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Comments on:

Accessibility of Next Generation 9-1-1
Docket DOJ-CRT-0111.
RIN 1190-AA62

The Rehabilitation Engineering Research Center (RERC) on Universal Interface and Information Technology Access at the University of Wisconsin's Trace R&D Center, and the RERC on Telecommunications Access, a joint project of the Trace Center and Gallaudet University, commend the Department of Justice for issuing the Advance Notices of Proposed Rulemaking addressing accessibility of information and communication technologies, including websites and electronic and information technology (EIT) equipment and furniture. Thank you for the opportunity to comment and contribute to this important discussion.

The IT Access RERC is located at the University of Wisconsin-Madison. The Telecommunications Access RERC is a joint project of Gallaudet University and the Trace Center of the University of Wisconsin, Madison. Both are funded by the National Institute on Disability and Rehabilitation Research of the U.S. Department of Education. The primary mission of the RERCs is to find ways to make standard systems directly usable by people with all types and degrees of disability, and to work with industry and government to put access strategies into place.

The Trace R&D Center has been working in the area of technology and accessibility for over 30 years and it was this Center that created the initial accessibility features (e.g., mouse keys, sticky keys) that are now built into every copy of the Windows operating system, the Macintosh operating system, Linux, etc. The Trace Center also created the first set of Web accessibility guidelines in 1995 and has worked with over 50 companies in building accessibility directly into their products. Cross-disability accessibility features developed by the Trace Center can also be found in automated postal stations throughout the country, Amtrak ticketing machines, ATMs, airport information systems, and voting machines.

Gallaudet and the Trace Center have collaborated on research and development related to cross-disability access to telecommunication since 1995. The Telecommunication Access RERC has carried out research and developed tools and resources related to hearing aid compatibility, universal design of cell phones, and real-time text, as well as contributing to international industry standards and government policy initiatives.

The answers are arranged in the same order as the questions in the ANPRM, and the headings and questions repeated.

Overview

Modern communication technologies, included in the international standards for emergency services offer excellent and unprecedented opportunities for people with disabilities to communicate in modes, media and languages that match their abilities and offer them faster and more reliable communication in emergencies than earlier PSTN based technologies could. The full benefit of these opportunities however cannot be achieved if technical interface standards are not specified for communication between the user's service providers and the emergency services. Inclusion of such standards in regulations on emergency service access is essential to interoperability and accessibility.

The specific media formats that need to be specified in order to ensure reliable need special consideration are Real-Time Text, Text Messaging and Video (Audio interoperability is already maintained by industry though high definition audio should also be supported to allow clearer communication for people with hearing disabilities). It must also be remembered that in many cases users will require combinations of the text, voice and video in the call to meet their needs.

An important specific consideration we highlight is the urgent need to establish some form of access to emergency service calls from mobile devices for those who must rely on text to communicate. A large part of the US population is now left without emergency access when outside the home. This is in stark contrast to what other citizens have and is far from the functional equivalence that should be the goal in all actions. In our response, we provide a proposal for rapidly solving this urgent need.

A. **Direct, equal access to NG 9-1-1**

> *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?*

Because of advancing technologies, it is not as useful or even possible to separate direct from indirect calls to a PSAP. In the past, a user might call a relay service that would then stand between a user and the PSAP. With IP communication this could and should look more like a conference call with the user, the PSAP and the relay service. Further it is possible that the user may call the relay operator who would then bring in the PSAP, or the user may call the PSAP that may invoke the relay service as needed. Or the user calling 911 might call both the PSAP and the relay simultaneously.

The different types of communication that might be used in any of these direct, indirect, or 'conferenced' communications include:

Modes:

Modern IP based communication provides the opportunity to communicate in a variety of forms – and the ability to communication in more than one medium simultaneously in the call.

The basic modes of communication to be expected in the near future include:
> **Voice**
> **Real-time text** (used for conversation, captioning, or augments to speech, sign, etc.)
> **Text messages**
> **Video** (used for sign language, lip reading, or pictures)

These can be used alone or in combination. Some common combinations include:

Captioned Telephony (Voice with parallel real-time text captions)

Speech out and text back (e.g. late deafened adult who wants to speak (not type) but cannot hear)

Sign language out and text back (e.g. deaf-blind user who can sign but must have text back so they can read it on their braille display

Text out- speech back (person who can hear but cannot speak)

Picture one way speech the other (aphasia)

Speech with text to supplement (speech hard to understand so they supplement with text when words or details are not understood when spoken)

Sign with text to supplement (sign but when numbers come along it is too hard to watch signing and write down the number – so signer changes to text to type phone numbers, urls, etc.

Weak and hard-to-understand speech one way, speech the other. (people with speech disabilities, where a speech-to-speech relay is usually needed)

It is likely that for each direction of communication, the user regards one communication mode to be the primary mode, while other modes may be secondary or complementing. The selection of primary and secondary modes may be different for the different directions of communication in a call. For a person with hearing impairments may for example the primary mode from the user may be using voice, while the primary mode for reception may be reading written text. Audio and video may be important secondary complementing media for reception, so that for example lip-reading to augment speech can be used.

Language abilities is also an important factor for a successful emergency call.

Languages to be handled are:

Spoken and written languages:

English,

Spanish

Other spoken and written languages

Signed languages:

American Sign Language (ASL)

Other sign languages

As noted above, secondary communication modes that may be combined with the primary ones.

Voice

Real-time text

Real-time text in captions following speech in the audio channel

Text messages

Video with sign language

Video for lip-reading

Pictures and Symbols

Sound from the surrounding

Video from the surrounding

When the PSAP does not have the expertise to handle particular modes of communication, a relay service can be invoked to convert between modes. Invoking relay services in a three-party fashion often provides better handling of emergency communications, providing both direct auditory access by the PSAP to the user – and a person who is expert at understanding people who are deaf and use a different syntax than English. In these cases a more suitable term than "indirect" might be "supported" calling.

Typical relay services to include in/on a call.

- Video relay, with translation mainly between sign language and spoken language
- Text relay, with translation between speech and varying forms of speech.
- Captioned telephony with real-time text added to voice communication.
- Speech-to-speech with support for understanding hard-to understand speech or supporting speech with other cognitive support services.

With IP communications, multi-media capabilities are possible. This allows multiple modes to be used simultaneously to support many varying needs in communication. One example of how these modes can be combined and shared among all parties on a call:

> A deaf caller uses video with ASL as the primary mode in both directions, and real-time text as a secondary mode for exchanging exact items, like medicine names, street addresses etc. (where it is usually hard to watch someone sign and also write down the information). Audio may also be used by the PSAP as a secondary mode for receiving the sound of coughing of the user due to smoke. A video relay service may be connected to the call in a three-party way, so that all media and modes are available for the PSAP and the user.

Device types that may be used on a call:

Calls will be made with a wide variety of devices in the future. A small sampling include:

1. Videophones, with standardized video and audio
   a. Traditional desk phone for fixed networks.
   b. Smartphone designed for 3G networks.
   c. Smartphone designed for WiFi networks.
2. Proprietary videophones with Instant Message addition.
3. Total Conversation terminals, with standardized video, real-time text and audio.
   a. Traditional desk phone for fixed networks.
   b. Smartphone designed for 3G networks.
   c. Smartphone designed for WiFi networks.
4. VoIP voice phones with real-time text functionality connected to fixed IP networks.
5. Analog legacy TTY connected to a PSTN connection.
6. IP RTT standardized application with real-time text and audio.
   a. Traditional desk phone for fixed networks.
   b. Smartphone designed for 3G networks.
   c. Smartphone designed for WiFi networks.
7. Wireless phone with SMS function and possibility to add new software.
8. Proprietary text messaging application in PC-based terminal.
9. Public multimedia payphone.
10. Wireless phone with e-mail function for text messaging.

Analog TTY's connected to a wireless handset for mobile TTY use exist but are rarely used and are less likely as other text forms are enabled to call 911.

i. Text communications

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?*

There will be TTY for some time, so both TTY and newer text technologies need to be supported for the foreseeable future.

NG 9-1-1 needs to accept TTY coming in on PSTN lines. The easiest way to handle this in NG 9-1-1 may be to convert TTY to IP Real-Time Text (RTT) and route along with other IP based Text in the IP environment.

There may also be some TTY that comes in on VoIP lines. Although this is usually not reliable, if the text comes in on the IP line in TTY mode, then some attempt to support it and use it should be made. Again the easiest way would be to route this to a gateway for conversion between TTY and IP based RTT and handled in IP along with IP RTT.

New text communication methods

However, support for newer forms of text communication with emergency services is essential. Newer text communication methods offer better functionality than the TTY.

TTY text flows in real time but has some limitations. Only one text direction at a time can be used, voice can only be used in a call while no text is transmitted, the character set is limited compared to mainstream use of text, and the transmission speed is lower than many persons with high typing speed manage to type. The rate of garbling the text because of communication disturbances is also quite high.

In addition to addressing these shortcomings of TTY, newer text communication forms provide other benefits
- Simultaneous text and speech.
- Captioned telephone.
- Communication in both directions simultaneously without interference.
- Higher speed.
- Character set is not limited to letters and numbers (can send an email or web address for example).
- An almost unlimited number of different devices can be used by consumers to send text messages and real-time text including web pages.
- Newer forms of text communication are native on IP networks and can travel without loss or distortion.

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?

- **Real-time text** : Essential – for rapid conversation and captioned telephony
- **Short message service (SMS)**: Essential for those that communicate this way daily
- **Instant messaging (IM) :** Essential for those that communicate this way daily
- **Email :** Essential – at least for the types of wireless phones that send email as their form of short message service
- **Analog gateway with TTY:** Essential for the near future
- **Other modes of text communication:** Web based real-time text chat. – Should be discussed

Note that it is also essential to be able to use Real-Time Text simultaneously with audio and video when any or both of these media are supported by the user terminal.

Question 4. For this period, should a PSAP develop and implement an interim plan to receive text messages directly or via a third party? How should a PSAP develop an interim plan? What solutions should PSAPs consider as part of their interim plan?

The interim plan should be to use a central national solution to relay new text based communication that is accessibility related to PSAPs until the PSAP is prepared to handle the communication directly. For PSAPs that are ready – the types of text that they can handle will be routed directly to them.

Solutions at the local PSAP level are not recommended. If done locally, the amount of work, time, communication, education etc. needed to set it up would delay it for years and result in very uneven and implementation with many gaps. Some would be served but others left without service as funding and deployment issues arise for their PSAPS arise. Local and ad-hoc systems (that cannot handle many simultaneous text callers) are also vulnerable to a local surge in text calls that might arise with a local crisis. Such a surge could be absorbed in a national service where accumulated.

Further it will be very cumbersome to back out from a temporary solution using a local numbers to reach specific PSAPs to a single national 911 system. It would become very hard to know if all users have been reached with the information that a national number is replacing the local number, and therefore any such numbers need to be maintained in operation for long times with very little usage which usually results in unreliability.

For this and other reasons a national centralized solution is recommended as the temporary solution. Local PSAPS can then inform the national center when they are ready to handle their accessibility calls themselves. At that point all calls of the types that the PSAP is prepared to handle can be routed directly to the PSAP.

A separate document describing this proposed temporary solution in more depth as well as discussing other approaches that have been explored will be maintained and available at http://trace.wisc.edu/911text or http://tap.gallaudet.edu/911text/

Once the NG 911 system rolls out there should be economic incentives established for the PSAPS to eventually take over all manual call handling.

The interim plan should therefore contain sections on how the central accessibility service is set up, and how the funding for it and the PSAPs work, and how and when the PSAP must take over handling of each type of accessible call format.

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

Yes. Interoperability can only be achieved if there is a common interconnection format established.

It is essential that specified technical standards are used for the interfaces with the PSAPs and for support within networks. Otherwise there can be no interoperability and no guarantee that a text call can be completed end to end in the same way voice calls are.

National and even global harmonization and system functionality are key factors for a well functioning emergency service system. To achieve this, a small but critical number of technical communication methods for the calls with PSAPs need to be defined. These methods must be sufficient to cover the modes of communication used by people with disabilities as described in the answer of question 1, and guarantee interoperability. But the number should not be more than is necessary, so that a problem is not created for networks and PSAPs that must support them.

Proprietary text systems

Many instant messaging services are using non-standard proprietary communication methods. Their users may use their services as their main everyday communication method, and may therefore have an expectation to be able to use the service also for emergency service access. This can in general only be handles if the proprietary service provider establishes a standardized interface that converts their proprietary format into a PSAP supported standard format where they interface with PSAPs (or the networks leading to the PSAP). It is not realistic for the PSAPS to be expected to handle all types of text messaging themselves.

User to user communication

It is also important that the interface standard used for communicating with the PSAP, also be used for communication user – to – user and between different service providers. Only when the interface is exercised more than in emergency situations can one be sure that it is in operational order the day it is needed by the user for an emergency call. This is why people using voice communications are both familiar with the methods that are used to call 911 and can rely on them working when they make a call. People who cannot use voice need to have the same familiarity and ability to rely on the text systems they must use to make an emergency call.

IETF emergency standards for text

The Internet Engineering Task Force IETF is an International standards body that is involved in standardizing IP based emergency service access. Their emergency service standards include methods sufficient for the access modes described above under question 1, in an accessible way. In order to be sure of the required harmonizing effect across countries, technologies, and industry sectors, DOJ should reference these standards in the regulation.

See answer on question 10 for a list of technical standards.

ii. Video communications

Question 6. *In implementing NG 9-1-1, should the Department amend its title II regulation to require each PSAP to provide VRI service? If so, should the Department regulate how to provide such service?*

No – Communication with people using sign should, for most 911 centers, be handled through VRS – using a special mechanism that ensures prompt response and sharing of video with the 911 center.

> NOTE: VRI is usually used to refer to the use of a remote sign language interpreter for a conversation between two people in the same room. VRS is usually used to refer to the user of a sign language interpreter on a call between two people who are remote from each other as they communicate. In the past, this has usually meant that they VRS operator is in the middle between the two calling parties. In IP systems it is possible for VRS to occur with the two calling parties being "face-to-face' but remote with the VRS operator as a third party in the call. In these comments we assume that VRI is used to be the latter case with remote communicators – but with the possibility that it will behave much like VRI in that it allows the callers to see each other directly. This would be the most advantageous for 911 centers interacting with someone making an emergency call.

An important principle is that the user experience in calling 911 must as close as possible be equal to what is done in the everyday call. Therefore, the most commonly occurring inclusion of VRI/VRS in the call should be established by invoking the user's favorite relay service in the call with four important additions:
 a. The call setup must allow essentially all media to be shared between the three parties in the call. (Video, Audio and Text)
 b. The call for inclusion of the VRI must be made with priority.
 c. Call routing and call location information must be automatically provided to PSAP regarding the user's position.
 d. The order of calling to the PSAP and the VRS may be simultaneous, and if the PSAP answers before the VRI, communication to the degree possible with available media and language competence may begin while waiting for the interpreter so be included.

It should also be possible for a PSAPs to bring an interpreter into any call at any point where they are needed. This most often occurring call setup procedure with VRS must not preclude the PSAPs from making their own agreements with VRI services, and having agreements and methods for including VRI when needs arises during the call.

This is equal to the agreements and inclusion methods the PSAP usually has with spoken language interpreters and other niche experts that may be invoked in calls occasionally.

Adding a VRS or TRS in the middle of a call.
Normally, the decision to include a relay service should be made by the user or be registered by the user's service provider. But there should be preparations for adding relay services during the call. E.g. if a deaf person borrows a general purpose videophone that is not set up for VRS inclusion, and calls 911. The call goes then directly to the PSAP that discovers the need for inclusion of the VRS, and does so during the call.

An example showing that similar needs to add a text relay service to an ongoing call maybe that with a text communication device a deaf user calls directly, and use a written language that is heavily

influenced by ASL grammar, the PSAP call taker may have problems managing the conversation, and need to invoke a text relay service when this need is detected.

So, in summary, the PSAP must be required to have technical methods and agreements to invoke VRS and TRS services by PSAP action, but in most cases it will be the user or the user's service provider who initiates these connections.

Question 7. Should a center also be allowed to transfer a caller´s call to a particular center where call takers are trained and fluent in oral/sign language interpreting services or where call takers are trained in working with individuals with speech impairments? If so, should a final rule address call routing policies that restrict or prohibit such transfers?

YES

Transfers to another center that is more qualified to hande the call with particular users must not be restricted or prohibited. Such transfers may result in more effective handling of the calls for cases that the PSAP operator feels unsure about. However, it should not be transferred so far that the other center is not familiar with the location where the emergency is occurring.

If it can be seen when the call comes in that it requires features or capabilities that a center lacks, it would be good if the call could be transferred or routed to the appropriate center without even answering it first at the "wrong" center. Such decisions can be made from information on user profiles when available or sometimes from the type of technology used to make the call.

Question 8. In the context of NG 9-1-1, the Department is asking for public views on whether PSAPs should use only those interpreters who are specifically trained to handle emergency calls in using interpreting services on-site or via VRI.

YES, except in disasters or other overflow situations. If this occurs often then the PSAP should train a deeper pool of educated call-takers.

Technically, in the calls with the VRS for an emergency call, it must be made very clear to the VRS that it is an emergency call. Only interpreters who have signed in for handling emergency calls must be expected to take such calls and training must be provided to interpreters who intend to take emergency calls.

Because of the possible need for any interpreter to handle emergency calls in a disaster situation, we do not see it as possible to have a strict regulation saying that training MUST have been done before handling emergency calls.

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?

A few extensions of the emergency service provision may be made.

Invoke VRS to handle call when needed.

It may be better to special train VRS centers than to try to train all the PSAPs in handling accessible calls. There may be too many people to train. Too many other things to learn. Not enough practice. Not enough continual conversation with deaf to handle their language well directly and have enough people at center who can handle so someone is always available. This can be amended through more often invoke a resource for handling emergency calls in an accessible way.

Invoke spoken language experts and expert organizations in calls

For calls with other languages than the main ones described in question 1, the PSAPs must have knowledge an preparedness for combining spoken language interpreters with sign language interpreters into workable combinations.

Invoke captioned relay services in a call.

Emergency services must have knowledge and training about how to include captioned relay services in calls, and have knowledge on how it is to participate in a captioned relay call.

Web based access

Use of the web and its search technologies have become so common and basic first way to approach a need for communication that a web based access to 911 emergency services need to be established.

From a 911 related web site, the location can be determined e.g. through IP or GPS, and then a call to the proper center can be set up as a real-time text call.

During the call setup procedure selections can be made about what media to use in the communication and then initiate contact that once established may use any IP based media and modes described in question 1 and 2.
In general though, it would be good if other methods would present themselves to the PSAP in forms the PSAP is already accustomed to receiving and handlings.

For example – a web site for contacting 911 might be provided, but it should generate a call to 911 in a standard format. (Care should be taken however before using an open web site for anyone to call 911 since it would easily be used for fraud, mischief or denial of service attacks on PSAPS.

B. <u>Performance standards as opposed to technical standards</u>

> *Question 10. Should any regulatory provision on NG 9-1-1 requirements under title II be performance-based, or should a final rule provide technical specifications for call-taking technology and equipment? Please provide as much detail as possible in support of your view.*

Both.

- Interoperability REQUIRES specific technical standards.

- Functional standards are needed for general agreements on what services must be provided and with what functional goals they must be performed.

Regulated technical specifications are needed to establish the harmonization and good functionality discussed under question 5.

The most important interfaces for specification are the access interfaces between communication service providers and emergency service providers for all modes and call types.

However the interfaces between PSAPs are important as well and a prerequisite to enabling hand over of a case from one center to another. Such interfaces are internal within the emergency branch and might be left for emergency service industry to decide on.

Apart from these technical interface specifications, some service and performance standards are required, regarding for example service contents, answer times and delay times.

Support for the following technical standards should be required:

(list taken from NENA i3 Technical Specification which is essentially identical to list from IETF draft-ietf-ecrit-phonebcp A mature draft for the emergency service access interface protocol.)

1. IETF RFC 5012 Emergency service requirements.
2. IETF RFC 3261 Session Initiation Protocol, SIP.
3. Video ITU-T H.263 and ITU-T H.264.
4. Audio ITU-T G.711 plus ITU-T G.722.2 (AMR-WB).
5. Real-time text according to ITU-T T.140 and IETF RFC 4103 RTP Packetization for Text Conversation.
6. Messaging IETF RFC 3428 SIP Message.
7. Messaging IETF RFC 4975 MSRP, Message Session Relay Protocol.
8. Messaging RFC 3920 and RFC 3921. XMPP Messaging.

In addition TIA 825A should be supported for analog TTY access.
The mobile standards for Short Message Service SMS should also be supported, possibly through conversion to one of the text standards above.

IETF draft-ietf-ecrit-phonebcp is a mature draft for the emergency service access interface protocol.

> **Question 11.** *What are the technical issues that the Department should address in developing minimum standards?*

The minimum standards must establish technical interface specifications between PSAPS and communication service providers for the modes and media described in question 1, namely:
- Call setup and media session establishment
- Audio
  - Voice
- Text
  - Real-time text (for conversation and for captioned telephony)
  - Text messages
  - (including use of communication symbols if they are in Unicode)
- Video
  - Video used for sign language and lip reading
  - (including use for Pictures and Symbols transmitted by video)

It must also describe and settle levels for answer times, delay times and error levels, position indications.

Yes, NENA has worked extensively to create standards for this area and has created suitable standards. To a large degree they are in line with corresponding IETF standards and are harmonized with emerging international policy. It is in line with the view presented in question 5 to adopt NENA standards, e.g. the NENA i3 technical standard.

Yes. But they should also have the ability to receive calls, with speech-to-speech service already invoked, and also to instantly bring in a speech–to-speech relay operator on demand.

C. Emergency Alerts

Yes.
It is very important to establish a system for provision of emergency alerts that are accessible.

When the system for emergency alerts to the public is set up, it is essential that it contains the functionality needed to provide this information in a set of accessible formats and delivery methods.

The modes for such information should contain video with ASL, voice with real-time text, and plain text. Systems for making users aware of the alert situation should be set up, and accessible formats of the information provided, both through these emergency alerts and searchable via the web.

D. State and local plans to ensure access to NG 9-1-1 for individuals with disabilities

Planning and implementation for accessible emergency services must be made at the same pace as they plan and implement support for the general public.

The planning must consider what is being done in this area by other states and areas, so that the important harmonization is maintained.

Finally steps need to be taken to ensure that users are involved and get a preview of regulation proposals early in the process.

E. <u>Effective date</u>

The proposed timing is sufficient. But it should not be delayed further. A number of companies are poised to incorporate necessary functionality and standards in their products but can not proceed until the DOJ or the FCC formally makes a decision. Delaying can cause a whole generation of products to be missed. The network is building out quickly and the cost of retrofit is much higher than to act now. In fact before long the costs to retrofit existing equipment will grow significantly and reliability will be compromised as well.

A suitable triggering event for deployment can be that the NENA i3 technical specification by NENA.

N/A

F. <u>Defenses</u>

No, the direct access requirements just adapts the services more closely to the objective they have had for a long time – to provide functional equivalence. It is not a fundamental alteration and does not require one.

G. <u>Cost and benefits of NG 9-1-1 regulations</u>

There is one element in the requirements that may be specifically cost driving. That is to maintain a good service level to analog TTYs.

The transmission of analog TTY tones is threatened in the IP area by a number of technical factors. The main ones are line echo canceller optimization for voice, packet jitter, audio coding and packet loss. VoIP implementation was done with very little consideration for TTY transmission, and now we have a situation where a large amount of IP equipment has been deployed that would not support TTY audio transmission well. Even if newly installed technology going forward was required to transfer TTY tomes properly, it would take a long time with much effort and cost -- and be unreliable for this time until the old equipment was all updated or (since much cannot be updated easily) replaced. IP transmission of PSTN calls is occurring more and more frequently. And TTY usage is reducing

It seems important to put some limit on TTY interoperability so that vast sums are not spent to try to achieve reliability of a technology that will soon be replaced with IP connections.

Still, many existing users of TTYs should have the right to expect continued reliable use of their TTY from their fixed location with PSTN connection a number of years more.

A regulation with good balance is required here with a sound plan for phasing down and then replacing TTYs on PSTN connections with simple IP devices on IP connections.

F. Other issues

> **Question 21**. *Are there additional issues or information not addressed by the Department´s questions that are important for the Department to consider? Please provide as much detail as possible in your response.*

The DOJ should co-operate closely with the FCC as well as internationally in establishing accessible emergency services.

The FCC is responsible for setting the conditions for user's access to 911. DOJ is responsible for setting the conditions for the PSAP services to the public. A continued close co-operation in establishing clear technical specifications for user access and clear operational conditions is essential.

The telecom industry is International, and the users travel throughout the world. We also host travellers from abroad in the US. Emergencies can occur anywhere. Building the emergency services on international standards is an important step for an emergency service that will work for all, including elders and people with disabilities, no matter where they are or are from.

Thank you