

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)	
)	
Public Safety and Homeland Security)	PS Docket No. 07-114
Bureau Seeks Comment in the E911)	
Location Accuracy Proceeding on the)	
Location Accuracy “Roadmap”)	
Submitted by APCO, NENA, and the)	
Four National Wireless Carriers)	

**REPLY COMMENTS OF
NEXTNAV, LLC**

The initial comments of the signatories to the Roadmap¹ provide little additional detail or explanation to address the wide range of concerns identified by numerous parties in this proceeding. Instead, the signatories’ comments essentially restate the positive attributes they envision for the address-based location approach the carriers offer to *promote* as an alternative to the rules proposed in the Commission’s Third Further Notice.² This lack of clarification or rebuttal to widely recognized concerns should be troubling to the Commission because these issues represent key assumptions of the Roadmap proposal.

Further, these same issues were raised clearly and repeatedly during the past year by first responders and public interest organizations during the Roadmap negotiations, long before the Roadmap was finalized. Indeed, the findings of various working groups of the multi-stakeholder

¹ See Letter, John Wright, APCO International, Charles W. McKee, Sprint, Joan Marsh, AT&T Services, Inc., Kathleen O’Brien Ham, T-Mobile USA, Christy Williams, NENA-The 9-1-1 Association, Kathleen Grillo, Verizon, to Marlene H. Dortch, Secretary, Federal Communications Commission, PS Docket No. 07-114 (filed Nov. 18, 2014) (“*Roadmap Cover Letter*”), Attachment A, “Roadmap for Improving E911 Location Accuracy” (“*Roadmap*”), available at <http://apps.fcc.gov/ecfs/document/view?id=60000986637>.

² Wireless E911 Location Accuracy Requirements, Third Further Notice of Proposed Rulemaking, PS Docket No. 07-114, 29 FCC Rcd 2374 (2014) (“*Third Further Notice*”).

Communications Security, Reliability, and Interoperability Council (“CSRIC”) have previewed these concerns for years. Dozens of representatives of public safety, first responders, the medical community, disability rights groups, and public interest organizations have commented at length now that the Roadmap has been released, identifying these same unaddressed flaws in the final proposal.

As a result of these shortcomings, the Roadmap fails to ensure reliability or accountability, and fails to provide measurable and quantifiable improvements in indoor location accuracy in any way comparable to the clear and actionable rules the Commission has proposed. The Commission must therefore move forward to adopt rules consistent with the record in this docket, and adopt or encourage as appropriate only those elements of the Roadmap it deems useful in exploring the potential for alternative address-based structures for indoor location in the future.

In light of the lengthy record and the fact that these flaws in the Roadmap have repeatedly been brought to the attention of the Commission, NextNav will provide only the following brief summary of the widely recognized and critical shortcomings that render the Roadmap an unacceptable alternative to the Commission’s proposed rules.

1. The Roadmap Lacks Effective, Enforceable Metrics for Ensuring Improvement in Indoor Location Accuracy

The Roadmap lacks any enforceable metric regarding when a minimal percentage, or indeed any, E911 calls will contain an address, much less a dispatchable location, now or at any date in the future.³ The Roadmap’s proponents continue to highlight the future potential, but do

³ See, e.g., Comments of the California Chapter of the National Emergency Number Association, PS Docket 07-114, at 1-2 (Dec. 12, 2014) (“*CalNENA Comments*”) (noting that “the carrier proposal does not include a single mandatory accuracy requirement”); Reply Comments of Boulder Regional Emergency Telephone System, PS Docket No. 07-114, at i (Dec. 15, 2014)

not project even the capability of transmitting address information over their networks before the fourth year.⁴ The tortuously constructed definition of “heightened location accuracy technologies”⁵ and the use of a “blended composite”⁶ of outdoor and indoor location results make the proposed performance metrics largely an assessment of existing outdoor GPS performance, and provide no visibility or commitment to either improved indoor location performance or to any meaningful percentage of address-based location results. The first responder community has clearly expressed its frustration with this attempt to muddy the water, explaining that “the use of a blended composite of indoor and outdoor location accuracy...will not demonstrate that the technology is capable of meeting the accuracy standards in indoor locations, *at all.*”⁷

(“*BRETSA Comments*”) (cautioning that “[t]he Roadmap Agreement...makes the requirements that are proposed too discretionary to be enforceable as rules”); Comments of the State of Hawaii Enhanced 9-1-1 Board, PS Docket No. 07-114, at 1 (Dec. 15, 2014) (“*Hawaii Comments*”) (noting that the Roadmap “does not provide the same near-term improvements as the FCC’s proposed rule. In place of such improvements, the Roadmap alludes to services and technologies that may be developed”); Joint Comments of Congressional Fire Services Institute and the International Association of Fire Fighters, PS Docket No. 07-114, at 1-2 (Dec. 15, 2014) (“*IAFF/CFSI Comments*”); Comments of the National Association of Emergency Medical Services Physicians, the National Association of Emergency Medical Technicians, the National Association of State Emergency Medical Services Officials, and the National Emergency Medical Services Management Association, PS Docket No. 07-114, at 2 (Dec. 15, 2014) (“*Emergency Medical Associations Comments*”); Comments of Telecommunications for the Deaf and Hard of Hearing, Inc. (TDI), *et al.*, PS Docket 07-114, at 2 (Dec. 15, 2014) (“*TDI Comments*”).

⁴ *Roadmap* at 1-2.

⁵ *Id.* at 8.

⁶ *Id.*

⁷ Comments of the Nebraska Public Service Commission, PS Docket No. 70-114, at 2 (Dec. 9, 2014) (“*NPSC Comments*”) (explaining that it is “particularly troubled” by the blended composite of indoor and outdoor location accuracy that “camouflages poor location accuracy” and “puts the safety of the public at risk”); *BRETSA Comments* at 9; *IAFF/CFSI Comments* at 1 (describing the blended metric as “of almost no value”).

Broad general statements to the effect that the Roadmap somehow meets both the Commission’s near-term improved indoor location requirements and longer-term addressed-based solutions are misleading at best,⁸ substituting purported compliance with ill-defined “heightened location accuracy” in place of the Commission’s clear indoor location accuracy requirements. For example, CTIA is clearly incorrect in repeatedly claiming that the Roadmap commits “to an aggressive timeline for achieving the *Third Further Notice’s* location accuracy benchmark of 50 meters for wireless 9-1-1 calls, indoor and outdoor.”⁹

There is simply no established record to support the monitoring and compliance construct proposed by the Roadmap, while there is an extremely well documented and supported record behind the compliance measurement process in the Commission’s proposed rules.¹⁰ If required,

⁸ Comments of CTIA, PS Docket No. 07-114, at 10 (Dec. 15, 2014) (“*CTIA Comments*”); Comments of AT&T, PS Docket No. 07-114, at ii (Dec. 15, 2014) (“*AT&T Comments*”).

⁹ *CTIA Comments* at 5 and 12; *see also AT&T Comments* at ii (incorrectly claiming that “the Carrier Signatories agree not only to meet the Commission’s proposed 50-meter location-accuracy standard, but also to deliver to PSAPs a dispatchable address”). CTIA is also incorrect in claiming that the Roadmap commits to “[a]ggressive implementation of a z-axis solution if dispatchable location is not on track with the Roadmap as of November 14, 2017.” *CTIA Comments* at 14. Nothing in the Roadmap supports this claim.

¹⁰ *See, e.g., CalNENA Comments* at 1-2 (arguing that the Roadmap “is a blatant attempt by the carriers to delay, distract and dilute proceedings that impose real accuracy requirements that include FCC oversight and regulation); Comments of the National Association of Chiefs of Police, *et al.*, PS Docket No. 07-114, at 2 (Dec. 15, 2014) (explaining that “[w]e believe a better approach is for the FCC to focus on using performance-based metrics for providing dispatchable location to PSAPs”); *IAFF/CFSI Comments* at 1 (“The Commission’s proposal contains technology-neutral accuracy measurements for indoor location within reasonable timeframes and validated through independent testbeds”); Comments of the National Fraternal Order Of Police, PS Docket No. 07-114, at 1 (Dec. 15, 2014) (explaining that “[t]he proposed fifty meter horizontal accuracy and three meter vertical accuracy will not only reduce response times, it will increase the safety of law enforcement and other public safety officers executing searches in hazardous environments”); *Hawaii Comments* at 2 (noting that the Roadmap “[does] not provide anywhere near the same coverage or effectiveness as the FCC’s proposed rules”); Comments of the San Francisco Department of Emergency Management, PS Docket No. 07-114, at 1 (Nov. 5, 2014); Comments of AARP, PS Docket 07-114, at 1-2 (Dec. 10, 2014) (explaining that “AARP has analyzed the carriers’ agreement and found that it is not in the interest of the members of

modifications should be made to the Commission’s proposed compliance construct based on the extensive public comment and record rather than attempt to clarify and tighten the Roadmap’s vague milestones that have had minimal analysis and critique through public comment.

2. The Proposed Technical Approach Will Not Actually Produce a “Dispatchable Location” in Most Cases

Privacy, security and reliability concerns aside, the technical approach of registering the address of Wi-Fi access points in a national database largely provides an address in the general vicinity of the caller, not the dispatchable location promised.¹¹ The Roadmap’s core assumption for abandoning the Commission’s X/Y/Z accuracy metrics is that the small cells detected by the user handset and identified by the National Emergency Address Database (“NEAD”) will actually be in the house, room, suite, office, or apartment of the caller.¹²

AARP or the safety of the public in general”); Comments of the California State Firefighters’ Association, PS Docket 07-114, at 1 (Dec. 4, 2014) (expressing its disappointment by “the wireless carriers’ plan to weaken and delay the FCC proposal to create indoor location accuracy standards for 9-1-1 calls made from cell phones”); Comments of Associated Fire Fighters of Illinois, PS Docket 07-114, at 1 (Dec. 12, 2014) (arguing that that the wireless carriers have tried to delay the Commission’s adoption of its proposed rules which are “long overdue and desperately needed); Comments of the National Association of EMS Physicians, *et al.*, PS Docket 07-114, at 2 (Dec. 15, 2014); Comments of the International Municipal Signal Association, PS Docket No. 07-114, at 5 (Dec. 15, 2014) (“IMSA Comments”); Comments of the American Ambulance Association, PS Docket 07-114, at 1 (Dec. 19, 2014); *TDI Comments* at 3; *NPSC Comments* at 2.

¹¹ *See, e.g., Emergency Medical Associations Comments* at 2 (explaining that the Roadmap “presumes the ubiquitous deployment of [small cell] technologies and that use or placement of them are outside the control of the Carriers. Even if they do prove to be usable, it is hard to believe that these technologies will be deployed in all buildings and homes”).

¹² *See, e.g., Comments of Cisco Systems, Inc.*, PS Docket No. 07-114, at 7 (Dec. 15, 2014) (“*Cisco Comments*”); *see generally* Ex Parte Presentation of Telecommunication Systems, Inc., PS Docket No. 07-114 (Oct. 2, 2014) (claiming that, to deliver dispatchable address, E911 calls would normally need to be placed directly from a Femtocell or Wi-Fi access point that is present at the registered civic address).

In reality, as NextNav and others have repeatedly explained, the address associated with a visible access point is unlikely to be synonymous with the caller address for the vast majority of callers. Although even an address in the general vicinity of the caller might be of value in some instances, it does not represent “an actual door to kick down” that the Roadmap’s authors claim to offer in exchange for abandoning the concrete X/Y/Z performance requirements.¹³ This disparity of output between what might be more accurately called a “vicinity address” and the promised caller’s “dispatchable location” (when available) would be immediately apparent in any structured and controlled test bed assessment. The carriers continue to remain silent on this point perhaps because the Roadmap proposal is premised entirely on the subtle equivocation that *any* address provided is synonymous with a dispatchable location.

3. The Roadmap Shifts Responsibility from Carriers to Unspecified and Unregulated Third Parties and Relies on Voluntary Participation for Success

The reliance on independent third parties to voluntarily provide and register their addresses shifts responsibility for data integrity and accuracy to unregulated third parties and away from the carriers.¹⁴ Relying on voluntary third party participation introduces serious concerns regarding the accuracy, reliability, and accountability of the data thus provided, even before considering the remote likelihood of the widespread participation essential for the solution’s efficacy. Cisco optimistically asserts that that ISPs themselves will seed the NEAD

¹³ *AT&T Comments* at 8 (claiming that the Roadmap approach would give first responders “an actual door to kick down”); *CTIA Comments* at 7 (claiming the Roadmap’s dispatchable location approach “provides an address for a wireless 9-1-1 call plus more specific information to send First Responders the right door to ‘kick in’”); *contra BRETSA Comments* at 21 (explaining that “it is dangerous to present inherently imprecise location data as a specific civic address; as a specific “door to kick in”).

¹⁴ *BRETSA Comments* at 21-22.

with potentially 44 million access points,¹⁵ but fails to note that this is exactly the commitment public safety sought and was unable to obtain from the carriers on behalf of their landline ISP affiliates. Equally important, neither the carriers nor the Commission have the ability or legal authority to require registration of addresses, eliminating any ability to either project or enforce when any critical mass of registrations might be available.¹⁶

4. Various Roadmap Proposals Directly Contradict CSRIC Recommendations

Contrary to what the roadmap proponents claim, the use of live E911 calls is not superior to controlled testing environments, and does not provide the ground truth or representative sample necessary to accurately evaluate the performance of location technologies, a fact noted in prior CSRIC assessments.¹⁷ Further, prioritizing commercial location-based service (“LBS”) and small cells over macro area network technologies is directly contrary to CSRIC recommendations, as is the overt blending of outdoor and indoor test results.¹⁸ Nor does the Roadmap address the numerous CSRIC concerns (until very recently, carrier concerns as well) regarding LBS security, privacy, reliability, data integrity, power backup, and hacking

¹⁵ *Cisco Comments* at 11.

¹⁶ *CFSI and IAFF Comments* at 1 (explaining that “neither the Commission nor the carriers have the authority to compel the private sector or individual consumers to adopt such technologies, resulting in highly variable coverage”).

¹⁷ *See* CSRIC III WG3, Indoor Location Accuracy Test Bed Report, at 28 (Mar. 13, 2013) (“*CSRIC Indoor Location Test Bed Report*”).

¹⁸ *See, e.g.*, Final Report of Working Group 4C, Technical Options for E9-1-1 Location Accuracy, Communications Security, Reliability, and Interoperability Council (“*CSRIC IV*”), at 63, 71 (March 14, 2011); Final Report of Working Group 3, E9-1-1 Location Accuracy, Communications Security, Reliability, and Interoperability Council (“*CSRIC III*”), at 13 (June 1, 2012) (“*CSRIC Outdoor Location Report*”) (concluding that Distributed Antenna Systems, Wi-Fi, and femtocells “are network access technologies and are not location technologies”).

vulnerabilities.¹⁹ As a positive note, ongoing monitoring and reporting of live call information to identify trends and anomalous performance is consistent with CSRIC recommendations and should be encouraged or even required by the Commission.

5. The Commission’s Proposed Rules and Compliance Process Are Achievable, Valuable, and Well Supported by the Record

The technical record in the proceeding demonstrates that both the 50 meter horizontal and three meter vertical rules proposed in the Third Further Notice are achievable and would provide substantial value to public safety.²⁰ Despite the carriers’ complaint that the Commission’s proposed rules cannot be achieved on the timeline proposed, the record includes numerous recommendations to accommodate these concerns by staging implementation, both as a percent of new handsets over time²¹ and as a percent of population coverage over time.²² Whether the Commission extends implementation to the sixth year, as proposed by the Roadmap, or makes

¹⁹ Comments of Public Knowledge *et al.*, PS Docket No. 07-114, at 2 (explaining that “[t]he roadmap raises significant privacy-related concerns that are not adequately addressed in the roadmap itself”); *see generally* Comments of NextNav, LLC, PS Docket No. 07-114, at 37-42 (Dec. 15, 2014) (cataloguing in detail the concerns of various CSRIC working groups and Roadmap signatories about the use of LBS for emergency location).

²⁰ *See, e.g., CTIA Comments* at 13 (acknowledging that 50 meter accuracy for calls made outdoors and indoors “is a significant improvement over current benchmark requirements”).

²¹ *See Reply Comments of NENA*, PS Docket No. 07-114, at 17 (July 14, 2014); *Comments of NTCA*, PS Docket No. 07-114, at 3 (May 12, 2014) (“*NTCA Comments*”) (arguing that, because small rural carriers have more difficulty securing new handsets from manufacturers, they should be assigned “revised requirements” for coming into compliance with any indoor location rules that are adopted).

²² *See, e.g., Comments of the Rural Wireless Association*, PS Docket No. 07-114, at 5-6 (May 12, 2014) (advocating an exclusion of at least two additional years for areas with a low density of multi-story commercial buildings); *Comments of TruePosition*, PS Docket No. 07-114, at 19-20 (May 12, 2014) (arguing that “[j]ust as the FCC initially licensed cellular and PCS systems from the largest to the smallest communities, it makes sense from a network-optimization and public safety perspective for the FCC to add a geographic element or overlay to these indoor accuracy standards”); *Comments of Blooston Rural Carriers*, PS Docket No. 07-114, at 5 (May 12, 2014) (arguing that any new location accuracy rules should be confined to metropolitan areas).

other reasonable modifications to accommodate the needs of rural and smaller carriers, the Commission's basic construct for clearly measuring indoor performance results in independent and representative test beds should be retained, as should reasonable performance metrics at the earliest timeframes (years two and three).

The single modification that would most effectively and positively incorporate the Roadmap's voluntary initiatives into the Commission's currently proposed rules would be to clarify that *accurate* address-based location fixes are positively recognized as satisfying the Commission's 50 meter requirement in the compliance test bed process. Proposals to include address-based solutions in addition to coordinate-based solutions have been in the record long before the recent Roadmap proposal and associated comments,²³ and to date no party has objected to their inclusion as part of the proposed rules.

Among the few points of widespread consensus in this proceeding is the value, timeliness, and urgency of the Commission's proposed rules.²⁴ Most parties also agree that address-based E911 solutions could have long term merit if examined and developed in a comprehensive and broadly representative way, such as through the CSRIC process and a subsequent rulemaking. Ultimately, no party that has criticized the Roadmap opposes adding its positive elements to the current rules, but many parties adamantly oppose the Roadmap's attempt to *substitute* the Roadmap's unregulated, un-vetted and un-measurable approach for the well-examined, well-supported and technology-neutral rules proposed in the Third Further Notice.

²³ *Ex Parte* Notice of NextNav, LLC, PS Docket No. 07-114, at 2 (Nov. 7, 2014); Reply Comments of NENA, PS Docket No. 07-114, at 15 (July 14, 2014).

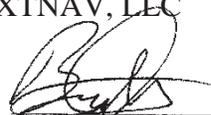
²⁴ *See supra* at footnote 10.

Conclusion

None of the proponents of the Roadmap has significantly contested the issues of concern existing in the record, raising questions as to what, if any, portions of the carrier Roadmap are suitable for inclusion in the Commission rules. Instead, the Roadmap is largely a list of positive activities the carriers have expressed an interest in pursuing, and should be encouraged to pursue. Certainly, as many parties have suggested, the Commission could identify desirable elements of an address-based approach to E911 location, as was done in the Third Further Notice as part of a parallel, longer-term effort. Progress on those elements could be facilitated by the Commission through specifically enumerated actions for a CSRIC chartered to ensure comprehensive industry and public safety participation in addressing these issues. This type of more fully representative industry consensus is what the Commission has come to expect from CSRIC and what the Commission likely envisioned when it originally encouraged the industry to come forward with alternative proposals. None of those actions, however, should prevent or slow the Commission from timely adoption of its proposed rules based on the extensive record and widespread support that has been manifested.

Respectfully submitted,

NEXTNAV, LLC

By: 

Bruce A. Olcott
Preston N. Thomas
Jones Day
51 Louisiana Ave. NW
Washington, D.C. 20001
(202) 879-3630

Its Attorneys

December 24, 2014