Before the
Federal Communications Commission
Washington, DC 20554

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

COMMENTS OF
THE BOULDER REGIONAL EMERGENCY TELEPHONE SERVICE AUTHORITY
ON THIRD FURTHER NOTICE OF PROPOSED RULEMAKING
REGARDING TEXT TO 9-1-1

The Boulder Emergency Telephone Service Authority ("BRETSA"), by its attorney, hereby submits it's Comments on the Commission's proposals in its August 13, 2014 *Third Further Notice of Proposed Rulemaking* in the above-referenced Docket ("*Third Further Notice*").[1] BRETSA is a Colorado 9-1-1 Authority which establishes, collects and distributes the Colorado Emergency Telephone Surcharge to fund 9-1-1 Service in Boulder County, Colorado. The BRETSA Board includes the Boulder County Sheriff, the City of Boulder Police Chief, and representatives of the Boulder County Firefighters Association and the City of Longmont Division of Public Safety. The fifth seat of the Board is filled by representatives of the smaller cities and towns in Boulder County, Colorado on a rotating basis. These Comments are thus intended to represent the perspective of the entity responsible for funding 9-1-1 operations, *and* of the agencies responsible for PSAP operations and overall public safety services.

[1] Facilitating the Deployment of Text-to-911 and Other Next Generation 911 Applications, Framework for Next Generation 911 Deployment, PS Docket Nos. 10-255 and 11-153, *Second Report and Order and Third Further Notice of Proposed Rulemaking*, FCC 14-118 (August 13, 2014).

I. Putting Location Information in Perspective.

It is a common misunderstanding that the primary purpose of automatically-delivered caller location information ("ALI") in E9-1-1 (and now NG9-1-1 and text-to-911) is to allow PSAPs to identify caller locations. In fact, ALI is more important for purposes of routing 9-1-1 calls and messages to the correct PSAP. Use of ALI to identify an incident location for dispatch of First Responders, or to help First Responders locate a caller, is rarely necessary.

A. Location Information for Call Routing.

The primary importance of location information is to identify the PSAP to which the call should be routed. A PSAP generally serves a specific jurisdiction, such as a city or county. In the majority of cases, it is only the PSAP(s) in a jurisdiction which (i) can determine whether a 9-1-1 call concerns a new incident or an incident to which First Responders are already responding, (ii) knows the agency business rules for the complement of units to be dispatched to different types of incidents, (iii) knows which units are on duty and available for dispatch to a new incident, and their locations, and (iv) has access to the radio and tone-out systems to dispatch the units.

When a call is routed to the wrong PSAP, dispatch of First Responders is significantly delayed. The PSAP to which a call is misrouted must determine that the caller is not located in its jurisdiction from information provided by the caller, or Phase II ALI data when available. The PSAP must determine the jurisdiction in which the caller *is* located, and transfer the call or relay the caller's information to the correct PSAP over a ten-digit administrative line.[2] When calls are transferred, callers must start over providing their information to the new PSAP.[3]

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[2] Administrative lines are often answered on a secondary basis to 9-1-1 lines.

[3] Implementation of Phase II Call Routing would eliminate misrouting of many wireless 9-1-1 calls. BRETSA understands that Phase II call routing has been implemented in areas of California and Ohio. BRETSA also understands that with Phase II call routing, delivery of the call is delayed until Phase II data is received for call routing based on device (caller) location, or a time-out period expires. A "ringing signal" or sound is provided the caller during the delay.

A significant number of wireless 9-1-1 calls are misrouted based upon Phase I location information, and it is reasonable to assume that text-to-911 messages which are also routed on such coarse data will also be regularly misrouted. Such misrouting frequently results from a wireless site or cell-sector serving areas within two or more jurisdictions, while calls connected through the site or cell-sector can only be Phase I default-routed to a single jurisdiction. However BRETSA's Longmont, Colorado PSAP regularly receives 9-1-1 calls placed by individuals on Interstate 25, four miles to the east of the City, which are connected through CMRS towers in Longmont even through the CMRS providers have sites located much nearer the Interstate. It is thought that these calls "leapfrog" nearby towers due to wireless system congestion.

In BRETSA's experience, the cases in which a caller is unable to provide his or her location are much rarer than misrouting of wireless 9-1-1 calls.[4] It is most important to effective emergency response that ALI be provided quickly and accurately enough to permit 9-1-1 calls and text-to-911 messages to be initially routed to the correct PSAP.[5]

ALI should be as accurate as possible. However obtaining sufficiently accurate ALI quickly enough to correctly route 9-1-1 calls and messages is the highest priority.

B. Dispatchable Addresses.

There has been much discussion of the need to provide PSAPs "dispatchable addresses" from 9-1-1 calls. The "caller's" location is not necessarily the location of the incident. This is why most, if not all, CAD systems provide separate fields for "caller address" and "incident address."

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[4] PSAPs *do* make use of the Phase II location information for call-handling and dispatch purposes. Comparing this information with that reported by the caller allows PSAPs to interdict fraudulent or prank calls, verify the caller's location, and identify MSAG errors, for example.

[5] With text-capable PSAPs reporting receipt of three text-to-911 messages per-month, to three text-to-911 messages per-year; the incidence of parties text-messaging 9-1-1 being unable to provide their location should be significantly less than in the case of voice-calls from wireless devices.

Phase II wireless location information is usually provided as geographic coordinates (latitude and longitude). To convert coordinates to "dispatchable addresses," the coordinates are plotted on a map or compared against a GIS database. This conversion should occur at the PSAP. The coordinates must always be provided to the PSAP so that personnel with local knowledge, and access to incident history and premises records, can make an informed judgment of the caller's location in those rare cases in which the caller cannot provide it (and it is relevant).

II. The Commission Must Adopt An All-Of-The-Above Strategy.

The Commission states:

> [W]e believe that an enhanced location requirement that is premised upon the delivery of best available location, *using any available location technology or combination of technologies*, strikes a balance that promotes our important public safety objectives, while being practicable and reasonable within these potential limitations.[6]

An "*any* available location technology or combination of technologies" approach necessarily requires an "*all*-of-the-above" approach, because the availability and accuracy of different location technologies will vary between carriers and areas. The technologies which will be available and provide the most accurate location in any specific situation will not be known until the various technologies are employed. We assume these technologies would be employed simultaneously to avoid delay. Use of alternative technologies should also provide greater accuracy and confidence in location information derived.

In its November 21, 2012 Petition for Rulemaking, BRETSA advocated a Commission requirement that Wireless and VoIP providers establish Electronic Emergency Service Bureaus ("EESBs") to provide electronic access to, among other things, locations of devices *not* currently connected to 9-1-1 (important, for example when a caller has been disconnected prior to delivery

[6] Third Further Notice, para 87 at 39 (Emphasis added).

of a Phase II location).[7] If TCCs are to have access to various systems and methods for locating callers, they could provide such additional functions as BRETSA proposed for EESBs. For example, TCC access to providers' customer databases is necessary, because an ALI location in close proximity to a customer's residence may indicate that the call was placed from the residence.[8] Also, one of the TCCs offers a service which leverages commercial databases to identify caller locations, and which could also assist in locating callers both for purposes of call routing and emergency response.[9]

III. Roaming.

The Commission discusses a solution for identifying the location of a roaming CMRS user who sends a text-to-911 message, involving the establishment of a centralized database of supported PSAPs and sharing of cell sector data through a hub and spoke mechanism.[10] An EESB/TCC(s) could provide this functionality, while spreading the cost across all CMRS providers and, thus, all CMRS provider customers. Alternatively, a CMRS provider might

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[7] Available at http://apps.fcc.gov/ecfs/document/view?id=7022064300. Other solutions proposed for the EESB's included, *e.g.*, access to location information for routing text-to-911 messages, provision of wireless customer residential and business addresses and VoIP users' registered 9-1-1 addresses for Emergency Notification Service databases, and customer information for verification of 9-1-1 surcharge, fee or tax remittances. See http://apps.fcc.gov/ecfs/document/view?id=7022113543. Exhibit No. 1 to BRETSA's April 4, 2014 Comments on the Commission's Policy Statement and Second Further Notice of Proposed Rulemaking Regarding Text To 9-1-1, available at http://apps.fcc.gov/ecfs/document/view?id=7521096988, was a transcript of a 9-1-1 call in which a caller reported a friend's threat to commit suicide. It was almost 10 minutes from the time the caller provided his friend's telephone number until the PSAP was able to request and receive the location of the friend's cellphone from his service provider (even though the service provider waived the usual requirement that the PSAP complete a printed request form and fax it to the provider). Unfortunately it was only 8 minutes until the caller's friend stepped in front of a semi-truck. If the PSAP had been able to electronically submit an automated request to an EESB/TCC through the CAD system for the suicidal person's cellphone's location as soon as the suicidal person's cellphone number was obtained, the outcome may have been different. The audio recording of this call, "suicide by semi" is available at: http://911colorado.org/911-audio-videos/other-911-calls/.

[8] This same information could be used to populate Emergency Notification Service databases correlating telephone numbers with locations, and to verify remittance of appropriate 9-1-1 surcharges, fees or taxes.

[9] For example, the service can identify an address to which a pizza ordered from the 9-1-1 "caller's" phone number was recently delivered. See http://durhamcounty.granicus.com/MetaViewer.php?view_id=2&clip_id=678&meta_id=34313, page 11, second bulleted paragraph.

[10] *Third Further Notice*, para. 110 at 47-48.

forward text-to-911 messages received by the home system without location data to the TCC, and the TCC initiate a location query for the mobile device to other providers.

IV. CMRS and Device Providers Should Supply Default 9-1-1 Calling and Text Messaging Capabilities.

One option identified by the Commission for interconnected text messaging applications to provide text-to-911is for the wireless provider to make available access to the APIs for use of wireless devices "native" SMS text messaging system. This provides a model for all text-messaging (and over-the-top VoIP applications) to provide ALI with 9-1-1 calls and messages.

Location determination techniques are available today for 9-1-1 calls placed with a wireless device. It appears from comments in this docket that a CMRS device's native applications are or can be made capable of accessing location information without overriding a user's privacy and security settings for all applications. However privacy and security concerns arise if interconnected text messaging applications and other OTT applications are provided the ability to override user privacy and security settings. An available solution would thus be to require that CMRS and device manufacturers (i) continue to include native voice and text-messaging applications in devices with the capability to access location data without unlocking privacy and security settings for all applications, and (ii) make APIs available for OTT applications to access the native applications for purposes of transmitting 9-1-1 calls and messages (and receiving responsive messages). The native applications need not be feature-rich; they need only allow end users to work in the application interface with which they are familiar, but transmit the content via the native application with access to device location systems.

A requirement consistent with that for 9-1-1 calling over pay phones should be adopted, so that text-messages to 9-1-1 sent via a native application should not require subscription to a

text messaging plan or result in customer charges. No CMRS provider should be competitively disadvantaged by this requirement, as it would be applied to all providers.

V. Transmission of Messages to 9-1-1 Via WiFi-Connected Devices.

As stated above, the most important use of location information is for proper routing of 9-1-1 calls, not for locating the caller. WiFi "hotspots" to which wireless phones can connect to place calls operate as any other VoIP service, and users are required to provide the service supplier the physical address at which the WiFi router is installed for purposes of 9-1-1 call routing. This technique, as well as device-based techniques and commercial location services, should be included in the "all of the above" approach. Providers or TCCs should attempt to access device location via all these methods, and use the best location information available.

VI. PSAPs Must Have The Choice of What Message Formats to Accept.

There seems to be a presumption that the public safety community must chase consumer expectations regarding the methods by which they can communicate with 9-1-1. Consumer expectations, however, are often driven by fictional television shows and movies. There is a role for consumer education and managing consumer expectations. More significantly, certain message formats can actually delay emergency response. They can also divert limited funds from employment, training and equipping of First Responders to pay for bandwidth they require.

The role of the PSAP is to determine the location and nature of the emergency, and dispatch First Responders according to the business rules of the agency. It is more efficient and expeditious for someone at the scene of an incident to provide the PSAP the location and nature of the incident by voice call, than for PSAP personnel to try and decipher the information from a photo or video. In addition, photographic or video cameras often provide a limited perspective

and a distorted image of the scene.[11] Individuals concentrating on getting a picture or video to send to 9-1-1 may become secondary victims. Untrained laypersons are likely to send pictures of more sensational images of little or no use to the PSAP or First Responders, but which may have an emotional impact on PSAP personnel.

There may be cases in which it *would* be helpful for a PSAP to obtain a photo or video from a caller. In those cases, the PSAP can request that the information be sent over the public internet. The browser solution for delivery of text-to-911 messages illustrates that there are alternatives to NG9-1-1 for delivery of photos, videos and other data. A PSAP could provide a caller with an e-mail, text or web address for delivery of such data.

PSAP personnel and First Responders are not trained or educated to interpret medical records, crash telemetry data, or other types of technical data that some anticipate would be delivered to PSAPs when NG9-1-1 is deployed. Most PSAPs have difficulty recruiting and retaining individuals with the unique qualifications required for a dispatcher; qualifications which do not include medical or technical expertise.

Smartphone applications are being developed which are planned to automatically transmit various types of data directly to PSAPs via NG9-1-1, often without prior notice to PSAPs. Some display data in a unique format (look and feel), or embed a URL in a text or other message for the PSAP to access information on a website, also with a unique look and feel. PSAPs should not be expected to (i) deal with automatically transmitted information and waste time responding to false alarms, (ii) access third-party websites for data which will not be captured in PSAP data systems subject to chain-of-custody control, or (iii) locate relevant information (if any) from countless original and copycat applications, each with a unique format or layout.

[11] A single lens cannot provide depth perception, and at longer focal lengths will compress distances.

Any application which automatically transmits personal alarms or other information, must be required to transmit the data to a staffed alarm-monitoring center to clear false alarms. Any application or service which transmits medical or technical data must be required to transmit the data to a staffed monitoring center with personnel trained to interpret the data. The monitoring centers can then contact the PSAP to notify it of actual alarms, or provide usable information derived from the technical data. Only calls and text or other messages composed and sent in real time by an end user should be transmitted directly to a PSAP.

VII. International Roaming.

BRETSA suspects that text-to-911 messages transmitted in an international roaming context will constitute a very small percentage of calls and messages to 9-1-1. It is more important that issues affecting a greater number of incidents be addressed first. Progress on the Global Text Telephony standard, or experience of the TCCs in dealing with text-to-911 messages, may lead to development of a solution in this area.[12] BRETSA also notes that while competition for subscribers does not appear to compel CMRS, OTT text and similar providers to develop solutions for such issues, the TCCs appear to have competitive incentives to develop such solutions, the costs of which can be spread across all users through service provider basic service fees. However these providers should be subject to reasonable regulatory oversight given the mission-critical and essential nature of their services.

VIII. Authority.

The Commission seeks comment on its authority to extend the scope of its text-to-911 requirements. BRETSA believes extension of these requirements is squarely within the

[12] This issue does implicate what promises to be a more common problem. The first text-to-911 message received by the Aspen-Pitkin County PSAP was in Spanish, and was received at a time when no Spanish speaking dispatchers were on duty. The PSAP was able to use an Internet website that provided English-Spanish translations of text, but the exchange of text messages took much longer than an English language message-exchange would have taken. More practical and expeditious solutions for translation of non-English messages must be developed.

Commission's authority, particularly as to text applications which are useful to the deaf and hard-of-hearing community.

In addition, BRETSA notes that immunity removes an incentive for providers to implement effective text-to-911 messaging. However such immunity would not seem to apply to providers over which the Commission lacks authority to extend its requirements. If the Commission requires that network and device providers (over which it does have authority) supply native messaging applications with location functionality, and make the native application API(s) available for OTT applications to transmit messages to 9-1-1; then it will be prudent for OTT providers to supply 9-1-1 compatibility in this manner. The potential for liability, coupled with the low cost of implementation, should compel them to implement text-to-911 messaging.

Respectfully submitted,

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