

NENA

The 9-1-1 Association

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Ms. Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street SW
Washington, D.C. 20554

September 25th, 2013

RE: PS Docket No. 07-114

Dear Ms. Dortch:

On behalf of NENA: The 9-1-1 Association, I write to provide brief comments in response to the Public Notice released by the Commission's Public Safety and Homeland Security Bureau in this docket on September 9th, 2013.

NENA represents more than 7,000 front-line telecommunicators and dispatchers, supervisors, managers, and executives in the 9-1-1 community. As a result, we have a unique perspective on the operational impacts of FCC rules and wireless carriers' compliance efforts on Public Safety Answering Points (PSAPs) and the field responders they dispatch. Additionally, the regular contact between NENA's members and the public also provides us with key insights into the needs and expectations of the public – needs and expectations that must be considered when developing and implementing 9-1-1 location policy.

In the *Public Notice*, the Bureau asks several important questions about the current state of 9-1-1 location technology, the public's use of wireless devices, the impact of that technology and use on local 9-1-1 systems, and the potential for future improvements in wireless location. These questions are all the more important given the radical shifts in how the public uses wireless devices that have occurred over the past half decade: The accelerating abandonment of home and even business wireline service in favor of wireless service has inverted the traditional breakdown of call sources, with 70% *or more* of all 9-1-1 calls now originating from wireless subscribers in many jurisdictions. This shift has driven changes in the training of telecommunicators and dispatchers, and has forced PSAPs and 9-1-1 authorities to learn and cope with many carrier idiosyncrasies. These idiosyncrasies require telecommunicators to develop a "feel" for how individual networks perform – whether the location information they deliver should be relied upon in formulating a response, or should be ignored in favor of pursuing verbal location confirmation from a caller (when able).

The ongoing transition to wireless service has also contributed to an apparent increase in the fraction of wireless calls originating indoors. Unfortunately, while there are location solutions currently on the market that are capable of generating indoor fixes for wireless 9-1-1 callers, PSAPs generally do not have visibility into whether a particular fix was generated indoors or out. For 9-1-1 authorities and PSAPs, data collection mechanisms fall generally into six categories: (1) none or manual processes, (2) basic call counts from Customer Premises Equipment (CPE), (3) Management Information Systems (MIS) generating tabular data from individual hardware or software entities, (4) integrated MIS sys-

tems that generate tabular data from multiple data sources, (5) data analytics and visualization systems that generate historical or real-time views of system and component performance, and (6) syndromic surveillance systems that can monitor call traffic for defined or emergent properties. The first three types of tools, though valuable for some purposes and widely deployed, do not necessarily give PSAPs the same type access to key insights that commercial-scale business intelligence or network monitoring tools provide to carriers and other system service providers. Furthermore, *all* analytical systems deployed by 9-1-1 authorities lack visibility into the internal process of carrier networks and, in many cases, to those of the 9-1-1 system service providers on which the PSAPs and authorities depend. Consequently, as capably explained by AT&T, there will be occasions on which the same data may be subject to two or more equally valid yet seemingly contradictory interpretations.

Anecdotally, NENA's members report having noticed a decrease in the fraction of wireless calls for which Phase II location data is available *early in the call*. This anecdotal evidence is consistent with the data provided by CalNENA *and* the explanatory filings made later by AT&T, Sprint, T-Mobile, and Verizon Wireless. As the carriers correctly note, the current network architecture deployed in the vast majority of E9-1-1 systems requires PSAPs to affirmatively request updated location information after the initial setup of a call. Whether and how PSAPs do so, however, is a complex matter involving hardware and software capabilities and configuration, operational considerations, and, in some cases, financial impacts.

As Wireless Phase II was originally conceived and deployed, there was a widespread understanding that differences in location determination technologies and caller environments would prevent carriers from delivering precise location data at call setup time or at a consistent time after call setup. Additionally, differences in carrier network deployments and technology meant that requests for updated location information or "re-bids" generated too early in a call could delay the availability of that information. Despite efforts by NENA and others to standardize on a 30 second re-bid interval, current PSAP practices are highly variable, and it appears that a majority of PSAPs do not generate automatic re-bids. Phase II location information is most critical in two circumstances: when callers are unable to describe or confirm their location, and when PSAPs must evaluate individual calls or aggregate traffic to determine whether calls are legitimate, the result of individual pranks or abuse, or part of a coordinated cyber attack. In the first scenario, the totality of the public safety community's response efforts are wholly dependent on the ability of mobile devices and networks to quickly and accurately locate a user in distress. That is, even if all PSAPs immediately began re-bidding all wireless calls automatically at the recommended time, routing, transfer, and even some call handling processes would still be impacted by the timeliness of available Phase II data. In the second scenario, timing also plays a role, though moreso from a *post hoc* analytical standpoint where it is necessary to correlate locations for what may be many thousands of successive, short calls.

NENA believes that both the carrier and CalNENA data support inferences that the shift toward the use of wireless devices in challenging indoor environments has increased the time required to acquire a fix, and may have resulted in increased use of fallback lo-

cation technologies. Whatever the reason, however, the shift in consumer use habits for wireless technology have not been accompanied by shifts in regulatory policy to accommodate those uses. NENA believes that the time is ripe for the Commission to update its location accuracy rules to account for these shifts.

The Commission's current rules do not contain timing requirements, do not address vertical location, omit any reference to indoor location performance, and largely leave the question of what qualifies as a valid Phase II fix up to the discretion of each carrier. But as the recent CSRIC test bed results made clear, technology exists and can be (or in some cases already is) deployed today that can much better meet the needs of the public and the public safety community with respect to all four of these issues. For example, existing network-based and network-assisted location technologies can provide very fast first fixes, which are valuable to public safety, even if they are subject to larger uncertainties than final GNSS fixes. Some fraction of smartphones already circulating among consumers also already contain barometric pressure sensors which could be used even without localized calibration data to derive at least relative z-axis data, and high-precision multi-channel and multi-constellation GNSS receivers are becoming commonplace in even mid-range devices. At the same time, new satellite- and ground-based positioning systems are coming on line, with GALILEO, COMPASS, Boeing Timing & Navigation, and NextNav networks all offering dramatic improvements in both outdoor and, critically, *indoor* location performance. Not to be left out, carriers, handset vendors, and other technology providers are rapidly deploying commercial location based services platforms that can improve location accuracy and performance while reducing the cost of 9-1-1 location system roll-outs. Technologies like picocells, Bluetooth iBeacons, and WiFi positioning can all contribute to the speed, accuracy, and indoor availability of location determination solutions, while enhancing carrier revenue and serving as a quality differentiator between competing networks.

The Commission's existing E9-1-1 wireless location accuracy rules have served the public and the public safety community well over the past decade, and have been the driving force behind billions of dollars of infrastructure, hardware, and software investments by wireless service providers, platform vendors, and handset developers. NENA therefore does not believe that those rules should be subject to wholesale revision. Given all of the remarkable technological advances described above, and the categorical findings of the CSRIC test bed, NENA believes that the Commission should immediately open a proceeding to address three essential tasks: a minor revision of the existing E9-1-1 wireless location accuracy requirements to more carefully and completely describe carriers location performance obligations; the phase-in of a z-axis performance requirement; and the introduction of an indoor location accuracy standard.

Sincerely,



Telford E. Forgety, III, "Trey"

*Director of Government Affairs
& Regulatory Counsel*