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Re: Notice of *Ex Parte*, PS Docket No. 07-114

On November 7, the undersigned met with the office of Commissioner Starks to discuss wireless 9-1-1 location accuracy. APCO cannot support the z-axis Order without significant changes to the draft. The proposal does not ensure that first responders will know a 9-1-1 caller's vertical position within 3 meters for 80% of calls, as the metric seemingly requires. Worse, absent a more comprehensive approach to the z-axis metric and the location accuracy rules, carriers could comply with the rules without ensuring that public safety professionals receive actionable information.

APCO reiterated concerns with the z-axis proposal, consistent with the ex parte letters filed on October 25 and November 4.¹ At a minimum, the Commission's Order should require that an estimated floor level be included as part of the z-axis information provided to emergency communications centers (ECCs) and ensure that the accuracy requirements defined in the metric translate to real-world performance.

The Draft Order Fails to Resolve Several Concerns with the Proposed Z-Axis Metric

The z-axis metric adopted by the Commission will determine whether the rules result in actionable location information for 9-1-1. APCO is evaluating the proposed z-axis metric based on how the metric fits into the location accuracy rules and impacts the information delivered with 9-1-1 calls. Carriers have two options for complying with the vertical accuracy rules: dispatchable location or z-axis information. The carriers do not seem committed to pursuing dispatchable location solutions, as evidenced by the stalled progress (if not abandonment) of building the National Emergency Address Database (NEAD) into a useful resource and their failure to pursue

¹ 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's October 25 ex parte"); Letter from Jeffrey S. Cohen, APCO International, to Marlene H. Dortch, Secretary, Federal Communications Commission, PS Docket No. 07-114 (filed Nov. 4, 2019).

other ways to provide a dispatchable location (including through their own products and services). Accordingly, the carriers would default to the alternative option, z-axis information, which was intended as a backstop.

The z-axis metric described by the draft Order would allow the carriers to comply with the rules without ensuring meaningful location information is provided for 9-1-1 callers. Requiring carriers to report vertical location information as an estimated Height Above Ellipsoid (HAE) does not provide actionable information for ECCs. ECCs would need building elevations and 3D indoor maps, which they simply do not have the resources to create and maintain. This effectively means that the only way to locate a 9-1-1 caller would be to have first responders try to match the location.

The draft Order ignores substantial concerns that this approach will not translate to real-world benefits. A z-axis metric of +/- 3 meters for 80% of test calls will not mean that first responders know the location of a 9-1-1 caller within 3 meters 80% of the time. Nothing is in place to ensure the accuracy requirement set by the z-axis metric translates to real-world performance, or that a z-axis estimate provided by NextNav or Polaris is accessible by public safety at all. Apple has cautioned that the 3-meter metric might not be achieved in the real world and noted several issues related to power consumption, connectivity, and privacy.² Unless the Commission revises its Order, public safety will not get what it needs, and carriers will not necessarily be in violation of the Commission's rules. For example, a carrier could certify that it has implemented NextNav's z-axis technology in the top 25 CMAs, making the carrier compliant with the Commission's 2021 benchmark. Meanwhile, Apple could decline to allow NextNav access to the devices as needed to replicate test bed performance, which would not be surprising given the concerns Apple expressed and history with declining to allow devices to leverage the NEAD for location information. The location information delivered with a 9-1-1 call might not include NextNav's solution at all, let alone with the degree of accuracy expected, and public safety would have no recourse.

APCO continues to have several other concerns with the z-axis metric that the draft Order fails to address, including:

- The test bed results were based on comparing the estimated device location to ground-truth (as opposed to a "first responder" device attempting to match the location of a "caller's");
- Compliance with the rules would seemingly require reliance upon one or two specific vendors that provide specialized 9-1-1 solutions; and
- The scope of devices covered by the z-axis metric is unclear.

Fundamentally, by adopting the draft Order, the Commission would fail to justify approving a metric that in the context of the location accuracy rules will leave 9-1-1 location worse off than the Commission's 2014 proposal (which would have required z-axis information within 3 meters for calls nationwide, likely by 2020). Proceeding without properly addressing these concerns would be a clear error. The public deserves better.

The Commission Should Require that Z-Axis Information Includes a Floor Level

Many of APCO's concerns with operationalizing z-axis information would be addressed if, at a minimum, the Commission's Order requires that an estimated³ floor level be included as part of the z-axis information

² See Letter from Paul Margie, Counsel for Apple Inc., PS Docket No. 07-114 (filed Oct. 29, 2019).

³ Consistent with requiring vertical accuracy within three meters HAE, the metric could require z-axis information identifying the correct floor level within one floor. Yet as described below, and as APCO has previously advocated, technologies exist today (that are

provided to ECCs and ensures that the accuracy requirements defined in the metric translate to real-world performance. Identifying the floor level is technically feasible.

The draft Order inappropriately frames the issue of whether providing z-axis information with a floor level is technically feasible. The z-axis metric is about vertical location information that serves as an alternative to dispatchable location for identifying the floor level of the caller.⁴ The Commission should, therefore, be open to establishing a z-axis metric that is based on the ability of technology to identify a floor level. Instead, the draft Order takes an unnecessarily narrow focus and seems to base its analysis on whether a data resource exists for correlating z-axis data to a floor index or label. There's a difference between being able to convert a z-axis elevation and being able to provide z-axis information that includes a floor number. Filings on the record indicate that it is technically feasible to derive a floor estimate.⁵

The Further Notice Should Address Broader Issues with the Location Accuracy Rules

Because the effectiveness of the z-axis metric adopted by the Commission depends on how the metric fits into the broader location accuracy rules, APCO reiterated several other points that APCO previously advocated be part of the accompanying further notice of proposed rulemaking:

- The Commission's rules should incentivize carriers to leverage any available resources to provide the best possible location information to 9-1-1.
- The Commission's rules should focus on real-world performance, as opposed to the current deployment-based benchmarks.
- Carriers should be required to provide dispatchable location information, and x/y and z-axis information (including a corresponding floor) for specific percentages of indoor calls.
- Vertical location accuracy requirements should not be limited to the top 50 CMAs.
- The Commission's rules should not treat dispatchable location and z-axis technologies as mutually-exclusive.
- If OEM/OS providers or others are determined to be unreasonably impeding improvements by, for example, objecting to providing device data to a location technology vendor when a 9-1-1 call is made, the Commission should use its regulatory authority to require cooperation.
- APCO continues to support dispatchable location as the gold standard for 9-1-1, based on the understanding that dispatchable location:
 - Can be provided without using the NEAD;
 - Is not necessarily provided because the NEAD was used to derive the location; and
 - Should be provided to public safety telecommunicators with useful contextual data (similar to the confidence and uncertainty data provided with x/y coordinates) to help judge whether the estimated dispatchable location is the actual location of the caller.

not based on deriving an elevation estimate) that can provide the actual floor level of the caller (along with confidence and uncertainty data).

⁴ See Wireless E911 Location Accuracy Requirements, PS Docket No. 07-114, Fourth Report and Order, 30 FCC Rcd 1259, para. 162 (2015) (explaining that "by providing a z-axis metric as a backstop to dispatchable location for identifying floor level of 911 calls from multi-story buildings, we ensure that vertical location accuracy is achieved.").

⁵ See Draft Order at para. 13 (noting that "AWD submits that CBRS technology low cost antennas installed on each floor of a building will generate data allowing for the PSAP to pinpoint the floor from which the wireless call was made."). See also, APCO's October 25 ex parte (outlining several methods carriers could use to derive a floor level, if not a dispatchable location).

The Commission has an opportunity to adopt a z-axis metric that sets a path for providing what's needed for public safety professionals and the public they serve. Requiring z-axis information to include an estimated floor is an essential step that aligns with the bigger-picture changes to the rules that are needed for getting carriers back on track to providing meaningful improvements to 9-1-1 location accuracy.

Pursuant to Section 1.1206 of the Commission's rules, this letter is being filed electronically with your office.

Respectfully submitted,

APCO INTERNATIONAL

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