

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Facilitating the Deployment of	)	PS Docket No. 11-153
Text-to-911 and Other Next Generation	)	
911 Applications	)	
	)	
Framework for Next Generation 911	)	PS Docket No. 10-255
Deployment	)	

**COMMENTS OF SPRINT NEXTEL CORPORATION**

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Framework for Next Generation 9-1-1	)	PS Docket No. 10-255
Deployment	)	

**COMMENTS OF SPRINT NEXTEL CORPORATION**

**I. INTRODUCTION AND SUMMARY**

Sprint Nextel Corporation (“Sprint”) submits these Comments in response to the Notice of Proposed Rulemaking (“NPRM”) issued in the above-referenced proceeding, which seeks comment on a number of issues related to the deployment of Next Generation 9-1-1 (“NG9-1-1”).<sup>1</sup> Sprint supports efforts to move toward a nationwide NG9-1-1 system and believes industry initiatives through standards setting organizations have made significant progress toward this long-term goal. The Federal Communications Commission (“FCC” or “Commission”) should continue to encourage efforts by standards organizations as they work to finalize their recommendations and resolve remaining technical questions.

Sprint, however, does not endorse an interim solution based on SMS technology due to its many technical limitations and because rebuilding the SMS system for this purpose will ultimately divert valuable resources away from implementing a long-term solution. As an alternative, Internet Protocol Relay (“IP Relay”) may offer an interim solution, because it can be

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<sup>1</sup> Facilitating the Deployment of Text-to-9-1-1 and Other Next Generation 9-1-1 Applications, PS Docket No. 11-153, Framework for Next Generation 9-1-1 Deployment, *Notice of Proposed Rulemaking*, PS Docket No. 10-255 (rel. Sept. 22, 2011) (“NPRM”).

deployed with minimal impact to the existing emergency services networks while providing important benefits to the disabilities community.

Ultimately the long-term NG9-1-1 solution will bring substantial benefits to all consumers and to the disabilities community in particular, by enabling real-time communication with the provision of location information and the potential for delivering other media. Standards organizations have made significant progress toward developing the standards that will be necessary to deploy NG9-1-1. The Commission should not take specific regulatory action, such as establishing best practices or adopting mandatory deadlines or timetables, until standards organizations currently engaged in NG9-1-1 standards development make further progress and final recommendations. In addition, Sprint believes NG9-1-1 should be deployed at the state or regional level, rather than PSAP by PSAP, in order to promote consistent and efficient implementation.

Finally, Sprint believes consumer education efforts will be essential as progress is made toward developing a NG9-1-1 solution, and Sprint encourages the Commission to take a lead role in informing consumers of the limitations of any text-to-9-1-1 solution that is recommended as an interim solution, as well as providing information going-forward as NG9-1-1 is deployed in the future.

## **II. DISCUSSION**

### **A. Facilitating the Short-Term Deployment of Text-to-9-1-1**

#### **1. Expected Benefits of Text-to-9-1-1**

##### *Accessibility of 9-1-1*

The Commission seeks information on the benefits and associated costs of facilitating short-term text-to-9-1-1 solutions that can quickly improve the accessibility of the 9-1-1 system,

and the Commission asks to what extent short-term solutions can assist individuals with hearing or speech disabilities.<sup>2</sup> The Commission also asks whether SMS can provide significant accessibility benefits even if it does not offer real-time connectivity or enable the caller to send photos or videos, unlike some longer-term solutions under development.<sup>3</sup> Sprint is committed to serving the needs of the disabilities community and supports efforts to explore features and capabilities that can be included in NG9-1-1 to assist persons with disabilities. Sprint believes that individuals with hearing or speech disabilities will ultimately benefit significantly from the long-term NG9-1-1 solution, which will include advanced capabilities, such as transmission of location information and the ability to send other media, including photos and videos to the PSAP.

Sprint is concerned, however, that efforts to implement a short-term text-to-9-1-1 solution, and in particular a solution based on SMS, will ultimately divert valuable time and resources away from achieving a long-term solution. Sprint supports efforts to recognize an interim text-to-9-1-1 solution for the disabilities community based on IP-relay, because this solution holds promise as a viable interim solution that can be implemented without a substantial negative impact on existing networks and within a reasonable timeframe relative to other potential solutions.

However, Sprint does not support the idea of implementing an interim solution based on SMS technology. Sprint maintains that due to the technology limitations associated with SMS, it would ultimately do more harm than good to implement an interim solution based on SMS. Rather than focusing on re-engineering SMS technology to reduce its limitations, efforts should be directed at the long-term solution. As Sprint discussed in Comments filed in response to the

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<sup>2</sup> *Id.* at par. 38.

<sup>3</sup> *Id.*

Commission's Notice of Inquiry, SMS technology has inherent technical limitations that make it unsuitable for emergency use.<sup>4</sup> As discussed in more detail below, the technological limitations of SMS make it unsuitable for emergency use and overcoming these limitations would be overly burdensome to all entities involved, taking significant time and effort that could be directed toward deploying an effective long-term solution.

Sprint asserts that IP Relay service is an appropriate interim solution for the disabilities community and supports efforts to look more closely at this proposed solution. In its recently published white paper entitled "Evaluation of Short-Term Interim Techniques for Multimedia Emergency Services," published in August 2011, the wireless industry trade association 4G Americas finds that, "Relay based services such as Video Relay Service and IP Based Relay Service are potential techniques for an interim solution. These techniques have minimal impact to existing mobile devices, to wireless network infrastructure, and to emergency services networks."<sup>5</sup> In addition, the Alliance for Telecommunications Industry Solutions ("ATIS") issued its Interim Non-Voice Emergency Services ("INES") Report and Recommendations ("ATIS INES Report") today, December 12, 2011. While Sprint has not yet had an opportunity to fully review and consider all aspects of the ATIS INES Report, it is Sprint's understanding that IP Relay was found to meet most of the key criteria identified in the ATIS INES Report.<sup>6</sup> The ATIS INES Report recommended IP Relay as the best near-term solution after a detailed comparison of the advantages and challenges associated with multiple near-term solutions, including SMS.

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<sup>4</sup> Sprint Comments at 4-5.

<sup>5</sup> 4G Americas white paper, "Evaluation of Short-Term Interim Techniques for Multimedia Emergency Services," dated August 2011, pg. 3 ("4G Americas White Paper").

<sup>6</sup> Alliance for Telecommunications Industry Solutions Interim Non-Voice Emergency Services Report and Recommendations, ATIS-I-0000026, December 12, 2011, pg. 16.

One important advantage of IP Relay service is that the user obtains a number that can be used as a call back number. IP Relay services, including IP Relay services currently offered by Sprint, enable the user to register and obtain a 10-digit North American Numbering Plan (“NANP”) number in the U.S. The user’s NANP number can then be provided to the relay operator and may be provided to the PSAP, allowing the PSAP to contact the user directly.

In addition, users are also required to register their default location, which can be updated as needed. This default location enables the call to be connected to the appropriate PSAP in the event of a 9-1-1 communication. The default location will be provided to the relay service or the PSAP so that the registered location of the user will be known in the event of an emergency.

IP Relay service can be deployed more quickly than other proposed interim solutions, because the required components can be obtained and deployed relatively quickly and easily compared to what would be needed to implement most other short-term solutions, including SMS. To utilize IP Relay service, the device would require a data connection and a specialized application that supports one of the protocols used by the relay service. Members of the disabilities community are already familiar with using IP Relay services for their telecommunications needs. As a result, using the same service for E9-1-1 purposes should not present a challenge from a user perspective.

#### *Improved Information for PSAPs*

The Commission asks what benefits the short-term deployment of text-to-9-1-1 could provide PSAPs and first responders. The Commission asks how such benefits compare to the cost of short-term deployment of text-to-9-1-1. The Commission also asks whether short-term implementation of text-to-9-1-1 would increase the volume of 9-1-1 traffic or the time and resources required for PSAPs to process information as compared to handling voice calls and

whether PSAPs are equipped to handle such increases.<sup>7</sup> Sprint is not convinced that short-term deployment of text-to-9-1-1 would be of significant benefit to PSAPs and public safety entities if such a solution is based on SMS technology.

A short-term solution based on SMS technology is unlikely to include location information. Consumers may not understand that text messages do not include location information and may assume text messages include the same information that is typically included with a voice call. In addition, a short-term solution would not include other media such as photos or videos, which are expected to be part of a long-term NG9-1-1 solution. A “conversation” via SMS is generally slower than a voice conversation -- SMS does not occur during “real time” and the user must type out a text message before sending it.

Because there is no priority treatment of SMS text messages, delivery of text may be delayed or maybe even not delivered, as is typical of texting thru SMS today. It may also be difficult for a PSAP operator to gauge the physical/emotional state of the caller or the severity of the incident by reading a text as compared to interacting via a voice call. This concern was expressed in Comments filed by the Wichita-Wilbarger 9-1-1 District in response to the Commission’s Notice of Inquiry.<sup>8</sup>

The implementation of a short-term solution using direct SMS is, however, likely to significantly increase the volume of 9-1-1 traffic, requiring more time and manpower resources to process. Before texting to 9-1-1 can become a reality, either as part of an interim or long-term solution, PSAPs will need to be ready to receive text messages and consideration must be given to how texts will be given “priority” in terms of being answered at the PSAP level. Currently,

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<sup>7</sup> NPRM at par. 40.

<sup>8</sup> Comments of Whichita-Wilbarger 9-1-1 at 2-3.

for voice calls to 9-1-1, the number of calls that can be handled simultaneously by a PSAP is governed by the number of call taker positions at the PSAP or the total number of circuits entering the PSAP (which in most cases is two or three per carrier). Overflow calls are routed to an administrative line, which is often handled by state or local police, or an alternate PSAP, or may even be “re-ordered,” possibly resulting in a fast-busy signal on the user’s line. In such a case, the caller might be forced to hang up and dial again.

If texting to 9-1-1 is put in place without developing methodologies for handling the increased volume, there will be no throttling mechanisms defined to limit the number of text messages a PSAP may receive simultaneously or in succession. PSAPs could receive hundreds or even thousands of messages in response to a widespread event or emergency and would need to determine how to prioritize these messages. This raises significant concerns regarding staffing, training, and the equipment that will be needed to process these messages. If the same PSAP operators are expected to handle both text and voice calls with the same staff, this could ultimately decrease the effectiveness of the existing emergency response system.

An interim solution based on IP Relay may be an appropriate step toward providing a text-to-9-1-1 option, while addressing some of the concerns discussed above. IP Relay could be made available to registered users only, and could be deployed for the disabilities community only. This would limit the call volume of texts received by PSAPs to their current maximum levels available through existing trunking arrangements, would provide call-back and location information to the PSAP, and would minimize security concerns. In addition, the use of an IP Relay service allows the IP Relay operator to communicate to the PSAP using voice communications, so the impact on PSAP operations should be minimal.

Consumer Expectations

Sprint asserts there is an immediate need for consumer education regarding the current limitations of texting to 9-1-1. Sprint is concerned that recent pronouncements made by the Commission and trials that have taken place may create a false impression with consumers that texting to 9-1-1 is currently possible. Sprint urges the Commission to take this opportunity to advise consumers that texting-to-9-1-1 is not currently possible and will not be possible in the short-term. Even an interim solution is likely to take months, if not years, to deploy nationwide, so consumers must be made aware of the current unavailability of texting to 9-1-1.

Reliability and Resiliency

According to the Commission, "... enabling SMS and IP-based text messages to 9-1-1 could be beneficial because text consumes far less bandwidth than voice and may use different spectrum resources or traffic channels. Thus, people in disaster areas may still be able to send text messages to 9-1-1 even if they cannot place a voice call."<sup>9</sup> The Commission seeks comment on the prospective impact of text messaging on PSAP operations and emergency response during large-scale disasters, with particular emphasis on experiences of overload-induced 9-1-1 failures. While there could be instances where a text message may go through when a voice call cannot because a text message utilizes different network resources as a store-and-forward service, encouraging the use of SMS messaging under such circumstances is not likely to produce the desired, and possibly expected, result.

As discussed above, if texting-to-9-1-1 is put in place based on SMS technology, there will be no limit on the number of texts a PSAP may receive simultaneously, the majority of which will be initiating a new emergency "conversation." Each of these conversations will

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<sup>9</sup> NPRM at para. 41.

require the attention of an individual PSAP call taker. A PSAP could receive hundreds or even thousands of messages in response to a widespread emergency, and PSAPs would need to sort through, correlate, and prioritize these messages. As a result, even though a text message may go through, it may go unanswered on the receiving end until the PSAP is able to review and respond to it. The Commission should consider requesting traffic engineering studies through industry or academic channels on how some aspects and parameters of text conversations in emergency situations would differ from existing voice communications and whether existing traffic engineering tools are currently adequate for designing PSAP capacity for text-based emergency conversations both for trunking levels and call taker staffing.

## **2. Ongoing Text-to-9-1-1 Trials**

The Commission seeks comment on the text-to-9-1-1 trials described in the NPRM.<sup>10</sup> Many of the trials discussed in the NPRM did not involve the delivery of location information. Because an SMS text does not contain real-time or default location information that can be used for both routing and emergency dispatch, there will be significant challenges with sending the message to the appropriate PSAP. Some form of location look-up would need to occur to facilitate routing. Not all carriers have such capabilities and, as a result, carriers would be required to develop a solution or enter into arrangements with entities that can perform this action. Sprint is familiar with the technology vendor proposals to address location look-up. Sprint is concerned, however, that these proposals are based on limited trials and that there is not enough data to demonstrate these proposals are reliable. Sprint believes it would be premature to move forward with an interim SMS solution that is hinged on these proposals without further analysis and data.

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<sup>10</sup> *Id.* at 46.

It is also unclear if the vendor proposals provide a national solution for all PSAPs ready to receive 9-1-1 text messages. If a national solution is not proposed, the interim procedures would need to be phased-in as PSAPs become capable of receiving text messages and request service from carriers. Phasing in an interim approach is likely to result in consumer confusion regarding the availability of text-to-9-1-1 in particular locations which will be exacerbated when it is time to deploy NG9-1-1. In addition, implementation of such a third-party proposal will require massive coordination between parties, which will divert time and resources away from long-term NG9-1-1 implementation. Carriers and PSAPs will also incur costs that would be better spent on a long-term solution.

### **3. Approaches Based on SMS and Existing Infrastructure**

The Commission observes that wireless providers and some industry standards bodies are generally opposed to using SMS-to-9-1-1 as an interim solution.<sup>11</sup> The Commission also notes that public safety commenters have expressed similar concerns about SMS-to-9-1-1.<sup>12</sup> According to the Commission, “However, some 9-1-1 technology and software providers support the use of SMS as an interim solution for emergency communications and contend that there are ways to overcome some of its technical limitations.”<sup>13</sup> Despite concerns raised by wireless providers, industry standards bodies and public safety commenters, the Commission states, “Balancing these considerations, we believe that PSAPs, providers, and vendors should have the option to implement SMS-to-9-1-1 as a short-term alternative. We seek comment on this view and on whether the benefits of leveraging SMS-to-9-1-1 on an interim basis outweigh

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<sup>11</sup> NPRM at par. 49.

<sup>12</sup> *Id.* at par. 50

<sup>13</sup> *Id.* at par. 51.

the limitations of SMS.”<sup>14</sup> Sprint is concerned that 9-1-1 technology and software providers that might stand to gain financially from implementation of SMS-to-9-1-1 as a short-term solution may have presented their proposal without fully addressing its numerous shortcomings. Although it would be convenient if SMS could be used for 9-1-1 purposes, Sprint believes that implementing a solution based on SMS in the short term will create more problems than it will solve. Rebuilding the SMS system so it can be utilized for emergency purposes will ultimately divert resources away from implementing a long-term SMS solution. The implementation of such an interim solution would require standards committee resources that are not currently allocated for interim solutions.

Sprint would argue that the benefits of deploying SMS-to-9-1-1 indeed do not outweigh the limitations of SMS. In the August 2011 4G Americas White Paper the authors found that, “SMS to 9-1-1 continues to have serious issues and limitations . . . Implementation of SMS to 9-1-1 would have significant impacts to wireless network infrastructure and to the emergency services networks and, therefore, is not considered to be a suitable interim solution.”<sup>15</sup> In the NPRM the Commission acknowledges, “The record indicates that SMS-to-9-1-1 has a number of technical limitations that affect its ability to support reliable emergency communications. SMS is essentially a store-and-forward messaging service that is not designed to provide immediate or reliable message delivery; does not support two-way real-time communication; does not provide the sender’s location information; and does not support the delivery of other media such as photos, video, and data.”<sup>16</sup>

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<sup>14</sup> *Id.* at par. 54.

<sup>15</sup> 4G Americas White Paper, pg. 4.

<sup>16</sup> NPRM at 53.

In addition to these limitations discussed in the NPRM, there are other technology limitations that must be considered. When an SMS message is sent, the sender does not receive a delivery receipt and will not know if a message does not go through. SMS messages have no priority on the network, meaning they will be “shed” in the event there is congestion on the network from voice traffic. SMS messaging also has significant security vulnerabilities, and SMS messages are more susceptible to other potential risks, such as “SPAM” and “spoofing.”

In addition, because SMS is not a session-based protocol, there is no association made on the network identifying one SMS message as being associated with another SMS message from the same user. As a result, subsequent messages from the user may be delivered to different PSAP call-takers unless systems are designed and deployed to help correlate and deliver these messages.<sup>17</sup> In addition, some devices on wireless networks may not be able to send a text message to 9-1-1 because they are not enabled for SMS or they are non-initialized phones with voice call capability only.

Perhaps the most significant technology limitation associated with SMS is the fact that SMS messages do not include location information.<sup>18</sup> Due to the lack of real-time location information, the originating carrier will be unable to route an SMS text message to the appropriate PSAP. In order to address this significant obstacle, carriers would need to modify their networks to arrive at a solution that would obtain a caller’s cell sector location for purposes of routing the text message to the appropriate PSAP based on the location of the person sending the message. Ample time would be needed for carriers to develop, test and deploy solutions throughout their networks. Due to the many technical considerations associated with a new

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<sup>17</sup> See 4G Americas White Paper, pg. 15.

<sup>18</sup> As 4G Americas has noted, because no location information is provided, the originating network will be unable to route to the appropriate PSAP. 4G Americas White Paper, pg. 15.

network modification and other considerations, such as roaming, Sprint strongly urges the Commission to seriously consider referring the issue to technical working groups and standard setting bodies for further evaluation.

Even if carriers deploy a solution to query the caller's cell sector location data, the location information will be obtained for routing purposes only. In the proposed solutions, the PSAP does not automatically receive location information associated with the text, which significantly decreases utility of sending a text. In an instance where an individual does not know their location, for example, no information would be available. Consumers have come to expect that some level of location information will be forwarded along with their communication based on current voice 9-1-1 requirements, so consumer confusion will result when location information is not provided automatically to the PSAP.

In the NPRM, the Commission specifically asks for comments regarding the proposal made by L.R. Kimball on selecting a different point of interconnection between the SMS system and 9-1-1.<sup>19</sup> LR Kimball suggests that, in today's environment, the "store-and-forward function" within the SMS message path is required because a destination mobile device may not be reachable at any given moment. Since a PSAP is deemed to be "online at all times," according to L.R. Kimball, that store-and-forward function is not necessary and the Point of Interconnection ("POI") could and should be moved to allow it to bypass this function. L.R. Kimball suggests changes to the SMS data flow thru the SS7 network creating a "new 9-1-1 specific SMS service." This proposal would require a significant change to existing systems.

Proposals for mitigating technical limitations, such as the one proposed by L.R. Kimball must be brought before an appropriate standards body to look at all technical aspects of the proposal. In particular, standards organizations must be engaged to consider how such a

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<sup>19</sup> NPRM at par. 55.

proposed solution would work on different operators' networks because of the variation in technologies deployed in different networks and where the appropriate demarcation or POI should be located. Comments filed in this docket are not an appropriate or sufficient means to work through these engineering details. L.R. Kimball would also need to clarify whether it envisions a nationwide enhancement to the SMS system or another proprietary proposal.

In the event the Commission moves in the direction of endorsing SMS as an interim solution despite the issues raised by numerous parties, Sprint cautions the Commission to consider the time it will take to deploy an interim solution based on SMS. There have been no standards or criteria developed for delivery of SMS text messages to PSAPs. Steps would need to be taken to develop standards, which will take time. Implementation will also take extensive coordination and will add to the timeframe for deployment of an interim solution. Sprint would urge the Commission to consider whether it is prudent to require the industry to spend months or even years focused on an interim solution that will ultimately be dismantled to make way for a long-term solution that would likely be far superior from its inception.

#### **4. Approaches Based on Software Applications**

The Commission seeks comment on the feasibility of using general texting or 9-1-1-specific applications to support a transitional non-voice NG9-1-1 system that would allow consumers to send text and other non-voice media to PSAPs and states that such a system would consist of: (1) one or more databases that describe where text-to-9-1-1 capabilities are available and how to reach the appropriate PSAP; and, (2) one or more software applications for smartphone operating systems.<sup>20</sup> Using databases to identify where SMS to 9-1-1 is supported is not likely to give a user accurate information because in an instant a mobile user can go from an

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<sup>20</sup> NPRM at par. 57.

area where text-to-9-1-1 capabilities is supported to an area where text-to-9-1-1 is not supported due to handoff on the network from one cell site to another. There would also be challenges with maintaining this database on a nationwide basis and providing the appropriate levels of security. The Commission's proposal for using software applications for 9-1-1 purposes essentially proposes that a proprietary form of NG9-1-1 for texting be developed apart from efforts currently underway to develop technology standards for NG9-1-1. PSAPs would also have to be prepared to support this proprietary interface.

When considering over-the-top ("OTT") software applications, the Commission must bear in mind that there will be limitations associated with such solutions. For example, as is the case with VoIP services that operate as OTT applications, obtaining location information associated with a particular call will present challenges. ATIS has started to examine some of the issues associated with obtaining location information for OTT VoIP applications. Sprint believes it may be appropriate to expand the scope of ATIS' study to include text-to-9-1-1 using OTT apps or ask that other standards organizations examine this issue.

## **B. Prioritization in Major Emergencies**

According to the Commission, "The August 23, 2011 East Coast earthquake and Hurricane Irene demonstrated that concentrated demands on the capacity of commercial communications networks during and immediately after emergencies can hinder the ability of consumers to make voice calls."<sup>21</sup> The Commission seeks comment on how best to address this concern in both legacy networks and the emerging broadband networks that will support NG9-1-1.<sup>22</sup> PSAPs, as a general rule, already have dedicated trunks to operator networks for 9-1-1 calls. The problems that were experienced after the August 23, 2011 East Coast earthquake and

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<sup>21</sup> NPRM at par. 60.

<sup>22</sup> *Id.*

Hurricane Irene appear to have been due primarily to the capacity limitations of the dedicated trunks.

Addressing such capacity limitations would entail putting in place extensive additional circuits and infrastructure that would drive up costs for the sake of anticipating rare occurrences such as the examples given in the NPRM. More importantly, substantial personnel would need to be added to PSAP call centers to wait for these events, which could occur at any time. This would result in a tremendous waste of public resources as literally thousands of public safety personnel would be required to sit and wait at answering positions, 24 hours a day, seven days a week, for months or even years between events with nothing to do.

It is Sprint's understanding, based on discussions with PSAPs after the East Coast earthquake, that many calls received were calls seeking general information about what had just occurred, rather than reports of actual emergencies. This demonstrates the need for public education to inform users that calls to 9-1-1 should be reserved for true emergencies. The Commercial Mobile Alert System ("CMAS") could play an important role in educating the public about a widespread emergency and potentially reduce calls to emergency services for information purposes. Sprint urges the Commission to promote the integrated use of CMAS with the 9-1-1 system.

The NG9-1-1 system has the potential to provide increased flexibility for routing emergency calls and associated data within the NG9-1-1 networks and between PSAPs. The Commission should consider exploring how this flexibility could be used to handle overload emergency call traffic better through automatic traffic overload tools to distribute the calls to wider bases of PSAPs. This is one of the most important and critical aspects of NG9-1-1 that should not be delayed for a short-term plan regarding text to 9-1-1. The current fractured public

safety system, consisting of 7,000 or more answering points, creates tremendous waste and inefficiencies. Addressing this issue will make all other improvements to the 9-1-1 system substantially easier to make.

Any future efforts to examine the technical aspects of 9-1-1 prioritization should be coordinated with other governmental agencies, including the Department of Homeland Security (“DHS”), which has sponsored work on Wireless Priority Service (“WPS”). A coordinated approach would be needed in order develop unified priority requirements for WPS and 9-1-1 and bring this issue into the standards bodies for network development both in the originating network, NG9-1-1 network and PSAPs. Ultimately, an end-to-end approach involving all parties that handle the emergency communication would be needed.

The Commission also asks about prioritization on future mobile broadband networks. Any plans for prioritizing on mobile broadband networks would need to be developed with specific standards in mind. PSAP capability would continue to be a primary concern. PSAP technologies are in various states of maturity with differing technology approaches, so standards would be needed to facilitate a uniform approach.

## **C. Facilitating the Long-Term Deployment of NG9-1-1 Text and Multimedia Applications**

### **1. Expected Benefits**

The industry should remain focused on long-term deployment of NG9-1-1 solutions rather than short-term interim solutions. Long-term solutions, not short-term interim solutions, will provide critical location information as well as the level of reliability consumers have come to expect with existing 9-1-1 and E-9-1-1 voice service. In addition, long-term solutions will eventually allow for the delivery of other media types including pictures and video.

Accessibility of 9-1-1

The Commission seeks comment on the benefits and associated costs of facilitating advanced text-to-9-1-1 and multimedia services, such as those based on SIP and RTT, to improve the accessibility of the 9-1-1 system and asks how these benefits and costs compare to the benefits and costs of the short-term solutions discussed earlier.<sup>23</sup> The Commission also asks to what extent advanced text and multimedia services can assist individuals with hearing or speech disabilities or those who are deaf-blind and what benefits are created by the ability of these services to offer real-time connectivity or to enable the caller to send photos, videos, or data.<sup>24</sup> Sprint believes long-term NG9-1-1 solutions based on SIP and RTT will bring significant benefits to the disabilities community. One significant benefit of solutions based on RTT is that it will allow for real-time communications with the PSAP, which will minimize delays in the PSAP's response and allow for a more accurate description of the emergency situation. The user will also not be limited by the number of characters used in a text message. In addition, location information can also be passed with SIP and RTT technology, allowing this information to be conveyed, even when the user is not aware of their location.

The Commission asks to what degree improvements in accessibility associated with text and multimedia services will be limited to people with advanced mobile devices. In general, advanced mobile devices or "smartphones" provide advantages in the form of user interfaces and functionality that may not be available with less advanced devices. With the move to NG9-1-1, the introduction of multimedia will increase the complexity of interactions between the caller and 9-1-1 call-taker. A number of the features and services contemplated as part of NG9-1-1, such as RTT and Video Relay, will likely be available only on advanced smartphone devices.

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<sup>23</sup> NPRM at par. 71.

<sup>24</sup> *Id.*

Smartphone devices will enable users to better utilize multimedia data and support emergency interactions in an efficient manner.

As part of the migration toward NG9-1-1, relay centers (both IP Relay and VRS) will need to be upgraded to support NG9-1-1. Upgrades will be needed to enable the relay center to support NG9-1-1 to either originate 9-1-1 calls on behalf of the user or to be added to a NG9-1-1 session using multi-media. This issue should be reviewed and discussed further within standards groups, as well as the Emergency Access Advisory Committee to the FCC.

## **2. Standards Development**

The National Emergency Number Association (“NENA”), 3<sup>rd</sup> Generation Partnership Project (“3GPP”), and ATIS have been working to develop requirements for long-term multimedia solutions based on IP-technology that will provide important emergency communications capabilities in a NG9-1-1 environment. Significant progress has been made by these groups toward developing the standards that are needed to facilitate the deployment of NG9-1-1, though a number of technical issues must still be resolved including alignment of these standards. Carriers and other industry representatives have been actively participating in these efforts. The standards are being developed to enable multimedia use of 9-1-1, but as technology evolves there may be a need to develop application level guidelines or standards that have not yet been contemplated.<sup>25</sup>

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<sup>25</sup> For example, when new media and capabilities are added such as Instant Messaging (“IM”), unique issues are likely to surface. In an IM communication via an IM chat room, other parties can be added to the communication, including a request to add 9-1-1, while the communication is taking place. This will raise possible concerns regarding routing since multiple parties in different geographic areas may be involved in the chat room.

### **3. Approaches Based on IP Messaging and RTT**

The Commission asks, “What are the advantages and disadvantages of RTT and other IP-based messaging solutions, and which solutions show the most potential for allowing individuals to communicate with 9-1-1?”<sup>26</sup> IP Messaging at the carrier level is in the very early phases of adoption, and as with any emerging technology, it will take time for this technology to become mainstream. IP-based messaging and RTT will allow for the delivery of location information and will allow users to send text messages without being limited to a fixed number of characters. In addition, RTT will allow for real-time communications with the PSAP. IP-based messaging will enable the delivery of other media including photos and videos.

The Commission asks whether it should play a more active role in monitoring or facilitating the standards-setting process, or whether it should not act until next generation non-voice emergency messaging standards are closer to being finalized.<sup>27</sup> The Commission also asks whether it should coordinate a voluntary industry-wide timetable or establish a mandatory timetable for standardization, implementation, and roll-out to facilitate planning by manufacturers, software vendors, and PSAPs.<sup>28</sup> The Commission should refrain from establishing a mandatory timetable for NG9-1-1. Standards organizations have been working for several years on developing appropriate standards for NG9-1-1, and these efforts continue to move forward without the imposition of a mandatory timetable.

### **4. Approaches Based on Software Applications**

“Over-the-top” handset software-based solutions for messaging are traditionally independent of Sprint’s messaging infrastructure and are not governed by Sprint. This is true of

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<sup>26</sup> NPRM at par. 83.

<sup>27</sup> Id.

<sup>28</sup> NPRM at par. 83.

both the application installation and usage. If text-to-9-1-1 became an FCC mandate, the FCC would need to determine whether OTT providers are included in this mandate. Many of these over-the-top messaging providers are relatively small and likely may not have the financial resources to achieve PSAP integration.

Applications developed specifically for texting to 9-1-1 may cause problems due to the overall user experience. The first time someone uses such an application during an emergency, they may be unfamiliar with the user experience, and this may impact their ability to communicate with emergency services. Sprint asserts that any text-to-9-1-1 solution should be integrated into the basic software programmed into the device so that it is consistent with the native messaging experience on the device. It may be appropriate to consider having any OTT applications that would support NG9-1-1 reviewed via a formalized industry process to ensure a consistent user experience.

**D. The Commission's Role in Expediting Deployment of Text-to-9-1-1 and Other NG9-1-1 Applications**

**1. Incentive-Based vs. Regulatory Approaches**

The Commission asks whether it should develop best practices for deploying text-to-9-1-1 and other multimedia applications.<sup>29</sup> Sprint does not believe it is necessary for the Commission to develop best practices for deploying NG9-1-1. NENA, 3GPP and ATIS are developing standards needed to support text and other multimedia emergency services, and industry representatives, including carriers and 9-1-1 technology and software providers, are participating in these efforts. In effect, best practices are already being formulated in the context of these forums.

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<sup>29</sup> NPRM at par. 89.

The Commission asks whether it should adopt deadlines, timetables, or uniform network interface standard requirements.<sup>30</sup> The Commission also asks whether providers have an incentive to rapidly develop NG9-1-1 solutions if the Commission does not impose such measures.<sup>31</sup> In addition, the Commission asks whether it should defer additional regulatory action until standards are more universally adopted.<sup>32</sup> Sprint would argue that it is not appropriate for the Commission to adopt deadlines, timetables, or uniform network interface standard requirements at this time. Standards bodies have made significant progress toward developing standards for the delivery of NG9-1-1, but a number of technical issues must still be resolved. For example, as discussed in the NPRM, there is a need to align the standards that are currently in development.

Standards bodies should be permitted to finalize their recommendations and the Commission should refrain from taking regulatory action until these standards are finalized and more universally adopted. The Commission should consider having representatives from the FCC's Public Safety and Homeland Security Bureau attend meetings held by relevant standards organizations for purposes of following the progress of these proceedings. Ultimately, reliable high-speed IP data networks will be needed for the IP voice and RTT services contemplated in these standards. Carriers are motivated by the competitive marketplace to roll out these advanced services without the Commission's direct involvement and should not be constrained by a mandatory timetable.

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<sup>30</sup> *Id.*

<sup>31</sup> *Id.*

<sup>32</sup> *Id.*

## **1. PSAP-Based Triggers**

### State or Regional Approaches

The Commission seeks comment on whether PSAP NG9-1-1 readiness should be assessed at the state or regional level, rather than the individual PSAP level.<sup>33</sup> Sprint would support deployment at the state or regional level rather than at the county or PSAP level and believes this approach would facilitate the efficient roll-out of a long-term solution. Currently, there are approximately 7,000 PSAPs with varying technology solutions in place. It would be enormously difficult to implement a “one-size/fits-all” approach. Realistically, a phased-in approach is likely to be necessary, and a phased-in approach at the state or regional level is likely to be more efficient. States or regions requesting NG9-1-1 capabilities should be required to demonstrate they are capable of receiving NG9-1-1 information, and the Commission should not ask carriers to take steps to migrate toward NG9-1-1 without an indication of readiness.

### Advanced Regional 9-1-1 Centers

The Commission seeks comment on AT&T’s proposal that regional entities be created to handle non-voice emergency services media types (such as videos or photos) when the local PSAP cannot.<sup>34</sup> Sprint asserts this approach should be considered, because it may be able to address a number of concerns related to roll-out of NG9-1-1 and coordination between states and local jurisdictions, which is a significant concern. Ultimately, rollout of NG9-1-1 service is likely to proceed more efficiently if fewer individual entities, with individual requirements, are involved. However, a number of questions would need to be addressed, including who would build this system and how building and staffing this system would be funded.

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<sup>33</sup> NPRM at par. 92.

<sup>34</sup> *Id.* at par. 103.

## **E. Consumer Education and Disclosure Methods**

The Commission seeks comment on the types of educational programs that should be created to abate and prevent consumer confusion as text-to-9-1-1 services are deployed in the short term.<sup>35</sup> The Commission also seeks comment on the appropriate role for the Commission and for other government and private sector entities in any public education effort.<sup>36</sup> Sprint believes the Commission should take a leading role in informing consumers of the limitations of text-to-9-1-1 in the near term, as well as providing information on a going-forward basis as NG9-1-1 is rolled out. Sprint also believes that local jurisdictions should be responsible for advising consumers whether their jurisdictions are capable of receiving text-to-9-1-1 messages because they are in the best position to know the status of texting to 9-1-1 in their area. For example, local jurisdictions could post signs along roadways within their area advising consumers of whether they support texting to 9-1-1. Consumers will need to be updated as new jurisdictions migrate toward NG9-1-1 capabilities.

The Commission also seeks comment on what role, if any, should the Commission play in developing best practices, model responses, or requirements for the provision of standardized error messages.<sup>37</sup> Sprint would assert that the issue of whether an error message should be sent and what the message contains should be referred to standards organizations to review the technical aspects associated with delivering an error message and to develop a consistent error response message. It would be appropriate for the Commission to refer the issue to such an appropriate panel of industry experts and then evaluate any recommendations made, before a decision is made.

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<sup>35</sup> NPRM at par. 107.

<sup>36</sup> *Id.* at par. 108.

<sup>37</sup> *Id.* at par. 110.

### III. CONCLUSION

Sprint supports efforts to modernize the existing 9-1-1 system through the long-term NG9-1-1 solution. Sprint maintains that the industry should remain focused on long-term deployment of the NG9-1-1 solution rather than short-term interim solutions, which will only divert resources from the long-term goal of an advanced NG9-1-1 system. Sprint urges the Commission to consider IP Relay service as a viable short-term approach that can provide significant benefits to the disabilities community. The Commission should refrain from taking specific regulatory action with respect to NG9-1-1 until standards organizations currently engaged in NG9-1-1 standards development make further progress and final recommendations. The Commission should take steps to ensure that consumers are educated regarding the current limitations of texting to 9-1-1 since it will take time, resources and effort before any solution, whether interim or long-term, is available to the general public.

Respectfully Submitted,

SPRINT NEXTEL CORPORATION

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