

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

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

**COMMENTS OF APCO
IN RESPONSE TO
THIRD FURTHER NOTICE OF PROPOSED RULEMAKING**

The Association of Public-Safety Communications Officials-International, Inc. (“APCO”) hereby submits the following comments in response to the Commission’s *Third Further Notice of Proposed Rulemaking*, FCC 14-13 (released February 21, 2014) (“*Third FNPRM*”), in the above-captioned proceeding.

Founded in 1935, APCO is the nation’s oldest and largest public safety communications organization. Most APCO members are state or local government employees who manage and operate communications systems – including Public Safety Answering Points (PSAPs), dispatch centers, radio networks, and information technology – for law enforcement, fire, emergency medical, forestry conservation, highway maintenance, disaster relief, and other public safety agencies. APCO has long been involved in Commission proceedings regarding 9-1-1 capability and other aspects of public safety communications.

APCO is pleased that the Commission has proposed new rules to improve location accuracy for wireless calls to 9-1-1, especially for calls made from indoor locations. As discussed in the *Third FNPRM*, there is an ongoing, dramatic increase in the use of wireless phones from inside houses, apartments, offices, schools, commercial spaces, and other structures

for all purposes, including calls to 9-1-1. Of particular concern, more and more homes are relying exclusively on wireless telephones and severing traditional wireline connections that have long provided immediate and exact address information to PSAPs. Even where a wireline telephone is available, the first device somebody reaches for to call 9-1-1 is often a cell phone in their pocket. The problem, as the Commission recognizes, is that the location information currently available for wireless calls from indoor locations lacks any of the address-specific information provided with most wireline calls,¹ and is generally inferior to location information available for outdoor wireless calls. Yet, location accuracy is especially important for indoor calls to 9-1-1, as the emergency (*e.g.*, a medical trauma inside an apartment or office) may not be visible to first responders upon arriving at the approximate address. The lengthy search process to find an emergency in a building with multiple floors, corridors, and closed doors could be the difference between life and death. As further discussed in Part IV of the *Third FNPRM*, additional steps are also necessary to improve wireless location information provided to PSAPs for all wireless calls, including those from outdoor locations.

APCO urges the Commission and all stakeholders to proceed as quickly as possible to address these serious problems. The public's use of wireless devices to report emergencies, from both indoor and outdoor locations, will only increase, and will be far more significant by the time the rulemaking process is complete and rules become effective.² Time is of the essence.

The Commission has proposed specific levels of compliance and implementation deadlines to provide improved indoor location information to PSAPs. Wireless service providers

¹ As the Commission is aware, there continues to be issues with address information provided to PSAPs by multi-line telephone systems (MLTS), which often lacks details regarding the actual location of the unit placing the 9-1-1 call.

² We note that much of the data relied upon in the *Third FNPRM* is from 2011, and thus is already three years behind reality.

would be required to provide horizontal location information within 50 meters of the caller for 67 percent of calls within two years after new rules are adopted, and for 80 percent of calls within five years. The FCC is also proposing that wireless companies provide vertical location information within 3 meters of the caller for 67 percent of calls within three years of rule adoption, and for 80 percent of calls within five years.

APCO supports the Commission's proposals, while remaining open to consideration of an alternative, consensus approach that may evolve from discussions with wireless carriers and other stakeholders. However, to be viable, any alternative approach must have the full support of public safety and provide *meaningful, universal, verifiable, and enforceable* improvements. The improvements must be meaningful by providing significant advancements in indoor location accuracy, with appropriate interim benchmarks and an ultimate goal of providing a "dispatchable address." The approach should also be universal, applying to all wireless carriers, and providing relevant improvements across all regions and types of locations. Any alternative approach must also include requirements that are verifiable, subject to objective measurements and approved testing mechanisms. Most importantly, any approach to location accuracy must be enforceable by the Commission. While an alternative approach may evolve from discussions among stakeholders, it will likely require at least partial codification to be "meaningful, universal, verifiable, and enforceable."

Horizontal Indoor Accuracy

APCO shares the Commission's view that the CSRIC test bed results and other information submitted to the Commission appear to indicate that improvements to horizontal indoor location accuracy are possible in the near term. The proposed initial requirement of 50 meter horizontal accuracy for a high percentage of calls would be a significant improvement over

current levels of indoor accuracy and would assist PSAPs and first responders in locating emergencies. Such a requirement would increase the potential that first responders will arrive at the correct building and, at minimum, will help narrow the search area, and thus reduce the time needed to find and address the emergency. Of course, 50 meters is still far from the level of accuracy generally needed for a dispatchable address (providing floor, room number, *etc.*), and will not be useful in every situation, so it cannot be the end of the progression towards improved location accuracy. APCO recommends that the Commission consider an initial indoor accuracy benchmark more precise than 50 meters, or perhaps an alternative indoor requirement based on building address and floor information, at least to the extent that the Commission determines that better accuracy is achievable in the near term based upon a review of current and anticipated technology.

While APCO cannot support an initial benchmark of greater than 50 meters, we have no objection to periodic Commission review of relevant technology, and long-term Next Generation 9-1-1 objectives, to determine if additional time may be necessary to satisfy that requirement (or a more precise requirement should that prove to be justifiable). A phased deployment with priority given to suburban/urban areas may also be appropriate. However, APCO opposes suggestions that the Commission wait for CSRIC certification of location technology capabilities before adopting rules and establishing an initial deadline for compliance. The Commission has the statutory authority and obligation to make its own evaluation of technical feasibility and should proceed with rules, including deadlines, if it believes that those rule requirements are appropriate. In particular, adopting achievable, but perhaps not currently available, benchmarks provides critical targets and speeds the date of eventual deployment. Further, while CSRIC can be a good vehicle for resolving important technical issues, its lengthy and sometimes contentious

process makes it wholly inappropriate as a tool to establish requirements of such importance as indoor location accuracy, and would only add unnecessary and perhaps artificial, delay.³

Regardless of the initial horizontal benchmark, the long term goal must be to provide sufficient accuracy to generate a dispatchable address, or as close there to as technology allows. Anything less, while helpful and an improvement over the current environment, will continue to limit emergency responses in indoor situations and leave the public at risk. As discussed in the *Third FNPRM*, there are a variety of telecommunications and technology developments that have the potential to enhance indoor location accuracy and may someday provide a dispatchable address for many, if not most, indoor locations. APCO encourages all relevant parties to work together to combine these various tools to meet the ongoing need for better indoor location accuracy.

Vertical Location Accuracy

APCO has long urged that vertical (z-axis) location information is necessary to allow for rapid dispatch and response to emergencies reported from buildings and other structures. While skyscrapers in dense urban areas are the obvious example, similar problems occur with emergencies in a wide variety of multi-story buildings, such as apartments/condominiums, offices, hotels, schools, and hospitals, which can be found in almost every small, medium-size, and large city in the nation. An increasing number of these locations (especially many individual apartments/condominiums) have no wireline telephone, so any call to 9-1-1 will be from a wireless telephone.

³ CSRIC is merely an advisory body, with heavy participation by carriers, vendors, and other parties with substantial financial interests in the outcome of recommendations. Thus, while CSRIC is extremely helpful in many respects, in the end, the Commission must exercise its independent regulatory authority.

Fortunately, there are apparent solutions to this vexing problem, as demonstrated in the CSRIC test bed and as discussed in the *Third FNPRM*. APCO thus supports the proposed three meter accuracy requirement and the deadlines set forth in the *Third FNPRM*. Such a requirement would provide PSAPs and first responders with sufficient information in most cases to identify the correct floor from which an emergency is being reported, dramatically reducing the search time and inevitably saving lives. As with the horizontal requirements, phased deployment over time (including handset replacements if necessary for a particular technology) and across various geographic areas may be appropriate.

APCO acknowledges that most PSAPs will need to make enhancements to their equipment and operations if they wish to take advantage of vertical location information. Some may be able to receive the raw data in their current systems, but few have the mapping capability to integrate that data into a format that can be quickly processed and delivered in a useful form to first responders. The transition to NG9-1-1 will certainly aid in that level of readiness. However, the FCC should proceed now to establish a deadline for carriers to provide the z-axis, as it will take time for the technology to be deployed. The deployment period would also provide PSAPs seeking to use vertical information an opportunity to pursue funding for the necessary upgrades.⁴ PSAPs are highly unlikely to commit scarce resources for upgrades to process vertical location information without assurances that carriers will in fact deliver that information by a date certain. At the same time, the Commission and other stakeholders should help the PSAP community seek new funding sources for upgrades necessary to implement improvements in location accuracy and other 9-1-1 capabilities.

⁴ It may also be appropriate to adopt a “PSAP readiness” criteria for carrier compliance for certain locations.

Testing

APCO has no current objection to the FCC's proposals for testing indoor location accuracy, which appear to be appropriate. In particular, APCO supports the proposed use of an independently administered test bed. It will be important that the testing criteria account for varied levels of urbanization that occur, often within the same county. For example, Montgomery County, MD (near Washington, DC, and well known to Commission personnel), includes both dense urban areas with high rise buildings in the southern portion of the county, and sparsely populated rural areas in the northern part of the county. Perhaps the most extreme example is San Bernardino County, CA (in terms of land mass, the nation's largest county), which ranges from densely populated urban areas near Los Angeles to vast unpopulated regions in the Mohave Desert.

Time to First Fix

APCO agrees with the Commission that there should be a minimum number of seconds (*e.g.*, 30 seconds or less) within which a wireless carrier must transmit location information meeting the relevant accuracy requirements. The Commission should adopt the shortest time period that is achievable without sacrificing accuracy. PSAPs may differ on the importance of time to fix versus accuracy based on their particular geographies and other factors, but most would agree that achieving both is the ideal. While "rebidding" location information in today's environment helps to achieve the most accurate information available, the Commission should pursue solutions that do not necessarily assume or depend upon a rebidding scheme, particularly for new indoor location solutions.

Confidence and Uncertainty Data

APCO continues to support adoption of standard formats for delivery of confidence and uncertainty data to PSAPs. The absence of such a standard has discouraged some PSAPs from utilizing this information. Standards for confidence and uncertainty data are important to PSAP operations and to the overall effectiveness of location technologies. Thus, the FCC should encourage appropriate standards development organizations to adopt uniform confidence and uncertainty values across all carriers. Additionally, a uniform requirement for the metrics used in determining both confidence and uncertainty needs to be established as part of this standard.

Identifying the Type of Technology Used to Deliver the E911 Location Fix

As discussed in the *Third FNPRM*, many PSAPs could benefit from knowing the type of technology (e.g., A-GPS or RTT) used to locate a particular call. Thus, APCO supports the Commission's examination of this issue, with the hope that appropriate requirements will be forthcoming.

Call Tracking Data

APCO supports efforts to improve the availability of 9-1-1 call tracking data. Few PSAPs have the resources or capability to collect that information, which can be invaluable in evaluating the location information received from carriers. From APCO's perspective, requiring carriers to develop and provide such objective data would be extremely beneficial to all stakeholders involved in the provision of 9-1-1 services, including the carriers themselves.

Monitoring and Facilitating Resolution of E911 Compliance Concerns

The Commission should have processes in place for PSAPs and state 9-1-1 bodies to file complaints where there is evidence that a carrier is not complying with location accuracy requirements. The Commission suggests in the *Third FNPRM* that PSAPs filing such

complaints “would be required to demonstrate that they have implemented bid/re-bid policies that are designed to obtain all 911 location information made available to them by CMRS providers.” APCO understands the Commission’s desire to ensure that PSAPs use rebidding before filing complaints,⁵ but is concerned that the proposed standard is vague as there may be differing views regarding what constitutes a “rebidding policy.” Moreover, the proposed rebidding condition on complaints will be irrelevant and unnecessary to the extent that future location technologies do not require rebidding to meet accuracy requirements.

Periodic Outdoor Compliance Testing and Reporting

APCO agrees with the recommendations in the CSRIC Work Group 3 report regarding outdoor compliance testing, as discussed in the *Third FNPRM*. We urge the Commission to adopt appropriate rules to implement those recommendations.

⁵ APCO has recommended that all PSAPs use manual or automated rebidding and has developed an ANSI standard (APCO ANS 1.103.1-2008, Effective Practices 380741-45) in that regard.

CONCLUSION

APCO urges the Commission to proceed with rules to improve wireless 9-1-1 location consistent with the comments set forth above.

Respectfully submitted,

APCO INTERNATIONAL

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