

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

In the Matter of	§	
	§	
Location-Based Routing	§	PS Docket No. 18-64
For Wireless 911 Calls	§	

REPLY COMMENTS OF THE TEXAS 9-1-1 ENTITIES

The Texas 9-1-1 Alliance,¹ the Texas Commission on State Emergency Communications,² and the Municipal Emergency Communication Districts Association³ (collectively, the “Texas 9-1-1 Entities”) respectfully submit the following reply comments regarding the Federal Communications Commission (the “Commission”) Notice of Inquiry (“NOI”) in the above-referenced proceeding.⁴ In the NOI, the Commission, among other things, seeks to determine the best ways to avoid delays in the response to some wireless 9-1-1 calls that currently result from the manner in which those 9-1-1 calls are routed via the current 9-1-1 system (referred to as “misroutes” in the NOI), and seeks comment on the development of a more complete record regarding location-based routing (“LBR”).⁵

¹ The Texas 9-1-1 Alliance is an interlocal cooperation entity composed of 26 Texas emergency communication districts with E9-1-1 service and related public safety responsibility for more than 63% of the population of Texas. These emergency communication districts were created pursuant to Texas Health and Safety Code Chapter 772 and are defined under Texas Health and Safety Code Section 771.001(3)(B).

² The Texas Commission on State Emergency Communications (“CSEC”) is a state agency created pursuant to Texas Health and Safety Code Chapter 771, and by statute is the state program authority on emergency communications. CSEC’s membership includes representatives of the Texas 9-1-1 Entities and the general public, and directly oversees and administers the Texas state 9-1-1 program under which 9-1-1 service is provided in 206 of Texas’ 254 counties, covering approximately two-thirds of the state’s geography and one-fourth of the state’s population.

³ The Municipal Emergency Communication Districts Association (“MECDA”) is an association of 26 municipal emergency communication districts, as defined under Texas Health and Safety Code Section 771.001(3)(A), that are located primarily in the Dallas-Fort Worth area.

⁴ See *Location-Based Routing for Wireless 911 Calls*, PS Docket No. 18-64, Notice of Inquiry (rel. Mar. 23, 2018) (available at https://apps.fcc.gov/edocs_public/attachmatch/FCC-18-32A1.pdf).

⁵ NOI at ¶¶ 1-5 (and footnotes 1-3) ¶ 16, and ¶¶ 17-42. The term “misroutes” for the remainder of these reply comments is intended to be used in the manner used in the NOI.

I. All 9-1-1 stakeholders in good faith should consider operational improvements in the context of E9-1-1 or NG9-1-1, and this includes a complete and accurate review of current wireless 9-1-1 call routing issues, and when and how to implement LBR.

The duty of the various 9-1-1 stakeholders (wireless carriers, wireline carriers, VoIP carriers, other types of carriers, and 9-1-1 authorities) to work together in good faith is a longstanding Commission expectation regardless of the involved technology.⁶ For obvious reasons, the expectation of good faith from and between parties applies in the context of E9-1-1 and NG9-1-1. Even assuming that the various stakeholders will exercise the utmost good faith with regard to joint planning, disclosure, and communication, it will simply not be possible to simultaneously and instantaneously flash-cut to end state NG9-1-1 and fully Internet Protocol (IP) originating service provider networks on a nationwide basis. Notwithstanding that fact, the public expects all of the various stakeholders to utilize advancements in communications technology to provide better 9-1-1 service, which the public understandably assumes includes improved emergency response. This inevitably requires that all 9-1-1 stakeholders will have communicated and worked out the challenges in implementing NG9-1-1 technology, including any interoperability issues, before the public begins to use this communications technology to request assistance in an emergency.

⁶ See, Connect America Fund; A National Broadband Plan for Our Future; Establishing Just and Reasonable Rates for Local Exchange Carriers; High-Cost Universal Service Support; Developing a Unified Intercarrier Compensation Regime; Federal-State Joint Board on Universal Service; Lifeline and Link-Up; Universal Service Reform – Mobility Fund; WC Docket Nos. 10-90, 07-135, 05-337, 03-109, CC Docket Nos. 01-92, 96-45, GN Docket No. 09-51, WT Docket No. 10-208, Report and Order and Further Notice of Proposed Rulemaking, 26 FCC Rcd 17663 (2011) (“USF/ICC Transformation Order and/or FNPRM”); *aff’d sub nom.*, In re: FCC 11-161, 753 F.3d 1015 (10th Cir. 2014) (available at https://apps.fcc.gov/edocs_public/attachmatch/FCC-11-161A1.pdf) at ¶1011 (“In particular, even while our FNPRM is pending, we expect all carriers to negotiate in good faith in response to requests for IP-to-IP interconnection for the exchange of voice traffic. The duty to negotiate in good faith has been a longstanding element of interconnection requirements under the Communications Act and does not depend upon the network technology underlying the interconnection, whether TDM, IP, or otherwise.”).

The initial comments by T-Mobile could be read to state that a choice must be made between E9-1-1 wireless 9-1-1 call routing improvements and progress on NG9-1-1.⁷ Similarly, the initial comments by CTIA could also be read to posit the same choice.⁸ On the other hand, if the initial comments by T-Mobile and CTIA are simply a caution to be mindful of the potentially different technical challenges and related costs faced by each of the parties as they move forward in their respective transitions, that is appropriate. The transition to NG9-1-1 deserves complete, accurate, careful, and public consideration from the perspectives of all 9-1-1 stakeholders, as the Texas 9-1-1 Entities urged in our initial comments.⁹ However, a choice between E9-1-1 improvements or progress on NG9-1-1 should not be considered as a strictly “either/or” decision. Both E9-1-1 and NG9-1-1 need attention in the current environment, as E9-1-1 and NG9-1-1 are not currently mutually exclusive and may not become so for a very long time.

⁷ See, T-Mobile Initial Comments at p 6:

For these reasons, the Commission must carefully consider the cost-benefit analysis of any changes to 911 call routing on legacy systems and refrain from proposing burdensome new rules that would divert resources away from deployment of new technologies and other forward looking improvements. NG911, which is designed for location-based call routing, and the emerging low-latency/high-accuracy location methods necessary to enable such routing, are both becoming available at roughly the same point in time—making the best course of action clear. The Commission should focus its efforts on policy initiatives that hasten the transition to NG911 and encourage 911 stakeholders to migrate expeditiously to next generation technologies.

⁸ CTIA Initial Comments at p. 6:

NG911 functionalities may offer better flexibility for routing 9-1-1 calls than a standalone location-based routing framework. In this regard, the *NOI* observes that “NG911 systems are designed to route calls using caller location information obtained in real time”; in contrast, it asks about the “potential transition costs of implementing location-based routing on current wireless 911 systems” rather than as part of NG911. To that end, the Commission should weigh whether the better course is to devote resources to a standalone location-based solution falling solely on the originating service provider or instead to advance and incentivize NG911. [Footnote in original omitted]

⁹ Initial Comments of the Texas 9-1-1 Entities at p. 11 (“In order for the Commission and 9-1-1 stakeholders to be able to make informed decisions and do reasonable strategic planning, the timing and mechanisms for implementing device-based handset initiated hybrid location technology solutions and other emerging technologies to improve (1) call routing, (2) caller location information, and (3) NG9-1-1 must be publicly documented in the record in this proceeding.”).

As noted above, all 9-1-1 stakeholders cannot possibly simultaneously and instantaneously flash-cut everything nationwide to end state NG9-1-1 and fully IP originating service provider networks. As such, to varying degrees these parties are required to work in good faith toward enhancing and even duplicating some aspects of old and new systems during their respective transitions, even under the most ideal of circumstances. For example, in Texas, certain NG9-1-1 systems have had to add multiple Legacy Network Gateways (“LNGs”) during the current implementation process because some or all wireless carriers, wireline carriers, and VoIP carriers are not yet ready to interface via IP or via end state NG9-1-1. LNGs are seen as a one-time fixed cost necessary in order to allow for transitioning to NG9-1-1 currently, again because it is unrealistic to expect a simultaneous and instantaneous flash-cut by all 9-1-1 stakeholders. Similarly, wireless carriers may need to implement Mobile Positioning Center or Gateway Mobile Location Center (“MPC/GMLC”) enhancements in order to accommodate LBR prior to end state NG9-1-1.

Prior to the ultimate transition to end state NG9-1-1 and fully IP originating service provider networks, wireless carriers are currently continuing to deploy new wireless IP services, such as Wi-Fi Calling or Real-Time Text (“RTT”), or seeking to deploy the National Emergency Address Database (“NEAD”) to provide “dispatchable location.” For now, new wireless IP services must consider and account for both E9-1-1 and NG9-1-1.¹⁰ Even at the point in time that every originating service provider network is fully IP and end state NG9-1-1 has been deployed by every 9-1-1 authority, the additional Geographic Information System (GIS”) and other

¹⁰ For example, RTT via RTT-to-TTY conversion began to be implemented on wireless IP networks beginning after December 31, 2017. However, the transition beyond E9-1-1 RTT-to-TTY conversion to end-to-end RTT-to-RTT remains, and such is anticipated to be discussed at the Commission’s October 2, 2018, PSAP Education Day: Real-Time Text. See, for additional details, <https://www.fcc.gov/news-events/events/2018/10/psap-education-day-real-time-text>.

operational work to have IP originating service provider sending 9-1-1 calls with location payload Presence Information Data Format Location Object (“PIDF-LO”) for routing, and the associated respective end-to-end NG9-1-1 data flow processes, may require additional time and effort. The operational changes necessary to creating PIDF-LO is not a trivial matter. As such, if LBR location information can be sufficiently tested and provided quickly enough for E9-1-1 routing purposes today, then LBR should be reviewed and considered for implementation prior to end state NG9-1-1, with a safety net of falling back to cell sector routing if or when LBR is unavailable for whatever reason (notwithstanding that LBR for end-state NG9-1-1 might remain under separate evaluation and testing).

In its initial comments, West Safety points out that E9-1-1 cell sector routing improvements using LBR may be able to be accomplished today in some circumstances without any change to the carrier’s existing network:

[H]andset-initiated location technology is able to efficiently send location to the MPC/GMLC from the device. This connection can be established without any change to the carrier’s existing network or a PSAP’s network (including Emergency Services IP networks (ESInets)) and infrastructure. Handset-initiated location technology can also utilize multiple transport layers and provide to the MPC/GMLC any device-based hybrid locations made available to the handset (crowd sourced Wi-Fi AP locations, GPS with assistance data (mobile station-based GPS), Bluetooth Low Energy (BLE), altitude, indoor location, etc.).¹¹

In the context of NG9-1-1 transition, West Safety also points out that whenever the wireless carriers might start sending their originating 9-1-1 calls via PIDF-LO to be routed by a NG9-1-1 system, there may still be questions and considerations associated with the circumstances under which a NG9-1-1 system can and should be ready to be used in that manner.¹²

¹¹ West Safety Initial Comments at p. 11.

¹² West Safety Initial Comments at pp. 17-18 (“One important issue to note for NG9-1-1 is there may be temptation to delay calls to enable location-based routing by taking advantage of the overall reduction in time to answer 9-1-1 calls in end-to-end NG9-1-1. As the industry moves to i3 networks, the current 10-12 second delivery time to the

If West Safety is correct that E9-1-1 improvements using LBR are able to be accomplished today without change to the carrier's existing network, then there should be a reasonable Commission expectation that the wireless carrier will respond in good faith to a request for LBR in context of E9-1-1. If it can be shown that a NG9-1-1 system at some point in time in the future may be fully ready and can route the 9-1-1 call quickly enough using PIDF-LO, then there should reasonably be a similar Commission expectation that the wireless carrier will respond in good faith to a request for LBR in context of NG9-1-1.¹³

II. Key points on current Non-LBR wireless 9-1-1 call routing issues.

The Texas 9-1-1 Entities would offer a few key points regarding current non-LBR wireless 9-1-1 call routing and the data on these issues. As pointed out in the Initial Comments of the Texas 9-1-1 Entities and in the data referenced therein, while sector-by-sector percentages and numbers varied considerably, approximately 70% of cell sectors indicated no misroutes and approximately 10% of sectors have greater than 50% misroutes.¹⁴ However, the use of the term "mismisroutes" and the data presented on those issues should not be taken by the Commission or anyone else to imply fault or a general lack of cooperation between wireless carriers and 9-1-1 authorities. Even though

PSAP will shrink significantly under the simplified network architecture for NG9-1-1. This time reduction may be used to justify delaying calls until receiving location for routing provided the total answer time remains 10-12 seconds. West Safety recommends the Commission avoid 9-1-1 call delay at all costs in policy advancement and implementation of location-based routing technologies. Because callers expect immediate response, the policy objective should be to curtail hang-ups as much as possible by encouraging carriers and PSAPs to reduce the overall timeline of 10-12 seconds to answer.").

¹³ In the same vein, if a 9-1-1 authority receives a bona fide request from a wireless carrier to make a change, then perhaps it is reasonable for the Commission to expect that the 9-1-1 authority (or perhaps more likely in many cases the 9-1-1 authority's carrier vendor) will respond in good faith in the context of either E9-1-1 and/or NG9-1-1, as applicable. While the involved 9-1-1 stakeholders could always seek to take a dispute that they cannot mutually resolve to the Commission and/or a state public utility commission, as may be applicable, as a regulatory matter (putting aside jurisdictional challenges that could be raised in some cases), such can be a potentially long process that may sometimes take years before there might ever be a binding and final decision on the issue.

¹⁴ Initial Comments of the Texas 9-1-1 Entities at pp. 4-6. See also, West Safety Initial Comments at pp. 3-5, which reviewed data for the first three months of 2018 in 1,956 of approximately 3007 counties nationwide.

E9-1-1 wireless 9-1-1 call routing has never been specifically regulated by the Commission, dedicated 9-1-1 people from wireless carriers, third-parties, and 9-1-1 authorities have had a long history of working together in good faith in the context of E9-1-1 wireless 9-1-1 call routing. That history of cooperation cannot be lost in the transition to NG9-1-1, but should instead progress productively in the context of using the Emergency Call Routing Function (“ECRF”) in NG9-1-1.

In the context of E9-1-1, NENA 57-002 facilitates the standardization of Call Routing and Testing Validation Worksheet (“TVW”) between parties. By its nature, it is a joint and cooperative process that allows parties to improve routing where feasible.¹⁵ For example, while NENA 57-002 contemplates annual audits of cell sectors, for the past 18 months the Greater Harris County 9-1-1 Emergency Network (“GHC 9-1-1”) has been seeking to review cell sector data on a

¹⁵ See, NENA Wireless Maintenance Call Routing & Testing Validation Standard, NENA 57-002 (June 5, 2007) and Appendix A (Call Routing and Testing Validation Worksheet) and Appendix B (Sample Non-Disclosure Agreement) (available at <https://www.nena.org/page/WirelessRoutingTest?>). NENA 57-002 at p. 11 explains the TVW process as follows:

Process Overview:

The Call Routing/TVW spreadsheet is produced by the Wireless Carrier or the Deployment Service Provider, whichever is applicable. The Wireless Carrier begins the process by filling out the Wireless Carrier Section on the Call Routing tab of the spreadsheet. Call routing maps should be sent with the spreadsheet for new cell sites or cell site changes that affect call routing (reference Section 3.1.4). The Call Routing/TVW spreadsheet is then forwarded to the 9-1-1 Governing Authority who fills out the 9-1-1 Governing Authority Section of the Call Routing tab of the spreadsheet. If changes are required to the MSAG address in the Wireless Carrier’s section (due to re-addressing), the 9-1-1 Governing Authority should cross out the old information and add the new information in the same fields on the spreadsheet. Once 9-1-1 Governing Authority has completed their section of the Call Routing tab of the spreadsheet and made any changes to the Wireless Carrier’s MSAG addresses, the Call Routing/TVW spreadsheet should be sent back to the Wireless Carrier or the Deployment Service Provider, whichever is applicable. The 9-1-1 Governing Authority should complete their portion of the Call Routing/TVW spreadsheet within the timeframes specified in Section 3.2. Once the Wireless Carrier or Deployment Service Provider complete the provisioning of the data in accordance with the completed Call Routing tab of the spreadsheet, the first four columns of the TVW tab of the spreadsheet should be populated and sent to the 9-1-1 Governing Authority as specified in Section 3.2.

See also, *Connecting Legacy Wireless Systems to NENA i3-Based ESNets*, (June 2011), at p. 1 (“Since 1998, wireless carriers and public safety answering points (PSAPs) have agreed on how to establish wireless E9-1-1 call routing. They have captured these agreements into what are generally referred to as wireless traffic plans (WTPs). WTPs typically incorporate a development process in which wireless carriers provide draft WTPs to individual PSAPs for approval. The draft WTPs relate to the routing decisions for each cell-site sector in carriers’ networks.”) (Available at http://www.telecomsys.com/Libraries/Collateral_Documents/NENA_i3_LWS_Whitepaper.sflb.ashx?download=true).

quarterly basis, and wireless carriers have worked cooperatively with GHC 9-1-1 in those efforts. However, quarterly reviews can only do so much to overcome geometry and the constraints and intersections of circumstances associated with specific cell sector coverage, public safety boundaries, and expected population and occupancy within a cell sector.

As wireless 5G deployments are rolled-out, additional work and effort may be required from some dedicated 9-1-1 people, perhaps continuing to use the current legacy E9-1-1 TVW spreadsheet and e-mail exchange process. In wireless 5G, the coverage area of the small cell may be materially less than a macrocell and may make concurrence between the parties on the 9-1-1 routing perhaps easier (if the small cell is kept to its originally designated coverage area). Nevertheless, for purposes indicating the civic address of the cell and whether and when the cell should be considered to be a valid “dispatchable location,” this effort may be more demanding in 5G, especially given the sheer number of 5G cells and particularly in the context of a public venue (e.g., the Alamodome).¹⁶ The TVW process is currently a fundamental part of determining and setting-up wireless E9-1-1 call routing. While NG9-1-1, “dispatchable location” from the NEAD, and LBR may not improve the legacy E9-1-1 TVW process anytime soon or in the near future, it is important to keep in mind the significant work and effort of many dedicated 9-1-1 people required by the TVW process. Accordingly, consideration should be given to decreasing the work associated with the legacy E9-1-1 TVW process during the transition to using the ECRF in the context of NG9-1-1.

¹⁶ Cf., California 9-1-1 County Coordinators Manual, Chapter 5, Wireless, at p. V-3 (“Increasingly we expect to see small cells utilize specific location information such as “3rd floor”, “Section R”, or “Indoor” within the call data record and will be identified on the Test Validation Worksheet (TVW) when sector assignments are made.”) (Available at <https://www.countycoordinators.com/resources.html>.)

III. Conclusion

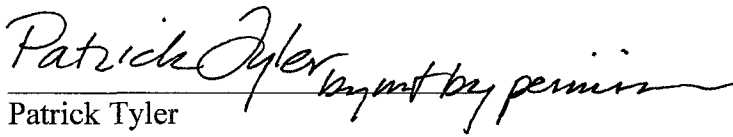
The Texas 9-1-1 Entities appreciate the opportunity to provide the foregoing reply comments on these matters, and respectfully request that the Commission take action in this proceeding a manner consistent with these reply comments.

Respectfully submitted,

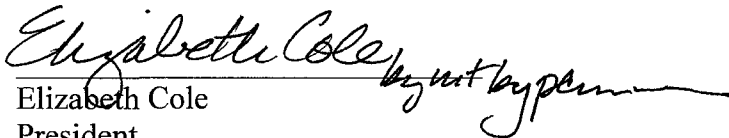


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