**Before the**
**FEDERAL COMMUNICATIONS COMMISSION**
**Washington, D.C. 20554**

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| 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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## I. INTRODUCTION AND SUMMARY

Sprint Nextel Corporation ("Sprint") hereby submits these comments in response to the Commission's Further Notice of Proposed Rulemaking in the above-referenced proceeding.[1] As a signatory to the voluntary commitment to provide text-to-911 service signed by the four largest wireless carriers, Sprint has demonstrated its support for the Commission's goal of facilitating text-to-911 deployment in the near term, prior to the availability of Next Generation 9-1-1 ("NG911") service.[2] In the FNPRM, the Commission seeks input on a number of important, unresolved issues associated with text-to-911.

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[1] *Facilitating the Deployment of Text-to-911 and other Next Generation 911 Applications, PS Docket No. 11-153; Framework for Next Generation 911 Deployment, PS Docket No. 10-255, Further Notice of Proposed Rulemaking* (Rel. December 13, 2012) ("FNPRM").

[2] *See* Letter from Terry Hall, APCO International, Barbara Jaeger, NENA, Charles W. McKee, Sprint Nextel, Robert W. Quinn, Jr, AT&T, Kathleen O'Brien Ham, T-Mobile USA, and Kathleen Grillo, Verizon, to Julius Genachowski, Chairman, Federal Communications Commission, and Commissioners McDowell, Clyburn, Rosenworcel and Pai; PS Docket 11-153, PS Docket No. 10-255 (Dec. 6, 2012) (the "Voluntary Commitment").

Implementing text-to-911 in the near term will provide valuable operational experience for Public Safety Answering Points ("PSAPs") and service providers, but Sprint continues to urge the Commission and Public Safety to recognize that this is an interim solution and to remain focused on the broader goal of NG911 deployment. Sprint also supports the Commission's proposal to allow Commercial Mobile Radio Service ("CMRS") providers flexibility when determining which technology they will use to provide text-to-911, but encourages the Commission to recognize that considerable standards work must be completed as different carriers utilize different technological approaches.

Sprint also supports the Commission's proposal to extend text-to-911 obligations to providers of interconnected text-to-911 applications. Such a proposal, however, will require coordination between the interconnected text-to-911 application provider and the underlying CMRS network service provider. Until the respective roles of the network provider, the application provider and the PSAP have been defined, including who bears the burden of development costs and operational expenses, implementation of this proposal will be difficult.

Finally, Sprint recommends that the Commission adopt a four-digit emergency short-code, in addition to the three-digit 9-1-1 code, because there are devices in the marketplace that cannot support texting to a three-digit short code. Sprint urges the Commission to refrain from adding additional capabilities beyond those that can be provided via existing SMS infrastructure. In particular, the Commission should refrain from requiring that an interim text-to-911 service support roaming customers, as

extensive development and modifications to existing infrastructure would be needed to meet such a requirement.

## II. DISCUSSION

### A. Public Safety Benefits of Near-Term Deployment

According to the Commission, "… implementing text-to-911 in the near term will provide valuable real-world operational experience that will help consumers, PSAPs and service providers plan for full NG911 deployment."[3] Sprint agrees that implementing text-to-911 will provide operational experience for PSAPs and service providers. Implementation in the near term will enable the public safety community to gain insight into what circumstances most commonly trigger the use of emergency texts and may assist in determining how to better educate consumers prior to the deployment of NG911. In addition, PSAPs will gain an understanding of how best to handle emergency text sessions and whether additional manpower will be required to process emergency text messages that are sent to the PSAP.

Consistent with Sprint's previous filings with the Commission, however, Sprint continues to assert that interim solutions for non-voice emergency communications are likely to detract from, and possibly serve to delay, the overall long term goal of NG911 adoption and implementation.[4] Accordingly, the Commission should recognize that text-to-911 is simply an interim solution before NG911 is widely in place and available.

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[3] FNPRM at par. 44.
[4] *See* Sprint Comments filed in PS Docket No. 10-255 at pg. 5 (filed Feb. 28, 2011) and Sprint Comments filed in PS Docket Nos. 11-153 and 10-255 at pg. 3 (filed Dec. 2011).

**B. Technical Feasibility, Timing and Cost Considerations**

The Commission proposes that CMRS providers not be required to support SMS-based text-to-911 so long as they provide their customers with at least one pre-installed text-to-911 option per device model that works across the provider's entire network coverage area.[5] The Commission proposes to allow CMRS providers to select any reliable method or methods (*e.g.*, mobile-switched, IP-based) for text routing and delivery.[6] Sprint supports the Commission's proposal to allow CMRS carriers to utilize technologies other than SMS to provide text-to-911 service. The Commission's proposal will afford CMRS carriers the flexibility to introduce newer, more advanced technologies to provide text-to-911 service as these technologies become available for implementation by carriers, without the need to offer and maintain other antiquated solutions, such as SMS.

Sprint recommends, however, that the Commission consider potential issues that may arise as different carriers deploy technologies other than SMS-to-911 prior to the deployment of NG911. For example, it is important that any technology utilized for text-to-911 service follow industry standards so there is full and complete uniformity across the industry and public safety community. In addition, the Commission should carefully consider issues carriers and public safety entities will face when transitioning from interim text-to-911 service to NG911 service. To date, these issues have been considered only in the context of NG911 (and are still in the early stages of evaluation), but they may arise sooner to the extent carriers choose to deploy advanced technologies for interim

[5] FNPRM at par. 60.
[6] *Id.*

text-to-911 service. For example, carriers who upgrade their networks to support the Non-Voice Emergency Services ("NOVES") standard for providing multimedia to emergency services will need to ensure direct Session Initiated Protocol ("SIP") interconnection is in place for PSAPs who have upgraded to NG911, while continuing to support IP Multimedia Subsystem ("IMS") interconnection for non-NG911 PSAPs until the FCC sunsets the interim text-to-911 service. The Commission should seek additional comment to develop the record with respect to these issues.

**1. Impact on PSAPs**

According to the Commission, "…while we recognize that the technology trials noted above are limited in scope, the trial results suggest that PSAPs are not likely to become overwhelmed with text messages."[7] Consumer education will play a vital role in determining whether PSAPs will be overwhelmed once text-to-911 is implemented. If consumers use text-to-911 service for non-emergencies, PSAPs could easily be inundated with text messages. The Commission should facilitate the collection of data related to behavioral characteristics associated with text-to-911 usage. Such data could help support analysis of various relevant factors, such as hold times, circumstances triggering use of text-to-911 rather than a voice call to 9-1-1, and the ability of call-takers to handle multiple texts effectively. Ultimately, these findings could yield valuable information to assist in the development of appropriate consumer education materials and programs, which may help control the impact of the service on PSAPs.

[7] *Id.* at par. 64.

**2. Impact on CMRS Providers and Interconnected Text Providers**

According to the Commission,"… we believe that the record indicates that text-to-911 is technically feasible and can be achieved in the near term at a reasonable cost to PSAPs, CMRS providers, and providers of interconnected text."[8] While it is true that the service providers that signed the Voluntary Commitment have agreed to meet certain commitments independent of their ability to recover these associated costs from state or local governments, wireless providers did not represent that the costs associated with meeting these commitments will be reasonable. Further, this does not mean that wireless providers will not seek cost recovery from state or local governments. On the contrary, carriers were specifically intent on maintaining the ability to seek cost recovery from state and local governments for provision and implementation of text-to-911 service.

The Commission states that, based on its review of the record, the Carrier-NENA-APCO Agreement, the cost estimates provided by vendors, and the success of the text-to-911 trials and demonstrations, it believes it is feasible for all CMRS providers to cost-effectively implement a text-to-911 solution in the near term.[9] Sprint urges the Commission to recognize that the limited information it has evaluated to reach this conclusion assumes that minimal changes to the existing SMS infrastructure will be required. Imposing additional requirements, such as roaming support, would add significant complexity to the underlying SMS infrastructure not envisioned by the Voluntary Commitment and could substantially increase costs for CMRS carriers.

The Commission requests information on the likely initial and ongoing costs for

[8] *Id.* at par. 58.
[9] FNPRM at par. 66.

interconnected text providers.[10] While interconnected text providers will incur costs associated with compliance, CMRS carriers are also likely to incur additional costs because CMRS carriers will need to provide network and device capabilities to interconnected text providers. As discussed in further detail below, CMRS carriers should not be expected to incur such costs without reimbursement from interconnected text providers, since any such costs will be undertaken to facilitate compliance by a third-party.

### C. Reliability of Text-to-911 Service

The Commission references two recent technical studies on the reliability of text-to-911.[11] According to the Commission, "Notably, both of these studies found that the reliability of SMS-to-911 is comparable to voice, and in some instances, even more reliable than voice."[12] SMS was not designed, nor was it ever intended, to be used as an emergency service. Even a low rate of failure would normally be unacceptable where emergency communications are concerned. As is evidenced by the commitment made by Sprint and the other largest CMRS providers, however, Sprint agrees that reliability concerns should not delay the deployment of text-to-911. The Commission must, nevertheless, remain cognizant of the fact that text-to-911 based on SMS is a best-efforts, store-and-forward service, and the Commission should not seek to impose features and capabilities beyond what is currently available via existing SMS infrastructure as part of the interim, pre-NG911 text-to-911 offering.

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[10] *Id.*
[11] *Id.* at par. 77.
[12] *Id.*

**D. Carrier and Third Party Non-SMS-Based Text-to-911 Applications**

The Commission proposes to extend text-to-911 obligations to those interconnected text applications that use IP-based protocols to deliver text messages to a service provider, which the service provider then delivers to destinations identified by a telephone number, using either IP-based or SMS protocols.[13] Sprint supports the Commission's proposal to extend any text-to-911 obligations that are adopted to providers of interconnected text applications. In the interest of regulatory parity, it is important that the Commission apply text-to-911 obligations to text providers that offer a service that, from a customer perspective, is indistinguishable from the SMS text service provided by CMRS carriers. As the Commission has noted, "By enabling text communication with any text-capable mobile number, these "interconnected text" applications provide effectively the same functionality that SMS provides currently."[14]

The Commission must recognize, however, that in order to facilitate compliance by providers of interconnected text applications, coordination will be needed between providers of interconnected text applications and CMRS service providers. Providers of interconnected text applications will look to CMRS providers for the network and device capabilities needed to comply with text-to-911 obligations. The Commission should clarify that CMRS carriers are not required to provide features and capabilities to facilitate compliance by a third-party interconnected text application provider free of charge. In addition, CMRS providers should not be asked to provide information, such as location information, to facilitate compliance by third-party interconnected text providers

[13] *Id.* at par. 91.
[14] *Id.* at par. 93.

without liability protection.

The Commission asks whether interconnected text applications have access, possibly after asking for user permission, to cell tower and/or geo location information via platform application programming interfaces.[15] Current smartphone platforms require that the user modify their current privacy settings to allow third-party interconnected text clients to access location information on the device and require that the user remember to reset their privacy settings back to their previous levels after the emergency communication is complete. This process, which requires multiple manual steps, leaves the user open to potential mistakes that can impact emergency communication. Since this process involves overriding privacy settings for unknown third-party text messaging clients in order to provide location information for emergency services, it presents significant security and privacy concerns. For example, how will the operating system know that an emergency request for location is truly an emergency request and not an application's attempt to bypass the user's privacy settings? Using a gateway service to determine the approximate location of the message sender is one possible solution to the problem of how to obtain the user's location. Sprint would recommend further study in the appropriate industry-wide standards groups, however, to determine how the interconnected text provider can determine which CMRS operator's gateway to use and how PSAP text responses can be routed back to the interconnected text provider's gateway or device client rather than the built-in CMRS SMS client.

The Commission discusses three possible implementation choices for

[15]FNPRM at par. 94.

interconnected text providers: (1) leveraging the SMS application programming interface ("API") offered by common smartphone operating systems; (2) handling an interconnected text message the same as any other text message by delivering the text message to the SMS gateway provider chosen by the application vendor; and, (3) delivering texts via Internet application layer protocols to PSAPs, without converting the text to SMS along the way, using NG911 protocol mechanisms.[16]

Of the three implementation choices proposed by the Commission, the first option appears the most viable and has several advantages over the other proposed options, provided that the concept is expanded to the API that provides the emergency text "conversation" by sending and receiving emergency text messages to the PSAP. First, the device could detect that an emergency communication has been initiated and could essentially go into "emergency mode," which is common for 9-1-1 voice calling on wireless devices today. The device could potentially handle multiple text messaging clients, each with an emergency text API capability. Another advantage is that the device would only interact with the client that actually initiated the emergency communication. The device could continue to enforce the user's privacy settings without user intervention. The device could deliver any emergency text responses to the client that initiated the emergency communication, eliminating user confusion. This could be accomplished while allowing incoming non-emergency text messages to be handled normally.

The other two proposed options have significant weaknesses. With respect to the

[16] *Id.* at par. 95-98.

second proposed option, how the PSAP would route text responses to the correct interconnected text server and correct interconnected text client needs to be considered before this can be endorsed. This option should be addressed by standards organizations. The third proposed option essentially assumes that NG911 is in place and, therefore, is not viable as an interim option.

The Commission also asks whether there are alternative mechanisms that might be used.[17] One solution Sprint recommends for consideration is for the interconnected application provider to activate the built-in device text messaging client for text-to-911 service.

The Commission asks which of the options described above would facilitate the delivery of location information.[18] Either the first option, utilizing device API, or invoking the built-in device text messaging client, as Sprint suggests above, should provide the ability to deliver location information because these options would utilize CMRS-deployed location capabilities (both device- and network-based).

**E. Three-digit Short Code**

The Commission proposes that whenever technically feasible, all CMRS providers should configure their networks and text-capable cell phones to support 9-1-1 as the three-digit short code for emergency text messages.[19] The Commission seeks comment on whether there are any text-capable cell phones being sold in the United

[17] *Id.* at par. 99.
[18] *Id.* at par. 100.
[19] *Id.* at par. 108.

States that are incapable of using the digits 911 as a short code.[20] The Commission also asks whether, in the event that certain devices cannot be modified or updated to support a three-digit short code, it should designate an alternate short code that such devices could use.[21]

While a significant number of handsets currently available can support a three-digit short code for emergency text messages, there are also many handset models in the marketplace that cannot support sending a three-digit short code. To date, there has been not been a specific requirement that handsets be able to support texting to three-digit short codes. As a result, some handset models, all certified under the FCC's equipment authorization program, have been developed and released without this capability in mind.[22] In order to address this concern, Sprint recommends that a four-digit short code be designated for use by devices that cannot support a three-digit code. Designation of a four-digit code would allow customers to continue to use their handsets until they are prepared to upgrade to a newer device that allows three-digit short codes. The Commission should carefully consider which four-digit code would be appropriate to use and also seek the consensus of the wireless industry, including both carriers and equipment manufacturers, the public safety community and consumer advocacy groups.

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[20] *Id.*
[21] *Id.*
[22] For example, in recent comments filed in this proceeding, Motorola Mobility LLC ("Motorola Mobility") explained that within the past four years it has released well in excess of 100 mobile device and software combinations in the U.S. market, none of which has been tested for support of 911 as an SMS short code, as this was not a carrier or Commission requirement at the time of development. See Comments of Motorola Mobility filed January 29, 2013, at page 3.

**F. Roaming**

The Commission seeks comment on supporting text-to-911 when wireless subscribers roam onto another provider's network. The Commission asks for input regarding T-Mobile's assertion that its network is unable to collect location information on a roaming subscriber and is thus technically limited from providing text-to-911 for roaming subscribers.[23] In addition, the Commission asks whether the visited network could intercept text-to-911 messages and determine the mobile device location and asks what technical and economic obstacles need to be addressed in order to provide text-to-911 service to roaming consumers.[24]

Similar to T-Mobile, Sprint does not currently have the technological capability to support roaming subscribers because, while location information (in the form of cell sector information) is available in the visited network (onto which the subscriber has roamed), it is not normally available to the home CMRS network. Even if location information could somehow be sent to the home CMRS network, the home CMRS network would not have the capability to understand the identity of cells/sectors on the visited network and, as a result, would not be able to map to specific PSAPs located within the visited network area. Due to this limitation, the home CMRS network would be unable to support accurate PSAP routing for text-to-911. In addition, the home CMRS provider will most likely not have arrangements in place with the PSAP covering the location of the roaming subscriber. To do so would require every CMRS provider to set

[23]FNPRM at par. 126.
[24] *Id.*

up text-to-911 interfaces with every PSAP in the United States, increasing both capital and operational costs to PSAPs and CMRS providers significantly.

In order for the visited network to support roaming subscribers' use of text-to-911, the visited network would need to be capable of determining when a text is attempting to reach a local emergency service via 9-1-1, and then this system would need to send the text message to the local text-to-911 gateway, ignoring all normal SMS routing rules. SMS servers would need to be modified to accomplish this. Any responses from the PSAP would also need to somehow be intercepted, so they are not sent back to the home network's Short Message Service Center ("SMSC"), which would require further routing modifications. There may also be a significant impact on mobile devices, because they would need to be capable of interacting with multiple SMSCs (both the home and serving SMSCs). Storage and delivery of undeliverable SMS messages would also need to be addressed. Finally, significant changes to SMS would need to be made to handle roaming internationally.

Complex SMS infrastructure changes would be needed to support text-to-911 for roaming customers on an interim basis, and the costs of making these changes would likely overshadow NG911 deployment costs for CMRS providers. Text-to-911 while roaming is being developed as part of the long-term NG911 solution. The Commission should, therefore, refrain from imposing a regulatory obligation for roaming to be included as part of an interim SMS-based text-to-911 service to instead allow for eventual adoption of standards that would contemplate roaming in the NG911 environment.

**G. Notification of PSAP Acceptance and Delivery Method**

The Commission requests information regarding the feasibility and cost of implementing a gateway architecture that includes a database of all PSAPs with their preferences for handling text messages or a similar gateway architecture or database mechanism.[25] According to the Commission, "This approach would arguably have efficiency advantages because it would enable PSAPs to provide notification regarding text delivery only once to all parties, rather than having to inform every wireless carrier or systems service provider individually. It would also enable providers of text-to-911 routing services to coordinate their databases for the routing of text messages."[26]

Sprint generally applauds any effort on the part of the Commission to introduce efficiency to any process that is part of a regulatory mandate. However, the usefulness of such a gateway database must be clarified, based on the proposed description. Sprint would be concerned that this type of database assumes a one-size-fits-all approach and fails to recognize that there is typically extensive variation in PSAP deployments. It is not clear how such a database would address those PSAPs that decide to use different interface options. In addition, the database proposal does not appear to address migration by PSAPs from one interface to another. It also does not appear to support regional/state consolidation, where a PSAP may start out on its own and then at a later time join a state/regional group to consolidate text-to-911 support. Further, the database concept assumes that a PSAP will be ready to provide text-to-911 capabilities to all CMRS and interconnected text providers at the same time, when in fact many PSAPs will be unable

[25] FNPRM at par. 145-146.
[26] *Id.* at par. 146.

able to support all these text originators simultaneously. Finally, it is not clear how carriers would be notified of periodic updates to the database or when a PSAP is ready to receive text-to-911 messages. Assuming these issues are addressed, Sprint would support any requisite efficiencies that are gained from improved communication and coordination between all participants.

### H. Liability Protection

The New and Emerging Technologies 911 Improvement Act of 2008 ("NET 911 Act") and Section 6506 of the Middle Class Tax Relief and Job Creation Act of 2012 have strengthened liability protections association with the provision of text-to-911 service. Since these statutes invoke state liability protections, however, there will continue to be inconsistencies in how these state laws are interpreted and applied. Sprint urges the Commission to recommend that limitation of liability protections for all persons and entities involved in access to 911 services, regardless of technology, are explicitly outlined at the federal level.

## III. CONCLUSION

The wireless industry, in cooperation with the FCC, the public safety community and representatives of deaf, hard-of-hearing and speech-impaired consumers, has taken significant steps toward eventually enabling the provision of text-to-911 service for all wireless subscribers. The Commission's efforts to more closely examine the issues associated with text-to-911 deployment are commendable. Sprint supports the Commission's proposal to allow CMRS providers flexibility when determining which technology they will use to provide text-to-911. Sprint also supports the Commission's

proposal to extend text-to-911 obligations to providers of interconnected text-to-911 applications. These proposals, however, raise a number of complex issues that the Commission should carefully consider before taking a heavy-handed regulatory approach. Sprint also recommends that the Commission consider adoption of a four-digit emergency short code, in addition to the three-digit 9-1-1 code, because there are devices in the marketplace that cannot support texting to a three-digit short code. In addition, Sprint urges the Commission to refrain from adding additional capabilities beyond those that can be provided via existing SMS infrastructure. Requiring more extensive capabilities for interim text-to-911 would be inconsistent with the Voluntary Agreement, which was based on providing text-to-911 using existing SMS infrastructure. Ultimately, requiring such capabilities for interim text-to-911 is likely to detract from, and possibly serve to delay, the overall long term goal of NG911 adoption and implementation.

Respectfully Submitted,

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