

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

In the Matter of)	
)	
Wireless E911 Location Accuracy Requirements)	PS Docket No. 07-114
)	
E911 Requirements for IP-Enabled Service Providers)	WC Docket No. 05-196
)	

COMMENTS OF APCO

The Association of Public-Safety Communications Officials-International, Inc. (“APCO”) hereby submits the following comments in response to the Commission’s *Further Notice of Proposed Rulemaking and Notice of Inquiry*, FCC 10-177, released September 23, 2010 (“*FNPRM*” and “*NOI*”), in the above-captioned proceedings.

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 police, fire, emergency medical, forestry conservation, highway maintenance, disaster relief, and other public safety agencies. APCO has long been involved in this and other Commission proceedings regarding 9-1-1 capability and other aspects of public safety communications.

APCO applauds the Commission for its comprehensive and forward-looking *FNPRM* and *NOI* addressing critical issues concerning improvements that can be made to E9-1-1 capability as technologies and telecommunications services advance. Over sixteen years ago, the Commission started a proceeding (CC Docket 94-102) that led to the initial requirements to

ensure PSAPs would receive location and call-back number information for the growing number of 9-1-1 calls then being made by cellular telephones. Today, most 9-1-1 calls are from cellular phones and other wireless devices, with a rapidly growing portion of the population “cutting the cord” completely. Internet Protocol (“IP”) communication is also expanding rapidly, both as a wired and as a wireless vehicle for voice and data communications. Indeed, the method by which a “telephone call” is made is increasingly transparent to the caller, who nonetheless expects that an emergency call to 9-1-1 will lead to speedy response.

However, effective and timely emergency responses require that our nation’s PSAPs receive accurate location information for proper routing of the call to the correct first responders and the ability to direct those responders to the right location. As the Commission notes in the *FNPRM* and *NOI*, much progress has been made in the relevant technologies and the specificity of the Commission’s rules. However, the level of accuracy delivered to PSAPs varies significantly across calls and service providers, and is often insufficient to facilitate rapid emergency response. Now is an opportune time to explore the next steps: providing much better accuracy for *all* 9-1-1 calls, regardless of the method of transmission or nature of the device.

FNPRM Issues

The Commission notes that a working group of the Communications Security, Reliability, and Interoperability Council (“CSRIC”) is currently preparing a report regarding existing and prospective location technologies. Therefore, APCO will reserve specific comment on that issue until the report is completed. In general, we urge the Commission to require that communications providers adopt the very best location technologies available in the most

expeditious manner feasible. The state-of-the-art has advanced significantly over the last ten years and those advancements should be implemented as soon as possible.

APCO also takes this opportunity to support improvements in accuracy for voice and non-voice devices used by those with disabilities. We look forward to comments from technology providers on that and other issues raised in the *FNPRM*.

APCO continues to believe in the importance of confidence and uncertainty information associated with location information delivered to PSAPs. Many PSAPs find that information to be invaluable in evaluating the location data received with 9-1-1 calls. We also encourage the FCC to investigate further how confidence and uncertainty can be applied appropriately to NG9-1-1 call delivery. The Commission should not assume that all wireless 9-1-1 calls will continue to depend upon CMRS technologies.

Paragraphs 17 and 18 of the *FNPRM* pose a series of critically important questions regarding the location accuracy requirements. As APCO has noted in the past, we generally support a single accuracy standard to the extent feasible. We also believe that hybrid technology approaches need to be considered as no single technology appears (at least to date) to be ideal in all types of locations. Network-based technologies generally work better indoors and in “urban canyons,” while handset-based (A-GPS) technologies tend to deliver better accuracy in more sparsely populated outdoor areas with fewer cell sites. Comments from other parties will undoubtedly describe more advanced technologies, including hybrid approaches, that hold the potential to deliver better location accuracy across all types of environments. These new and evolving technologies need to be seriously considered as they may hold the key to providing life-saving location information. We look forward to reviewing those comments.

The Commission should also keep in mind that the migration to 4G technologies will likely provide additional opportunities (and perhaps challenges) in providing more accurate location information. The growth in wireless IP devices is also a critical factor generating complex issues regarding the ability to acquire location information for individual IP devices making 9-1-1 calls.

The *FNPRM* includes a number of important questions regarding compliance testing. APCO believes that the Commission should seriously consider mandating that compliance testing conforms to OET71. We also continue to believe that indoor testing is essential to obtain a reasonable picture of the accuracy information being delivered to PSAPs. As larger portions of the population rely exclusively on wireless devices, the number of wireless 9-1-1 calls from inside apartments, single-family homes, offices, retail establishments, transportation facilities, and other indoor locations will continue to grow dramatically. APCO acknowledges the technical and methodological challenges of testing accuracy inside buildings. However, the Commission correctly seeks to refresh the record to determine what advances may have occurred to make indoor testing a more viable option at this time, or at least in the very near future.

Compliance testing must also be repeated within a reasonable time frame. Wireless system updates such as “re-homing” a cellular network or modifying internal databases have been known to have a negative impact on location and 9-1-1 delivery. We are not aware of situations where accuracy improves over time (other than with the addition of sites in network based systems or technical upgrades to deployed location technology).

Finally, test results need to be shared with relevant PSAPs and presented in a standardized format. In some cases, PSAPs may also want to conduct independent tests to verify accuracy data.

As the Commission notes in the *FNPRM*, obtaining accurate location information in “challenging environments” requires special consideration. However, those same “challenging” environments often require *more*, not less, accurate location information. For example, an individual calling 9-1-1 for help in a remote, heavily-forested area is likely to be unable to provide an accurate verbal description of their location, making it that much more important that automatic location capability delivers a good, and useful, approximation of the caller’s location. Consumers expect and assume that a PSAP will be able to pinpoint their location from wherever a 9-1-1 call is made, regardless of the nature of that location.

For indoor environments, further research must be conducted to determine how to assess the accuracy of user-supplied location versus location determined by access provider devices such as Wi-Fi points or femtocells. It is also critical that the PSAP be aware of the type of location they are receiving (*i.e.*, device location versus access point) so call-takers can use their knowledge of the various technologies and performance attributes to assess more effectively the validity of the information being presented (*e.g.*, femtocell location will be more valuable than cell tower location).

The Commission seeks specific comment in the *FNPRM* regarding vertical location information (the “Z-axis”). APCO continues to believe that vertical location information would be extremely helpful in many situations. However, we recognize that providing effective vertical location data for CMRS-based calls is a future objective, not a present-day reality. We are unaware of any current, practical method for applying vertical location to emergency responder or PSAP systems in a way that would be operationally useful. Wireless devices used in multi-story buildings, however, may not need to depend solely upon CMRS technology to identify the floor from which the call is originating. Implementation of NG9-1-1, as is being

defined by the proposed NENA i3 architecture, includes the deployment of Location Information Servers to replace conventional ALI databases. When used in conjunction with the i3 Emergency Call Routing Function and Location Validation Function, a more granular location may be able to be determined. We expect further detail will be provided in the CSRIC 4C and 4B reports.

As the final issue in the *FNPRM*, the Commission seeks to refresh the record regarding the ability of wireless providers to deliver location information when callers are roaming onto systems that use different location technologies than their home carriers. APCO continues to believe that this is a critical issue that must be resolved as quickly as possible. Carriers have made the roaming process largely transparent to consumers who, therefore, expect the same 9-1-1 capability regardless of the network originating the call.

Notice of Inquiry Issues

The *NOI* portion of the Commission's documents seeks to refresh the record on E9-1-1 issues related to IP telephony. APCO stands by its prior comments on these issues, as noted in the *NOI*. We expect to provide further comment on these issues once the relevant CSRIC reports are completed and initial industry comments have been submitted in this proceeding. As a general principle, however, we believe callers using IP devices expect and should receive the same E9-1-1 service as callers using other types of devices. In either case, there should be automatic location information, without the need for caller intervention. This includes portable devices and, ideally, non-interconnected IP devices that the public uses in the same general manner as traditional interconnected telephones.

CONCLUSION

APCO continues to urge the Commission to take appropriate steps to improve 9-1-1 location accuracy for all types of telephone services as quickly as possible.

Respectfully submitted,

/s/

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