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February 5, 2015

Via E-Mail: [Tom.Wheeler@fcc.gov](mailto:Tom.Wheeler@fcc.gov)  
Tom Wheeler, Chairman  
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Via E-Mail: [Mignon.Clyburn@fcc.gov](mailto:Mignon.Clyburn@fcc.gov)  
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Michael O'Rielly, Commissioner  
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VIA ECFS  
Marlene H. Dortch, Secretary  
Federal Communications Commission  
445 12th Street SW  
Washington, DC 20554

Re: PS Docket No. 07-114  
Wireless Location Accuracy  
(Phase I Misroutes)

Dear Chairman Wheeler, Commissioners Clyburn,  
Rosenworcel, Pai and O'Reilly, Ms. Dortch:

The Boulder Regional Emergency Telephone Service Authority ("BRETSA")<sup>1</sup> submits for the record in this proceeding the URL for a broadcast news item which recently aired on WXIA-TV, Atlanta, Georgia regarding the Phase I misrouting of a 9-1-1 call which cost a woman her life. BRETSA urges the Commission to address the frequent misrouting of 9-1-1 calls based on Phase I location data ("Phase I Misroutes").

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<sup>1</sup> 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. This letter is 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.

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In its filings in PS Docket No. 07-114, BRETSA has urged the Commission to address location accuracy for purposes of 9-1-1 call routing. The primary purpose of 9-1-1 call location information is to identify the PSAP which should receive the call.<sup>2</sup> (In less than one percent of cases, according to BRETSA estimates, location information is also needed for First Responders to locate a caller who is unable to communicate his or her location.) Because wireless calls are default-routed based upon the location of the wireless provider's tower site and antenna through which the call is received ("Phase I Routing"), and many wireless provider towers and antennas serve areas within multiple jurisdictions, calls are routinely misrouted to a PSAP which cannot dispatch First Responders to the caller's location.<sup>3</sup> Dispatch of First Responders is delayed until the dispatcher realizes the call has been misrouted, and transfers the call to the correct PSAP (where PSAP-to-PSAP 9-1-1 call transfer is available).<sup>4</sup> While cases in which the caller is unable to provide his or her location are rather rare, Phase I Misroutes are quite common.

The WXIA news item, available at: <http://www.11alive.com/video/4026681211001/50317397001/The-Investigators-911-often-cant-find-victims-calling-from-cell-phones> (last visited February 5, 2015) tragically illustrates BRETSA's point. Shannell Anderson drove into a community pond in the darkness around 4 a.m., December 29, 2014. As the water filled her car, she called 9-1-1 and *told the dispatcher her location* and what had happened; but the call had been routed to the wrong PSAP based on a Phase I location. Phase II location data was not provided for the call, and the dispatcher did not realize that Shannell was calling from another jurisdiction. It took 20 minutes for First Responders to find Shannell's location, and an additional 9 minutes for divers to extract her from the vehicle. They were too late.<sup>5</sup>

Phase I Misroutes are quite common. In these cases. (i) the dispatcher must determine that the call has been misrouted based on information provided by the caller, or on Phase II data if and when it becomes available; (ii) the dispatcher must identify the jurisdiction in which the caller is located and transfer the call to the PSAP for that jurisdiction (where PSAP-to-PSAP call transfer is available), and (iii) the dispatcher transfer-

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<sup>2</sup> Call location can also be used to route calls over different 9-1-1 lines depending on the caller's location, which identifies for the PSAP the complement of law and fire agencies in whose jurisdiction the caller is located and which should be dispatched in response to the call.

<sup>3</sup> BRETSA has also noted that in some cases, wireless calls apparently "leapfrog" towers located nearer the caller which are at call-handling capacity, and connect through more distant towers which may serve other jurisdictions.

<sup>4</sup> BRETSA understands that PSAP-to-PSAP call transfer is not available in all states. 9-1-1 call transfer between PSAPs in different states, even between PSAPs serving jurisdictions directly across a state border from one another, is not generally available.

<sup>5</sup> First Responders were able to resuscitate Ms. Anderson, but the damage had been done. She remained in a coma for a week and a half before her organs began to fail. Even if Phase II data been available to alert the dispatcher that Ms. Anderson was in another jurisdiction, the delay inherent in receipt of the Phase II data and transfer of the call or otherwise relaying the call information to the proper PSAP, may have prevented First Responders from reaching Ms. Anderson in time.

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ring the call or the caller has to provide the second dispatcher the nature and location of the emergency before First Responders are even dispatched...when every second counts.

BRETSA has identified several measures which would limit the number of Phase I Misroutes. These include:

- **Wireless System Design.**

Wireless providers should take jurisdictional boundaries into account in placement and orientation of their towers and antennas, where feasible. Antennas should be aligned to minimize coverage of multiple jurisdictions.

- **Monitoring of 9-1-1 Routing Accuracy For Purposes of Remediation.**

Wireless providers should monitor 9-1-1 routing accuracy, through comparison of Phase I and Phase II data from actual 9-1-1 calls, to identify towers or antennas for remediation of Phase I Misroutes. PSAPs should also be able to submit to wireless carriers the Phase I addresses of towers and antennas from which they believe Phase I Misroutes are regularly received, for remediation.

- **Identifying Calls Which May Be Phase I Misroutes.**

Wireless providers, working with ALI providers and PSAPs, should remediate Phase I Misroutes by including a code in Phase I data to alert PSAPs to the percentage of calls from the antenna which are Phase I Misroutes.

- **Reorienting System Antennas.**

Wireless providers should evaluate the feasibility of re-orienting antennas at sites which have a relatively high percentage of Phase I Misroutes as a means of remediation.

- **Phase II Routing.**

Phase II Routing should be implemented for sites or antennas which have a high percentage of Phase I Misroutes as a means of remediation, at the discretion of the PSAP.<sup>6</sup> In Phase II Routing, routing of 9-1-1 calls to a PSAP is delayed until the Phase II data is received for accurate call routing, while a ringing signal is sent back to the caller. If a certain interval of time elapses before the Phase II data is received, the call is routed to the default PSAP.

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<sup>6</sup> BRETSA understands Phase II Routing has been implemented in some areas of California and Ohio.

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Because implementation of Phase II Routing would delay delivery of *all* 9-1-1 calls received over the tower or antenna, the PSAP(s) involved should make the determination as to whether Phase II Routing should be implemented. Reasonable public safety professionals can disagree as to the percentage of Phase I Misroutes which will justify delaying delivery of all 9-1-1 calls through a tower or antenna.

- **Accelerate Phase II Location Determination.**

The Commission should promote accelerated Phase II Location Determination to facilitate Phase II Routing, which would reduce the delay in Phase II Call Routing. Time-to-First-Fix as well as location accuracy is critical criteria for acceptability of location technologies.

- **“Phase III Routing,” Using More Granular Location Information Than Phase I Data And Which Is More Rapidly Available Than Phase II Data, Should Be Explored.**

Wireless calls are routed based on Phase I data because of the delay, or historical delay, in receipt of Phase II data. Phase I Misroutes occur frequently because Phase I data is not sufficiently granular (the address of the CMRS tower site is provided for all calls made in the tower’s coverage area). BRETSA has suggested that a third category of location information, which BRETSA has termed Phase III location information, might be implemented for 9-1-1 call-routing purposes. Phase III data would be available much more quickly than Phase II data so that it could be used for routing purposes, and provide much more granular resolution than Phase I data to minimize the incidence of Phase I Misroutes.

Phase III data would ideally be sufficiently granular not only for correct routing of wireless 9-1-1 calls, but also for proper identification of the correct complement of First Responder agencies to dispatch to the caller’s location. More accurate Phase II data, when available, will allow the PSAP to verify the caller’s location, and direct First Responders to the caller’s location in those cases where the caller unable to communicate his or her location to the PSAP. Phase I data would only be used for call routing if neither Phase III nor Phase II data was available.

A number of location technologies have been identified in Docket No. 07-114, and others may yet be introduced, which may not be accurate enough for improved Phase II data but which may be suitable for Phase III Routing. (BRETSA also recognizes that a Phase II solution may be developed which will reliably provide sufficiently accurate location data quickly enough for use in call routing, eliminating the need for Phase III data.)

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- **Automating Requests For Additional Location Information.**

On November 21, 2012, BRETSA filed a Petition for Rulemaking seeking rules which would require wireless carriers to automate the process for PSAPs to request that wireless carriers “ping” the locations of wireless devices to determine their location, such as in cases where 9-1-1 calls were disconnected and could not be reconnected.<sup>7</sup> This is in response to the current requirement that PSAPs fill out a paper form requesting the carriers ping the device location, and fax the form to the carrier before the carrier will attempt to locate the device. Dispatchers have complained that this process wastes valuable time when they are trying to locate a suicidal caller who has disconnected the call and will not or cannot answer when the dispatcher calls back, and in similar situations.<sup>8</sup>

Similarly, it appears from comments submitted in Docket No. 07-114 that there are a number of location technologies available, including commercial location technologies and location technologies which may be initiated by wireless carriers on a case-by-case basis, which may provide different levels of accuracy in different circumstances. As stated in BRETSA’s Comments in Docket No. 07-114, cases in which callers are unable to provide their location constitute only a tiny fraction of 9-1-1 calls. However in those cases it is often critical that First Responders locate the caller quickly. As with suicidal callers, elderly persons suffering from dementia or Alzheimer’s disease and other situations where the PSAP needs to lo-

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<sup>7</sup> BRETSA also requested that additional customer information be made available by providers on an automated basis for purposes of locating callers, populating ENS databases with wireless and VoIP customer data, verification of surcharge remittances, and for other purposes.

<sup>8</sup> Subsequently, at Exhibit No. 1 to its April 4, 2014 comments on the Commission’s January 31, 2014 Policy Statement and Second Further Notice of Proposed Rulemaking in Docket No. 11-153, available at <http://apps.fcc.gov/ecfs/document/view?id=7521096988>, BRETSA submitted the transcript of a 9-1-1 call regarding a suicidal young man in which almost 10 minutes elapsed from the time the Longmont, Colorado dispatcher obtained the suicidal person’s number, and could have submitted the number to the carrier for location determination if automated submittal through a CAD or PSAP 9-1-1 Telephone System had been available, until the location was provided by the carrier (even though the carrier waived the requirement for fax submittal of the paper form). When the dispatcher relayed the situation and location of the suicidal man to the Aurora, Colorado PSAP (serving the jurisdiction where the man was located), the Aurora dispatcher responded: “We just had somebody step in front of a vehicle less than two minutes ago.” The young man had stepped in front of a semi on the Interstate and was killed. If the PSAP had been able to submit the man’s number to the carrier with a mouse-click or keystroke combination on the CAD or phone system, five minutes would have been saved. Additional time might have been saved if the carrier was able to automate its system and return coordinates and a reliability or uncertainty value for display on the CAD system. The audio of the call, “Suicide By Semi” is available at: <http://911colorado.org/911-audio-videos/other-911-calls/> or [https://www.youtube.com/watch?feature=player\\_embedded&v=XeK\\_1PjoKzo](https://www.youtube.com/watch?feature=player_embedded&v=XeK_1PjoKzo). It is difficult to listen to the audio, knowing that the remaining minutes of the man’s life are ticking away as the dispatcher completes the 9-1-1 call before she can contact the carrier to request the suicidal man’s location, and waits for the carrier to determine and provide the location.

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cate a person's wireless device which prompted BRETSA's November 21, 2012 Petition for Rulemaking; PSAPs should have the ability to submit an automated request through the PSAP CAD or 9-1-1 telephone system for the carrier to attempt to use alternative location technologies to provide a more accurate caller location, and the location data returned to the PSAP electronically.<sup>9</sup>

BRETSA is disappointed that the Commission did not consider the matter of Phase I location accuracy raised by BRETSA to be within the scope of the Third Further Notice of Proposed Rulemaking in PS Docket No. 07-114, and adopt rules requiring improvements in location accuracy for 9-1-1 call routing. Exponentially more calls are mis-routed based on Phase I data than involve a caller who is unable to provide their location. The case of Shannell Anderson illustrates this. Ms. Anderson was able to provide her location, even spelling out the name of the road she was on when she swerved into the community pond. But her call was received over a an antenna from which all 9-1-1 calls were default-routed to a jurisdiction other than the one in which Ms. Anderson was located, and the dispatcher did not realize the call came from another jurisdiction. Dispatch of First Responders is delayed by 9-1-1 Misroutes, and this delay can have tragic consequences. BRETSA urges the Commission to take action to address the high incidence of Phase I Misroutes.

Very truly yours,



Joseph P. Benkert

Counsel to the Boulder Emergency  
Telephone Service Authority

cc: Adm. David Simpson (ret.), Chief  
FCC Public Safety & Homeland Security Bureau  
(Via E-mail)

David Furth, Deputy Chief  
FCC Public Safety & Homeland Security Bureau  
(Via E-mail)

Timothy May  
FCC Public Safety & Homeland Security Bureau  
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<sup>9</sup> Carrier personnel should continue to be available by phone for assistance in locating callers or devices, but BRETSA believes that automated requests and responses for additional location information will expedite the location of callers in most cases.