

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of)
)
Wireless E911 Location Accuracy Requirements) PS Docket No. 07-114

COMMENTS OF APCO INTERNATIONAL

The Association of Public-Safety Communications Officials-International, Inc. (APCO)¹ submits these comments in response to the Federal Communications Commission’s Fifth Report and Order and Fifth Further Notice of Proposed Rulemaking regarding wireless E9-1-1 location accuracy requirements.²

APCO has filed a Petition for Clarification,³ requesting that the Commission clarify several foundational aspects of the Order. Here, APCO provides suggestions to further improve upon the location accuracy requirements with the caveat that how the Commission addresses issues raised in the Petition will impact how the rules should be revised. Further, APCO offers ways to get the carriers back on track to deliver dispatchable location in the earliest possible timeframe. Ultimately, APCO suggests broader changes to the rules to incentivize carriers to provide the most actionable location information possible.

¹ Founded in 1935, APCO is the nation’s oldest and largest organization of public safety communications professionals. APCO is a non-profit association with over 35,000 members, primarily consisting of state and local government employees who manage and operate public safety communications systems – including 9-1-1 Emergency Communications Centers (ECCs), emergency operations centers, radio networks, and information technology – for law enforcement, fire, emergency medical, and other public safety agencies.

² Wireless E911 Location Accuracy Requirements, Fifth Report and Order and Fifth Further Notice of Proposed Rulemaking, FCC 19-124 (rel. Nov. 25, 2019) amended by Erratum (rel. Jan 15, 2020) (“FNPRM”).

³ Petition of APCO International for Clarification, PS Docket 07-114 (filed Feb. 7, 2020) (“APCO Petition”).

I. Several Topics in the FNPRM Depend on Resolution of the Petition for Clarification

The Commission seeks comment on phasing in more granular z-axis requirements,⁴ whether enhancements are needed to vertical location testing,⁵ whether expanding options beyond the population-based CMA coverage requirement would serve the public interest,⁶ and the costs and benefits of deploying z-axis technology nationwide.⁷ APCO supports requiring more granular and actionable information, comprehensive testing that reflects performance in emergency response scenarios, and a framework that ensures every 9-1-1 call will be delivered with the location information needed to find the caller. As described in APCO's Petition, however, several aspects of the Order require clarification, many of which pertain to the carriers' test bed and z-axis technology deployment requirements.

The resolution of many questions raised in APCO's Petition will impact whether and how to improve the location accuracy requirements. For example, the feasibility and benefits of requiring more granular z-axis information depends on how the Commission defines what it means for carriers to deploy z-axis technology consistent with the manner in which it was tested. Which phones should consumers expect to provide vertical location information with 9-1-1 calls?⁸ How do carriers ensure that they have deployed z-axis technology in a manner that will achieve the accuracy demonstrated in the test bed?⁹ What additional z-axis technology testing is required, given that the testing described in CTIA's Stage Z Test Report was not sufficient to demonstrate compliance with the z-axis metric?¹⁰ Clarifying the current requirements will be helpful for developing a more useful record to guide the Commission's next steps.

⁴ FNPRM para. 63.

⁵ *Id.* para. 65.

⁶ *Id.* paras. 71-76.

⁷ *Id.* para. 78.

⁸ APCO Petition at 3-4.

⁹ *Id.* at 2-6.

¹⁰ *Id.* at 7-9

II. Floor Level Information is Preferable and Achievable

The Commission asks whether there are initiatives under way to develop resources for mapping building heights and floor numbers and what the costs are to carriers and public safety to develop database solutions that can be used to convert altitude measurements to an actual floor level.¹¹ In requiring carriers to provide floor level information, the Commission is not constrained by these considerations.¹² Floor level information can be derived separately, without using a 3D map or other resource to convert an HAE to a floor level.¹³ The Commission should take into account the various options available to carriers to provide floor level information, including z-axis technologies being used by the device, carrier-provisioned WiFi and in-home products,¹⁴ new 5G technologies, and other sources.

The Commission notes that “ATIS, AT&T, and T-Mobile suggest that CMRS providers should be responsible only for providing raw location data that meets the z-axis metric, and that PSAPs should be responsible for translating that data into a floor number or other actionable information.”¹⁵ APCO disagrees. ECCs should not bear responsibility for translating HAE data into more useful information.¹⁶ Carriers, device manufacturers, and operating system providers

¹¹ FNPRM para. 66.

¹² APCO Petition at 9.

¹³ See Letter from Megan Anne Stull, Counsel to Google LLC, to Marlene H. Dortch, Secretary, Federal Communications Commission, PS Docket 07-114, at 2 (Nov. 18, 2019) (“For Android Emergency Location Services, for example, floor labeling information provided to public safety would be calculated separately, not simply converted from HAE.”). See also, E911 Location Test Bed Dispatchable Location Summary Report, ATIS Test Bed Program Management, at 10 (Apr. 2019) (demonstrating that even a limited NEAD-based approach to vertical location is capable of identifying the correct floor level (+/- 1 floor) for nearly 40% of calls).

¹⁴ As the Commission noted in the 2015 Order, there are a growing number of residential products that could easily be used as a source of location in a comprehensive dispatchable location solution. Wireless E911 Location Accuracy Requirements, Fourth Report and Order, 30 FCC Rcd 1259 (2015) para. 47 (“2015 Order”). As APCO pointed out, carriers can make use of technologies and services they offer today, such as in-home Wi-Fi, to identify the floor level (if not a dispatchable location). See Letter from Jeffrey S. Cohen, APCO International, to Marlene H. Dortch, Secretary, Federal Communications Commission, PS Docket No. 07-114 (filed Oct. 25, 2019) (APCO Ex Parte).

¹⁵ FNPRM para. 33.

¹⁶ APCO’s position is consistent with language in the draft Order, which indicated that “[the Commission] do[es] not agree with ATIS, AT&T, and T-Mobile that this means all potential responsibility for translating HAE data

possess the resources to develop location solutions, and have commercial purposes for deriving floor level information for devices.

The Commission seeks comment on allowing the provision of floor level information without HAE¹⁷ and the costs and benefits of floor level information.¹⁸ As ECCs from across the country have explained, floor level information is much more helpful for locating a 9-1-1 caller than a raw altitude measurement; even the largest ECCs in the country might not have the resources to operationalize a raw vertical estimate in terms of HAE by creating and maintaining indoor maps for the buildings in their jurisdictions.¹⁹

The Commission asks if ECCs will be ready to accept floor level information in 5, 7, or 10 years.²⁰ APCO is unaware of changes needed to ECC systems that would justify delaying the provision of floor level information. Carriers should be testing technologies that can provide floor level information now, following the established test bed process.²¹ As explained in APCO's Petition, carriers should only be permitted to use test bed results for compliance

should be borne exclusively by PSAPs.” Wireless E911 Location Accuracy Requirements, Draft Fifth Report and Order and Fifth Further Notice of Proposed Rulemaking, PS Docket No. 07-114 (rel. Oct. 29, 2019) para. 35.

¹⁷ FNPRM para. 68.

¹⁸ *Id.* para. 70.

¹⁹ *See, e.g.*, Letter from Richard Napolitano, Deputy Chief, New York City Police Department, to Marlene H. Dortch, Secretary, FCC, PS Docket No. 07-114 (filed Nov. 12, 2019); Letter from Tyrell T. Morris, Executive Director, Orleans Parish Communication District, to Marlene H. Dortch, Secretary, FCC, PS Docket No. 07-114 (filed Oct. 16, 2019); Letter from Jason E. Kern, Executive Director, Southeast Emergency Communications, to Marlene H. Dortch, Secretary, FCC, PS Docket No. 07-114 (filed Oct. 16, 2019); Letter from Maureen Will, Director of Communications, Newtown Emergency Communications Center, to Marlene H. Dortch, Secretary, FCC, PS Docket No. 07-114 (filed Oct. 16, 2019); Letter from Douglas Campbell, Deputy Director, Alexandria Department of Emergency Communications, to Marlene H. Dortch, Secretary, FCC, PS Docket No. 07-114 (filed Oct. 21, 2019); Letter from Jeff Streeter, Executive Director, Jefferson County Communications Center Authority, to Marlene H. Dortch, Secretary, FCC, PS Docket No. 07-114 (filed Nov. 11, 2019); Letter from William Pierson, Executive Director, Valley Communications Center, King County, WA, to Marlene H. Dortch, Secretary, FCC, PS Docket No. 07-114 (filed Oct. 18, 2019); Letter from Karima Holmes, Director, District of Columbia Office of Unified Communications, to Marlene H. Dortch, Secretary, FCC, PS Docket No. 07-114 (filed Oct. 24, 2019).

²⁰ FNPRM para. 69.

²¹ APCO is not aware of any such testing being planned by the wireless industry for the foreseeable future, despite the availability of such technologies today.

purposes if the testing was of a fully integrated solution that will perform in the real world the same way it did in the test bed.²²

The Commission asks whether to require confidence and uncertainty data with floor level information.²³ This appears to be required by the rules already.²⁴

III. Carriers Need to Focus on Providing Dispatchable Location Information

Dispatchable location remains the gold standard for 9-1-1. The Commission acknowledges that dispatchable location can be provided without the NEAD and that use of the NEAD to provide a caller's location does not necessarily mean a dispatchable location has been provided.²⁵ However the FNPRM implies that carriers are precluded from implementing dispatchable location solutions that rely on data sources other than the NEAD.²⁶ This is incorrect. Dispatchable locations can be provided without the NEAD (subject to the requirement that any technology used for complying with the rules is tested in the test bed), as the Commission²⁷ and wireless carriers²⁸ have recognized. As noted above, many technologies could be used for providing dispatchable locations.²⁹ Further, the wireless industry has ceased operation of the NEAD. The location accuracy rules need to be revised to incentivize carriers to

²² APCO Petition at 5.

²³ FNPRM para. 70.

²⁴ *See id.* para. 41. *See also* APCO Petition at 10.

²⁵ FNPRM para. 80.

²⁶ *Id.* para. 79.

²⁷ *See* 2015 Order paras. 43-47, defining dispatchable location and describing technologies that could be used to provide a dispatchable location without any reference to the NEAD.

²⁸ *See* Letter, John Wright, APCO International; Charles W. McKee, Sprint Corporation; Joan Marsh, AT&T Services, Inc.; Kathleen O'Brien Ham, T-Mobile USA, Inc.; Christy Williams, National Emergency Number Association; Kathleen Grillo, Verizon Wireless, to Marlene H. Dortch, Secretary, Federal Communications Commission, PS Docket No. 07-114 (filed Nov. 18, 2014), Attachment A, "Roadmap for Improving E911 Location Accuracy," at 4 ("Some dispatchable location solutions will require a National Emergency Address Database (NEAD), which is described in Section 2(e), while other solutions can be implemented without the use of the NEAD. Prior to the completion of the NEAD, carriers will take steps to make such non-NEAD dispatchable location information available for delivery to PSAPs (through a variety of carrier-provisioned and third party sources)").

²⁹ *See supra* n. 14.

provide dispatchable location information with as many 9-1-1 calls as possible, regardless of the mechanism used to derive a dispatchable location.

The Commission has options for ensuring carriers provide dispatchable locations. At a minimum, in responding to APCO's request for clarification that the z-axis rules require the provision of floor level information if it is technically feasible to do so,³⁰ the Commission should similarly clarify that carriers must provide dispatchable location information when technically feasible. Carriers should eventually be required to provide dispatchable location information for specific minimum percentages of indoor calls nationwide. As an initial step, given the termination of the NEAD, the Commission should ensure that carriers not relying on z-axis technologies continue to have a regulatory requirement to comply with the vertical accuracy rules by providing dispatchable locations for a minimum percentage of calls. APCO previously described a framework for broader changes to the location accuracy rules that could be made without disrupting the existing benchmarks.³¹ Based on estimates of the percentage of wireless 9-1-1 calls made indoors,³² evidence that a large percentage of these calls can be associated to a subscriber-provided address, and the variety of technologies that could be used for providing dispatchable locations, it would be technically feasible for carriers to provide dispatchable locations for a significant percentage of 9-1-1 calls.³³

³⁰ APCO Petition at 9-10.

³¹ See APCO Ex Parte at 7-9.

³² One recent survey indicated that more than half of 9-1-1 calls are made indoors. See Comments of Precision Broadband LLC, PS Docket No. 07-114 (May 20, 2019).

³³ See Marcus Andronici, Principal Sales Engineer, West Corporation, VoWiFi 911 and Application of Proximity Check (Jan. 7, 2018) available at <https://www.west.com/blog/safety-services/wireless/vowifi-911-proximity-check/> (finding that 65% of VoWiFi 9-1-1 calls were delivered with a likely dispatchable address, based on an assessment of the caller's proximity to a subscriber-provisioned address). Carriers could utilize billing information, ask wireless users to input Registered Locations (home/work locations) into their devices for sharing when a 9-1-1 call is made, provision Bluetooth beacons that are programmable with an address, or leverage other sources of data about a caller to determine a caller's home and/or work locations. For example, Google and Apple maps have a common feature to label "home" and "work" locations.

Fundamentally, the rules should stop treating dispatchable location and coordinate-based technologies as mutually-exclusive approaches. The FCC's rules should be designed to require the carriers to provide the best possible location information in the earliest timeframes, using any variety of z-axis technologies (especially those that identify the floor) and technologies that deliver a dispatchable location. The Commission should provide incentives for carriers to provide ECCs with the most actionable information possible.

IV. Conclusion

To ensure 9-1-1 location is actionable for emergency response, the Commission's location accuracy rules should be clarified and revised. As suggested here and in the Petition for Clarification, APCO respectfully requests swift action by the Commission to ensure there is no risk of delay to the existing benchmarks and further improvements are made to the location information delivered with 9-1-1 calls.

Respectfully submitted,

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