**Before**

**Department of Justice**

# Washington, D.C. 20530

In the Matter of )

)

**Nondiscrimination on the Basis of Disability in** ) 28 CFR Part 35

**State and Local Government Services;** ) **DoJ-CRT Docket No. 0111**

**Accessibility of Next Generation 9-1-1** ) RIN 1190-AA62

Comments of

**Rehabilitation Engineering Research Center for**

**Wireless Technologies (Wireless RERC)**

The Rehabilitation Engineering Research Center for Wireless Technologies (Wireless RERC), hereby submits comments in the above-referenced Public Notice released on July 26, 2010. We are pleased that the Department of Justice is taking steps to ensure the accessibility of communications to emergency response services.

The Wireless RERC[[1]](#footnote-1) is a research center focused on promoting equitable access and use of wireless technologies by people with disabilities and on encouraging the application of Universal Design practices in future generations of wireless technologies. The Wireless RERC, through its research and development activities, works with people who have disabilities and difficulties accessing wireless products and services. We use their input on specific accessibility attributes and challenges in order to promote inclusive design and universal access to wireless technologies.

The comments respectfully submitted below are based on technical and policy expertise developed over the 10 years of the Wireless RERC’s existence. The Wireless RERC has created several projects dealing specifically with emergency communications, emergency alerting, the Emergency Alert System, the Commercial Mobile Alert System, communications with 911 services, and e-911. The ability to reach people with disability is a critical concern of the Wireless RERC and as a result we have filed numerous times before the Federal Communications Commission on the topic and been quoted in rulemakings.

On October 31, 2010, the Wireless RERC, User Center Research project, launched a survey on emergency communications specifically designed to address some of the questions in the Department of Justice ANPRM. The “2010-11 Emergency Communications Survey” gathered data from people with disabilities to provide assistance in DoJ’s efforts to ensure accessibility of Next generation 9-1-1. The RERC has promoted the survey throughout its nationwide Consumer Advisory Network (currently approx. 1000 members) and through the help of LinkedIn groups on accessible technology, Yahoo! groups on disability, and the staff of the following organizations:

• Center for Assistive Technology and Environmental Access, Georgia Tech

• Center for the Visually Impaired

• Disabled American Veterans

• FEMA’s Office of Disability Integration and Coordination

* Florida Bureau of Preparedness and Response

• Georgia Mayor's Committee For Persons with Disabilities

• Hearing Loss Association of America

* Hearing, Speech and Deafness Center

• Maryland Relay

• National Association of State Relay Administration

• National Association of the Deaf

* National Spinal Cord Injury Association

• New Jersey Centers for Independent Living

* Progressive Center for Independent Living
* Texas Governor's Committee on People with Disabilities

As of January 19, 2011, 1115 people age 18-91 (average age 52) have responded to the “Wireless RERC 2010-11 Emergency Communications Survey”. Among these respondents, the following limitations are represented (some respondents cited more than one):

* Mobility: 45% (of respondents)
* Hearing: 40%
* Vision: 36%
* Using Hands: 19%
* Thinking: 20%
* Speaking: 9%

The following comments are based on analysis of these preliminary results of the Wireless RERC 2010-11 Emergency Communications Survey.

**Question 1. What modes of communication (e.g., voice, text, video, or data) do (or will) individuals with disabilities use to make direct calls to a PSAP, and from what types of devices would the calls be made?**

Findings of the Wireless RERC 2010-11 Emergency Communications Survey show that people with disabilities prefer a broad range of communication modes for contacting emergency services:

Survey Question:

*If you could choose how to make an emergency call, which way would you prefer (check all that apply)?*

Voice call over landline: 59%

Voice call over cell phone: 59%

Text message, email, or instant messaging: 33%

Video relay service: 14%

Telephone relay service: 6%

TTY: 5%

Non-relay video call: 3%

Other: 5%

The survey also shows substantial usage of 911 emergency communications by people with disabilities. Of 1115 survey respondents with disabilities, 765 (69%) reported that they have contacted 911 emergency response services at least once. The following modes of communication were used:

Survey Question:

*Have you ever placed an emergency (911) call? If so, check all that apply.*

Mode of communication # of respondents

Voice call over landline phone: 497

Voice call over cell phone: 357

TTY: 68

Video relay service: 42

Telephone relay service: 27

Telephone-enabled AAC Device: 10

Other: 46

**Question 2. Should the Department issue a requirement for NG 9-1-1 technologies to support text communications along with analog-based TTY communications? If so, should NG 9-1-1 text technologies be backward compatible with analog-based TTYs or should the two communication methods be available side by side?**

Of 1115 survey respondents with disabilities, 5% said they prefer to use a TTY to reach emergency services; 7% had actually used a TTY to make an emergency call. Among the 447 survey respondents who are deaf or hard of hearing, 14% had placed an emergency call via TTY, and 10% preferred TTY to place emergency calls.

However, among those survey respondents (ranging in age from 24 to 84) who identified TTY as one of their preferred mode(s) of emergency communication, 64% cited other modes of communication as most important to them:

TTY: 36%

Text message over cell phone: 30%

Real-time text over cell phone: 18%

Email: 5%

Real-time text over computer: 4%

Text message over computer: 2%

No response: 5%

These survey results lead the Wireless RERC to recommend that any transition to NG 9-1-1 must provide support for TTY users for some period of time. Analog-based TTY technologies date from the 1960’s. Continuing to support them is a significant cost burden on PSAPs and on phone service carriers. At some point, we would support a date, as was done with the analog to high definition television transition, where TTY will no longer be accepted as a method to contact 9-1-1.

The Wireless RERC suggests that a longer-term plan should be established as soon as feasible to replace TTY as the method for connecting to both existing e911 PSAP’s and NG 9-1-1 PSAP’s. This will necessitate the purchase and distribution of new hardware to consumers who use TTY, as well as training of these users on how to use the new equipment and perhaps can be done in cooperation with another federal agency or the Interagency Coordinating Council on Emergency Preparedness and Individuals with Disabilities. The switchover will also require creation of gateways to allow the new technology to connect to 9-1-1 centers that have not yet upgraded to accept text in any format other than TTY.

**Question 3. Which, if any, of the following text options should the Department designate as essential accessibility features of NG 9-1-1 to be incorporated into the initial deployment of an NG 9-1-1 system to assure equal access to emergency call-taking centers for individuals with disabilities?**

**a. Real-time text**

**b. Short message service (SMS)**

**c. Instant messaging (IM)**

**d. Email**

**e. Analog gateway**

**f. Other modes of text communication**

Of the 1115 respondents with disabilities to the Wireless RERC 2010-11 Emergency Communications Survey, 367 included text message, email, or instant messaging among their preferred modes of emergency communication. These 367 respondents were asked to identify which of the following text-based modes was most important to them:

Text message over cell phone: 48%

Real-time text over cell phone: 27%

Email: 9%

Real-time text over computer: 7%

Text message over computer: 5%

TTY: 2%

No response: 2%

These findings strongly support incorporation of text messaging (SMS), as well as Real-Time Text (RTT), among the essential features of initial deployment of an NG 9-1-1 system.

Additionally, the use of international standards for RTT should be implemented in any system deployed in the U.S. Mobile devices know no boundaries, and U.S citizens visiting other countries using RTT would be easily able to summon emergency help, as well as visitors to our country. The Real-Time Text Task Force (www.realtimetext.org) is an organization working to help create standards and test the implementation of RTT worldwide. The REACH112 project (www.reach112.eu) in the European Union is testing RTT and other means for persons with disabilities to connect with emergency services.

The Wireless RERC also recommends that to ensure no American is left behind in the switchover to NG 9-1-1, the use of analog gateways is essential. These gateways can be designed to convert between traditional analog TTY and the new RTT, and be deployed at appropriate points in the telephony network or in the PSAP. As RTT becomes more prevalent, these gateways can be slowly phased out to save money and provide faster and more reliable service to all persons.

One additional technology that the Department of Justice does not mention but that is increasingly important to persons with disabilities and with aging persons as well is captioned telephony. The government and public safety community needs to ensure that captioned telephony is supported in the NG 9-1-1 system, either via gateways and/or new standards for RTT on captioned IP telephones. Several respondents to the survey mentioned CapTel in comment fields in the questionnaire (5 said they had used CapTel to contact 9-1-1 services, and 11 said they preferred to use CapTel to contact emergency services).

**Question 5. Are there significant issues related to the interoperability of messages sent by text that need to be addressed in any final regulation?**

Text interoperability is a critical concern for NG 9-1-1. There are currently many text communication systems in use by persons with disabilities, including TTY, Captioned Telephony, SMS, and numerous versions of instant messaging. The vast majority of these are incompatible, and incompatibility of wireless systems has been found to be a key policy barrier to deployment of wireless technologies.1 DOJ, working with the disability community and emergency response community, needs to determine which of these should be supported and how to ensure seamless interoperability of the systems. Inclusion of all of the systems will most likely be impossible, so an important task will be outreach to the general public on what texting systems they can use and how to use them.

**Question 9. The Department also seeks comments on any other methods for ensuring equal access to NG 9-1-1 for individuals with disabilities. Should the Department issue standards for other methods to provide accessible NG 9-1-1 services? Should the Department require specialized training to ensure that these services can effectively respond to the needs of people with disabilities in an NG 9-1-1 environment?**

Findings of the Wireless RERC’s 2010-11 Emergency Communications Survey suggest that accessibility of video relay services is important to people with disabilities. Of 1115 survey respondents, 14% included video relay service among their preferred mode of emergency communication. Furthermore, 71% of these respondents cited preference for video relay with both the caller and interpreter visible to the 911 operator; 25% cited a preference video relay with the interpreter visible only to the caller (4% did not respond).

There are potential methods other than text for persons with disabilities to connect to NG 9-1-1, such as direct video connection to PSAPs for persons whose primary language is ASL, video connections for lip reading, or enhanced audio connections to perhaps alleviate some need for speech-to-speech relay using revoicers (revoicers are trained relay operators who listen to speech from persons with speech disabilities such as Cerebral Palsy and respeak the speech to the person on the other end of the phone call). It would be premature at this time to issue standards for such methods as the technologies for NG 9-1-1 are still in flux; however DOJ should carefully monitor these and other technologies to issue such standards as needed. Even if technologies such as American Sign Language direct to the PSAP are not mandatory, standards and guidelines for PSAPs that choose to implement such technologies will be essential to provide equivalent service from PSAP to PSAP. Regarding training, this task should be repeated on a regular basis much as FEMA training courses are updated and required of its personnel. Often personnel change and therefore without requiring the appropriate personnel to have specialized training to ensure they can respond effectively, NG 9-1-1 will not have a fail-safe method to assure the system is effective.

**Question 14. Should the regulation be amended to address sending emergency alerts to text, audio, video and other devices used by individuals with disabilities?**

More than 93% of the U.S. population use wireless services or products2. As of 2008, approximately 84% of Americans with disabilities owned or had access to a wireless device.3 As wireless devices increasingly become primary sources of communications, receiving alerts on these devices need to be considered in any emergency communications scenario. In particular, millions of people with disabilities have cell phones that provide them with information they might otherwise not receive through other media. People who are deaf have been enthusiastic adopters of mobile devices with QWERTY keyboards such as the BlackBerry and Sidekick and iPhone. Blind consumers can now purchase cell phones that read aloud text messages (also known as SMS for short message service), as well as phone menus, contact lists, and device commands. With increased use of wireless devices by people of all abilities, it is important to ensure these devices and their multi-modal features are incorporated into the public alerting framework4.

As cited above, findings of the 2010-2011 Emergency Communications Survey show use of a variety of modes of emergency communications by people with disabilities. Of 765 respondents with disabilities who reported that they have contacted 911 emergency response services at least once, the following modes of communication were used:

Mode of communication # of respondents

Voice call over landline phone: 497

Voice call over cell phone: 357

TTY 68

Video relay service: 42

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Other: 46

An alert system that employs the use of video, audio, graphics, embedded TTS functionality and web links would provide more robust alerting that meets the diverse needs of people with differing levels of sensory, physical and cognitive impairment. Regulations should be reviewed and amended to be consistent with other federal agencies who work in the emergency alerting space such as the FCC and FEMA. Given that 69% of respondents to the Wireless RERC Emergency Communication Survey have contacted 911, it is important to provide emergency alerts in text, video, and other media used by the populace, to all users. Anytime a PSAP receives an emergency alert via the Emergency Alert System (EAS), Commercial Mobile Alert System (CMAS) or any other emergency reporting system available to the PSAP, the PSAP should be required to immediately use all of its available outgoing systems and its web site to push the alert message to the public thus maximizing the chances that all people, including those with disabilities, receive the alert. Examples of available systems and outlets include; short message service (SMS), instant messaging (IM), email, TTY gateway, reverse 911, social media (Twitter, Facebook), Internet, etc.

Such broad dissemination should be coordinated with other federal agencies and national alerting mechanisms such as EAS and CMAS (forthcoming) to maintain public trust in the system; and it should be automated to avoid delays in retransmission of alerts to the public. “Emergency managers have reported that accurate and timely information is as crucial as rapid and coherent coordination among responding organizations. Effective information systems that provide timely access to comprehensive, relevant, and reliable information are critical.”5 Insuring that PSAP retransmissions of alerts are disseminated simultaneously with CMAS and EAS alerts is essential. To avoid confusion, minimize response time loss, and bolster and/or maintain trust in the systems, it is important that the alerting systems are synchronized and contain the appropriate content for the area under emergency alert. Emergency managers that understand the use of inclusive and accessible technological solutions, as well as the instinctual behavior of the public once the alert is received can decrease response times to these populations, which can lead to more efficient use of public safety and emergency management personnel and saving of lives during natural and manmade disasters.

PSAPs should be required to keep logs of the emergency messages received and transmitted, as well as coordinate testing of the system with the other national alerting systems.

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Respectfully submitted, on behalf of the Wireless RERC,

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