

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

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

FURTHER NOTICE OF PROPOSED RULEMAKING

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Pai issuing separate statements.

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I. INTRODUCTION

1. Wireless consumers are increasingly using text messaging as a means of everyday communication on a variety of platforms. The legacy 911 system, however, does not support text messaging as a means of reaching emergency responders, leading to potential consumer confusion and even to possible danger. As consumer use of carrier-based and third party-provided texting applications expands and evolves, the 911 system must also evolve to enable wireless consumers to reach 911 in those emergency situations where a voice call is not feasible or appropriate.

2. In this *Further Notice of Proposed Rulemaking*, we propose rules that will enable Americans to send text messages to 911 (text-to-911) and that will educate and inform consumers regarding the future availability and appropriate use of text-to-911. Specifically, we propose to require all wireless carriers¹ and providers of “interconnected” text messaging applications² to support the ability of consumers to send text messages to 911 in all areas throughout the nation where 911 Public Safety Answering Points (PSAPs) are also prepared to receive the texts. In addition, to inform consumers and prevent confusion, we propose to require all wireless carriers and interconnected text messaging providers to send automated “bounce back” error messages to consumers attempting to text

¹ By “wireless carrier”, we refer to providers of commercial mobile radio service (CMRS), as defined in 47 C.F.R. § 20.3. The terms “wireless carrier” and “CMRS provider” are used interchangeably throughout this *Further Notice*.

² In this *Further Notice*, “text messaging” refers to any service that allows a mobile device to send information consisting of text to other mobile devices by using domestic telephone numbers. Examples of text messaging include Short Message Service (SMS), Multimedia Messaging Service (MMS), and “interconnected text” applications. “Interconnected text” applications use IP-based protocols to deliver text messages to a service provider and the service provider then delivers the text messages to destinations identified by a telephone number, using either IP-based or SMS protocols. As also described herein, in generally referencing text messaging, we do not intend to include those IP-based messaging applications that support communication with a defined set of users of compatible applications but do not support general communication with text-capable telephone numbers.

911 when the service is not available.

3. Our proposals build on the recently filed voluntary commitment by the four largest wireless carriers – in an agreement with the National Emergency Number Association (NENA), and the Association of Public Safety Communications Officials (APCO) (Carrier-NENA-APCO Agreement) – to make text-to-911 available to their customers by May 15, 2014, and to provide automatic bounce back messages across their networks by June 30, 2013.³ The baseline requirements we propose in this *Further Notice* are modeled on the Carrier-NENA-APCO Agreement, and we seek comment on whether all carriers, including regional, small and rural carriers, and all “interconnected text” providers can achieve these milestones in the same or similar timeframes. To allow for the possibility of implementing our bounce back proposal by June 30, 2013, we are seeking comment on this portion of the *Further Notice* on an accelerated basis. Moreover, in light of the importance of these issues, we intend to resolve promptly the questions we raise in the remaining portion of the *Further Notice* in 2013.

4. Our proposal to add text capability to the 911 system will vastly enhance the system’s accessibility for over 40 million Americans with hearing or speech disabilities. It will also provide a vital and lifesaving alternative to the public in situations where 911 voice service is unavailable or placing a voice call could endanger the caller. Indeed, as recent history has shown, text messaging is often the most reliable means of communications during disasters where voice calls cannot be completed due to capacity constraints. Finally, implementing text-to-911 represents a crucial next step in the ongoing transition of the legacy 911 system to a Next Generation 911 (NG911) system that will support not only text but will also enable consumers to send photos, videos, and data to PSAPs, enhancing the information available to first responders for assessing and responding to emergencies.

5. Our proposed approach to text-to-911 is also based on the presumption that consumers in emergency situations should be able to communicate using the text applications they are most familiar with from everyday use. Currently, the most commonly used texting technology is Short Message Service (SMS), which is available, familiar, and widely used by virtually all wireless consumers.⁴ In the Carrier-NENA-APCO Agreement, the four major carriers have indicated that they intend to use SMS-based text for their initial text-to-911 deployments,⁵ and we expect other initial deployments to be similarly SMS-based.

6. At the same time, we do not propose to limit our focus to SMS-based text. As a result of the rapid proliferation of smartphones and other advanced mobile devices, some consumers are beginning to move away from SMS to other IP-based text applications, including downloadable

³ 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). (Carrier-NENA-APCO Agreement). A copy of the Carrier-NENA-APCO Agreement is attached as Appendix C.

⁴ See Pew Internet & American Life Project, “Cell Phones and American Adults,” (Sept. 2010) at 5, 21, available at http://www.afpnet.org/files/ContentDocuments/PEW%20Research_Cell%20Phone%20Use_sep%202010.pdf (last accessed Nov. 13, 2012) (determining that “at least 72% of all U.S. cell phone users have used SMS at least once.”). For the 12 month period ending on June 30, 2012, CTIA reports that 2.27 trillion text messages were sent, as well as 5.8 billion MMS messages. See http://files.ctia.org/pdf/CTIA_Survey_MY_2012_Graphics-final.pdf (last accessed Nov. 19, 2012).

⁵ Carrier-NENA-APCO Agreement at 3.

software applications provided by parties other than the underlying carrier.⁶ To the extent that consumers gravitate to such applications as their primary means of communicating by text, they may reasonably come to expect these applications to also support text-to-911, as consumer familiarity is vital in emergency situations where seconds matter. Therefore, in this *Further Notice*, we seek to ensure that consumers ultimately have access to the same text-to-911 capabilities on the full array of texting applications that they use for ubiquitous communication – regardless of provider or platform. We also propose that service providers who offer SMS-based text-to-911 should have the flexibility to migrate their customers to other text-to-911 applications.

7. While our proposal is designed to accelerate the nationwide availability of text-to-911, we recognize that deployment will not be uniform, *e.g.*, during the transition period, text-to-911 may be available in certain geographic areas while it is not available in others, or may be supported by certain carriers but not by others. This creates the risk of consumer confusion about the availability of text-to-911 as the transition proceeds – indeed, there is evidence that many consumers erroneously believe that they can *already* reach 911 by text, and that some have attempted to do so.⁷ Rapid implementation of the bounce back notification mechanism that we propose in this *Further Notice* is therefore critical to informing consumers and lessening potential confusion about text-to-911 availability. In addition, we intend to begin work immediately with PSAPs, carriers, service providers, disability organizations, consumer groups, and others to educate and inform consumers regarding the transition, local availability, and appropriate use of text-to-911.

8. Finally, we emphasize that even as adding text capability makes the 911 system more accessible and effective in enhancing public safety, text-to-911 is and will remain a complement to, rather than a substitute for, voice 911 service. The voice 911 system that has been maintained and improved over decades remains the preferred means of seeking help in an emergency in most instances. Moreover, voice 911 service will continue to be central and essential to the 911 system even as we add text, photo, data, and video capabilities in the course of migrating to NG911. Therefore, even as we take this first major step in the transition to NG911, we continue to encourage all consumers seeking emergency help to access 911 by voice whenever possible.

II. GENERAL BACKGROUND

9. In September 2011, the Commission released a *Notice of Proposed Rulemaking (Notice)*,⁸ which sought comment on a number of issues related to the deployment of NG911, including potential near-term methods for delivering text-to-911; whether and how to prioritize 911 in major emergencies; how to facilitate the long-term deployment of text-to-911; the Commission's role in deploying text-to-911 and other NG911 applications; consumer education and disclosure mechanisms; and the relationship between this proceeding and the implementation of the Twenty-First Century

⁶ See Chen, Brian, "Apps Redirect Text Messages, and Profits, From Cellular Providers," N.Y. TIMES, Dec. 4, 2012, available at http://www.nytimes.com/2012/12/05/technology/free-messaging-apps-siphon-profits-from-cellular-providers.html?nl=todaysheadlines&emc=edit_th_20121205&r=0 (last accessed Dec. 5, 2012).

⁷ For example, the North Central Texas Council of Governments (NCTCOG) recently conducted a survey which found that approximately one-third of their population believes that they can text-to-911 today. See Letter from Christy Williams, 9-1-1 Program Manager, NCTCOG, to David S. Turetsky, Chief, Public Safety and Homeland Security Bureau, Federal Communications Commission (Nov. 1, 2012).

⁸ In the Matter of Facilitating the Deployment of Text-to-911 and Other Next Generation 911 Applications, Framework for Next Generation 911 Deployment, PS Docket No. 11-153, PS Docket No. 10-255, Notice of Proposed Rulemaking, 26 FCC Rcd 13615 (2011) (*Notice*).

Communications and Video Accessibility Act of 2010 (CVAA).⁹

A. Text-to-911 Deployments and Trials

10. While some commenters initially expressed concerns about implementing near-term text-to-911,¹⁰ both wireless carriers and public safety entities have more recently taken significant steps towards the near-term deployment of text-to-911, including SMS-based solutions. In May 2012, Verizon Wireless announced plans to deploy text-to-911 capability throughout its nationwide network in 2013.¹¹ On December 10, 2012, Verizon Wireless commenced its rollout of text-to-911 service in York County, Virginia.¹² In June 2012, AT&T also announced the goal of launching text-to-911 nationwide in 2013.¹³ In addition, the Alliance for Telecommunications Industry Solutions (ATIS), an organization consisting of a large number of wireless and wireline carriers as well as equipment vendors, has formed a committee to “create an ATIS standard(s) for SMS-to-9-1-1 that incorporates requirements, architecture, message flows, and product details.”¹⁴ ATIS has targeted completion of these standards in the first quarter of 2013.¹⁵ Most recently, as noted above and described in further detail below, the four major wireless carriers, Sprint Nextel, AT&T, T-Mobile, and Verizon, have entered into a voluntary agreement with NENA and APCO whereby the major carriers will provide text-to-911 service by May 15, 2014, to PSAPs who request the service.¹⁶

11. Some of these same wireless carriers have already initiated text-to-911 trials in partnership with several PSAPs to assess the technical feasibility of text-to-911 and its impact on PSAP operations. Four trials are currently under way—three of which have yielded positive results. First, as just announced, AT&T is “in the process of launching a standards-based trial service for text-to-911 in the state of Tennessee”¹⁷ Additionally, in June 2009, Black Hawk County, Iowa partnered with

⁹ Twenty-First Century Communications and Video Accessibility Act of 2010, Pub. L. No. 111-260, 124 Stat. 2751 (CVAA) (amending sections 3, 255, 303, 503, 330, 710, and 713 of the Communications Act, and adding sections 615c and 715-19, codified at 47 U.S.C. §§ 153, 225, 303, 330, 503, 610, 613, 615c, 616-20).

¹⁰ “Near-term text-to-911” refers to any text-to-911 solution that is deployed prior to the deployment of full NG911.

¹¹ See Verizon Press Release, Verizon Selects TeleCommunications Systems to Provide Text to 911 National Gateway Solution, May 3, 2012 (Verizon Text-to-911 Announcement).

¹² See York County, Virginia Press Release, “York County’s Emergency Communications Center Launches Text to 911 for Verizon Wireless Customers,” (Dec. 10, 2012), available at <http://yorktown.peninsulateaparty.org/2012/12/york-countys-emergency-communications.html> (last accessed Dec. 12, 2012).

¹³ See 911 in the Smartphone Age, AT&T Public Policy Blog, June 12, 2012 (AT&T Text-to-911 Announcement), available at <http://attpublicpolicy.com/public-safety/911-in-the-smartphone-age/> (last accessed July 9, 2012).

¹⁴ See ATIS, *ATIS Forum/Committee – Issue Identification Form*, SMS-to-9-1-1, Issue Number P0337, April 20, 2012, at 2.

¹⁵ See Carrier-NENA-APCO Agreement at 1.

¹⁶ See Carrier-NENA-APCO Agreement at 2.

¹⁷ AT&T Public Policy Blog, “AT&T Statement on Voluntary Text-to-911 Agreement,” (Dec. 7, 2012), available at <http://attpublicpolicy.com/public-safety/att-statement-on-voluntary-text-to-911-agreement/> (last accessed Dec. 10, 2012). See also Campus Safety Magazine, “AT&T Begins ‘Text To 911’ Testing In Tennessee,” (Oct. 13, 2012), available at <http://www.campussafetymagazine.com/Channel/Public-Safety/News/2012/10/13/AT-T-Begins-Text-To-911-Testing-In-Tennessee.aspx> (last accessed Dec. 10, 2012).

Intrado (a provider of 911 technology solutions) and i wireless (a T-Mobile affiliate that offers regional wireless communications service), to provide text-to-911 service within the county. According to Black Hawk County, there have been no delayed or dropped text messages in the trial, nor has there been a “significant increase in incident volume.”¹⁸ Indeed, callers have benefitted from the technology in several situations. This includes women who have been at risk of domestic abuse who have been able to text for help undetected by their assailant; children reporting instances of domestic abuse;¹⁹ and anonymous reports of imminent sales of controlled substances.²⁰ Black Hawk County has expanded the trial and now receives text messages from individuals throughout the state, which it then relays to the appropriate PSAP.²¹ According to Black Hawk County, the trial demonstrates that text-to-911 service “is reliable and...saves lives.”²²

12. In August 2011, the City of Durham, North Carolina (Durham) initiated an SMS-to-911 trial in partnership with Verizon Wireless and Intrado.²³ According to Durham, the technology has worked reliably.²⁴ Durham’s trial suggests that callers will continue to rely on voice calls to 911 and that concerns about text messages overwhelming PSAPs may be unfounded.²⁵ Durham views the technology as a “valuable asset”²⁶ and the North Carolina Director of the Division of Services for the Deaf and the Hard of Hearing stated that “the significance of the program cannot be overstated.”²⁷ More recently, the trial was extended “to accommodate Durham’s additional outreach to individuals with disabilities.”²⁸

13. In April 2012, the State of Vermont (Vermont) initiated a text-to-911 trial allowing any Verizon Wireless subscriber to send emergency text messages to the Williston, Vermont PSAP, provided that the text message is transmitted via a cell tower located within the physical boundaries of

¹⁸ Black Hawk County Comments at 2.

¹⁹ In one case, a child sent a text message reporting that his father had punched and threatened him with a knife earlier in the day. While in the car with his father, the child and the Black Hawk County PSAP exchanged over thirty text messages. As a result, a police officer was present when the child and father arrived at their house. See Intrado Comments, Att. E at 2.

²⁰ Intrado Comments, Att. E at 1-2.

²¹ See *id.* at 11; Black Hawk County Comments at 2.

²² Black Hawk County Comments at 3.

²³ See Intrado Press Release, “Durham 911 Center Launches Texting Trial for Emergency Help,” (Aug. 3, 2011), available at <http://www.intrado.com/news/press/08032011.asp> (last accessed Aug. 1, 2012).

²⁴ See City of Durham June 2, 2012 *Ex Parte*.

²⁵ *Id.* As of June 2012, Durham has received one text message requesting assistance and one false message where assistance was not required. Durham’s public education campaign emphasized that text-to-911 should be used only by individuals with hearing or speech disabilities, in situations where placing a voice call would expose the caller to additional danger, or when signal strength is low. *Id.* at 1-2.

²⁶ *Id.* at 2.

²⁷ Statement by Jan Withers, Director of the Division of Services for the Deaf and the Hard of Hearing with the N.C. Department of Health and Human Services, “Durham 911 Center Extends Texting Trial for Emergency Help, Trial Period Extended to April 30th for Verizon Wireless Customers,” (Jan. 25, 2012), available at <http://durhamnc.gov/Pages/NNDetails.aspx?detailId=60> (last accessed July 9, 2012).

²⁸ Verizon and Verizon Wireless Feb. 9, 2012, Reply Comments at 7 n. 21.

Vermont.²⁹ The Executive Director of the Vermont E911 Board stated that implementing the trial “wasn’t...difficult at all” and that so far, the trial has proceeded “very smoothly.”³⁰ Vermont believes that fears over the volume of emergency text messages are “overblown”³¹ and “remain[s] convinced that those who can make a voice call will make a voice call as that is the most efficient way to communicate in an emergency.”³²

14. Vermont further reports that as of August 2012, it had received only two legitimate emergency text messages, but in both cases emergency services were able to intervene successfully. In one case, a life was saved when emergency personnel were able to thwart an attempted suicide. In the other case, a domestic abuse victim was able to contact police, who then arrived on the scene and made an arrest. While Vermont recognizes that some parties would prefer to wait for a more advanced text-to-911 solution, Vermont maintains that the “individual whose life we saved and the domestic assault victim would likely disagree that it is too soon to have this technology available.”³³ Vermont also indicates it has experienced some text “spoofing,” but notes that “there is nothing about this new technology that is any more likely to result in ‘spoofer’ contacts than what we already deal with on the voice side of the system.”³⁴ Additionally, Vermont did not experience any problems with text slang.³⁵

15. On October 30, 2012, Vermont submitted an *ex parte* filing indicating that it is maintaining the text-to-911 system past the end of its trial and is “currently working on enabling a second Public Safety Answering Point (PSAP) for redundancy purposes.”³⁶ Vermont states that it “can report no negative operational impacts on our system as the result of the Verizon trial,” but that it needs the Commission’s assistance in “encouraging all of the carriers to do the right thing and enable text-to-9-1-1 now.”³⁷ Vermont concludes by stating that “[w]e understand that there are some concerns both in the PSAP and industry communities about the timing of SMS text-to-9-1-1, but so long as the most common method of texting on today’s devices remains SMS, we feel it is important to move ahead and not wait for the promises that other texting solutions might provide.”³⁸ On December 3, 2012, Vermont announced that it would further expand its text-to-911 trial to include Sprint Nextel customers, in collaboration with the Vermont Enhanced 911 Board, Sprint Wireless, and Intrado.³⁹

²⁹ Urgent Communications, “Vermont Launches Text-to-911 Trial,” (Apr. 19, 2012), *available at* http://urgentcomm.com/psap/news/va-911-text-trial-20120419/?cid=nl_uctoday&YM_MID=`mmid`&YM_RID=`email` (last accessed July 9, 2012).

³⁰ *Id.*

³¹ Letter from David Tucker, Executive Director, State of Vermont Enhanced 9-1-1 Board, to Marlene Dortch, Secretary, Federal Communications Commission (Aug. 27, 2012) at 1 (Vermont *Ex Parte*).

³² *Id.* at 2.

³³ *Id.*

³⁴ *Id.*

³⁵ *Id.*

³⁶ Letter from David Tucker, Executive Director, State of Vermont Enhanced 9-1-1 Board, to Marlene Dortch, Secretary, Federal Communications Commission (Oct. 30, 2012) at 1 (Vermont October *Ex Parte*).

³⁷ *Id.* at 1-2.

³⁸ *Id.* at 2.

³⁹ State of Vermont Enhanced 911 Board Press Release, “Enhanced 911 Board Announces Second Statewide Text to 911 Trial for Emergency Help” (Dec. 3, 2012).

B. Carriers' Voluntary Commitments

16. On December 6, 2012, APCO, NENA, Sprint Nextel, AT&T, T-Mobile, and Verizon, entered into a voluntary agreement whereby each of the four major carriers will provide text-to-911 service by May 15, 2014, to PSAPs who request such a service.⁴⁰ Under the terms of the Carrier-NENA-APCO Agreement, once a signatory carrier begins to offer text-to-911 service, "valid PSAP requests for Text-to-911 service will be implemented within a reasonable amount of time of receiving such a request, not to exceed six months."⁴¹ A request will be considered "valid" if the "requesting PSAP represents that it is technically ready to receive 911 text messages in the format requested," and "the appropriate local or State 911 service governing authority has specifically authorized the PSAP to accept and, by extension, the signatory service provider to provide, text-to-911 service (and such authorization is not subject to dispute)."⁴² Additionally, no later than July 1, 2013, the four major providers will "voluntarily provide quarterly progress reports to the FCC, NENA, and APCO summarizing the status of the deployment of a national Text-to-911 service capability."⁴³

17. Under the terms of the Carrier-NENA-APCO Agreement, the major carriers have also agreed to implement a bounce-back message capability by June 30, 2013.⁴⁴ The bounce back message will "alert subscribers attempting to text an emergency message to instead dial 911 when text-to-911 is unavailable in that area."⁴⁵

18. The signatories also agreed on additional measures to implement text-to-911 voluntarily. Specifically, the signatories agree that "PSAPs will select the format for how messages are to be delivered," and that "incremental costs for delivery of text messages... will be the responsibility of the PSAP, as determined by individual analysis."⁴⁶ Additionally, the signatory service providers agree to implement a 911 short code and agreed to implement text-to-911 "independent of their ability to recover... associated costs from state or local governments."⁴⁷ The signatory providers also agree to "work with APCO, NENA, and the FCC to establish an outreach effort to set and manage consumer expectations regarding the availability/limitations of the Text-to-911 service (including when roaming) and the benefits of using voice calls to 911 whenever possible, and support APCO and NENA's effort to educate PSAPs on text-to-911 generally."⁴⁸

19. Finally, the Carrier-NENA-APCO Agreement limits the proposed voluntary text-to-911 solution "to the capabilities of the existing SMS service offered by a participating wireless service

⁴⁰ 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). (Carrier-NENA-APCO Agreement)

⁴¹ Carrier-NENA-APCO Agreement at 2.

⁴² *Id.*

⁴³ *Id.* at 2.

⁴⁴ *Id.* at 3.

⁴⁵ *Id.* at 2-3.

⁴⁶ *Id.* at 2.

⁴⁷ *Id.* at 2-3.

⁴⁸ *Id.* at 3.

provider on the home wireless network to which a wireless subscriber originates an SMS message.”⁴⁹ Thus, the carriers state that under the terms of their voluntary commitment to deploy text-to-911 capability by May 15, 2014, “SMS-to-911 will not be available to wireless subscribers roaming outside of their home wireless network,” and “[e]ach implementation of SMS-to-911 will be unique to the capabilities of each signatory service provider or its Gateway Service Provider.”⁵⁰

III. FURTHER NOTICE OF PROPOSED RULEMAKING

20. In this *Further Notice*, we seek comment on issues related to text-to-911 in light of the evolved record, and bifurcate the comment cycles in order to deal most promptly with the consumer notification issue that has the potential to alleviate near-term consumer confusion as to the availability of text-to-911 both during the course of the voluntary roll outs that several carriers have proposed and during the pendency of the Commission’s proceeding. Accordingly, comments with respect to Section III.A will be due 20 days from publication in the Federal Register, and reply comments on Section III.A will be due 10 days thereafter. Comments and reply comments should address only the issues posed in this section in order to provide the Commission with a focused record on this question. Comments and reply comment on the remaining portion of the *Further Notice* will be due [60 days and 90 days] from publication in the Federal Register, respectively. We also seek comment on Section III.C (Legal Authority) as relevant to each section in accordance with the comment timeframe for that section.

A. Automated Error Messages for Failed Text-to-911 Attempts and Consumer Expectations and Education

1. Automated Error Message Proposal

21. *Background.* In the *Notice*, the Commission noted the likelihood that as text-to-911 is implemented, there will be instances where despite efforts to educate consumers, some individuals will attempt to send text messages to 911 in locations where text-to-911 is not supported. The Commission observed that this “could put consumers at risk if they were unaware that an emergency text did not go through or were uninformed about alternative means of reaching the PSAP.”⁵¹ To mitigate this risk, the Commission proposed that in situations where a consumer attempts to text 911 in a location where text-to-911 is not available, the consumer should receive an automatic error message or similar disclosure that includes information on how to contact the PSAP.⁵²

22. Public safety commenters generally support such an automatic notification requirement.⁵³ APCO argues that “[i]n situations where a consumer attempts to text 9-1-1 in an area that does not support this technology, a standardized auto message should be immediately returned indicating how to contact the PSAP and/or that a voice call is required. The Commission is urged to work with APCO, NENA and NASNA to develop best practices and model responses.”⁵⁴ The State of

⁴⁹ *Id.* at 3.

⁵⁰ *Id.*

⁵¹ *Notice*, 26 FCC Rcd at 13628-30, ¶ 110.

⁵² *See id.*

⁵³ *See e.g.*, APCO Comments at 18; NASNA Comments at 9; State of California Comments at 8; Texas 911 Alliance Nov. 1, 2012 *Ex Parte* at 1; Minnesota Department of Public Safety Nov. 3, 2012 *Ex Parte* at 1; State of Hawaii 911 Nov. 6, 2012 *Ex Parte* at 1; California Technology Agency Nov. 9, 2012 *Ex Parte* at 1; BRETSA Nov. 16, 2012 *Ex Parte* at 2.

⁵⁴ APCO Comments at 18. *See also* Letter from Robert M. Gurss, Senior Regulatory Counsel, APCO, to Marlene Dortch, Secretary, Federal Communications Commission, PS Docket No. 11-153, PS Docket No. 10-255 (Oct. 24, 2012).

California similarly maintains that “the Commission [should] require any service provider that provides texting capability to its customers to provide an immediate, automatic response (preferably standard nationwide message) to any text-to-911 stating that texting to 9-1-1 is not available and advising the customer to make a voice call to 9-1-1 in an emergency.”⁵⁵

23. In their comments in response to the *Notice*, commercial mobile radio service (CMRS) providers acknowledge the importance of providing notification of non-delivery to consumers, although some commenters question whether the Commission should adopt a notification requirement. Verizon notes that it already provides an automated message when a wireless customer attempts to send a text message to 911 in a location where text-to-911 is not available.⁵⁶ Verizon states that its voluntary practice obviates the need for regulation, but notes that “[s]hould the Commission nevertheless find a requirement is necessary, language like Verizon’s would be sufficient and appropriate.”⁵⁷ Sprint argues that before making any decision on this issue, the Commission should first refer the matter to standards organizations “to review the technical aspects associated with delivering an error message and to develop a consistent error response message.”⁵⁸ Finally, textPlus, a software-based text application provider, notes that it already “sends a bounce back message to users alerting the user that the 911 address is not recognized.”⁵⁹

24. Most recently, however, the Carrier-NENA-APCO Agreement states that “[b]efore the deployment of Text-to-911, the signatory service providers will implement a bounce-back (auto-reply) message to alert subscribers attempting to text an emergency message to instead dial 9-1-1 when Text-to-9-1-1 is unavailable...”⁶⁰ The Agreement further states that these providers, the four major wireless carriers which include Verizon and Sprint, “will implement the bounce-back...message by June 30, 2013.”⁶¹

25. *Discussion.* We propose that CMRS providers and other providers of text messaging services should be required to automatically notify consumers attempting to text-to-911 in areas where text-to-911 is not supported or in other instances where the text cannot be transmitted to the PSAP. In this respect, there appears to be a clear benefit to persons in emergency situations being able to know immediately if a text message has been delivered to the proper authorities. This automatic feedback may be life-saving, allowing a person in need of assistance to immediately seek out an alternative. Providing this type of error message may also be particularly critical during the transition to NG911, as the record to date suggests there are likely to be numerous instances where consumers attempt to send text messages to PSAPs in areas where text-to-911 is not yet available.

26. We disagree with the assertion that there is no need for a bounce-back requirement because certain wireless carriers already voluntarily provide automatic error messages when customers attempt to text-to-911 in areas where it is not supported.⁶² Rather, we believe that all CMRS providers and other prospective text-to-911 service providers should implement this safeguard so that consumers

⁵⁵ State of California Comments at 8. *See also* NASNA Comments at 9-10.

⁵⁶ Verizon Wireless Comments at 18.

⁵⁷ Verizon Wireless Comments at 19.

⁵⁸ Sprint Nextel Comments at 24.

⁵⁹ textPlus Nov. 14 *Ex Parte* at 1.

⁶⁰ Carrier-NENA-APCO Agreement at 2-3.

⁶¹ *Id.*

⁶² Verizon Wireless Comments at 18-19.

have the assurance that they will receive automatic notification regardless of which provider they choose. While consumer education (as discussed below)⁶³ may help to mitigate this risk, the possibility remains that without such a requirement, a consumer without knowledge of where text-to-911 is supported could attempt to send a text message to 911 and mistakenly believe that the text has been successfully transmitted to the PSAP.

27. Moreover, in view of the four carriers' commitment in the Carrier-NENA-APCO Agreement to implement a bounce-back message by the end of June 2013, a proactive approach for requiring automatic error messages appears to be feasible at a reasonable cost, especially in comparison to the public safety benefits that an automatic error message can provide consumers. The Carrier-NENA-APCO Agreement states that the four major wireless carriers "will meet [the] commitments [in the Agreement] independent of the [carriers] ability to recover these associated costs from state or local governments."⁶⁴ We believe that this representation indicates that the costs for implementing a bounce-back message are manageable, regardless of whether such costs are recoverable under current state or local cost recovery programs. However, we seek comment on this view, particularly in regard to the impact that the costs to meet the bounce-back requirement might have on small and rural CMRS providers compared to the public safety benefits for their subscribers.

28. We seek comment on the appropriate timeframe for CMRS providers to implement a bounce back messaging capability. Whether or not CMRS providers have developed text-to-911 capability, the record to date appears to demonstrate that it is technically feasible for them to provide an automated "bounce-back" text message in such circumstances instructing the sender to make a voice 911 call,⁶⁵ and that many carriers already provide this message voluntarily.⁶⁶ We recognize that CMRS providers other than the four major carriers may need to address certain technical and operational issues in order to meet our proposed notification requirement. Nevertheless, we believe that a solution should be implemented as quickly as possible to avoid the risk of consumer confusion. Accordingly, we seek comment on whether it is feasible for all CMRS providers to provide their customers with an automatic notification by the June 30, 2013 date specified in the Carrier-NENA-APCO Agreement.⁶⁷ We seek comment on this timeframe, and any significant technical issues that would bear on the achievability of an automatic error message within that time frame by small, regional, or rural CMRS providers.

29. We also propose to require prospective providers of interconnected text service to develop an automated error message capability. In order to reduce potential consumer confusion and enhance the ability of consumers to communicate by text in emergencies using the applications they are most familiar with from everyday use, we believe that the "bounce-back" requirement proposed for CMRS providers above should also apply, to the extent feasible, to all providers of software applications that enable a consumer to send text messages to text-capable U.S. mobile telephone

⁶³ See, *supra*, Section III(A)(2).

⁶⁴ Carrier-NENA-APCO Agreement at 3.

⁶⁵ See Verizon Wireless Comments at 18-19; T-Mobile Sep. 25, 2012 *Ex Parte* at 1; US Cellular Nov. 6, 2012 *Ex Parte* at 1; TCS comments at 6, n.15.

⁶⁶ See, e.g., Verizon Wireless Comments at 18-19; T-Mobile Sep. 25, 2012 *Ex Parte* at 1.

⁶⁷ While we are aware that there is the potential for confusion in the interim period between now and the effective date of any bounce-back requirement, we must balance the risk of confusion against the need to provide carriers with an adequate amount of time to implement the bounce-back notification. The evidence in the record indicates that carriers would require six months to implement bounce-back notification. See Letter from Ray Rothermel, Counsel, Legal/Governmental Affairs, Sprint Nextel, to Marlene H. Dortch, Secretary, Federal Communications Commission (Oct. 19, 2012) at 3. (Sprint Oct. 19, 2012 *Ex Parte*).

numbers and receive text messages from the same when a user of the application attempts to send an emergency text in an area where text-to-911 is not supported or the provider is otherwise unable to transmit the text to the PSAP.⁶⁸

30. We clarify that we do not propose to extend text-to-911 obligations to IP-based messaging applications that support communication with a defined set of users of compatible applications but do not support general communication with text-capable telephone numbers.⁶⁹ We believe it is less likely that consumers will expect such applications to support emergency communications. Nevertheless, we encourage providers of such messaging applications to inform their users that these applications do not support communication to 911. We seek comment on this approach. Are there other “flavors” of third-party text messaging applications that should not be included? Why?

31. We seek comment on the feasibility and cost of third-party providers to implement such an automatic notification and whether they must address any unique technical issues not faced by CMRS providers in executing this requirement. We also seek comment on whether it is feasible timeframe for third-party providers to implement the automatic notification requirement by June 30, 2013, or whether we should adopt a longer timetable.

32. We clarify that with respect to both CMRS providers and interconnected text providers, our proposed requirement for automatic notification to consumers would only apply to situations where the provider (or the provider’s text-to-911 vendor) has direct control over the transmission of the text message and is unable to transmit the text message to the PSAP serving the texting party’s location, whether due to network congestion, the inability of the PSAP to accept such messages, or otherwise.⁷⁰ Thus, for example, a CMRS provider would not be required to provide automatic notification where the consumer uses a text application provided by a third party that the carrier does not control. Similarly, notification would not be required where the provider is able to transmit the text to the PSAP, but a failure in the PSAP network results in the text not being delivered to a 911 operator. We seek comment on our proposal. We also clarify that we do not propose to require all text-to-911 providers to use the exact same wording for their automatic error messages to consumers. Rather, we propose that providers would be deemed to have met our requirement so long as the error message includes information on how to contact the PSAP. For example, an automated message that advises the consumer to place a voice call to 911 would meet the proposed requirement. We would, however, encourage carriers to work with public safety organizations and consumer organizations, including disability organizations, on a common error message text to simplify consumer education. We seek comment on this approach.

⁶⁸ See *infra*, Section III(A).

⁶⁹ See, e.g., Chen, Brian, “Facebook Is Killing Text Messaging, Report Says”, N.Y. TIMES, May 11, 2012, available at <http://bits.blogs.nytimes.com/2012/05/11/facebook-killing-sms/> (last accessed Nov. 13, 2012) (stating that an “increasing number of customers moving their SMS traffic over to Facebook ...”), quoting Consult Strand, “Facebook is killing the mobile operators’ SMS traffic and revenue,” available at <http://www.strandreports.com/sw4689.asp> (last accessed Nov. 15, 2012).

⁷⁰ During natural disasters and other large-scale emergencies, PSAPs may not be able to handle all incoming text messages. In such cases, the PSAP or its text service provider may temporarily block incoming text messages and return a bounce-back message to the sender. Alternatively, a PSAP may choose to alert carriers and interconnected text service providers that it is temporarily unable to accept text messages. Carriers and interconnected text service provider should then provide a temporary bounce-back message until the PSAP notifies them that it is ready to accept text messages again.

2. Consumer Expectations and Education

33. *Background.* The *Notice* sought comment on how to ensure that consumers are informed about the availability and non-availability of text-to-911 in specific areas.⁷¹ Specifically, the *Notice* sought comment on the expected costs and benefits of various approaches to consumer education and disclosure mechanisms,⁷² whether contractual or cost considerations would deter consumers from texting or sending photos or video to 911, and if so, whether providers or the Commission should develop practices to remedy that situation.⁷³ It also sought comment on what types of educational programs could be created to reduce and/or prevent consumer confusion as text-to-911 is deployed in the short term,⁷⁴ what the appropriate role is for the Commission and for other government and private sector entities in any public education effort,⁷⁵ and whether other resources could be developed to help individuals learn about where text-to-911 services are and are not available.⁷⁶

34. Public safety commenters generally agree that there is a significant need for a nationwide effort to educate the public and prevent consumer confusion while text-to-911 is being rolled out.⁷⁷ For example, the North Central Texas Council of Governments (NCTCOG) conducted a recent survey which noted that approximately one-third of their population believe they can text 9-1-1 today.⁷⁸ APCO argues that “NG9-1-1 and the capabilities for data and multimedia will require a focused and funded public education plan. Consumers must be made aware of the limitations of 9-1-1 location accuracy and they must be cognizant of the role that they need to play in ‘managing their emergency.’” APCO urges the public and private sector to “unite to provide a national campaign targeted at public education of NG 9-1-1 as it becomes available,” and offers to help “craft and disseminate an agreed upon curriculum.”⁷⁹ NASNA supports focusing educational efforts on “discrete groups that would receive substantial and meaningful benefits” from near-term deployment of text-to-911, “such as the deaf and hard of hearing.” NASNA suggests these focused educational efforts “could provide a model when texting-to-9-1-1 is deployed on a permanent basis.”⁸⁰ NENA “encourages the Commission” to implement a campaign to “provid[e] states, regions, and localities with template materials such as canned video, audio, and print materials” that “could provide enormous economies of scale...and help local 9-1-1 systems and centers to effectively educate the public about the roll-out of new system capabilities.”⁸¹ NENA also contends that “it is imperative that any text-to-9-1-1 solution that relies on a digit string or short code incorporate the digits ‘9-1-1’” because “[d]oing so will help to

⁷¹ See *Notice*, 13655-56, ¶ 106.

⁷² *Id.* at ¶ 106.

⁷³ *Id.* at ¶ 106.

⁷⁴ *Id.* at ¶ 107.

⁷⁵ *Id.* at ¶ 108.

⁷⁶ *Id.* at ¶ 109.

⁷⁷ See, e.g., APCO Reply Comments at 3; ATIS Comments at 13; Bandwidth.com Comments at 8-9; Consumer Groups Reply Comments at 6, 23-24; L.R. Kimball Comments at 16; Neustar Comments at 9; Wireless RERC Reply Comments at 3-4.

⁷⁸ See *supra* note 6.

⁷⁹ APCO Comments at 17.

⁸⁰ NASNA Comments at 9.

⁸¹ NENA Comments at 20.

minimize consumer confusion and reduce public education costs.”⁸²

35. Industry commenters also stress the importance of consumer education and the need for both public and private sector participation in education efforts.⁸³ CTIA stresses that “consumer education requires that federal and state entities, as well as Public Safety agencies and consumer representatives, participate in the consumer education process, and that the responsibility not be left solely to the wireless industry.”⁸⁴ CTIA also supports the concept presented in the *Notice* of developing a consumer-focused map or website that would provide information on the text-capability of specific PSAPs, but notes that “the cost of developing and updating such resources is an issue that should be considered in developing a map or similar consumer education campaign.”⁸⁵

36. *Discussion.* We agree with commenters that educating the public is critical to the successful roll-out of text-to-911 and preventing consumer confusion. Adding text capability to the 911 system is not likely to occur uniformly: during the transition period, the availability of text-to-911 will vary by area, and the areas of availability will change over time as the transition progresses. The Carrier-NENA-APCO Agreement recognized this and the signatory providers agreed to “work with APCO, NENA, and the FCC to develop an outreach effort to set and manage consumer expectations regarding the availability/limitations of the Text-to-911 service (including when roaming) and the benefits of using voice calls to 911 whenever possible, and support APCO and NENA’s effort to educate PSAPs on Text-to-911 generally.”⁸⁶ Therefore, as we initiate the transition, a concerted effort will be needed to provide the public with accurate and up-to-date information regarding where text-to-911 is – and is not – available.

37. Aside from educating the public about the availability or unavailability of text-to-911, education is also imperative to inform the public about the capabilities and limitations of text-to-911 where it is available, and the circumstances under which texting 911 is or is not preferable to making a 911 voice call. The public needs to be aware that text may not provide all of the features and functionalities associated with voice 911 service, such as automatic location. Similarly, the public needs to be aware that, while sending an emergency text may be preferred in instances where the sender is unable to communicate by voice (*e.g.*, due to a speech or hearing disability, or in a hostage or abuse situation where voice calling could be dangerous to the caller), in most other instances, placing a voice call to 911 will continue to be the most effective means of communicating with emergency responders, and therefore will remain the strongly preferable option even where text is available.

38. Given the clear need for consumer education, we direct the Public Safety and Homeland Security Bureau and the Consumer and Governmental Affairs Bureau to implement a comprehensive consumer education program concerning text-to-911, and to coordinate their efforts with state and local 911 authorities, other federal and state agencies, public safety organizations, industry, disability organizations, and consumer groups, consistent with those voluntary measures taken under the Carrier-NENA-APCO Agreement. To assist in the development of this program, we seek comment on what educational tools and resources exist or need to be developed to combat consumer

⁸² *Id.* at 18.

⁸³ See CTIA Comments at 17-18, *citing* APCO *NG911 NPRM* Comments at 2, Motorola Solutions *NG911 NOI* Comments at 14.

⁸⁴ CTIA Reply Comments at 28. See also Verizon Reply Comments at 18, Sprint Nextel Comments at 24, VON Coalition Reply Comments at 7, and SouthernLINC Comments at 15-16.

⁸⁵ CTIA Comments at 18-19.

⁸⁶ Carrier-NENA-APCO Agreement at 3.

confusion as text-to-911 is deployed. To what degree can current 911 educational programs be adapted to help consumers understand the availability, capability, and appropriate use of text-to-911?⁸⁷ How do we ensure that education and outreach efforts on text-to-911 are fully accessible to people with disabilities? Are there lessons that we can draw from educational efforts that were conducted during the deployment of basic 911 or E911 service? Have other countries developed text-to-911 education programs?

39. We also seek comment on whether CMRS and interconnected text providers should provide educational information to their subscribers about the availability and use of text-to-911. The signatory providers in the Carrier-NENA-APCO Agreement agreed to work with APCO, NENA and the Commission to develop an outreach effort to “set and manage consumer expectations” regarding text-to-911. Should carriers also provide information regarding the text-to-911 capabilities of specific wireless devices that operate on their networks?

40. Would it be feasible to provide consumers with the ability to test text-to-911 functionality in their devices? Allowing customers to send simulated or test 911 messages could have benefits by enabling customers to verify the availability of text-to-911 and familiarize themselves with its use. However, any test mechanism would need to be configured to avoid burdening PSAPs with unnecessary text messages, *e.g.*, by having the carrier or 911 text services provider reply to test messages with an automated response.⁸⁸ We seek comment on technical and cost issues associated with developing such a test capability.

41. Who should bear the primary responsibility for educating consumers on the limits of text-to-911? The Commission? CMRS and interconnected text providers? Public safety organizations? Should the Commission establish a joint effort in conjunction with CMRS and interconnected text providers and public safety to implement an education effort? To what extent should consumer groups, including organizations representing the interests of people with disabilities, be included in such efforts? Should the educational effort be federal, regional, state, or local-level? What safeguards and measures should be taken to ensure that education and outreach efforts on text-to-911 and its limitations are fully accessible to people with disabilities? Can the ability to send test text messages to a PSAP facilitate consumer education? Could the database described in Bandwidth.com’s comments⁸⁹ be used to automatically generate up-to-date consumer-facing maps of where text-to-911 is available?

⁸⁷ See, *e.g.*, current educational websites, available at <http://www.know911.org> (a joint effort of the National 9-1-1 Education Coalition to promote 911 education and awareness); <http://www.know911.org/message-guidelines/> (“Know Your Cell Well” and cautioning that “Texting 9-1-1 is not an option in most locales; you must dial 9-1-1 and speak with a call taker.”); http://www.nena.org/?page=911_EducationMonth (providing educational “Features, Tools, and Resources” and external links to other educational resources); http://c.yecd.com/sites/www.nena.org/resource/resmgr/911pubedresources/making_911_teens_1.pdf (“Things Teens Need to Know - 911 is not as cool as you are.”); <http://www.il911info.org/DocumentCenter/View/17> (“Making 9-1-1 Work For You!” and cautioning consumers to “[k]now the capabilities of the device [they] are using.”) (all sites last accessed Nov. 8, 2012).

⁸⁸ Though the most complete test of text-to-911 functionality would involve end-to-end transmission from the customer to the PSAP, we believe that more limited testing without reaching the PSAP network could also provide benefits.

⁸⁹ See, *infra*, paras. 145-146.

B. Comprehensive Text-to-911 Proposals

1. Further Background

42. The Commission has previously highlighted the popularity and ubiquity of text messaging, the increasing public expectation that consumers should be able to text to 911 during an emergency, and the importance of text to 911 for people with disabilities.⁹⁰ American consumers send billions of SMS text messages per day and more than two-thirds of mobile phone users have used text messaging.⁹¹ Moreover, many of these consumers are acquiring advanced mobile devices (*e.g.*, 3G and 4G devices) that enable them to send text messages using “over-the-top” software applications that they install on their phones and other mobile devices.⁹² Additionally, text messaging will likely play an integral role in providing future 911 services for persons with communications disabilities.⁹³ Hence, any discussion about the near-term deployment of text-to-911 must consider both SMS and currently available, as well as anticipated, software applications as potential platforms.

43. The record in response to the *Notice* indicates that NG911 will eventually be capable of supporting the full range of possible multimedia-to-911 communications, including transmission of text, photos, video, and data. However, due to the complexity and cost of deploying NG911 infrastructure on a national scale, full deployment of NG911 will not be uniform and will likely take years.⁹⁴ At the same time, the record indicates that it is technically feasible for CMRS providers to implement text-to-911 using existing technologies prior to full deployment of NG911, as evidenced by the successful trials and demonstrations noted above, the University of Colorado and Intrado technical studies,⁹⁵ and the fact that the four largest nationwide wireless carriers committed to deploy text-to-911 capability throughout their networks by May 15, 2014. Thus, text-to-911 could be made available to

⁹⁰ See *Notice*, 26 FCC Rcd at 13628-30, ¶¶ 34, 36; see also Verizon and Verizon Wireless Comments at 2-3 (“Verizon...agrees that text-to-911 capability may have important public safety benefits, principally for individuals with disabilities who already rely on TTY technology.”).

⁹¹ See, *e.g.*, CTIA, “The U.S. Wireless Industry Overview January – June 2011,” at 81 (updated: Apr. 25, 2012)(stating that “U.S. wireless consumers used more than 1.1 trillion voice minutes; *exchanged more than 1.1 trillion text messages* and sent 388 billion MB.”) (emphasis added); available at http://files.ctia.org/pdf/042412_-_Wireless_Industry_Overview.pdf (last accessed Jul. 3, 2012). Additionally, given that 87 percent of cell phone users under 18 have sent or received text messages at least once, and 72 percent of adult cell phone users send/receive text messages, it can be extrapolated that at least 72 percent of all cell phone users have used SMS at least once. See “Cell Phones and American Adults”, Pew Internet & American Life Project (Sept. 2010) at 5, 21, available at http://www.afpnet.org/files/ContentDocuments/PEW%20Research_Cell%20Phone%20Use_sep%202010.pdf (last accessed Nov. 13, 2012); Common Sense Media, “Social Media, Social Life: How Teens View Their Digital Lives” (2012) at 17, available at <http://www.common Sense Media.org/research/social-media-social-life> (last accessed Nov. 13, 2012).

⁹² “Over-the-top” generally refers to applications that operate on IP-based mobile data networks and that consumers can typically install on data-capable mobile devices. Over-the-top text applications enable consumers to send text messages without using SMS or MMS.

⁹³ See, *infra*, Section III.B.2.b).

⁹⁴ NG911 deployment will be more non-uniform on the PSAP side than on the commercial service provider side because the ability of PSAPs to become NG911-capable is affected by variations in jurisdiction, governance, funding at the state and local level, and political priorities.

⁹⁵ See University of Colorado Comments and Intrado Comments, Attachment C, “Testing the Reliability, Latency and Delivery Sequence of SMS Messages in a 9-1-1 Environment.” For a more detailed discussion of the University of Colorado and Intrado technical studies, see Section III(B)(5) *infra*.

virtually all wireless customers in the near term and delivered to both “NG-capable” and “pre-NG” PSAPs at a reasonable cost to wireless carriers.⁹⁶

44. As discussed below, we believe that enabling consumers to send a text message to 911 in the near term will substantially improve accessibility to emergency services, particularly for people with hearing and speech disabilities. While we recognize that text-to-911 based on pre-NG technologies does not provide the full functionality of NG911-based text, and that it has certain limitations in comparison to voice-based 911, we believe that these limitations are outweighed by the substantial public safety benefits that near-term implementation of text-to-911 would yield. In addition, 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. Moreover, the availability of text-to-911 will provide incentives for PSAPs to acquire Internet Protocol (IP) connectivity and NG911-capable customer premise equipment (CPE), which are both critical steps towards the full deployment of NG-911. We seek comment on these observations.

45. We also believe that adopting a mandatory regulatory framework and timetable for implementation of text-to-911 is necessary. We recognize that substantial progress has been achieved through the voluntary initiatives of the four major CMRS providers, 911 service providers, and PSAPs described above. However, we are concerned that continuing to rely solely on voluntary measures could result in the four major CMRS providers implementing text-to-911 while other service providers – including regional, small, and rural CMRS providers and third party interconnected text providers – do not, or could lead to non-uniform and uncoordinated implementation, inconsistent technological approaches, and widely varying implementation timelines to the detriment of consumers. This in turn could lead to a longer transition period, increased transition costs, and increased consumer confusion regarding when and where text-to-911 will be supported, what functionality it will provide, and when and how consumers should use it where it is available. We seek comment on this analysis.

46. Public safety commenters made a number of *ex parte* submissions in the record highlighting the importance of deploying text-to-911 services.⁹⁷ NENA conducted a comprehensive

⁹⁶ According to NENA, NG911 is defined as “an IP-based system comprised of managed IP-based networks (ESInets), functional elements (applications), and databases that replicate traditional E9-1-1 features and functions and provide additional capabilities. NG9-1-1 is designed to provide access to emergency services from all connected communications sources, and provide multimedia data capabilities for PSAPs and other emergency service organizations.” *NENA Master Glossary of 9-1-1 Terminology*, National Emergency Number Organization, August 2011, at p. 82, available at <http://www.nena.org/?page=Glossary> (last accessed Nov. 20, 2012). An “NG-capable” PSAP has NG911 capabilities and is connected to an ESInet. A “pre-NG” PSAP has not yet acquired NG911 capabilities and typically relies on circuit-switched technology to receive 911 calls.

⁹⁷ See NENA May 14th *Ex Parte*; Letter from Robert M. Gurs, Senior Regulatory Counsel, APCO, to Marlene Dortch, Secretary, Federal Communications Commission, PS Docket No. 11-153, PS Docket No. 10-255 (Oct. 24, 2012); Letter from Christy Williams, 9-1-1 Program Manager, North Central Texas Council of Governments, to David S. Turetsky, Chief, Public Safety and Homeland Security Bureau, Federal Communications Commission (Nov. 1, 2012); Letter from James D. Goerke, Chief Executive Officer, Texas 911 Alliance, to David S. Turetsky, Chief, Public Safety and Homeland Security Bureau, Federal Communications Commission (Nov. 1, 2012); Letter from Jackie Mines, Director, Emergency Communication Networks, Minnesota Department of Public Safety, to Marlene H. Dortch, Secretary, Federal Communications Commission (Nov. 3, 2012); Letter from Thomas L. Welch, Chairman, Maine Public Utilities Commission, to Marlene Dortch, Secretary, Federal Communications Commission (Nov. 2, 2012); Letter from Raymond Chiozza, Director, Shelby County Tennessee Emergency Communications 9-1-1 District, to David S. Turetsky, Chief, Public Safety and Homeland Security Bureau, Federal Communications Commission (Nov. 2, 2012); Letter from Clayton Tom, Chair, State of Hawaii Enhanced 9-1-1 Board, and Thera G. Bradshaw, Executive Director, State of Hawaii 9-1-1, to Marlene Dortch, Secretary, Federal Communications Commission (Nov. 6, 2012); Letter from Carlos Ramos, Secretary, California (continued....)

study and reported that the majority of its chapters would support a requirement for wireless carriers to provide text-to-911 services to their customers.⁹⁸ APCO argued that “deferring action on the basic [text-to-911] requirement would only lead to uncertainty and delay serious consideration of implementation issues and requirements.”⁹⁹ NCTCOG submitted an *ex parte* noting that the public expects to be able text-to-911 and highlighted that “a recent market study... showed that approximately 1/3 of our population believe they can text 9-1-1 today.”¹⁰⁰ The Maine Public Utilities Commission noted that “increasingly [persons with disabilities are] abandoning the use of TTYs for new technologies such as text messaging that allow them more flexibility to communicate with most others except 9-1-1.”¹⁰¹

47. We believe that a mandatory regulatory framework that builds on existing voluntary initiatives will mitigate these risks by providing a common deadline for the implementation of text-to-911. Moreover, while under our proposal PSAPs will still have the option to choose whether to accept text messages, greater uniformity in availability will enhance PSAP options and make it easier to justify investments in upgrades. Uniformity will also promote coordinated and consistent deployment by establishing a set of baseline requirements for all CMRS providers and third-party interconnected text providers to meet. Finally, it will provide greater certainty to consumers regarding text-to-911 availability, functions, and usage. Given these substantial benefits, we believe that the public interest is served by requiring CMRS providers and third-party interconnected text providers to supply text-to-911 capabilities to their customers on all text-capable devices.¹⁰² We seek comment on this analysis and on possible timelines and technical options for implementation of these proposed requirements.

2. Public Safety Benefits of Text-to-911

48. The record indicates that text-to-911 can offer significant public safety benefits, most notably: (1) widespread consumer availability and ease of use, (2) enhanced accessibility to 911 for people with hearing and speech disabilities, and (3) an alternative means of emergency communication for the general public when 911 voice service is unavailable or when voice calling could endanger the caller. We note that text-to-911 service may also permit “text-takers” to open multiple texts and

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Technology Agency, to Marlene Dortch, Secretary, Federal Communications Commission (Nov. 9, 2012); Letter from Joseph P. Benkert, Attorney for BRETSA, to Marlene H. Dortch, Secretary, Federal Communications Commission (Nov. 16, 2012); Letter from Marlys R. Davis, E911 Program Manager, King County, WA, to Marlene Dortch, Secretary, Federal Communications Commission (Nov. 28, 2012).

⁹⁸ NENA May 14th *Ex Parte*.

⁹⁹ APCO Oct. 24, 2012 *Ex Parte* at 1.

¹⁰⁰ NCTCOG Nov. 1, 2012 *Ex Parte* at 1.

¹⁰¹ Letter from Thomas L. Welch, Chairman, Maine Public Utilities Commission, to Marlene Dortch, Secretary, Federal Communications Commission (Nov. 2, 2012). *See also* Letter from Marlys R. Davis, E911 Program Manager, King County, WA, to Marlene Dortch, Secretary, Federal Communications Commission (Nov. 28, 2012) (“It is especially critical to improve access to 911 for individuals with hearing or speech disabilities. These individuals rarely use TTYs anymore, and routinely use modern communications devices for their daily communications. They currently cannot directly contact 911 with these devices. They must rely on video or IP relay services, which have proven to be cumbersome and time-consuming for communications with the PSAPs, thereby causing delays in the delivery of emergency services”).

¹⁰² We clarify that the provider’s obligation to support text-to-911 under the framework proposed here would not extend to non-service-initialized (NSI) handsets. Although the Commission requires delivery of 911 voice calls from NSI handsets, there are no established standards in place to support texting from NSI handsets.

prioritize the most life-threatening situations first, rather than waiting to address calls based simply on the order in which they arrived.¹⁰³

a. Availability and Ease of Use

49. The effectiveness of the legacy voice 911 system derives in large part from its ease of use by consumers, and their familiarity and comfort with voice calling on everyday devices. It is much easier for people faced with the stress of emergency situations to communicate quickly and effectively when they are able to use the same technologies that they use for everyday communications.¹⁰⁴ This principle, which has long applied to voice calling, is increasingly true for communication by text as well. More than 2 trillion text messages are sent annually¹⁰⁵ and according to the Pew Center, more than 7 out of 10 cell phone users send or receive text messages.¹⁰⁶ Another report suggests that 91 percent of smartphone owners actively use SMS.¹⁰⁷ Thus, expanding existing text technology to support 911 will provide the public with a familiar mode of communication for emergency use.¹⁰⁸

b. Enhanced Accessibility for People with Disabilities

50. Currently, approximately 15 percent of the United States population, or 34.5 million people, have hearing disabilities and approximately 7.5 million people have difficulty using their voices.¹⁰⁹ Moreover, there is a strong relationship between age and reported hearing loss. For example,

¹⁰³ Letter from Kim Robert Scovill, Esq., Senior Director, Legal, Government, and Regulatory Affairs, Telecommunications Systems, Inc., to Marlene H. Dortch, Secretary, Federal Communications Commission (Nov. 9, 2012) at 2.

¹⁰⁴ See, e.g., EAAC Survey Report at 30, Question 23. When asked how important it is that they are able to call 911 using the same device (using text, video, voice, and/or captioned telephone) that they use to typically communicate with friends and co-workers every day, between 86percent and 98percent of the EAAC survey respondents in each disability group said that it was **very important** or **somewhat important** that they are able to call 911 using the same device they use every day (Emphasis added).

¹⁰⁵ Li, Shan, and Olivarez-Giles, Nathan, “Apple’s iMessage texting service takes aim at wireless carriers,” L.A. TIMES (Oct. 13, 2011) available at <http://articles.latimes.com/2011/oct/13/business/la-fi-apple-texting-20111013> (last accessed Dec. 12, 2012).

¹⁰⁶ Pew Internet and American Life Project, “The Rise of Apps Culture” (Sept. 15, 2010), available at http://pewinternet.org/~media/Files/Reports/2010/PIP_Nielsen%20Apps%20Report.pdf (noting that 72% of users send or receive text messages) (last accessed Aug. 12, 2011).

¹⁰⁷ See Press Release, “U.S. Research by Acision Shows SMS Is Still the King of Messaging With Speed, Reach and Reliability Named as Key Reasons for Usage Over Alternative Services,” May 9, 2012, available at <http://finance.yahoo.com/news/us-research-acision-shows-sms-110000710.html> (last accessed Nov. 19, 2012).

¹⁰⁸ See e.g., NENA Comments at 5 (The prevailing consumer text mode in the U.S. is SMS; this is also the most interoperable, working between nearly every device on every U.S. network.); King County E911 Program at 4 (It is “definitely the case” that the rapid growth in popularity of SMS messaging has generated consumer expectations that SMS will support 911 texting.); Consumer Groups Comments at 9 (There is considerable support in the deaf, deaf-blind, late deafened, and hard of hearing community and among people with speech disabilities for the use of SMS because most people are familiar with SMS technology).

¹⁰⁹ This includes individuals who have cerebral palsy, Parkinson’s disease, ALS, aphasia, Huntington’s disease, and speech disabilities such as stuttering or stammering. See, e.g., National Institute on Deafness and Other Communications Disorders, National Institutes of Health, <http://www.nidcd.nih.gov/health/statistics/pages/vsl.aspx>. See also American Speech, Hearing and Language Association (ASHA) Incidence and Prevalence of Communication Disorders and Hearing Loss in Children – 2008 Edition, available at <http://www.asha.org/research/reports/children.htm> (last accessed Dec. 12, 2012).

18 percent of American adults 45-64 years old have a hearing loss, 30 percent of adults 65-74 years old have a hearing loss, and 47 percent of adults 75 years old or older have a hearing loss.¹¹⁰ By 2030, 20 percent of the population will be over 65 years old, substantially increasing the number of Americans who may need alternatives to voice communications when accessing 911.¹¹¹ Further, an increasing number of soldiers are returning from overseas and are experiencing traumatic brain injury, which can result in hearing or speech disabilities.¹¹²

51. Title II of the Americans with Disabilities Act (ADA), enacted in 1990 requires PSAPs to provide persons with hearing or speech disabilities with direct access to 911 emergency services.¹¹³ Since 1991, the U.S. Department of Justice (DOJ) has implemented this provision by requiring all public safety agencies to make their telephone emergency services directly accessible to TTYs.¹¹⁴ In the *Notice*, however, the Commission explained that people with hearing and speech disabilities have increasingly migrated away from specialized legacy devices, such as TTYs,¹¹⁵ and towards more widely available forms of text communications because of the ease of access, availability, and practicability of modern text-capable communications devices.¹¹⁶ While the migration to widely available texting

¹¹⁰ National Institute on Deafness and Other Communication Disorders, *available at* <http://www.nidcd.nih.gov/health/statistics/Pages/quick.aspx> (last accessed Dec. 12, 2012).

¹¹¹ See Hobbs, Frank B., *The Elderly Population*, U.S. Census Bureau, *available at* <http://www.census.gov/prod/1/pop/p23-190/p23-190.pdf> (noting “[a]bout 1 in 8 Americans were elderly in 1994, but about 1 in 5 would be elderly by the year 2030”) (last accessed Dec. 12, 2012).

¹¹² See e.g., “Troops With Traumatic Brain Injury Face Long Road to Recovery,” USA TODAY (July 31, 2010), *available at* <http://abcnews.go.com/Politics/iraq-afghanistan-troops-traumatic-brain-injury-face-long/story?id=11287674> (last accessed Dec. 12, 2012).

¹¹³ The ADA House Report stated that: “Title II will require local governments to ensure that these telephone emergency number systems are equipped with technology that will give hearing impaired and speech impaired individuals *a direct line to these emergency services*. While initially this will mean installation of a TDD or compatible ASCII or Baudot computer modems by programs operating these services, future technological advances. . . may offer other means of affording direct and equally effective access for these individuals.” H. Rep. No. 485, Part 2, 101st Congress., 2d. Sess. 84-85 (May 15, 1990) (emphasis added); See also Conf. Rep. No. 596, 101st Cong., 2d Sess. 67-68 (Jul. 12, 1990) (containing similar language).

¹¹⁴ 28 C.F.R. §35.162; see also 56 Fed. Reg. 35694, 35712-13 (July 26, 1991) (Final rules for Title II of the ADA, governing nondiscrimination obligations by state and local governments). Department of Justice’s (DOJ) Title II Technical Assistance Manual states that access through a third party or through a relay service does not satisfy its ADA requirement for direct access. Title II TA Manual at II-7.3000 (Emergency telephone services) *available at* <http://www.ada.gov/taman2.tml>. In recent testimony to the Senate Committee on Health, Education, Labor and Pensions, the Department of Justice reaffirmed that TRS may “result in harmful delays in reporting emergencies or in requesting emergency assistance for individuals with disabilities.” Testimony of Eve Hill, Senior Counselor to the Assistant Attorney General for Civil Rights, Department of Justice, before the Senate Committee on Health, Education, Labor and Pensions, at 13 (Feb 7, 2012). DOJ is considering changes to its accessibility mandates governing 911 access to PSAPs to bring these in line with more current communications technologies, but has not yet issued a final rule requiring other forms of text to be accepted by all PSAPs. See 75 FR 43446 (July 26, 2010). The July 26, 2010, ANPRM is accessible through the Federal eRulemaking Portal (<http://www.regulations.gov>), at docket number DOJ-CRT 0111, also available at http://www.ada.gov/anprm2010/nextgen_9-1-1%20anprm_2010.htm.

¹¹⁵ A TTY, also sometimes called a “TDD,” is a text device that employs graphic communication in the transmission of coded signals through a wire or radio communication system. See 47 CFR § 64.601(22); Telecommunications Services for Individuals with Hearing and Speech Disabilities and the Americans with Disabilities Act, *Report and Order and Request for Comments*, 6 FCC Rcd 4657 at 4657, ¶1, n.1 (1991).

¹¹⁶ See *Notice*, 26 FCC Rcd at 13629-30 ¶ 36.

technologies has had the unique benefit of bringing prior TTY users into the mainstream of our nation's communications systems, this transition has also led some commenters to suggest that it leaves people with hearing and speech disabilities without an effective, reliable and direct means of accessing 911 services in the event of an emergency.¹¹⁷

52. The EAAC noted that individuals who cannot hear or speak well enough to communicate with 911 currently have no direct means of accessing 911 when mobile other than TTYs.¹¹⁸ However, with the vast majority of people with hearing and speech disabilities having discarded their TTYs, these devices are no longer considered a viable means of directly accessing 911 for this population. Nevertheless, the EAAC found that many individuals who are deaf have service plans that include SMS.¹¹⁹ One "key finding" of the EAAC is that "individuals with disabilities should be able to call 9-1-1 using the same means they use for everyday telecommunication."¹²⁰

53. At present, individuals with disabilities who have stopped using TTYs often have no other option but to rely on telecommunications relay services (TRS)¹²¹ to access 911 emergency services. Text-based relay services generally require an emergency call to first go to a communications assistant (CA), who places the call to the PSAP. The CA then relays the conversation back and forth between the caller and the PSAP, by voicing all text that is typed by the person with a disability to the PSAP call taker and typing back responses to the caller.¹²² As such, many have criticized TRS as providing only an indirect means of conveying information that may result in delays and translation errors during an emergency.¹²³ For example, Consumer Groups note that IP-Relay, one text form of TRS, has not been widely embraced by the deaf and hard of hearing community for requesting emergency services because of the relatively long length of time it takes to reach a relay operator and then get to the correct PSAP, the fact that the call will generally arrive on a non-emergency line, and the possibility of mistakes by the CA in the relaying of the call.¹²⁴

¹¹⁷ See, e.g., Ray Comments at 1-2; King County E911 Program at 3; Consumer Groups Comments at 3; Tziallila Comments at 1.

¹¹⁸ EAAC Report at 29.

¹¹⁹ *Id.*

¹²⁰ *Id.* at 30.

¹²¹ See 47 U.S.C. § 225, codifying the requirement in Title IV of the ADA for the Commission to establish a nationwide TRS program. This program has been in place since 1993. See generally 47 C.F.R. § 64.601 *et. seq.*

¹²² See Notice, 26 FCC Rcd at 13638, ¶ 27. There are various other types of TRS, including video relay services, by which individuals who are deaf, hard of hearing or speech disabled can relay messages through CAs who know sign language, and speech-to-speech TRS, by which individuals with speech disabilities can communicate with other parties through CAs who are trained to understand difficult-to-understand speech. In the Matter of Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities, *Report and Order, Order on Reconsideration, And Further Notice of Proposed Rulemaking*, CC Dkt 90-571, CC Dkt 98-67, CG Dkt 03-123, FCC 04-137 (June 10, 2004) (*June 2004 Report and Order*) and In the Matter of Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities, *Report and Order and Further Notice of Proposed Rulemaking*, CC Docket No. 98-67, CG Docket No. 03-123, FCC 03-112 (rel. June 17, 2003).

¹²³ See King County Comments at 3 (Video or IP relay services "have proven to be cumbersome and time-consuming for communications with the PSAPs, thereby causing delays in the delivery of emergency services.").

¹²⁴ Consumer Groups Reply Comments at 3-4, *citing* Facilitating the Deployment of Text-to-911 and Other Next Generation 911 Applications, Framework for Next Generation 911 Deployment, PS Dockets Nos. 11-153, 10-255, (continued....)

54. The record in this proceeding and the EAAC Report make clear that a significant number of people with hearing and speech disabilities will benefit from the ability to directly send a text message to 911 from any device that is text-capable. Advocates for and individuals who are deaf and hard of hearing strongly support implementation of a near-term text-to-911 solution¹²⁵ and disfavor text relay approaches due to the risk of delay and translation errors.¹²⁶ Moreover, enabling direct text messaging to 911 by people with hearing and speech disabilities will allow this population to use mass market communication devices that have increasingly evolving capabilities. While disability advocates have previously been skeptical of SMS-to-911 because it does not support real-time text, they have given more recent support to SMS as a viable near-term solution because of its familiarity and ease of use for people with disabilities.¹²⁷ Respondents to the EAAC survey expressed a clear preference for calling a PSAP using the same technology that they use on a daily basis.¹²⁸ Moreover, 87.7 percent of respondents reported having used SMS text messaging and 46.1 percent reported having used SMS text messaging “almost every day.”¹²⁹

55. Consumer Groups similarly urge the Commission to require the deployment of SMS-to-911 technologies in the near term as a rapid and practical means of significantly enhancing accessibility to the 911 system for people who are deaf and hard of hearing.¹³⁰ Consumer Groups point out that because consumers have already embraced SMS technology, and the vast majority of wireless providers and manufacturers support SMS, this capability may be deployed rather quickly.¹³¹ Likewise, the Wireless Rehabilitation Engineering Research Center (RERC) “strongly supports” the incorporation

(Continued from previous page) _____

Comments of the Hearing Speech and Deafness Center, at 1-2 (Dec. 12, 2011) (“Often it would take average 4 or 5 minutes to connect to 9-1-1 agencies” for calls using IP Relay services).

¹²⁵ See, e.g., Wireless RERC Comments at 1-2.

¹²⁶ See e.g., Donna Platt Comments at 1-2.

¹²⁷ See e.g., Consumer Groups Comments at 9 (“There is considerable support in the deaf, deaf-blind, late deafened, and hard of hearing community and among people with speech disabilities for the use of SMS because most people are familiar with SMS technology”). See also NENA Comments at 5 (“The prevailing consumer text mode in the U.S. is SMS; this is also the most interoperable, working between nearly every device on every U.S. network”); King County E911 Program at 4 (It is “definitely the case” that the rapid growth in popularity of SMS messaging has generated consumer expectations that SMS will support 911 texting.). Like TTY text, real-time text would allow character-by-character or word-by-word transmission of conversations with PSAP personnel as they are typed, which various parties to this proceeding have claimed is necessary for the instantaneous communication required in an emergency situation. See e.g., Consumer Groups Reply Comments at 13, n.36; NENA Comments at 19-20. See also EAAC Survey Report at 23, Question 16 and 42, Question 29; EAAC Report and Recommendations at P6.5, T2.2. While the Commission continues to explore the feasibility of real-time text capabilities for 911, we believe that the adoption of a text-to-911 requirement provides an important first step in responding to the emergency access needs of people with hearing and speech disabilities.

¹²⁸ EAAC Report Recommendation P1.2 at 19 (noting that in an emergency, people turn to what is known, and are not in a position to use something new); see also Consumer Groups Reply Comments at 10.

¹²⁹ EAAC Survey Report at 18, Question 11. Of 2,941 survey respondents 1,614 or 54.9 percent answered they have a cell phone with a wireless data plan in at least one setting. Of the 1,614 respondents: 1,300 or 44.2 percent have cell phone with a wireless data plan at home, 524 or 17.8 percent have cell phone with a wireless data plan at work, and 935 or 31.8 percent have cell phone with a wireless data plan for traveling or commuting. See also Wireless RERC Comments at 3.

¹³⁰ See Consumer Groups Reply Comments at 12.

¹³¹ See *id.*

of SMS for the initial deployment of an NG 911 system.¹³² Similarly, the RERC on Telecommunications Access notes that it is imperative for the Commission to ensure that mobile text communication is available in the near term to people who are deaf.¹³³

c. Alternative Means of Emergency Communication for the General Public

56. The ability to send text messages to 911 will also provide an important alternative means of emergency communication to the benefit of the general public. While the general public will not need to use text-to-911 services as frequently as people with hearing and speech disabilities, experience has shown that there are situations where being able to send a text message to 911 as opposed to placing a voice call could be vital to the caller's safety. For example, in the 2007 shooting incident at Virginia Tech, a number of students attempted unsuccessfully to send SMS text messages to 911 so as not to be heard and located by the shooter.¹³⁴ Similarly, in the Black Hawk County, Iowa text-to-911 trial, text has been used in domestic and child abuse situations in which the victim feared that the suspect would overhear the call to 911.¹³⁵ Additionally, the Vermont trial further demonstrated text-to-911's efficacy in cases involving suicide and domestic violence.¹³⁶

57. Text-to-911 can also provide a lifeline when voice networks are impaired or congested.¹³⁷ In large-scale disasters, for example, circuit-switched landline and mobile networks may become overloaded, making it difficult to place a 911 voice call. Conversely, SMS and IP-based text messages to 911 can still be transmitted because text consumes far less bandwidth than voice and may use different spectrum resources and traffic channels. As TCS notes, "[i]n situations in which a high 9-1-1 call volume results in blocked calls to the PSAP or situations in which the wireless infrastructure capacity is impacted such that placing voice calls is difficult or impossible, SMS communications to a PSAP may provide the only reasonable communications method to emergency services."¹³⁸ TCS further notes that according to data it had drawn from its CMRS provider customers, attempts to text-to-911 are made regularly and the number of attempts to text-to-911 during the recent Hurricane Sandy spiked sharply.¹³⁹ TCS also highlights that unlike phone calls that are handled on a "first-in, first-

¹³² See Wireless RERC Reply Comments at 4. The Wireless RERC is a project of the Georgia Institute of Technology.

¹³³ See RERC on Telecommunications Access (RERC-TA) Comments at 4. The RERC-TA is a joint project of the Trace Center at the University of Wisconsin and Gallaudet University.

¹³⁴ See Pinto, Barbara and Tejada, Alicia, "Could Being Able to Text 911 Save Lives?", ABC News, Mar. 27, 2011, available at <http://abcnews.go.com/Technology/text-911-save-lives/story?id=13235321> (last accessed Dec. 12, 2012). Had these messages gone through, first responders might have arrived on the scene faster with firsthand intelligence about the life-threatening situation that was unfolding.

¹³⁵ Black Hawk Comments at 3 ("The calls we have received range from domestic abuse situations where the victim was fearful for her life if the suspect overheard her calling 911, to a child texting 911 because they were being abused by a parent. In one particular case, a domestic abuse victim's ability to text 911 resulted in no harm coming to her and the suspect being arrested on a violation of a no contact order."). Likewise, there may be times when a loud noise may prevent a caller with a mild or temporary hearing loss – who generally can use voice telephone services – from being able to hear responses from a 911 call taker. In this situation, the ability to send a text message would provide a useful alternative for such an individual.

¹³⁶ See Vermont *Ex Parte* at 2.

¹³⁷ See, e.g., <http://www.fcc.gov/guides/emergency-communications>.

¹³⁸ TCS Nov. 9, 2012 *Ex Parte* at 2.

¹³⁹ TCS *ex parte*, Nov. 9, 2012 at supplemental presentation 7-8.

addressed” basis without any ability to know which queued up calls are priorities, a single “text-taker” could open more than one text and “attempt to address the more urgent and life-threatening emergencies with greater priority.”¹⁴⁰ In addition, the University of Colorado finds that “text users and call takers compose and read messages offline and only use communication for the moment that the message needs to be sent [which] saves valuable network resources during network congestion.”¹⁴¹ Thus, people in disaster areas may still be able to send text messages to 911 even if they cannot place a voice call.¹⁴²

3. Technical Feasibility, Timing and Cost of Text to 911

58. Balanced against the above-described benefits of text-to-911, 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. We disagree with commenters who argue that the Commission should not act until NG911 is fully deployed.¹⁴³ As we note above, it will likely take a number of years to deploy NG911 on a national scale.¹⁴⁴ The record also indicates that it is technically feasible for CMRS providers to implement a text-to-911 solution using existing technologies prior to the full deployment of NG911, and we believe the same should be true for interconnected text providers. Thus, text-to-911 could be made available to virtually all wireless customers in the near-term and delivered to both “NG-capable” and “pre-NG” PSAPs at a reasonable cost to wireless carriers. In this respect, we also believe that investments made now by PSAPs and carriers to support text-to-911 can be leveraged to support NG911 deployments, and accordingly constitute building blocks towards an IP-based emergency network. For example, while some PSAPs may choose to implement text-to-911 through existing equipment, such as TTY terminals, other PSAPs may choose to upgrade their equipment to receive text messages in a manner that will also support additional data in an NG911 environment.

59. We disagree with MetroPCS’s argument that any text-to-911 obligations should “only be imposed on the largest nationwide carriers because the costs of increased regulations are more easily borne by the largest carriers.”¹⁴⁵ There is no evidence that the cost of implementing a text-to-911 solution will be substantial enough to warrant limiting the obligation to the largest carriers. In fact, the first text-to-911 trial in the nation was conducted in Black Hawk County, Iowa by a small wireless carrier.¹⁴⁶ Further, we believe that exempting certain wireless carriers from a text-to-911 obligation

¹⁴⁰ TCS Nov. 9, 2012 *ex parte* at 2.

¹⁴¹ University of Colorado Comments at 16 (submitting explanation at 14-16). *See also* Minnesota Department of Public Safety Comments at 2 (supporting the University of Colorado’s determination as showing that text-to-9-1-1 may provide significant benefits for those in disaster scenarios due to the relatively high reliability of SMS messages and the relatively low amount of network capacity required to deliver an SMS message”).

¹⁴² *See Notice*, 26 FCC Rcd at 13631-32 ¶ 41.

¹⁴³ *See e.g.*, Motorola Mobility Comments at 3 (“With the rate of technological change and standard developments that is currently underway, any financial, technical, or temporal resources directed toward interim solutions may be wasted or may produce only short-lived benefits as newer, more robust solutions are developed in the future); MetroPCS Comments at 2 (MetroPCS notes that any action taken by the Commission would “divert valuable carrier and public safety resources”); MetroPCS Sept. 2012 *Ex Parte*.

¹⁴⁴ *See, supra*, para. 43. NG911 deployment will be more non-uniform on the PSAP side than on the commercial service provider side because the ability of PSAPs to become NG911-capable is affected by variations in jurisdiction, governance, funding at the state and local level, and political priorities.

¹⁴⁵ MetroPCS Comments at 7.

¹⁴⁶ *See, supra*, para. 10 (concerning the initiation of the trial in 200 with i-wireless (a T-Mobile affiliate offering (continued....))

solely on the basis of size would create additional consumer confusion, because consumers would still be unsure of whether their wireless carrier provides text-to-911 service or not. We seek comment on these views.

60. Based on these findings and consistent with the Carrier-NENA-APCO Agreement, we propose that all CMRS providers and interconnected text providers should be required to implement the capability to support text-to-911 in their networks. Because SMS is the most common texting technology in use today, and virtually all wireless consumers already have access to it and are familiar with its use,¹⁴⁷ we expect that most CMRS providers will initially support SMS-based text-to-911. At the same time, we recognize that CMRS providers may eventually seek to migrate customers away from SMS to other text applications, such as IP-based real-time text or Rich Communication Services (RCS). Therefore, we do not propose to require CMRS providers 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.¹⁴⁸ We propose to allow CMRS providers to select any reliable method or methods (*e.g.*, mobile-switched, IP-based) for text routing and delivery. We seek comment on this proposal.

a. Impact on PSAPs

61. As noted above, public safety commenters generally support the implementation of text-to-911 in the near term as a first step in the transition to NG911. NENA notes that SMS is “the prevailing consumer text mode in the United States,” and that in addition to being the most widely available platform, SMS “is also the most interoperable, working between nearly every device on every network in the United States.”¹⁴⁹ NENA also notes that Verizon's text-to-911 announcement indicates that “SMS-to-911 capabilities can be technically feasible.”¹⁵⁰ NATOA, NACo, and NLC state that they support the use of SMS as “an interim solution for text-based communication to 911,” since it is “particularly beneficial to people with disabilities, including people who are deaf, hard of hearing, or have speech impediments.”¹⁵¹

62. Black Hawk County highlights that it has not encountered any text-related problems during its trial and notes that “SMS text-to-911 is reliable and available, as clearly demonstrated in our project.”¹⁵² BRETSA and the Colorado 9-1-1 Task Force state that “the key advantage of text messaging to 9-1-1 will be in facilitating communications with the PSAP by speech and/or hearing impaired individuals. Text messaging is generally preferred by the speech and hearing impaired (Continued from previous page) _____ regional wireless communications service). *See also* “Iowa 911 Center Is First to Accept Text Messages,” available at http://www.msnbc.msn.com/id/32303244/ns/tech_and_science-tech_and_gadgets/t/iowa-center-first-accept-text-messages/ (last accessed Nov. 16, 2012).

¹⁴⁷ *See, supra*, note 4.

¹⁴⁸ We recognize that there may be circumstances where CMRS providers are not able to provide a pre-installed text-to-911 option on particular devices, for example, where the consumer has obtained the device from an unaffiliated third party and “brings the device” to the network. In such circumstances, the CMRS provider would not be obligated to provide a pre-installed option, but would have to offer a text-to-911 application that the consumer could load on to the device.

¹⁴⁹ NENA Comments at 5.

¹⁵⁰ NENA May 14th *Ex Parte* at 2.

¹⁵¹ NATOA, NACo, and NLC Reply Comments at (*quoting Notice*, 26 FCC Rcd at 13617 ¶ 5, and Consumer Groups Comments at 5).

¹⁵² Black Hawk County Comments at 4.

community over TTY communications because it is more portable, ubiquitous, and convenient.”¹⁵³ Vermont argues that fears over the volume of emergency text messages are “overblown”¹⁵⁴ and “remain[s] convinced that those who can make a voice call will make a voice call as that is the most efficient way to communicate in an emergency.”¹⁵⁵

63. While public safety entities generally regard near-term text-to-911 as feasible, some express concern about the potential cost of implementation and the impact on PSAP resources if text-to-911 results in a heavy influx of text messages. The State of California states that “[s]hort-term implementation of text-to-911 will likely increase the time and resources required for PSAPs to process information as compared to handling voice calls.”¹⁵⁶ APCO states that “[w]hile SMS may be appropriate as a near-term solution for limited circumstances, it is not a long-term solution for the general public.”¹⁵⁷ NASNA opposes encouraging wide-spread deployment of short-term SMS-based solutions “[u]ntil such time as text-delivery standards are developed, adopted and compliance is assured.”¹⁵⁸ Finally, BRETSA and the Colorado 911 Task Force argue that “devoting funds to an interim solution for text messaging may mean that less funds will be available in the future for a more effective solution, once NG9-1-1 has been deployed and PSAP systems updated to take advantage of NG9-1-1.”¹⁵⁹

64. Based on the record in this proceeding, the Carrier-NENA-APCO Agreement, and the success of the various technology trials noted above,¹⁶⁰ we believe that the implementation of text-to-911 will not impose an undue burden on PSAP operations. First, under our proposed framework, PSAPs will retain the discretion to decide whether to accept text messages. Thus, if a PSAP chooses not to accept text messages, there would be no requirement for it to do so and therefore no cost to the PSAP. We believe that PSAPs are able to best understand their local technological and financial situation, and determine whether it is technically and financially feasible or desirable to implement text-to-911 in their service area. While we share BRETSA and the Colorado 911 Task Force’s funding concerns, we believe that PSAPs will be in the best position to understand their ongoing NG911 funding needs. Additionally, as much of the architecture for text-to-911 service can be leveraged for NG911, we do not expect that funding text-to-911 will divert resources from funding future NG911 services. Second, as discussed in greater below, for PSAPs that elect to accept text messages, we propose several options for the receipt of text messages, including options that will impose minimal costs on the PSAP.¹⁶¹ Third, 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.

b. Impact on CMRS Providers and Interconnected Text Providers

65. In response to the *Notice*, CMRS commenters initially opposed a near-term text-to-911

¹⁵³ BRETSA and the Colorado 9-1-1 Task Force at 16.

¹⁵⁴ Vermont *Ex Parte* at 1.

¹⁵⁵ *Id.* at 2.

¹⁵⁶ State of California Comments at 4.

¹⁵⁷ APCO Comments at 2.

¹⁵⁸ NASNA Comments at 4.

¹⁵⁹ BRETSA and the Colorado 9-1-1 Task Force Comments at 19.

¹⁶⁰ *See, supra*, Section II (A).

¹⁶¹ *See, infra*, Section III(B)(10).

mandate and argued that the Commission should instead focus its efforts on long-term NG911 solutions. These commenters cited a variety of concerns with implementing text-to-911 prior to the full development of next-generation solutions, including technical limitations, limited monetary resources, reliability and security, issues with consumer education, and liability protection.¹⁶² Notwithstanding some of these concerns, however, the four major wireless carriers voluntarily committed to deploy text-to-911 capability throughout their nationwide networks by May 15, 2014.¹⁶³

66. Further, the record indicates that the cost for CMRS providers to implement a text-to-911 solution will be minimal. Indeed, according to cost estimates that were submitted into the record by Intrado and Bandwidth.com, the total cost for all CMRS providers to implement this solution will be approximately \$4 million annually.¹⁶⁴ Based on our 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, we believe that it is feasible for all CMRS providers to cost-effectively implement a text-to-911 solution in the near term.¹⁶⁵ We seek comment on this view. We also seek comment below on the appropriate timetable for implementing our proposal in order to address the concerns raised by CMRS commenters.¹⁶⁶ We also seek comment on the cost for interconnected text providers to

¹⁶² T-Mobile stated that an SMS-to-911 requirement would be a “faith-based rulemaking” and that “the record evidence does not support a prediction that SMS-to-911 is a technically feasible interim solution.” T-Mobile Reply Comments at 8. 4G Americas stated that text-to-911 could not be supported “without a significant, costly development effort. In fact, the implementation of any ‘interim’ technique for a short-term solution would require significant resources and substantial time to develop and deploy.” 4G Americas Comments at 9. ATIS argued that “during an emergency, the PSAP may not be able to reply to every SMS message; this lack of response and/or confirmation may cause the caller to think their message did not get through and therefore send additional messages for help. These redundant SMS messages will exacerbate the congestion at the PSAP. There could also be limitations with the caller’s device (*i.e.*, if the device’s SMS buffer is full) that prevent the receipt of a PSAP’s SMS response.” ATIS Reply Comments at 2. AT&T asserted that, “[o]utside of the disabled community, present ‘consumer expectations’ most assuredly are that, while text-to-911 would be desirable, it is presently unavailable.” AT&T Comments at 2. Finally, MetroPCS outlined several concerns, including that text messages are often delayed in transmission making them unsuitable for emergency purposes, and concerns about liability protection for text-to-911. *See* MetroPCS Sep. 13, 2012 *Ex Parte* at 1-2.

¹⁶³ Carrier-NENA-APCO Agreement at 2.

¹⁶⁴ *See* Intrado Comments at 16-17 (with range of estimates for different SMS text-to-911 scenarios); Bandwidth.com Reply Comments at 9-11 (generally supporting Intrado’s overall approach in regard to different scenarios but noting the total the cost of a national text-to-911 solution at \$300 million over five years), *citing* Intrado Comments at 14. *See also* Bandwidth.com June 18, 2012 *Ex Parte*, Att. at 3 (noting a “Total 3 year budgetary price between \$4.5 mil and \$12.0 mil[.]”)

¹⁶⁵ In the *Notice*, we sought comment on “whether there are any incentive-based approaches that the Commission could or should adopt to encourage the rapid development of text-to-911 solutions.” *Notice*, 26 FCCR at 13649 ¶ 89. No commenter suggested any such approaches.

¹⁶⁶ *See, infra*, paras. 101-103. *See also* RCA Comments at 8 (“Those concerns are amplified for smaller carriers who hold less sway on the specifications of technologies brought to market...[e]quity demands that these companies should not be punished for any ensuing failure to meet regulatory expectations that were never attainable in the first place.”); MetroPCS Comments at 7 (“...the Commission should exclude small, rural and mid-sized wireless service providers from such obligations, or at the very least, provide additional time over the time required for the largest carriers, in order to allow such smaller carriers to fully comply with any requirements.”); Blooston Comments at 5 (“As the Commission has noted in the past, equipment manufacturers satisfy the needs of large carriers before making equipment available to smaller carriers.”). There is no reason to believe that the same state of affairs will not be experienced here. Accordingly, Tier III carriers should be given at least another five years within which to implement any required E-911 upgrades.”); Letter from Rebecca Murphy Thompson, General Counsel, Competitive Carrier Association, to Marlene H. Dortch, Secretary, Federal (continued...)

implement a text-to-911 solution. More specifically, what are the likely initial and ongoing costs for interconnected text providers? For routing purposes, can interconnected text providers use the same service providers as CMRS providers? If so, would the cost be similar? Would a per-incident service model be feasible for smaller interconnected text providers? Are there any other potential costs that the Commission should consider? To that end, we seek quantitative information for our cost-benefit analysis.

4. Cost-Benefit Case Study

67. States and localities collect approximately \$2 billion in 911 fees and taxes annually for the operation and support of the legacy voice-based 911 system.¹⁶⁷ Most states have reported to the Commission that “they used the fees or surcharges that they collected for 911/E911 service solely to fund the provision of 911/E911 service.”¹⁶⁸ Dependent on the regulatory mechanism set forth in each statute, states distribute funding either to the carriers directly, or to a designated state or local entity which then reimburses carriers.¹⁶⁹ As we have noted previously, the highest vendor estimate submitted in this record regarding the cost to carriers to implement nationwide text-to-911 capability is \$4 million annually, a mere fraction of the cost of the current voice 911 system.

68. Balanced against this low cost, the implementation of text-to-911 will provide substantial benefits both for people with disabilities and the general public in a variety of scenarios. While not all of the benefits associated with these scenarios are quantifiable, we have conducted a cost-benefit analysis of the potential impact of text-to-911 in the area of cardiac emergencies – a category that represents less than 10 percent of 911 calls but for which detailed statistical information is available.¹⁷⁰ Even when we limit our analysis of benefits to this subset of total emergencies, we find that the potential benefits of text-to-911 for just this one category of 911 calls outweighs the costs of implementing text-to-911 for all carriers and PSAPs. We seek comment on our case study analysis below.

69. Our analysis is based on a 2002 study of cardiac emergencies in Pennsylvania that

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Communications Commission (Nov. 5, 2012) at 2 (“...because smaller carriers struggle attracting the attention of equipment vendors, the FCC should provide these carriers with additional time to comply and/or a waiver process with clear and reasonable standards for eligibility”).

¹⁶⁷ See Federal Communications Commission, Third Annual Report to Congress on State Collections and Distribution of 911 and Enhanced 911 Fees and Charges, ¶¶ 17, 20, and Appendix (Oct. 27, 2011) (*FCC Third Annual 911 Fees Report*) (reflecting the states’ reports on their programs as of the end of 2010). The Commission submits this report annually pursuant to the New and Emerging Technologies 911 Improvement Act of 2008, Pub. L. No. 110-283, 122 Stat. 2620 (NET 911 Act). The information contained in the report is based on information provided to the Commission by states and U.S. territories regarding their collection and expenditure of fees or charges to support 911 or E911 services. The above \$2 billion figure is an approximate estimate for the following reasons: (1) not all states responded to the request for information and (2) several states reported that “they use or are allowed to use collected funds, at least in part, to support programs other than 911 and E911.” *FCC Third Annual 911 Fees Report* at 10.

¹⁶⁸ See *id.*

¹⁶⁹ See, *supra*, note 166.

¹⁷⁰ A 2002 study of 911 calls in Pennsylvania found that cardiac emergency calls account for less than 20 percent of medical emergency calls and less than 10 percent of total emergency calls. See Athey, Susan and Stern, Scott, “The Impact of Information Technology on Emergency,” *The RAND Journal of Economics*, Vol. 22, No. 3 (Autumn 2002), available at <http://kuznets.fas.harvard.edu/~athey/itemer.pdf> (last accessed on Aug. 27, 2012) (Cardiac Study).

found adoption of E911 to be associated with improvements in the health status of patients, particularly those with cardiac conditions.¹⁷¹ That Cardiac Study shows that, when precise location information is provided contemporaneously with a 911 call, response time is notably shortened and correlated with an over 34 percent reduction in mortality rates from cardiac arrest within the first 48 hours following the incident.¹⁷²

70. The life-saving benefits demonstrated in the Cardiac Study provide a useful reference point for assessing the importance of timely and effective 911 communication to response time and positive outcomes for medical emergencies. We therefore have extrapolated from the Cardiac Study to determine the likely number of cases in which text-to-911 might extend similar benefits to people with hearing and speech disabilities who cannot use voice to contact 911, but who would be able to communicate location information if text were available.¹⁷³

71. Based on the Cardiac Study, we calculate that for the voice-based 911 system as a whole, improved response time resulting from delivery of precise location information saves approximately 4,142 lives annually nationwide.¹⁷⁴ To determine the proportionate benefit for people with disabilities that would result from availability of text-to-911, we consider only the 0.7 percent of the population with the most severe hearing and speech impairments (0.5 percent for extreme hearing difficulty and 0.2 percent for extreme speech difficulty).¹⁷⁵ Assuming a proportional number of 911 calls in cardiac emergencies from this population, and limiting our calculation to intentional wireless calls¹⁷⁶ in which the hearing- or speech-disabled person cannot rely on a speaking person to make the

¹⁷¹ *See id.*

¹⁷² The study examined 19,746 ambulance rides resulting in an emergency hospital admission in 66 Pennsylvania counties during 1994 and 1996. It found a -.012 reduction in the 48 hour mortality rate for cardiac patients due to E911. Given the studies estimate of 304 cardiac incidents each year per 273,000 people (the average population size of a Pennsylvania county), this implies that E911 adoption resulted in 3.648 (*i.e.* -.012 x 304) lives saved per 273,000 people.

¹⁷³ We recognize that the study in question addresses instances where location information was automatically supplied. While not a direct parallel, we find it useful to utilize this study as a starting point in considering instances where a person with a hearing or speech disability can convey location information via text, and thereby provide direct location information to the PSAP, thereby providing comparable benefits in terms of time response.

¹⁷⁴ The Pennsylvania results, if representative of all states, imply 341,000 cardiac incidents nationwide each year and a saving of 4,142 lives per year nationwide (*i.e.*, $3.648/273,000 \times 310,000,000 = 4,142$).

¹⁷⁵ The Census Bureau estimates about 6.2 percent of the U.S. population aged 15 and older experienced some level of difficulty with seeing, hearing, or having their speech understood. Additionally, 1.4 percent had a severe disability with seeing, hearing, or speaking. U.S. Census Bureau, "Americans with Disabilities: 2010" (Jul. 2010), available at <http://www.census.gov/prod/2012pubs/p70-131.pdf> (last accessed Sep. 20, 2012). We use these conservative figures even though various agencies report much higher percentages of the population with hearing or speech impairments, ranging from 15 percent (for "impairment") and 7.3 percent (for "impairment in the speech frequencies") to 3 percent ("hearing difficulty"). *See, e.g.* EAAC Report at 13.

¹⁷⁶ Multiplying the total number of lives saved (4,142) by 0.007 of the population yields a lives-saved figure of 29. However, we discount this figure by roughly half to 15 ($29 \times 0.52 = 15$) to include only intentional wireless 911 calls as a percentage of total intentional 911 calls. Unintentional 911 calls are not included in the calculation because all 911 calls in cardiac emergencies are intentional calls. We also discount the calculation to exclude intentional wireline 911 calls because these calls automatically provide exact address location information regardless of whether the caller is able to communicate. The share of 911 calls attributable to wireless callers is calculated as follows: Given that approximately 70 percent of 911 calls are wireless calls and that 38 percent of 911 calls are unintentional wireless calls (*See* Stableford, Dylan, "Accidental 911 Calls Are 38% of All Emergency Calls in NYC," May 19, 2012 available at <http://news.yahoo.com/blogs/sideshow/accidental-911-calls-38-emergency-calls-nyc-but-160639687.html>), we calculate that 32 percent of 911 calls are intentional (continued....)

911 call, we calculate that text-to-911 would save approximately 7 lives annually in cardiac emergencies.¹⁷⁷ Using an accepted statistical value-of-life model developed by the U.S. Department of Transportation, we estimate the value of each life saved to be \$6.2 million.¹⁷⁸ This yields a total benefit of \$43.4 million annually for cardiac victims alone, or more than ten times the highest estimated cost of the rules proposed herein.

72. We emphasize that the benefits calculated above for cardiac emergencies represent only a subset of the benefits that will be generated by text-to-911. The record reflects numerous other benefits that are less quantifiable but that may be similarly or even more substantial. Black Hawk County and Vermont have cited concrete examples where text-to-911 enabled callers to reach 911, but could not make a voice call for safety reasons.¹⁷⁹ Similarly, the record includes additional compelling evidence that text-to-9-1-1 may provide significant benefits in disaster scenarios due to the relatively high reliability of SMS messages and the relatively low amount of network capacity required to deliver an SMS message.¹⁸⁰ These benefits, though not specifically quantifiable, provide compelling evidence (Continued from previous page)

wireless calls and 30 percent are intentional wireline calls, yielding a ratio of 32/62 (i.e., 32/30+32), or 52 percent for the share of intentional 911 calls attributable to wireless phones. Concerning the 70 percent figure: See <http://kcpdchief.blogspot.com/2011/01/70-percent-of-kc-911-calls-now-come.html> (stating that for the Kansas City, Missouri Police Department, the percentage of 911 calls from wireless phone “increased to 65.6 percent in 2009, and in 2010 the number was 70.5 percent.” (last accessed Nov. 14, 2012); <http://www.theindustryCouncil.org/publications/Overloaded9-1-1System.pdf>; The National Workshop on 9-1-1 Overload, *The Overloaded 9-1-1 System* (Oct. 5, 2011), available at <http://www.theindustryCouncil.org/publications/Overloaded9-1-1System.pdf> (reporting figures from between 2009 to the end of 2011 from various police departments indicating that between 60 and 80 percent of 911 calls are from wireless phones); William Jackson, *A Look Inside the Future of 911 Services*, (July 24, 2012), available at <http://gcn.com/Articles/2012/08/06/Alabama-Next-Gen-911.aspx?Page=2> (reporting that “[a]bout 70 percent of Alabama’s 911 calls are made from wireless phones. . . .”); Cassidian News Release, “Morgan County 9-1-1 Dispatchers Get New PlantCML Call Processing System for Valentine’s Day,” (Feb. 14, 2011), available at <http://www.cassidiancommunications.com/company/newsroom/press-releases.php?id=35&Morgan+County+9-1-1+Dispatchers+Get+New+PlantCML+Call+Processing+System+for+Valentine%92s+Day+> (stating that “[i]n 2010,” the MCEMCD 9-1-1 “[o]ver 70 percent of emergency calls to MCEMCD are now placed using wireless devices.”) (last accessed Dec. 12, 2012).

¹⁷⁷ We discount the figure of 15 lives calculated above by approximately half to 7 based on the assumption that in half the cases the disabled person could rely on a speaking person to make the 911 call. This is a very conservative assumption because it assumes that no lives are saved by disabled persons using text-to-911 to help a non-disabled cardiac victim who is unable to make the call himself.

¹⁷⁸ The Department of Transportation assigns a current Value of Statistical Life (VSL) of \$6.2 million. Memorandum from Polly Trottenberg, Assistant Secretary for Transportation Policy, and Robert S. Rivkin, General Counsel, to Secretarial Officers and Modal Administrators, U.S. Department of Transportation, “Treatment of the Economic Value of a Statistical Life in Departmental Analysis- 2011 Interim Adjustment” (July 29, 2011). The Cardiac Study, however, from which we draw the lives-saved data, uses \$450,000 as the value of a life saved in 2002, assuming the surviving patients will live only an additional 6 years at a quality of life that is 74 percent of normal. See Cardiac Study at 32. If we were to use this figure, increased to \$571,000 to adjust for inflation, our estimated total benefit would be \$4,039,000 (i.e., 7 x \$577,000). This means that the benefit to cardiac patients alone would still cover the nationwide costs of this proposed change.

¹⁷⁹ See Black Hawk County Comments at 3. (“The calls we have received range from domestic abuse situations where the victim was fearful for her life if the suspect overheard her calling 911, to a child texting 911 because they were being abused by a parent. In one particular case, a domestic abuse victim’s ability to text 911 resulted in no harm coming to her and the suspect being arrested on a violation of a no contact order.”) See also Vermont *Ex Parte* at 2.

¹⁸⁰ See Minnesota Department of Public Safety Comments at 2, citing ITP Comments at 14-16.

that the aggregate benefits of text-to-911 will significantly exceed the specific benefits quantified here – and will be generated at no additional cost.

5. Reliability of Text-to-911

73. In response to the *Notice*, several commenters raise concerns about the reliability of text-to-911, and particularly SMS-based text. 4G Americas notes that “it found no short-term solution that did not exhibit limitations with respect to capability, performance, and impacts to users, network operators and/or PSAPs.”¹⁸¹ CTIA states that “SMS was not designed to be used as an emergency service” and urges the Commission to focus on the deployment of “advanced 9-1-1 emergency communications services in emerging wireless technologies.”¹⁸² Other commenters similarly assert that certain technical aspects of SMS limit its reliability for emergency communications. Among the factors cited are that SMS (1) is one-way rather than session-based;¹⁸³ (2) lacks delivery or performance guarantees, and may not inform the sender when a text is not timely delivered;¹⁸⁴ (3) does not prioritize emergency messages;¹⁸⁵ (4) does not assure that multiple messages will arrive in the sequence they were sent;¹⁸⁶ (5) does not support 911 location technologies that are used for 911 voice calls;¹⁸⁷ and (6) lacks protections against transmission of spurious or fraudulent 911 messages.¹⁸⁸

74. *Technical Studies.* In response to the *Notice*, two commenters conducted technical studies which present evidence that SMS-to-911 is as reliable as voice, and in some instances, may be even more reliable than voice. In the first study, researchers at the University of Colorado tracked several hundred SMS text messages and found that “the reliability of text messages and mobile phone voice calls, in terms of data loss, are very similar.”¹⁸⁹ The University of Colorado study “found that all

¹⁸¹ 4G Americas Comments at 8; *see also* 4G Americas Reply Comments at 5-6.

¹⁸² CTIA Comments at 7 (also referring to T-Mobile’s position as “describ[ing] SMS as ‘fundamentally unsuited for emergency communications.’”); quoting T-Mobile *NOI* Reply Comments at 1 (filed Mar. 14, 2011, PS Docket No. 10-255). The Commission previously noted that “SMS has a number of technical limitations that affect its ability to support reliable emergency communications,” which “make SMS inappropriate as a long-term text-to-911 solution.” To be clear, the Commission still does not envision SMS-to-911 being a long-term solution, however, we recognize that full NG911 is still a number of years from being deployed. Given the substantial benefits of text-to-911, we believe that the Commission should ensure that consumers have the ability to send a text message to 911 in the near-term. While we recognize that SMS is not a perfect solution, the University of Colorado and Intrado technical studies appear to indicate that concerns about the reliability of SMS-to-911 may have been overstated.

¹⁸³ CTIA Comments at 7, *quoting Notice*, 26 FCC Rcd at 13637 ¶ 53 (SMS “does not support two-way real time communication . . .”). *See also* Sprint Nextel Comments at 3, 6, 11; T-Mobile Comments at 10-11; INdigital Comments at 10.

¹⁸⁴ T-Mobile Comments at 10-11; U.S. Cellular Reply Comments at 4; ATIS Reply Comments at 1.

¹⁸⁵ Sprint Nextel Comments at 6.

¹⁸⁶ T-Mobile Comments at 10-11. *See generally* AGENT511 Comments at 3 (submitting that “[a]lthough SMS messages are not sequenced, we rarely observe out-of-order messages.”).

¹⁸⁷ T-Mobile Comments at 10-11. CTIA Comments at 7; Blooston Rural Carriers Comments at 2-3 (asserting that “current SMS standards do not support automated routing to the PSAP or automated location information.”); ATIS Comments at 15; US Cellular Reply Comments at 3-4. *See generally* MetroPCS Comments at 5; L.R. Kimball Comments at 4.

¹⁸⁸ T-Mobile Comments at 10-11. CTIA Reply Comments at 8. *See also* King County E911 Program Comments at 4-5.

¹⁸⁹ University of Colorado Comments at 2.

of the text messages sent were received by the cellular network, resulting in a ‘data loss rate’ of 0% and a reliability level of 100%.”¹⁹⁰ In addition, the University of Colorado study noted that “[o]ther researchers have tested the reliability of...SMS...and found that the ‘data loss rate’ over several thousand messages was less than 1%, resulting in a reliability level of 99%. The statistical implication is that large samples might experience a small percentage of data loss, but overall the reliability for text messages is similar to that of voice calls.”¹⁹¹ 4G Americas criticizes the University of Colorado’s findings and notes that the “study was executed in an academic environment with a pre-determined technology and setting. The study did not involve a large number of subscribers, and hence, no real-world traffic conditions.”¹⁹²

75. The University of Colorado study also found that text messaging is actually more reliable than voice communications when a weak signal exists, “such as when the caller is in the mountains, in the midst of high rise buildings, inside a building, under a collapsed building following an earthquake or explosion, or in a trunk of a car [or] closet.”¹⁹³ The University of Colorado notes that “[c]ommunication at the edge of coverage can be sporadic, allowing only momentary windows of communications coverage that are not long enough to support a voice call but a short burst of a text message can get through. In addition, some implementations of SMS automatically keep trying to send a text message until a transmission window opens.”¹⁹⁴

76. Intrado conducted the second technical study, in which it sent “tens of thousands of actual SMS messages [from] a simulated PSAP to a mobile device and from a mobile device to the simulated PSAP.”¹⁹⁵ The study found that “by using techniques such as the 9-1-1 SMSC [short message service center], SMS can be used to create a very reliable and timely 9-1-1 communication infrastructure.”¹⁹⁶ According to Intrado, “90% [of the text messages] were delivered within 3-4 seconds.”¹⁹⁷

77. *Discussion.* While 4G Americas, CTIA, Motorola, and several other commenters provide anecdotes about the limited reliability of SMS-to-911,¹⁹⁸ the University of Colorado and Intrado conducted the only two technical studies on this issue. 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.

¹⁹⁰ University of Colorado Comments at 2.

¹⁹¹ University of Colorado Comments at 2-3.

¹⁹² 4G Americas Reply Comments at 6-7.

¹⁹³ *Id.* at 3.

¹⁹⁴ *Id.*

¹⁹⁵ Intrado Comments, Attachment C at 2. Intrado also notes that “[f]or the stationary test cases, over 99% of the messages were delivered within 4 seconds. In the mobile test cases, over 99% of the messages were delivered within 8 seconds.” Intrado Comments, Attachment C at 21.

¹⁹⁶ Intrado Comments, Attachment C, “Testing the Reliability, Latency and Delivery Sequence of SMS Messages in a 9-1-1 Environment” at 21 (“[w]ith 31,868 mobile terminated SMS messages sent (simulating from PSAP to caller), 0 of those messages were lost and 0 of those messages were received out-of-sequence. Of all those messages, only an extremely small fraction of messages had to be retransmitted. Messages requiring retransmission only had to be retransmitted once. Neither motion nor signal strength had noticeable impact on the latency of the messages. A majority of the messages were delivered within 3-4 seconds.”).

¹⁹⁷ Intrado Comments at 8.

¹⁹⁸ *See, supra*, para. 73.

Further, we believe that the success of the existing trials, the Carrier-NENA-APCO Agreement, and the continued rollout of text-to-911 services throughout the nation demonstrate that industry has already overcome many of the reliability deficiencies that were originally cited in the comments.¹⁹⁹ While SMS was certainly not designed for emergency communications, we disagree with T-Mobile's claim that "SMS is fundamentally unsuited for emergency communications."²⁰⁰ Indeed, a life was saved in Vermont as a direct result of Verizon's SMS-to-911 trial.²⁰¹ Additionally, we note that, for callers who are deaf or hard-of-hearing, reaching 911 by voice may not be possible at all, so that even a mechanism that is not perfectly reliable can provide significant benefit. For callers who are not deaf, text-to-911 provides an additional way to reach PSAPs, thus increasing the overall probability of obtaining help. Finally, we believe that our proposal for wireless carriers to provide a "bounce-back" capability will further mitigate reliability concerns. Accordingly, given the significant benefits of text-to-911 service, we do not believe that reliability concerns should delay the deployment of text-to-911. We seek comment on this analysis.

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

78. As technology and consumer habits evolve, consumer expectations also change and the need to meet those expectations in times of emergency must also evolve. As more consumers use SMS-substitutes, whether provided by the underlying carrier or by a third party, it is important that we evaluate ways to alleviate consumer confusion and promote regulatory parity. We note, however, that despite this proliferation of SMS-substitutes, the Carrier-NENA-APCO Agreement is limited to SMS services provided by the signatory providers.²⁰²

79. Accordingly, as discussed below, we are seeking comment on a variety of issues associated with non-SMS messaging applications, including "over-the-top" texting applications provided by third-parties. In this regard, our focus is on those applications that are most like SMS and therefore most likely to be the subject of a consumer expectation that they may reach 911, namely those two-way texting applications that allow text messages to be sent to any U.S. phone number, irrespective of the hardware utilized to send that message.²⁰³

80. *Background.* In the *Notice*, the Commission sought comment on non-SMS text-to-911 alternatives, including IP-based messaging, real-time text, and downloadable software applications.²⁰⁴ While noting the potential advantages of SMS as an interim solution, the Commission also sought comment on how to encourage the development of non-SMS options that could provide more flexibility and functionality to consumers.²⁰⁵

81. Commenters generally support allowing carriers and service providers to develop

¹⁹⁹ The success of the existing trials and deployments should also address 4G Americas' concern that the University of Colorado study was strictly an academic exercise and "did not involve real-world traffic conditions." 4G Americas Reply Comments at 6-7.

²⁰⁰ T-Mobile NOI Reply Comments at 1.

²⁰¹ Vermont *Ex Parte* at 2.

²⁰² Carrier-NENA-APCO Agreement at 3.

²⁰³ We note, however, that we are seeking comment on the appropriate scope of our consideration of these applications in light of consumer expectations. For example, we seek comment on whether "outbound-only" texting capability to a U.S. phone number would generate the expectation that a consumer could text to 911.

²⁰⁴ See *Notice*, 26 FCC Rcd at 13628-30 ¶¶ 33-38, 13638-39 ¶¶ 57-59.

²⁰⁵ *Id.*

alternatives to SMS-based text. NENA notes that smartphone-based text-to-911 applications could lower costs for both consumers and PSAPs and that “because 9-1-1 text applications would run on smartphones or advanced devices, their call streams could, in some instances, operate outside the normal 911 voice call path.”²⁰⁶ The University of Colorado observes that “there are an increasing number of smartphone applications and other SMS short cuts that provide for pre-stored and automatically composed messages, such as contact information for an epileptic having a seizure, or to include location [GPS] coordinates.”²⁰⁷ Bandwidth.com notes that applications can be “specifically geared toward enhancing the ability of the deaf and hard of hearing to access public safety via texting.”²⁰⁸ LR Kimball states that “[s]oftware applications that can integrate into the legacy 911 system should be the first choice in the short term to allow for more complete access. . . . [and] should be developed in a way that makes use of services currently in use at PSAPs.”²⁰⁹ AT&T urges the Commission to avoid imposing text-to-911 regime that would force carriers to continue supporting SMS-based text-to-911 after SMS has become technologically obsolete or economically uncompetitive.²¹⁰

82. In the *Notice*, the Commission also observed that consumers are acquiring more advanced mobile devices (e.g., 3G and 4G handsets) that enable them to install “over-the-top” software applications.²¹¹ In the *Notice*, we sought comment on whether text-to-911 requirements should apply to both CMRS and non-CMRS providers alike.²¹² The Commission sought comment on the feasibility of using general texting or 911-specific software applications to send text messages to PSAPs. The Commission noted that both providers and third parties, including vendors that provide services and equipment to PSAPs, could develop such applications.²¹³

83. In response to the *Notice*, CTIA and AT&T noted the proliferation of “over-the-top” software applications and highlighted the need for the Commission to implement technology neutral regulations that apply equally to both carrier-provided and non-carrier-provided texting solutions. CTIA stated that “it is . . . unclear how a national SMS-based interim solution would work in the context of over-the-top applications or other non-carrier-provided SMS solutions” and emphasizes that “the [FCC] must . . . consider the severed link between the licensed CMRS service provider and the emergency calling capabilities, such as location accuracy, of end-user devices and over-the-top applications.”²¹⁴ AT&T notes that: (1) “limiting the mandate of [t]ext-to-911 services to SMS services provided by telecommunications carriers would be short-sighted, and thus a great disservice to the general public[.]” (2) a “mandate that is exclusive to the SMS platform fails to account for the fact that such services are experiencing both declining revenues and usage due to the proliferation of free [‘over-

²⁰⁶ NENA Comments at 6-7.

²⁰⁷ University of Colorado Comments at 3.

²⁰⁸ Bandwidth.com Reply Comments at 15.

²⁰⁹ L.R. Kimball Comments at 4.

²¹⁰ *See id.*

²¹¹ *Notice*, 26 FCC Rcd at 13638 ¶ 57.

²¹² *See id.* ¶¶ 57-59.

²¹³ *Id.*

²¹⁴ CTIA Comments at 9, *citing* CTIA Comments, filed Oct. 3, 2011 (to *Location Accuracy Second FNPRM*, PS Docket 07-114); *also citing Notice*, 26 FCC Rcd 13628-29 ¶ 34 (concerning the “feasibility” of SMS and “over-the-top” software applications to support the “interim deployment” of text to 9-1-1).

the-top'] texting applications[;]" and (3) "[t]he FCC must adopt a technologically-neutral solution that applies equally to carrier-provided SMS services and competitive alternatives to avoid distorting the marketplace to the detriment of one service provider."²¹⁵ AT&T further explains that "failing to include ['over-the-top'] substitutes in the mandate may cause significant customer confusion regarding the accessibility of emergency services via text message" and that "applying this mandate on a technology neutral basis ensures that the effectiveness of the mandate does not depend on the dominance of any platform or on the market position of any group of service providers." Additionally, AT&T notes that "including ['over-the-top'] providers in the scope of a text-to-911 mandate would assist ongoing industry standards work by encouraging [those] providers to participate in...developing a text-to-911 solution."²¹⁶

84. On the other hand, several entities express concerns about the Commission extending text-to-911 obligations to "over-the-top" software applications. Sprint notes that "[m]any . . . over-the-top messaging providers are relatively small and likely may not have the financial resources to achieve PSAP integration."²¹⁷ Sprint also asserts that "it would not be able to control . . . third-party commercial offerings nor influence how wireless consumers utilize such applications."²¹⁸ Further, Sprint highlights the limitations associated with "over-the-top" software solutions, including the ability to "obtain location information associated with a particular call."²¹⁹ Similarly, U.S. Cellular states that it prefers text-to-911 to "be considered in the context of native SMS," and that it does not favor covering over-the-top text applications.²²⁰ U.S. Cellular also notes that "on some devices, SMS messages up-convert to MMS, and delivery of those converted messages to PSAP[s] would need to be further explored."²²¹ Motorola Mobility maintains that "any regulatory responsibility for over-the-top text-to-911 applications, including collection of precise location information, must rest only on the application developer."²²²

85. The VON Coalition argues that "there is no public policy justification for extending SMS-to-911 obligations to over-the-top IP text applications" and maintains that "[t]here is no evidence that customers using over-the-top applications expect that they can use these applications to contact emergency services."²²³ The VON Coalition contends that "[i]t seems highly unlikely that a wireless user with both an SMS functionality and an over-the-top messaging application would in some instances choose to open an application, sign in and then send an 'SMS' to a PSAP rather than simply

²¹⁵ AT&T Oct. 16, 2012 *Ex Parte* (attaching slide presentation).

²¹⁶ AT&T Oct. 23, 2012 *Ex Parte* (attaching slide presentation). *See also* Sprint Nextel Comments at 15 (noting the possible role of standards organizations in examining "over-the-top" applications for text-to-911, e.g., "that ATIS has "started to examine . . . obtaining location information for ['over-the-top'] VoIP applications."); VON Coalition Reply Comments at 8.

²¹⁷ Sprint Nextel Comments at 21.

²¹⁸ Sprint Nextel Oct. 19, 2012 *Ex Parte* at 2. *See also* T-Mobile Oct. 11, 2012 *Ex Parte* at 2 (expressing similar view).

²¹⁹ Sprint Nextel Comments at 15.

²²⁰ U.S. Cellular Nov. 6, 2012 *Ex Parte* at 2.

²²¹ *Id.* *See also* Microsoft Oct. 25, 2012 *Ex Parte* (noting that "the Windows Phone operating system automatically identifies when a short message includes content (such as a photo or other media) and sends those messages as an MMS rather than an SMS.").

²²² Motorola Mobility Comments at 6. *See also* T-Mobile Comments at 7.

²²³ VON Coalition June 27, 2012 *Ex Parte* at 2.

using the wireless phone's SMS capability that (a) the customer likely uses on a near-daily basis, and (b) is readily available to the user without opening any application or providing sign-in information."²²⁴ The VON Coalition highlights that "over-the-top messaging applications, which are dependent on the availability of broadband Internet access, are less reliable than a wireless carrier's SMS text services that require no broadband availability and, moreover, very little bandwidth vis-à-vis voice or other data communications on a wireless carrier's network."²²⁵ The VON Coalition also notes that "there currently are no location solutions for over-the-top applications – neither for routing a message to the appropriate PSAP nor to provide sufficient location information associated with the caller."²²⁶ The VON Coalition adds that "[b]ecause an over-the-top message is provided over another provider's network – whether a wireless carrier, wireline carrier or a Wi-Fi hotspot – there is no real-time location information associated with the over-the-top message."²²⁷ Accordingly, the VON Coalition "recommend[s] that over-the-top IP-based messaging and text services that rely on the mobile operator's data network should be excluded from an interim [text-to-911 requirement] as they are precisely the type of communications capability for which NG911 is intended."²²⁸

86. More recently, the VON Coalition reiterates these points and further argues that the lack of user location information is an impediment to enabling routing of an emergency text to the appropriate PSAP.²²⁹ Moreover, they argue that implementing an interim solution directed at text-to-911 may impact the transition to NG911, or may stifle innovation and alter business models.²³⁰ Should the Commission pursue a 911 obligation for IP-based SMS providers, the VON Coalition urges that any obligation be limited to "two-way" over-the-top SMS, so that a texting customer is able to receive a bounce-back message where a PSAP is unable to receive text-to-911 messages.²³¹

87. Similarly, Apple urges the Commission, in addition to considering the jurisdictional and technical issues associated with implementing a text-to-911 obligation for over-the-top text messaging application providers, to limit its proposals to those applications that (1) are installed on a device that determines the user's location using a technology that meets the enhanced 911 requirements set forth in Section 20.18(h) of the Commission's rules; and (2) independently enables the user to send text-based messages to and receive text-based messages from any valid North American Numbering Plan telephone number via the short message service protocol.²³²

88. *Discussion.* As smartphone technology and applications proliferate, wireless consumers increasingly have the ability to send and receive text messages using downloadable software applications.²³³ These applications may be provided to the consumer by the underlying wireless service

²²⁴ *Id.*

²²⁵ VON Coalition June 27, 2012 *Ex Parte* at 1-2.

²²⁶ VON Coalition June 27, 2012 *Ex Parte* at 2.

²²⁷ *Id.*

²²⁸ VON Coalition June 27, 2012 *Ex Parte* at 1.

²²⁹ VON Coalition Nov. 14, 2012, *Ex Parte* at 2.

²³⁰ *Id.* at 2-3.

²³¹ *Id.* at 3.

²³² Apple Dec. 7, 2012, *Ex Parte* at 1.

²³³ See Chen, Brian, "Apps Redirect Text Messages, and Profits, From Cellular Providers," N.Y. TIMES, Dec. 4, 2012, available at http://www.nytimes.com/2012/12/05/technology/free-messaging-apps-siphon-profits-from-cellular-providers.html?nl=todaysheadlines&emc=edit_th_20121205&r=0 (last accessed Dec. 5, 2012).

provider or by third party software providers, and may use one of a variety of text delivery methods. For example, some text applications deliver text to mobile telephone numbers over the carrier's existing mobile-switched SMS network,²³⁴ while other applications deliver text over IP data networks,²³⁵ and some applications support both delivery methods and can also deliver MMS content.²³⁶ Several over-the-top applications hold themselves out as competitive alternatives to CMRS-provided SMS services.²³⁷ In addition, some software providers have developed 911-specific software applications for smartphone users that are designed specifically to support communication by text and other media with PSAPs that install and operate the application.²³⁸ As the Wall Street Journal recently noted, the volume of SMS text messages per month sent by consumers has recently dropped 3 percent, with the most likely explanation of this "major shift in mobile communications" attributable to migration of these messages to over-the-top messaging platforms.²³⁹ Another study suggests that over 45 percent of smartphone owners use an SMS alternative such as over-the-top messaging apps in addition to or in lieu of traditional SMS.²⁴⁰ And while other analysts predict that SMS will continue to grow globally through 2016, they further predict a large scale drop-off in SMS in favor of over-the-top applications thereafter.²⁴¹

²³⁴ Examples include Handcent (<http://www.handcent.com/dir/pro/go?type=1>), and Go SMS (<https://play.google.com/store/apps/details?id=com.jb.gosms&hl=en>).

²³⁵ Examples include Skype (<http://www.skype.com/intl/en/features/allfeatures/sms>), WhatsApp (<http://www.whatsapp.com/>), GoogleTalk (<http://www.google.com/talk/about.html>), Kik (<http://kik.com>), KakaoTalk (<http://www.kakao.com/talk/en>), etherSMS (<http://www.ethersms.com/faq.htm>), and PingChat/Touch (<http://www.touch.com/>).

²³⁶ One such integrated SMS application is iMessage for Apple devices. See <http://www.apple.com/ios/messages/> (last accessed Nov. 15, 2012); see also <http://thegadgetgurus.net/the-quest-for-imessage-on-android/>; <http://zipwhip.com/about> (last accessed Dec. 7, 2012).

²³⁷ See, e.g., <http://www.ethersms.com/>; <http://www.viber.com/>; www.jaxtrsms.com. TextPlus, for example, states that it is a "a leading mobile communications service that enables free app-to-app text messaging worldwide and free app-to-mobile phone text messaging in the US and Canada," and that "it may be possible in the future for textPlus to deliver text messages to 911 but only after further development...and with the cooperation of other industry participants to solve certain engineering constraints." Letter from Brian D. Weimer, Counsel for textPlus, to Marlene Dortch, Secretary, Federal Communications Commission (Nov. 14, 2012) at 1. (textPlus Nov. 14 *Ex Parte*)

²³⁸ See, e.g., AGENT511 Comments at 2 (with a "a hosted, geospatially routed SMS/MMS platform to public safety Agencies."); FRESS May 16, 2012 *Ex Parte* at 1 ("allow[ing] citizens and PSAPs to use both text and voice for 9-1-1...over one downloaded or preinstalled mobile application."); Romano Feb. 8, 2012 *Ex Parte* in PS Docket No. 10-255, at 2 (addressing Nex Gen's application that includes callers' capability to send text "from cell phones" to 9-1-1 call takers" without requiring "the caller . . . to sign-up, register or pre-register....").

²³⁹ See, Fottrell, Quentin, "The Decline and Fall of the Text Message," WALL STREET JOURNAL (Nov. 16, 2012), available at http://www.marketwatch.com/story/the-decline-and-fall-of-the-text-message-2012-11-15?link=sfmw_sm, (last accessed Nov. 19, 2012), citing Chetan Sharma, US Mobile Data Market Update Q3 2012 (last accessed Nov. 19, 2012).

²⁴⁰ However, the study noted that a very small percentage, 1.7 percent of respondents, only use the alternatives. The vast majority, 97 percent, continue to use SMS. See, Ankeny, Jason, "Survey: Half of smartphone owners use IM, OTT messaging apps," Fierce Wireless (Oct. 8, 2012), available at <http://www.fiercemobilecontent.com/story/survey-half-smartphone-owners-use-im-ott-messaging-apps/2012-10-08> (last accessed Nov. 9, 2012).

²⁴¹ See Ankeny, Jason, "SMS will dominate messaging revenues through 2016," Fierce Wireless (May 29 2012), available at <http://www.fiercemobilecontent.com/story/forecast-sms-will-dominate-messaging-revenues-through-> (continued....)

89. This trend towards development and use of new third-party text applications has significant implications for the implementation of text-to-911. While SMS is currently the most widely available and heavily used texting method in the U.S.,²⁴² and is likely to remain so for some time, consumer access to and use of third-party text applications is likely to increase over time.²⁴³ As this occurs, some consumers may choose to use such applications as their primary means of communicating by text, relying less on SMS or possibly bypassing SMS entirely. In that eventuality, consumers that become familiar with software applications by using them for everyday non-emergency communications will be increasingly likely to prefer them for emergency communications. Moreover, consumers faced with the pressure of an emergency may attempt to use the most familiar application available to contact 911 even if they are not certain that it will work.

90. Given this emerging trend for technology and consumer behavior patterns, we believe it is important to consider whether certain third party-provided text applications and carrier-provided applications should be subject to text-to-911 obligations, particularly those that hold themselves out as substitutes for carrier-provided SMS services. In choosing to use a particular text application from a variety of available options, consumers may not even be aware of the identity of the party providing the application or the nature of network technology that the application uses to deliver the text. Thus, imposing text-to-911 requirements based on the identity of the provider or the delivery technology could lead to some applications supporting text-to-911 while other applications that are functionally

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[2016/2012-05-29](#) (last accessed Nov. 9, 2012), *citing* Informa Telecoms & Media Forecast (suggesting that SMS traffic will reach 9.4 trillion messages by 2016, up from 5.9 trillion messages in 2011. However, its share of global mobile messaging traffic will plummet from 64.1 percent in 2011 to 42.1 percent in 2016).

²⁴² See Pew Internet & American Life Project, “Cell Phones and American Adults,” (Sept. 2010) at 5, 21, available at http://www.afpnet.org/files/ContentDocuments/PEW%20Research_Cell%20Phone%20Use_sep%202010.pdf (last accessed Nov. 13, 2012) (determining that “at least 72% of all U.S. cell phone users have used SMS at least once.”); Common Sense Media, “Social Media, Social Life: How Teens View Their Digital Lives” (2012) at 17, available at <http://www.common Sense Media.org/research/social-media-social-life> (last accessed Nov. 13, 2012); Forrester Blogs, SMS Usage Remains Strong In The US: 6 Billion SMS Messages Are Sent Each Day,” (June 19, 2012), available at http://blogs.forrester.com/michael_ogradey/12-06-19-sms-usage-remains-strong-in-the-us-6-billion-sms-messages-are-sent-each-day (last accessed Nov. 14, 2012) (stating that “[e]ven with the increased use of instant messaging, SMS remains the workhorse of mobile — with a 14% increase in the number of SMS messages sent in 2011 compared with 2010. More than 2 trillion SMS messages were sent in the U.S. in 2011, which equates to more than 6 billion SMS messages sent per day.”); Tomi T. Ahonen, “Time to Confirm some Mobile User Numbers: SMS, MMS, Mobile Internet, M-News,” Communities Dominate Blog, Jan. 13, 2011, available at <http://communities-dominate.blogspot.com/brands/2011/01/time-to-confirm-some-mobile-user-numbers-sms-mms-mobile-internet-m-news.html> (last accessed Nov. 14, 2012) (finding that SMS users make up 72 percent of the U.S. users); “US Research by Acision Shows SMS Is Still the King of Messaging With Speed, Reach and Reliability Named as Key Reasons for Usage Over Alternative Services,” Yahoo! Finance, May 9, 2012 available at <http://finance.yahoo.com/news/us-research-acision-shows-sms-110000710.html> (last accessed Nov. 19, 2012). (“91% of US Smartphone owners surveyed actively use SMS, almost 2.5 times higher than the most popular social media app and over 8 times higher than the most popular Smartphone OTT app”).

²⁴³ See e.g. Chen, Brian, “Text Messaging Declines in U.S. for the First Time, Report Says”, N.Y. TIMES, Nov. 12, 2012, available at <http://bits.blogs.nytimes.com/2012/11/12/text-messaging-declines-united-states/> (last accessed Nov. 13, 2012); Wortham, Jenna, “Free Texts Pose Threat to Carriers”, N.Y. TIMES, Oct. 9, 2011, available at <http://www.nytimes.com/2011/10/10/technology/paying-to-text-is-becoming-passe-companies-fret.html> (last accessed Nov. 13, 2012); Fottrell, Quentin, “The Decline and Fall of Text Messaging,” WALL STREET JOURNAL, Nov. 16, 2012, available at http://www.marketwatch.com/story/the-decline-and-fall-of-the-text-message-2012-11-15?link=sfmw_sm (last accessed Nov. 19, 2012).

similar from the consumer perspective do not support text-to-911. In this respect, it may be important to consider consumer expectations both now and in the future as a matter of public safety, as well as to consider means to promote competitive neutrality to ensure that like services are treated comparably, thereby avoiding arbitrage created by artificial regulatory distinctions.

91. As discussed above, consumers now have access to a wide variety of tools that allow the sending of text messages on almost any computing and communication device.²⁴⁴ However, as the VON Coalition notes, consumers may not have the expectation to send text messages to 911 from all possible text applications, and some of these may face significant technical difficulties in delivering text messages to the correct PSAP, possibly depending on the platform the application is running on.²⁴⁵ Thus, we divide text applications into two broad categories, namely (1) interconnected text applications that use IP-based protocols to deliver text messages to a service provider, which the service provider then delivers the text messages to destinations identified by a telephone number, using either IP-based or SMS protocols, and (2) non-interconnected applications that only support communication with a defined set of users of compatible applications but do not support general communication with text-capable telephone numbers.²⁴⁶ We seek comment on applying text-to-911 obligations on the former category, but not the latter.

92. In this respect, we seek comment on the characteristics of interconnected text applications to which text-to-911 obligation should apply, if adopted. As described above, Apple suggests a two-prong approach to determine whether an interconnected text application would fall within the Commission's proposed text-to-911 obligations.²⁴⁷ The VON Coalition similarly suggests that over-the-top applications should be "two way" in order for a text-to-911 obligation to attach.²⁴⁸ Are either of these definitions appropriate? Are they too limited? Do these characteristics conform to consumer expectations? For example, if a text messaging application only provides for "outbound-only" messaging to a U.S. telephone number, would a consumer still expect to be able to reach 911? Are there other characteristics that we should take into account?

93. We also propose to treat providers of such non-SMS text applications similarly to CMRS providers with respect to the obligation to provide text-to-911 capability to their users within a defined timeframe. By enabling text communication with any text-capable mobile number, these "interconnected text" applications provide effectively the same functionality that SMS provides currently. Therefore, we believe the same text-to-911 obligations should apply on a technology-neutral and provider-neutral basis. We seek comment on this proposal generally and on the issues discussed below.

94. We also seek comment on whether third-party interconnected text software providers face technical issues or obstacles in the implementation of text-to-911 that could affect the extent to which a text-to-911 requirement may be implemented, or the timeframe for such implementation. Commenters agree that flexibility in implementation is important to reduce the burden of deploying

²⁴⁴ See, *supra*, para. 83.

²⁴⁵ VON Coalition June 27, 2012 *Ex Parte* at 2.

²⁴⁶ See, *supra*, note 1.

²⁴⁷ See, *supra*, para. 87.

²⁴⁸ See, *supra*, para. 86.

text-to-911.²⁴⁹ This is likely to be particularly important for interconnected text applications, since they are often designed by smaller enterprises.²⁵⁰ Do third-party software providers face difficulties assuring that their application works reliably on all hardware platforms, operating systems, and operation system versions supported by the application? Do these applications have access, possibly after asking for user permission, to cell tower and/or geo location information via platform application programming interfaces? Can applications warn users that disabling location functionality for an application may interfere with the ability to send text-to-911 messages? Could operating system providers facilitate the access to location information for emergency calling and texting purposes? If the text application cannot obtain location information, under what circumstances can the application deliver the text message to a gateway and have the gateway service determine the approximate location of the message sender? Can texting applications determine the cellular telephone number of handsets to help locate the mobile device?

95. To facilitate discussion, we posit three possible implementation choices and invite comment on their respective advantages and disadvantages, as well as descriptions of additional options. The descriptions are meant to be illustrative, and are not meant to limit how implementers achieve the goal of providing text-to-911 to users of their applications.

96. The first implementation option leverages the SMS application programming interface (API) offered by common smartphone operating systems. The interconnected text application would use the API to deliver any text message addressed to 911, while using the application-specific mechanism for all other, non-emergency messages. It appears that many applications already separate messages by destination, as they often only deliver messages using Internet protocols for certain countries or regions.

97. In the second option, text-to-911 messages are handled the same as any other text message and delivered to the SMS gateway provider chosen by the application vendor. The gateway provider then delivers those messages to text-capable destinations. This gateway provider handles text messages addressed to 911 and delivers them to the location-appropriate PSAP, possibly with the assistance of a third party 911 message routing service.

98. Finally, in the third option, text-to-911 messages are delivered via Internet application layer protocols to PSAPs, without being converted to SMS along the way, using NG911 protocol mechanisms. The messages can be delivered to PSAPs either by the provider of the text messaging application or a third-party service provider.

99. Are there alternative mechanisms that might be used? Which of these methods provides advantages or disadvantages for the application developer? For the PSAP? For the consumer? Which options are more likely to transition seamlessly to NG911, or provide a foundation that can be leveraged by one or more of the parties in the NG911 delivery chain? How do these options differ in terms of implementation complexity, reliance on technologies not readily available, cost to the text messaging provider or reliability?

100. Commenters have previously expressed concerns about the lack of access by the third party provider to consumer location information associated with a text-to-911 message, impacting both the ability to deliver the text message to the appropriate PSAP and the ability to locate the consumer

²⁴⁹ See, e.g., NENA Nov. 8 *Ex Parte* at 1; Neustar Sep. 27 *Ex Parte* at 1; Verizon and Verizon Wireless Reply Comments at iii; Verizon Comments at 11-12; Bandwidth.com Reply Comments at 7; T-Mobile Comments at 7; TIA Comments at 7.

²⁵⁰ Sprint Nextel Comments at 21 (noting that “[m]any...over-the-top messaging providers are relatively small and likely may not have the financial resources to achieve PSAP integration”).

seeking assistance.²⁵¹ Which of the options described above facilitate delivery of location information? Are there other technical mechanisms or commercial arrangements that would facilitate the ability of a third party text application to ascertain the location from which the text originated? Can a requirement to provide text-to-911 precede such an ability? Can privacy controls utilized by some applications to limit access to location information interfere with the ability to identify the origination of a text-to-911 message? Are there other privacy concerns that need to be considered, or is it reasonable to assume that a person sending a text to 911 implicitly waives such privacy concerns? Can third party text messaging applications bypass any privacy safeguards when 911 is the destination short code?

7. Timetable for Text-to-911 Implementation

101. We seek comment on whether all CMRS providers and interconnected text providers should be required to implement the capability to support text-to-911 throughout their networks by May 15, 2014. In light of the public safety benefits of making text-to-911 available to consumers regardless of carrier or service provider, and the benefits to both PSAPs and consumers from coordinated implementation, we believe it may be desirable for all CMRS providers, including small and rural carriers, and all interconnected text providers to implement text-to-911 capability in their networks on a timetable comparable to the four largest wireless carriers. Setting a single, uniform deadline for all providers would arguably facilitate coordination among text-to-911 providers, vendors, and PSAPs, reduce the likelihood of non-uniform deployment, and provide consumers with a clear expectation of when text-to-911 will be supported regardless of which carrier or service provider they use.

102. We seek comment on this approach. Would a uniform timetable help minimize consumer confusion? Is such a uniform timeframe feasible, or are there factors that could prevent small, rural, and regional CMRS providers and third-party interconnected text providers from implementing text-to-911 in the same timeframe as the four major CMRS providers? For example, some parties have posited that the relatively small size and lack of resources for certain applications developers would limit their ability to comply with a text-to-911 requirement. Is this accurate? Are there other factors we should consider?

103. The Carrier-NENA-APCO Agreement also states that once a “valid” PSAP request is made for delivery of text messages, “service will be implemented within a reasonable amount of time of receiving such request, not to exceed six months.”²⁵² Further, a request for service will be “considered valid if, at the time the request is made: a) the requesting PSAP represents that it is technically ready to receive 9-1-1 text messages in the format requested; and b) the appropriate local or State 9-1-1 service governing authority has specifically authorized the PSAP to accept and, by extension, the signatory service provider to provide, text-to-9-1-1 service (and such authorization is not subject to dispute).”²⁵³ Are these reasonable conditions? Is six months an appropriate timeframe? What steps does a CMRS or interconnected text provider have to take to add a PSAP to its list of text recipients and how much time are such steps likely to take? Should the same timeframe apply for both CMRS providers and interconnected text providers? Should this timeframe become shorter over time as the process for responding to PSAP requests becomes more established and routine?

8. 911 Short Code

104. *Background.* Short codes for mobile-switched text messaging are administered by the

²⁵¹ See e.g., VON Coalition Nov. 14 *Ex Parte* at 2.

²⁵² Carrier-NENA-APCO Agreement at 2.

²⁵³ *Id.*

Common Short Code Administration (CSCA) and are typically five-digit or six-digit numbers.²⁵⁴ In the *Notice*, the Commission sought comment on whether a national short code for text-to-911 should be designated by the Commission, a standards-setting body, or some other entity.²⁵⁵ The Commission also asked how the short code should be designated or implemented.²⁵⁶

105. Commenters in general agree that the Commission should establish and reserve the digits ‘9-1-1’ as a national short code for text-to-911. Most notably, under the Carrier-NENA-APCO Agreement, the four largest wireless carriers committed to “implement a ‘9-1-1’ short code that can be used by customers to send text messages to 9-1-1.”²⁵⁷ APCO notes that “text-to-9-1-1 should involve the digits ‘9-1-1’ and not a different short code” and that “[a]ny short code other than 9-1-1 will eventually need to be phased out as regions are able to accept text solutions direct to the PSAPs via NG9-1-1.”²⁵⁸ NENA urges that “any short code implemented must be uniform across carriers and geographic or political boundaries.”²⁵⁹ King County states that “a national short code, ideally using the digits 9-1-1, should be designated by Congress or the [FCC], similar to the designation of 911 as the national emergency number by Congress.”²⁶⁰ AT&T argues that the Commission should “establish and reserve a standardized SMS short code” and that it “makes sense to use some variation of the present abbreviated dialing pattern 9-1-1 for this purpose.”²⁶¹ Intrado believes that “an appropriate text solution should use the digits 911.”²⁶² Motorola, however, cautions that there may be technical issues associated with using 911 as an SMS short code in some devices, and that “end users experiences in trying to use 911 as an SMS short code may be seriously lacking.”²⁶³ Nevertheless, Motorola notes that it “has released well in excess of 100 mobile devices and software combinations in the U.S. market within the past three years, none of which has been tested for support of 911 as a SMS short code.”²⁶⁴

106. *Discussion.* The evolution of 911 as the national emergency telephone number has resulted in the digits “9-1-1” being widely and uniformly associated with emergency communication in the United States. American consumers are familiar with dialing 911 to place an emergency voice call, and children are routinely taught to dial 911 as the way to summon help from police, fire, and ambulance service. This widespread use and consumer recognition of 911 makes it logical and highly desirable to implement 911 as a standard three-digit short code for sending emergency text messages to PSAPs wherever and whenever feasible.

²⁵⁴ See *Obtaining a CSC*, Common Short Code Administration, available at http://www.usshortcodes.com/csc_obtain_a_csc.html (last accessed Dec. 12, 2012).

²⁵⁵ *Notice*, 26 FCC Rcd at 13638, ¶ 55.

²⁵⁶ *Id.*

²⁵⁷ Carrier-NENA-APCO Agreement at 2.

²⁵⁸ APCO Comments at 11.

²⁵⁹ NENA Comments at 18.

²⁶⁰ King County Comments at 5 (explaining that “[w]hen the Washington State E911 Advisory Committee considered whether Intrado’s nonemergency texting service should be implemented...one of the reasons that it was rejected was the requirement to have a different short code per PSAP, unless [the PSAP] could agree to send all texts to one PSAP in the state.”).

²⁶¹ AT&T Comments at 14.

²⁶² Intrado Comments at 4.

²⁶⁴ Motorola *Ex Parte* at 1.

107. Moreover, the general technical feasibility of using 911 as a text short code appears to be established.²⁶⁵ In each of the text-to-911 trials that have occurred to date, subscribers of the participating CMRS providers have been able to use 911 as the short code for text messages to participating PSAPs.²⁶⁶ Moreover, under the Carrier-NENA-APCO Agreement, the four largest wireless carriers committed to “implement a ‘9-1-1’ short code that can be used by customers to send text messages to 9-1-1.”²⁶⁷

108. Given the apparent technical feasibility of a 911 short code and the widespread consumer recognition of 911 as the standard emergency number in the U.S., we do not believe that other CMRS providers should encounter any substantial issues with using a 911 short code. We therefore propose that whenever technically feasible, all CMRS providers should configure their networks and text-capable cell phones to support 911 as the three-digit short code for emergency text messages sent to PSAPs. We seek comment on this proposal. We also seek comment on whether there are any text-capable cell phones being sold in the United States that are incapable of using the digits 911 as a short code. If so, what are those devices and how many of them are in use? To what extent, if any, could such devices be modified or updated by a consumer or wireless retail store to support a three-digit code? In the event that certain devices cannot be so modified or updated, should we designate an alternate short code (*e.g.*, a five-digit code) that such devices could use?

109. With respect to interconnected text applications, we recognize that “short codes” per se may not be appropriate conceptually for non-SMS texting. We therefore seek comment about whether there are any technical obstacles or other issues associated with such applications using the three-digit identifier 911. How can these issues, if any, be addressed? Are they specific to particular applications, or to IP-text messaging generally? Should interconnected text applications provide an icon indicating the ability to reach text-to-911?

²⁶⁵ *Id.*

²⁶⁶ See Durham 911 Center Texting Option for Emergency Help, *Frequently Asked Questions*, available at http://durhamnc.gov/ich/op/911/Documents/911_faq_update.pdf (last accessed Nov. 5, 2012). See also Vermont Oct. 3, 2012 *Ex Parte*; Black Hawk County Feb. 7, 2012 *Ex Parte* at 2; Urgent Communications, “Iowa Call Center First to Receive 911 Text Message,” available at http://urgentcomm.com/networks_and_systems/news/call-center-911-text-message-20090806 (last accessed Nov. 13, 2012). Publicized announcements of the trials have typically included guidance for consumers on the proper procedures for sending a text-to-911 and may, but not always, caution on when the digits “911” cannot be entered. For example, as of August 3, 2011, “the messaging software pre-loaded onto the Droid from Motorola (original version) [could] not format text messages correctly when the digits “911” are entered as the “To” address. Installing the free “Verizon Messages” application for Droids (version 1.3.24a) from the Android Market [could] fix[] this issue.” See Intrado Press Release, “Durham 911 Center Launches Texting Trial for Emergency Help” (Aug. 3, 2011), available at <http://www.intrado.com/news/press/08032011.asp> (last accessed Aug. 1, 2012).

²⁶⁷ Carrier-NENA-APCO Agreement at 2.

9. TTY Compatibility Requirement for Wireless Services and Handsets

110. The Commission first adopted a requirement for wireless carriers to be capable of transmitting TTY calls to 911 services in July 1996.²⁶⁹ Although the initial deadline set for implementation of this requirement was October 1, 1997, efforts to find a technical solution to support TTY (Baudot) technology over digital wireless systems ended up taking years of research and testing. As a result, the Commission granted multiple extensions of time for entities to comply with this mandate, ultimately requiring compliance by June 30, 2002.²⁷⁰ At that time, per the 1996 Order, wireless service providers were required to upgrade their digital networks to be compatible with TTYs and handset manufacturers were required to provide a means by which users could select a TTY mode on their phone's menus.²⁷¹ However, by the time these changes were implemented, new digital technologies, more mobile and less expensive, had caused most TTY users to migrate away from use of these devices as their primary communication mode.

111. It is for this reason that the CVAA included a provision for the EAAC to consider deadlines "for the possible phase out of the use of current-generation TTY technology to the extent that this technology is replaced with more effective and efficient technologies and methods to enable access to emergency services by individuals with disabilities."²⁷² ATIS points to this provision in recommending that the Commission waive the TTY compatibility requirement for new wireless handsets where such handsets support the ATIS INES Incubator recommended solution. Specifically, ATIS argues that "[w]hile PSAPs and wireless networks should support TTY services for the foreseeable future, the TTY requirement for wireless handsets may be a redundant communication modality for future wireless handsets that support the recommended ATIS INES Incubator solution."²⁷³

112. As we noted earlier, the EAAC survey confirmed the declining use of TTYs by people with disabilities as well as the need for new forms of accessible communications to reach 911 services – including text and video – by persons who have hearing or speech disabilities. The decline in TTY usage is also reflected in the steep reduction in the number of minutes of TTY-based TRS over the last several years.²⁷⁴ At the same time, an estimated 100,000 users make approximately 20,000 emergency

²⁶⁸ See *EAAC Survey Report* at 15, Question 8. Of the 3,149 survey takers, 2,508 or 79.6 percent responded that they use TTYs (also known as TDDs, teletypewriters or text-telephones) as follows:

- 97 or 3.9 percent selected almost every day;
- 131 or 5.2 percent selected fairly regularly, but not daily;
- 429 or 17.1 percent selected on rare occasions; and
- 1,851 or 73.8 percent selected never.

²⁶⁹ Revision of the Commission's Rules To Ensure Compatibility with Enhanced 911 Emergency Calling Systems, CC Docket No. 94-102, *Fourth Report and Order*, 15 FCC Rcd 25216, 25218 (2000) (*E911 Fourth Report and Order*).

²⁷⁰ See *id.* See also 47 C.F.R. § 20.18(c) and accompanying note to paragraph (d)(2001). In addition, these carriers were to have obtained software and equipment necessary to implement this capability in their networks by December 31, 2001. *E911 Fourth Report and Order*, 15 FCC Rcd at 25218.

²⁷¹ See generally, *E911 Fourth Report and Order*, n. 326 *supra*.

²⁷² CVAA § 106(c)(6).

²⁷³ ATIS Comments at 12.

²⁷⁴ See, e.g., Relay Services' Reimbursement Rate, Contribution Factor & Fund Size History, available at <http://www.f-l-s-a.com/TRS/RELAYRATESHISTORY.pdf> (last accessed Dec. 12, 2012).

calls annually using TTY.²⁷⁵ In other words, while it is true that TTY use is declining, TTY still provides an invaluable, real-time 911 service for its users. Additionally, no similar robust products exist for mobile and IP-networks, where the expected lifetime of a product is about two years as opposed to TTY's ten year expected lifetime.²⁷⁶ Finally, users of TTY may not wish to switch to a new communication mechanism with which they are not familiar.

113. Therefore, we seek further comment on whether the Commission should sunset the TTY requirement for new handsets, and if so, what criteria should be adopted before such action is taken. If the Commission does sunset the TTY requirement for new wireless handsets, should it do so only contingent upon a wireless texting capability? The EAAC recommended that the Commission lift the TTY requirement only for those handsets that have “at a minimum real time text or, in an LTE environment, IMS Multimedia Telephony that includes real-time text.”²⁷⁷ In addition, the EAAC's 2012 Subcommittee on TTY Transition concluded that “[c]onsistent implementation of a well-defined ‘TTY replacement’ with higher functionality real-time text, simultaneous voice and better mobility can fill an important need in accessible communication for user to user calls, relayed calls and 9-1-1 calls.”²⁷⁸ We seek comment on these EAAC recommendations concerning the removal of the TTY requirement. Should the ubiquitous use of SMS, alone or with other forms of text capability, be a factor in determining whether to lift the TTY requirement? Or, does the real-time nature of TTY communication make it fundamentally different from SMS, such that SMS is not a valid replacement for TTY-capable handsets?

10. Routing and Location Accuracy

114. In the *Notice*, the Commission sought comment on how to ensure that text messages to 911 include accurate location information for routing to the appropriate PSAP and for determination of the sender's location by the PSAP.²⁷⁹ The record developed in response to the *Notice* indicates that it is technically feasible to route text messages originated on CMRS mobile switched networks to the appropriate PSAP based on the cell sector from which the text originated.²⁸⁰ Therefore, we propose to require CMRS providers (and their associated text-to-911 vendors) to use cell sector location to route 911 text messages originated on their networks to the appropriate PSAP. We also seek comment on any technical or informational challenges for third party interconnected text providers with respect to determining caller location and providing the appropriate routing. We do not propose at this time to require provision of E911 Phase II location information in conjunction with 911 text messages, although we encourage its provision where technically feasible. We discuss these proposals in greater detail below.

a. Routing of Text Messages to the Appropriate PSAP

115. *Background.* While the Carrier-NENA-APCO Agreement does not speak specifically to routing issues, the signatory providers agreed to provide text-to-911 on an interim “best-efforts” service subject to a valid PSAP request.²⁸¹ However, the provision of text-to-911 under the Carrier-

²⁷⁵ EAAC TTY Transition Report at 6.

²⁷⁶ EAAC TTY Transition Report at 9.

²⁷⁷ EAAC Recommendations P6.5; T2.2.

²⁷⁸ *Id.*

²⁷⁹ *See Notice*, 26 FCC Rcd at ¶ 56.

²⁸⁰ *See supra* Section (III)(B)(9).

²⁸¹ *See Carrier-NENA-APCO Agreement* at 2.

NENA-APCO Agreement is limited to “the capabilities of the existing SMS service offered by a participating wireless service provider on the home wireless network to which a wireless subscriber originates an SMS message.”²⁸² Many commenters, including public safety entities, argue that any text-to-911 solution must be capable of routing text messages to the appropriate PSAP based on the sender’s location.²⁸³ APCO states that “any solution *must* provide PSAP call routing capability that is as good as or better than what is being deployed today.”²⁸⁴ BRETSA and the Colorado 9-1-1 Task Force agree that “[t]he location of the caller must be available for the purposes of routing the call to the correct PSAP.”²⁸⁵

116. Focusing on SMS-to-911, some CMRS commenters contend that there are technical difficulties in routing SMS messages to the correct PSAP. The Blooston Rural Carriers claim that “current SMS standards do not support automated routing to the PSAP or automated location information.”²⁸⁶ Sprint Nextel states that “location information is not included with SMS text messages and would not be available for PSAP routing.”²⁸⁷ 4G Americas argues that “SMS...provides no location information – not even a cell tower – so the originating network may not accurately route the message to the correct PSAP. Because the lack of location and session information, false messages can be easily spoofed...without the PSAP detecting the spoof.”²⁸⁸

117. However, commenting vendors counter that even if SMS was not initially designed to support automatic routing to PSAPs, it is technologically feasible to add the capability to route SMS text messages to a specific PSAP based on the sender’s location. According to Intrado, SMS messages can be routed to the appropriate PSAP by adding a Text Positioning Center (TPC) to the existing wireless network.²⁸⁹ Intrado states that the TPC will “function like a [Mobile Position Center] associated with wireless voice calls” and that “[u]pon a mobile device’s initial text-to-911, the TPC will determine the appropriate PSAP to which to route the text request for assistance.”²⁹⁰ Intrado also notes that the “routing determination will be based upon the location of the cell sector to which the mobile device is connected.”²⁹¹ TCS similarly states that SMS messages can be routed to the appropriate PSAP “[b]y combining existing location technologies with existing SMS protocol capabilities.”²⁹² The VON Coalition also notes routing challenges for third-party over-the-top application providers, which may not have direct access to caller location.²⁹³

118. *Discussion.* Verizon and TCS have indicated that they will use coarse location as the

²⁸² Carrier-NENA-APCO Agreement at 3.

²⁸³ See e.g., NENA Comments at 4; MetroPCS Communications Comments at 5.

²⁸⁴ APCO Reply Comments at 3.

²⁸⁵ BRETSA and the Colorado 9-1-1 Task Force at 20.

²⁸⁶ Blooston Rural Carrier Comments at 3.

²⁸⁷ Sprint Nextel Reply Comments at 2.

²⁸⁸ 4G Americas Comments at 9.

²⁸⁹ See Intrado Comments at 7.

²⁹⁰ *Id.*

²⁹¹ *Id.*

²⁹² TCS Comments at 11.

²⁹³ VON Coalition Nov. 14, 2012, Ex Parte at 2.

basis for PSAP routing determination in their deployment of text-to-911.²⁹⁴ Moreover, according to the Tennessee Emergency Communications Board (TECB), “[t]he TECB would not have agreed to host the pilot [with AT&T] had it not included the capability for location information to travel with the text. The Tennessee pilot will include a texting solution that includes rough location information.”²⁹⁵ The coarse or rough location information as referred to by Verizon and TECB is the equivalent to the location of the cell sector from which the wireless 911 call is made – or generally E911 Phase I information under the Commission’s E911 rules.²⁹⁶ Given the apparent technical feasibility of cell sector location and its actual use in text-to-911 trials to date, we propose that CMRS providers be required to route text messages automatically to the appropriate PSAP based on the cell sector to which the mobile device is connected. We also propose to define the “appropriate” PSAP presumptively for text-to-911 routing purposes to be the same PSAP that would receive 911 voice calls from the same cell sector. However, we recognize that in some instances, state or local 911 authorities may wish to have text messages routed to a different PSAP from the one that receives 911 voice calls from the same location (*e.g.*, to have all 911 texts within a state or region routed to a single central PSAP rather than to individual local PSAPs). Therefore, we propose to allow designation of an alternative PSAP for routing purposes based on notification by the responsible state or local 911 authority. We seek comment on these proposals. We also seek comment on whether there are any technical obstacles or cost factors that could make it more difficult for some CMRS providers, such as small or rural carriers, to support automated routing of text messages to the appropriate PSAP.

119. We also seek comment on specific technical or informational challenges that third-party over-the-top messaging applications providers may face with respect to assessing caller location and the associated PSAP. Apple, for example, suggests that text-to-911 obligations should only attach for third-party text messaging applications where the applications is installed on a phone that meets the Commission’s location accuracy requirements. Will this be sufficient to enable such applications to accurately route a 911 call to the appropriate PSAP? Are there other agreements or protocols that would be necessary between the third-party application provider and the underlying carrier to ensure appropriate routing? What would these entail?

120. Several commenters noted that spoofing could compromise the accuracy of location-based routing of SMS text messages to PSAPs.²⁹⁷ We note, however, that the proposed systems use systems not under the control of the caller to query for cell tower location. SMS messaging uses the same mechanism as calls to provide the originating number to the network, and thus, there is no unique attribute of text messaging that leaves it open to spoofing. We also note that the potential for spoofing already exists for VoIP calls to 911. As Vermont indicates with regard to its text-to-911 trial, “there is nothing about this new technology that is any more likely to result in ‘spoof’ contacts than what we

²⁹⁴ Verizon Wireless and TCS June 4 *Ex Parte*, Attachment 2, at 3. *See also* TCS Nov. 7, 2012 *Ex Parte*, Attachment at 7 (referring to “Carrier Preparation” for text-to-911 as including “Route Based on Coarse Location Information”).

²⁹⁵ TECB Nov. 2 *Ex Parte* at 1.

²⁹⁶ *See, e.g.*, 47 C.F.R. §20.18(d)(requiring under the rule for Phase I E911 service that CMRS licensees provide the telephone number of the originator of a 911 call and the location of the cell site or base station receiving the call...to the designated PSAP...”).

²⁹⁷ *See, e.g.* ATIS Comments at 13-14 (A solution that is open to all users would be subject to challenges related to overloads, spoofing and impaired performance); T-Mobile Reply Comments at 14 (FCC should not ignore the potential for fraudulent and abusive use of SMS-to-911, especially because it can be so easily spoofed); U.S. Cellular Reply Comments at 3-4.

already deal with on the voice side of the system.”²⁹⁸ Accordingly, we seek comment on whether the potential for spoofing text messages is any greater than the potential for spoofing VoIP calls. Are there any actions that the Commission could take to minimize the risk of text-based spoofing?

b. 911 Location Accuracy Requirements

121. *Background.* In the *Notice*, the Commission noted that some parties had expressed concerns about the inability of SMS to provide the sender’s precise location.²⁹⁹ The Commission sought comment on ways to overcome this limitation. Specifically, the *Notice* asked whether it is technologically feasible for the recipient of an emergency SMS text message to query for the texting party’s location using the phone number provided.³⁰⁰ The Carrier-NENA-APCO Agreement does not specifically address location accuracy issues. However, the Carrier-NENA-APCO Agreement does limit the provision of text-to-911 to “the capabilities of the existing SMS service offered by a participating wireless service provider on the home wireless network to which a wireless subscriber originates an SMS message.”³⁰¹

122. Commenters indicate that, while it is feasible to use cell sector location to route emergency texts to the appropriate PSAP, it may be more difficult for CMRS providers to provide more precise location information in connection with text messages. Neustar notes that “some wireless operators use network based location determination mechanisms that depend on the handset being in a voice call to receive enough measurement data to determine the location of the caller accurately. Such networks could not be expected to respond with high resolution location information for texters. This will be true for any SMS to 911 solution.”³⁰² On the other hand, TCS indicates that its system would use “the same location technologies and strategies used today for 9-1-1 voice calls to both route the text message to the appropriate PSAP, and for delivering a more precise location of the sender to PSAP personnel.”³⁰³ TCS notes, however, that “the carrier’s 9-1-1 location platform may not be able to provide location outside of a 9-1-1 voice call” and that “coarse [location] may be the only available location for initial service launch.”³⁰⁴ The VON Coalition expresses similar concerns with respect to providers of “over-the-top” text messaging applications in terms of their inability to access user location information.³⁰⁵

123. *Discussion.* The record in this proceeding indicates that providing precise location information in connection with text messages is technically feasible but could involve significant changes and upgrades to existing SMS-based text networks. We are therefore concerned that it could initially be overly burdensome to require CMRS providers to comply with the Commission’s Phase II E911 location accuracy rules when transmitting text messages to 911. While we recognize the importance of providing precise location information to PSAPs, we believe that the benefits of enabling consumers, particularly consumers with hearing and speech disabilities, to send SMS-based or non-SMS-based text messages to 911 outweigh the disadvantages of being unable to provide precise

²⁹⁸ *Id.*

²⁹⁹ See *Notice*, 26 FCC Rcd at 13638 ¶ 56.

³⁰⁰ *Id.*

³⁰¹ Carrier-NENA-APCO Agreement at 3.

³⁰² *Id.*

³⁰³ TCS March 8 *Ex Parte* at 3.

³⁰⁴ TCS March 8 *Ex Parte*, Attachment 2, at 13.

³⁰⁵ VON Coalition Nov. 14, 2012, *Ex Parte* at 2

location information. Accordingly, we propose that the Commission's Phase II E911 location accuracy requirements not apply to the initial implementation of text-to-911.³⁰⁶ Nevertheless, we encourage the voluntary development of automatic location solutions for text-to-911 that provide at least the same capability as Phase II location information for voice calls to 911, even if the location solution does not use the same underlying location infrastructure. For example, messaging applications could transmit location information that is available on handsets using the data channel. Further, applications that use IP-based message delivery may also be able to include location information obtained via a mobile device API along with the text message. We also seek comment on whether operating system vendors or CMRS providers can facilitate the delivery of more precise location for interconnected text providers. Are there any other factors that the Commission should consider in regard to location delivery for interconnected text providers?

c. Roaming

124. *Background.* Roaming enables wireless consumers to use mobile devices outside the geographical coverage area provided by their home network operator.³⁰⁷ In the *Notice*, the Commission asked whether it is technically feasible to determine the originating location of an emergency text message in all situations or whether it is feasible only in situations where the customer is not roaming.³⁰⁸ As noted above,³⁰⁹ the Carrier-NENA-APCO Agreement does not provide text-to-911 capability to wireless subscribers roaming outside of a subscriber's home wireless network.³¹⁰ Because sending and receiving texts while roaming involves two networks, the consumer's home network and the visited roaming network, roaming may create issues for text-to-911 because of the greater technical complexity of routing the message to the correct PSAP based on the consumer's location. In the non-emergency context, when a wireless consumer sends an SMS message while roaming on a visited network, the visited network passes the text message via designated signaling links to the user's home network, which in turn sends the text message to its final destination.³¹¹

125. Several commenters address text-to-911 in the context of roaming customers. In considering vendor proposals for text-to-911 solutions, NENA contends that applicable location requirements must be met regardless of whether a consumer initiates or continues a text-to-911 string through the consumer's home network or a roaming partner.³¹² Similarly, APCO argues that when a device roams to a visited network, 911 text messages must be capable of remaining connected with not only the PSAP, but also the specific call taker.³¹³ T-Mobile voices a number of concerns about roaming, stating that "SMS-to-911 does not work when roaming."³¹⁴ T-Mobile further notes that "SMS for a T-Mobile customer roaming on another carrier's network remains supported by T-Mobile's

³⁰⁶ See 47 C.F.R. § 20.18(h) (setting forth Phase II E911 location accuracy requirements).

³⁰⁷ See Mobile SMS and Data Roaming Explained, GSMA, available at <http://www.gsma.com/aboutus/wp-content/uploads/2012/03/smsdataroamingexplained.pdf> (last accessed Aug. 28, 2012).

³⁰⁸ See *Notice*, 26 FCC Rcd. 13615, 13638 at ¶ 56 (2011).

³⁰⁹ See, *supra*, Section (II)(B).

³¹⁰ See Carrier-NENA-APCO Agreement at 3.

³¹¹ *Id.* at 4.

³¹² NENA Comments at 4.

³¹³ APCO Reply Comments at 3-4.

³¹⁴ Letter from John Nakahata, Counsel to T-Mobile USA, Inc., to Marlene H. Dortch, Secretary, Federal Communications Commission (Sept. 25, 2012) at 2.

network and messaging infrastructure, rather than by the carrier providing roaming. However, T-Mobile will not have location information when its subscriber is roaming, and thus can neither determine whether a roaming subscriber is in an area that supports text-to-911 nor route the 911 text to the appropriate PSAP.”³¹⁵ U.S. Cellular stresses “the need for the FNPRM to include a discussion regarding the need for requirements to address customers sending texts to 911 while roaming outside of their carrier’s network and for the resulting need to address interoperability across carrier networks.”³¹⁶ Finally, Sprint Nextel urges the Commission to refer technical considerations like roaming to technical working groups and standards-setting bodies for further discussion.³¹⁷

126. *Discussion.* We agree with NENA and APCO that it is critical for consumers who are roaming to have the ability to text-to-911 during an emergency, and we further note that current voluntary measures do not provide for text-to-911 service while a subscriber is roaming.³¹⁸ Accordingly, we seek comment on whether both the home and visited network operators must cooperate to support the delivery of the text to the appropriate PSAP serving the sender’s location when a consumer sends a text message to 911 while roaming. We also seek comment on 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. Could the visited network intercept text-to-911 messages and determine the mobile device location? What technical and economic obstacles need to be addressed in order to provide text-to-911 service to consumers? How can these obstacles be overcome? We also seek comment on whether the same approach should apply to international roamers while they are located in the United States.

11. PSAP Options for Receiving Text-to-911

127. There appears to be general agreement that the NG911 architecture offers an IP standards-based interface protocol that supports the delivery of text messages, regardless of the technology used by the mobile device.³¹⁹ While some PSAPs are currently NG911-capable, or soon will be, many other PSAPs will not be NG911-capable for an extended period of time, limiting their options for handling text messages in the interim.³²⁰ Thus, in order to implement text-to-911, particularly on a nationwide basis, the Commission must take the disparate capabilities of PSAPs into account. Accordingly, we propose a set of near-term options that would enable all PSAPs to accept text messages transmitted by CMRS or interconnected text providers, regardless of whether the PSAPs are NG911-capable. This proposed approach provides non-NG911-capable PSAPs with the flexibility to handle text messages in the near term without requiring PSAPs to fund significant upfront investments or upgrades.³²¹ We seek comment on each option and the proposal as a whole.

³¹⁵ *Id.*

³¹⁶ Letter from Grant B. Spellmeyer, Esq., Executive Director, Federal Affairs & Public Policy, U.S. Cellular Corporation, to Marlene H. Dortch, Secretary, Federal Communications Commission (Nov. 6, 2012) at 1-2.

³¹⁷ Sprint Nextel Comments at 12-13.

³¹⁸ See Carrier-NENA-APCO Agreement at 3.

³¹⁹ See e.g., NENA Reply Comments at 3; 4G Americas Comments at 2; Intrado Comments at 2; TCS Comments at 9; Neustar Comments at 12.

³²⁰ See NENA, “NENA Baseline Next Generation 9-1-1 Description,” available at http://c.ymcdn.com/sites/www.nena.org/resource/resmgr/Docs/NENA_Baseline_NG9-1-1.pdf (last accessed Nov. 15, 2012) (describing the system functionality of NG9-1-1 and “a number of capabilities beyond E9-1-1 functions” and listing the “minimally required components or capabilities of baseline NG9-1-1....”).

³²¹ NENA notes that “how messages are received and processed in PSAPs is of equal importance to how they are originated from subscriber equipment. Because of the high cost of PSAP upgrades and the imminent need to (continued....)

a. NG911-Capable PSAPs

128. We propose that text-to-911 service providers deliver text messages to NG911-capable PSAPs using a standardized NG911 protocol, such as the NENA i3 protocol.³²² This will ensure a consistent format for delivery of text messages to all NG911-capable PSAPs. We seek comment on this proposal. Should the current NENA i3 protocol be the single protocol used for delivery of all text messages to NG911-capable PSAPs?³²³ How should we account for future releases of NENA i3 that may support additional protocol interfaces?

b. Non-NG911-Capable PSAPs

129. For non-NG911-capable PSAPs, several technical options are available that could be used for receipt of text messages. For its part, the Carrier-NENA-APCO Agreement allows PSAPs to “select the format for how messages are to be delivered.”³²⁴ We propose that non-NG911-capable PSAPs be allowed to choose among several options, and to designate a preferred option and one or more fallback options.

(i) Web Browser

130. Under this option, a PSAP would receive text messages via a web browser installed in the PSAP (typically at one or more terminals used by PSAP call-takers) and connected to a third-party service provider.³²⁵ Verizon Wireless and TCS have stated that with respect to Verizon’s roll-out of text-to-911, they will offer PSAPs the ability to receive text messages using the web browser approach.³²⁶ TCS states that it has “demonstrated a D-IP SMS client application that runs in a web browser and gives a PSAP call-taker who has connectivity to the IP-messaging network the ability to receive, view, and respond to the SMS 9-1-1 call.”³²⁷ This approach will require the PSAP to have Internet connectivity, but not full NG911 capability.³²⁸

131. We seek comment on the web browser approach. Because many PSAPs already have Internet connectivity even if they are not NG911-capable, we believe that this approach would offer PSAPs a cost-effective alternative for receiving text messages without having to upgrade to NG911. We seek comment on what costs, other than Internet access, a PSAP would have to incur when implementing a web browser solution. For example, T-Mobile contends that TCS’ web browser application would require PSAPs to upgrade their CPE.³²⁹ Is this accurate, and if so, what would the (Continued from previous page) _____ upgrade PSAP equipment, software, and service processes to NG9-1-1 capabilities, NENA considers it important that any interim text messaging solution leverage, to the maximum extent possible, existing assets and service processes.” NENA Comments at 4.

³²² We note that some PSAPs may be capable of receiving text messages via NG911-compliant protocols, even if they still receive voice 911 calls using legacy mechanisms.

³²³ For the current NENA i3 protocol for text, see “Detailed Functional and Interface Specification for the NENA i3 Solution – Stage 3,” Release 1, Section 4.1.8.3, dated Jun 14, 2011.

³²⁴ Carrier-NENA-APCO Agreement at 2.

³²⁵ In addition to text messages, the third-party service provider could also transmit IP-based real-time text messages over the web browser interface.

³²⁶ Verizon Wireless and TCS June 4 Ex Parte, Attachment 2, at 6.

³²⁷ TCS Comments at 7.

³²⁸ Moreover, the web browser would not even need to be integrated with the PSAP’s computer-aided dispatch (CAD) system.

³²⁹ T-Mobile Reply Comments at 13.

nature and cost of the required upgrade?

132. We also seek comment on how the web browser option should be implemented in a multi-party environment where multiple web browser options and applications may be available to both PSAPs and text-to-911 service providers. For example, it is possible that individual text-to-911 service providers could offer different web browser applications to the same PSAP, requiring the PSAP to either support all of the offered applications or to request that the providers use a common application. Alternatively, neighboring PSAPs could select different web browser applications from one another, requiring a text-to-911 service provider serving both PSAPs to support multiple applications or to request that the PSAPs choose a common application.

133. As a practical matter, we expect that many of these issues can be resolved through development by vendors of standards-based interoperable web applications that enable CMRS providers, interconnected text providers, and PSAPs to choose single-source solutions rather than having to support multiple solutions. Nevertheless, we seek comment on how such issues should be resolved where CMRS providers, interconnected text providers, and PSAPs cannot agree on a common web browser solution. Specifically, if the PSAP chooses to receive text messages via web-based delivery, under what circumstances should CMRS or interconnected text providers be obligated to accommodate the PSAP's choice of web browser application? If the PSAP uses a service provider ("text service provider") to render text messages to a web browser, as appears likely based on the service trials, a problem would arise only if two CMRS or third-party text providers use different service providers on their end to route text-to-911 messages. In that scenario, we proposed to allow the PSAP to designate its text service provider as the recipient of text messages under two conditions. First, the PSAP text service provider must accept text messages using industry-standard protocols, such as the NENA i3 standard. Second, the PSAP text service provider must not charge the CMRS or interconnected text provider a fee for delivering such messages. We seek comment on this proposal.

(ii) Text-to-Voice Gateway Centers

134. Under this option, a PSAP would receive text messages via a gateway center where emergency-trained telecommunicators would translate between text and voice. The gateway center would operate in a manner similar to a telematics call center of the kind that telematics providers such as OnStar use to handle emergency calls from their subscribers and transmit such calls to 911.³³⁰ Telematics providers use cell-site location to determine the caller's location, match the location to the associated PSAP, and then use VoIP-based routing to connect with the PSAP over its 911 trunks. Intrado has proposed a similar solution for delivery of text messages through a gateway.³³¹

135. Some commenters express concerns about implementing a gateway approach. T-Mobile notes that "a national SMS relay center does not exist today, and would have to be created and funded, which also cannot be accomplished rapidly."³³² Sprint submits that Intrado's proposal "would require the installation of extensive infrastructure to adapt wireless networks to the solution. Whether this proposal could ultimately be successful nationwide as an interim text-to-911 solution cannot be gauged, since testing has been very limited to date."³³³

136. We seek comment on the feasibility of establishing one or more gateway centers for translation and transmission of text messages to PSAPs. What are the potential costs of implementing

³³⁰ See OnStar *Ex Parte*.

³³¹ See Intrado Comments at 7-8.

³³² T-Mobile Reply Comments at 3.

³³³ Sprint Nextel Reply Comments at 5.

this approach, and how would such costs be allocated? Are CMRS providers or vendors offering text-to-911 services likely to develop and offer a gateway option to non-NG911-capable PSAPs? Are non-NG911-capable PSAPs likely to choose this option over the web browser or TTY-based delivery options if it is available?

137. We also seek comment on how best to ensure that text-to-voice translation offered as part of the gateway option does not lead to harmful delays in communication between the sender and the PSAP. We anticipate that with proper certification and training, telecommunicators will be able to handle these responsibilities efficiently and professionally with a minimum of delay. We also anticipate that as an increasing number of PSAPs become capable of accepting IP-based text, the number of 911 text messages that will require text-to-voice translation will decrease, though text-to-voice or text-to-TTY (see below) may continue to be necessary until all PSAPs have been upgraded.

(iii) Text-to-TTY Translation

138. Under this option, text messages would be converted into TTY calls that the PSAP would receive over its existing TTY facilities.³³⁴ Since all PSAPs already have TTY capability,³³⁵ this is potentially a very low-cost solution that can be deployed relatively quickly.³³⁶ Moreover, this solution supports direct communication between the sender and the PSAP.

139. A number of commenters express support for this option. Neustar contends that using TTY to transmit SMS-originated text messages is a viable interim solution that could “bridge the gap” before and during the transition to NG911.³³⁷ Neustar notes that “almost all mobile phones are SMS capable but cannot do TTY and almost all PSAPs [are] TTY capable but cannot handle SMS.”³³⁸ Neustar further asserts that this option could be implemented at minimal cost because “carriers would only need to make small investments in providing cell ID query mechanisms where they are not already deployed for itinerate use, and PSAPs should be able to handle text-to-911 using their existing TTY equipment.”³³⁹ Verizon Wireless and TCS have stated that they intend to permit PSAPs that lack Internet connectivity to receive text messages using this approach.³⁴⁰

140. On the other hand, some commenters state that TTY is an outdated technology that could be susceptible to errors in an automated text-to-TTY translation process. T-Mobile states that TTYs “are not sized for general public use” and “present their own technical problems.”³⁴¹ T-Mobile

³³⁴ See Neustar and TCS Comments.

³³⁵ Pursuant to DOJ regulations, “every call-taking position within a PSAP must have its own TTY or TTY-compatible equipment. PSAPs must have systems that enable call takers to handle TTY calls as properly, promptly, and reliably as voice calls.” See USDOJ Technical Assistance Manual, Access for 911 and Emergency Telephone Services, B. Equipment, at 4 (emphasis added) available at <http://www.ada.gov/911ta.pdf> (last accessed Aug. 14, 2012).

³³⁶ Title II of the ADA covers telephone emergency service providers and other State and local government entities and instrumentalities. The Department of Justice’s regulation on Access for 9-1-1 and Telephone Emergency Services is published at 28 C.F.R. Part 35. See <http://www.ada.gov/911ta.pdf> (last accessed Jul. 6, 2012).

³³⁷ Neustar *Ex Parte* at 1.

³³⁸ *Id.*

³³⁹ Neustar Comments at 4.

³⁴⁰ Verizon Wireless and TCS June 4 *Ex Parte*, Attachment 2, at 6.

³⁴¹ T-Mobile Comments at 3. See also ATIS Dec. 20, 2011 *Ex Parte* at 5 (TTY is an outdated service).

also contends that investment in TTYs would be a dead end investment, that TTYs are asynchronous and use Baudot tones, and that the half-duplex nature of TTYs can lead to messages being garbled if the texting party and PSAP call taker send messages over the top of one another.³⁴² INdigital submits that “using the TTY protocol with a 1% total character error rate...imposes a technical requirement that is nearly impossible to meet.”³⁴³ T-Mobile asserts that “many PSAPs have a limited number of TTY-equipped answering stations [and that] the capital investment required to handle the much larger volume of messages that would result from a general public SMS-to-911 system could be substantial for cash-strapped PSAPs.”³⁴⁴ APCO adds that PSAPs “us[ing] standalone TTY devices...will face additional challenges if the volume of calls to these legacy devices increase[s] dramatically.”³⁴⁵

141. We seek comment on the feasibility and potential costs and benefits of making the text-to-TTY approach available as a text delivery option for CMRS providers, interconnected text providers, and PSAPs. Given the age and technical limitations of the PSAPs’ existing TTY equipment, are PSAPs capable of handling a volume of text messages transmitted over TTY from the general public that could be much larger than the low current volume of TTY 911 traffic? Could the technical problems associated with TTYs result in translation errors? Are there measures that could be taken to improve the capacity and reliability of TTY equipment to handle text-to-911? Are larger PSAPs likely to make use of TTYs to receive text-to-911 messages, compared to the other options discussed earlier? Do most PSAPs have stand-alone TTY devices or are these more likely to be built into the call taker equipment and would thus be able to handle a larger text volume?

(iv) State/Regional Approach

142. Under this option, a state or regional 911 authority could designate a NG911-capable PSAP to receive and aggregate 911 text messages over a large region served by multiple non-NG911-capable PSAPs, such as a county, a multi-county region, or an entire state. The NG911-capable PSAP would exchange text messages with the caller and then communicate by voice with the non-text-capable PSAP that serves the caller’s location. This approach is being applied in the Black Hawk County, Iowa text-to-911 trial, where the Black Hawk County PSAP accepts text messages from any i-Wireless user located in the state, thus acting as a gateway for other PSAPs in the state.³⁴⁶

143. We seek comment on this approach. In general, allowing 911 authorities to aggregate handling of text messages through a single PSAP on a statewide or regional basis could accelerate the availability of text-to-911 and lead to cost savings in its implementation. This approach would also minimize the operational and technological impact of text-to-911 for non-text-capable PSAPs. However, relaying text messages from the designated PSAP to other PSAPs in the state or region could lead to delay in responding to emergency text as compared to emergency voice calls. We seek comment on what measures, if any, could reduce the risk of such delay.

c. Notification of PSAP Acceptance and Delivery Method

144. In order for CMRS and interconnected text providers to deliver and PSAPs to receive emergency texts under the framework proposed in this *Further Notice*, a mechanism will be needed for

³⁴² See *id.* at 11.

³⁴³ INdigital Comments at 10.

³⁴⁴ T-Mobile Reply Comments at 11, citing Neustar Comments at 4 n.7.

³⁴⁵ APCO Reply Comments at 5 (noting that “[s]tandalone TTY hardware often requires additional time to use and therefore increases the length of time to process the call”).

³⁴⁶ See Intrado Comments at 11.

each PSAP to notify providers (or their text-to-911 vendors) that it is prepared to accept text messages and indicating the delivery option it has chosen. In the *Notice*, the Commission sought comment on the possibility of developing a centralized routing database or databases that would identify which PSAPs are accepting text-to-911 messages and the routing a delivery method selected by each PSAP.³⁴⁷ The Carrier-NENA-APCO Agreement does not specify a specific notification procedure; however, it defines a “valid request” for text-to-911 service as one in which “the requesting PSAP represents that it is technically ready to receive 911 text messages in the format requested,” and “the appropriate local or State 911 service governing authority has specifically authorized the PSAP to accept and, by extension, the signatory service provider to provide, text-to-911 service (and such authorization is not subject to dispute).”³⁴⁸

145. In its comments, Bandwidth.com proposes a gateway architecture that includes a database of all PSAPs with their preferences for handling text messages.³⁴⁹ 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.³⁵⁰ We seek comment on the feasibility and cost of implementing a gateway architecture or database mechanism. If such coordination is desirable, how can it be encouraged or facilitated? What entity should operate the database? How should PSAPs declare their preferences? Can the registry of preferences be implemented as an extension of the Commission’s PSAP database? Should there be a default preference to ensure that PSAPs that do not declare their text delivery option by a certain date are then assumed to prefer text-to-TTY delivery, since that option should be available without further PSAP action? What constitutes a valid notification? The Carrier-NENA-APCO Agreement requires an appropriate local or State 911 service governing authority to specifically authorize a PSAP to accept text-to-911.³⁵¹ Should this be a requirement for a valid notification?

146. We seek comment on the feasibility and cost of implementing Bandwidth.com’s proposal or a similar gateway architecture or database mechanism. 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 CMRS provider or systems service provider individually. It would also enable providers of text-to-911 routing services to coordinate their databases for routing text messages, via the ECRF. If such coordination is desirable, how can it be encouraged or facilitated? How should PSAPs declare their preferences? Should there be a default preference to ensure that PSAPs that do not declare their text delivery option by a certain date are assumed to prefer text-to-TTY delivery, since that option should be available without further PSAP action? Who should operate such a database? Can this registry of preferences be implemented as an extension of the Commission PSAP database?

12. Cost Recovery and Funding

147. While we seek to structure our proposals to keep text-to-911 costs as low as possible for both text-to-911 service providers and PSAPs, we seek comment on whether there are additional

³⁴⁷ *Notice*, 13638-69, ¶ 57.

³⁴⁸ Carrier-NENA-APCO Agreement at 2.

³⁴⁹ Bandwidth.com Comments at 7.

³⁵⁰ In NG911 systems, this functionality is known as an Emergency Call Routing Function (ECRF).

³⁵¹ Carrier-NENA-APCO Agreement at 2.

actions that the Commission could take to enable text-to-911 service providers and PSAPs to recover their costs. We note that under the Carrier-NENA-APCO Agreement, signatory providers agreed to provide text-to-911 “independent of their ability to recover these associated costs from state or local governments.”³⁵² At the same time, the Carrier-NENA-APCO Agreement requires that “incremental costs for delivery of text messages (e.g. additional trunk groups to the PSAP’s premises required to support TTY delivery) will be the responsibility of the PSAP, as determined by individual analysis.”³⁵³

a. Text Messaging Providers

148. *Background.* In response to the *Notice*, a number of CMRS commenters express concerns over funding text-to-911. CTIA states that “[a]ppropriate funding is a significant uncertainty given the considerable resources that would be needed to deploy text-to-911 capabilities on a nationwide basis.”³⁵⁴ RCA notes that “[c]oncern for adequate funding of future 911 systems is widespread and the increasing burden on wireless and IP-based providers to maintain the 911 system moving forward is troubling.”³⁵⁵

149. Vendors contend that existing 911 cost allocation mechanisms can be used to recover the cost to implement near-term text-to-911 for both CMRS providers and PSAPs. Intrado asserts that the cost of every “functional element” of a text-to-911 solution “can be allocated to wireless carrier networks and PSAPs consistent with how they are assigned today under the Commission’s King County demarcation ruling.”³⁵⁶ Intrado submits that, depending on which “functional elements” PSAPs choose to implement at each stage of text-to-911, “the cost allocations can be changed if funding considerations dictate.”³⁵⁷

150. Some commenters suggest that existing funding mechanisms, such as TRS and the Universal Service Fund (USF) could be applied to recover costs of text-to-911 implementation. Intrado contends that “the FCC can and should determine that SMS is eligible for TRS funding to the same extent that IP-Relay is eligible for TRS funding.”³⁵⁸ Bandwidth.com submits that “a default destination for text messages that do not have location info must be determined” and contends that “[t]he TRS/VRS and IP Relay service providers provide an excellent option for this function given their existing role in facilitating communications between deaf or hard-of-hearing callers and PSAP personnel.”³⁵⁹ NASNA

³⁵² *Id.*

³⁵³ *Id.*

³⁵⁴ CTIA Comments at 8-9.

³⁵⁵ RCA Comments at 4, *quoting* Communications Security, Reliability and Interoperability Council – Working Group 4B, Transition to Next Generation 9-1-1 Final Report 42–45. (2011) (CSRIC Working Group 4B Report).

³⁵⁶ Intrado Comments at 6, *citing* May 7, 2001, Letter from Thomas J. Sugrue, Chief, Wireless Telecommunications Bureau, to Marlys R. Davis, E911 Program Manager, Department of Information and Administrative Services, King County, Washington, CC Docket 94-102. *See In re Revision of Commission’s Rules to Ensure Compatibility With Enhanced 911 Emergency Calling Systems, Order on Reconsideration*, CC Docket No. 94-102 17 FCC Rcd. 14789 (2002) (affirming WTB’s Letter Order).

³⁵⁷ Intrado Comments at 6-7. *See, e.g.*, Intrado Feb. 6, 2012 Ex Parte, Att. at 5-8 (addressing the costs for additional elements necessary for SMS text-to-911 at different suggested stages).

³⁵⁸ Intrado Reply Comments at 7 (in the context of disagreeing with “ATIS INES’ claim [that] there should be no need for Congressional action for funding of SMS to a relay center.”). *See generally* Bandwidth.com Reply Comments at 13-14 (concerning using existing funds collected to support TRS/VRS services and funding a single vendor to implement a national text-to-911 clearinghouse).

³⁵⁹ Bandwidth.com Reply Comments at 8-9.

also urges the Commission to consider “[u]se of the Universal Service Fund to assist States and regions with the costs of NG9-1-1.”³⁶⁰

151. *Discussion.* We believe that existing cost recovery mechanisms are sufficient to support implementation of text-to-911 under the framework presented in this *Further Notice*. Generally, CMRS providers recover their 911 implementation costs from their subscriber base. Since CMRS providers already support SMS and other texting applications in their networks, and have the ability to recover costs of those applications from their customers, it appears that the primary additional cost for CMRS providers to implement text-to-911 will be to establish and support the specific routing and relay functions needed to transmit emergency text messages to PSAPs.³⁶¹ Additionally, under the Carrier-NENA-APCO Agreement, the major carriers have agreed to provide this service independent of cost recovery from state or local governments.³⁶² The record indicates that the incremental cost would be in the range of \$4 million annually.³⁶³

152. We also note that an additional source of funding to reimburse wireless carriers for their 911 service implementation costs can be found in certain cost recovery programs that have been established through state legislation.³⁶⁴ Most states have reported to the Commission that “they used the fees or surcharges that they collected for 911/E911 service solely to fund the provision of 911/E911 service.”³⁶⁵ Dependent on the regulatory mechanism set forth in each statute, states distribute funding either to the carriers directly, or to a designated state or local entity which then reimburses carriers. For example, Alabama provides that “20% of the service charges collected are retained by the [States’ Wireless 9-1-1] board . . . to reimburse wireless service providers for Phase I and II expenses.”³⁶⁶ In comparison, Nebraska provides that from its 911 fund “payments are also made directly to wireless carriers for costs incurred for the provision of enhanced wireless 911 services.”³⁶⁷ Though the means and extent to which carriers receive state-prescribed reimbursement for 911 implementation costs vary from state to state, we find that such cost recovery programs are an available and significant source of funding that can facilitate the roll-out of text-to-911 capability. Moreover, some states have started to

³⁶⁰ NASNA Comments at 6.

³⁶¹ *See, supra*, para. 27, *citing* Consumer Groups Reply Comments at 12; *see also* Bandwidth.com Comments at 7.

³⁶² Carrier-NENA-APCO Agreement at 3.

³⁶³ *See* Intrado Comments at 16-17 (with range of estimates for different SMS text-to-911 scenarios); Bandwidth.com Reply Comments at 9-11 (generally supporting Intrado’s overall approach in regard to different scenarios but noting the total the cost of a national text-to-911 solution at \$300 million over five years), *citing* Intrado Comments at 14. *See also* Bandwidth.com June 18, 2012 Ex Parte, Att. at 3 (noting a “Total 3 year budgetary price between \$4.5 mil and \$12.0 mil[.]”).

³⁶⁴ As noted above, states and localities collect approximately \$2 billion in 911 fees and taxes annually for funding their legacy voice-based 911 systems. *See, supra*, note 167.

³⁶⁵ *See, supra*, note 166.

³⁶⁶ *See FCC Third Annual 911 Fees Report*, Appendix, Letter from Art Faulkner, State 9-1-1 Coordinator, Alabama Emergency Management Agency, to Rear Admiral James Arden Barnett (Ret.), Chief, PSHSB (May. 20, 2011); Attach. of Alabama Wireless 9-1-1 Board Financial Statement, at 2.

³⁶⁷ *See FCC Third Annual 911 Fees Report*, Appendix, Letter from Tim Shram, Chairman, Nebraska Public Service Commission, to Marlene H. Dortch, Secretary, Federal Communications Commission, at 4.(Mar. 31, 2010 [sic]) (submitting Comments of the Nebraska Public Service Commission).

apply their 911 funding to initiate deployment of full NG911 capabilities.³⁶⁸

153. Additionally, many states allow qualifications for cost to include NG911-capable components for which CMRS providers might recover their outlays. For example, Verizon and Verizon Wireless note that “[m]any state and local governments have . . . begun reconfiguring their funding mechanisms to facilitate NG911 deployment.”³⁶⁹ We find that such actions could provide CMRS providers with additional funding flexibility to develop routing and gateway functions. We seek comment on this view and request that commenters update the Commission on any such efforts that are underway.

154. We also seek comment on whether USF funding could play a role in cost recovery, particularly for low-cost text to-911 options such as the TTY-based approach. Could using these funding mechanisms expedite text-to-911 implementation? What modifications, if any, would the Commission have to make to these funding programs to achieve those objectives? In commenting on these approaches, commenters should consider the Commission’s recent amendment of its universal service rules to specify that the functionalities of eligible voice telephony services include, among other things, access to 911 and E911 emergency services to the extent the local government in an eligible carrier’s service area has implemented 911 or E911 systems.³⁷⁰ The Commission noted that Eligible Telecommunications Carriers (ETCs) “will be required to comply with NG911 rules upon implementation by state and local governments.”³⁷¹

155. Finally, we seek comment on current or potential approaches that would enable third party interconnected text providers to receive cost recovery for obligations they may have to provide services and offerings to implement text-to-911 capabilities. In view of the funding mechanisms in several states for CMRS providers to receive cost recovery, we seek comment on whether such state level mechanisms might currently apply to enable interconnected text providers to receive cost recovery in complying with text-to-911 obligations proposed in this Further Notice. We also seek comment on whether states or other jurisdictions provide or plan to provide cost recovery mechanisms that could apply to interconnected text providers. We note that under our proposed framework, the infrastructure used by interconnected text providers would be similar to the infrastructure used by CMRS providers for the delivery of text messages to a PSAP. We seek comment on whether this would facilitate extending existing cost recovery mechanisms on CMRS providers to interconnected text providers.

b. PSAPs

156. *Background.* A number of public safety commenters express concerns about funding, noting that many PSAPs are subject to state and local regulatory mandates that may affect their ability

³⁶⁸ See e.g., *FCC Third Annual 911 Fees Report*, Appendix, Letter from Jackie Mines, Director, Minnesota Department of Public Safety, Emergency Communication Networks, to Marlene H. Dortch, Secretary, Federal Communications Commission, at 4 (Apr. 7, 2011); *id.*, Letter from Lynn Questell, Director, Tennessee Emergency Communications Board, Department of Commerce & Insurance, to Marlene H. Dortch, Secretary, Federal Communications Commission, at 8 (Apr. 6, 2011).

³⁶⁹ Verizon and VZW Comments at 6, *citing*, e.g., Fla. Stat. § 365.172(b) (2005) (permitting use of 911 fees for NG911 deployment).

³⁷⁰ See *Connect America Fund et al.*, WC Dkt. No. 10-90 *et al.*, Report and Order and Further Notice of Proposed Rulemaking, 26 FCC Rcd 17663, 176992-93 ¶ 78 (*USF/ICC Transformation Order and FNPRM*), *pets. for review pending*, *Direct Commc'ns Cedar Valley, LLC v. FCC*, No. 11-9581 (10th Cir. filed Dec. 8, 2011) (and consolidated cases) (amending, *inter alia*, 47 C.F.R. § 54.101).

³⁷¹ See *USF/ICC Transformation Order and FNPRM*, 26 FCC Rcd at 176993 n.116, *citing NG911 NPRM*, 26 FCC Rcd 13615.

to fund the implementation of text-to-911 service. APCO asserts that “[n]any PSAPs are mandated to answer 90% of their incoming 9-1-1 calls in 10 seconds or less to qualify for receipt of wireless surcharge and other 9-1-1 funds.”³⁷² APCO further contends that “[i]t is unlikely that these . . . mandates will be modified to accommodate the additional time that interim solution based text calls may have on the PSAP’s ability to meet these standards.”³⁷³ APCO argues that, consequently, “implementing SMS text-to-9-1-1 may jeopardize some PSAPs eligibility for surcharge funds.”³⁷⁴ NATOA concurs, stating that “localities could lose vital 911 fees and other funding in the event they fail to meet performance mandates due to the increased time necessary to handle text-based calls.”³⁷⁵ Other commenters, however, assert that recent trials have not substantiated the alleged increase in call-taking time due to the characteristics of SMS text.³⁷⁶

157. Wireless carrier commenters also question whether PSAPs have the necessary funding to support the transition to text-to-911. The Blooston Rural Carriers argue that “at this point in time and for the foreseeable future, PSAPs are simply not equipped (and will not be equipped) to process SMS text-to-911 transmissions, and the costs associated with the PSAP upgrades needed to achieve this capability are apt to be great.”³⁷⁷ Verizon and Verizon Wireless assert that “many PSAPs will need to secure funding sources, all will need time to upgrade their own networks and facilities and train personnel, and all will need to educate consumers on where NG911 is available”³⁷⁸ Verizon and Verizon Wireless further submit that “the Commission should avoid mandates for short-term solutions that would force NG911 to compete with SMS-based solutions for PSAP and service provider resources.”³⁷⁹ 4G Americas cites the “[s]carce funding for PSAP NG911 upgrades [a]s a major concern” and argues that “[i]t would do little good to mandate carrier near-term deployment of technologies that would require massive investments by PSAPs or require a complete overhaul of existing emergency communications systems.”³⁸⁰

158. In view of perceived funding difficulties, both public safety commenters and CMRS providers advocate a regional or state-level approach to lower costs and generate economies of scale in implementing near-term text-to-911 as well as facilitating a transition to NG911. CTIA contends that “[a] statewide approach to NG911 deployment will encourage wireless service providers and PSAPs to

³⁷² APCO Comments at 9.

³⁷³ *Id.*

³⁷⁴ *Id.*

³⁷⁵ NATOA et al. Comments at 2, citing APCO Comments at 9.

³⁷⁶ See Black Hawk County, Iowa Comments at 4 (stating that Black Hawk County’s 911 Center has “not experienced” in its text-to-911 trial on a state-wide basis the alleged “concerns regarding the use of SMS text-to-911 such as lost, delayed or out-of-sequence messages.”). Its director states that those problems “can be addressed and overcome” in handling text-to-911 calls. *Id.*, citing Intrado and University of Colorado Comments. Cf. <http://vtdigger.org/2012/04/18/vermont-enhanced-911-board-announces-text-to-911-trial/> (last accessed May 22, 2012) (announcing Vermont’s trial with Verizon Wireless, from Apr. 18 to Oct. 12, 2012, and cautioning that “[s]ending a text to 9-1-1 may take longer than a voice call . . .”).

³⁷⁷ Blooston Rural Carriers Comments at 2.

³⁷⁸ Verizon and VZW Comments at 6.

³⁷⁹ Verizon and VZW Comments at 6; see also Blooston Rural Carriers Comments at 2.

³⁸⁰ 4G Americas Reply Comments at 11-12 (also asserting that “[i]t is difficult to wait for state budgets to pass through their respective legislatures[;]” and consequently, “the timeline is unclear for incentive broadcast spectrum auctions or auctions of federally-relocated spectrum – the source of intended NG911 grants . . .”).

coordinate their efforts to deploy requested services in a reasonable and efficient manner and mitigate public confusion regarding the capabilities available to a local PSAP.”³⁸¹ Verizon and Verizon Wireless submit that “[a] statewide approach provides a bright-line mechanism that is consistent with funding mechanisms, which are generally governed at the state level”³⁸² Verizon and Verizon Wireless refer to a “current trend in state governments toward greater PSAP consolidation and statewide coordination of NG911 efforts.”³⁸³ King County notes that “it may not be feasible to fund the upgrades necessary for NG911 at the state’s 64 PSAPs” and that “[t]he State E911 Office and the NG911 Subcommittee have developed a plan for the centralization of equipment at various hubs throughout the state that will serve multiple PSAPs in order to reduce equipment upgrade costs.”³⁸⁴ Verizon and Verizon Wireless remark that “[i]t is not necessary that every jurisdiction within a state be NG911 capable prior to a service provider’s initiation of service within the state.”³⁸⁵ RCA adds that “the current economic climate and need for financial restraint make consolidation of PSAPs an essential part of the transition to NG911” and that “[c]onsolidation is one of the most important preliminary steps on the path to widespread NG911 deployment.”³⁸⁶

159. Further, NENA contends that “[i]t will prove most efficient if requests for text service originate from these larger units, reducing costs for both the public and the providers called upon to provide service.”³⁸⁷ NENA cautions, however, “that 9-1-1 remains . . . [a local service] that, in many states, is provided by small local agencies below the county level with little or no higher level coordination or oversight.”³⁸⁸ “[T]o maintain the autonomy to which 9-1-1 system operators have become accustomed,”³⁸⁹ NENA suggests that the Commission “refrain from mandating a regional or state-wide approach to system readiness showings, and instead make such aggregated showings

³⁸¹ CTIA Comments at 16.

³⁸² Verizon and VZW Reply Comments at 13-14.

³⁸³ Verizon and VZW Reply Comments at 13-14, *citing* State of Tennessee Department of Commerce and Insurance, Media Release, “State’s emergency communications system clears 1st update phase,” (Sep. 28, 2011), available at <http://www.tn.gov/commerce/911/documents/092811NewGenerationE911newsreleaseFINAL.pdf> (last accessed Dec. 12, 2012).

³⁸⁴ King County Comments at 8-9 (also noting Washington State’s deployment of a statewide ESInet which local jurisdictions can connect to). *See also* NASNA Comments at 8 (“[D]eployment at the State or regional level . . . will also encourage NG9-1-1 deployment beyond the wealthiest areas in a state, . . . where all citizens are paying 9-1-1 fees.”).

³⁸⁵ Verizon and VZW Reply Comments at 13-14.

³⁸⁶ RCA Comments at 2. *See also id.* at 3-4 (referring to the Commission’s September, 2011 NG911 Cost Study as acknowledging that PSAP consolidation would produce significant cost efficiency), *citing* Public Safety and Homeland Security Bureau, Federal Communications Commission, “White Paper: A Next Generation 911 Cost Study: A Basis for Public Funding Essential to Bringing a Nationwide Next Generation 911 Network to America’s Communications Users and First Responders 6–10” (2011) (assuming a constant number of PSAPs and estimating the cost of PSAP broadband connectivity to be \$2.68 billion over 10 years compared to an estimated cost of \$1.44 billion over that same span if a significant number of PSAPs—amounting to a 35 percent decrease in total number—consolidated or integrated hosted service solutions).

³⁸⁷ NENA Comments at 19.

³⁸⁸ *Id.* at 19-20.

³⁸⁹ *Id.*

optional, at the election of the states.”³⁹⁰

160. *Discussion.* PSAPs generally pay for their 911 costs from state and local revenues generated by monthly 911 fees that CMRS providers collect from their subscribers. Wireless carriers argue that cost recovery regulations in many jurisdictions are inadequate to meet PSAP funding needs for text-to-911. Verizon and Verizon Wireless note that “[s]ome jurisdictions impose significant restrictions on use of 911-related fees or taxes by limiting the use of such monies for traditional local exchange and commercial mobile radio services, or imposing explicit restrictions on the types of equipment and services that may be purchased.”³⁹¹ Verizon and Verizon Wireless add that “[s]tate and local jurisdictions that face funding constraints may, if given a choice between a costly SMS-based solution versus a more robust IP-enabled NG911 technology, opt for the former.”³⁹² Although “a particular jurisdiction [could] fund both direct SMS and NG911 solutions, such an outcome could result in even higher fees imposed on consumers with marginal additional public safety benefit.”³⁹³

161. As discussed above, we propose several options that consider the disparities in PSAPs’ current technical capabilities and that enable non-NG911-capable PSAPs to handle texts without significant cost or upgrades. For instance, both the web delivery and the TTY-translation options is a low cost alternative because PSAPs already have TTY capability. While this option employs an IP-gateway to facilitate routing functions compared to the traditional relay function of TTY/TDD, we believe that, in view of the relatively low cost to PSAPs to implement TTY-translation-based text-to-911, existing funding mechanisms can serve to defray the costs. Similarly, PSAPs that choose the gateway center option can limit costs by using already-trained CAs to translate between text and voice.

162. Moreover, contrary to Verizon and Verizon Wireless’ assertion that funding for interim text-to-911 solutions would adversely affect the resources available to support a transition to full NG911 capabilities, we believe that the low cost options discussed above constitute a reasonable and cost efficient alternative to resolving possible limitations in funding at the state or local level. Additionally, we note that under the current Carrier-NENA-APCO Agreement, PSAPs would be responsible for their incremental costs for delivery of text messages.³⁹⁴ We seek comment on this view.

163. Based on our proposal to offer PSAPs an array of text-to-911 delivery options, including options that entail very limited cost, we believe that existing funding mechanisms constitute a sufficient resource to implement text-to-911 within our proposed time frame. We seek comment on this approach. We also seek comment on whether these funding mechanisms could be applied to other IP-based component upgrades. If not, what modifications need to occur? Are there actions the Commission could take to encourage or facilitate those modifications at the state or regional level? We invite comment on approaches that the Commission could pursue to encourage the states or regional entities to address such changes in funding to incentivize deploying the necessary text-to-911 upgrades within the proposed timeframe.

³⁹⁰ *Id.*

³⁹¹ Verizon and VZW Comments at 9, *citing* The National E9-1-1 Implementation Coordination Office, NTIA, *A National Plan for Migrating to IP-Enabled 9-1-1 Systems* (Sep. 2009), available at http://www.ntia.doc.gov/files/ntia/publications/nationalng911migrationplan_sept2009.pdf, at 5-1 to 5-2 (last accessed Dec. 12, 2012).

³⁹² Verizon and VZW Comments at 9.

³⁹³ *Id.*

³⁹⁴ *See* Carrier-NENA-APCO Agreement at 2.

13. Liability Protection

164. *Background.* In general, liability protection for provision of 911 service is governed by state law and has traditionally been applied only to LECs. However, Congress has expanded the scope of state liability protection by requiring states to provide parity in the degree of protection provided to traditional and non-traditional 911 providers, and more recently, to providers of NG911 service. In 2008, Congress enacted the New and Emerging Technologies 911 Improvement Act (Net 911 Act), which provides that a “wireless carrier, IP-enabled voice service provider, or other emergency communications provider ... shall have” the same liability protection as a local exchange carrier under federal and state law.³⁹⁵ In February 2012, Congress further extended state liability protection to providers of NG911 service in the Next Generation 9-1-1 Advancement Act of 2012.³⁹⁶ The Next Generation 911 Advancement Act provides that “a provider or user of Next Generation 9-1-1 services...shall have immunity and protection from liability under Federal and State law [to the extent provided under section 4 of the Wireless Communications and Public Safety Act of 1999],” with respect to “the release of subscriber information related to emergency calls or emergency services,” “the use or provision of 9-1-1 services, E9-1-1 services, or Next Generation 9-1-1 services,” and “other matters related to 9-1-1 services, E9-1-1 services, or Next Generation 9-1-1 services.”³⁹⁷

165. In the *Notice*, which was released prior to the Next Generation 911 Advancement Act, the Commission asked whether the liability provisions in the NET 911 Act embrace the full range of technologies and service providers that will be involved in the provisioning of NG911 services.³⁹⁸ The *Notice* also asked whether the Commission has the authority to extend liability protection to entities involved in the provisioning of NG911 services or whether Congressional action is necessary.³⁹⁹

166. In response to the *Notice*, numerous commenters argue that liability protection is essential as part of any extension of 911 requirements to include text.⁴⁰⁰ Commenters also assert that the lack of express liability protection for NG911 has hampered the deployment of NG911 networks.⁴⁰¹ Commenters also argue that federal law requiring parity in state law protection does not adequately protect 911 and NG911 service providers because the scope of underlying liability protection is dictated by state law and varies from state to state. AT&T, for example, argues that “liability protection presently provided under the NET 911 Act is insufficient because it is tied to the protection afforded under various state laws and, often, a local exchange carrier’s tariff.”⁴⁰² Motorola argues that

³⁹⁵ 47 U.S.C. § 615a.

³⁹⁶ Next Generation 9-1-1 Advancement Act of 2012, 47 U.S.C.A. § 1472 (2012) (Next Generation 911 Advancement Act).

³⁹⁷ *Id.*, Sec. 6506. In addition, Section 6503 of the Act defines “emergency call” as “any real-time communication with a public safety answering point or other emergency management or response agency,” including communication “through voice, text, or video and related data.” *Id.* Sec. 6503.

³⁹⁸ *Notice* at ¶120.

³⁹⁹ *Id.*

⁴⁰⁰ *See, e.g.* Sprint Nextel NOI Comments at 8; CTIA NOI Comments at 10-11; AT&T NOI Comments at 25-26; Motorola NOI Comments at 5-6.

⁴⁰¹ *See, e.g.* NENA NG9-1-1 Transition Handbook at 21-22; TCS NOI Comments at 17; PlantCML NOI Comments at 3; Sprint Nextel NOI Comments at 8; L3 NOI Comments at 25; VON Coalition NOI Comments at 5; NENA NOI Comments at 31; CTIA NOI Comments at 10-11; AT&T NOI Comments at 25-26; L.R. Kimball NOI Comments at 20-21; Motorola NOI Comments at 5-6; Bandwidth.com NOI Reply Comments at 7.

⁴⁰² AT&T Comments at 22.

“[n]ational consistency in liability protection will be essential to encouraging investment and promoting a smooth NG911 transition.”⁴⁰³

167. *Discussion.* We recognize that adequate liability protection is needed for PSAPs, CMRS providers, third party interconnected service providers, and vendors to proceed with implementation of text-to-911 as contemplated in this *Further Notice*. The recent passage of the Next Generation 911 Advancement Act has significantly expanded the scope of liability protection and potentially resolved some of the issues raised by commenters by making clear that states must provide the same level of protection for NG911 as for traditional 911 and E911. We also note that under the Carrier-NENA-APCO Agreement, the four major wireless carriers have committed to deploy text-to-911 capability throughout their nationwide networks without any precondition requiring additional liability protection other than the protection that is provided by current state and Federal law.⁴⁰⁴ Nevertheless, we seek comment on whether there are additional steps the Commission could take – consistent with our regulatory authority – to provide additional liability protection to text-to-911 service providers. We also seek comment on whether the combined parity protection afforded by the NET 911 Act and the Next Generation 911 Advancement Act extends to all providers of text-to-911 service, regardless of whether such service is provided using pre-NG911 or NG911 mechanisms. We seek comment on whether providers of text-to-911 service have sufficient liability protection under current law to provide text-to-911 services to their customers, or whether additional protection may still be needed or desirable.

C. Legal Authority

168. We seek comment on the Commission’s authority to apply the automated error message and more comprehensive text-to-911 rules proposed herein to both CMRS providers and other entities that offer interconnected text messaging services (including third-party providers of “over-the-top” text messaging applications). In doing so, we incorporate herein the portions of our 2011 *Notice* regarding the Commission’s authority to adopt text-to-911 rules.⁴⁰⁵ We note that, in response to our 2011 *Notice*, numerous parties addressed the Commission’s authority to adopt text-to-911 rules under the CVAA, Title III, and our ancillary authority. Since then, we have modified our proposals and taken into account recent developments regarding the deployment of text-to-911 offerings,⁴⁰⁶ including the recent Carrier-NENA-APCO Agreement.⁴⁰⁷

169. We now ask parties to refresh the record on the legal authority issues and to address their comments to the particular rules being proposed herein. Specifically, we ask commenters to address the Commission’s authority under the CVAA to apply the proposed rules to this circumstance, and in particular to other entities that offer interconnected text messaging service. In this regard, we seek comment on how the Commission’s “authority to promulgate regulations to implement the recommendations proposed by” EAAC applies to this circumstance.⁴⁰⁸ Would the Commission’s decision to adopt the proposed text-to-911 rules implement EAAC recommendation P4.1, titled

⁴⁰³ Motorola *NOI* Comments at 6.

⁴⁰⁴ See Verizon Press Release, “Verizon Selects TeleCommunication Systems to Provide Text to 911 National Gateway Solution,” May 3, 2012 available at <http://newscenter.verizon.com/press-releases/verizon/2012/verizon-selects.html> (last accessed Dec. 12, 2012).

⁴⁰⁵ *Notice*, 26 FCC Rcd at 13660-65 ¶¶ 115-120.

⁴⁰⁶ See, *supra*, Part II(A).

⁴⁰⁷ See, *supra*, Part II(B).

⁴⁰⁸ 47 U.S.C. § 615c(g); see also EAAC Report and Recommendations.

“Interim Text Access,”⁴⁰⁹ or recommendation T1.2, titled “Interim Mobile Text Solution”⁴¹⁰ Are there other EAAC recommendations relevant to our authority under Section 615c(g)? We also invite comment on how the Commission’s authority to promulgate “any other regulations, technical standards, protocols, and procedures as are necessary to achieve reliable, interoperable communication that ensures access by individuals with disabilities to an Internet protocol-enabled emergency network, where achievable and technically feasible” applies to these proposals, and in particular to other entities that offer interconnected text messaging service.⁴¹¹

170. In addition to the CVAA, we ask commenters to address the Commission’s authority under Title III, including our authority under Sections 301,⁴¹² 303,⁴¹³ 307,⁴¹⁴ 309,⁴¹⁵ and 316,⁴¹⁶ to adopt the rules proposed herein. We note that, when analyzing our legal authority in the 2011 *Notice*, we stated our “belie[f] that we have well-established legal authority under . . . Title III provisions to take the regulatory and non-regulatory measures described [t]herein that would apply to users of spectrum.”⁴¹⁷ Since then, the D.C. Circuit provided additional guidance regarding the scope of our Title III authority in *Cellco Partnership v. FCC*.⁴¹⁸ We now seek additional comment on our Title III authority in light of this decision.

171. Among other points, we seek comment on whether Title III grants the Commission authority to apply the proposed rules to third-party interconnected text providers and, if so, which specific provisions of Title III apply to them. Does the Commission’s Title III authority over those entities depend on how they offer their service? For example, does the FCC’s Title III authority over

⁴⁰⁹ See EAAC Report and Recommendations at 26 (Recommendation P4.1: Interim Text Access) (stating that “PSAP’s, mobile device manufacturers, carriers and networks should implement an achievable interim method for text-based messaging to 9-1-1” pending the completion and full deployment of an NG911 system).

⁴¹⁰ EAAC Report and Recommendations at 28 (Recommendation T1.2: Interim Mobile Text Solution) (stating that the “EAAC recommends that the FCC work with Department of Justice, industry, academia, consumer groups and public safety entities to develop an interim solution that can be rapidly deployed to provide nationwide access to 9-1-1 services through industry standards-based mobile text communications solution(s) to provide critical coverage for this important constituency during the transition to NG9-1-1”).

⁴¹¹ 47 U.S.C. § 615c(g).

⁴¹² 47 U.S.C. § 301 (“It is the purpose of this [Act], among other things, to maintain the control of the United States over all the channels of radio transmission; and to provide for the use of such channels, but not the ownership thereof, by persons for limited periods of time, under licenses granted by Federal authority.”).

⁴¹³ 47 U.S.C. § 303(b) (authorizing the FCC to “[p]rescribe the nature of the service to be rendered by each class of licensed stations and each station within any class”); 47 U.S.C. § 303(g) (the Commission shall “encourage the larger and more effective use of radio in the public interest”); 47 U.S.C. § 303(r) (the Commission may “prescribe such restrictions and conditions, not inconsistent with law, as may be necessary to carry out the provisions of this [Act]”).

⁴¹⁴ 47 U.S.C. § 307 (authorizing the FCC to grant station licenses).

⁴¹⁵ 47 U.S.C. § 309(j)(3) (directing the Commission to encourage “(A) the development and rapid deployment of new technologies, products, and service for the benefit of the public . . . without administrative or judicial delays . . . [and] (D) efficient and intensive use of the electromagnetic spectrum”).

⁴¹⁶ 47 U.S.C. § 316(a) (authorizing the FCC to modify existing licenses to impose new license conditions if, in the judgment of the Commission, such action will promote the public interest, convenience and necessity).

⁴¹⁷ *Notice*, 26 FCC Rcd at 13662 ¶ 117.

⁴¹⁸ *Cellco Partnership v. FCC*, __ F.3d __, No. 11-1136, 2012 WL 6013416 (D.C. Cir. Dec. 4, 2012).

them turn on whether the entity holds a Commission’s license or other authorization, and, if so, whether such authorization is integral to that entity’s interconnected texting service? Do any third-party interconnected text messaging providers hold any such authorizations? We also ask commenters to address the Commission’s authority to impose regulations on CMRS providers that indirectly affect third-party providers.⁴¹⁹ For example, does the Commission have authority to require CMRS providers to take steps to prevent the use of certain third-party applications that do not support text-to-911? If so, would such steps be consistent with the Commission’s open platform requirements for the 700 MHz C Block⁴²⁰ and other agency precedent?

172. We also ask commenters to address the Commission’s ability to rely on its ancillary authority to adopt the rules proposed herein. The Commission may act pursuant to its ancillary authority when “(1) the Commission’s general jurisdictional grant under Title I [of the Communications Act] covers the regulated subject and (2) the regulations are reasonably ancillary to the Commission’s effective performance of its statutorily mandated responsibilities.”⁴²¹ We ask commenters to discuss both prongs of this test. Would the Commission’s decision to adopt the proposed rules be ancillary to certain Title III provisions, the CVAA, or other statutory provisions? Is application of the proposed rules to all providers of interconnected text-messaging services necessary to avoid consumer confusion or achieve the public safety benefits associated with applying such rules to CMRS providers? We seek comment on these questions.⁴²²

IV. PROCEDURAL MATTERS

A. *Ex Parte* Presentations

173. The proceedings initiated by this *Further Notice of Proposed Rulemaking* shall be

⁴¹⁹ See, e.g., *Cable & Wireless PLC v. FCC*, 166 F.3d 1224 (D.C. Cir. 1999) (holding that FCC order – which prohibited domestic telecommunications carriers from paying more than certain cost-based, benchmark rates for termination services performed by foreign carriers – was within FCC’s statutory authority and did not unlawfully assert regulatory authority over foreign services and carriers, even though one effect of the agency decision was to reduce settlement rates charged by foreign carriers over whom the Commission lacked regulatory authority); *Computer and Communications Industry Association v. FCC*, 693 F. 2d 198 (D.C. Cir. 1982) (upholding FCC exercise of jurisdiction over carrier-provided CPE, whereby Commission ordered that all CPE be unbundled from carriers’ transmission services, as a necessary function of the agency’s duty to assure the availability of transmission services at reasonable rates).

⁴²⁰ Service Rules for the 698-746, 747-762 and 777-792 MHz Bands, *Second Report and Order*, 22 FCC Rcd 15289, 15371 ¶ 222 (2007).

⁴²¹ *Comcast Corp. v. FCC*, 600 F.3d 642, 646 (D.C. Cir. 2010) (quoting *Am. Lib. Ass’n v. FCC*, 406 F.3d 689, 691-92 (D.C. Cir. 2005)); see also *United States v. Southwestern Cable Co.*, 392 U.S. 157, 178 (1968) (recognizing that the Commission may exercise authority that is “reasonably ancillary to the effective performance of [its] various responsibilities”); *United States v. Midwest Video Corp.*, 406 U.S. 649 (1972) (upholding the Commission’s regulation of cable television under the agency’s ancillary jurisdictional authority, where regulations promoted long-established statutory goals of broadcast regulation); *Computer and Commc’ns Indust. Ass’n v. FCC*, 693 F.2d 198 (D.C. Cir. 1982) (upholding the Commission’s regulation of enhanced services and customer premises equipment pursuant to ancillary authority, where regulations were deemed necessary to assure reasonable rates for wire communications services).

⁴²² We also note that the Spectrum Act includes text messaging within its definition of “emergency call.” See Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. No. 112-96, §§ 6001(13), 6503, 126 Stat. 156 (2012) (Spectrum Act); see also Spectrum Act §§ 6001(22), 6503. We seek comment on whether Congress intended the definition and its use in the Spectrum Act to have any direct application to the questions raised here.

treated as a “permit-but-disclose” proceedings in accordance with the Commission’s *ex parte* rules.⁴²³ Persons making *ex parte* presentations must file a copy of any written presentation or a memorandum summarizing any oral presentation within two business days after the presentation (unless a different deadline applicable to the Sunshine period applies). Persons making oral *ex parte* presentations are reminded that memoranda summarizing the presentation must: (1) list all persons attending or otherwise participating in the meeting at which the *ex parte* presentation was made; and (2) summarize all data presented and arguments made during the presentation. If the presentation consisted in whole or in part of the presentation of data or arguments already reflected in the presenter’s written comments, memoranda, or other filings in the proceeding, the presenter may provide citations to such data or arguments in his or her prior comments, memoranda, or other filings (specifying the relevant page and/or paragraph numbers where such data or arguments can be found) in lieu of summarizing them in the memorandum. Documents shown or given to Commission staff during *ex parte* meetings are deemed to be written *ex parte* presentations and must be filed consistent with rule 1.1206(b). In proceedings governed by rule 1.49(f) or for which the Commission has made available a method of electronic filing, written *ex parte* presentations and memoranda summarizing oral *ex parte* presentations, and all attachments thereto, must be filed through the electronic comment filing system available for that proceeding, and must be filed in their native format (*e.g.*, .doc, .xml, .ppt, searchable .pdf). Participants in this proceeding should familiarize themselves with the Commission’s *ex parte* rules.

B. Comment Filing Procedures

174. Pursuant to sections 1.415 and 1.419 of the Commission’s rules, 47 CFR §§ 1.415, 1.419, interested parties may file comments and reply comments in response to this *Further Notice of Proposed Rulemaking* on or before the dates indicated on the first page of this document. Comments may be filed using the Commission’s Electronic Comment Filing System (ECFS). See *Electronic Filing of Documents in Rulemaking Proceedings*, 63 FR 24121 (1998).

- Electronic Filers: Comments may be filed electronically using the Internet by accessing the ECFS: <http://fjallfoss.fcc.gov/ecfs2/>.
- Paper Filers: Parties that choose to file by paper must file an original and one copy of each filing. If more than one docket or rulemaking number appears in the caption of this proceeding, filers must submit two additional copies for each additional docket or rulemaking number.

Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail. All filings must be addressed to the Commission’s Secretary, Office of the Secretary, Federal Communications Commission.

- All hand-delivered or messenger-delivered paper filings for the Commission’s Secretary must be delivered to FCC Headquarters at 445 12th St., SW, Room TW-A325, Washington, DC 20554. The filing hours are 8:00 a.m. to 7:00 p.m. All hand deliveries must be held together with rubber bands or fasteners. Any envelopes and boxes must be disposed of before entering the building.
- Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9300 East Hampton Drive, Capitol Heights, MD 20743.

⁴²³ 47 C.F.R. §§ 1.1200 *et seq.*

- U.S. Postal Service first-class, Express, and Priority mail must be addressed to 445 12th Street, SW, Washington DC 20554.

C. Accessible Formats

175. To request materials in accessible formats for people with disabilities (braille, large print, electronic files, audio format), send an e-mail to fcc504@fcc.gov or call the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice), 202-418-0432 (TTY).

D. Regulatory Flexibility Analysis

176. As required by the Regulatory Flexibility Act of 1980, *see* 5 U.S.C. § 604, the Commission has prepared an Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on small entities of the policies and rules addressed in this document. The IRFA is set forth in Appendix B. Written public comments are requested in the IRFA. These comments must be filed in accordance with the same filing deadlines as comments filed in response to this *Further Notice of Proposed Rulemaking* as set forth on the first page of this document, and have a separate and distinct heading designating them as responses to the IRFA.

E. Paperwork Reduction Analysis

177. The *Further Notice of Proposed Rulemaking* contains proposed new information collection requirements. The Commission, as part of its continuing effort to reduce paperwork burdens, invites the general public and OMB to comment on the information collection requirements contained in this document, as required by PRA. In addition, pursuant to the Small Business Paperwork Relief Act of 2002,⁴²⁴ we seek specific comment on how we might “further reduce the information collection burden for small business concerns with fewer than 25 employees.”⁴²⁵

V. ORDERING CLAUSES

178. IT IS FURTHER ORDERED, pursuant to Sections 1, 2, 4(i), 7, 10, 201, 214, 222, 251(e), 301, 302, 303, 303(b), 303(r), 307, 307(a), 309, 309(j)(3), 316, 316(a), 332, 615a, 615a-1, 615b, 615c(a), 615c(c), 615c(g), and 615(c)(1) of the Communications Act of 1934, 47 U.S.C. §§ 151, 152(a), 154(i), 157, 160, 201, 214, 222, 251(e), 301, 302, 303, 303(b), 303(r), 307, 307(a), 309, 309(j)(3), 316, 316(a), 332, 615a, 615a-1, 615b, 615c, 615c(c), 615c(g), and 615(c)(1) that this *Further Notice of Proposed Rulemaking* is hereby ADOPTED.

179. IT IS FURTHER ORDERED that the Commission’s Consumer and Governmental Affairs Bureau, Reference Information Center, SHALL SEND a copy of *this Further Notice of Proposed Rulemaking*, including the Initial Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch
Secretary

⁴²⁴ Pub. L. No. 107-198.

⁴²⁵ 44 U.S.C. § 3506(c)(4).

APPENDIX A

Initial Regulatory Flexibility Analysis

1. As required by the Regulatory Flexibility Act of 1980, as amended (RFA),¹ the Commission has prepared this present Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact of the proposal described in the attached Further Notice of Proposed Rulemaking on small entities. Written public comments are requested on this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines for comments in the *Further Notice of Proposed Rulemaking*. The Commission will send a copy of the *Further Notice of Proposed Rulemaking*, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration (SBA).² In addition, the *Further Notice of Proposed Rulemaking* and IRFA (or summaries thereof) will be published in the Federal Register.³

A. Need for, and Objectives of, the Proposed Rules

2. Wireless consumers are increasingly using text messaging as a means of everyday communication on a variety of platforms. The legacy 911 system, however, does not support text messaging as a means of reaching emergency responders, leading to potential consumer confusion and even to possible danger. As consumer use of carrier-based and third party-provided texting applications expands and evolves, the 911 system must also evolve to enable wireless consumers to reach 911 in those emergency situations where a voice call is not feasible or appropriate.

3. In this *Further Notice of Proposed Rulemaking*, we propose rules that will enable Americans to send text messages to 911 (text-to-911) and that will educate and inform consumers regarding the future availability and appropriate use of text-to-911. Specifically, we propose to require all wireless carriers and providers of “interconnected” text messaging applications⁴ to support the ability of consumers to send text messages to 911 in all areas throughout the nation where 911 Public Safety Answering Points (PSAPs) are also prepared to receive the texts. In addition, to inform consumers and prevent confusion, we propose to require all wireless carriers and interconnected text message providers to send automated “bounce back” error messages to consumers attempting to text 911 when the service is not available.

4. Our proposals build on the recently filed voluntary commitment by the four largest wireless carriers – in an agreement with the National Emergency Number Association (NENA), and the Association of Public Safety Communications Officials (APCO) (Carrier-NENA-APCO Agreement) --

¹ See 5 U.S.C. § 603. The RFA, see 5 U.S.C. § 601 – 612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

² See 5 U.S.C. § 603(a).

³ See 5 U.S.C. § 603(a).

⁴ In this *Further Notice of Proposed Rulemaking*, “text messaging” refers to any service that allows a mobile device to send information consisting of text to other mobile devices by using domestic telephone numbers. Examples of text messaging include Short Message Service (SMS), Multimedia Messaging Service (MMS), and two-way “interconnected text” applications. “Interconnected text” applications use IP-based protocols to deliver text messages to a service provider and the service provider then delivers the text messages to destinations identified by a telephone number, using either IP-based or SMS protocols.

to make text-to-911 available to their customers by May 15, 2014, and to provide automatic bounce back messages across their networks by June 30, 2013.⁵ The baseline requirements we propose in this Further Notice are modeled on the Carrier-NENA-APCO Agreement, and we seek comment on whether all carriers, including regional, small and rural carriers, and all “interconnected text” providers can achieve these milestones in the same or similar timeframes. Moreover, to allow for the possibility of implementing our bounce back proposal by June 30, 2013, we are seeking comment on this portion of the *Further Notice* on an accelerated basis. Moreover, in light of the importance of these issues, we intend to resolve promptly the questions raised in the remaining portion of the *Further Notice* in 2013.

5. Our proposal to add text capability to the 911 system will vastly enhance the system’s accessibility for over 40 million Americans with hearing or speech disabilities. It will also provide a vital and lifesaving alternative to the public in situations where 911 voice service is unavailable or placing a voice call could endanger the caller. Indeed, as recent history has shown, text messaging is often the most reliable means of communications during disasters where voice calls cannot be completed due to capacity constraints. Finally, implementing text-to-911 represents a crucial next step in the ongoing transition of the legacy 911 system to a Next Generation 911 (NG911) system that will support not only text but will also enable consumers to send photos, videos, and data to PSAPs, enhancing the information available to first responders for assessing and responding to emergencies.

6. Our proposed approach to text-to-911 is also based on the presumption that consumers in emergency situations should be able to communicate using the text applications they are most familiar with from everyday use. Currently, the most commonly used texting technology is Short Message Service (SMS), which is available, familiar, and widely used by virtually all wireless consumers.⁶ In the Carrier-NENA-APCO Agreement, the four major carriers have indicated that they intend to use SMS-based text for their initial text-to-911 deployments,⁷ and we expect other initial deployments to be similarly SMS-based.

7. At the same time, we do not propose to limit our focus to SMS-based text. As a result of the rapid proliferation of smartphones and other advanced mobile devices, some consumers are beginning to move away from SMS to other IP-based text applications, including downloadable software applications provided by parties other than the underlying carrier.⁸ To the extent that consumers gravitate to such applications as their primary means of communicating by text, they may reasonably come to expect these applications to also support text-to-911, as consumer familiarity is vital in emergency situations where seconds matter. Therefore, in this Further Notice, we seek to ensure

⁵ 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). (Carrier-NENA-APCO Agreement)

⁶ See Pew Internet & American Life Project, “Cell Phones and American Adults,” (Sept. 2010) at 5, 21, *available at* http://www.afpnet.org/files/ContentDocuments/PEW%20Research_Cell%20Phone%20Use_sep%202010.pdf (last accessed Nov. 13, 2012) (determining that “at least 72% of all U.S. cell phone users have used SMS at least once.”). For the 12 month period ending on June 30, 2012, CTIA reports that 2.27 trillion text messages were sent, as well as 5.8 billion MMS messages. See http://files.ctia.org/pdf/CTIA_Survey_MY_2012_Graphics-final.pdf (last accessed Nov. 19, 2012).

⁷ Carrier-NENA-APCO Agreement at 3.

⁸ See Chen, Brian, “Apps Redirect Text Messages, and Profits, From Cellular Providers,” N.Y. TIMES, Dec. 4, 2012, *available at* http://www.nytimes.com/2012/12/05/technology/free-messaging-apps-siphon-profits-from-cellular-providers.html?nl=todaysheadlines&emc=edit_th_20121205&_r=0 (last accessed Dec. 5, 2012).

that consumers ultimately have access to the same text-to-911 capabilities on the full array of texting applications that they use for ubiquitous communication – regardless of provider or platform. We also propose that service providers who offer SMS-based text-to-911 should have the flexibility to migrate their customers to other text-to-911 applications.

8. While our proposal is designed to accelerate the nationwide availability of text-to-911, we recognize that deployment will not be uniform, *e.g.*, during the transition period, text-to-911 may be available in certain geographic areas while it is not available in others, or may be supported by certain carriers but not by others. This creates the risk of consumer confusion about the availability of text-to-911 as the transition proceeds – indeed, there is evidence that many consumers erroneously believe that they can *already* reach 911 by text, and that some have attempted to do so.⁹ Rapid implementation of the bounce back notification mechanism that we propose in this Further Notice is therefore critical to informing consumers and lessening potential confusion about text-to-911 availability. In addition, we intend to begin work immediately with PSAPs, carriers, service providers, disability organizations, consumer groups, and others to educate and inform consumers regarding the transition, local availability, and appropriate use of text-to-911.

B. Legal Basis

9. The legal basis for any action that may be taken pursuant to this Second Further Notice of Proposed Rulemaking is contained in Sections 1, 2, 4(i), 7, 10, 201, 214, 222, 251(e), 301, 302, 303, 303(b), 303(r), 307, 307(a), 309, 309(j)(3), 316, 316(a), 332, 615a, 615a-1, 615b, 615c(a), 615c(c), 615c(g), and 615(c)(1) of the Communications Act of 1934, 47 U.S.C. §§ 151, 152(a), 154(i), 157, 160, 201, 214, 222, 251(e), 301, 302, 303, 303(b), 303(r), 307, 307(a), 309, 309(j)(3), 316, 316(a), 332, 615a, 615a-1, 615b, 615c, 615c(c), 615c(g), and 615(c)(1).

C. Description and Estimate of the Number of Small Entities to Which the Proposed Rules Would Apply

10. The RFA directs agencies to provide a description of and, where feasible, an estimate of the number of small entities that may be affected by the proposed rules.¹⁰ The RFA generally defines the term “small entity” as having the same meaning as the terms “small business,” “small organization,” and “small governmental jurisdiction.”¹¹ In addition, the term “small business” has the same meaning as the term “small business concern” under the Small Business Act.¹² A small business concern is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).¹³

11. *Small Businesses, Small Organizations, and Small Governmental Jurisdictions.* Our

⁹ For example, the North Central Texas Council of Governments (NCTCOG) recently conducted a survey which found that approximately one-third of their population believes that they can text-to-911 today. *See* Letter from Christy Williams, 9-1-1 Program Manager, NCTCOG, to David S. Turetsky, Chief, Public Safety and Homeland Security Bureau, Federal Communications Commission (Nov. 1, 2012).

¹⁰ 5 U.S.C. §§ 603(b)(3), 604(a)(3).

¹¹ 5 U.S.C. § 601(6).

¹² 5 U.S.C. § 601(3) (incorporating by reference the definition of “small business concern” in the Small Business Act, 15 U.S.C. § 632). Pursuant to 5 U.S.C. § 601(3), the statutory definition of a small business applies “unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such terms which are appropriate to the activities of the agency and publishes such definitions(s) in the Federal Register.”

¹³ 15 U.S.C. § 632.

action may, over time, affect small entities that are not easily categorized at present. We therefore describe here, at the outset, three comprehensive, statutory small entity size standards.¹⁴ First, nationwide, there are a total of approximately 27.5 million small businesses, according to the SBA.¹⁵ In addition, a “small organization” is generally “any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.”¹⁶ Nationwide, as of 2007, there were approximately 1,621,315 small organizations.¹⁷ Finally, the term “small governmental jurisdiction” is defined generally as “governments of cities, towns, townships, villages, school districts, or special districts, with a population of less than fifty thousand.”¹⁸ Census Bureau data for 2011 indicate that there were 89,476 local governmental jurisdictions in the United States.¹⁹ We estimate that, of this total, as many as 88,506 entities may qualify as “small governmental jurisdictions.”²⁰ Thus, we estimate that most governmental jurisdictions are small.

1. Telecommunications Service Entities

a. Wireless Telecommunications Service Providers

12. Pursuant to 47 C.F.R. § 20.18(a), the Commission’s 911 service requirements are only applicable to Commercial Mobile Radio Service (CMRS) “[providers], excluding mobile satellite service operators, to the extent that they: (1) Offer real-time, two way switched voice service that is interconnected with the public switched network; and (2) Utilize an in-network switching facility that enables the provider to reuse frequencies and accomplish seamless hand-offs of subscriber calls. These requirements are applicable to entities that offer voice service to consumers by purchasing airtime or capacity at wholesale rates from CMRS licensees.”

13. Below, for those services subject to auctions, we note that, as a general matter, the number of winning bidders that qualify as small businesses at the close of an auction does not necessarily represent the number of small businesses currently in service. Also, the Commission does not generally track subsequent business size unless, in the context of assignments or transfers, unjust enrichment issues are implicated.

14. *Wireless Telecommunications Carriers (except satellite)*. This industry comprises

¹⁴ See 5 U.S.C. §§ 601(3)–(6).

¹⁵ See SBA, Office of Advocacy, “Frequently Asked Questions,” <http://web.sba.gov/faqs> (last accessed Dec. 12, 2012; figures are from 2009).

¹⁶ 5 U.S.C. § 601(4).

¹⁷ INDEPENDENT SECTOR, THE NEW NONPROFIT ALMANAC & DESK REFERENCE (2010).

¹⁸ 5 U.S.C. § 601(5).

¹⁹ U.S. CENSUS BUREAU, STATISTICAL ABSTRACT OF THE UNITED STATES: 2011, Table 427 (2007).

²⁰ The 2007 U.S. Census data for small governmental organizations are not presented based on the size of the population in each such organization. There were 89,476 small governmental organizations in 2007. If we assume that county, municipal, township and school district organizations are more likely than larger governmental organizations to have populations of 50,000 or less, the total of these organizations is 52,125. If we make the same assumption about special districts, and also assume that special districts are different from county, municipal, township, and school districts, in 2007 there were 37,381 special districts. Therefore, of the 89,476 small governmental organizations documented in 2007, as many as 89,506 may be considered small under the applicable standard. This data may overestimate the number of such organizations that has a population of 50,000 or less. U.S. CENSUS BUREAU, STATISTICAL ABSTRACT OF THE UNITED STATES 2011, Tables 427, 426 (Data cited therein are from 2007).

establishments engaged in operating and maintaining switching and transmission facilities to provide communications via the airwaves. Establishments in this industry have spectrum licenses and provide services using that spectrum, such as cellular phone services, paging services, wireless Internet access, and wireless video services.²¹ The appropriate size standard under SBA rules is for the category Wireless Telecommunications Carriers. The size standard for that category is that a business is small if it has 1,500 or fewer employees.²² For this category, census data for 2007 show that there were 11,163 establishments that operated for the entire year.²³ Of this total, 10,791 establishments had employment of 999 or fewer employees and 372 had employment of 1000 employees or more.²⁴ Thus under this category and the associated small business size standard, the Commission estimates that the majority of wireless telecommunications carriers (except satellite) are small entities that may be affected by our proposed action.²⁵

15. *Wireless Service Providers.* The SBA has developed a small business size standard for wireless firms within the two broad economic census categories of “Paging” and “Cellular and Other Wireless Telecommunications.” Under both categories, the SBA deems a wireless business to be small if it has 1,500 or fewer employees. For the census category of Paging, Census Bureau data for 2002 show that there were 807 firms in this category that operated for the entire year. Of this total, 804 firms had employment of 999 or fewer employees, and three firms had employment of 1,000 employees or more. Thus, under this category and associated small business size standard, the majority of firms can be considered small. For the census category of Cellular and Other Wireless Telecommunications, Census Bureau data for 2002 show that there were 1,397 firms in this category that operated for the entire year. Of this total, 1,378 firms had employment of 999 or fewer employees, and 19 firms had employment of 1,000 employees or more. Thus, under this second category and size standard, the majority of firms can, again, be considered small.

16. *Incumbent Local Exchange Carriers (Incumbent LECs).* Neither the Commission nor the SBA has developed a small business size standard specifically for incumbent local exchange services. The appropriate size standard under SBA rules is for the category Wired Telecommunications Carriers. Under that size standard, such a business is small if it has 1,500 or fewer employees.²⁶ Census Bureau data for 2007, which now supersede data from the 2002 Census, show that there were 3,188 firms in this category that operated for the entire year. Of this total, 3,144 had employment of 999 or fewer, and 44 firms had had employment of 1000 or more. According to Commission data, 1,307 carriers reported that they were incumbent local exchange service providers.²⁷ Of these 1,307 carriers,

²¹ U.S. Census Bureau, North American Industry Classification System, Definition of “Wireless Telecommunications Carriers (except Satellite),” NAICS code 517210, available at <http://www.census.gov/cgi-bin/sssd/naics/naicsrch?code=517210&search=2007%20NAICS%20Search> (last accessed Dec. 12, 2012).

²² See *id.* See also 13 C.F.R. § 121.201, NAICS code 517210.

²³ U.S. Census Bureau, Subject Series: Information, Table 5, “Establishment and Firm Size: Employment Size of Firms for the United States: 2007 NAICS Code 517210” (issued Nov. 2010), available at http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ECN_2007_US_51SSSZ2&prodType=table (last accessed Dec. 12, 2012).

²⁴ *Id.* Available census data do not provide a more precise estimate of the number of firms that have employment of 1,500 or fewer employees; the largest category provided is for firms with “100 employees or more.”

²⁵ *Id.*

²⁶ 13 C.F.R. § 121.201, NAICS code 517110.

²⁷ See *Trends in Telephone Service*, Federal Communications Commission, Wireline Competition Bureau, Industry Analysis and Technology Division at Table 5.3 (Sept. 2010) (*Trends in Telephone Service*).

an estimated 1,006 have 1,500 or fewer employees and 301 have more than 1,500 employees.²⁸ Consequently, the Commission estimates that most providers of local exchange service are small entities that may be affected by the rules and policies proposed in the Notice. Thus under this category and the associated small business size standard, the majority of these incumbent local exchange service providers can be considered small.²⁹

17. *A Competitive Local Exchange Carriers (Competitive LECs), Competitive Access Providers (CAPs), Shared-Tenant Service Providers, and Other Local Service Providers.* Neither the Commission nor the SBA has developed a small business size standard specifically for these service providers. The appropriate size standard under SBA rules is for the category Wired Telecommunications Carriers. Under that size standard, such a business is small if it has 1,500 or fewer employees.³⁰ Census Bureau data for 2007, which now supersede data from the 2002 Census, show that there were 3,188 firms in this category that operated for the entire year. Of this total, 3,144 had employment of 999 or fewer, and 44 firms had had employment of 1,000 employees or more. Thus under this category and the associated small business size standard, the majority of these Competitive LECs, CAPs, Shared-Tenant Service Providers, and Other Local Service Providers can be considered small entities.³¹ According to Commission data, 1,442 carriers reported that they were engaged in the provision of either competitive local exchange services or competitive access provider services.³² Of these 1,442 carriers, an estimated 1,256 have 1,500 or fewer employees and 186 have more than 1,500 employees.³³ In addition, 17 carriers have reported that they are Shared-Tenant Service Providers, and all 17 are estimated to have 1,500 or fewer employees.³⁴ In addition, 72 carriers have reported that they are Other Local Service Providers.³⁵ Of the 72, seventy have 1,500 or fewer employees and two have more than 1,500 employees.³⁶ Consequently, the Commission estimates that most providers of competitive local exchange service, competitive access providers, Shared-Tenant Service Providers, and Other Local Service Providers are small entities that may be affected by rules adopted pursuant to the Notice.

18. *Broadband Personal Communications Service.* The broadband personal communications services (PCS) spectrum is divided into six frequency blocks designated A through F, and the Commission has held auctions for each block. The Commission initially defined a “small business” for C- and F-Block licenses as an entity that has average gross revenues of \$40 million or less in the three previous calendar years.³⁷ For F-Block licenses, an additional small business size standard

²⁸ See *id.*

²⁹ See http://factfinder.census.gov/servlet/IBQTable?_bm=y&-fds_name=EC0700A1&-geo_id=&-skip=600&-ds_name=EC0751SSSZ5&-lang=en.

³⁰ 13 C.F.R. § 121.201, NAICS code 517110.

³¹ See http://factfinder.census.gov/servlet/IBQTable?_bm=y&-fds_name=EC0700A1&-geo_id=&-skip=600&-ds_name=EC0751SSSZ5&-lang=en.

³² See *Trends in Telephone Service* at Table 5.3.

³³ See *id.*

³⁴ See *id.*

³⁵ See *id.*

³⁶ See *id.*

³⁷ See Amendment of Parts 20 and 24 of the Commission’s Rules – Broadband PCS Competitive Bidding and the Commercial Mobile Radio Service Spectrum Cap; Amendment of the Commission’s Cellular/PCS Cross- (continued....)

for “very small business” was added and is defined as an entity that, together with its affiliates, has average gross revenues of not more than \$15 million for the preceding three calendar years.³⁸ These small business size standards, in the context of broadband PCS auctions, have been approved by the SBA.³⁹ No small businesses within the SBA-approved small business size standards bid successfully for licenses in Blocks A and B. There were 90 winning bidders that claimed small business status in the first two C-Block auctions. A total of 93 bidders that claimed small business status won approximately 40 percent of the 1,479 licenses in the first auction for the D, E, and F Blocks.⁴⁰ On April 15, 1999, the Commission completed the reauction of 347 C-, D-, E-, and F-Block licenses in Auction No. 22.⁴¹ Of the 57 winning bidders in that auction, 48 claimed small business status and won 277 licenses.

19. On January 26, 2001, the Commission completed the auction of 422 C and F Block Broadband PCS licenses in Auction No. 35. Of the 35 winning bidders in that auction, 29 claimed small business status.⁴² Subsequent events concerning Auction 35, including judicial and agency determinations, resulted in a total of 163 C and F Block licenses being available for grant. On February 15, 2005, the Commission completed an auction of 242 C-, D-, E-, and F-Block licenses in Auction No. 58. Of the 24 winning bidders in that auction, 16 claimed small business status and won 156 licenses.⁴³ On May 21, 2007, the Commission completed an auction of 33 licenses in the A, C, and F Blocks in Auction No. 71.⁴⁴ Of the 12 winning bidders in that auction, five claimed small business status and won 18 licenses.⁴⁵ On August 20, 2008, the Commission completed the auction of 20 C-, D-, E-, and F-Block Broadband PCS licenses in Auction No. 78.⁴⁶ Of the eight winning bidders for Broadband PCS licenses in that auction, six claimed small business status and won 14 licenses.⁴⁷

20. *Narrowband Personal Communications Services.* To date, two auctions of narrowband personal communications services (PCS) licenses have been conducted. For purposes of the two

(Continued from previous page) _____

Ownership Rule; WT Docket No. 96-59, GN Docket No. 90-314, *Report and Order*, 11 FCC Rcd 7824, 7850–52, paras. 57–60 (1996) (“*PCS Report and Order*”); *see also* 47 C.F.R. § 24.720(b).

³⁸ *See PCS Report and Order*, 11 FCC Rcd at 7852 ¶ 60.

³⁹ *See* Letter from Aida Alvarez, Administrator, Small Business Administration, to Amy Zoslov, Chief, Auctions and Industry Analysis Division, Wireless Telecommunications Bureau, Federal Communications Commission (Dec. 2, 1998) (Alvarez Letter 1998).

⁴⁰ *See* Broadband PCS, D, E and F Block Auction Closes, *Public Notice*, Doc. No. 89838 (rel. Jan. 14, 1997).

⁴¹ *See* C, D, E, and F Block Broadband PCS Auction Closes, *Public Notice*, 14 FCC Rcd 6688 (WTB 1999). Before Auction No. 22, the Commission established a very small standard for the C Block to match the standard used for F Block. Amendment of the Commission’s Rules Regarding Installment Payment Financing for Personal Communications Services (PCS) Licensees, WT Docket No. 97-82, *Fourth Report and Order*, 13 FCC Rcd 15743, 15768, ¶ 46 (1998).

⁴² *See* C and F Block Broadband PCS Auction Closes; Winning Bidders Announced, *Public Notice*, 16 FCC Rcd 2339 (WTB 2001).

⁴³ *See* Broadband PCS Spectrum Auction Closes; Winning Bidders Announced for Auction No. 58, *Public Notice*, 20 FCC Rcd 3703 (WTB 2005).

⁴⁴ *See* Auction of Broadband PCS Spectrum Licenses Closes; Winning Bidders Announced for Auction No. 71, *Public Notice*, 22 FCC Rcd 9247 (WTB 2007).

⁴⁵ *Id.*

⁴⁶ *See* Auction of AWS-1 and Broadband PCS Licenses Closes; Winning Bidders Announced for Auction 78, *Public Notice*, 23 FCC Rcd 12749 (WTB 2008).

⁴⁷ *Id.*

auctions that have already been held, “small businesses” were entities with average gross revenues for the prior three calendar years of \$40 million or less. Through these auctions, the Commission has awarded a total of 41 licenses, out of which 11 were obtained by small businesses. To ensure meaningful participation of small business entities in future auctions, the Commission has adopted a two-tiered small business size standard in the Narrowband PCS Second Report and Order.⁴⁸ A “small business” is an entity that, together with affiliates and controlling interests, has average gross revenues for the three preceding years of not more than \$40 million. A “very small business” is an entity that, together with affiliates and controlling interests, has average gross revenues for the three preceding years of not more than \$15 million. The SBA has approved these small business size standards.⁴⁹

21. *Specialized Mobile Radio.* The Commission awards “small entity” bidding credits in auctions for Specialized Mobile Radio (SMR) geographic area licenses in the 800 MHz and 900 MHz bands to firms that had revenues of no more than \$15 million in each of the three previous calendar years.⁵⁰ The Commission awards “very small entity” bidding credits to firms that had revenues of no more than \$3 million in each of the three previous calendar years.⁵¹ The SBA has approved these small business size standards for the 900 MHz Service.⁵² The Commission has held auctions for geographic area licenses in the 800 MHz and 900 MHz bands. The 900 MHz SMR was completed in 1996. Sixty bidders claiming that they qualified as small businesses under the \$15 million size standard won 263 geographic area licenses in the 900 MHz SMR band. The 800 MHz SMR auction for the upper 200 channels was conducted in 1997. Ten bidders claiming that they qualified as small businesses under the \$15 million size standard won 38 geographic area licenses for the upper 200 channels in the 800 MHz SMR band.⁵³ A second auction for the 800 MHz band was conducted in 2002 and included 23 BEA licenses. One bidder claiming small business status won five licenses.⁵⁴

22. The auction of the 1,050 800 MHz SMR geographic area licenses for the General Category channels was conducted in 2000. Eleven bidders won 108 geographic area licenses for the General Category channels in the 800 MHz SMR band qualified as small businesses under the \$15 million size standard.⁵⁵ In an auction completed in 2000, a total of 2,800 Economic Area licenses in the lower 80 channels of the 800 MHz SMR service were awarded⁵⁶. Of the 22 winning bidders, 19 claimed “small business” status and won 129 licenses. Thus, combining all three auctions, 40 winning

⁴⁸ Amendment of the Commission’s Rules to Establish New Personal Communications Services, Narrowband PCS, GEN Docket No. 90-314, ET Docket No. 92-100, PP Docket No. 93-253, *Second Report and Order and Second Further Notice of Proposed Rulemaking*, 15 FCC Rcd 10456 (2000).

⁴⁹ See Alvarez Letter 1998.

⁵⁰ 47 C.F.R. § 90.814(b)(1).

⁵¹ *Id.*

⁵² See Letter from Aida Alvarez, Administrator, Small Business Administration, to Thomas Sugrue, Chief, Wireless Telecommunications Bureau, Federal Communications Commission, (Aug. 10, 1999) (Alvarez Letter 1999).

⁵³ See Correction to Public Notice DA 96-586 ‘FCC Announces Winning Bidders in the Auction of 1020 Licenses to Provide 900 MHz SMR in Major Trading Areas,’ *Public Notice*, 18 FCC Rcd 18367 (WTB 1996).

⁵⁴ See Multi-Radio Service Auction Closes, *Public Notice*, 17 FCC Rcd 1446 (WTB 2002).

⁵⁵ See 800 MHz Specialized Mobile Radio (SMR) Service General Category (851-854 MHz) and Upper Band (861-865 MHz) Auction Closes; Winning Bidders Announced, *Public Notice*, 15 FCC Rcd 17162 (WTB 2000).

⁵⁶ See 800 MHz SMR Service Lower 80 Channels Auction Closes; Winning Bidders Announced, *Public Notice*, 16 FCC Rcd 1736 (2000).

bidders for geographic licenses in the 800 MHz SMR band claimed status as small business.

23. In addition, there are numerous incumbent site-by-site SMR licensees and licensees with extended implementation authorizations in the 800 and 900 MHz bands. We do not know how many firms provide 800 MHz or 900 MHz geographic area SMR pursuant to extended implementation authorizations, nor how many of these providers have annual revenues of no more than \$15 million. One firm has over \$15 million in revenues. In addition, we do not know how many of these firms have 1500 or fewer employees.⁵⁷ We assume, for purposes of this analysis, that all of the remaining existing extended implementation authorizations are held by small entities, as that small business size standard is approved by the SBA.

24. *AWS Services (1710–1755 MHz and 2110–2155 MHz bands (AWS-1); 1915–1920 MHz, 1995–2000 MHz, 2020–2025 MHz and 2175–2180 MHz bands (AWS-2); 2155–2175 MHz band (AWS-3))*. For the AWS-1 bands, the Commission has defined a “small business” as an entity with average annual gross revenues for the preceding three years not exceeding \$40 million, and a “very small business” as an entity with average annual gross revenues for the preceding three years not exceeding \$15 million.⁵⁸ In 2006, the Commission conducted its first auction of AWS-1 licenses.⁵⁹ In that initial AWS-1 auction, 31 winning bidders identified themselves as very small businesses.⁶⁰ Twenty-six of the winning bidders identified themselves as small businesses.⁶¹ In a subsequent 2008 auction, the Commission offered 35 AWS-1 licenses.⁶² Four winning bidders identified themselves as very small businesses, and three of the winning bidders identified themselves as a small business.⁶³ For AWS-2 and AWS-3, although we do not know for certain which entities are likely to apply for these frequencies, we note that the AWS-1 bands are comparable to those used for cellular service and personal communications service. The Commission has not yet adopted size standards for the AWS-2 or AWS-3 bands but has proposed to treat both AWS-2 and AWS-3 similarly to broadband PCS service and AWS-1 service due to the comparable capital requirements and other factors, such as issues involved in relocating incumbents and developing markets, technologies, and services.⁶⁴

⁵⁷ See generally 13 C.F.R. § 121.201, NAICS code 517210.

⁵⁸ See Service Rules for Advanced Wireless Services in the 1.7 GHz and 2.1 GHz Bands, *Report and Order*, 18 FCC Rcd 25162, App. B (2003), *modified by* Service Rules for Advanced Wireless Services In the 1.7 GHz and 2.1 GHz Bands, *Order on Reconsideration*, 20 FCC Rcd 14058, App. C (2005).

⁵⁹ See Auction of Advanced Wireless Services Licenses Scheduled for June 29, 2006; Notice and Filing Requirements, Minimum Opening Bids, Upfront Payments and Other Procedures for Auction No. 66, AU Docket No. 06-30, *Public Notice*, 21 FCC Rcd 4562 (2006) (*Auction 66 Procedures Public Notice*).

⁶⁰ See “Auction of Advanced Wireless Services Licenses Closes; Winning Bidders Announced for Auction No. 66,” *Public Notice*, 21 FCC Rcd 10,521 (2006) (*Auction 66 Closing Public Notice*).

⁶¹ See *id.*

⁶² See *AWS-1 and Broadband PCS Procedures Public Notice*, 23 FCC Rcd at 7499. Auction 78 also included an auction of broadband PCS licenses.

⁶³ See Auction of AWS-1 and Broadband PCS Licenses Closes, Winning Bidders Announced for Auction 78, Down Payments Due September 9, 2008, FCC Forms 601 and 602 Due September 9, 2008, Final Payments Due September 23, 2008, Ten-Day Petition to Deny Period, *Public Notice*, 23 FCC Rcd 12749 (2008).

⁶⁴ Service Rules for Advanced Wireless Services in the 1915–1920 MHz, 1995–2000 MHz, 2020–2025 MHz and 2175–2180 MHz Bands et al., *Notice of Proposed Rulemaking*, 19 FCC Rcd 19263, App. B (2005); Service Rules for Advanced Wireless Services in the 2155–2175 MHz Band, *Notice of Proposed Rulemaking*, 22 FCC Rcd 17035, App. (2007); Service Rules for Advanced Wireless Services in the 2155–2175 MHz Band, *Further Notice of Proposed Rulemaking*, 23 FCC Rcd 9859, App. B (2008).

25. *Wireless Communications Services.* This service can be used for fixed, mobile, radiolocation, and digital audio broadcasting satellite uses in the 2305-2320 MHz and 2345-2360 MHz bands. The Commission defined “small business” for the wireless communications services (WCS) auction as an entity with average gross revenues of \$40 million for each of the three preceding years, and a “very small business” as an entity with average gross revenues of \$15 million for each of the three preceding years.⁶⁵ The SBA has approved these definitions.⁶⁶ The Commission auctioned geographic area licenses in the WCS service. In the auction, which commenced on April 15, 1997 and closed on April 25, 1997, there were seven bidders that won 31 licenses that qualified as very small business entities, and one bidder that won one license that qualified as a small business entity.*700 MHz Guard Band Licenses.* In the *700 MHz Guard Band Order*, the Commission adopted size standards for “small businesses” and “very small businesses” for purposes of determining their eligibility for special provisions such as bidding credits and installment payments.⁶⁷ A small business in this service is an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding \$40 million for the preceding three years.⁶⁸ Additionally, a “very small business” is an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than \$15 million for the preceding three years.⁶⁹ SBA approval of these definitions is not required.⁷⁰ In 2000, the Commission conducted an auction of 52 Major Economic Area (“MEA”) licenses.⁷¹ Of the 104 licenses auctioned, 96 licenses were sold to nine bidders. Five of these bidders were small businesses that won a total of 26 licenses. A second auction of 700 MHz Guard Band licenses commenced and closed in 2001. All eight of the licenses auctioned were sold to three bidders. One of these bidders was a small business that won a total of two licenses.⁷²

26. *Upper 700 MHz Band Licenses.* In the *700 MHz Second Report and Order*, the

⁶⁵ Amendment of the Commission’s Rules to Establish Part 27, the Wireless Communications Service (WCS), *Report and Order*, 12 FCC Rcd 10785, 10879 ¶ 194 (1997).

⁶⁶ See Alvarez Letter 1998.

⁶⁷ Service Rules for the 746-764 MHz Bands, and Revisions to Part 27 of the Commission’s Rules, *Second Report and Order*, 15 FCC Rcd 5299 (2000). Service rules were amended in 2007, but no changes were made to small business size categories. See Service Rules for the 698-746, 747-762 and 777-792 MHz Bands, WT Docket No. 06-150, Revision of the Commission’s Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems, CC Docket No. 94-102, Section 68.4(a) of the Commission’s Rules Governing Hearing Aid-Compatible Telephones, WT Docket No. 01-309, Biennial Regulatory Review – Amendment of Parts 1, 22, 24, 27, and 90 to Streamline and Harmonize Various Rules Affecting Wireless Radio Services, WT Docket 03-264, Former Nextel Communications, Inc. Upper 700 MHz Guard Band Licenses and Revisions to Part 27 of the Commission’s Rules, WT Docket No. 06-169, Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band, PS Docket No. 06-229, Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Communications Requirements Through the Year 2010, WT Docket No. 96-86, *Report and Order and Further Notice of Proposed Rulemaking*, 22 FCC Rcd 8064 (2007).

⁶⁸ *Id.* at 5343 ¶ 108.

⁶⁹ *Id.*

⁷⁰ *Id.* at 5343 ¶ 108 n.246 (for the 746-764 MHz and 776-704 MHz bands, the Commission is exempt from 15 U.S.C. § 632, which requires Federal agencies to obtain Small Business Administration approval before adopting small business size standards).

⁷¹ See 700 MHz Guard Bands Auction Closes: Winning Bidders Announced, *Public Notice*, 15 FCC Rcd 18026 (WTB 2000).

⁷² See 700 MHz Guard Bands Auction Closes: Winning Bidders Announced, *Public Notice*, 16 FCC Rcd 4590 (WTB 2001).

Commission revised its rules regarding Upper 700 MHz licenses.⁷³ On January 24, 2008, the Commission commenced Auction 73 in which several licenses in the Upper 700 MHz band were available for licensing: 12 Regional Economic Area Grouping licenses in the C Block, and one nationwide license in the D Block.⁷⁴ The auction concluded on March 18, 2008, with 3 winning bidders claiming very small business status (those with attributable average annual gross revenues that do not exceed \$15 million for the preceding three years) and winning five licenses.

27. *Lower 700 MHz Band Licenses.* The Commission previously adopted criteria for defining three groups of small businesses for purposes of determining their eligibility for special provisions such as bidding credits.⁷⁵ The Commission defined a “small business” as an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding \$40 million for the preceding three years.⁷⁶ A “very small business” is defined as an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than \$15 million for the preceding three years.⁷⁷ Additionally, the lower 700 MHz Service had a third category of small business status for Metropolitan/Rural Service Area (MSA/RSA) licenses—“entrepreneur”—which is defined as an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than \$3 million for the preceding three years.⁷⁸ The SBA approved these small size standards.⁷⁹ An auction of 740 licenses (one license in each of the 734 MSAs/RSAs and one license in each of the six Economic Area Groupings (EAGs)) was conducted in 2002. Of the 740 licenses available for auction, 484 licenses were won by 102 winning bidders. Seventy-two of the winning bidders claimed small business, very small business or entrepreneur status and won licenses.⁸⁰ A second auction commenced on May 28, 2003, closed on June 13, 2003, and included 256 licenses.⁸¹ Seventeen winning bidders claimed small or very small business status, and nine winning bidders claimed entrepreneur status.⁸² In 2005, the Commission completed an auction of 5 licenses in the Lower 700 MHz band. All three winning bidders claimed small business status.

28. In 2007, the Commission reexamined its rules governing the 700 MHz band in the *700 MHz Second Report and Order*.⁸³ An auction of A, B and E block 700 MHz licenses was held in 2008.⁸⁴ Twenty winning bidders claimed small business status (those with attributable average annual gross revenues that exceed \$15 million and do not exceed \$40 million for the preceding three years). Thirty three winning bidders claimed very small business status (those with attributable average annual gross revenues that do not exceed \$15 million for the preceding three years).

⁷³ *700 MHz Second Report and Order*, 22 FCC Rcd 15289.

⁷⁴ *See Auction of 700 MHz Band Licenses Closes, Public Notice*, 23 FCC Rcd 4572 (WTB 2008).

⁷⁵ *See Reallocation and Service Rules for the 698–746 MHz Spectrum Band (Television Channels 52–59), Report and Order*, 17 FCC Rcd 1022 (2002) (“*Channels 52–59 Report and Order*”).

⁷⁶ *See id.*, 17 FCC Rcd at 1087–88 ¶ 172.

⁷⁷ *See id.*

⁷⁸ *See id.*, 17 FCC Rcd at 1088 ¶ 173.

⁷⁹ *See Alvarez Letter 1998*.

⁸⁰ *See Lower 700 MHz Band Auction Closes, Public Notice*, 17 FCC Rcd 17272 (2002).

⁸¹ *See Lower 700 MHz Band Auction Closes, Public Notice*, 18 FCC Rcd 11873 (2003).

⁸² *See id.*

⁸³ *700 MHz Second Report and Order, Second Report and Order*, 22 FCC Rcd 15,289, 15,359 n.434 (2007).

⁸⁴ *See Auction of 700 MHz Band Licenses Closes, Public Notice*, 23 FCC Rcd 4572 (2008).

29. *Wireless Telephony.* Wireless telephony includes cellular, personal communications services, and specialized mobile radio telephony carriers. As noted, the SBA has developed a small business size standard for Wireless Telecommunications Carriers (except Satellite).⁸⁵ Under the SBA small business size standard, a business is small if it has 1,500 or fewer employees.⁸⁶ According to *Trends in Telephone Service* data, 413 carriers reported that they were engaged in wireless telephony.⁸⁷ Of these, an estimated 261 have 1,500 or fewer employees and 152 have more than 1,500 employees.⁸⁸ Therefore, more than half of these entities can be considered small.

30. *Satellite Telecommunications Providers.* Two economic census categories address the satellite industry. The first category has a small business size standard of \$15 million or less in average annual receipts, under SBA rules.⁸⁹ The second has a size standard of \$25 million or less in annual receipts.⁹⁰

31. The category of Satellite Telecommunications “comprises establishments primarily engaged in providing telecommunications services to other establishments in the telecommunications and broadcasting industries by forwarding and receiving communications signals via a system of satellites or reselling satellite telecommunications.”⁹¹ Census Bureau data for 2007 show that 512 Satellite Telecommunications firms that operated for that entire year.⁹² Of this total, 464 firms had annual receipts of under \$10 million, and 18 firms had receipts of \$10 million to \$24,999,999.⁹³ Consequently, the Commission estimates that the majority of Satellite Telecommunications firms are small entities that might be affected by our action.

32. The second category, i.e. “All Other Telecommunications” comprises “establishments primarily engaged in providing specialized telecommunications services, such as satellite tracking, communications telemetry, and radar station operation. This industry also includes establishments primarily engaged in providing satellite terminal stations and associated facilities connected with one or more terrestrial systems and capable of transmitting telecommunications to, and receiving telecommunications from, satellite systems. Establishments providing Internet services or Voice over Internet Protocol (VoIP) services via client-supplied telecommunications connections are also included in this industry.”⁹⁴ For this category, Census Bureau data for 2007 show that there were a total of 2,383 firms that operated for the entire year.⁹⁵ Of this total, 2,346 firms had annual receipts of under \$25

⁸⁵ 13 C.F.R. § 121.201, NAICS code 517210.

⁸⁶ *Id.*

⁸⁷ TRENDS IN TELEPHONE SERVICE, tbl. 5.3.

⁸⁸ *Id.*

⁸⁹ 13 C.F.R. § 121.201, NAICS code 517410.

⁹⁰ 13 C.F.R. § 121.201, NAICS code 517919.

⁹¹ U.S. Census Bureau, 2007 NAICS Definitions, “517410 Satellite Telecommunications.”

⁹² See http://factfinder.census.gov/servlet/IBQTable?_bm=y&-geo_id=&-skip=900&-ds_name=EC0751SSSZ4&-lang=en.

⁹³ http://factfinder.census.gov/servlet/IBQTable?_bm=y&-geo_id=&-skip=900&-ds_name=EC0751SSSZ4&-lang=en.

⁹⁴ <http://www.census.gov/cgi-bin/sssd/naics/naicsrch?code=517919&search=2007%20NAICS%20Search>.

⁹⁵ U.S. Census, http://factfinder.census.gov/servlet/IBQTable?_bm=y&-geo_id=&-skip=900&-ds_name=EC0751SSSZ4&-lang=en.

million and 37 firms had annual receipts of \$25 million to \$49,999,999.⁹⁶ Consequently, the Commission estimates that the majority of All Other Telecommunications firms are small entities that might be affected by our action.

b. Equipment Manufacturers

33. *Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing.* The Census Bureau defines this category as follows: “This industry comprises establishments primarily engaged in manufacturing radio and television broadcast and wireless communications equipment. Examples of products made by these establishments are: transmitting and receiving antennas, cable television equipment, GPS equipment, pagers, cellular phones, mobile communications equipment, and radio and television studio and broadcasting equipment.” The SBA has developed a small business size standard for Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing which is: all such firms having 750 or fewer employees. According to Census Bureau data for 2007, there were a total of 939 establishments in this category that operated for part or all of the entire year. Of this total, 784 had less than 500 employees and 155 had more than 100 employees.⁹⁷ Thus, under this size standard, the majority of firms can be considered small.

34. *Semiconductor and Related Device Manufacturing.* These establishments manufacture “computer storage devices that allow the storage and retrieval of data from a phase change, magnetic, optical, or magnetic/optical media. The SBA has developed a small business size standard for this category of manufacturing; that size standard is 500 or fewer employees storage and retrieval of data from a phase change, magnetic, optical, or magnetic/optical media.”⁹⁸ According to data from the 2007 U.S. Census, in 2007, there were 954 establishments engaged in this business. Of these, 545 had from 1 to 19 employees; 219 had from 20 to 99 employees; and 190 had 100 or more employees.⁹⁹ Based on this data, the Commission concludes that the majority of the businesses engaged in this industry are small.

D. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements for Small Entities

35. The *Further Notice of Proposed Rulemaking* does not adopt any recordkeeping or reporting requirements.

E. Steps Taken to Minimize Significant Economic Impact on Small Entities, and Significant Alternatives Considered

36. The RFA requires an agency to describe any significant, specifically small business alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives (among others): “(1) the establishment of differing compliance or reporting

⁹⁶ http://factfinder.census.gov/servlet/IBQTable?_bm=y&-geo_id=&-_skip=900&-ds_name=EC0751SSSZ4&-_lang=en.

⁹⁷ The NAICS Code for this service 334220. See 13 C.F.R 121/201. See also http://factfinder.census.gov/servlet/IBQTable?_bm=y&-fds_name=EC0700A1&-geo_id=&-_skip=300&-ds_name=EC0731SG2&-_lang=en.

⁹⁸ U.S. Census Bureau, 2007 Economic Census, Industry Series: Manufacturing, “Semiconductor and Related Device Manufacturing,” NAICS code 334413.

⁹⁹ http://factfinder.census.gov/servlet/IBQTable?_bm=y&-geo_id=&-_skip=300&-ds_name=EC0731I1&-_lang=en.

requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting requirements under the rule for small entities; (3) the use of performance, rather than design, standards; and (4) and exemption from coverage of the rule, or any part thereof, for small entities.”¹⁰⁰

37. The *FNPRM* analyzes a variety of possible means of implementing near- and long-term text-to-911. Our proposals build on the recently filed voluntary commitment by the four largest wireless carriers – in an agreement with the National Emergency Number Association (NENA), and the Association of Public Safety Communications Officials (APCO) (Carrier-NENA-APCO Agreement) -- to make text-to-911 available to their customers by May 15, 2014, and to provide automatic bounce back messages across their networks by June 30, 2013.¹⁰¹

38. The baseline requirements we propose in this Further Notice are modeled on the Carrier-NENA-APCO Agreement, and we seek comment on whether all carriers, including regional, small and rural carriers, and all “interconnected text” providers can achieve these milestones in the same or similar timeframes.

39. Additionally, the *FNPRM* seeks comment on any significant technical issues that would bear on the achievability of an automatic error messages within the time frame proposed by the Commission by small, regional, or rural CMRS providers.

40. We believe that adopting a mandatory regulatory framework and timetable for implementation of text-to-911 is necessary. While we recognize that substantial progress has been achieved through the voluntary initiatives of the four major CMRS providers, 911 service providers, and PSAPs, we are concerned that continuing to rely solely on voluntary measures could result in the four major CMRS providers implementing text-to-911 while other service providers – including regional, small, and rural CMRS providers and third party interconnected text providers -- do not, or could lead to non-uniform and uncoordinated implementation, inconsistent technological approaches, and widely varying implementation timelines to the detriment of consumers. This in turn could lead to a longer transition period, increased transition costs, and increased consumer confusion regarding when and where text-to-911 will be supported, what functionality it will provide, and when and how consumers should use it where it is available. We seek comment on this analysis and on any alternatives to a mandatory regulatory framework that may better take into account the needs of regional, small, and rural CMRS providers and third party interconnected text providers.

F. Federal Rules that May Duplicate, Overlap, or Conflict with the Proposed Rules

41. <None>

¹⁰⁰ 5 U.S.C. §§ 603(c)(1)-(c)(4).

¹⁰¹ 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, on Dec. 6, 2012. (Carrier-NENA-APCO Agreement)

APPENDIX B**Proposed Rules**

Part 20 of the Code of Federal Regulations is amended as follows:

PART 20 – COMMERCIAL MOBILE RADIO SERVICES

1. The authority for Part 20 is revised to read as follows:

Authority: 47 U.S.C. §§ 151, 152(a), 154(i), 157, 160, 201, 214, 222, 251(e), 301, 302, 303, 303(b), 303(r), 307, 307(a), 309, 309(j)(3), 316, 316(a), 332, 615a, 615a-1, 615b, 615c, 615c(c), 615c(g), and 615(c)(1).

2. Section 20.18 is amended to add a new section 20.18(n):

* * * * *

(n) *Text-messaging for 911.* CMRS providers subject to this section and third party interconnected text providers as defined in subsection (6) of this section shall comply with the following requirements:

(1) CMRS providers subject to this section shall provide an automated error text message that notifies consumers attempting to send text messages to 911 in areas where text-to-911 is unavailable or in other instances where the carrier is unable to transmit the text to the PSAP serving the texting party's location for reasons including, but not limited to, network congestion, the inability of the PSAP to accept such messages, or otherwise. The requirements of this paragraph only apply when the CMRS provider (or the CMRS provider's text-to-911 vendor) has direct control over the transmission of the text message. The automatic notification must include information on how to contact the PSAP. CMRS providers shall meet the requirements of this paragraph no later than June 30, 2013.

(2) No later than May 15, 2014, CMRS providers shall offer their subscribers the capability to send 911 text messages to the appropriate PSAP from any text-capable wireless handset.

(a) CMRS providers must provide their subscribers with at least one pre-installed text-to-911 option per mobile device model under a CMRS provider's direct control. The pre-installed text-to-911 option must be capable of operating over the provider's entire network coverage area. Where a consumer has obtained the device from an unaffiliated third party and uses the device on a CMRS provider's network, CMRS providers must offer a text-to-911 application that the consumer can load on to the device.

(b) To meet the requirement of paragraph (2), CMRS providers may select any reliable method or methods for text routing and delivery. For example, CMRS providers may use Short Message Service (SMS), mobile-switched, or Internet Protocol (IP)-based methods for text routing and delivery.

(3) 911 is the designated short code for text messages sent to PSAPs.

(4) CMRS providers must route all 911 text messages to the appropriate PSAP, based on the cell sector to which the mobile device is connected. In complying with this requirement, CMRS providers must

route text messages to the same PSAP to which they currently route 911 calls, unless the responsible local or state entity designates a different PSAP to receive 911 text messages and informs the carrier of that change.

(5) *Roaming.* When a consumer is roaming, both the home and visiting network operators must cooperate to support the delivery of the text to the appropriate PSAP serving the sender's location.

(6) *Third party interconnected text providers.*

(a) All third-party interconnected text application providers that offer the capability for consumers to send to and receive text messages from text-capable mobile telephone numbers shall send an automated error text message when a user of the application attempts to send an emergency text in an area where text-to-911 is not supported or the provider is otherwise unable to transmit the text to the PSAP for reasons including, but not limited to, network congestion, the inability of the PSAP to accept such messages, or otherwise. The automatic error notification must include information on how to contact the PSAP. Third party interconnected text providers subject to this paragraph shall meet the above requirements no later than June 30, 2013.

(b) No later than May 15, 2014, all third party interconnected text providers that provide the capability for consumers to send to and receive text messages from text-capable mobile telephone numbers must offer the capability described in paragraph (n)(2) during time periods when the mobile device is connected to a CMRS network.

* * * * *

APPENDIX C

CARRIER-NENA-APCO AGREEMENT



December 6, 2012

Chairman Julius Genachowski
Commissioner McDowell
Commissioner Clyburn
Commissioner Rosenworcel
Commissioner Pai
Federal Communications Commission
445 12th Street S.W.
Washington, DC 20554

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

Dear Chairman Genachowski and Commissioners McDowell, Clyburn, Rosenworcel and Pai:

The undersigned signatory text-message service providers have agreed to voluntarily offer their subscribers text-based emergency communication services, in accordance with the Alliance for Telecommunications Industry Solutions (“ATIS”) industry standard solution (currently expected to be completed in the first quarter of 2013), to requesting public safety answering points (“PSAPs”). As a step towards a comprehensive Next Generation 9-1-1 (“NG9-1-1”) system, this voluntary framework for a text-to-9-1-1 solution provides near-term opportunities to meet the emergency communications needs of wireless subscribers who (currently) rely on SMS for everyday communications and individuals who are deaf, hard of hearing or speech impaired. This framework also accommodates the service providers’ need to respond to the rapid evolution of the telecommunications marketplace by deploying whatever successor technologies are deemed appropriate by the service provider to satisfy current and future requirements of the text-to-9-1-1 service.

This voluntary commitment reflects discussion with the signatories and public safety stakeholders, and is intended to reflect and incorporate much of the important work undertaken by public safety, disabilities and industry stakeholders through the Emergency Access Advisory Committee (“EAAC”). As the wireless provider signatories have advised the Commission and the EAAC, SMS is a store-and-forward messaging technology that was never designed nor deployed to provide any time-sensitive, mission-critical service.¹

¹ *Facilitating the Deployment of Text-to-911 and Other Next Generation Applications, Framework for Next Generation 911 Deployment*, Notice of Proposed Rulemaking, FCC 11-134 ¶ 53 (Sept. 22, 2011); *see also*, *Text Messages in a PSAP Environment*, APCO Emerging Technologies (rel July 30, 2012) available at <http://psc.apcointl.org/wp-content/uploads/APCO-Emerging-Tech-Text-to-911-Final1.pdf> and *Texting to 9-1-1: Examining the Design and Limitations of SMS*, 4G Americas (October 2010) available at <http://www.4gamericas.org/documents/SMS%20to%20911%20White%20Paper%20Final%20October%202010.pdf>, but *see*, FCC EAAC, Resolution regarding Text Messaging to 911 (adopted March 30 2012) (recommending Text Messaging to 9-1-1, at a minimum, via SMS); and Presentation of EAAC Working Group 1, Text-to-911 Solutions to 911 Interim to NG911 (Sept. 14, 2012) (outlining key assumptions about Pre-NG911 Interim Text to 911).

Consistent with these parameters, this commitment is being offered through the provision of an interim “best-efforts service” to meet the near term objective of providing a text-based emergency communications until the comprehensive NG9-1-1 system (e.g. ESINet) is developed, deployed and adopted by the wireless industry, public safety community and public.

The terms of this commitment cover only the text-messaging services provided by the signatories. They do not extend to text-messaging applications provided by third parties..

The signatories make the following voluntary commitments:

- 1) Text-to-9-1-1 service would be made available by May 15, 2014, although carriers may choose to implement such a service prior to that date. Once a carrier begins offering a Text-to-9-1-1 solution, valid PSAP requests for Text-to-9-1-1 service will be implemented within a reasonable amount of time of receiving such request, not to exceed six months. A request for service will be considered valid if, at the time the request is made: a) the requesting PSAP represents that it is technically ready to receive 9-1-1 text messages in the format requested; and b) the appropriate local or State 9-1-1 service governing authority has specifically authorized the PSAP to accept and, by extension, the signatory service provider to provide, text-to-9-1-1 service (and such authorization is not subject to dispute).
- 2) Beginning no later than July 1, 2013, the four signatory service providers will voluntarily provide quarterly progress reports to the FCC, NENA, and APCO summarizing the status of the deployment of a national Text-to-9-1-1 service capability. Once a service provider is able to deploy service for capable PSAPs on a national basis, it would no longer be required to provide these status reports.
- 3) Consistent with the draft ATIS Standard for Interim Text-to-9-1-1 service, the PSAPs will select the format for how messages are to be delivered. Incremental costs for delivery of text messages (e.g. additional trunk groups to the PSAP’s premises required to support TTY delivery) will be the responsibility of the PSAP, as determined by individual analysis.
- 4) The signatory service providers will implement a ‘9-1-1’ short code that can be used by customers to send text messages to 9-1-1.
- 5) Before the deployment of Text-to-9-1-1, the signatory service providers will implement a bounce-back (auto-reply) message to alert subscribers attempting to text

an emergency message to instead dial 9-1-1 when Text-to-9-1-1 is unavailable in that area. The signatory service providers will implement the bounce-back (auto-reply) message by June 30, 2013.

- 6) The signatory service providers will meet these commitments independent of their ability to recover these associated costs from state or local governments.
- 7) The signatory service providers (whether individually or through a third party) will work with APCO, NENA, and the FCC to develop an outreach effort to set and manage consumer expectations regarding the availability/limitations of the Text-to-9-1-1 service (including when roaming) and the benefits of using voice calls to 9-1-1 whenever possible, and support APCO and NENA's effort to educate PSAPs on Text-to-9-1-1 generally.
- 8) A voluntary SMS-to-9-1-1 solution will be limited to the capabilities of the existing SMS service offered by a participating wireless service provider on the home wireless network to which a wireless subscriber originates an SMS message. SMS-to-9-1-1 will not be available to wireless subscribers roaming outside of their home wireless network. Each implementation of SMS-to-9-1-1 will be unique to the capabilities of each signatory service provider or its Gateway Service Provider.

Pursuant to Section 1.1206 of the Commission's rules, 47 C.F.R. § 1.1206, this letter is being electronically filed via ECFS with your office and a copy of this submission is being provided to the meeting attendees. Please direct any questions to the undersigned.

Respectfully Submitted,

/s/ Terry Hall
APCO International

/s/ Charles W. McKee
Sprint Nextel

/s/ Robert W. Quinn, Jr.
AT&T

/s/ Kathleen O'Brien Ham
T-Mobile USA

/s/ Barbara Jaeger
NENA- The 9-1-1 Association

/s/ Kathleen Grillo
Verizon

**STATEMENT OF
CHAIRMAN JULIUS GENACHOWSKI**

RE: 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.

Today we are taking an unprecedented step to make text-to-911 available in all parts of the country. For the first time, we are proposing specific requirements and timeframes that will add text capability to the 911 system; expand the accessibility of 911 for all Americans, including millions of people with disabilities; and mark the first major milestone in the nation's migration to Next Generation 911 (NG911). The actions we are taking build on many months of Commission focus in this area, as well as efforts that have been initiated by industry and the 911 community.

Together they bring the benefits of text-to-911 to all Americans more quickly than would otherwise have been possible.

As I said in August 2011, when I announced my five-step action plan to accelerate the deployment of NG911 it's hard to understand why an airline can send a text message if your flight is delayed but you can't send a text message to 911 in an emergency. But the unfortunate fact is you can't, at least not yet. If you are a live witness to a crime and you send a text to 911 for help, it won't be received.

With text messaging so commonplace in everyday life, it is no wonder that many consumers mistakenly believe that they can send a text message to 911. We saw this during Superstorm Sandy when hundreds of people along the East Coast tried to text 911 for help. But those messages were not received by emergency personnel. Nor were the messages received at Virginia Tech when students tried to reach out for help from their besieged classrooms during the terrible shootings there.

However, when text-to-911 has been available, as during trials in Iowa and Vermont, lives have been saved; an attempted suicide was averted and domestic abuse has been prevented.

Last year, I challenged industry and the 911 community to accelerate the nationwide availability of text-to-911. Following trials in Iowa, North Carolina and Vermont in May 2012 Verizon Wireless announced that it would deploy text-to-911 nationwide in 2013 and that deployment started in York County, VA on Monday. AT&T announced in June that it would soon be launching text-to-911 nationwide.

And last week, the four major wireless carriers, with support from leading public safety organizations NENA and APCO, responded definitively to my challenge by committing to make text-to-911 available nationwide by May 15, 2014 to PSAPs that request it. To inform consumers and prevent confusion about text-to-911 availability, the carriers have also committed by June 30, 2013 to provide an automatic "bounce back" message to consumers who attempt to text 911 where the service is not yet available.

I commend the carriers and public safety organizations for this important agreement. I believe the agreement, coupled with our action today, will spur text-to-911 deployment faster than would have been achieved through our regulatory process alone. These combined actions also provide greater certainty to PSAPs about when text-to-911 will be uniformly supported by carriers and other text providers, so that PSAPs can better plan and make decisions regarding when and how to begin receiving text.

We will engage with PSAPs and with state and local governments to encourage and assist them in making this transition both quickly and cost-effectively. We will monitor carrier performance under their

commitments with vigilance; we will take additional action, as necessary, if those commitments are not met; and we will act quickly to address in 2013 the specific proposals we put forward today.

Today's Further Notice of Proposed Rulemaking anticipates that all wireless carriers, as well as providers of "over the top" text messaging that use IP-based or SMS protocols to deliver text messages to destinations identified by a telephone number, will be required to deploy text-to-911 and to provide "bounce back" messages where text-to-911 is not yet available. While more than 90 percent of smartphone users currently use SMS as their form of text messaging, we are taking forward-looking action given the growth of Internet-based text messaging. The Further Notice also tees up for resolution key issues including standards deployment and service deployment, location accuracy, cost recovery, carrier liability.

The Commission will also continue to work with all stakeholders--including 911 authorities, PSAPs, the FCC's Emergency Access Advisory Committee, public safety organizations, disability organizations, consumer groups, and industry--on policy development, consumer education, and public outreach to accelerate the successful rollout of text-to-911.

Until the roll-out of text-to-911 is complete, there are four simple things to remember about text-to-911:

- In an emergency, always make a voice call to 911 if possible.
- In most cases, you cannot reach 911 today by sending a text message.
- In the future, you will be able to text 911 – but you should still make a voice call if you can.
- Follow the latest developments of text-to-911 at www.fcc.gov/text-to-911.

In addition, until text-to-911 is fully rolled out, people with hearing or speech disabilities can continue to use their TTYs or relay services where they can.

Even as we move forward, I encourage other carriers and providers, including over-the-top providers, to begin work now to make text-to-911 available as soon as possible and to make sure their customers and users are well-informed about the transition. It is the right thing to do for consumers.

Finally, today's action is an important part of the FCC's comprehensive strategy to harness the power of new technologies to make the communities we live in safer. We are working on many fronts to ensure that America's communications networks are reliable and resilient – especially during natural disasters, when consumers need help the most. Key to this effort is improving 911 services, both by enhancing legacy 911 systems and by advancing the deployment of NG911 networks that use cutting edge technology to assist first responders in protecting the public. In addition to text-to-911, in the coming months we will be considering ways to improve location accuracy for 911 systems, network reliability and resilience, as well as other measures to ensure that the nation meets our public safety needs.

I would like to thank Claude Stout, Howard Rosenblum, Lise Hamlin, and Christian Vogler, representing the deaf and hard of hearing communities, for being here today. We appreciate all of your hard work and support on these issues.

I would also like to thank Sheri Farinha, who represents deaf and hard of hearing organizations in California but who could not be here today, for her dedication and efforts as well. In addition, I want to thank Barbara Jaeger, Brian Fontes, and Trey Forgety from NENA and Terry Hall from APCO for their hard work, particularly on the voluntary commitment with carriers.

Finally, I thank my colleagues, the staff of the Public Safety and Homeland Security Bureau, the

Consumer and Governmental Affairs Bureau, and the representatives of the public safety organizations, the members of the disability community, and of the companies for their work to make today's action possible.

**STATEMENT OF
COMMISSIONER ROBERT M. McDOWELL**

RE: 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.

To begin, I want to congratulate our colleagues in the private sector for their time and energy in hammering out an agreement to begin the process toward rolling out text-to-911. Our thanks should go to: the Association of Public-Safety Communications Officials; NENA – The 9-1-1 Association; AT&T; Sprint-Nextel; T-Mobile; and Verizon. We are grateful for your work, as well as the important suggestions from the Commission’s Emergency Access Advisory Committee.

Next, a word of caution. The FCC’s action today on text-to-911 should not be misconstrued by anyone that, from this day forward, consumers can actually text to public safety and expect a response. That’s simply not possible in most places. The last result I want emanating from this notice is consumers who may soon end up in a dire circumstance to have the incorrect expectation that they can summon emergency responders via text based on what we are doing today. We are merely laying the groundwork for future action, but we are still very far from that goal.

Having said that, a step toward a more comprehensive upgrade of the nation’s 9-1-1 system, this voluntary framework encompasses a near-term opportunity to meet the emergency communications needs of mobile subscribers who use SMS for day-to-day communications, including individuals who are deaf, hard of hearing or speech-impaired. Just as important, the agreement includes a pledge to work together with the Commission on consumer outreach efforts and education efforts. We are off to a good start and some providers will implement sooner rather than later. Thus, it will take a while before text-to-911 is fully available. We all agree on the importance of managing realistic expectations regarding the availability and limitations of text-to-911.

With respect to the further notice, I am pleased that we continue to ask important questions about the Commission’s legal authority in this area. Ensuring clear and effective communications in times of emergency is a key aspect of the Commission’s mission. I thank Chairman Genachowski for his willingness to accept suggestions that fine-tune our focus on the jurisdictional aspects of this matter. Thank you also to the staff in the Public Safety and Homeland Security Bureau for your work.

**STATEMENT OF
COMMISSIONER MIGNON L. CLYBURN**

RE: 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.

American consumers exchange billions of text messages per day and for some, particularly the young, it is the primary means of peer-to-peer mobile communications engagement. Many of them assume that when it comes to public safety issues, the system is equipped to handle such an exchange. But, as the record shows, we are not there yet. So I am pleased to support this Further Notice of Proposed Rulemaking this afternoon, because promoting

Text-to-9-1-1 will provide citizens with enhanced access to emergency communications, in situations where voice interaction could endanger the caller, or a person with physical challenges is unable to speak. Improving the accessibility of our most advanced technologies is not only the right thing to do, it is what Congress has repeatedly told us—most recently with the CVAA—should be a fundamental goal of communications policy.

When industry demonstrates a credible willingness to achieve these important policy goals, we should give it the flexibility which may be needed to meet those goals in a cost effective manner. It is in that spirit that I wish to commend four nationwide wireless carriers -- AT&T, Verizon, Sprint, and T-Mobile - - for memorializing a document that commits them to improving the safety of mobile wireless consumers. In short, these carriers have agreed to deploy, by June 30, 2013, a mechanism for sending bounce back notifications to subscribers, when text-to-9-1-1 is unavailable in their area, telling them they should make a voice phone call to 9-1-1. They also agree to send text to 9-1-1 to from all their wireless consumers to PSAPs, no later than 2014. This agreement will accelerate progress to more than 90 percent of the nation's wireless consumers.

These carriers have also made another important commitment by way of consumer education and outreach. The carriers have been making the assertion that SMS is a store-and-forward messaging technology that was never designed to provide any time-sensitive, mission-critical service. The vast majority of American consumers are not aware of these limits. So I was glad to see, that these four nationwide companies, as well as APCO and NENA, recognize that and, in conjunction with the FCC, will develop an outreach effort to educate consumers about the capabilities and limits of text to 9-1-1. I encourage the parties who signed the voluntary commitment, to seek the advice of the accessibility advocates, as they take steps to comply with their deployment commitments.

Despite these voluntary commitments, I am very pleased the Chairman decided to circulate this Further Notice, that proposes to adopt the voluntary commitments, as final rules, and intends to finalize those rules next year. I thank the Chairman for agreeing with my recommendation to bolster the consumer education and outreach section of the item and emphasize that we must engage the accessibility advocates as we move forward in the proceeding. I was also pleased to see a clear discussion of which over-the-top applications could be subject to this proposed text to 9-1-1 rules.

Thanks are due to Aaron Garza for his presentation, and I wish to commend David Turetsky, and the staff, for carefully examining the difficult implementation issues raised by these proposals.

**STATEMENT OF
COMMISSIONER JESSICA ROSENWORCEL**

RE: 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.

The first telephone number I taught my children was 911. It is a number that every one of us knows by heart but every one of us hopes that we will never have to use. As the old saying goes, you may only call 911 once in your life, but it will be the most important call you ever make.

The challenge to the continued success of 911 has been the increasing complexity of our communications systems. Every new way of connecting creates new possibilities and new difficulties. Incorporating these new ways of reaching out into the national and local 911 framework can be an arduous process. It requires public safety organizations, carriers, and the Commission to work together. But it is worth the effort. Over time we have successfully expanded 911 service to mobile phones. We have facilitated the development of handset and network solutions for automatic location technology for wireless calls. We have made 911 an essential feature of interconnected VoIP. As a result, we are all safer when the unthinkable occurs.

Today we take steps to bring SMS texting into the 911 fold. Texting has become second nature to millions of Americans. Many of us use our phones for more texting than speaking. We use texting to reach out to friends and family, to confirm plans, to vote in contests, and to donate to charities and campaigns. Now the texting service that has become so essential for so many of us is poised to be there when we reach out in crisis.

From the very beginning of this process, I have been committed to ensuring that this capability is available to everyone as quickly as possible. But the roll-out of any new service can lead to confusion about where it is available and when. When it comes to matters of public safety, our policies have no room for confusion. Simply put, it can be a matter of life and death.

As a result, from the outset I believed that three elements are essential.

First, consumers should have the confidence that there is a firm date by which everyone can text to 911 nationwide.

Second, consumers should receive an immediate notification—a bounce back message—any time their text to 911 does not go through. After all, texting does not have a busy signal; no one should be left wondering whether or not a call for help has been heard.

Third, we need an extensive consumer outreach program. This outreach must involve the Commission, public safety organizations, carriers, and the deaf and hard-of-hearing community all working together.

Early on, I raised these issues with public safety organizations, carriers, and the Chairman. I am grateful that they took my concerns seriously. By coming together, we are able to move faster toward providing texting to 911 at public safety answering points across the country. Let me commend the four national wireless carriers for committing to deliver text to 911 capability to all of their customers by May 2014 and a bounce back message by June 2013. Just as importantly, they have agreed to work with public safety organizations and the Commission to help educate the public about what services are available and when.

I also want to commend the Chairman and his staff. They heard my concerns—and they responded. Their work, along with the tireless efforts of public safety officials, public-spirited commitments from carriers, and advocacy from the disabilities community brought us to this juncture.

But while the commitments made last week are a great start, we must recognize that they apply only to nationwide wireless carriers. Consumers, however, are migrating away from wireless carrier SMS texting. The next generation of texting applications is well on its way, with traditional SMS declining by 2.6 percent during the past year. As application-based texting grows in popularity, revenues from SMS texting are expected to decrease \$54 billion by 2016. The move to the next generation of messaging will not take twenty years. It could happen overnight. We must be ready.

The carriers' voluntary commitments should serve as a model for third-party applications. So I strongly encourage application providers to come to the table. They, too, need to be part of the solution. The deaf and hard-of-hearing rely extensively on these services, and we must make them part of the conversation.

In my first speech after arriving at the Commission, I spoke to public safety officials. I committed to visiting 911 centers across the country. I wanted to see the everyday heroes who staff these answering points and keep calm when calls roll in and crises mount. So far, I have had a chance to see 911 call center operations in California, Virginia, Alaska, Minnesota, and Vermont. It was on my most recent trip to Vermont that I had the privilege of visiting the first statewide text-to-911 trial. I saw first-hand how this technology works, and how it has already saved lives. Today, we take this good example and start the process of expanding it across the country. This is something to celebrate.

Thank you to the Public Safety and Homeland Security Bureau for their fine work and their continued dedication to moving this effort forward.

**STATEMENT OF
COMMISSIONER AJIT PAI**

RE: 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.

Late last week, four nationwide carriers—AT&T, Verizon, Sprint Nextel, and T-Mobile—submitted to the Commission a voluntary commitment to enable text-to-911 on their networks by May 15, 2014. Even sooner, by June 30, 2013, these companies will provide an automatic “bounce back” notification should a 911 text not go through. I commend these carriers for their leadership in this critical endeavor and thank my colleagues for their hard work in forging this agreement.

Congress made clear in the Spectrum Act that establishing a Next Generation 911 system should be a national priority. Providing text-to-911 functionality, in turn, is an important step on the journey of making Next Generation 911 a reality.

It is not an exaggeration to say that this issue can be a matter of life and death. Today, over 40 million Americans with hearing or speech disabilities can find it difficult, if not impossible, to use 911 in an emergency. Enabling them to reach first responders with a text message would help solve this problem. Similarly, an emergency text could be lifesaving to those who are unable to place a voice call due to threatening circumstances, such as domestic abuse. Texting also could be a more reliable way of reaching 911 in areas where network coverage is spotty or a network is congested.

I am encouraged that early text-to-911 trials have proven successful and look forward to reviewing the record that will be compiled in response to today’s Further Notice of Proposed Rulemaking. As we move forward with this proceeding, we should keep a couple of basic principles in mind.

First, we should not hesitate to set aggressive targets for the transition to Next Generation 911, but our goals must also be achievable. It is not in anyone’s interest for us to impose mandates that are impossible to meet. In particular, we must not mislead the public into relying on text-to-911 functionality until it is actually operational, for that could lead to fatal consequences.

Second, we must work together in a cooperative manner with our partners in local governments, who are responsible for the 6,000-plus Public Safety Answering Points (PSAPs) that handle 911 calls throughout the United States. PSAPs were set up to handle basic voice calls, and they have performed that task very well over many years. But they will need to migrate someday soon to a Next Generation 911 system so that they can process not just voice and text, but photos, video, and other data. As today’s FNPRM explains, this transition will be expensive, and it will take time. And in the current economic climate, it will be hard for PSAPs to obtain the funding necessary to provide even an SMS texting solution to carriers. This is a challenge that requires attention from all levels of government.

In closing, while there is a great deal of work yet to do in order to make text-to-911 a reality for all Americans, I am encouraged by the progress we have already made and look forward to continuing to work with my colleagues in aggressively pursuing this critical objective. I would like to thank all the staff of the Public Safety and Homeland Security Bureau (PSHSB) involved in this effort, especially David Turetsky, David Furth, Aaron Garza and Patrick Donovan. Your long hours and dedication to this cause have resulted in today’s important achievement.