

Before the Federal Communications Commission

IN RE

FACILITATING THE DEPLOYMENT OF TEXT-TO-9-1-1
AND OTHER NEXT GENERATION 9-1-1 APPLICATIONS

FRAMEWORK FOR NEXT GENERATION 9-1-1 DEPLOYMENT

ON FURTHER NOTICE OF PROPOSED RULEMAKING

**COMMENTS OF THE
NATIONAL EMERGENCY NUMBER ASSOCIATION
WITH RESPECT TO SECTIONS III(B) & (C)**

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Before the Federal Communications Commission

PS Docket Nos. 11-153 / 10-255

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The National Emergency Number Association (“NENA”) respectfully submits the following further comments in response to the §§ III(B) & (C) of the *Further Notice of Proposed Rulemaking* released by the Commission on December 12th, 2012.

COMMENTS

As communications technology continues to advance at a breathtaking pace, NENA is pleased that more recent developments have led to agreed-upon courses of action for the incorporation of emergency communications capabilities into commercial offerings. NENA is pleased by the extent to which the Commission’s proposals align with the broad principles outlined in the Carrier/NENA/APCO agreement. In general, NENA supports the Commission’s proposals to i)

impose a Text-to-9-1-1 obligation on integrated and interconnected¹ text messaging services, ii) require covered text originating service providers (OSPs) to deploy Text-to-9-1-1 capabilities by dates certain, iii) include a basic location determination and location-based-routing obligation, iv) permit PSAPs to elect whether and in what format to receive text messages, and v) ensure that all parties to the 9-1-1 enterprise are subject to sufficient liability protections. NENA offers the following comments in furtherance of those proposals.

I. On specific proposals with respect to originating service providers

A. A technology-neutral approach to the basic Text-to-9-1-1 obligation will provide positive incentives for all market participants.

NENA agrees with the Commission’s analysis concerning the need for technology neutrality with respect to basic originating service provider obligations. Communications technology is increasingly free of the constraints imposed by the tight integration of access networks and originating services. Based on long term trends in this direction, NENA anticipates that integration of services will soon become the exception, rather than the rule. That is not yet the state of the market, however, and significant evolution in access networks and originating services must occur before it becomes a reality. Given the long-term nature of this evolution in how consumers purchase and use communications technology, it is appropriate that the Commission’s approach to regulating communications by wire and radio should be based on a longer-term view as well.

¹ As in our comment with respect to § III(A) of the FNPRM, NENA will refer to text messaging service provided by a single entity acting as access network provider and originating service provider as “integrated,” and will refer to text messaging services described in § III.A.1(¶29) of the FNPRM as “interconnected.” Cf. Net Neutrality Order ¶ 99, FCC 10-201 (Dec. 21, 2010).

NENA has previously commented that SMS could be an important transitional technology between current-generation E9-1-1 systems and NG9-1-1 systems.² By now, the number and success of SMS-based Text-to-9-1-1 trials leaves little doubt that SMS can be used for emergency communications in appropriate circumstances without introducing unacceptable delays in response for consumers or increases in workload for PSAPs. Additionally, the record is clear as to the myriad benefits that Text-to-9-1-1 services like SMS can bring to consumers, generally, and individuals with disabilities, in particular. Based on the Commission's analysis, NENA agrees that integrated text originating services such as carrier-provisioned SMS should be capable of transmitting text to 9-1-1. Likewise, the inclusion of interconnected text OSPs in this proceeding is a natural first step toward ensuring that all originating services that are appropriate for use in emergency communications are capable of accessing 9-1-1 in the future.

In order to ensure that 9-1-1 obligations do not create relative, market-distorting advantages or disadvantages for any OSP platform over the long term, NENA believes that the Commission should craft its final rules to apply broadly. For reasons explained below, NENA disagrees with commenters who suggest that interconnected text messaging services will face insurmountable challenges in complying with the Commission's proposed requirements.³ NENA is not insensitive to the novelty of 9-1-1 requirements for interconnected text service providers. However, NENA believes that the pace of consumer adoption of interconnected text messaging services, the degree to which such services now appear to operate identically to integrated text services, and the flexibility of the software platforms on which such services operate strongly militate against excluding such services from the Commission's final Text-to-9-1-1 rules.

² National Emergency Number Association, *Comments* at 5 & 12 (Dec. 12, 2011) (PS Docket Nos. 11-153 & 10-255).

³ *See, e.g.*, FNPRM ¶ 116.

NENA therefore agrees with the Commission's conclusion that final Text-to-9-1-1 rules should apply to both integrated and interconnected text messaging services, with one caveat.

After careful consideration, NENA believes that the Commission's initial Text-to-9-1-1 rules for interconnected text OSPs should apply *only* to interconnected text services originated from devices such as mobile telephones, tablets, and other advanced mobile devices. In general, NENA does not believe that initial Text-to-9-1-1 rules should apply to interconnected text services originated from larger or less mobile devices such as laptop or desktop computers. Two considerations motivate our conclusion in this regard.

First, inherently mobile devices such as telephones, tablets, and advanced network/location aware devices (e.g., the iPod Touch) are much more likely to be sought out by the ordinary consumer in distress. Because such consumers are more likely to believe that text services resident on inherently mobile devices are functional analogues of integrated text messaging services, NENA believes that omitting these devices from the rules – even where they are dependent on terrestrial WiFi networks – would risk generating extreme and pervasive consumer confusion at the most damaging times possible.

Second, although NENA expects that nearly any text originating service should eventually support emergency calling through 9-1-1, we have been unable to conceive a clear and effective test for determining which services should be subject to 9-1-1 obligations on an interim, transitional basis. This exercise is particularly difficult because some services arguably meet the definition of interconnected text service as proposed by the Commission, but lack access to certain fundamental capabilities of effective 9-1-1 service. For example, the widespread deployment of SMS gateways allows almost any email client to originate messages to SMS subscribers using a telephone number, and to receive replies. In the absence of NG9-1-1 functional entities such as Location Information Servers, Emergency Call Routing Functions, and Location Validation Functions, these ser-

vices cannot provide location-based routing or Phase I-equivalent location accuracy without significant reworking.

In light of these two factors, NENA recommends that the Commission craft its final rules to clarify that, at least for now, Text-to-9-1-1 obligations will attach only to integrated text OSPs and interconnected text OSPs whose subscribers originate texts from an inherently mobile device.

B. Implementation timeframes for integrated OSPs should be short.

NENA believes that both integrated and interconnected text OSPs should be capable of meeting newly-imposed Text-to-9-1-1 obligations on relatively short timeframes. The Carrier/NENA/APCO agreement supports this view. There are, however, differences in how integrated and interconnected OSPs operate and in the compliance routes that may be available to such providers. Consequently, NENA recommends that the Commission adopt a two-tiered approach to compliance deadlines for these two classes of OSPs aimed at accommodating differences in interconnected text OSPs' platforms. Should the Commission do so, however, NENA recommends that it strictly limit the additional time granted to interconnected text OSPs to emphasize the public interest and necessity embodied by these new obligations, and to minimize the extent of consumer confusion that could arise during the period between the two deadlines.

1. Integrated text OSPs have immediate access to commercial Text-to-9-1-1 solutions that can meet the Commission's proposed requirements.

As the record amply demonstrates, even in the absence of a Commission mandate there already exist numerous competing commercial solutions for provisioning Text-to-9-1-1 on integrated text OSP platforms. These solutions permit real-time communication between an integrated text subscriber and a PSAP, and are designed to minimize the impact of certain aspects of legacy text platforms that could otherwise hamper the 9-1-1 call handling process (e.g., the lack of ses-

sion continuity or message-ordering functions in SMS service).

Many integrated OSP Text-to-9-1-1 solutions are also capable of routing texts to an appropriate PSAP based on the location of the cell and reported bearing and subtense of the cell-sector serving the subscriber's device. This capability is a functional analogue of the "Phase I" wireless routing capability already required by the Commission's rules for integrated voice originating services offered by CMRS providers. Conveniently, most such routing information has already been collected from carriers and 9-1-1 authorities using NENA-standard fields and formats. This store of existing data will reduce compliance burdens for both public- and private-sector participants, since it will be unnecessary to re-collect this data, except in cases where 9-1-1 authorities choose to have text messages routed to a different PSAP than the one designated for voice calls from a particular cell sector. Finally, some such solutions also appear to support the transmission of Phase II latitude/longitude data at some point during a text conversation. NENA does not believe that a generalized Phase II-equivalent location determination and accuracy standard is reasonably attainable by integrated text OSPs at the outset. However, NENA does believe that the Commission should carefully craft its final rules to permit solutions that *can* provide latitude and longitude or other location information for an integrated text subscriber's device. This will best allow solutions to evolve over time to meet ever-growing consumer expectations while encouraging competition in the market for Text-to-9-1-1 service provisioning.

2. *Small or rural carriers may face particular implementation challenges that warrant additional time.*

While NENA is convinced that existing commercial platforms can allow carriers of any size to comply with the proposed obligations on the timeframe adopted in the Carrier/NENA/APCO agreement, several smaller and rural CMRS providers have expressed to NENA certain concerns

about their ability to do so. Because such carriers often serve sparsely populated or difficult-to-serve areas, NENA is conscious of the need to ensure that network changes occasioned by the imposition of new rules do not displace so much capital as to adversely impact a carrier's ability to maintain acceptable coverage, capacity, and reliability for its subscribers. NENA therefore supports the extension of final network-support obligation deadlines for small or rural carriers. NENA believes that an extension of not more than one year will provide such carriers with sufficient time to meet these new obligations without causing detrimental displacement of capital.

Based on the Carrier/NENA/APCO agreement and NENA's knowledge of the market for Text-to-9-1-1 provisioning services aimed at integrated text OSPs, NENA recommends that the Commission adopt May 15th, 2014 as the general deadline for compliance with the Commission's proposed Text-to-9-1-1 obligations. NENA further recommends that the Commission adopt May 15th, 2015 as the deadline for small and rural carriers to meet these obligations, while encouraging such carriers to do so as soon as feasible.

C. Interconnected text OSPs may require additional time to comply, but could offer capabilities unavailable to integrated text OSPs.

On the one hand, interconnected text services have only more recently become the object of scrutiny with respect to their capabilities and suitability for use with existing and future 9-1-1 systems. Consequently, there exists somewhat less evidence as to the commercial availability of routing and location determination solutions for these services. On the other hand, however, three factors indicate that these capabilities are either already available or can be made available on a short timeframe. Indeed, these factors actually indicate that interconnected text messaging services will be *easier* to integrate with the essential features of 9-1-1 service:

First, interconnected text messaging providers already exchange text messages with integrated text messaging

providers. This indicates that interconnected services are capable of delivering texts using standards-compliant forms and protocols similar – if not identical – to those used by integrated Text-to-9-1-1 service providers, some of whom are also SMS service platform providers. As such, the commercial market for Text-to-9-1-1 service platforms is already as accessible to some interconnected service providers as it is to integrated service providers.

Second, even if the service processes of some interconnected text OSPs presently do not involve a major SMS service platform provider, they necessarily *do* involve *some* routing and interconnection interface and protocol to permit the delivery of texts to integrated text OSPs (e.g., CMRS providers SMS offerings) or other interconnected text OSPs. As such, NENA believes that interconnected text OSPs will be able to create or purchase from commercial sources services equivalent to those offered by SMS service platform providers. These services may even be available at lower total costs, since they will most likely be based on lower-cost IP-based network connections, rather than higher-cost mobile-switched networks.

Third, interconnected text OSPs may enjoy location-determination advantages that are not as easily accessible to integrated text OSPs. Because interconnected text OSPs typically rely on a device's underlying IP data connection, rather than a specialized network feature (e.g., the control channel used by SMS), the software that supports their users' interactions does not necessarily face the same engineering constraints as integrated text applications. Messages originated by interconnected OSP subscribers can therefore initially be accompanied by additional data payloads that could not ultimately be delivered to an integrated text user. Thus an interconnected text OSP could, in addition to a message payload, transmit the location of the subscriber's device as derived from device-resident sensors or location services. In the case of a mobile device, this could allow the interconnected text provider to transmit location data derived from WiFi-hotspot databases, macro-cell network trilateration, onboard GNSS receivers, or a combination of

these sources.⁴ This could allow interconnected text messaging providers to supply better routing data at the beginning of a Text-to-9-1-1 session, and more precise location data as the session continues. Adding such capabilities could take time, but NENA believes that doing so would be straightforward from a software and systems engineering perspective.

Given these factors, NENA believes that interconnected text providers can meet the Text-to-9-1-1 obligations proposed by the Commission. However, because NENA is less certain of the state of the market for interconnected Text-to-9-1-1 provisioning services, NENA recommends that the Commission proceed with caution: If and only if the Commission finds that services are not already available on a competitive commercial basis, NENA recommends that the Commission consider allowing interconnected text OSPs up to one year of additional time to satisfy their Text-to-9-1-1 obligations.

1. *Interconnected text OSPs should disclose the consequences of consumer location privacy choices.*

From a purely public safety perspective, NENA would naturally prefer that all interconnected text OSPs require consumers to enable location-based services before using a text-originating app. NENA recognizes that this would be a significant change to current practice, and might prove unpopular with consumers, thus reducing the utility of a promising interim text messaging ecosystem. NENA therefore recommends that initial rules for interconnected text OSPs require only that consumers be advised of the consequences of denying a text app access to otherwise-available device location data. Where a consumer chooses to do so, attempts to text 9-1-1 should trigger a pop-up warning that Text-to-

⁴ Strictly speaking, integrated text providers could, in some cases, send this data separately over an IP connection, but the network-centric nature of such services would make modifying most such products to do so a substantially more involved and thus expensive proposition.

9-1-1 is not supported when location services are disabled, and offering the option to enable location services.

2. *Interconnected text OSPs should be required to transmit routing and location information based on the best-available positioning data.*

NENA is excited by the potential of newer positioning technologies such as WiFi location databases to provide *some* location data in environments where, for example, GNSS receivers are ineffective. However, NENA considers it important that location data used for routing of 9-1-1 calls or text sessions and reporting a subscriber device's location be based on the best available location information. That is, devices which have access to GNSS-derived (or ground-based multilateration network-derived), positioning data macro-network trilateration data, WiFi-database (or other RF-fingerprint) positioning data, and dead reckoning data should default to the highest-available member of that list that is not subject to unacceptable dilution of precision as measured by the device when transmitting location data for 9-1-1 routing or location reporting. NENA believes that this location-technology hierarchy will ensure that as-yet-unproven location services are used only when higher-priority services (or higher-precision combinations of services) are not available, and that consumers will be less likely to suffer from potential failures of such unproven technologies when they are.

D. The Commission must designate a single, uniform "short code" of "911" to prevent consumer confusion and market fragmentation.

Emergency communications services based on three-digit calling came into being based largely on the recognition that a single, universal number is preferable to disparate service- and jurisdiction-specific 10-digit numbers. Among the benefits of a unitary emergency number are the reduction in public education and outreach costs; the reduction in delays from searching for an appropriate emergency number; the increase in lives saved and property preserved; and the in-

crease in consumers' sense of safety and security. Though sometimes difficult to quantify, these benefits have been clearly recognized since before the introduction of 9-1-1 voice service, and have been proven in the 45 years since.

To preserve and extend the benefits realized from the designation of 9-1-1 as the universal emergency telephone number, NENA is convinced that the Commission must specify a single universal text emergency number, and that that number must be "9-1-1." Any other choice would necessarily cause immediate and widespread confusion among consumers. Additionally, any alternative choice would impose massive public education costs on 9-1-1 authorities and local governments as they sought to inform the public about the different emergency number.

- 1. Additional disclosure requirements or a sales ban should apply to devices that are incapable of texting to the three-digit number "9-1-1" if market forces do not achieve the goals of disclosure and phase-out.*

NENA is aware that some, mostly older, devices that support integrated text service and which are currently offered for sale or are in use by consumers may not support the use of "short codes" – numbers akin to telephone numbers but substantially shorter and available only for text origination – that are less than five digits in length. Anecdotally, however, NENA believes that a substantial majority of all devices currently offered for sale by carriers *do* support the use of three-digit short codes such as 9-1-1, and that at least a majority of devices-in-use do as well. Thus while there may be some period of time during which some consumers continue to use devices that do not support text to "9-1-1," NENA believes that widely-reported trends toward shorter device replacement cycles will reduce this time considerably.

In the interim, NENA believes that carriers can take steps to minimize potential consumer confusion as to the capabilities of their devices by disclosing, in conspicuous ways, that particular devices are incapable of accessing 9-1-1 via integrated text messaging services. Further, NENA believes that carriers can eventually eliminate this

problem by making support for the three-digit short code “9-1-1” a condition of their marketing devices to subscribers and potential subscribers. NENA believes that the market can meet these conditions in the short term without the need for mandatory rules or new license conditions. However, an abundance of caution compels NENA to recommend that the Commission actively monitor the state of the market to determine whether and at what rate such disclosures and conditions become common. Finally, if market forces should fail to produce the desired outcome, the Commission should stand ready to require disclosures for non-Text-to-9-1-1 capable devices, and to prohibit the sale of such devices after a date certain. In concert with NENA’s recommendations concerning the evolution of routing and location determination standards, below, NENA recommends that the Commission revisit this issue in 18 months – approximately one device turnover cycle – after issuing a Report and Order imposing Text-to-9-1-1 obligations on integrated text OSPs.

E. Location-based routing and location reporting requirements should be attainable and structured to evolve regularly.

NENA has previously recommended that the Commission establish a process for regularly re-examining the state-of-the-art in positioning technology with an eye toward ensuring continuing evolution of its standards for 9-1-1 location accuracy applicable to integrated voice OSPs.⁵ With respect to standards applicable to text OSPs, NENA recommends a similar approach.

As explained above, the location determination technologies available to integrated and interconnected text OSPs will likely vary widely at the beginning of Text-to-9-1-1 deployment. As with Phase I wireless E9-1-1 service, however, NENA recommends that the Commission require routing of texts from integrated text OSPs based on the cell and sector serving the device that originates a text. Though recogniz-

⁵ National Emergency Number Association, *Comments* at 3-4 (Jan. 20, 2011) (PS Docket No. 07-114).

ing that this approach can result in search areas as large as ~335 square miles for the largest CDMA macro-sectors ($r = 35$ mi, $\theta = 120^\circ$) down to as much as ~8 square miles for a typical GSM sector ($r = 4$ mi, $\theta = 60^\circ$), NENA supports its use for two reasons: First, integrated voice OSPs already route calls to 9-1-1 on the basis of cell and sector, and 9-1-1 center personnel are well acquainted with the practice and its implications for search-and-rescue operations. Second, requiring integrated OSPs to route and report based on cell and sector will provide an additional incentive for such OSPs to transition to more modern, IP-based text messaging platforms that are capable of routing and reporting device location based on newer, more accurate positioning technologies.

The cell-and-sector approach will not work for interconnected text OSPs, however: In many cases, interconnected OSPs lack operating system support or Application Programming Interface (API) availability for accessing cell and sector information (when it is made available to the device at all). Additionally, interconnected OSPs have no backend capability to determine this information, since their products typically rely on an underlying data connection that conceals the network management and signaling planes which would be aware of a mobile device's serving cell and sector. Consequently, NENA recommends that the Commission adopt a separate standard for interconnected text messaging providers. Such a standard should allow for the use of *any* available positioning technology capable of producing a location accuracy no worse than that required for Phase II wireless E9-1-1. In addition to providing smaller, more precise search areas, this approach will allow interconnected OSPs to serve as testbed for location technologies that have not previously been deployed in support of E9-1-1 service. For example, NENA has previously stated our support for the evaluation of technologies such as WiFi mapping and RF fingerprinting.⁶ Provided that these deployments utilize the

⁶ National Emergency Number Association, *Comments* at 10 (Oct. 3, 2011) (PS Docket No. 07-114).

same formatting standards specified by NENA⁷ and adopted throughout the 9-1-1 enterprise for the transmission, storage, and display of latitude, longitude, or civic addresses, NENA believes that they can better serve consumers while playing an important role in shaping the transition to NG9-1-1 service.

F. Roaming support for Text-to-9-1-1 is a key challenge for integrated text platforms.

Perhaps the most difficult issue to resolve over the medium-term will be the ability of integrated text messaging OSPs to support Text-to-9-1-1 for subscribers whose devices roam onto networks other than their home network. Ultimately, NENA believes that consumers should have a right to expect the availability of Text-to-9-1-1 service without regard to whether the network to which a particular device is attached (a factor that is frequently transparent to the user). Recognizing the complexity of this issue when multiple ANPs, OSPs, and Text-to-9-1-1 service providers could be involved (any or all of whom may employ divergent technology or protocols), NENA believes that an exclusion of roaming support, mirroring that contained in the Carrier/NENA/APCO agreement, is appropriate at this time. However, NENA supports the reevaluation of this exclusion at regular intervals, beginning no later than one year after the Commission's initial Text-to-9-1-1 rules come into force.

II. On specific proposals with respect to Public Safety Answering Points (PSAPs)

A. The i3 Standard should be the presumptive basis for NG9-1-1 text messaging.

While NENA appreciates the Commission's long-standing hesitancy to specify particular technical standards by regulation, there are instances in which it can be productive to craft regulations based on the provisions of a standard

⁷ E.g., NENA STA 08-752 v.1, *Technical Requirements for Location Information to Support IP-Based Emergency Services* (available at: http://www.nena.org/?page=LocnInfoIP_EmergSvc).

which has gained wide acceptance. The i3 solution is just such a standard. Already, numerous states, regions, and councils-of-governments are planning or deploying i3-based NG9-1-1 systems or their foundational elements. The market for i3-based products and services is flourishing, hardware, software, and network-services vendors are aggressively marketing compliant solutions, and alternative architectures that predate i3's adoption are evolving toward eventual compliance as well. Given the state of the market and the expressed preferences of the public safety community, NENA believes that the Commission would be justified in declaring i3 to be the sole standard for NG9-1-1 service provisioning. Even if the Commission rejects this preferred alternative, however, NENA believes that the Commission *must* take steps to protect the significant investments of the public safety, vendor, and carrier communities in the development of the i3 standard and the deployment of networks and services based upon it. For example, the Commission could clarify that originating service providers have a presumptive obligation to interconnect with NG9-1-1 systems using i3-compliant interfaces and protocols where such interfaces and protocols have been specified or exposed by a 9-1-1 authority or other public safety entity responsible for the management and control of that system.

B. 9-1-1 authorities must be free to elect not to accept text messages prior to the deployment of NG9-1-1.

NENA is concerned by language in the NPRM that tends to suggest that *all* PSAPs will necessarily accept text messaging in the short term. While it is true that all PSAPs have *some* existing text capacity in order to comply with DoJ regulations promulgated under the Americans with Disabilities Act, that capacity was engineered to support an installed base of TTY users no larger than the population of deaf and hard of hearing individuals in the United States (~34 million). The total installed base of integrated text OSPs, by contrast, actually exceeds the total population of the United States, a figure larger by an order of magnitude.

Notwithstanding the experiences of jurisdictions which have experimented with limited-scope text deployments (e.g., Blackhawk County, Iowa), NENA remains wary of the potential impacts of unknown text traffic flows on PSAP operations. Consequently, NENA considers it of critical importance that PSAPs retain the ability to elect not to receive non-PSTN-originated text messages *at all* until traffic engineering, staffing, and systems analyses have been completed to the satisfaction of local center managers, and their recommendations implemented. In addition to ensuring that text users do not receive an unacceptable quality-of-service, this approach will also ensure that Text-to-9-1-1 deployments do not degrade or block existing voice, relay, and TTY 9-1-1 service. The Commission can clarify that this option is available to PSAPs by establishing a default text delivery mechanism of “none – reject,” rather than the proposed “TTY.”

If the Commission concludes that a default delivery mechanism of “none – reject” is not appropriate, however, NENA recommends that the Commission allow PSAPs or 9-1-1 authorities that are unable or unwilling to accept text messages to establish an alternate delivery point for text. Such an alternate delivery point could be another PSAP operated by the same 9-1-1 authority, or, pursuant to a cooperative agreement, a PSAP operated by another authority. As described below, such an alternate delivery point could also be a centralized or specialized text PSAP. This arrangement would allow 9-1-1 authorities some flexibility in the provisioning of Text-to-9-1-1, preserving precious public-sector funds for the longer-term transition to NG9-1-1. Should the Commission follow this recommendation, NENA believes that PSAPs and 9-1-1 authorities should be afforded six months from the network-wide support deadline to make an election under this rule in order to provide sufficient time to conclude any necessary agreements with other PSAPs or 9-1-1 authorities.

C. Interim operations models should be left to the discretion of PSAPs and 9-1-1 authorities that elect to receive text messages.

- 1. A single routing and delivery-preference database will minimize provisioning burdens for PSAPs and OSPs.*

NENA agrees with the Commission's proposal that a national routing and delivery database for text messaging would be beneficial. As a component of short-term Text-to-9-1-1 deployment, such a database will provide numerous benefits to 9-1-1 authorities, Text-to-9-1-1 solution providers, and text OSPs. For example, a centralized database will allow 9-1-1 authorities to deal with a single entity using a single process to make a single election as to how its PSAP(s) will or will not receive text messages. This is immensely preferable to dealing individually with each carrier (in the case of integrated ANP/OSPs), each application developer (in the case of interconnected OSPs), or each Text-to-9-1-1 solution provider on a one-off basis. Similarly, this process will allow carriers, developers, and solution providers to consult an authoritative source for PSAP elections and perform initial routing and format provisioning as a batch process. In addition to the short-term benefits of a centralized election and routing database, the Commission might reasonably expect to achieve certain longer-term benefits. For example, such a database could form a basis for populating certain other databases required for NG9-1-1 service in the future (e.g., Emergency Call Routing Function [ECRF] and Forest Guide databases).

In deciding how to work toward the short- and long-term benefits of a centralized election and routing database, the Commission should consider two factors: *First*, the database should be developed and operated by a single federal entity to ensure its consistency and neutrality, respectively. NENA believes that the National 9-1-1 Office would be a prime candidate to fill this role. The Office is already familiar with 9-1-1 issues and stakeholder groups, and deploying an election and routing database could serve as a capacity-building exercise aimed establishing the expertise required to even-

tually support the deployment of a national Forest Guide. NENA has previously stated its preference for the Office serving in the capacity of Forest Guide operator, and the Commission recently noted this as an option in its report to Congress on the legal and regulatory framework for NG9-1-1.⁸ NENA reiterates its support for this approach. *Second*, the database should incorporate the best-available data on PSAP capabilities and routing. The Commission's own PSAP list undoubtedly represents a key input to the election and routing database. Yet that list does not contain many of the fields that will be needed to support the Text-to-9-1-1 provisioning process. Data for those fields are, however, available on a commercial basis,⁹ and using commercial sources to pre-populate fields not contained in the Commission's list might serve to reduce implementation and update costs.

2. *Browser-based options must be unitary.*

NENA is encouraged by the range of novel Text-to-9-1-1 support platforms that have come on the market due to competition among carriers and Text-to-9-1-1 service providers. However, NENA harbors grave concerns as to the potential impact on PSAP operations of market fragmentation. The ubiquity and standardization of the modern web-browser, in concert with the many high-level development tools available make the browser platform ripe for fragmentation. In order to ensure that PSAPs are not forced to support dozens of differing browser-based Text-to-9-1-1 platforms deployed by integrated and interconnected text OSPs, NENA believes that the Commission's final rules must permit PSAPs that choose to accept browser-based text messages to designate a *single* Text-to-9-1-1 service provider or server as the termination point for texts originated from a

⁸ Federal Communications Commission, *Legal and Regulatory Framework for NG9-1-1 – Report to Congress and Recommendations* § 4.2.2.2 (Feb. 22, 2013).

⁹ In the interest of transparency, NENA wishes to disclose that it is a commercial provider of PSAP data.

location served by that PSAP. Otherwise, PSAP workloads could greatly expand as telecommunicators are forced to monitor a large number of browser tabs or windows for new or updated text sessions. If the Commission does not follow this approach, NENA fears that negative experiences in the short term could lead PSAPs to revert to not accepting traffic from integrated or interconnected text OSPs, or to delay accepting texts in the first place. Finally, NENA wishes to call attention to the fact that service processes based on web servers and browsers accessed using Internet *Protocol* do not necessarily require “internet connectivity.”¹⁰ Instead, such systems can run on private, managed IP networks, rather than the globally-routable internet.

3. *TTY-based options are viable and must be supported, at least in the short term.*

Though TTY service may once have played a critical role in ensuring the accessibility of 9-1-1 service, it is clearly a technology whose time has passed. Individuals with hearing or speech disabilities who previously relied on TTY as a primary means of utilizing telecommunications networks now have access to far more advanced options. For example, the introduction of Skype video calling, FaceTime, and Google+ Hangouts has brought low-cost video calling to the masses, with particular benefit to those who rely on visual communications. And although the Commission’s rules require mobile devices to support TTY calling, direct integration of TTY capabilities with mobile devices remains an unrealized vision after more than a decade of research and development work. As with any technology transition, however, there will be some adherents who are loathe to modernize. In some cases this is due to more than mere technological inertia: The real-time, character-by-character nature of TTY is preferred over message-based text services by many in the deaf and hard-of-hearing community for its more conversational flow.

¹⁰FNPRM, ¶ 130.

From the PSAP perspective, TTY is two-edged sword: It represents a last-resort method for accepting text messages in 9-1-1 centers that lack more advanced browser- or IP-based systems for text handling, but also has a greater potential to degrade or deny service if overloaded. Additionally, NENA believes that somewhere between $\frac{2}{3}$ and $\frac{3}{4}$ of all PSAPs have software-integrated TTY capabilities. Despite this seemingly-high adoption rate, those estimates suggest that as many as 2,000 PSAPs still rely on stand-alone TTY units. These acoustically-coupled devices may lack advanced features such as canned responses that allow software-based TTY systems to dramatically reduce call handling times. For PSAPs in this posture, accepting text from integrated and interconnected OSPs represents a difficult-to-quantify risk.

Even assuming TTY does serve as a the method-of-choice for some (even large) fraction of PSAPs in the short term, NENA believes that the Commission should begin planning for a day when TTY support is no longer a basic requirement for providing 9-1-1 service. As Text-to-9-1-1 becomes a reality for integrated and interconnected text OSPs, NENA believes that the precipitous decline in TTY usage will further accelerate. As it does so, maintaining support for TTY service in devices, networks, PSAP customer premises equipment (CPE) and call-handling software will represent an increasingly wasteful and unnecessary burden. Absent some clever development in interconnected text OSP offerings, Real-Time Text service to 9-1-1 will have to await the deployment of NG9-1-1 service. However, in the interim, the deployment of other Text-to-9-1-1 service will provide access to 9-1-1 service on an equal basis for *all* consumers, fulfilling key goals of both the ADA and the Communications and Video Accessibility Act. NENA therefore recommends that the Commission establish an initial five-year timeframe for reevaluating its rules relating to support for TTY in carrier networks and PSAP systems, with an eye toward sunseting those requirements as soon as ubiquitous text service is available.

4. *All options must rely on a single, consistent provisioning process, regardless of the parties involved.*

Based on NENA's members' extensive experience with the deployment of wireless E9-1-1, NENA believes that the Commission's final rules must establish, or provide for stakeholders to establish, a single, consistent set of processes and procedures for the planning and deployment of Text-to-9-1-1 service. Without such a requirement, PSAPs and 9-1-1 authorities could again be faced with myriad fragmented and differing processes, and inconsistent data and data meanings that vary by carrier or OSP. The Text Control Center approach favored by the EAAC is but one example of such an approach to ensuring uniformity in provisioning processes.

5. *Handling texts at local PSAPs will always be preferable, but specialist or centralized text PSAPs may better suit the needs of some jurisdictions.*

By now, it goes without saying that locality is a key strength of 9-1-1 service in the United States. Time and again, telecommunicators and dispatchers have leveraged local knowledge to provide better outcomes to consumers in distress. The public safety community is, however, operationally conservative by nature. And when 9-1-1 service is extended to support a novel originating service type, there is precedent for routing that service to one or more specially-identified PSAPs, at least for a time. As wireless 9-1-1 voice service was initially deployed, for example, some states elected to route all wireless 9-1-1 calls to PSAPs operated by state police units, on the theory that most mobile calls would be originated from vehicles traveling the highways. Though this assumption later proved to be unwarranted as mobile devices displaced landlines for indoor residential and even business use, the experience gained from the choices it occasioned has proven the viability of the specialized approach.

NENA believes that two models similar to that used for some initial wireless 9-1-1 deployments could be employed

by states or 9-1-1 authorities to speed the deployment of Text-to-9-1-1 or to improve Text-to-9-1-1 service quality. *First*, states or 9-1-1 authorities could elect to rout all 9-1-1 texts originated from within a broad geographic area to a single PSAP that is equipped to handle text. This approach could extend Text-to-9-1-1 coverage to areas ordinarily served by PSAPs with a lower degree of technological sophistication or which lack access to the funds needed to modernize key equipment or software. *Second*, even where technical capacity exists in local PSAPs, states or 9-1-1 authorities could elect to route all texts originated from within a broad geographic area to one or more text-only PSAPs staffed with specially-trained telecommunicators. (This approach could also produce a greater volume of empirical data to support later traffic engineering efforts for local PSAPs.) Additionally, the availability of a corps of telecommunicators with intensive experience handling Text-to-9-1-1 could increase the speed and lower the cost of later training efforts aimed at the broader pool of telecommunicators. Finally, specialized text-only PSAPs could prove to provide better overall service to text users based on experience, specially-adapted protocols, and specialized text-handling software. NENA has adopted a wait-and-see posture with respect to the desirability of centralized or specialized text PSAPs. Until such time as there exists a sufficient body of empirical evidence to indicate whether such arrangements are necessarily better or worse than the traditional PSAP model, NENA believes that the Commission should allow 9-1-1 authorities and states to serve as a natural laboratory to gather that data. NENA therefore supports allowing 9-1-1 authorities or states to designate one or more centralized or specialized PSAPs for the delivery of all texts originated within a specified geographic area.

III. On specific proposals with respect to funding and cost recovery

A. The Commission should consider allowing Eligible Telecommunications Carriers to recover from the USF the cost of deploying some functional entities required to provision NG9-1-1 service.

As our previous comments in this and other dockets reflect, NENA believes that the deployment of NG9-1-1 can drive down costs for nearly every participant responsible for some aspect of NG9-1-1 service provisioning. From access network providers to originating services providers to NG9-1-1 system service providers and PSAPs, everyone stands to gain from the deployment of lower-cost commodity systems running on lower-cost IP-based networks. NENA is not blind, however, to the reality that the transition to NG9-1-1 will have costs. Those costs are likely to fall particularly hard on legacy integrated ANP/OSPs providing wireline voice and IP originating service to consumers and E9-1-1 or NG9-1-1 service to PSAPs. Such carriers already face rapidly-declining wireline revenues and subscribership, along with increasingly-skeptical capital markets. Despite these trend pressures, such carriers will likely remain the only viable network service providers for consumers in certain high-cost or difficult-to-serve areas for some time to come. In order to ensure that these carriers are able to deploy the functional elements required to support NG9-1-1 service for their subscribers, additional cost supports may be necessary. Consequently, NENA recommends that the Commission consider whether and to what extent it may be appropriate to provide support out of USF funds for the deployment of functional entities such as Location Information Servers by such carriers.

IV. On the Commission’s jurisdiction and the need for enhanced liability protection

A. The Commission should declare that Text-to-9-1-1 is an “other emergency communications service,” and that interconnected text OSPs are “other emergency communications providers.”

The provisions of the Net 911 Improvement Act of 2008 extended to “other emergency communications providers” the parity-of-protection provisions that previously required states to afford VoIP providers the same liability protections afforded to wireless carriers with respect to 9-1-1 service provisioning. Importantly, Congress left those provisions open-ended: An entity will qualify for the parity of protection provisions when either of the following two conditions obtains:

- (A) an entity other than a local exchange carrier, wireless carrier, or an IP-enabled voice service provider that is required by the Federal Communications Commission consistent with the Commission’s authority under the Communications Act of 1934 to provide other emergency communications services; or
- (B) in the absence of a Commission requirement as described in subparagraph (A), an entity that voluntarily elects to provide other emergency communications services and is specifically authorized by the appropriate local or State 9–1–1 service governing authority to provide other emergency communications services.

“Other emergency communications service is elsewhere defined to mean “[t]he provision of emergency information to a public safety answering point via wire or radio communications, and may include 9–1–1 and enhanced 9–1–1 service.” Based on these definitions, NENA believes that interconnected text OSPs subject to the rules proposed by the

Commission in this proceeding will qualify as “other emergency communications providers.” In order to provide greater certainty to the market in this respect, NENA believes that the Commission should explicitly find and declare that interconnected text OSPs *are* “other emergency communications providers.”

CONCLUSION

The Commission should require providers of integrated or interconnected text messaging services to deploy support for Text-to-9-1-1 by May 15th, 2014, using the delivery methods specified by 9-1-1 Authorities or PSAPs within six months after that date, subject to the exceptions, limitations, and suggested extensions specified above.

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