

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

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

To: The Commission

**COMMENTS OF CTIA – THE WIRELESS ASSOCIATION®**

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## EXECUTIVE SUMMARY

The Roadmap developed by APCO, NENA, and the four national wireless carriers sets forth a path to rapidly improve both indoor and outdoor location accuracy for wireless 9-1-1 calls. Through tangible and near-term carrier commitments, it attains the Commission's longer term goal of dispatchable location *and* its proposed 50-meter location accuracy nearly as quickly as the *Third Further Notice's* more limited geographic coordinate proposals. CTIA respectfully asks the Commission to act quickly to codify specific elements of the Roadmap, with enforceable rules that align all interests in meeting the Roadmap's aggressive benchmarks and delivering more actionable location information to First Responders.

The Roadmap sets forth a new approach to improve the location accuracy of indoor wireless calls: the provision of "dispatchable location" information – a civic address, plus floor, suite or apartment number as needed – what Public Safety has called the "gold standard" for actionable information. It leverages existing and proven *indoor* technologies (*e.g.*, Wi-Fi and Bluetooth) to solve 9-1-1 *indoor* location accuracy challenges. It avoids the variables and challenges of an estimated location solution, such as reverse geocoding (*i.e.*, the process of accurately translating latitudinal and longitudinal coordinates into actual street addresses). And it sets aggressive benchmarks to implement dispatchable location – including promoting the development and approval of 9-1-1 dispatchable location standards, network and handset capability benchmarks, and the development and deployment of a database to verify locations for PSAPs.

Contrary to the claims of some critics – largely vendors or organizations funded by vendors – dispatchable location does not rely on new technologies but applies existing, widely deployed commercial technologies to 9-1-1; it provides a far better vertical solution than altitude coordinates that somehow must be converted to floor levels for individual buildings. Significantly, the Roadmap calls for a multi-pronged approach that will cover the vast majority of mobile calls either with dispatchable location or the *Third Further Notice's* 50-meter location accuracy benchmark.

The Roadmap also takes substantial steps to improve location accuracy for all wireless 9-1-1 calls, whether made outdoors or indoors. The signatory carriers, APCO and NENA will develop an open, technology-neutral test bed that will facilitate the testing of location technologies to continue improving 9-1-1 outdoor and indoor location accuracy. As noted, these carriers commit to improve horizontal location accuracy to the 50-meter benchmark proposed by the Commission. And, although a dispatchable location solution is the ideal vertical solution, the Roadmap nonetheless enables consideration of other vertical solutions.

Even as the Commission seeks comment on the Roadmap, APCO, NENA, and the four national carriers already are working to deliver on – and realize the promises of – its commitments. To support these efforts, CTIA encourages the Commission to act quickly on the Roadmap.

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CTIA – The Wireless Association® (“CTIA”) submits these comments in response to the Commission’s *Public Notice* on the “Roadmap for Improving E911 Location Accuracy” (the “Roadmap”).<sup>1</sup> As discussed herein, the Roadmap satisfies the Commission’s location accuracy goals by establishing a path to rapidly improve both indoor and outdoor location accuracy for wireless 9-1-1 calls. CTIA urges the Commission to embrace this historic agreement and the benefits that it offers to consumers.

The APCO, NENA, and Carrier Roadmap answers the call to solve the wireless indoor location accuracy challenge in a feasible and prompt manner, while continuing to improve the location accuracy of outdoor calls as well. The Roadmap goes beyond reliance on outdoor

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<sup>1</sup> Public Notice, *Public Safety and Homeland Security Bureau Seeks Comment in the E911 Location Accuracy Proceeding on the Location Accuracy “Roadmap” Submitted by APCO, NENA, and the Four National Wireless Carriers*, PS Docket No. 07-114, DA 14-1680 (rel. Nov. 20, 2014) (“*Public Notice*”). The Association of Public-Safety Communications Officials International (“APCO”), the National Emergency Number Association-The 9-1-1 Association (“NENA”), AT&T Mobility, Sprint, T-Mobile USA, and Verizon (the “Carrier Signatories”) worked together to develop and adopt the Roadmap. See Letter from John Wright, APCO, Charles W. McKee, Sprint, Joan Marsh, AT&T Services, Inc., Kathleen O’Brien Ham, T-Mobile USA, Christy Williams, NENA, and Kathleen Grillo, Verizon, 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” (the “Roadmap”).

technologies and embarks on a new approach that leverages existing and proven *indoor* technologies (e.g., Wi-Fi and Bluetooth) to solve 9-1-1 *indoor* location accuracy challenges. The Carrier Signatories commit to the rapid implementation of a “dispatchable location” solution for indoor calls and 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. Under the Roadmap, Carrier Signatories will study and evaluate other indoor solutions, including those involving a vertical coordinate. Finally, the Roadmap represents precisely the type of consensus approach called for by the Commission.<sup>2</sup>

For these reasons, CTIA urges the Commission to act quickly to codify the indicated elements of the Roadmap, with enforceable rules that align all interests in meeting the Roadmap’s aggressive benchmarks and delivering more actionable location information to First Responders.

## **DISCUSSION**

### **I. INTRODUCTION**

The rapid rise in 9-1-1 calls from wireless phones, particularly inside buildings, places increased importance on the deployment of location technologies that provide the most actionable location information for First Responders, whether the call is placed indoors or

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<sup>2</sup> *Wireless E911 Location Accuracy Requirements*, Third Further Notice of Proposed Rulemaking, 29 FCC Rcd 2374, at ¶ 26 (2014) (“*Third Further Notice*”) (“We also seek comment on alternative approaches and, in this regard, invite relevant stakeholders – including public safety and industry – to propose a consensus approach that would help ensure that consumers placing wireless calls to 911 from indoor environments receive the same protections as callers in outdoor environments.”); *see also id.* at ¶¶ 6, 39; Statement of Commissioner Mignon L. Clyburn at 1 (emphasizing that “today’s item asks the wireless industry, the public safety entities, and others to work collaboratively toward developing alternative proposals for our consideration.”); Statement of Jessica Rosenworcel at 1 (“I am encouraged that carriers have told me they intend to work with public safety officials and the Commission to find technologies that work.”).

outdoors. Recognizing this growing challenge, the Commission in the *Third Further Notice* sought comment on ways to address the “regulatory gap” that exists for calls made from indoor locations, emphasizing that its “ultimate objective” is to provide accurate location information for wireless 9-1-1 callers “whether they are calling from urban or rural areas, from indoors or outdoors.”<sup>3</sup> The Roadmap developed by APCO, NENA, and the four national carriers offers a landmark plan for the provision of indoor location information *and* a dramatic new approach for improving outdoor location accuracy as well.

The *Third Further Notice* made specific proposals to require a more granular estimate of a wireless 9-1-1 caller’s location using geographic coordinates. Notably, however, the Commission asked whether its proposals were “the best way to achieve [its] objective” and invited “industry, public safety entities, and other stakeholders to work collaboratively to develop alternative proposals for [its] consideration.”<sup>4</sup> While the wireless industry demonstrated that the specific benchmarks and proposed timelines were more aspirational than achievable,<sup>5</sup> these very same stakeholders were more than willing to pursue alternative approaches to improve 9-1-1 location accuracy. Of note, the Commission also asked about how providers could use commercial location-based services to provide E911 location information.<sup>6</sup>

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<sup>3</sup> *Wireless E911 Location Accuracy Requirements*, Third Further Notice of Proposed Rulemaking, 29 FCC Rcd 2374, at ¶¶ 4, 6, 54 (2014) (“*Third Further Notice*”).

<sup>4</sup> *Third Further Notice* at ¶ 4.

<sup>5</sup> See generally, e.g., Reply Comments of CTIA – The Wireless Association®, PS Docket No. 07-114 (filed July 14, 2014).

<sup>6</sup> *Third Further Notice* at ¶ 135. See also *id.*, Statement of FCC Chairman Thomas E. Wheeler, at 1 (highlighting opportunities to pursue “[t]echnologies that already exist and are already widely deployed ... to provide granular location information. For example, can we leverage Wi-Fi or other small cell technologies to locate not just the building a caller is in, but the room?”); Statement of Commissioner Mignon L. Clyburn at 1 (stressing the importance of “how developments in roaming, Wi-Fi, location based services and emerging technologies could

Following Commission adoption of the *Third Further Notice*, APCO and NENA led a group including the four national carriers and CTIA in an effort to develop a consensus plan to attain meaningful, near-term improvements in indoor location accuracy. After months of discussion and negotiation, the result is the Roadmap.

The Roadmap leverages existing and proven *indoor* technologies (*e.g.*, Wi-Fi and Bluetooth) to solve 9-1-1 *indoor* location accuracy challenges. The Roadmap further places the Carrier Signatories and First Responders on a path to obtaining dispatchable locations for indoor calls. The Carrier Signatories also commit 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. Finally, under the Roadmap, Carrier Signatories will consider other indoor solutions, including those involving a vertical coordinate.

The APCO, NENA, and Carrier Roadmap enables stakeholders – including the Commission – to overcome expeditiously the wireless indoor location accuracy challenge, simultaneously improving the location accuracy of outdoor calls.

## **II. THE ROADMAP ESTABLISHES A NEAR-TERM PATH TO DELIVER DISPATCHABLE LOCATION – PUBLIC SAFETY'S “GOLD STANDARD” FOR WIRELESS INDOOR LOCATION INFORMATION**

The Roadmap sets forth a new approach to improve the location accuracy of indoor wireless calls: the provision of dispatchable location information, the “gold standard” for actionable information that Public Safety desires. And it sets aggressive benchmarks to implement dispatchable location, calling for Commission codification of key commitments.

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impact the delivery of location information” and the “need to make sure our location accuracy standards account for future innovations in mobile services.”).

**A. Dispatchable Location Provides What First Responders Want – An Address for an Indoor Wireless 9-1-1 Caller’s Location**

“Dispatchable location” provides First Responders with the most actionable of 9-1-1 location information – the civic address of the calling party plus additional information such as floor, suite, apartment or similar information that may be needed to adequately identify the caller’s location.<sup>7</sup> With dispatchable location, carriers will augment, not replace, the provisioning of geographic coordinates, which they will further improve upon to within 50 meters, as the Commission proposed and many commenters support.<sup>8</sup>

In the public safety community, dispatchable location is considered “the gold standard” for locating a 9-1-1 caller.<sup>9</sup> As NENA highlighted, “[d]ispatchable addresses are, truly, the ‘gold standard’ for 9-1-1 location accuracy.”<sup>10</sup> Similarly, APCO observed that “[T]he ultimate goal must be to provide a ‘dispatchable address’ for all locations[.]”<sup>11</sup> Indeed, as the Commission

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<sup>7</sup> Roadmap at 1.

<sup>8</sup> A broad spectrum of stakeholders has called for the 50-meters benchmark. *See, e.g.*, Comments from the International Association of Fire Chiefs, PS Docket No. 07-114, at 2 (filed May 12, 2014); Reply Comments of the National Public Safety Telecommunication Council, PS Docket No. 07-114, at 4 (filed July 14, 2014); Comments of the California Chapter of the National Emergency Number Association, PS Docket No. 07-114, at 2 (filed Mar. 28, 2014); Comments of the National Association of Regulatory Utility Commissioners, PS Docket No. 07-114, at 9 (filed June 12, 2014); Comments of Telecommunications for the Deaf and Hard of Hearing, Inc., *et al.*, PS Docket No. 07-114, at 4–5 (filed May 12, 2014).

<sup>9</sup> *See, e.g.*, Reply Comments of the Texas 9-1-1 Entities, PS Docket No. 07-114, at 2 (filed July 14, 2014) (“The current ‘gold standard’ for 9-1-1 Automatic Location Information (‘ALI’) is a validated ‘dispatchable address’ of the caller’s location that is displayed to the call-taker and used to route the 9-1-1 call to the appropriate Public Safety Answering Point (‘PSAP’) designated for that address.”).

<sup>10</sup> Comments of the National Emergency Number Association, PS Docket No. 07-114, at 18 (filed May 12, 2014).

<sup>11</sup> Reply Comments of APCO, PS Docket No. 07-114, at 1 (filed July 14, 2014).

recognized in the *Third Further Notice*, “[w]e agree with commenters who assert that public safety would be best served through the delivery of a dispatchable address.”<sup>12</sup> Dispatchable location is an actionable solution for First Responders that avoids the variables and challenges of an estimated location solution, including the devotion of significant public safety resources to reverse geocoding (*i.e.*, the process of accurately translating latitudinal and longitudinal coordinates into actual street addresses). Similar to an address sent with traditional wireline 9-1-1 calls today, dispatchable location provides an address for a wireless 9-1-1 call plus more specific information to send First Responders the right door to “kick in.” Put simply, dispatchable location information is what Public Safety wants and what First Responders need.

**B. The Carrier Signatories Commit to Demonstrable Benchmarks for the Rapid Realization of Dispatchable Location**

The Roadmap lays out a clear and granular plan for implementation of a dispatchable location framework, ensuring that key benchmarks are achieved in a timely manner. These benchmarks include the following:

- The Carrier Signatories will demonstrate a pre-standards dispatchable location solution, *i.e.*, a proof-of concept within nine months (August 14, 2015).<sup>13</sup>
- The Carrier Signatories will promote the development and approval of new standards for 9-1-1 dispatchable location information in handsets and networks within 18 months (May 14, 2016).<sup>14</sup>
- Early dispatchable location solutions are available now and more will be available within two years (November 14, 2016), as femtocells and new carrier-provided wireless home phone products can provide dispatchable location.<sup>15</sup> Moreover, carriers also can utilize

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<sup>12</sup> *Third Further Notice* at ¶ 117.

<sup>13</sup> Roadmap at 4.

<sup>14</sup> *Id.* at 4, 5.

<sup>15</sup> *Id.* at 4.

new and complementary enterprise Wi-Fi solutions that use a local Wi-Fi network to find and identify the location of a handset making a 9-1-1 call.<sup>16</sup>

- Carrier Signatories will deploy handsets capable of delivering dispatchable location, with 25 percent of all new VoLTE handsets offering this capability within three years (May 14, 2018) and 100 percent of all new VoLTE handsets with the capability just one year later.<sup>17</sup>
- By November 14, 2017, Carrier Signatories, APCO, and NENA will develop, implement, and deploy a secure and resilient National Emergency Address Database (“NEAD”) used to verify dispatchable location for the PSAP.<sup>18</sup>

These commitments demonstrate an aggressive timeframe to implement the dispatchable location framework and, as discussed further below, APCO, NENA, and the Carrier Signatories are already embarking on the steps needed to deliver the Roadmap.

### **C. Early Criticisms Are Unfounded**

Some stakeholders, largely vendors or organizations funded by vendors, have raised concerns about the Roadmap.<sup>19</sup> These criticisms are misguided, overstated, irrelevant, or some combination thereof. CTIA responds to a few of those concerns here and looks forward to engaging in a further dialogue regarding the benefits of the Roadmap. As detailed below, the Roadmap promotes an aggressive, yet feasible, plan to provide Public Safety with actionable

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<sup>16</sup> See, e.g., Notice of Ex Parte of Cisco Systems, Inc., PS Docket No. 07-114 (filed Oct. 16, 2014), Attachment.

<sup>17</sup> Roadmap at 5-6.

<sup>18</sup> *Id.* at 5. The NEAD is a database that will provide the correlation between the MAC address and dispatchable location. *Id.*

<sup>19</sup> See, e.g., Notice of Ex Parte of TruePosition, Inc., PS Docket No. 07-114 (filed Nov. 19, 2014); Notice of Ex Parte of NextNav, LLC, PS Docket No. 07-114 (filed Nov. 19, 2014); Letter from California Chapter of the National Emergency Number Association, *et al.*, PS Docket No. 07-114 (dated Nov. 12, 2014; filed Nov. 19, 2014); Press Release, Find Me 911, *Leading Public Safety Organizations React With Anger, Offer Alternatives To Secret Carrier Deal On 9-1-1 Location* (Nov. 17, 2014), available at <http://findme911.org/news/leading-public-safety-organizations-react-with-anger-offer-alternatives-to-secret-carrier-deal-on-9-1-1-location/>.

location information for indoor calls based on proven technologies and a significant improvement in location accuracy for outdoor and indoor calls generally.

At the outset, dispatchable location solutions will rely on technologies that have been successfully used for years for commercial location services and, importantly, technologies that are already very familiar to many consumers. The Roadmap, therefore does not rely on new technologies, but rather proven technologies that can be applied to 9-1-1. Importantly, this approach represents a breakthrough for 9-1-1. For the first time, 9-1-1 solutions will leverage developments in commercial technologies rather than settling for proprietary, 9-1-1-only location solutions that have historically promised more than they could deliver and do not evolve over time.<sup>20</sup>

Dispatchable location, by definition, contains far more useful information than geographic coordinates. Reverse geocoding from latitude and longitude to an actual address is all too often inaccurate, especially for indoor and urban environments.<sup>21</sup> Dispatchable location represents the ideal vertical solution. An altitude reading from a vertical location solution will need to be interpreted by the PSAP or First Responders, a significant undertaking that will have to account for foundation elevation, building plans, floor heights, and potentially many other variables for the particular building at issue. In contrast, the Roadmap's dispatchable location

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<sup>20</sup> See, e.g., Joan Marsh, '911' Location Accuracy: Getting to Dispatchable Address, AT&T Public Policy Views & News (posted June 27, 2014), <http://publicpolicy.att.com/location-accuracy> (TruePosition's approach using its proprietary technology is "at the core, antithetical to the design of modern 3G and 4G networks.").

<sup>21</sup> See, e.g., Notice of Ex Parte of Intrado, PS Docket No. 07-144, at 1 (filed Oct. 30, 2014), ("[R]everse geo-coding of X,Y coordinates – used to identify a 'dispatchable' address – involves a degree of address location error that often results in a failure to meet public safety's needs."); Comments of TeleCommunication Systems, Inc., PS Docket No. 07-114, at 17-18 (filed May 12, 2014) (noting that mapping techniques such as reverse geocoding have "varying degrees of trustworthiness").

solution will be accurate and verified and provides the vertical information First Responders actually need: the specific floor, apartment or suite number that they need to get to.

The Roadmap contains very clear commitments to promote the development and approval of dispatchable location standards, for the creation of a National Emergency Address Database (“NEAD”) to correlate the identified MAC address of Wi-Fi or Bluetooth beacons with a location, for dispatchable location-capable network deployment and handset functionality, among several other commitments.<sup>22</sup> All this will lead to increasing use of dispatchable location solutions. The Carrier Signatories commit to provide increasing percentages of location fixes obtained by dispatchable location technologies or other “heightened location accuracy” solutions that must meet the Commission’s proposed 50 meter location accuracy (dispatchable location fixes, by definition, exceed this standard) for indoor and outdoor calls.<sup>23</sup> These are significant and yet achievable commitments.<sup>24</sup>

The performance metrics’ shift from all calls to VoLTE calls in years five and six reflects the reality that carriers will be upgrading and improving their networks and transitioning voice traffic to all-IP LTE networks, so the vast majority of mobile calls will use VoLTE technology

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<sup>22</sup> See generally Roadmap at 4-6.

<sup>23</sup> *Id.* at 8. Wireless 9-1-1 calls that originate from “heightened location accuracy technologies” are calls with fixes from A-GNSS, dispatchable location, and the proportion of calls from any other technology or hybrid of technologies capable of location accuracy performance of 50 meters (*e.g.*, if OTDOA is shown through testing to deliver 50 meters accuracy in 60 percent of calls, then 60 percent of OTDOA calls meet the commitment). *Id.* at 8.

<sup>24</sup> The Roadmap calls on the Commission to adopt rules to implement key elements of the Roadmap, including those related to handset design, development, and deployment; network design and development; end-to-end functionality; and performance metrics. *Id.* at 13. Upon codification, the Commission will be able to hold carriers accountable for meeting these commitments.

by then.<sup>25</sup> Importantly, all of the proposed solutions described and submitted in response to the Commission's *Third Further Notice* require new handsets to meet the proposed benchmarks. The Roadmap presents a more feasible approach by aligning the increasing availability and consumer adoption of VoLTE capable handsets to support dispatchable location technology or other new heightened location accuracy solutions to meet the 75 percent and 80 percent compliance benchmarks.

Finally, contrary to the impression left by some, the Roadmap does not abandon near-term efforts to improve latitude and longitude in favor of the dispatchable location solution. Rather, as described further below, carriers will achieve the 50-meter benchmark proposed in the *Third Further Notice*. Moreover, as described below, the Roadmap provides for the creation of an open, technology neutral test bed within 12 months to facilitate the testing of location technologies to improve 9-1-1 location accuracy.<sup>26</sup>

### **III. THE ROADMAP DELIVERS IMPROVED LOCATION ACCURACY WITHIN 50 METERS FOR 9-1-1 CALLS MADE OUTDOORS AND INDOORS AND EXPLORES ADDITIONAL VERTICAL SOLUTIONS**

The Roadmap takes substantial steps to improve location accuracy for wireless 9-1-1 calls, whether made outdoors or indoors.

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<sup>25</sup> Carriers already are working hard to transition voice traffic to all-IP LTE networks. *See, e.g.* David Goldman, *Verizon is killing off 3G*, CNN, Dec. 4, 2014, <http://money.cnn.com/2014/12/04/technology/mobile/verizon-killing-off-3g/index.html>.

<sup>26</sup> *See generally* Roadmap at 3.

**A. A Technology Neutral and Transparent Location Accuracy Test Bed Will Verify New Outdoor and Indoor Location Technologies for Continued, Improved 9-1-1 Location Solutions**

The Roadmap calls for the development and creation of a test bed that will facilitate the testing of location technologies to improve 9-1-1 location accuracy.<sup>27</sup> The test bed will be open, operated in a technology neutral manner, and will be used to test various location accuracy solutions, including geographic coordinate and dispatchable location solutions. And it will be established in 12 months, by November 2015.

The test bed represents a new approach to identify and measure both outdoor and indoor location accuracy solutions. It will help demonstrate vendor performance of indoor and outdoor E911 location solutions and establish appropriate E911 location benchmarks. Accordingly, the test bed will help stakeholders fully vet any potential solutions in real-world conditions. The test bed thus allows stakeholders to consider the practical realities of various solutions rather than rely on theoretical and aspirational ambitions.

**B. The Carrier Signatories Will Deploy Solutions Providing Latitude/Longitude Coordinates Within 50 Meters for Outdoor and Indoor Calls**

The Carrier Signatories will improve latitude/longitude accuracy for both outdoor location fixes and for indoor location fixes where dispatchable location solutions are not present to within 50 meters. To get there, Carrier Signatories will conduct testing of OTDOA and will deploy OTDOA in their networks as they deploy VoLTE.<sup>28</sup> They also will conduct tests for additional A-GNSS solutions and introduce new devices with A-GNSS 9-1-1 capabilities.

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<sup>27</sup> See generally Roadmap at 3.

<sup>28</sup> *Id.* at 7.

Within two years (by November 14, 2016), 50 percent of all new VoLTE handsets will support A-GNSS for 9-1-1 calls and all new VoLTE handsets will do so by November 14, 2018.<sup>29</sup>

Fifty meter accuracy for calls made outdoors and indoors is a significant improvement over current benchmark requirements. This commitment will help to meet the goal shared by the Commission, Public Safety, and the wireless industry to improve location accuracy for wireless 9-1-1 calls regardless of where they are made.

**C. Carriers Will Take Action on Other Vertical Location Solutions and Will Engage in More Extensive Deployment of Other Vertical Solutions If Necessary**

Dispatchable location is the ideal vertical solution providing floor, suite, or apartment information. Nonetheless, the Roadmap also fully enables consideration of other vertical solutions and includes provisions to implement other vertical solutions if dispatchable location solutions do not develop in accordance with the timelines in the Roadmap. The Roadmap expressly includes the following near-term initiatives to study, test, develop, and, if necessary, deploy vertical or z-axis geographic coordinates solutions – *even while dispatchable location solutions are evolving*:

- A study of uncompensated barometric pressure within six months (May 14, 2015) with availability to PSAPs by November 14, 2017, if deemed helpful to PSAPs.<sup>30</sup>
- A study of any z-axis solution, including compensated barometric pressure, by November 14, 2016.<sup>31</sup>

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<sup>29</sup> *Id.*

<sup>30</sup> *Id.* at 10

<sup>31</sup> *Id.*

- Aggressive implementation of a z-axis solution if dispatchable location is not on track with the Roadmap as of November 14, 2017.<sup>32</sup>

These commitments evidence the Carrier Signatories' dedication to improve indoor (as well as outdoor) location accuracy through the Roadmap, whether by the dispatchable location solution or other vertical location solutions if necessary.

#### **IV. APCO, NENA, AND THE CARRIERS ALREADY ARE WORKING DILIGENTLY TO DELIVER ON THE ROADMAP**

Even as the Commission seeks comment on the Roadmap, APCO, NENA, and the Carrier Signatories already are working to deliver on – and realize the promises of – its commitments. They have already announced the formation of two working groups to ensure that the Roadmap's early, aggressive timelines will be met: The first working group will oversee efforts to design, develop, and implement the NEAD; the second working group will oversee studies of technologies that can provide the vertical component of any location information, including an expedited study of uncompensated barometric pressure data by May 14, 2015. These working groups will broadly represent the stakeholders in the entire ecosystem. Representatives from APCO, NENA, and CTIA will co-chair these two working groups, and will solicit membership from a variety of industry, Public Safety, and other interested stakeholders with the expertise and interest in driving these efforts to completion.

#### **CONCLUSION**

The Roadmap presents an unprecedented opportunity to implement a dispatchable location solution in the short term to provide Public Safety with the gold location standard it needs, while also improving location accuracy for all wireless 9-1-1 calls, whether made indoors or outdoors. CTIA urges the Commission to act quickly on the Roadmap and looks forward to

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<sup>32</sup> *Id.*

continuing to work with the Commission, the Public Safety community, and other stakeholders on improving the location accuracy of wireless 9-1-1 calls.

Respectfully submitted,

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