly cited examples of the silent call scenario include burglaries, home invasions, kidnappings, and hostage situations where a crime is in progress and the caller does not want to attract the perpetrator's attention.").

[18] Jerome Burdi, *911 system to go digital in Palm Beach County*, Sun Sentinel, (Feb. 17, 2011).

SMS-to-911 offers many other benefits including potentially improved reliability of communications in the event of a disaster. In past disasters, such as hurricanes, earthquakes, and floods, circuit-switched wireline and mobile networks have become overloaded, making it impossible to place a 911 voice call. In the short term, enabling SMS-to-911 and IP-based text messages to 911 is beneficial because text messaging consumes far less bandwidth than a voice call and may use different spectrum resources or traffic channels depending on the technology employed. Thus, people in disaster areas or faced with a terrorist attack may still be able to send SMS or other text messages to 911 even if they cannot place a voice call.[19]

SMS-to-911 offers significant benefits as an interim solution for text-to-911 until providers deploy more advanced NG911 technologies based on SIP and Real-Time Text ("RTT"). SMS-to-text can be deployed relatively quickly, because consumers have already embraced the technology, and the vast majority of wireless providers and mobile devices support SMS. There are some phones that do not support SMS. However, most of these devices support over the top applications such as Blackberry Messenger and iMessage that may provide texting functionality equivalent to SMS, and/or email capabilities, that could be used to contact their PSAP in the interim until PSAPs have upgraded to NG911 standards so that they can handle multi-media advanced communications. In fact, such an email solution has been demonstrated by Sacramento authorities.[20]

Moreover, the trials in other countries and in the United States indicate that it is feasible to use SMS to supplement voice-based 911 services in the short term. In addition, some commenters have suggested that it is possible to overcome or mitigate some of the technical

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[19] NPRM, at ¶ 41.

[20] City of Sacramento Police Department, *Police Upgrade 911 System for the Deaf and Hard of Hearing* (Nov. 11, 2011).

limitations of SMS at a reasonable cost to providers, PSAPs, and consumers.[21] For theses reasons, the Consumer Groups recommend the adoption of regulations requiring implementation of SMS-to-911 in the short term as an interim solution along the path to full NG911 deployment.

IV. The Commission Should Consider Requiring Deployment of Real Time Text Technology in the Near Term

The Commission asked what role it should "play in facilitating the long-term deployment of non-voice emergency messaging services, including IP-based messaging and RTT, as well as multimedia applications that support delivery of voice, text, photos, video, and other data?"[22] The Consumer Groups urge the Commission to consider mandating deployment of Real-Time Text as a broadband application that can help responders more effectively communicate with people who are deaf or hard of hearing who are increasingly relying on IP-enabled devices, smart phones, and other broadband devices for their communications needs. RTT is a method of communication that allows for real-time, character-by-character, interactive texting that is particularly beneficial to people who are deaf or hard of hearing. RTT permits both flowing and efficient text communication for urgent and emergency calls. RTT functions similar to voice telephony in that it allows for the natural flow and interruption of conversation.[23] It is distinguishable from and an improvement over instant messaging, SMS and email in that it transmits conversation on a character-by-character basis rather than as a complete message.[24] In

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[21] NPRM, at ¶ 53.

[22] NPRM, at ¶ 33.

[23] NPRM, at ¶¶ 30-31, n.1 ("In RTT, individually-typed characters or groups of characters are transmitted as separate media packets, using the same basic protocol as audio and video sessions. This means that with RTT, unlike SMS or IP-based messaging, the recipient sees each character or word in the message almost immediately after the sender types it. RTT sessions can be established along with audio and video sessions and typically use SIP for session signaling."); *Nondiscrimination on the Basis of Disability in State and Local Government Services; Accessibility of Next Generation 911*, CRT Docket No. 111, RIN 1190-AA62, Comments of Telecommunications for the Deaf and Hard of Hearing, Inc., at 2 (Jan. 24, 2011) ("*TDI DOJ Comments*").

[24] NPRM, at ¶ 28 ("SMS messages are delivered through an SMS gateway that relays the messages when capacity is available. Thus, SMS messages could in some circumstances be delayed, or even occasionally lost,

the event that a caller is cut-off in an emergency situation, RTT would allow an emergency responder to receive the same amount of information as he or she would if the caller was using a traditional telephone as the responder will receive parts of the message even if he or she does not receive the entire message. For people who are deaf or hard of hearing who rely on text and cannot use signed languages, RTT holds particularly great promise such that the Consumer Groups urge the Commission to consider mandating its adoption in the relative near term. Implementation of RTT based upon IETF RFC 4102 would be an excellent first step in the transition to NG911, because RTT is provided for in NENA's i3 technical requirements which are being developed to support IP-based NG911, and implementation would smooth the transition from RTT to NG911.[25]

V. The Commission Should Establish Guidelines and Minimum Standards for Nation-Wide Implementation of NG911 Technologies and SMS-to-911

The Commission should coordinate with DOJ and provide nation-wide guidance for the needed network upgrades for deployment of NG911 systems and require adherence to its over arching principles and timelines. At present people who are deaf or hard of hearing have only indirect access to 911 services via TRS Relay as these calls involve the use of a communications assistant.[26] As NG911 is deployed, the Commission should require the implementation of *direct access* to NG911 and direct communication with the PSAP call-taker using text, video, voice or a combination of text, voice and video; and indirect access via any approved form of TRS or iTRS, where a communications assistant is involved in the call and the PSAP call-taker

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when there is network congestion. Senders of SMS messages also may not receive confirmation that their message was delivered. More importantly, the sender may not receive an error message if the message was not delivered.").

[25] *Framework for Next Generation 911 Deployment*, PS Docket No. 10-255, Notice of Inquiry, 25 FCCR 17869, at n.61 (Dec. 21, 2010).

[26] NPRM, at ¶ 27 ("To make a relay call, a TTY user calls a TRS relay center and types the number of the person he or she wishes to call, including 911. The [communications assistant] then makes the call to the receiving party and relays the call back and forth between the parties by speaking what a text user types and typing what a voice telephone user speaks.").

experiences the call as a voice call. Both approaches must be supported to achieve functionally equivalent access to emergency responders for people with disabilities which is required by the Americans with Disabilities Act.[27] In addition to using text and video means, people who are deaf or hard of hearing will continue to need to be able to use voice options to make a 911 call. Presently, some people who are deaf or hard of hearing communicate using voice carryover ("VCO") technology. With VCO, these people use their voice while they simultaneously use sign language via video, or use their voice and use a captioned telephone either directly with a 911 center operator or via VRS. NG911 upgrades will likely take place in phases. Thus, upgrades to the access capabilities afforded disabled people should parallel and match the capabilities introduced for other people in a similar timeframe.

PSAPs and providers should be required to support specific types of media for 911 calls if the underlying device supports that type of media (*e.g.*, if a smart phone or other device supports video for other purposes, then it should support video for NG911). Users with disabilities should be able to use the devices they normally use on a daily basis to reach NG911 equipped PSAPs to the same extent and with the same ease as other users are able to do with their own devices. During the stress of an emergency, people with disabilities should be able to use their devices in their accustomed manner to alert emergency services without the use of any special end user procedures. The operations of each local PSAP and regional center must be equipped to take calls from people who are deaf or hard of hearing that utilize video, voice or text, or a combination of two or more on a functional equivalent basis.[28]

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[27] *TDI DOJ Comments*, at 2 (Jan. 24, 2011).

[28] *TDI DOJ Comments*, at 5. The Americans with Disabilities Act ("ADA") requires functionally equivalent communication services for all Americans, including the deaf and hard of hearing. 47 U.S.C. § 225.

The Commission should monitor the development by industry of the baseline communications standards and protocols in the interface between networks and the PSAPs that are needed to achieve interoperability. The Commission should look to industry in the first instance to establish the baseline technical standards needed to achieve interoperability. However, the Commission and DOJ should consider mandating minimum common standards to guide the industry when industry standards bodies cannot agree on technical standards and public safety standards to implement NG911 in a timely manner. Further, the Commission should mandate end-to-end interoperability testing as the industry moves toward NG911 to ensure interoperability has been achieved. Interoperability should be a fundamental goal so that all people, including people who are deaf or hard of hearing, can make multimedia calls to PSAPs using NG911 services as they become available.

The Commission should also consider supporting the establishment of approximately five advanced regional call centers to handle direct or indirect emergency calls from deaf or hard of hearing constituents to the most appropriate PSAPs.[29] Presently, there may be too few interpreters to handle emergency calls on a 24 hour by 7 day per week basis at all PSAPs using video remote interpreting. In addition, the use of advanced regional call centers equipped with advanced NG911 and SMS-to-text technologies on an interim basis would provide support for NG911 capabilities before all the PSAPs are upgraded to NG911. Also, a minimum of five advanced regional centers would be needed to ensure that NG911 calls can be fielded in the event of a natural disaster or other events that could stress the system or disable one or more regional centers. However, in the long term, it is essential that every local PSAP and regional

[29] *TDI DOJ Comments*, at 4.

center has the capacity to receive emergency calls from our constituents, regardless of which technology they use to make these calls.

VI. Conclusion

For the foregoing reasons, the Consumer Groups urge the Commission to require both direct and indirect access to 911 services. People who are deaf or hard of hearing need to be able to call the most appropriate 911 center in any mode of communication, with their preferred means of technology and to be understood effectively by the dispatcher. In light of the popularity and ubiquity of SMS, the Consumer Groups recommend the adoption of regulations requiring implementation of SMS-to-911 in the short term as an interim solution along the path to full NG911 deployment. For people who are deaf or hard of hearing who rely on text, RTT holds great promise because it transmits conversation on a character-by-character basis. Thus, the Consumer Groups urge the Commission to consider mandating adoption of RTT in the relative near term.

Respectfully submitted,

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