

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

In the Matter of )  
 )  
Wireless Emergency Alerts ) PS Docket No. 15-91  
 )  
Amendments to Part 11 of the Commission’s Rules ) PS Docket No. 15-94  
Regarding the Emergency Alert System )

**SECOND REPORT AND ORDER AND SECOND ORDER ON RECONSIDERATION**

**Adopted: January 30, 2018**

**Released: January 31, 2018**

By the Commission: Chairman Pai and Commissioners Clyburn, O’Rielly, Carr and Rosenworcel issuing separate statements.

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**I. INTRODUCTION**

1. In this *Second Report and Order*, we take measures to enhance the effectiveness of Wireless Emergency Alerts (WEA).<sup>1</sup> In particular, we improve the accuracy with which emergency

<sup>1</sup> We address issues raised by the *WEA Further Notice of Proposed Rulemaking* to the extent described herein, and otherwise defer resolution of any remaining issues. See *Wireless Emergency Alerts; Amendments to Part 11 of the* (continued....)

managers can geographically target the delivery of WEA Alert Messages to areas within their jurisdiction. We ensure that consumers will continue to be able to retrieve and review Alert Message content for 24 hours from receipt. We also define what it means for a Commercial Mobile Service (CMS) Provider to participate in WEA “in whole” versus “in part.”<sup>2</sup> In the *Second Order on Reconsideration*, we align the deadline for supporting Alert Messages initiated in Spanish with the deadline for extending the length of WEA messages from 90 to 360 characters.<sup>3</sup>

## II. BACKGROUND

2. The Warning Alert and Response Network (WARN) Act gives the Federal Communications Commission (Commission) authority to adopt “relevant technical standards, protocols, procedures and other technical requirements” governing WEA.<sup>4</sup> The WARN Act also gives the Commission authority to adopt procedures by which CMS Providers disclose their intent to participate in WEA.<sup>5</sup> Pursuant to this authority, the Commission has adopted requirements to prescribe WEA capabilities, WEA testing, and WEA election procedures.<sup>6</sup> Many CMS Providers, including the four nationwide wireless providers, have elected to participate in WEA at least in part.<sup>7</sup> Since it was deployed in April 2012,<sup>8</sup> WEA has been used to issue over 33,000 emergency alerts, including severe weather warnings, evacuate and shelter-in place alerts, and America’s Missing: Broadcast Emergency Response (AMBER) Alerts.<sup>9</sup>

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Commission’s Rules Regarding the Emergency Alert System, PS Docket Nos. 15-91, 15-94, *Report and Order and Further Notice of Proposed Rulemaking*, 31 FCC Rcd 11112 (2016) (*WEA R&O* and *WEA FNPRM*).

<sup>2</sup> A “Participating CMS Provider” is a Commercial Mobile Service Provider that has voluntarily elected to transmit Alert Messages under Part 10 of the Commission’s rules. 47 CFR § 10.10(f). *See also* 47 CFR § 10.10(d); 47 U.S.C. § 332(d)(1) (defining the term “commercial mobile service”).

<sup>3</sup> *See* Petition of CTIA for Reconsideration of the Wireless Emergency Alerts (WEA) Report and Order, PS Docket Nos. 15-91, 15-94 (filed Dec. 1, 2016), <https://ecfsapi.fcc.gov/file/1201436312000/CTIA%20WEA%20Petition%20For%20Reconsideration.pdf> (*CTIA Petition*).

<sup>4</sup> Warning, Alert and Response Network (WARN) Act, Title VI of the Security and Accountability for Every Port Act of 2006, 120 Stat. 1884, § 602(a), codified at 47 U.S.C. § 1201, et seq., § 1202(a) (2006) (WARN Act).

<sup>5</sup> *Id.* at § 602(b), 47 U.S.C. § 1202(b). Under the WARN Act, CMS Providers could elect to participate in whole, in part, or not at all. *Id.* at § 602(b)(1)(B), 47 U.S.C. § 1202(b)(1)(B).

<sup>6</sup> *See, e.g.*, The Commercial Mobile Alert System, PS Docket No. 07-287, *First Report and Order*, 23 FCC Rcd 6144 (2008) (*WEA Capabilities Report and Order*) (adopting requirements for provider-controlled elements within the CMAS architecture, emergency alert formatting and classes, county-level geo-targeting, and roaming availability of Alert Messages); The Commercial Mobile Alert System, PS Docket No. 07-287, *Second Report and Order and Further Notice of Proposed Rulemaking*, 23 FCC Rcd 10765 (2008) (*WEA Testing Report and Order*) (requiring periodic testing of CMAS architecture and facilitating the development of a redundant, alternative path for transmitting geo-targeted alerts); The Commercial Mobile Alert System, PS Docket 07-287, *Third Report and Order*, 23 FCC Rcd 12561 (2008) revised by Erratum (dated Sep. 5, 2008) (*WEA Election Report and Order*) (adopting subscriber notification requirements, CMS Provider election and withdrawal procedures, and consumer opt-out provisions).

<sup>7</sup> *See* FCC, *Master CMAS Registry*, <https://www.fcc.gov/pshs/docs/services/cmas/MasterCMASRegistry.xls> (last visited Oct. 26, 2017); PS Docket No. 08-146 (containing a record of all Participating CMS Providers’ elections to participate in WEA).

<sup>8</sup> *See* FCC’s Public Safety and Homeland Security Bureau Sets Timetable in Motion for Commercial Mobile Service Providers to Develop a System That Will Deliver Alerts to Mobile Devices, PS Docket No. 07-287, *Public Notice*, 24 FCC Rcd 14388 (PSSHB 2009).

<sup>9</sup> *See* Mark Lucero, Chief Engineer, IPAWS Division, FEMA, *Integrated Public Alert and Warning System* (Aug. 8, 2017), <https://www.napsfoundation.org/wp->

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3. The WEA system is a tool for authorized federal, state and local government entities to geographically target alerts and warnings to the WEA-capable mobile devices of Participating CMS Providers' subscribers. An alert originator<sup>10</sup> sends a WEA Alert Message<sup>11</sup> using Federal Emergency Management Agency (FEMA)-approved alert origination software in the Common Alerting Protocol (CAP) to the FEMA-operated alert aggregator, the Integrated Public Alert and Warning System (IPAWS).<sup>12</sup> There, it is authenticated, validated and delivered to FEMA's Alert Gateway for dissemination to Participating CMS Providers' Alert Gateways.<sup>13</sup> Currently, Participating CMS Providers' WEA infrastructure removes Alert Message metadata, including a description of the geographic target area for the Alert Message and the Alert Message's expiration time, and then transmits the Alert Message content to their subscribers' WEA-capable devices.<sup>14</sup> While the Commission's WEA rules are technologically neutral, most Participating CMS Providers use cell broadcast technology to transmit WEA Alert Messages to their subscribers.<sup>15</sup> When the Alert Message is received by a WEA-capable mobile device, it is prominently presented to the subscriber as long as the subscriber has not opted out of receiving Alert Messages of that type.<sup>16</sup>

4. In September 2016, the Commission adopted the *WEA R&O* to improve Alert Message content and delivery, and to create public safety tools for testing and outreach.<sup>17</sup> It also adopted the *WEA FNPRM*, seeking comment on, among other proposals, measures to further improve emergency

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content/uploads/2017/08/FEMA\_IPAWS\_Keynote\_MarkLucero\_20170708.pptx. The AMBER (America's Missing: Broadcast Emergency Response) program is a nationwide alerting program designed to help bring missing children to safety. See Office of Justice Programs, *AMBERAlert.gov*, <http://www.amberalert.gov/about.htm> (last visited Oct. 26, 2017).

<sup>10</sup> The term "alert originator" refers to a federal, state, territorial, tribal, or local entity authorized by FEMA to use the Integrated Public Alert and Warning System (IPAWS) to issue critical public alerts and warnings in emergency situations. See FEMA, *Alerting Authorities*, <https://www.fema.gov/alerting-authorities> (last visited Oct. 26, 2017). For the purposes of this proceeding, the term "alert originator" is coextensive with the terms "emergency manager" and "emergency management agency" unless otherwise specified.

<sup>11</sup> See 47 CFR § 10.10(a) (defining an "Alert Message" as "a message that is intended to provide the recipient information regarding an emergency, and that meets the requirements for transmission by a Participating Commercial Mobile Service Provider under this part").

<sup>12</sup> CAP is an open, interoperable, XML-based standard that can include multimedia such as streaming audio or video. See OASIS CAP v1.2 (IPAWS Profile for the OASIS Common Alerting Protocol IPAWS USA). CAP messages contain standardized fields that facilitate interoperability between and among devices. See *id.*

<sup>13</sup> From a technical standpoint, the WEA system currently deployed by FEMA and Participating CMS Providers is based on standards created by the Alliance for Telecommunications Industry Solutions (ATIS), the Telecommunications Industry Association (TIA) (jointly, ATIS/TIA), and the 3rd Generation Partnership Project (3GPP). See *CSRIC IV WEA Messaging Report* at 7. We note that nothing in the WARN Act or the Commission's rules requires WEA to be a cell broadcast-based service.

<sup>14</sup> See ATIS Comments at 4; ATIS 070008, Cell Broadcast Entity (CBE) to Cell Broadcast Center (CBC) Interface Specification (2010).

<sup>15</sup> See CSRIC V, Working Group Two, Wireless Emergency Alerts – Recommendations to Improve Geo-targeting and Offer Many-to-One Capabilities, Final Report and Recommendations 8 (2016) (CSRIC V WEA Geo-targeting Report); but see Letter from Rebecca Murphy Thompson, EVP and General Counsel, Competitive Carriers Association, to Marlene Dortch, Secretary, FCC, PS Docket No. 15-91, at 2 (filed Oct. 10, 2017) (stating that some carriers offer WEA using a software application, rather than cell broadcast).

<sup>16</sup> See Joint ATIS/TIA CMAS Mobile Device Behavior Specification (ATIS-TIA-J-STD-100). Subscribers' right to opt out of WEA Alert Message receipt extends to all but the Presidential Alert. See 47 CFR § 10.280.

<sup>17</sup> See *WEA R&O* and *WEA FNPRM*, 31 FCC Rcd 11112.

managers' ability to geographically target (geo-target) Alert Messages;<sup>18</sup> to preserve Alert Messages on mobile devices for consumer review until they expire; and to define the extent of participation in WEA.<sup>19</sup>

### III. SECOND REPORT AND ORDER

#### A. Narrowing Geo-Targeting Requirements

##### 1. Background

5. In the *WEA R&O*, the Commission required Participating CMS Providers to “transmit any Alert Message that is specified by a geocode, circle, or polygon to an area that best approximates the specified geocode, circle, or polygon.”<sup>20</sup> The Commission allowed Participating CMS Providers that were unable to best approximate the target area specified by the alert originator to transmit the Alert Message “to an area not larger than the propagation area of a single transmission site.”<sup>21</sup> In adopting the “best approximate” standard, the Commission noted that emergency managers need even more granular geo-targeting and committed to implementing “handset-based, geo-targeting requirements.”<sup>22</sup> Accordingly, in the *WEA FNPRM*, the Commission proposed to require Participating CMS Providers to “match” the target area specified by the alert originator within 42 months of the rule’s publication in the *Federal Register*, or within 24 months of the completion of all relevant standards, whichever is sooner, as its federal advisory committee, the Communications Security, Reliability and Interoperability Council’s V (CSRIC V), recommended.<sup>23</sup> The Commission also sought comment on whether Participating CMS Providers could support matching the target area sooner.<sup>24</sup> The Commission sought comment on whether to define “matching” the target area as 100 percent of devices within the specified area receive the Alert Message with not more than 0.1 of a mile overshoot.<sup>25</sup> The Commission proposed that Participating CMS Providers should continue to transmit the Alert Message to an area that “best approximates” the specified geocode, circle, or polygon in circumstances where they are unable to match the target area.<sup>26</sup>

<sup>18</sup> “Geo-targeting” alerts refers to the ability of the WEA architecture to direct an alert to a geographic area that matches that desired by the alert originator.

<sup>19</sup> See *WEA FNPRM*, 31 FCC Rcd at 11181. The Commission is continuing to consider the *WEA FNPRM*’s proposals regarding point of sale disclosures, multimedia, multilingual, and many-to-one alerting and will consider any additional presentations made on those topics along with other materials in the record. We direct the Public Safety and Homeland Security Bureau to issue a Public Notice within one month of the *Second Report and Order*’s publication to further develop the record on multimedia alerting. See Letter from Benjamin J. Krakauer, Assistant Commissioner, NYC Emergency Management, to Marlene Dortch, Secretary, FCC, PS Docket No. 15-91 at 3-4 (filed Jan. 22, 2018) (expressing support for the FNPRM’s multimedia alerting, many-to-one feedback, multilingual alerting, and point of sale disclosure proposals) (NYCEM Jan. 22, 2018 *Ex Parte*); Letter from Barb Graff, Chair, Big City Emergency Managers, to Ajit Pai, Chairman, FCC, PS Docket No. 15-1 at 2 (filed Jan. 5, 2018) (emphasizing the importance of multilingual and multimedia alerting, and many-to-one feedback); Letter from Anne Kronenburg, Executive Director, San Francisco Department of Emergency Management, to Ajit Pai, Chairman, FCC, PS Docket No. 15-91 at 2 (filed Jan. 5, 2018) (expressing support for alerting in languages other than English and Spanish). See *supra* n.1.

<sup>20</sup> *WEA R&O*, 31 FCC Rcd at 11147, para. 52; 47 CFR § 10.450(a).

<sup>21</sup> 47 CFR § 10.450(a).

<sup>22</sup> See *WEA R&O*, 31 FCC Rcd at 11147, para. 52.

<sup>23</sup> *WEA FNPRM*, 31 FCC Rcd at 11218, para. 178; see also CSRIC V WEA Geo-targeting Report at 31. CSRIC is a federal advisory committee that provides recommendations to the FCC regarding ways it can strive for security, reliability, and interoperability of communications systems.

<sup>24</sup> *WEA FNPRM*, 31 FCC Rcd at 11218, para. 178.

<sup>25</sup> *WEA FNPRM*, 31 FCC Rcd at 11198, para. 139-40; see also CSRIC V WEA Geo-targeting Report at 31.

<sup>26</sup> See 47 CFR § 10.450 (requiring CMS Providers to transmit an Alert Message an area that best approximates the specified geocode, circle, or polygon).

## 2. Discussion

6. We require Participating CMS Providers to deliver Alert Messages to an area that matches the target area specified by alert originators, as proposed. This action will ensure that emergency managers can “precisely target at-risk populations while minimizing disruption to others.”<sup>27</sup> The record demonstrates a compelling public interest need for WEA Alert Messages to be delivered in a more geographically targeted manner.<sup>28</sup> Harris County, Texas, Office of Homeland Security and Emergency Management indicates that WEA is currently underutilized because of its limited geo-targeting capabilities.<sup>29</sup> Emergency managers and others emphasize that more accurate geo-targeting will encourage alert originators to use WEA,<sup>30</sup> enable them to use WEA to more effectively motivate consumers to take protective actions,<sup>31</sup> and will reduce the potential for over-alerting and subscriber opt-out of receiving WEA Alert Messages.<sup>32</sup> In addition to supporting the need for more stringent geo-targeting requirements, the majority of commenters indicate that it is technically feasible to match delivery of WEA Alert Messages to an area prescribed by the alert originator.<sup>33</sup> We define “matching”

<sup>27</sup> BCEM Comments at 1-2; Harris County OHSEM Comments at 1.

<sup>28</sup> See APCO Comments at 3; BCEM Comments at 1; Harris County OHSEM Comments at 1; Calhoun CEMA Comments at 1; California Governor’s OES Comments at 5; DHS-S&T Comments at 1; Islip OEN Comments at 1; Nassau County OEM Comments at 1; NYCEM Comments at 11; San Francisco DEM Comments at 1-2; Texas Counties Comments at 1; AC&C Reply Comments at 1; AT&T Comments at 5-6.

<sup>29</sup> See Letter from Francisco Sanchez, Jr., Liaison to the Director and Public Information Officer, Harris County Homeland Security and Emergency Management, to Marlene H. Dortch, Secretary, FCC, PS Docket 15-91 at 1 (filed Jul. 10, 2017) (Harris County July 10, 2017 *Ex Parte*) (“Harris County rarely uses WEA because it does not want to potentially alert the entire county when a WEA message may only pertain to a certain portion of the county.”); APCO Comments at 4; AC&C Reply Comments at 1-2.

<sup>30</sup> Our rules provide emergency managers access to information regarding geo-targeting performance and empower them to work with CMS Providers to increase their confidence in WEA. See *WEA R&O*, 31 FCC Rcd at 11151, para. 57 (requiring Participating CMS Providers to share information about their geo-targeting capabilities with emergency managers upon request); see also *id.* at 11143, para. 47 (requiring Participating CMS Providers to log Alert Messages and to share that data with emergency managers upon request). As of May 1, 2019, emergency managers will also be able to use end-to-end WEA tests to assess how WEA is working within their jurisdictions. See *Wireless Emergency Alerts; Amendments to Rules Regarding the Emergency Alert System*, 81 FR 75710 (Nov. 1, 2016).

<sup>31</sup> NWS Jul. 18, 2017 *Ex Parte* at 1 (“Device-assisted geo-targeting is necessary to ensure that WEA is relevant to those who receive alerts, that people do not become fatigued by alerts which do not apply to their location and are perceived as false alarms, that future WEA messages are not ignored, and that the general public does not opt-out of WEA altogether.”).

<sup>32</sup> Letter from Benjamin J. Krakauer, Assistant Commissioner, New York City Emergency Management, to Marlene Dortch, Secretary, FCC, PS Docket No. 15-91, at 2 (filed Jul. 10, 2017) (NYCEM July 10, 2017 *Ex Parte*) (arguing that “[h]ighly accurate message targeting is absolutely necessary in order to prevent both unnecessary panic and warning fatigue”); APCO Comments at 4; Harris County OHSEM Comments at 1. See also Letter from Sean Donelan to Marlene Dortch, Secretary, FCC, PS Docket No. 15-91, at 3 (filed Jan. 15, 2018) (noting, in pertinent part, that over-alerting may prompt consumer opt-out).

<sup>33</sup> See, e.g., AT&T Comments at 4-6; Letter from Pamela L. Gist, Counsel for Bluegrass Cellular, Inc., to Marlene H. Dortch, Secretary, FCC, PS Docket No. 15-91, at 2 (filed July 19, 2017) (Bluegrass Jul. 19, 2017 *Ex Parte*); Letter from William Hutchinson McClendon, IV, CEO, AC&C LLC, to Marlene Dortch, Secretary, FCC, PS Docket No. 15-91, at 3 (filed Aug. 17, 2017) (AC&C Aug. 17, 2017 *Ex Parte*); Harris County Comments at 1; Big City Emergency Managers Comments at 1; Calhoun CEMA Comments at 1; California Governor’s OES Comments at 4-5; Letter from Michael E. Gerber, Physical Scientist, NOAA/National Weather Service, to Marlene Dortch, Secretary, FCC, PS Docket No. 15-91, at 4 (filed Jul. 18, 2017) (NWS Jul. 18, 2017 *Ex Parte*); NYCEM Comments at 11; San Francisco DEM Comments at 1-2; Letter from Keith Kaczmarek, inPhase Wireless, to Marlene Dortch, Secretary, FCC, PS Docket No. 15-91, at 1-2 (filed Sep. 9, 2016) (inPhase Sep. 9, 2016 *Ex Parte*); Letter from John Carley, Director Product Management, location.io Rx Networks, to Marlene Dortch, Secretary, FCC, PS Docket No.

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the target area as delivering an Alert Message to 100 percent of the target area with no more than 0.1 of a mile overshoot. The majority of emergency managers support this degree of geo-targeting accuracy as sufficient to meet their alerting needs.<sup>34</sup>

7. Although we do not specify the technological approach Participating CMS Providers should take to comply with our geo-targeting requirement,<sup>35</sup> the record shows that one way Participating CMS Providers can meet both prongs of this requirement is through a technique known as “geo-fencing.”<sup>36</sup> Geo-fencing allows mobile devices to compare their current location to the target area specified by the alert originator and to display the Alert Message only if it is located within the target area.<sup>37</sup>

8. AT&T expresses concern that if Participating CMS Providers are required to include target area coordinates within the Alert Message, this would dramatically reduce the number of characters

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15-91, at 1 (filed Sep. 14, 2016) (Rx Networks Sep. 14, 2016 *Ex Parte*); Dr. Hakan Erdogmus, Associate Teaching Professor, Carnegie Mellon University, to Marlene Dortch, Secretary, FCC, PS Docket 15-91, at 1 (filed May 30, 2016) (CMU May 30, 2016 *Ex Parte*); Letter from Kim Robert Scovill, Vice President, Legal Regulatory and External Affairs, Comtech Telecommunications Corp., to Marlene Dortch, Secretary, FCC, PS Docket No. 15-91, at 1 (filed Sep. 11, 2016) (Comtech Sep. 11, 2016 *Ex Parte*); *but see* T-Mobile Reply at 3 (“[A]lthough a device-based or app-based technology leveraging the handset’s location services capability may be a potential solution as suggested by some commenters, T-Mobile believes further study, which would include a standardization effort along with a security issues analysis, is required.”); Verizon Comments at 5 (stating that it is premature to determine what degree of precision is appropriate for WEA geo-targeting because “standards, technical specifications and the feasibility of particular approaches all will be the subject of stakeholder efforts arising out of the CSRIC V recommendations”); Letter from Matthew Gerst, Assistant Vice President, CTIA, to Marlene H. Dortch, Secretary, FCC, PS Docket No. 15-91, at 2 (filed Dec. 20, 2017) (indicating that enhanced geo-targeting is feasible with new or modified “network and device standards and solutions”) (CTIA Dec. 20, 2017 *Ex Parte*).

<sup>34</sup> NWS Comments at 1; NYCEM July 10 *Ex Parte* at 2; Harris County July 10 *Ex Parte* at 1; Calhoun CEMA Comments at 1; Nassau County OEM Comments at 1. Only a couple of emergency managers express preferences for maximum overshoot distances that are slightly larger or smaller. *See* Islip OEM Comments at 1 (preferring 0.5 miles overshoot to allow individuals that have temporarily left the target area to continue to receive alerts); Harris County July 10 *Ex Parte* at 1 (stating that 0.1 miles overshoot may not be specific enough in urban areas).

<sup>35</sup> Commenters request that the Commission maintain a technologically neutral approach to our WEA geo-targeting rules. *See* CTIA Comments at 2 (indicating that enhanced geo-targeting requirements should be technologically neutral); Verizon Comments at 5 (arguing that the Commission should remain technologically neutral in adopting new geo-targeting standards, and not favor device-based over network-based solutions). We agree. The record does not establish that device-based geo-targeting is the only means by which CMS Providers may be able to meet our requirement to deliver the Alert Message to 100 percent of devices in the target area, with no more than 0.1 mile overshoot. To the extent that other technological solutions can be implemented to achieve this match standard, we adopt a technologically neutral approach to how CMS Providers choose to meet this requirement. *See* NYCEM Jan. 22, 2018 *Ex Parte* at 2 (urging the Commission to require device-based geo-targeting). We agree with NYCEM that “the current network-based approach is insufficient,” and note the rules we adopt today would prohibit CMS Providers from using the current approach to geo-targeting (i.e., “best approximating” the target area) in all but very limited circumstances. NYCEM Jan. 22, 2018 *Ex Parte* at 2. *See infra* note 44.

<sup>36</sup> *See, e.g.*, AT&T Comments at 4-6; AC&C Aug. 17 *Ex Parte* at 3; Harris County Comments at 1; Big City Emergency Managers Comments at 1; Calhoun CEMA Comments at 1; California Governor’s OES Comments at 4-5; NWS July 18 *Ex Parte* at 4; San Francisco DEM Comments at 1-2; inPhase Wireless Sep. 9 *Ex Parte* at 1-2; Rx Networks Sep. 14, 2016 *Ex Parte* at 1; CMU May 30, 2016 *Ex Parte* at 1; Kim Robert Scovill, Vice President, Legal Regulatory and External Affairs, Comtech Sep. 11, 2016 *Ex Parte* at 1; *see also* National Advertising Institute, PlaceIQ, Location Accuracy Revealed (concluding based on a study of 150 people in five U.S. cities that mobile devices’ location determination is accurate to an average of about 30 meters).

<sup>37</sup> *See WEA FNPRM*, 31 FCC Rcd at 11147, para. 51, n.217.

available for the Alert Message text.<sup>38</sup> The record indicates, however, that it is technically feasible for Participating CMS Providers to transmit polygon coordinates to mobile devices without affecting the 360-character allotment for displayable Alert Message text. For example, Participating CMS Providers could leverage lossless compression techniques<sup>39</sup> to transmit displayable characters along with target area coordinates using the same cell broadcast approach described by current ATIS standards.<sup>40</sup> Further, FEMA states that the IPAWS platform will only accept targeting polygons with up to 100 vertices, and that it will work with alerting authorities to encourage them to use the polygon with the fewest vertices adequate to describe the intended target area and to encourage discipline with regard to vertex coordinate precision.<sup>41</sup> Accordingly, we specify that Participating CMS Providers may not limit emergency managers' ability to use the full 360 characters of alphanumeric text allocated for displayable WEA Alert Messages.<sup>42</sup> The WEA character limit applies to alphanumeric characters of displayable text and does not

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<sup>38</sup> See Letter from Joseph P Marx, Assistant Vice President, AT&T Services Inc., to Marlene Dortch, Secretary, FCC, PS Docket No. 15-91, at 1, Appx. A (filed Sep. 26, 2017) (explaining how the treatment of target area coordinates as Alert Message text would dramatically reduce the number of characters available of text) (AT&T Sep. 26, 2017 *Ex Parte*).

<sup>39</sup> Lossless compression is a means by which CMS Providers can reduce the size of Alert Message text and coordinates to facilitate its transmission, without deleting or losing information contained in the text or coordinates. See Abhinav Jauhri, Martin Griss and Hakan Erdogmus, Small Polygon Compression at 1 (2016), <https://ecfsapi.fcc.gov/file/60002085023.pdf>.

<sup>40</sup> An ATIS feasibility study describes how Participating CMS Providers use cell broadcast to transmit Alert Messages and associated metadata using "data pages." See Alliance for Telecommunications Industry Solutions, Feasibility Study for LTE WEA Message Length, ATIS -0700023, at 5 (2015) (demonstrating how 372 GSM 7-bit characters fit on four cell broadcast data pages). Available lossless compression techniques would allow Participating CMS Providers to shrink the metadata that describes the target area to between 10.4 percent and 25.6 percent of its original size. See Abhinav Jauhri, Martin Griss and Hakan Erdogmus, Small Polygon Compression at 1 (2016), <https://ecfsapi.fcc.gov/file/60002085023.pdf>. Similarly, 3GPP has standardized lossless compression techniques for the GSM 7-bit characters that Participating CMS Providers use to encode displayable Alert Message text. See Digital Cellular Telecommunications System (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Alphabets and Language-specific Information, 3GPP ETSI TS 23.038 (v.14.0.0). Use of compression techniques such as these represents one feasible approach that Participating CMS Providers could take to transmitting displayable Alert Message text along with associated target area metadata using the same number of data pages described by the ATIS report. See Letter from Joseph Marx, Assistant Vice President, AT&T, to Marlene Dortch, Secretary, FCC, PS Docket No. 15-91 (filed Dec. 4, 2017); Letter from Thomas Goode, General Counsel, ATIS, to Marlene Dortch, Secretary, FCC, PS Docket No. 15-91 at 1 (filed Dec. 14, 2017) (ATIS Dec. 14, 2017 *Ex Parte*). In the alternative, Participating CMS Providers could use an extra data page to fit additional information within a single WEA alert transmission. See ATIS Dec. 14, 2017 *Ex Parte* at 1; Alliance for Telecommunications Industry Solutions, Feasibility Study for LTE WEA Message Length, ATIS -0700023, at 13 (2015). The ATIS feasibility study shows that associating an additional data page with an Alert Message transmission would increase alert message delivery latency by between 240 milliseconds and 15.36 seconds, and increase the battery-life impact of alert message receipt by approximately 25%. See Alliance for Telecommunications Industry Solutions, Feasibility Study for LTE WEA Message Length, ATIS -0700023, at 12, 17-18 (2015). *But see* Letter from Paula Boyd, Senior Director for Government and Regulatory Affairs, Microsoft, to Marlene Dortch, Secretary, FCC, PS Docket No. 15-91, at 1 (filed Jan. 12, 2018) (Microsoft Jan. 12, 2018 *Ex Parte*) ("the addition of an additional data page to a wireless emergency alert to accommodate polygon geocoordinates should impose minimal impact on device performance and message delivery latency.")

<sup>41</sup> See Letter from Alfred Kenyon, IPAWS Customer Support Branch Chief, FEMA, to Marlene Dortch, Secretary, FCC, PS Docket No. 15-91 at 1 (filed Jan. 5, 2018).

<sup>42</sup> As of May 2019, Participating CMS Providers must support Alert Messages that contain up to 360 characters of alphanumeric text on networks technically capable of supporting them, and Alert Messages that contain up to 90 characters of alphanumeric text on and only on those elements of its network incapable of supporting a 360-character Alert Message. See 47 CFR § 10.430, as amended.

include target area data that Participating CMS Providers may transmit to the mobile device in order to permit device-based geo-fencing.<sup>43</sup>

9. We acknowledge that, in certain circumstances, a Participating CMS Provider may be technically incapable of matching the target area. These circumstances include when the target area is outside of the Participating CMS Provider's network coverage area, when mobile devices have location services disabled, and when legacy networks or devices cannot be updated to support this functionality.<sup>44</sup> If some or all of a Participating CMS Provider's network infrastructure is technically incapable of matching the specified target area, Participating CMS Providers must deliver the Alert Message to an area that best approximates the target area on and only on those aspects of its network infrastructure that are incapable of matching the target area.<sup>45</sup> In addition, the requirement to match the target area applies only

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<sup>43</sup> See Alliance for Telecommunications Industry Solutions, Feasibility Study for LTE WEA Message Length, ATIS -0700023, at 3 (2015) ("Here, the term 'Message Length' refers to the number of displayable characters transmitted over the air to the mobile devices."). Participating CMS Providers that choose to use device-based geo-fencing are only required to transmit 76 vertices of up to four decimal places specifying the target area to a mobile device. See CSRIC V Geo-targeting Report at 31 (recommending that alert originators use vertices with two to five decimal places to specify an alert area, and noting that a fourth decimal place provides up to 11 meter resolution, which can identify a parcel of land and is comparable to the typical accuracy of an uncorrected GPS unit with no interference); Letter from Al Kenyon, IPAWS Customer Support Branch Chief, FEMA, to Marlene Dortch, Secretary, FCC, PS Docket No. 15-91 at 1 (filed Jan. 5, 2018) (indicating that "for the purposes of geo-targeting alert messages, there is little need for coordinate precision beyond the fourth decimal point" and that four decimal point precision "is sufficient to support block by block targeting" in urban areas) (FEMA Jan. 5, 2018 *Ex Parte*); Letter from Joseph P. Marx, Assistant Vice President, AT&T Services Inc., to Marlene Dortch, Secretary, FCC, PS Docket No. 15-91 at 2 (filed Jan. 16, 2018) (AT&T Jan. 16, 2018 *Ex Parte*) (requesting that the Commission "limit the maximum precision allowed in the latitude and longitude data associated with this requirement"); Letter from Joseph P. Marx, Assistant Vice President, AT&T Services Inc., to Marlene Dortch, Secretary, FCC, PS Docket No. 15-91 at 2 (filed Jan. 19, 2018) (AT&T Jan. 19, 2018 *Ex Parte*) (indicating that "in order to preserve 360 characters of displayable text for an alert originator, the geotargeting information for an alert must be limited to 76 vertices or less" if the alert originator uses polygons specified to four decimal places). To the extent that the standards development process suggests that transmitting target area coordinates specified by 76 vertices and up to four decimal places will impact the ability of CMS Providers to transmit 360-character length Alert Messages, we may reconsider this decision.

<sup>44</sup> While not an exhaustive list, these examples are intended to illustrate the types of limited circumstances where the record shows Participating CMS Providers may be technically incapable of matching the target area, in which case they may "best approximate" the target area. Thus, it follows that any Participating CMS Provider that is technically capable of matching the target area is required to do so. Technical incapability does not include circumstances in which CMS Providers cannot match the target area using network-based solutions and decline to pursue other available technologies. See NYCEM Jan. 22, 2018 *Ex Parte* at 2 (expressing concern that CMS Providers will argue that "their networks are technically incapable of matching the specified target area" and will maintain the status quo of "best approximate" geo-targeting). Inability to comply with this rule by November 30, 2019 does not constitute technical incapability. See, e.g., Letter from Francisco Sanchez, Deputy Emergency Management Coordinator, Harris County Homeland Security and Emergency Management, to Ajit Pai, Chairman, FCC, PS Docket No. 15-91 at 2 (filed Jan. 19, 2018) (clarifying that "[a]s of November 2019, CMS Providers may only fall back to the 'best approximates' standard in a narrow set of circumstances" and "'technically incapable' should not apply where providers have failed to develop standards, implement network and device changes, or pursue other technological solutions."); Letter from Dr. Christopher R. Rodriguez, Director, District of Columbia Homeland Security and Emergency Management Agency, to Ajit Pai, Chairman, FCC, PS Docket No. 15-91 at 2 (filed Jan. 17, 2018) ("While the major carriers may have a small portion of their network that is technically incapable of matching within 0.1 of a mile, we are confident they can deliver the message into all remaining areas that are in compliance with new standards."); Letter from Jeffrey S. Cohen, Chief Counsel, APCO, to Marlene Dortch, Secretary, FCC, PS Docket No. 15-91 at 2 (filed Jan. 18, 2018) (requesting that the Commission limit the circumstances in which Participating CMS Providers may "best approximate" the target area).

<sup>45</sup> We expect network infrastructure constraints to more granular geo-targeting will be a time-limited issue. See, e.g., John Donovan, *2G Sunset Brings Faster Speeds, Newer Technologies*, AT&T (Jan. 16, 2017), [http://about.att.com/innovationblog/2g\\_sunset?CJPID=2942700&EI=20130822074250E&CI=CJ\\_AFFINITY&RI=](http://about.att.com/innovationblog/2g_sunset?CJPID=2942700&EI=20130822074250E&CI=CJ_AFFINITY&RI=) (continued....)



to new mobile devices offered for sale after November 30, 2019 and to existing devices capable of being upgraded to support this matching standard.<sup>46</sup> For existing mobile devices that cannot be upgraded, Participating CMS Providers must deliver the Alert Message to their “best approximation” of the target area.<sup>47</sup> ATIS and Verizon argue that given the topology of networks, location of cell sites, and the physics of radio frequency propagation, Participating CMS Providers cannot guarantee that 100 percent of devices in a target area will receive a WEA Alert Message in all instances.<sup>48</sup> Neither ATIS nor Verizon specify any particular instance where a mobile device in the target area would not be able to receive an Alert Message. We also acknowledge that Participating CMS Providers cannot accurately match a target area in which they do not offer wireless service; therefore, we only require that a Participating CMS Provider match the portion of the target area that falls within its network’s coverage area.

10. Commenters also observe that WEA-capable mobile devices that do not have location services enabled may be unable to accurately determine whether they are located within the specified target area.<sup>49</sup> We agree with commenters that WEA-capable mobile devices with location services turned off (or otherwise unavailable) at the time of Alert Message receipt should display the Alert Message by default, provided they are within a Participating CMS Provider’s best approximation of the target area.<sup>50</sup>

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CJ1&RD=37922 (stating that AT&T shut down their 2G network January 1, 2017); Sean Kinney, *Verizon Planning to Shut Down 2G Network*, RCR Wireless News (Jul 14, 2016), <https://www.rcrwireless.com/20160714/carriers/verizon-planning-shut-2g-network-tag17>; Sascha Segan, *T-Mobile Wants to Turn off 2G and 3G - but not Quite Yet*, PC Mag (Feb. 27, 2017), <https://www.pcmag.com/news/352024/t-mobile-wants-to-turn-off-2g-and-3g-but-not-quite-yet>.

<sup>46</sup> Existing mobile devices that cannot be upgraded to support enhanced geo-targeting will still be considered “WEA-capable” as of November 30, 2019, as long as the CMS Provider delivers Alert Messages to these devices using its “best approximation” of the target area. We clarify that CMS Providers that participate in WEA “in part” need not offer WEA on all devices available at the point of sale. *See infra* para. 25. To the extent that subscribers would benefit from additional clarity about WEA service on their devices, we note that we are amending our subscriber disclosure rules to require CMS Providers participating in WEA “in part” to disclose the extent to which enhanced geo-targeting is available on their network and devices at the point of sale, and the benefits of enhanced geo-targeting. *See infra* para. 15. *See* Letter from Matthew Gerst, Assistant Vice President, CTIA, to Marlene Dortch, Secretary, FCC, PS Docket No. 15-91 at 5 (filed Jan. 19, 2018) (expressing concern about consumer confusion regarding “WEA-capable” devices) (CTIA Jan. 19, 2018 *Ex Parte*).

<sup>47</sup> We no longer allow Participating CMS Providers to transmit an Alert Message to an area not larger than the propagation area of a single transmission site as a backstop. Commenters indicate that the “best approximates” standard provides “sufficient flexibility for participating providers” and the “legacy ‘single cell site transmission’ standard” is “now superfluous.” Letter from Courtney Neville, Policy Counsel, Competitive Carriers Association, to Marlene Dortch, Secretary, FCC, PS Docket No. 15-91, at 2 (filed Nov. 21, 2017) (CCA Nov. 21, 2017 *Ex Parte*).

<sup>48</sup> *See* ATIS Aug. 18, 2017 *Ex Parte* at 1; Verizon Sept. 22, 2017 *Ex Parte* at 1-2; *see also* Letter from Benjamin J. Krakauer, Assistant Commissioner, NYCEM, to Marlene Dortch, Secretary, FCC, PS Docket No. 15-91, at 2 (filed Dec. 19, 2017) (acknowledging “industry’s point that RF propagation challenges exist which makes achieving 100% delivery difficult in *certain* circumstances (e.g. devices in basements).”) (NYCEM Dec. 19, 2017 *Ex Parte*).

<sup>49</sup> Letter from Robert G. Morse, Assistant General Counsel, Verizon, to Marlene Dortch, Secretary, FCC, PS Docket No. 15-91, at 2 (filed Aug. 1, 2017) (Verizon Aug. 1, 2017 *Ex Parte*).

<sup>50</sup> *See* AC&C Reply at 3 (stating that the “device can be programmed to display alert as a default when device is unable to determine its current location); AT&T Comments at 18-19 (stating that the “WEA App could default to displaying the message” if location data are not available in the handset); Microsoft Aug. 8, 2017 *Ex Parte* at 3 (recommending “that devices default to displaying the WEA message if a position fix cannot be obtained within a time specified”); *cf.* California Governor’s OES Comments at 5 (requesting that devices without location services enabled should cache the Alert Message, rather than display it). We suggest, but do not require, that Participating CMS Providers disclose to consumers at the point of sale that if they have not enabled location services on their devices, they may receive Alert Messages that are not relevant to them. We expect that this limitation will apply to relatively few WEA-capable mobile devices. *See, e.g.,* Monica Anderson, *More Americans Using Smartphones for* (continued....)

By recognizing that Participating CMS Providers may only be able to match the target area where the device has location services enabled, we address device manufacturers' concerns that device-based geo-targeting could create consumer privacy issues by overriding consumers' location preferences,<sup>51</sup> and could drain battery life by requiring mobile devices to get a new location fix upon receipt of a WEA Alert Message.<sup>52</sup> This approach will also alleviate Verizon's concern about network congestion because devices with location services enabled likely will not need to obtain a new location fix upon receipt of an Alert Message.<sup>53</sup> Mobile devices can determine their geographic location in two ways: by utilizing predictive data or by using the CMS Provider's network. Rx Networks indicates that most smartphones currently "utilize predictive data for geolocation . . . which is valid for 7-14 days."<sup>54</sup> According to Rx Networks, utilizing predictive data for geolocation can be set up "without network support," and there is "no need to send location from [the] handset to the network to support device-based WEA."<sup>55</sup> Accordingly, the only mobile devices that would need to use the network to determine their location are the few that have location services enabled, but do not use predictive data for geolocation or otherwise have a valid location fix at the time the Alert Message is received.<sup>56</sup>

11. In addition, we recognize that a Participating CMS Provider's legacy network infrastructure may be incapable, from the standpoint of technological feasibility, of complying with our matching standard. Commenters state that legacy networks and mobile devices may no longer support the software updates needed to support geo-fencing.<sup>57</sup> Legacy mobile devices that support neither geo-fencing nor the software updates that would provide such capability will continue to be considered WEA capable so long as they continue to be able to receive Alert Messages based on a Participating CMS Provider's best approximation of the target area.<sup>58</sup>

12. We require Participating CMS Providers to comply with this requirement by November 30, 2019. CSRIC V proposed a timetable of 42 months after the adoption of a Commission Order requiring precise geo-targeting, which would translate into July 2021.<sup>59</sup> The *WEA FNPRM* proposed a

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*Getting Directions, Streaming TV*, Pew Research (Jan. 26, 2016), <http://www.pewresearch.org/fact-tank/2016/01/29/us-smartphone-use/>.

<sup>51</sup> See Letter from Paul Margie, Counsel for Apple, Inc., to Marlene Dortch, Secretary, FCC, PS Docket No. 15-91, at 1 (filed Aug. 14, 2017) (suggesting that overriding consumers' location preferences would create privacy concerns).

<sup>52</sup> See ATIS Aug. 18, 2017 *Ex Parte* at 1 (suggesting that obtaining location information may drain a device's battery).

<sup>53</sup> Verizon Aug. 1, 2017 *Ex Parte* at 1 ("[n]etwork capacity would also be affected if many devices in the same cell sector need to communicate with the network to obtain location and map updates").

<sup>54</sup> Rx Networks Sep. 14 *Ex Parte* at 1; NYCEM Comments at 11 ("[U]tilizing existing predictive technology can allow a device to determine its location within 5-15 seconds.").

<sup>55</sup> Rx Networks Sep. 14, 2016 *Ex Parte* at 1; accord NYCEM Comments at 11.

<sup>56</sup> Rx Networks Sep. 14, 2016 *Ex Parte* at 1.

<sup>57</sup> See ATIS Dec. 14, 2017 *Ex Parte* at 2 (stating that "it is likely that some legacy devices will not be able to support the changes [required to support enhanced geo-targeting] via a software upgrade"); Bluegrass Jul. 19, 2017 *Ex Parte* at 2 ("Cell broadcast is limited because very few changes can be made on legacy networks."); Microsoft Aug. 8, 2017 *Ex Parte* at 3 ("New requirements should apply only to new devices as backward compatibility should not be required as it is not always feasible.").

<sup>58</sup> Cf. Wireless Emergency Alerts; Amendments to Part 11 of the Commission's Rules Regarding the Emergency Alert System, PS Docket Nos. 15-91, 15-94, *Order on Reconsideration*, FCC 17-143, para. 9 (rel. Nov. 2017) (stating that "[m]obile devices that support neither embedded references nor the software updates that would provide such capability will not be considered WEA capable").

<sup>59</sup> See CSRIC V WEA Geo-targeting Report at 32.

similar compliance deadline.<sup>60</sup> But emergency managers indicate that “improvements to geo-targeting are critical to the future success of the WEA system” because of the problems associated with over-alerting and subscriber opt-out<sup>61</sup> and strongly urge implementation on a faster timetable.<sup>62</sup> AT&T, Verizon, and AC&C agree that earlier compliance is feasible. Verizon and AC&C observe that industry is already in the early stages of developing technical standards to support device-based geo-targeting,<sup>63</sup> and ATIS is expected to complete its analysis of device support for this requirement by June 30, 2018.<sup>64</sup> AC&C suggests that compliance is achievable within 30 months,<sup>65</sup> while CCA supports a 36-month implementation timeline.<sup>66</sup> AT&T agrees that compliance is feasible in less than 42 months, given the approach we describe here.<sup>67</sup> ATIS notes that device-based geo-targeting involves “25 industry standards,”<sup>68</sup> and AT&T notes that enhanced geo-targeting “will require modifications throughout the entire alerting ecosystem, including significant work in the standards bodies.”<sup>69</sup> Microsoft indicates that software development, testing, and device updates to support enhanced geo-targeting can be accomplished in 24 months, rather than the 42 months originally proposed.<sup>70</sup> Further, Verizon indicates that the “very aggressive” November 30, 2019 timeline “is feasible if all stakeholders – including OEMS,

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<sup>60</sup> See *WEA FNPRM*, 31 FCC Rcd at 11218-19, para. 178 (proposing to require compliance 24 months from the completion of all relevant standards or 24 months from the rule’s publication in the *Federal Register*, whichever is sooner).

<sup>61</sup> NYCEM Comments at 16.

<sup>62</sup> See Letter from Francisco Sanchez, Jr., Liaison to the Director and Public Information Officer, Harris County Homeland Security and Emergency Management, to Marlene H. Dortch, Secretary, FCC, PS Docket 15-91, at 1 (filed Sep. 15, 2017) (arguing against a 42-month implementation timeline) (Harris County Sep. 15, 2017 *Ex Parte*).

<sup>63</sup> See Letter from Robert Morse, Associate General Counsel, Verizon, to Marlene Dortch, Secretary, FCC, PS Docket No. 15-91, at 1 (filed Sep. 25, 2017) (Verizon Sep. 25, 2017 *Ex Parte*); AC&C Reply Comments at 10-11.

<sup>64</sup> See Letter from Matthew Gerst, Assistant Vice President, CTIA, to Marlene Dortch, Secretary, FCC, PS Docket No. 15-91, at 6 (filed Dec. 21, 2017) (CTIA Dec. 21, 2017 *Ex Parte*).

<sup>65</sup> AC&C Reply Comments at 11.

<sup>66</sup> Letter from Rebecca Murphy Thompson, General Counsel & Executive Vice President, Competitive Carriers Association, to Marlene Dortch, Secretary, FCC, PS Docket No. 15-91, at 1 (filed Jan. 2, 2018) (CCA Jan. 2, 2018 *Ex Parte*) (expressing support for CTIA’s proposed 36-month compliance timeframe).

<sup>67</sup> See AT&T Sep. 26, 2017 *Ex Parte* at 2 (stating that compliance is feasible within less than 42 months if “coordinate data for the polygon and the message content are sent in the same WEA Message,” but not specifying an alternative compliance date). As described above, the availability of effective compression techniques for Alert Messages and associated metadata offer a feasible approach for transmitting coordinate data and displayable text in the same message. See also Verizon Sep. 25, 2017 *Ex Parte* at 1-2 (stating that compliance is feasible within less than 42 months if the Commission makes appropriate allowances for Participating CMS Providers transmission of the Alert Message to 100 percent of the target area, and accounts for the fact that the software updates required to support this requirement may not be available for all mobile devices). As described above, we revise our proposed matching requirement such that Participating CMS Providers are only responsible for transmitting Alert Messages to 100 percent of the target area to the extent that it overlaps with their network coverage area. This will allow for compliance with this requirement even in instances where the target area specified by an alert originator overlaps with a geographic area where a Participating CMS Provider does not provide mobile service. Further, as described below by our definitions of participation in WEA “in part,” a CMS Provider may continue to participate in WEA in part even if not all mobile devices that the carrier offers at the point of sale are WEA-capable.

<sup>68</sup> Letter from Thomas Goode, General Counsel, ATIS, to Marlene Dortch, Secretary FCC, PS Docket No. 15-91 at 2 (filed Jan. 23, 2018).

<sup>69</sup> Letter from Joan Marsh, Executive Vice President – Federal, AT&T, to Marlene H. Dortch, Secretary, FCC, PS Docket Nos. 15-91, 15-94, at 2 (filed Jan. 19, 2018).

<sup>70</sup> Microsoft Jan. 12, 2018 *Ex Parte* at 2.

providers, and standards-setting bodies – redouble their efforts.”<sup>71</sup> We accordingly believe an earlier deadline than originally contemplated is both necessary and feasible.

13. CTIA states that 36 months is an achievable timeline for implementation of enhanced geo-targeting,<sup>72</sup> and indicates that at least some legacy and existing devices may be capable of supporting enhanced geo-targeting in less than 36 months.<sup>73</sup> Public safety officials, however, state that “a 36-month implementation timeline is simply too long given the current and future threat environment”<sup>74</sup> and urge the Commission to adopt a May 2019 compliance deadline.<sup>75</sup> We find the 36-month timeframe suggested by Participating CMS Providers to lack the kind of precise and detailed justification necessary to outweigh the urgent need for precise geo-targeting articulated by public safety.<sup>76</sup>

14. The record in this proceeding shows that the urgent public safety benefits of enhanced geo-targeting necessitate an expedited compliance timeframe.<sup>77</sup> We are concerned that without decisive Commission action in the form of regulations adopted here, precise geo-targeting will remain unavailable to emergency managers, that its unavailability will continue to lead to subscriber opt-out due to over-alerting, and that lives may be lost in the meantime. But we recognize that the requirement we adopt today will necessitate completion of ongoing standards development, device updates, software integration

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<sup>71</sup> Letter from William H. Johnson, Senior Vice President for Federal Regulatory and Legal Affairs, Verizon, to Marlene H. Dortch, Secretary, FCC, PS Docket No. 15-91 at 1 (filed Jan. 23, 2018) (affirming that “Verizon appreciates the importance of quick action when it comes to improving the WEA system” and “we should all work diligently to make this goal workable, and Verizon will do its part”) (Verizon Jan. 23, 2018 *Ex Parte*).

<sup>72</sup> See Letter from Matthew Gerst, Assistant Vice President, Regulatory Affairs, CTIA, to Marlene Dortch, Secretary, FCC, PS Docket No. 15-91, at 3 (filed Jan. 5, 2018).

<sup>73</sup> See CTIA Dec. 21, 2017 *Ex Parte* at 5 (recognizing “the potential for adding enhanced geo-targeting capabilities to at least some legacy or existing devices prior to [a] 36-month deadline”); accord CCA Jan. 2, 2018 *Ex Parte* at 1.

<sup>74</sup> Letter from Francisco Sanchez, Public Information Officer, Harris County Office of Homeland Security and Emergency Management, to Marlene Dortch, Secretary, FCC, PS Docket No. 15-91, at 2 (filed Dec. 19, 2017) (Harris County Dec. 19, 2017 *Ex Parte*).

<sup>75</sup> See Harris County Dec. 19, 2017 *Ex Parte* at 2 (stating that software updates to achieve enhanced geo-targeting should be implemented no later than May 2019); Letter from Francisco Sanchez, Public Information Officer, Harris County Office of Homeland Security and Emergency Management, to Ajit Pai, Chairman, FCC, PS Docket No. 15-91, at 2 (filed Dec. 28, 2017) (Harris County Dec. 28, 2017 *Ex Parte*) (describing the need to implement enhanced geo-targeting capabilities no later than May 2019); NYCEM Dec. 19, 2017 *Ex Parte* at 2 (“A 36-month implementation timeline is simply too long given the threat environment that local emergency management and public safety officials are operating in.”); Letter from Jeffrey S. Cohen, Chief Counsel, APCO, to Marlene Dortch, Secretary, FCC, PS Docket No. 15-91, at 2 (filed Dec. 19, 2017) (indicating that enhanced geo-targeting of Alert Messages should be achieved no later than May 1, 2019) (APCO Dec. 19, 2017 *Ex Parte*); Letter from Dianne Jacob, Chairwoman, San Diego County Board of Supervisors, to Chairman Pai and Commissioners, FCC, PS Docket No 15-91 (filed Jan. 2, 2018); Michael Antonucci, Emergency Services Manager, San Bernardino County Fire Protection District, to Marlene Dortch, Secretary, FCC, PS Docket No. 15-91, at 1 (filed Jan. 3, 2018).

<sup>76</sup> As noted above, Microsoft indicates that enhanced geo-targeting can be accomplished more swiftly than CTIA’s proposed 36-months. See Microsoft Jan. 12, 2018 *Ex Parte* at 2 (supporting compliance within 24 months of the rule’s effective date). Verizon also indicates that the November 30, 2019 compliance deadline is “feasible” and noting that they are analyzing the possibility of implementing the enhanced geo-targeting requirement “through software changes alone, without more substantial chipset and hardware changes.” See Verizon Jan. 23, 2018 *Ex Parte*.

<sup>77</sup> See Letter from Benjamin J. Krakauer, Assistant Commissioner, New York City Emergency Management, to Marlene Dortch, Secretary, FCC, PS Docket No. 15-91 at 2 (filed Dec. 19, 2017) (NYCEM Dec. 19, 2017 *Ex Parte*); Microsoft Jan. 12, 2018 *Ex Parte* at 2 (describing enhanced geo-targeting as “mission critical”).

and testing.<sup>78</sup> Based on the record currently before us, we disagree that the May 2019 compliance timeframe proposed by public safety is sufficient for Participating CMS Providers to reasonably complete these tasks.<sup>79</sup> The current record suggests that the deployment of 360-character alerting by May 2019 will facilitate the testing and deployment of precise geo-targeting<sup>80</sup> – and so some amount of time thereafter may be necessary. However, Participating CMS Providers concede that the standards process is already underway, and expect that subsequent steps, including software and network updates, can occur in parallel.<sup>81</sup> We note that in the September 2016 *WEA R&O*, the Commission made clear that it “expect[ed] that Participating CMS providers will continue to innovate” to further the “ultimate objective [that] Participating CMS Providers . . . match the target area provided by an alert originator.”<sup>82</sup> We expect that Participating CMS Providers have made advancements towards more accurate geo-targeting in the intervening 16 months and will not need an extensive period for deployment and testing after the deployment of 360-character alerts by May 2019.<sup>83</sup> Accordingly, and given our experience with other wireless standards development processes,<sup>84</sup> we believe that compliance by November 30, 2019 is feasible and required in the public interest.

15. The enhanced geo-targeting requirements we adopt today make it even more important that consumers understand the availability of WEA service on mobile devices and their CMS Provider’s network at the point of sale.<sup>85</sup> Section 10.240 of the Commission’s rules requires that CMS Providers

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<sup>78</sup> See CTIA Dec. 21, 2017 *Ex Parte* at 5 (outlining steps CMS Providers must take to implement enhanced geo-targeting); AC&C Reply at 11 (stating that standards are necessary to comply with this requirement, a number of which already exist); AT&T Sep. 26, 2017 *Ex Parte* at 2 (stating that operating systems and mobile device software would need to be updated to comply with this requirement); Microsoft Aug. 8, 2017 *Ex Parte* at 3 (urging the Commission to allow sufficient time for standards, new device development, testing and roll out as part of our compliance timeframe). We expect the industry to move expeditiously to meet the November 30, 2019 compliance deadline. We recognize, however, the possibility that the standards development process could be delayed or prolonged through no fault of a Participating CMS Provider. In such an instance, pursuant to Section 1.3 of the rules, the Commission may consider waiver of this requirement. See 47 CFR § 1.3.

<sup>79</sup> See CTIA Dec. 21, 2017 *Ex Parte* at 5.

<sup>80</sup> CTIA Dec. 21, 2017 *Ex Parte* at 3 n.2.

<sup>81</sup> See CTIA Dec. 21, 2017 *Ex Parte* at 5; Verizon Jan. 23, 2018 *Ex Parte* at 1 (indicating that a number of steps can be completed quickly and in a coordinated effort, including standards development and implementation, and testing).

<sup>82</sup> *WEA R&O and FNPRM*, 31 FCC Rcd at 11147-48, para. 52. This gave industry sufficiently clear indication, as of September 2016, that the Commission would be adopting more precise geo-targeting requirements such that the alert area would match the target area provided by the alert originator, and supplying 16 months during which they could have begun work towards supporting the capability.

<sup>83</sup> See Microsoft Jan. 12, 2018 *Ex Parte* at 2 (indicating that software development, testing, and device updates can be completed within 24 months, or by January 2020).

<sup>84</sup> See Petition of CTIA for Reconsideration of the Wireless Emergency Alerts (WEA) Report and Order, PS Docket Nos. 15-91, 15-94, at 6-8 (filed Dec. 1, 2016) (CTIA Petition) <https://ecfsapi.fcc.gov/file/1201436312000/CTIA%20WEA%20Petition%20For%20Reconsideration.pdf> (stating that whatever the “aspirational desires of the Commission[,] . . . a one-year deadline [*i.e.*, November 1, 2017] to support embedded references into the WEA system would be unworkable and infeasible” for CTIA members, and requesting an indefinite extension). *But see Wireless Emergency Alerts*, Order on Reconsideration, 32 FCC Rcd 9624, para. 9 (2017) (stating that Verizon, AT&T, Sprint, T-Mobile, and US Cellular acknowledged that they can comply with the November 1, 2017 deadline to support embedded references).

<sup>85</sup> See *WEA FNPRM*, 31 FCC Rcd at 11205, paras. 151-52 (proposing to require CMS Providers to “disclose sufficient information at the point of sale to allow consumers to make an informed decision about whether they would consistently receive WEA Alert Messages if they were to become a subscriber” and seeking comment on what additional point of sale disclosures may promote consumer awareness about WEA capabilities and the availability of WEA service).

participating in WEA “in part” provide notice to consumers that WEA may not be available on all devices or within the entire service area, as well as details about the availability of WEA service.<sup>86</sup> As NYCEM and others emphasize, however, additional information at the point of sale will help promote consumer understanding of where and to what extent WEA service is offered.<sup>87</sup> Accordingly, as part of this consumer notice, we further require CMS Providers participating in WEA “in part” to disclose the extent to which enhanced geo-targeting is available on their network and devices at the point of sale, and the benefits of enhanced geo-targeting. Accordingly, we amend the subscriber notifications in Section 10.240 to require that CMS Providers provide consumers with details on the availability and benefits of enhanced geo-targeting via URL or a sales representative at the point of sale.<sup>88</sup> We believe these disclosures will allow consumers to make more informed choices about their ability to receive WEA Alert Messages that are relevant to them.<sup>89</sup> We require Participating CMS Providers to comply with these enhanced point of sale disclosure rules by November 30, 2019, or as specified by publication in the *Federal Register* of a notice announcing approval by the Office of Management and Budget (OMB) and the relevant effective date, whichever is later.<sup>90</sup> This compliance date will ensure that consumers are informed about the availability of enhanced geo-targeting once the Commission’s requirement to match the target area goes into effect.

## **B. Alert Message Preservation**

### **1. Background**

16. The Commission’s rules currently do not address whether or how WEA Alert Messages should be preserved on consumers’ mobile devices after they are dismissed. The *WEA FNPRM* proposed to require WEA-capable mobile devices to preserve Alert Messages in a consumer-accessible format and location until the Alert Message expires, and sought comment on the extent to which Participating CMS Providers currently offer consumers this capability.<sup>91</sup> The Commission proposed to require Participating CMS Providers to support Alert Message preservation within 30 months of the rule’s publication in the

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<sup>86</sup> See 47 CFR § 10.240(c); *supra* note 19.

<sup>87</sup> See NYCEM Comments at 13 (arguing that “it is critical that consumers be given an opportunity to make an informed decision on which service and/or device to purchase based on a series of factors, including WEA capability” and urging the Commission to adopt more robust disclosure requirements for CMS Providers participating in WEA “in part”); APCO Comments at 4-5 (asserting that “[p]oint of sale disclosures should include information such as how WEA capabilities vary by device, network technology, or geographic area” and noting that “[t]his is especially important for providers who elect to participate ‘in part.’”); California Governor’s OES Comments at 6 (recommending that “consumers are informed of the observable differences in WEA service and device behavior” at the point of sale); Bluegrass Jul. 19, 2017 *Ex Parte* at 2 (indicating that Bluegrass Cellular supports points of sale disclosures and agreeing that “[c]arriers should have readily available at the point and time of sale any WEA restrictions”); Letter from Matthew Gerst, Assistant Vice President, CTIA, to Marlene Dortch, Secretary, FCC, PS Docket No. 15-91 at 2 (filed Aug. 1, 2017) (noting the need to provide essential information through consumer disclosures). *C.f.* Letter from Matthew Gerst, Assistant Vice President, CTIA, to Marlene Dortch, Secretary, FCC, PS Docket No. 15-91 at 4 (filed Jan. 23, 2018) (citing concerns about consumer confusion regarding WEA capabilities).

<sup>88</sup> We note that sales associates are not required to memorize information about the availability and benefits of enhanced geo-targeting, but may rely on information available at the CMS Provider’s URL to provide details to consumers at the point of sale.

<sup>89</sup> APCO Comments at 4-5 (noting that “[p]romoting consumer choice and providing better notice regarding WEA at the point of sale could lead to increased use of the system.”).

<sup>90</sup> We observe that in the underlying *WEA FNPRM*, the Commission proposed to require compliance with enhanced point of sale notification rules within 120 days of their publication in the *Federal Register*. See *WEA FNPRM*, 31 FCC Rcd at 11219, para. 179. No commenter objected to this proposed compliance date in the record.

<sup>91</sup> *WEA FNPRM*, 31 FCC Rcd at 11186, para. 116.

*Federal Register*—the same timeframe that the Commission adopted for other requirements adopted in the *WEA R&O* that implicated updates to standards and software—and sought comment on whether compliance could be achieved sooner.<sup>92</sup>

## 2. Discussion

17. We amend Section 10.500 of the WEA rules to state that WEA-capable mobile devices must preserve Alert Messages in a consumer-accessible format and location for at least 24 hours after the Alert Message is received on the subscriber’s mobile device, or until deleted by the subscriber.<sup>93</sup> The record shows that allowing consumers to review Alert Messages after they have been dismissed can improve comprehension of potentially life-saving information.<sup>94</sup> The Rehabilitation Engineering Research Center for Wireless Inclusive Technologies (Wireless RERC) and the Georgia Institute of Technology’s Center for Advanced Communications Policy (CACP) agreed with our proposal to ensure that Alert Messages are preserved for user review, citing their research finding that many WEA users had difficulty understanding WEA Alert Messages because “the message disappears” and they “need to be able to repeat the message.”<sup>95</sup> APCO and NCMEC confirm that “[c]ontinued access to alert messages is especially important given the Commission’s recent adoption of rules that provide for a higher character limit and embedded references such as URLs and phone numbers, and it will become even more important once WEA is enhanced with content-rich features such as multimedia.”<sup>96</sup> NYCEM identifies specific examples where this feature would be helpful, including in evacuation situations where the Alert Message contains information about shelter locations, commodity distribution point locations, and emergency hotline telephone numbers, which will continue to be relevant once the alert has been dismissed by the user.<sup>97</sup> In light of this record, we disagree with T-Mobile that “[t]here is no need for action regarding the preservation of alerts.”<sup>98</sup> Further, alert preservation “also has the potential to reduce

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<sup>92</sup> See *WEA FNPRM*, 31 FCC Rcd at 11217, para. 176. We note that, in proposing to require compliance within 30 months of the rule’s publication in the *Federal Register*, the Commission used the same record-supported analysis as it relied upon in the *WEA R&O*. *I.e.*, it allowed 12 months for appropriate industry bodies to finalize and publish relevant standards, 12 months for Participating CMS Providers and device manufacturers to develop and integrate software upgrades consistent with those standards, and an additional six months to deploy this technology in WEA-capable mobile devices. See *WEA R&O*, 31 FCC Rcd at 11161-62, para. 79.

<sup>93</sup> Accordingly, the requirement that CMS Providers preserve Alert Messages on WEA-capable mobile devices for 24 hours would not limit consumers’ ability to delete WEA messages from their devices. See CTIA Jan. 19, 2018 *Ex Parte* at 5 (requesting that the Commission clarify that consumers may still choose to delete Alert Messages received on their devices within 24 hours). We expect that such devices will preserve any formatting needed to ensure access by all consumers, including those with disabilities.

<sup>94</sup> See Wireless RERC & CACP Comments at 7-8 (citing a 2015 study indicating that subscribers had difficulty understanding WEA Alert Messages because “the message disappears” and they “need to be able to repeat the message”); APCO Comments 2 (arguing that alert preservation is particularly important given recent rules adopting 360-characters and embedded references in Alert Messages); Letter from Preston Findlay, Counsel, Missing Children Division, NCMEC, to Marlene Dortch, Secretary, FCC, PS Docket No. 15-91, at 3 (filed Mar. 2, 2016) (NCMEC Mar. 2, 2016 *Ex Parte*) (arguing that the ability to review detailed content multiple times is even more beneficial given the character length increase for WEA messages).

<sup>95</sup> Wireless RERC & CACP Comments at 7-8 citing Helena Mitchell and Salimah LaForce, Wireless RERC CACP, Georgia Institute of Technology, Optimizing Ability of Message Receipt by People with Disabilities WEA Survey Findings: Final Report, Department of Homeland Security Science and Technology Directorate (2015) (on file with author).

<sup>96</sup> APCO Comments 2; NCMEC Mar. 2, 2016 *Ex Parte* Letter at 3; Wireless RERC & CACP Comments at 7-8.

<sup>97</sup> See NYCEM Comments at 3-4.

<sup>98</sup> T-Mobile Reply Comments at 2; see also CTIA Comments at 11 (contending that “there is not documented evidence of a need to preserve Alert Messages”).

milling behavior,”<sup>99</sup> as some recipients of Alert Messages “will search for alerts on the internet once dismissed to find the content” of the original message.<sup>100</sup> Preserving access to Alert Messages on user devices may therefore reduce burdens on carrier networks during an emergency, allowing critical traffic to get through to first responders and emergency managers, thereby improving public safety outcomes.

18. Commenters indicate that it is feasible to preserve Alert Messages,<sup>101</sup> and that some WEA-capable mobile devices are already capable of preserving Alert Messages.<sup>102</sup> Microsoft smartphones, for example, preserve Alert Messages in the “Message History” folder,<sup>103</sup> and Blackberry 10 and Android phones keep alerts in an “inbox” that the user can access for later review.<sup>104</sup> Not all WEA-capable mobile devices, however, offer this capability.<sup>105</sup> For those mobile devices that do not currently preserve Alert Messages, the record shows this capability can be enabled through a software update.<sup>106</sup>

19. Requiring that Alert Messages be preserved for 24 hours, rather than “until they expire,” as proposed, meets the needs of emergency managers while addressing concerns raised by industry. The California Governor’s OES and Calhoun CEMA specifically request that Alert Messages be preserved for 24 hours.<sup>107</sup> Microsoft and ATIS agree that the Commission should require that Alert Messages be preserved for a specified period of time.<sup>108</sup> ATIS states, on the other hand, that it would not be feasible to preserve Alert Messages until they expire because the CAP parameter defining Alert Message expiration is neither defined nor transmitted to the device in a manner that would allow this information to dictate

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<sup>99</sup> APCO Comments at 2. “Milling” is a behavior in which “individuals interact with others to confirm information and develop a view about the risks they face at that moment and their possible responses. Milling creates a delay between the time a warning is received and the time protective action is taken.” See Computer Science and Telecommunications Board; Division of Engineering and Physical Sciences; National Research Council, Public Response to Alerts and Warnings Using Social Media: Report of a Workshop on Current Knowledge and Research Gaps, at 4 (2013), available at [http://www.nap.edu/catalog.php?record\\_id=15853](http://www.nap.edu/catalog.php?record_id=15853) (last visited Oct. 25, 2017).

<sup>100</sup> FEMA Mar. 17, 2016 *Ex Parte* at 5. Letter from Alfred Kenyon, IPAWS Program Office, Department of Homeland Security, FEMA, to Marlene Dortch, Secretary, FCC, PS Docket No. 15-91, at 5 (filed Mar. 17, 2016) (FEMA Mar. 17, 2016 *Ex Parte*).

<sup>101</sup> Microsoft Comments at 5 (“It is technologically feasible to preserve emergency alerts on a device and, as the Further Notice acknowledges, Windows smartphones already do so.”); T-Mobile Reply Comments at 8-9 (“the preservation of alerts can already be addressed through the feature-set of certain devices.”); CTIA Comments at 11 (noting that “[e]ach individual WEA-capable mobile device . . . generally already has a methodology of retaining notifications of this type”).

<sup>102</sup> See Microsoft Comments at 5; T-Mobile Reply Comments at 8-9; CTIA Comments at 11; Blackberry Mar. 21, 2016 *Ex Parte* at 2.

<sup>103</sup> See Microsoft Comments at 5; Letter from Paula Boyd, Director of Governmental and Regulatory Affairs, Microsoft Corporation, to Marlene Dortch, Secretary, FCC, PS Docket No. 15-91, at 2 (filed Mar. 9, 2016) (Microsoft Mar. 9, 2016 *Ex Parte*).

<sup>104</sup> Letter from David T. Blonder, Director and Legal Counsel, Blackberry Corporation, to Marlene Dortch, Secretary, FCC, PS Docket No. 15-91, at 2 (filed Mar. 21, 2016) (Blackberry Mar. 21, 2016 *Ex Parte*).

<sup>105</sup> See ATIS Mar. 18, 2016 *Ex Parte* at 23 (indicating that Alert Message preservation is dependent “upon vendor implementation, and is vendor-specific.”).

<sup>106</sup> See Letter from Thomas Goode, General Counsel, ATIS, to Marlene Dortch, Secretary, FCC, PS Docket No. 15-91, at 21 (filed Mar. 21, 2017) (ATIS Mar. 21, 2016 *Ex Parte*); Letter from Harris County Office of Homeland Security and Emergency Management, to Marlene Dortch, Secretary, FCC, PS Docket 15-91, at 4 (filed Mar. 7, 2016) (Harris County Mar. 7, 2016 *Ex Parte*).

<sup>107</sup> Calhoun CEMA Comments at 1; California Governor’s OES Comments at 1. *But see* NYCEM July 10 *Ex Parte* at 2 (arguing that Alert Messages should be preserved indefinitely, until they are deleted by the consumer).

<sup>108</sup> See ATIS Comments at 4; Microsoft Comments at 5-6.



device behavior.<sup>109</sup> We note that the CAP parameter for Alert Messages expiration has a maximum value of 24 hours.<sup>110</sup> Accordingly, the 24-hour preservation timeframe we adopt today ensures that consumers will be able to review Alert Messages while they remain active, and addresses device manufacturers' and CMS Providers' technical concerns.

20. We allow industry flexibility to preserve Alert Messages in a manner that fits within existing WEA interface designs. AT&T states that "carriers cannot collectively settle upon the design of a WEA mailbox and impose that design upon handset manufacturers, which compete on the basis of their user interfaces and approach the question of message storage independently."<sup>111</sup> Microsoft states that device manufacturers should continue to be allowed to implement Alert Message preservation in the manner of their choosing.<sup>112</sup> We agree with Microsoft, and decline to mandate a uniform approach to Alert Message preservation.

21. We require Participating CMS Providers to comply with this requirement by November 30, 2019. The record shows that 22 months is sufficient time for Participating CMS Providers to implement the software update needed to enable this functionality<sup>113</sup> – and making this requirement align with the precise geo-targeting requirement should ease administration and oversight. Commenters state that, in the absence of standards, many Participating CMS Providers' WEA-capable mobile devices already preserve Alert Messages in a manner that would be compliant with the requirement we adopt today.<sup>114</sup> While we agree with ATIS that standards may have been necessary to support the preservation of Alert Messages in a uniform format, as proposed, standards are not necessary to comply with the more flexible requirement we adopt today.<sup>115</sup> Compliance with this requirement does not implicate changes to the provision of WEA that would necessitate standards development. Rather, we allow industry flexibility to preserve Alert Messages on mobile devices in a manner that fits within their existing WEA interface designs. Accordingly, we find that it is both feasible and in the public interest to require this functionality on WEA-capable mobile devices by November 30, 2019.

### C. Defining the Extent of WEA Participation

#### 1. Background

22. Pursuant to the WEA rules, all CMS Providers must notify the Commission and the public of their election to participate in WEA by filing a letter in the WEA election docket stating whether

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<sup>109</sup> See ATIS Comments at 4.

<sup>110</sup> See NYCEM Comments at 3; see also OASIS CAP v1.2 (IPAWS Profile for the OASIS Common Alerting Protocol IPAWS USA).

<sup>111</sup> AT&T Comments at 6.

<sup>112</sup> Microsoft Comments at 6.

<sup>113</sup> Where we allow twelve months for Participating CMS Providers and mobile device manufacturers to develop and integrate software upgrades into embedded plant and to complete required "technical acceptance testing," and then six more months for Participating CMS Providers and mobile device manufacturers to deploy this new technology to the field. See *WEA R&O*, 31 FCC Rcd at 11161-62, para. 79; see also *WEA FNPRM*, 31 FCC Rcd at 11217, para. 176 (proposing to use this framework to analyze the compliance timeframe for alert preservation). No commenter opposed using this framework as a basis for determining the compliance timeframe for alert preservation.

<sup>114</sup> See Microsoft Comments at 5; T-Mobile Reply Comments at 8-9; CTIA Comments at 11; Blackberry Mar. 21, 2016 *Ex Parte* at 2.

<sup>115</sup> ATIS Mar. 21, 2016 *Ex Parte* at 23. Provided that WEA-capable mobile devices continue to implement display modes that meet the needs of people with disabilities and other users. See *WEA Capabilities Report and Order*, 23 FCC Rcd at 6173, para. 68.

they elect to participate in WEA, and whether they elect to participate “in whole” or “in part.”<sup>116</sup> Further, CMS Providers participating “in part” must notify consumers at the point of sale that “[w]ireless emergency alerts may not be available on all devices or in the entire service area.”<sup>117</sup> The Commission’s rules, however, do not define “in whole” or “in part” WEA participation or specify the difference between these elections.<sup>118</sup>

23. In the *WEA FNPRM*, the Commission proposed to define CMS Providers participating “in whole” as those that have agreed to transmit WEA Alert Messages in a manner consistent with the technical standards, protocols, procedures, and other technical requirements implemented by the Commission in the entirety of their geographic service area and to all mobile devices on their network.<sup>119</sup> The Commission proposed to define CMS Providers participating in WEA “in part” as those that have agreed to transmit WEA Alert Messages in the same manner, in some, but not all of their geographic service area, and to some, but not all of the mobile devices on their network.<sup>120</sup> The Commission has previously rejected, and did not seek comment on, the notion that partial compliance with the Commission’s WEA rules in other respects would permit a carrier to classify itself as offering WEA either “in whole” or “in part.”<sup>121</sup> The Commission sought comment on whether to read a commitment to support WEA using “all available network technologies” into Participating CMS Providers’ elections,<sup>122</sup> and whether to revise its definition of a “mobile device” for the purpose of WEA.<sup>123</sup> Finally, the Commission proposed to require Participating CMS Providers to renew their election letters consistent with any new definitions for participation in WEA within 120 days of the new definition’s publication in the *Federal Register*, and sought comment on whether to revisit our requirements for keeping WEA election status up to date.<sup>124</sup>

## 2. Discussion

24. The majority of commenters support the proposed definitions of “in part” and “in whole” participation,<sup>125</sup> and agree that the definitions should reflect the current “rules requiring providers to

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<sup>116</sup> See *WEA Participation Report and Order*, 23 FCC Rcd at 12575, para. 32; see also 47 CFR § 10.210(a) (requiring that CMS Providers who elect to transmit WEA Alert Messages electronically file an election letter with the Commission); 47 CFR § 10.210(c) (requiring Participating CMS Providers to file in the election letter in the docket).

<sup>117</sup> 47 CFR § 10.240(c).

<sup>118</sup> See 47 CFR § 10.210. Nationwide CMS Providers, including AT&T, Sprint, T-Mobile, and Verizon, participate in WEA “in part.” See PS Docket No. 08-146.

<sup>119</sup> *WEA FNPRM*, 31 FCC Rcd at 11182, para. 106.

<sup>120</sup> *WEA FNPRM*, 31 FCC Rcd at 11182, para. 106.

<sup>121</sup> See *Improving Wireless Emergency Alerts and Community-initiated Alerting*, 30 FCC Rcd 13781, 13818, para. 79 (2015) (*WEA NPRM*); *WEA FNPRM*, 31 FCC Rcd at 11181-84, paras. 105-111.

<sup>122</sup> See *WEA FNPRM*, 31 FCC Rcd at 11183 at para. 109 (proposing to define “in whole” participation as a commitment to support WEA using all available network technologies).

<sup>123</sup> *WEA FNPRM*, 31 FCC Rcd at 11182, para. 108. The Commission’s rules currently define “mobile devices” as “[t]he subscriber equipment generally offered by CMS providers that supports distribution of Alert Messages.” See 47 CFR § 10.10(j).

<sup>124</sup> *WEA FNPRM*, 31 FCC Rcd at 11219, para. 179.

<sup>125</sup> See NYCEM Comments at 3 (“NYCEM believes the proposed definition in adequate.”); Wireless RERC & CACP Comments at 5 (“We agree with the definitions outlined in the FNPRM.”); Verizon Comments at 2 (indicating that the proposed definitions of “in whole” and “in part” participation “meet the WARN Act’s requirements and should remain.”); Verizon Aug. 1, 2017 *Ex Parte* at 1 (reiterating that the definitions of “in whole and “in part” participation “should remain simple and straightforward based on service coverage and the capabilities of the devices they offer.”); Bluegrass Cellular Jul. 19, 2017 *Ex Parte* at 2.

inform current and prospective customers about their level of participation.”<sup>126</sup> Further, commenters suggest that defining “in part” and “in whole” would provide clarity to subscribers about the support for WEA service on their chosen CMS Provider’s network.<sup>127</sup> Accordingly, we amend Section 10.10 of the Commission’s rules to state that CMS Providers participate in WEA “in whole” when they agree to transmit WEA Alert Messages in a manner consistent with the technical standards, protocols, procedures, and other technical requirements implemented by the Commission in the entirety of their geographic service area, and when all mobile devices that they offer at the point of sale are WEA-capable. We further amend Section 10.10 to state that CMS Providers participate in WEA “in part” when they agree to transmit WEA Alert Messages in a manner consistent with the technical standards, protocols, procedures, and other technical requirements implemented by the Commission in some, but not in all of their geographic service areas, or not all mobile devices that they offer at the point of sale are WEA-capable. This approach achieves the intent of our proposed definitions while offering greater clarity as to the scope of Participating CMS Providers’ responsibilities, and addressing the concerns of the few commenters that identified issues with our proposal.

25. We decline to revise our definition of a “mobile device.” We find that the current definition of a mobile device as “[t]he subscriber equipment generally offered by CMS Providers that supports the distribution of WEA Alert Messages” is sufficient to describe the scope of mobile devices that may support WEA.<sup>128</sup> As we observed in the *WEA FNPRM*, in addition to smartphones and feature phones, WEA is already available on some tablets.<sup>129</sup> Commenters note that not all tablet computers or wearables are currently WEA-capable, and “visual, haptic, and audio signaling capabilities will likely have to be incorporated into [these] technologies to support the WEA notification signal requirements.”<sup>130</sup>

26. Further, we revise our proposed definitions of participation in whole and in part to not require support for mobile devices by their being connected to Participating CMS Providers’ networks. Microsoft cautions that expanding the definition of “mobile devices” to include “any device connected to a Participating CMS Provider’s network” would mean that WEA-capable mobile devices may be sold by entities other than the Participating CMS Provider, that such entities would not be subject to the Commission’s point-of-sale disclosure rules, and thus, devices could be sold without the required disclosures,<sup>131</sup> creating confusion among consumers about the availability of WEA.<sup>132</sup> To address this concern, the definitions of participation that we adopt appropriately reflect that Participating CMS Providers’ responsibility to support WEA-capable mobile devices extends only to mobile devices that they offer at the point of sale, and to WEA-capable devices roaming on their networks.<sup>133</sup> For example, subject to applicable roaming requirements, Participating CMS Providers need only provide support for

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<sup>126</sup> Wireless RERC & CACP Comments at 5.

<sup>127</sup> See NYCEM Comments at 2; California Governor’s OES Comments at 1.

<sup>128</sup> 47 CFR § 10.10(j).

<sup>129</sup> See *WEA FNPRM*, 31 FCC Rcd at 1183, para. 108 citing Daniel Gonzales, Department of Homeland Security, Science and Technology, Wireless Emergency Alerts Mobile Penetration Strategy at 124 (2013); see also Wireless RERC & CACP Comments at 6.

<sup>130</sup> Wireless RERC & CACP Comments at 6; NYCEM Comments at 3 (acknowledging “the limitation of Wi-Fi-only tablets to receive WEA as they are not receiving data services from a CMSP”).

<sup>131</sup> Microsoft Comments at 3-4.

<sup>132</sup> Microsoft Comments at 4.

<sup>133</sup> See 47 CFR § 10.470 (“When, pursuant to a roaming agreement (see § 20.12 of this chapter), a subscriber receives services from a roamed-upon network of a Participating CMS Provider, the Participating CMS Provider must support WEA alerts to the roaming subscriber to the extent the subscriber’s mobile device is configured for and technically capable of receiving WEA alerts.”). This action does not modify Participating CMS Providers’ responsibilities to support WEA-capable mobile devices roaming on their networks.

devices they offer for sale.<sup>134</sup> Consistent with our definition of a “mobile device” for the purpose of WEA as being “generally offered by CMS providers,” we decline to require Participating CMS Providers to attest to the WEA functionality of mobile devices that are outside of their control.

27. In adopting these definitions, we decline to define “in whole” and “in part” participation, as initially proposed, with reference to the extent to which Participating CMS Providers make WEA service available using all available technologies on their networks. Verizon opposed this proposal because it “unnecessarily micro-manag[es] how carriers attest to and disclose the alerting capabilities of their networks and devices” and may confuse consumers “because the different [network technology-based] attestations would inaccurately imply material differences between competing providers’ alerting capabilities” even where consumers “enjoy the same access to alerts.”<sup>135</sup> We agree that defining the extent of CMS Providers’ WEA participation based on their use of available network technologies creates an unnecessary and immaterial distinction between Participating CMS Providers who may provide their subscribers with the same access to WEA, but may rely on different network technologies to do so.<sup>136</sup> We find that requiring attestations to the use of all available network technologies as a prerequisite for “in whole” participation would create an unnecessarily high bar to achieving “in whole” WEA participation.<sup>137</sup>

28. CTIA was the only commenter that opposed the Commission’s definitions of “in whole” and “in part” WEA participation, as adopted here. CTIA argues that the proposed definitions “forc[e] a choice on CMS Providers that risks undermining the public interest: support all technical features of WEA or opt out of the program in its entirety.”<sup>138</sup> The Commission already rejected the argument that “in part” participation should allow Participating CMS Providers to support some, but not all, of the WEA rules in the *WEA NPRM*, and we do not reconsider that approach now.<sup>139</sup> The Commission’s rules already require CMS Providers, whether participating “in whole” or “in part,” to “[a]gree to transmit . . . alerts in a manner consistent with the technical standards, protocols, procedures, and other technical requirements implemented by the Commission.”<sup>140</sup> Accordingly, all Participating CMS Providers must support all technical features of WEA whether they elect to participate “in whole” or (to the extent that the offering is only over certain geographic areas or devices) “in part.” The definitions of WEA participation that we adopt today do not alter this requirement.

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<sup>134</sup> See 47 CFR § 10.470; see also Microsoft Comments at 3-4 (providing examples of locations other than CMS Provider retail stores where mobile devices are sold); but cf. Bluegrass Cellular Jul. 19, 2017 *Ex Parte* at 2 (stating that even “if a customer supplies his or her own device, as long as the device is WEA capable and follows standards, Bluegrass Cellular should be able to support WEA”).

<sup>135</sup> Verizon Comments at 1-2.

<sup>136</sup> See Verizon Comments at 2 (“The Further Notice suggests, however, that if those same providers deliver alerts ubiquitously via their cellular/broadband PCS and 700 MHz LTE networks, but one of them does not also use its supplemental AWS or 5G spectrum for alerts, then the latter is only delivering alerts ‘in part.’ This would make no sense; all of their customers enjoy the same access to alerts and should file the same attestation.”).

<sup>137</sup> See Verizon Comments at 2. See also 47 CFR § 10.240 (requiring CMS Providers to notify consumers at the point-of-sale of their non-participation in WEA or election to participate in WEA “in part”). The Commission’s point-of-sale disclosure rules apply only to CMS Providers and to devices sold by CMS Providers.

<sup>138</sup> CTIA Comments at 15.

<sup>139</sup> See *WEA NPRM*, 30 FCC Rcd at 13818, para. 79 (observing that “[t]here is nothing in the WARN Act that gives a Participating CMS Provider the authority to select which technical standards, protocols, procedures and other requirements with which it will comply” and that allowing Participating CMS Providers to do so would “introduce confusion” and “potentially impede interoperability”).

<sup>140</sup> 47 CFR § 10.210(a)(1).

29. We acknowledge, however, that Participating CMS Providers require the flexibility to determine which technology they use to provide WEA service. Accordingly, we decline to adopt our proposal to remove from the rules parallel statements that WEA infrastructure and mobile device functionality are dependent on the capabilities of a Participating CMS Provider's delivery technologies.<sup>141</sup> Commenters state that the rules, as currently written, appropriately recognize that CMS Providers "are not using the same technology and capabilities at the same time throughout their networks."<sup>142</sup> We agree that this language preserves flexibility for Participating CMS Providers,<sup>143</sup> and the record does not demonstrate a public benefit for its deletion.<sup>144</sup>

30. These definitions will become effective 60 days from their publication in the *Federal Register*. Commenters who address this issue in their filings indicate that, if the Commission adopts definitions of "in whole" and "in part" participation, CMS Providers should be required to renew their elections.<sup>145</sup> We agree. Accordingly, we allow CMS Providers 120 days from the date of publication in the *Federal Register* of a notice announcing approval by the Office of Management and Budget of the modified information collection requirements to update their WEA election status.<sup>146</sup> CMS Providers are only required to update their WEA election status, however, if a change to their WEA election letter already on file with the Commission is necessary for the attestations it contains to remain accurate and consistent with the definitions of participation we adopt today.<sup>147</sup> This renewal will ensure that Participating CMS Providers' election notices are consistent with the definitions of "in whole" and "in part" participation we adopt today, and will promote public awareness and understanding of CMS Provider participation.<sup>148</sup>

#### D. Regulatory Impact Analysis

31. In this section, we show that the benefits from the improvements to WEA we adopt today should exceed their cost. The cost burden our rules could present to CMS Providers is \$41 million. This cost results mainly from modifications to standards and software. We estimate that the public safety benefit of the rules we adopt today will be in excess of these costs. The record reflects that enhanced geo-targeting will greatly minimize the potential for over-alerting, a problem that has led consumers to opt out of WEA and emergency managers to decline to use WEA as a tool for providing information in times of emergencies. With increased participation by both consumers and emergency managers, WEA Alert Messages will be more likely to be both sent and received, leading to an incremental increase in lives saved, injuries prevented, and reductions in the cost of deploying first responders. We note that we

<sup>141</sup> WEA FNPRM, 31 FCC Rcd at 11185, para 113; *see also* 47 CFR § 10.330; 47 CFR § 10.500.

<sup>142</sup> CTIA Comments at 8.

<sup>143</sup> CTIA Comments at 8 (arguing that the language in Sections 10.330 and 10.500 provides needed flexibility to Participating CMS Providers to develop and deploy new network technologies, driven by consumer demand).

<sup>144</sup> No commenters supported this proposal.

<sup>145</sup> *See* Wireless RERC & CACP Comments at 7 ("If the outcome of this rulemaking defines WEA participation, then all providers should be required to renew their elections to ensure congruence with the new definitions.").

<sup>146</sup> This requirement applies to CMS Providers not currently participating in WEA, as well as those that currently participate in whole or in part. The 120-day timeline is tied to OMB approval, rather than from the publication of the rule in the *Federal Register* as originally proposed, to accommodate the need to modify this information collection and corresponding Paperwork Reduction Act analysis. *See First WEA R&O*, 31 FCC Rcd at 11219, para. 179; *see also* Election of Whether to Participate in the Commercial Mobile Alert System. Notice of Office of Management and Budget Action, ICR Ref. No. 201704-3060-035, OMB Control No. 2060-1113 (2017).

<sup>147</sup> *See* PS Docket No. 08-146.

<sup>148</sup> *See* Wireless RERC & CACP Comments at 7; NYCEM Comments at 3 (arguing that CMS Providers should "refresh their election status so that the Commission, the emergency management community, and general public have an understanding of participation").

sought comment on the costs and benefits of our proposed rules in the *WEA FNPRM*,<sup>149</sup> but received a sparse record in response, including no dollar figure estimates.<sup>150</sup> We base our assessment of costs on the quantitative framework on which the Commission relied in the *WEA R&O* and *WEA FNPRM*, which no commenter opposed.

### 1. Costs

32. We estimate the cost burden our rules could present to all Participating CMS Providers is \$41 million as a one-time cost, including \$1,140,000 for updating standards and specifications, \$39,680,000 for new or modified software, \$20,000 for recordkeeping costs, and a small incremental cost for consumer disclosure.<sup>151</sup>

33. In the *WEA FNPRM*, we proposed to analyze the costs of the standards-setting process pursuant to the same framework on which we relied in the *WEA R&O*. We received no objections to this approach in the record. The cost of modifying an existing standard is less than the cost of creating a new standard. In the *WEA R&O*, we calculated the cost of creating a single standard to be \$76,000, and concluded that this cost constitutes a ceiling on the cost of modifying a single standard.<sup>152</sup> The Commission estimated in the *WEA FNPRM* that nine standards will potentially require modification. ATIS asserts that, in fact, 12 standards may need to be modified and 3 new standards may need to be created.<sup>153</sup> We conclude that the maximum reasonable cost of standards modifications necessary to support enhanced geo-targeting will be \$76,000 per standard times fifteen standards, or \$1,140,000 as a one-time cost.<sup>154</sup> The actual costs of standards modification to support enhanced geo-targeting will likely

<sup>149</sup> See *WEA R&O and FNPRM*, 31 FCC Rcd at 11220-25, paras. 184-93.

<sup>150</sup> See, e.g., AC&C Reply at 14 (“These proposed changes are a very low cost solution that will not be a burden to the carriers currently providing the platforms for WEA delivery, nor to potential new carrier participants, but will provide additional capabilities and enhancements to alert originators, and will significantly enhance the likelihood that citizens that receive alert messages are those that were intended to receive the message”); AT&T Comments at 4-5 (“Most of these ‘measures’ are unworkable, burdensome, and go well beyond the original commercial mobile alert system that carriers voluntarily joined for the purpose of alerting the public to imminent threats to life or property.”).

<sup>151</sup> \$1,140,000 + \$39,680,000 + \$20,000 = \$40,840,000.

<sup>152</sup> This figure, \$76,000 represents the total labor cost of 30 network engineers salaried at \$97.50/hour dedicating an average of one hour every other week for one year (26 meetings, for 26 total hours) to participation in standards-setting bodies dedicated solely to revising network and device standards to comply with our rules. (30 x \$97.50 x 26 = \$76,050, rounded to \$76,000). See *WEA R&O*, 31 FCC Rcd at 11176-77, para. 98.

<sup>153</sup> See Letter from Thomas Goode, General Counsel, ATIS, to Marlene Dortch, Secretary, FCC, PS Docket No. 15-91, at 1-2 (ATIS Jan. 5, 2018 *Ex Parte*).

<sup>154</sup> We agree with ATIS that each of the standards that describe WEA may need to be modified, at least to some degree, to facilitate compliance with our geo-targeting and Alert Message preservation requirements: (1) Enhanced Wireless Emergency Alert (eWEA) via GSM/UMTS Cell Broadcast Service Specification (ATIS-0700006.v002); (2) Cell Broadcast Entity (CBE) to Cell Broadcast Center (CBC) Interface Specification, Revision 2 (ATIS-0700008.v002); (3) Enhanced Wireless Emergency Alert (eWEA) via EPS Public Warning System Specification (ATIS-0700010.v002); (4) Enhanced Wireless Emergency Alert (eWEA) International Roaming Specification (ATIS0700025.v002); (5) Enhanced Wireless Emergency Alert (eWEA) Service Description (ATIS-0700035); (6) Enhanced Wireless Emergency Alert (eWEA) Mobile Device Behavior (MDB) Specification (a revised version of J-STD-100) (ATIS-0700036); (7) Enhanced Wireless Emergency Alert (eWEA) Federal Alert Gateway to CMSP Gateway Interface Specification (a revised version of J-STD-101) (ATIS-0700037); (8) Enhanced Wireless Emergency Alert (eWEA) Federal Alert Gateway to CMSP Gateway Interface Test Specification (ATIS-0700038); (9) Technical realization of Cell Broadcast Service (CBS) (3GPP TS 23.041); (10) Public Warning System (PWS) Requirements (3GPP TS 22.268); (11) Common Alerting Protocol, v. 1.2 Standard (OASIS); (12) Common Alerting Protocol, v. 1.2 USA Integrated Public Alert and Warning System (IPAWS) Profile Version 1.0 (OASIS). See ATIS Jan. 5, 2018 *Ex Parte* at 1-2. ATIS further asserts that new standards will need to be created for (1) device-based

(continued....)

be lower than this estimated cost ceiling, however, because the improvements required by today's *Second Report and Order* likely implicate less burdensome modifications to the fifteen applicable standards than did the collective improvements adopted in the *WEA R&O* or proposed in the *WEA FNPRM*.

34. After standards are set, Participating CMS Providers will need to develop and test new software to support enhanced geo-targeting and alert preservation.<sup>155</sup> The *WEA FNPRM* anticipated that the software updates implicated by its proposals would be similar in scope and complexity to the rules adopted in the *WEA R&O*, and the software updates in that Order were estimated to cost, at most, \$39,680,000 over 12 months.<sup>156</sup> No commenters objected to this level of anticipated costs. We conclude, therefore, that the cost of developing and testing new or modified software required to comply with the rules we adopt today would be no more than the cost of software development and testing proposed by the *WEA FNPRM*, \$39,680,000.<sup>157</sup> The actual costs of software modification to support enhanced geo-targeting will likely be lower than this estimated cost ceiling, however, because the improvements required by today's *Second Report and Order* likely implicate fewer and less complex modifications to WEA software than did the collective improvements adopted in the *WEA R&O* or proposed in the *WEA FNPRM*.

35. As to recordkeeping costs, in the *WEA FNPRM*, we outlined the potential burdens that Participating CMS Providers would incur to renew their election to participate in WEA pursuant to revised definitions of participation "in whole" and "in part."<sup>158</sup> We noted that, in response to the *WEA Election Report and Order*, OMB approved our assessment that our election requirement would affect 1,253 entities that would be required to update this report, and that fulfillment of this requirement would take 30 minutes per report by an individual salaried at \$28.85/hr.<sup>159</sup> Accordingly, OMB agreed with the Commission that the total annual cost of our election requirement would be \$18,074.53.<sup>160</sup> We received no objections to this estimate in the record, and so conclude that a reasonable ceiling on the cost of renewing elections under the definitions of "in whole" and "in part" would be \$20,000, rounding to the nearest 10,000 to avoid an illusion of precision. No additional, ongoing or annualized costs will result from this reporting obligation because the requirement that we adopt today does not change the approach that Participating CMS Providers must take to updating their elections once this one-time renewed election is completed. In addition, we require that CMS providers disclose to consumers information about devices that offer enhanced geo-targeting and of the benefits of enhanced geo-targeting. Because our current rules require consumer disclosures about details of WEA service, this consumer notification should impose minimal additional cost.<sup>161</sup> We conclude that this cost will be covered by our \$41 million total cost estimate.

36. Another potential cost is the possibility that some carriers could either drop out of WEA or move from full to partial participation due to increased costs. There is no evidence in the record that

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geo-targeting APIs; (2) end-to-end test and verification for device-based WEA geotargeting; and for (3) device-based geo-targeting WEA message content. *See id.* at 2.

<sup>155</sup> *See* CTIA Comments at 4.

<sup>156</sup> *See* *WEA FNPRM*, 31 FCC Rcd at 11222, para 188.

<sup>157</sup> Where the cost of software modifications for each Participating CMS Provider (\$146,000) + the cost of software testing for each Participating CMS Provider (\$350,000) = \$496,000, and that figure, multiplied by the total number of Participating CMS Providers (80) is \$39,680,000. *See* *WEA R&O*, 31 FCC Rcd at 11177-78, paras. 99-100.

<sup>158</sup> *See* *WEA FNPRM*, 31 FCC Rcd at 11225, para. 192.

<sup>159</sup> *See* OMB 3060-1113 (2011) (noting that these reports can be completed in 0.5 hours).

<sup>160</sup> *See* OMB 3060-1113 (2011).

<sup>161</sup> *See* 47 CFR § 10.240 area" and that "details on the availability of this service" are available at a URL or from a sales representative.

any carrier would take such action, but we recognize that we must remain mindful of overall costs to maintain carrier participation. We also note that differences between proposed and adopted compliance timeframes do not alter the foregoing analysis. Our analyses of the costs of standards and software modification are functions of employee hourly wages and benefits that are not increased by shortening the period of time over which the required effort is allocated.<sup>162</sup>

## 2. The Use of Break-even Analysis

37. We employ a break-even analysis to analyze the regulatory impact of the requirements we adopt today. Enhanced geo-targeting, alert preservation, defining the extent of WEA participation, and providing customer information about enhanced geo-targeting have distinct public safety benefits, but these benefits are difficult to quantify with precision. Break-even analysis is an important tool and can provide insights when quantification is speculative or impossible.<sup>163</sup> As the Office of Information and Regulatory Affairs explains: “When quantification and monetization are not possible, many agencies have found it both useful and informative to engage in threshold or “break-even” analysis. This approach answers the question, ‘How large would the value of the non-quantified benefits have to be for the rule to yield positive net benefits?’”<sup>164</sup> For purposes of a break-even analysis, we calculate the benefits required to exceed the costs imposed by this *Second Report and Order*. We make three calculations: How much of a reduction in the risk of loss of life would be needed to make the current rules worthwhile? How much of a reduction in the risk of injuries? How much of a reduction in the need for emergency responses? Informed by these calculations, we can reasonably conclude that the benefit of these rules exceeds their cost.<sup>165</sup>

## 3. Break-even Analysis Calculations

38. The improvements we adopt today—particularly enhanced geo-targeting—have distinct public safety benefits, but these benefits are difficult to quantify with precision because they are largely premised on the absence of something: fewer lives lost, fewer injuries, less property damage, and reduced first responder costs. But these reductions add up to significant benefits. Enhanced geo-targeting will improve the quality of WEA to the public and to emergency managers. Without more granular geo-targeting, the use of WEA can result in over-alerting, which leads to “alert fatigue” and confusion for consumers. Consumers that are outside of an area of concern, but receive alerts anyway, begin to ignore alerts or even choose to opt out of receiving future WEA Alert Messages on their mobile devices. Over-

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<sup>162</sup> For example, in the record generated by the *WEA NPRM*, ATIS stated that when standards need to be modified for WEA, groups of approximately 30 individuals with relevant technical expertise hold approximately 26 bi-weekly, one-hour meetings to discuss the modifications over the course of a year. See Letter from Tom Goode, General Counsel, ATIS, to Marlene Dortch, Secretary, FCC, PS Docket No. 15-91, at 1 (filed Sep. 6, 2016). We reason that the cost to compensate these individuals for the 26 hours they dedicate to setting standards will remain the same, irrespective of how this time is allocated during the compliance period. Requiring compliance on a shorter timeframe might actually decrease the cost of compliance because employers would be liable for employee benefits over a shorter period. See *WEA R&O*, 31 FCC Rcd at 11176, para. 98, n.424 (including the cost of employee benefits in its quantification of hourly wages).

<sup>163</sup> See Office of Information and Regulatory Analysis (OIRA), *Regulatory Impact Analysis: A Primer*, [https://www.reginfo.gov/public/jsp/Utilities/circular-a-4\\_regulatory-impact-analysis-a-primer.pdf](https://www.reginfo.gov/public/jsp/Utilities/circular-a-4_regulatory-impact-analysis-a-primer.pdf) (last visited Dec. 20, 2017).

<sup>164</sup> See Office of Information and Regulatory Analysis (OIRA), *Regulatory Impact Analysis: A Primer*, [https://www.reginfo.gov/public/jsp/Utilities/circular-a-4\\_regulatory-impact-analysis-a-primer.pdf](https://www.reginfo.gov/public/jsp/Utilities/circular-a-4_regulatory-impact-analysis-a-primer.pdf) (last visited Dec. 20, 2017).

<sup>165</sup> We do not include the enhanced consumer choice enabled by our rule defining participation in WEA “in whole” and “in part” in our break-even analysis because of the difficulty in assigning a dollar value to this benefit. However, the cost of this rule is included in the analysis. Therefore, the benefit of consumer choice strengthens our conclusion that the benefits of the rules imposed by this *Second Report and Order* exceed their costs.



alerting can cause confusion and a burden on emergency resources by people who are not certain about how to respond to alerts. In the case of a wildfire, for example, alerting a wide area that is not in direct danger can result in clogged evacuation routes and many calls to emergency officials for additional information. Faced with the real cost of over-alerting, many emergency managers have declined to use WEA. Enhanced geo-targeting directly addresses the over-alerting problem and benefits both consumers and emergency managers.

39. We begin by describing in some detail the benefits of enhanced geo-targeting. First, enhanced geo-targeting will encourage consumer participation in WEA. The enhanced geo-targeting standard we adopt today—requiring Participating CMS Providers to deliver an Alert Message to 100 percent of the target area, with no more than 0.1 of a mile overshoot—will greatly curtail over-alerting. Alerts will be targeted to consumers’ mobile devices for whom the information is relevant, without disturbing others. Because consumers will receive fewer alerts—and those alerts they do receive will be relevant to their particular circumstances—it is likely that fewer consumers will choose to opt out of receiving WEA messages (or otherwise ignore WEA messages they receive) due to alert fatigue. Each additional alert that a consumer receives provides an additional opportunity for someone to receive potentially life-saving information. Consumers, who can be assured that they are receiving a relevant alert, will be empowered to take informed actions such as evacuating or finding safe shelter when alerted to an impending wild fire, flood, mudslide or severe weather.

40. Second, improved geo-targeting will also benefit emergency managers. Of the total number of emergency managers that could use the WEA system, only a minority have chosen to become authorized alert initiators. According to FEMA, 1,073 are currently authorized to issue WEA alerts.<sup>166</sup> Further, of these emergency managers authorized to initiate WEA alerts, less than thirteen percent have actually done so.<sup>167</sup> Public safety officials claim that they would use WEA if alerts could be better geographically targeted.<sup>168</sup> Recent extreme weather events and natural disasters have shown that enhanced geo-targeting will make WEA more useful to alert originators in their efforts to save lives. Alert originators in areas affected by Hurricane Harvey report that they are concerned about using WEA because it might lead to over-alerting and inaccurate geographic targeting of Alert Messages.<sup>169</sup> In particular, emergency managers in Harris County, Texas report that “we could have used an enhanced WEA system to alert citizens in Houston, Clear Lake, Galveston, Fort Bend, Sugarland and many other communities about specific threats in their individual areas.”<sup>170</sup> These public safety officials assert that more exacting geo-targeting standards are crucial to WEA’s efficacy and deployment as a life-saving tool during extreme weather events. By responding to this need, we anticipate more public safety officials will send WEA Alert Messages.

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<sup>166</sup> See E-mail from Alfred Kenyon, IPAWS Customer Support Branch Chief, FEMA IPAWS Program Management Office, to James Wiley, Attorney Advisor, Public Safety and Homeland Security Bureau, FCC (Jan. 29, 2018, 15:40 EDT) (on file with author).

<sup>167</sup> As of Jan. 2018, 136 state and local organizations had sent WEA alerts, and two national organizations, NOAA and NCMEC, had sent alerts, for a total of 138. See E-mail from Alfred Kenyon, IPAWS Customer Support Branch Chief, FEMA IPAWS Program Management Office, to James Wiley, Attorney Advisor, Public Safety and Homeland Security Bureau, FCC (Jan. 29, 2018, 15:40 EDT) (on file with author).

<sup>168</sup> See Letter from Francisco Sanchez, Jr., Liaison to the Director and Public Information Officer, Harris County Homeland Security and Emergency Management, to Marlene H. Dortch, Secretary, FCC, PS Docket 15-91 at 1 (filed Jul. 10, 2017) (Harris County July 10, 2017 *Ex Parte*) (“Harris County rarely uses WEA because it does not want to potentially alert the entire county when a WEA message may only pertain to a certain portion of the county.”); APCO Comments at 4; AC&C Reply Comments at 1-2.

<sup>169</sup> See Harris County July 10, 2017 *Ex Parte* at 1 (stating that “Harris County rarely uses WEA because it does not want to potentially alert the entire county when a WEA message may only pertain to a certain portion of the county”).

<sup>170</sup> See Harris County Sep. 15, 2017 *Ex Parte* at 1.

41. The magnitude of the benefits cascading from enhanced geo-targeting is difficult to predict, but we consider it reasonable to expect, based on comments from emergency managers about their desire to use WEA, that WEA usage will increase. On average, 5,500 WEA Alert Messages are sent out every year from among the 138 emergency managers have used or currently use WEA.<sup>171</sup> We expect that the 935 emergency managers that are already authorized but haven't used WEA will increase their use of WEA. Given that over-alerting is the single most cited reason for not sending out WEA alerts, we expect enhanced geo-targeting will reduce non-participation by a modest 5%, which should result in 47 additional alert originators using the system each year, increasing by 34% the impact of WEA while reducing the likelihood that consumers will receive unnecessary alerts or ignore the alerts they do receive.<sup>172</sup> We also expect that more emergency managers will elect to seek authorization to participate in WEA, and begin to send WEA Alert Messages. A rise in the number of Alert Messages will not cause alert fatigue, because the alerts will be geo-targeted to only reach populations in areas of concern.

42. As more WEA Alert Messages relay relevant warning of imminent threats, more people will be able to take action to secure their safety. They will be able to leave their homes if alerted to imminent danger from mud slide or fire. They will be able to seek shelter from severe weather. By taking action after receiving geo-targeted WEA messages, many will avoid calling on emergency services. We think a modest quantification of the additional benefits of additional and more targeted WEA alerts is a one percent reduction in relevant fatalities, injuries, and costs for emergency services.

43. A one percent reduction in fatalities will be a significant benefit. Since its inception, WEA Alert Messages have saved many lives. In 2017, a husband and wife responded to a WEA tornado warning in Texas, and they credited WEA for saving their lives.<sup>173</sup> The National Weather Service provides several examples of WEA's life-saving impact across the country, from Connecticut, Illinois, New York, Mississippi and Virginia.<sup>174</sup> In the most recent five years for which data is available, weather-related events in the United States caused 470 fatalities per year.<sup>175</sup> A one percent reduction in fatalities over the first three years that these rules are in effect will lead to 14 lives saved.<sup>176</sup> The Department of

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<sup>171</sup> See E-mail from Alfred Kenyon, IPAWS Customer Support Branch Chief, FEMA IPAWS Program Management Office, to James Wiley, Attorney Advisor, Public Safety and Homeland Security Bureau, FCC (Jan. 29, 2018, 15:40 EDT) (on file with author).

<sup>172</sup> 47 would constitute a 34% increase in the number of emergency managers that send WEA Alert Messages.

<sup>173</sup> See National Weather Service, Wireless Emergency Alerts continue to save lives; and we are hearing about it (2017), <https://www.weather.gov/news/172103-wireless-emergency-alerts> (last visited Jan. 28, 2018).

<sup>174</sup> See National Weather Service, Wireless Emergency Alerts: Real Stories (2014), <https://www.weather.gov/news/130313-wea-stories> (last visited Jan. 28, 2018).

<sup>175</sup> See National Weather Service, Summary of Natural Hazard Statistics for 2016 in the United States (2017), <http://www.nws.noaa.gov/om/hazstats/sum16.pdf> (last visited Dec. 20, 2017) (including among "severe weather" events convection [lightning, tornado, thunderstorm wind, hail], extreme temperatures, flood, marine, tropical cyclones, winter and other). Death totals of 458 for 2016 in the United States due to severe weather were representative of totals in preceding years, but injury totals of 1276 are notably lower than recent years. See, e.g., National Weather Service, Summary of Natural Hazard Statistics for 2015 in the United States (2016), <http://www.nws.noaa.gov/om/hazstats/sum16.pdf> (last visited Dec. 20, 2017) (reporting 522 deaths, 2,143 injuries); National Weather Service, Summary of Natural Hazard Statistics for 2014 in the United States (2015), <http://www.nws.noaa.gov/om/hazstats/sum14.pdf> (last visited Dec. 20, 2017) (reporting 388 deaths, 2,203 injuries); National Weather Service, Summary of Natural Hazard Statistics for 2013 in the United States (2014), <http://www.nws.noaa.gov/om/hazstats/sum13.pdf> (last visited Dec. 20, 2017) (reporting 446 deaths, 2,767 injuries); National Weather Service, Summary of Natural Hazard Statistics for 2012 in the United States (2015), <http://www.nws.noaa.gov/om/hazstats/sum12.pdf> (last visited Dec. 20, 2017) (reporting 538 deaths, 2,653 injuries). Averages over the five-year period from 2012 to 2016 are 470 deaths and 2,262 injuries per year.

<sup>176</sup> 470 fatalities per year x 3 years = 1410. 1% of 1410 is 14.1.

Transportation has calculated a measure of the value of reducing mortality risk.<sup>177</sup> If enhanced geo-targeting reduces weather-related fatality risks of one percent during the first three years these rules are in effect, the value of that risk reduction, according to the Department of Transportation's valuation, would be \$134 million.<sup>178</sup> We note that enhanced geo-targeting will also prove useful in events that are not included in weather statistics, such as wild fires and mud slides.

44. A one percent reduction in the risk of injuries will also be a significant benefit. In addition to saving lives, an increase in WEA participation by emergency managers and consumers will also lead to a reduction in injuries. Over the past five years, on average, 2,262 injuries per year resulted from weather events in the United States.<sup>179</sup> A one percent risk reduction over the first three years that these rules are in effect would translate to 68 fewer injuries.<sup>180</sup> This reduction in the risk of injuries can be measured using the Abbreviated Injury Scale (AIS), which is a standardized method of placing a monetary value on injuries, based on their severity.<sup>181</sup> As in the *WEA R&O* and *WEA FNPRM*, we note that reducing the expected number of injuries by one produces a public safety benefit valued from \$29,000 (for a mild injury) to \$5.6 million (for a critical injury).<sup>182</sup> Therefore a reduction of 68 injuries would yield a benefit of between \$2 million and \$381 million.<sup>183</sup>

45. A one percent reduction in emergency response costs also would have significant benefits. Enhanced geo-targeting will reduce emergency response costs (e.g., directing fire trucks,

<sup>177</sup> See Memorandum from Polly Trottenberg, Under Secretary for Policy, Office of the Secretary for Transportation, and Robert S. Rivkin, General Counsel, Department of Transportation, Guidance on Treatment of the Economic Value of a Statistical Life in U.S. Department of Transportation Analyses (Feb. 28, 2013), [http://www.dot.gov/sites/dot.gov/files/docs/VSL\\_Guidance\\_2013.pdf](http://www.dot.gov/sites/dot.gov/files/docs/VSL_Guidance_2013.pdf) (last visited Dec. 20, 2017). See also Memorandum from Molly J. Moran, Acting General Counsel, DOT, and Carlos Monje, Assistant Secretary for Transportation Policy, Office of the Secretary for Transportation, Guidance on Treatment of the Economic Value of a Statistical Life (VSL) in U.S. Department of Transportation Analyses – 2016 Adjustment (Aug. 8, 2016), <https://www.transportation.gov/sites/dot.gov/files/docs/2016%20Revised%20Value%20of%20a%20Statistical%20Life%20Guidance.pdf>. The Department of Transportation currently estimates that the statistical value of a single life is \$9.6 million. See *WEA R&O*, 31 FCC Rcd at 11169, para. 90.

<sup>178</sup>  $14 \times \$9.6 \text{ million} = \$134.4 \text{ million}$ , a benefit sufficient to exceed the \$41 million cost of the improvements in this *Second Report and Order*.

<sup>179</sup> See National Weather Service, Summary of Natural Hazard Statistics for 2016 in the United States, Summary of 2016 Weather Events, Fatalities, Injuries and Damage Costs, <http://www.nws.noaa.gov/om/hazstats/sum16.pdf> (last visited Dec. 20, 2017). There were 1,276 injuries resulting from weather events in the United States in 2016, much lower than the average injuries per year. See *supra* note 154.

<sup>180</sup>  $2,262 \text{ injuries per year} \times 3 \text{ years} = 6,786 \text{ injuries}$ . One percent of 6,786 is 67.86.

<sup>181</sup> See Association for the Advancement of Automotive Medicine, Overview: Abbreviated Injury Scale, <https://www.aaam.org/abbreviated-injury-scale-ais/> (last visited Dec. 20, 2017).

<sup>182</sup> The AIS scale is one of the most widely used methods of describing the severity of traumas. See, e.g., Daniel Davis, et al., The Impact of Hypoxia and Hyperventilation on Outcome after Paramedic Rapid Sequence Intubation of Severely Head-Injured Patients, *The Journal of Trauma, Injury, Infection and Critical Care*, (2004); Demetrios Demetriades et al., Mortality Prediction of Head Abbreviated Injury Score and Glasgow Coma Scale: Analysis of 7,764 Head Injuries (2004). For example, the prevention of 15 injuries would produce a public benefit of \$437,320 where all injuries were considered to be “minor” on the Abbreviated Injury Scale (AIS). Therefore, the prevention of one minor injury would produce a public benefit of  $\$437,320 / 15 = 29,155$ . The prevention of 15 injuries would produce a public benefit of \$84,466,920 where all injuries were “critical” on the AIS scale. Therefore, the prevention of one critical injury would produce a public benefit of  $\$84,466,920 / 15 = 5,631,128$ . See *Wireless Emergency Alerts*, Report and Order and Further Notice of Proposed Rulemaking, 31 FCC Rcd 11112, 11171-73 (2016).

<sup>183</sup> For mild injuries,  $68 \text{ injuries} \times \$29,000 \text{ per injury} = \$1,972,000$ . For critical injuries,  $68 \text{ injuries} \times \$5,600,000 \text{ per injury} = \$380.8 \text{ million}$

ambulances, and police to areas in crisis). When consumers receive a geo-targeted message in an emergency situation, they may have time to reach a safe location or take other action to avoid the need to call 911 for assistance. This will benefit first responders, who will be able to reduce emergency deployments and direct their efforts to other critical areas. First responders are deployed at least 456,250 times per year in the United States at a cost of approximately \$3,500 per deployment.<sup>184</sup> A one percent reduction in emergency response costs, over the first three years these rules are in effect, would save \$48 million.<sup>185</sup> A one percent reduction in emergency response costs over the first three years would exceed the cost of the rules in this *Second Report and Order*.

46. In sum, the enhanced geo-targeting will yield significant benefits, which exceed the costs of this *Second Report and Order*. The benefit of a one percent reduction in relevant fatalities (\$134 million), injuries (at least \$2 million) and costs for emergency services (\$48 million) yields a total benefit of \$184 million. This is well in excess of the anticipated costs. This result is robust. Even if benefits were half of what we forecast, yielding only one half of one percent reduction in relevant fatalities, injuries and emergency response costs, that would still yield a benefit of \$92 million, still significantly above the costs. We also note that no commenter has objected to our previous analysis claiming that the benefits of enhanced geo-targeting are sufficient to cover the \$41 million costs imposed by this *Second Report and Order*.<sup>186</sup>

47. In addition to the benefits of enhanced geo-targeting, other improvements made by this *Second Report and Order* will benefit consumers. Alert preservation allows people time to review details in WEA messages such as shelter locations, improving their ability to seek safety.<sup>187</sup> Defining the extent of WEA participation and providing consumer information about enhanced geo-targeting also benefit consumers. Consumers that want to receive WEA messages will be able to choose a provider and a phone that will bring them WEA alerts that they might otherwise miss. It is not possible to predict the number of alerts that will be received due to informed consumer choice, but for each such alert, the consumer will have access to potentially life-saving information that they would not have otherwise received.

48. Based on the foregoing analysis, we find it reasonable to expect that these improvements will result in lives saved, injuries avoided, and a reduced need to deploy first responders. We conclude that the expected public safety benefits exceed the costs imposed by the improvements we adopt today.

#### IV. SECOND ORDER ON RECONSIDERATION

49. We grant the *CTIA Petition* to the extent that it requests that the Commission extend the compliance deadline for supporting Spanish-language Alert Messages from two years to 30 months from the rule's publication in the *Federal Register*, to be consistent with the deadline for the rule that CMS

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<sup>184</sup> See Alex Tabarrok, *Firefighters Don't Fight Fires*, MarginalRevolution (Jul. 18, 2012), <http://marginalrevolution.com/marginalrevolution/2012/07/firefighters-dont-fight-fires.html> citing John Donovan, *Fire Department Takes Medical Calls in Stride*, ABCNews (Mar. 24, 2010), <http://abcnews.go.com/Nightline/firefighters-medical-calls-health-costs/story?id=10181852#UABoKB3yw1e>.

<sup>185</sup> 456,250 deployments per year x \$3,500 per deployment = \$1,596,875,000. For three years, emergency deployment costs are 3 x \$1,596,875,000 = 4,790,625,000. One percent of this total is 47,906,250.

<sup>186</sup> No comments have been received about the Regulatory Impact Analysis presented in the draft of this Second Report and Order, released to the public on Jan. 5, 2018. [http://transition.fcc.gov/Daily\\_Releases/Daily\\_Business/2018/db0109/DOC-348630A1.pdf](http://transition.fcc.gov/Daily_Releases/Daily_Business/2018/db0109/DOC-348630A1.pdf).

<sup>187</sup> See NYCEM Comments at 3-4.

Providers support WEA messages of up to 360 characters in length.<sup>188</sup> Accordingly, this rule will become effective May 1, 2019.<sup>189</sup>

50. We are persuaded that aligning the Spanish-language alert implementation compliance timeframe with the 360-character length requirement timeframe will both ensure that Spanish-language alerts are as effective as possible and will reduce costs for Participating CMS Providers. Absent such relief, Participating CMS Providers would have to incur separate costs of testing for both Spanish-language and 360 character WEA messages.<sup>190</sup> Moreover, because the alerts in Spanish can require more characters than the equivalent alerts in English,<sup>191</sup> implementing this requirement prior to implementation of the 360-character WEA message length will decrease the “headroom” available to alert initiators to craft WEA messages within the WEA character limit.<sup>192</sup> Further, we find that requiring implementation of Spanish-language alerts six months earlier than the 360-character deadline is burdensome when weighed against the likely benefits.<sup>193</sup> In the *WEA R&O*, the Commission reasoned that Participating CMS Providers would need to engage in only one round of software testing for the new rules.<sup>194</sup> But, in light of new information provided by the *CTIA Petition*,<sup>195</sup> we understand that requiring implementation of Spanish-language alerts six months earlier than longer Alert Messages would require duplicative testing and is therefore not the least burdensome approach to reaching our regulatory goals when weighed against the likely benefits. Accordingly, we find it to be in the public interest to extend the compliance timeframe for our Spanish-language alerting requirement from 24 to 30 months.<sup>196</sup> We anticipate that requiring support for Spanish-language Alert Messages by May 1, 2019 will provide incentives and sufficient lead time for the many authorized WEA alert originators that are not currently able to initiate Alert Messages in Spanish to develop that capability.<sup>197</sup>

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<sup>188</sup> See *CTIA Petition* at 9-11. With this action, we have resolved all outstanding issues from CTIA’s petition for reconsideration of the *WEA R&O*.

<sup>189</sup> See *Wireless Emergency Alerts; Amendments to Rules Regarding the Emergency Alert System* 81 FR 75710 (November 1, 2016).

<sup>190</sup> *CTIA Petition* at 11.

<sup>191</sup> *CTIA Petition* at 10.

<sup>192</sup> *Id.*

<sup>193</sup> Based on the cost analysis framework that we used in the *WEA R&O*, we reason that testing these new functionalities together could result in a cost savings of \$28 million. See *WEA R&O*, 31 FCC Rcd at 11178-79, para. 99-100. Maintaining separate compliance timeframes for the Spanish language requirement and the character limit requirement could necessitate a duplicative testing phase.

<sup>194</sup> *WEA R&O*, 31 FCC Rcd at 11179, para. 100.

<sup>195</sup> *CTIA Petition* at 11.

<sup>196</sup> We agree with NYCEM that the deadlines for the two requirements should be concurrent, but do not believe that shortening the compliance timeframe for the expanded character limit is the correct approach. See NYCEM Opposition at 4. Rather, we agree with CTIA that the record “shows that implementing an increase in the alert character count to 360 characters would require 30 months.” CTIA Reply to Opposition at 7-8.

<sup>197</sup> See CTIA Comments at 13 (“[T]he merits surrounding a proposal to offer Spanish language alerts should be informed by support from FEMA and alert originators.”); Letter from Daniel Kolb, Operations Coordinator, Denver Office of Emergency Management & Homeland Security, to Marlene Dortch, Secretary, Federal Communications Commission, PS Docket No. 15-91, at 2 (filed Mar. 3, 2016) (Denver OEMHS Mar. 3, 2016 *Ex Parte*) (stating that “Denver would like to be able to release multilingual alerts but cannot currently do so”); *but see, e.g.*, Letter from Benjamin J. Krakauer, Director, Watch Command, New York City Emergency Management, to Marlene Dortch, Secretary, Federal Communications Commission, PS Docket No. 15-91, at 3 (filed Mar. 8, 2016) (NYCEM Mar. 8, 2016 *Ex Parte*) (“NYCEM is in the final stages of preparing to offer our 80 most common messages in the 13 most commonly spoken languages in New York City”).

**V. PROCEDURAL MATTERS****A. Accessible Formats**

51. To request materials in accessible formats for people with disabilities (braille, large print, electronic files, audio format), send an e-mail to fcc504@fcc.gov or call the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice), 202-418-0432 (TTY).

**B. Regulatory Flexibility Analysis**

52. As required by the Regulatory Flexibility Act of 1980, *see* 5 U.S.C. § 604, the Commission has prepared a Final Regulatory Flexibility Analysis (FRFA), a Supplemental Final Regulatory Flexibility Analysis (Supplemental FRFA), and an Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on small entities of the policies and rules addressed in this *Second WEA Report and Order and Second Order on Reconsideration*. The FRFA is set forth in Appendix C. The Supplemental IRFA is set forth in Appendix D.

**C. Paperwork Reduction Analysis**

53. The *Second WEA Report and Order and Second Further Notice of Proposed Rulemaking* contains new information collection requirements subject to the Paperwork Reduction Act of 1995 (PRA), Public Law No. 104-13. It will be submitted to the Office of Management and Budget (OMB) for review under Section 3507(d) of the PRA. OMB, the general public, and other Federal agencies are invited to comment on the new information collection requirements contained in this proceeding.

54. We note that pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107-198, *see* 44 U.S.C. 3506(c)(4), we previously sought specific comment on how the Commission might “further reduce the information collection burden for small business concerns with fewer than 25 employees.”<sup>198</sup> In addition, we have described impacts that might affect small businesses, which includes most businesses with fewer than 25 employees, in the FRFA in Appendix C, *infra*.

**D. Congressional Review Act**

55. The Commission will send a copy of this *Second WEA Report and Order and Second Further Notice of Proposed Rulemaking* in a report to be sent to Congress and the Government Accountability Office pursuant to the Congressional Review Act (CRA), *see* 5 U.S.C. § 801(a)(1)(A).

**VI. ORDERING CLAUSES**

56. Accordingly, IT IS ORDERED, pursuant to Sections 1, 2, 4(i), 4(o), 301, 303(r), 303(v), 307, 309, 335, 403, 624(g), 706, and 715 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 152, 154(i), 154(o), 301, 301(r), 303(v), 307, 309, 335, 403, 544(g), 606, and 615, as well as by sections 602(a),(b),(c), (f), 603, 604 and 606 of the WARN Act, 47 U.S.C. §§ 1202(a),(b),(c), (f), 1203, 1204 and 1206, that the *Second WEA Report and Order and Second Order on Reconsideration* in PS Docket Nos. 15-91 and 15-94 IS HEREBY ADOPTED.

57. IT IS FURTHER ORDERED that the Commission’s rules and requirements ARE HEREBY AMENDED as set forth in Appendix A.

58. IT IS FURTHER ORDERED that the rules adopted herein WILL BECOME EFFECTIVE as described herein.<sup>199</sup> Those rules and requirements which contain new or modified information collection requirements that require approval by the Office of Management and Budget (OMB) under the Paperwork Reduction Act WILL BECOME EFFECTIVE 120 days after publication in the *Federal Register* of a notice announcing such approval, except for the amendment to 47 CFR § 10.240, which WILL BECOME EFFECTIVE on November 30, 2019 or as specified by publication in the

<sup>198</sup> *See* 44 U.S.C. 3506(c)(4)

<sup>199</sup> *See supra* paras. 12, 15, 21, 30, 50.

*Federal Register* of a notice announcing OMB approval and the relevant effective date, whichever is later.<sup>200</sup>

59. IT IS FURTHER ORDERED, pursuant to Sections 1, 2, 4(i), 4(o), 301, 303(r), 303(v), 307, 309, 335, 403, 624(g), and 706 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 152, 154(i), 154(o), 301, 301(r), 303(v), 307, 309, 335, 403, 544(g), and 606, as well as by sections 602(a),(b),(c), (f), 603, 604 and 606 of the WARN Act, 47 U.S.C. §§ 1202(a),(b),(c), (f), 1203, 1204 and 1206, that the CTIA Petition is granted to the extent specified herein and in the *First Order on Reconsideration*.<sup>201</sup>

60. IT IS FURTHER ORDERED that, as set forth in this *Second Order on Reconsideration*, the effective date of the requirement imposed by 47 CFR § 10.480 published at 81 FR 75710 is delayed until May 1, 2019, the same effective date as other rules adopted by the *WEA R&O* that were made effective 30 months from the publication of the rules adopted in the *WEA R&O* in the *Federal Register*.

61. IT IS FURTHER ORDERED that the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, SHALL SEND a copy of the *Second WEA Report and Order and Second Order on Reconsideration*, including the Final and Supplemental Final Regulatory Flexibility Analyses, to the Chief Counsel for Advocacy of the Small Business Administration.

62. IT IS FURTHER ORDERED that the Commission SHALL SEND a copy of the *Second WEA Report and Order and Second Order on Reconsideration* to Congress and the Government Accountability Office pursuant to the Congressional Review Act, see 5 U.S.C. § 801(a)(1)(A).

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch  
Secretary

<sup>200</sup> Pub. L. No. 104-13, 109 Stat. 163 (May 22, 1995), codified at 44 U.S.C. §§ 3501 *et seq.*

<sup>201</sup> See *First Order on Reconsideration*, FCC 17-143 (Nov. 1, 2017).

## APPENDIX A

## Final Rules

The rules in this part are issued pursuant to the authority contained in the Warning, Alert, and Response Network Act, Title VI of the Security and Accountability for Every Port Act of 2006, Pub. L. 109-347, Titles I through III of the Communications Act of 1934, as amended, and Executive Order 13407 of June 26, 2006, Public Alert and Warning System, 71 Federal Register 36975 (2006).

For the reasons discussed in the preamble, the Federal Communications Commission amends 47 C.F.R. Part 10 to read as follows:

**PART 10 – WIRELESS EMERGENCY ALERTS**

1. Add new paragraphs (k) and (l) to § 10.10 to read as follows:

**§ 10.10 Definitions**

\* \* \* \* \*

(k) *CMS Provider participation “in whole.”* CMS Providers that have agreed to transmit WEA Alert Messages in a manner consistent with the technical standards, protocols, procedures, and other technical requirements implemented by the Commission in the entirety of their geographic service area, and when all mobile devices that the CMS Providers offer at the point of sale are WEA-capable.

(l) *CMS Provider participation “in part.”* CMS Providers that have agreed to transmit WEA Alert Messages in a manner consistent with the technical standards, protocols, procedures, and other technical requirements implemented by the Commission in some, but not in all of their geographic service areas, or CMS Providers that offer mobile devices at the point of sale that are not WEA-capable.

2. Amend § 10.210 by revising paragraph (a) to read as follows:

**§ 10.210 WEA participation election procedures**

(a) A CMS provider that elects to transmit WEA Alert Messages, in part or in whole as defined by §§10.10(k), (l), shall electronically file with the Commission a letter attesting that the Provider:

3. Amend § 10.240 by revising paragraph (c) to read as follows:

**§ 10.240 Notification to new subscribers of non-participation in WEA**

\* \* \* \* \*

(c) CMS Providers electing to transmit alerts “in part” shall use the following notification:

NOTICE REGARDING TRANSMISSION OF WIRELESS EMERGENCY ALERTS (Commercial Mobile Alert Service)

[[CMS provider]] has chosen to offer wireless emergency alerts, including enhanced geo-targeting, within portions of its service area, as defined by the terms and conditions of its service agreement, on wireless emergency alert capable devices. There is no additional charge for these wireless emergency alerts.

Wireless emergency alerts, including enhanced geo-targeting, may not be available on all devices or in the entire service area, or if a subscriber is outside of the [[CMS provider]] service area. For details on the



availability of this service and wireless emergency alert capable devices, including the availability and benefits of enhanced geo-targeting, please ask a sales representative, or go to [[CMS provider's URL]]. Notice required by FCC Rule 10.240 (Commercial Mobile Alert Service)

\* \* \* \* \*

4. Amend § 10.450 by revising paragraph (a) and adding new paragraph (c) to read as follows:

**§ 10.450 Geo-targeting**

(a) This section establishes minimum requirements for the geographic targeting of Alert Messages. A Participating CMS Provider will determine which of its network facilities, elements, and locations will be used to geographically target Alert Messages. A Participating CMS Provider must deliver any Alert Message that is specified by a circle or polygon to an area that matches the specified circle or polygon. A Participating CMS Provider is considered to have matched the target area when they deliver an Alert Message to 100 percent of the target area with no more than 0.1 of a mile overshoot. If some or all of a Participating CMS Provider's network infrastructure is technically incapable of matching the specified target area, then that Participating CMS Provider must deliver the Alert Message to an area that best approximates the specified target area on and only on those aspects of its network infrastructure that are incapable of matching the target area. A Participating CMS Provider's network infrastructure may be considered technically incapable of matching the target area in limited circumstances, including when the target area is outside of the Participating CMS Provider's network coverage area, when mobile devices have location services disabled, and when legacy networks or devices cannot be updated to support this functionality.

\* \* \* \* \*

(c) In matching the target area, Participating CMS Providers may not limit the availability of 360 characters for the Alert Message text.

5. Add new paragraph (h) to § 10.500 to read as follows:

**§ 10.500 General Requirements**

WEA mobile device functionality is dependent on the capabilities of a Participating CMS Provider's delivery technologies. Mobile devices are required to perform the following functions:

\* \* \* \* \*

(h) Preservation of Alert Messages in a consumer-accessible format and location for at least 24 hours or until deleted by the subscriber.

## APPENDIX B

## Final Regulatory Flexibility Analysis

1. As required by the Regulatory Flexibility Act of 1980, as amended (RFA)<sup>1</sup> an Initial Regulatory Flexibility Analysis (IRFA) was incorporated in the *WEA Notice of Proposed Rulemaking (WEA NPRM)* released in November 2015.<sup>2</sup> The Commission sought written public comment on the proposals in the *WEA NPRM*, including comments on the IRFA. No comments were filed addressing the IRFA. This present Final Regulatory Flexibility Analysis (FRFA) conforms to the RFA.<sup>3</sup>

**A. Need for, and Objectives of, the Final Rules**

2. Today's *Second WEA Report and Order* adopts rules to empower alert originators to participate more fully in WEA and to enhance the utility of WEA as an alerting tool. Specifically, we improve the accuracy with which emergency managers can target the delivery of WEA Alert Messages areas within their jurisdiction by requiring Participating Commercial Mobile Service Providers (CMS Providers) to geo-target Alert Messages to an area that matches the target area specified by alert originators. A compelling public interest need for WEA Alert Messages to be delivered in a more geographically targeted manner was demonstrated by the record and emergency managers emphasized that more accurate geo-targeting will enable them to use WEA to more effectively motivate consumers to take protective actions, while reducing the potential for over-alerting and subscriber opt-out of receiving WEA Alert Messages. In addition, we ensure that consumers are adequately notified of the geo-targeting capabilities of their device, and the benefits of enhanced geo-targeting, at the point of sale. We also ensure that consumers will continue to be able to review Alert Message content for 24 hours from receipt. The record showed that allowing consumers to review Alert Messages after they have been dismissed can improve comprehension of potentially life-saving information. In addition, preserving access to Alert Messages on user devices may reduce burdens on carrier networks during an emergency, allowing critical traffic to get through to first responders and emergency managers, thereby improving public safety outcomes. Finally, we define the parameters for CMS Provider participation in WEA, and set a deadline for CMS Providers to renew their participation elections consistent with these definitions. We defer consideration of other issues raised in the *WEA FNPRM*.

**B. Summary of Significant Issues Raised by Public Comments in Response to the IRFA**

3. There were no comments filed that specifically addressed the proposed rules and policies presented in the IRFA. Nonetheless, the agency considered the potential impact of the rules proposed in the IRFA on small entities and we conclude that these mandates provide Participating CMS Providers with a sufficient measure of flexibility to account for any technical and/or cost-related concerns. We have determined that implementing these improvements to WEA is technically feasible for small entities and other Participating CMS Providers and the cost of implementation is reasonable.

**C. Response to Comments by Chief Counsel for Advocacy of the Small Business Administration**

4. Pursuant to the Small Business Jobs Act of 2010, which amended the RFA, the Commission is required to respond to any comments filed by the Chief Counsel for Advocacy of the

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<sup>1</sup> See 5 U.S.C. § 603. The RFA, see 5 U.S.C. § 601-612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996, (SBREFA) Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

<sup>2</sup> See *Improving Wireless Emergency Alerts and Community-Initiated Alerting*, PS Docket No. 15-91, Notice of Proposed Rulemaking, 30 FCC Rcd 13781 (2015) (*WEA NPRM*), Appx. B.

<sup>3</sup> See 5 U.S.C. § 604.

Small Business Administration (SBA), and to provide a detailed statement of any change made to the proposed rules as a result of those comments.<sup>4</sup>

5. The Chief Counsel did not file any comments in response to the proposed rules in this proceeding.

**D. Description and Estimate of the Number of Small Entities to Which the Rules Will Apply**

6. The RFA directs agencies to provide a description of, and where feasible, an estimate of the number of small entities that may be affected by the rules, adopted herein.<sup>5</sup> The RFA generally defines the term “small entity” as having the same meaning as the terms “small business,” “small organization,” and “small governmental jurisdiction.”<sup>6</sup> In addition, the term “small business” has the same meaning as the term “small-business concern” under the Small Business Act.<sup>7</sup> A small-business concern” is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the SBA.<sup>8</sup>

7. *Small Businesses, Small Organizations, and Small Governmental Jurisdictions.* Our action may, over time, affect small entities that are not easily categorized at present. We therefore describe here, at the outset, three broad groups of small entities that could be directly affected herein.<sup>9</sup> First, while there are industry specific size standards for small businesses that are used in the regulatory flexibility analysis, according to data from the SBA’s Office of Advocacy, in general a small business is an independent business having fewer than 500 employees.<sup>10</sup> These types of small businesses represent 99.9% of all businesses in the United States which translates to 28.8 million businesses.<sup>11</sup>

8. Next, the type of small entity described as a “small organization” is generally “any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.”<sup>12</sup> Nationwide, as of Aug 2016, there were approximately 356,494 small organizations based on registration and tax data filed by nonprofits with the Internal Revenue Service (IRS).<sup>13</sup>

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<sup>4</sup> 5 U.S.C. § 604 (a)(3).

<sup>5</sup> See 5 U.S.C. § 603(a)(4).

<sup>6</sup> See 5 U.S.C. § 601(6).

<sup>7</sup> See 5 U.S.C. § 601(3) (incorporating by reference the definition of “small-business concern” in the Small Business Act, 15 U.S.C. § 632). Pursuant to 5 U.S.C. § 601(3), the statutory definition of a small business applies “unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the *Federal Register*.”

<sup>8</sup> See 15 U.S.C. § 632.

<sup>9</sup> See 5 U.S.C. § 601(3)-(6).

<sup>10</sup> See SBA, Office of Advocacy, “Frequently Asked Questions, Question 1 – What is a small business?” [https://www.sba.gov/sites/default/files/advocacy/SB-FAQ-2016\\_WEB.pdf](https://www.sba.gov/sites/default/files/advocacy/SB-FAQ-2016_WEB.pdf) (June 2016)

<sup>11</sup> See SBA, Office of Advocacy, “Frequently Asked Questions, Question 2- How many small business are there in the U.S.?” [https://www.sba.gov/sites/default/files/advocacy/SB-FAQ-2016\\_WEB.pdf](https://www.sba.gov/sites/default/files/advocacy/SB-FAQ-2016_WEB.pdf) (June 2016).

<sup>12</sup> 5 U.S.C. § 601(4).

<sup>13</sup> Data from the Urban Institute, National Center for Charitable Statistics (NCCS) reporting on nonprofit organizations registered with the IRS was used to estimate the number of small organizations. Reports generated using the NCCS online database indicated that as of August 2016 there were 356,494 registered nonprofits with total revenues of less than \$100,000. Of this number, 326,897 entities filed tax returns with 65,113 registered nonprofits reporting total revenues of \$50,000 or less on the IRS Form 990-N for Small Exempt Organizations and 261,784 nonprofits reporting total revenues of \$100,000 or less on some other version of the IRS Form 990 within 24 months

(continued....)

9. Finally, the small entity described as a “small governmental jurisdiction” is defined generally as “governments of cities, counties, towns, townships, villages, school districts, or special districts, with a population of less than fifty thousand.”<sup>14</sup> U.S. Census Bureau data from the 2012 Census of Governments<sup>15</sup> indicates that there were 90,056 local governmental jurisdictions consisting of general purpose governments and special purpose governments in the United States.<sup>16</sup> Of this number there were 37, 132 General purpose governments (county,<sup>17</sup> municipal and town or township<sup>18</sup>) with populations of less than 50,000 and 12,184 Special purpose governments (independent school districts<sup>19</sup> and special districts<sup>20</sup>) with populations of less than 50,000. The 2012 U.S. Census Bureau data for most types of governments in the local government category shows that the majority of these governments have populations of less than 50,000.<sup>21</sup> Based on this data we estimate that at least 49,316 local government jurisdictions fall in the category of “small governmental jurisdictions.”<sup>22</sup>

(Continued from previous page) \_\_\_\_\_  
of the August 2016 data release date. See <http://nccs.urban.org/sites/all/nccs-archive/html/tablewiz/tw.php> where the report showing this data can be generated by selecting the following data fields: Report: “The Number and Finances of All Registered 501(c) Nonprofits”; Show: “Registered Nonprofits”; By: “Total Revenue Level (years 1995, Aug to 2016, Aug)”; and For: “2016, Aug” then selecting “Show Results”.

<sup>14</sup> 5 U.S.C. § 601(5).

<sup>15</sup> See 13 U.S.C. § 161. The Census of Government is conducted every five (5) years compiling data for years ending with “2” and “7”. See also Program Description Census of Government <https://factfinder.census.gov/faces/affhelp/jsf/pages/metadata.xhtml?lang=en&type=program&id=program.en.CO G#>.

<sup>16</sup> See U.S. Census Bureau, 2012 Census of Governments, Local Governments by Type and State: 2012 - United States-States. <https://factfinder.census.gov/bkmk/table/1.0/en/COG/2012/ORG02.US01>. Local governmental jurisdictions are classified in two categories - General purpose governments (county, municipal and town or township) and Special purpose governments (special districts and independent school districts).

<sup>17</sup> See U.S. Census Bureau, 2012 Census of Governments, County Governments by Population-Size Group and State: 2012 - United States-States. <https://factfinder.census.gov/bkmk/table/1.0/en/COG/2012/ORG06.US01>. There were 2,114 county governments with populations less than 50,000.

<sup>18</sup> See U.S. Census Bureau, 2012 Census of Governments, Subcounty General-Purpose Governments by Population-Size Group and State: 2012 - United States - States. <https://factfinder.census.gov/bkmk/table/1.0/en/COG/2012/ORG07.US01>. There were 18,811 municipal and 16,207 town and township governments with populations less than 50,000.

<sup>19</sup> See U.S. Census Bureau, 2012 Census of Governments, Elementary and Secondary School Systems by Enrollment-Size Group and State: 2012 - United States-States. <https://factfinder.census.gov/bkmk/table/1.0/en/COG/2012/ORG11.US01>. There were 12,184 independent school districts with enrollment populations less than 50,000.

<sup>20</sup> See U.S. Census Bureau, 2012 Census of Governments, Special District Governments by Function and State: 2012 - United States-States. <https://factfinder.census.gov/bkmk/table/1.0/en/COG/2012/ORG09.US01>. The U.S. Census Bureau data did not provide a population breakout for special district governments.

<sup>21</sup> See U.S. Census Bureau, 2012 Census of Governments, County Governments by Population-Size Group and State: 2012 - United States-States - <https://factfinder.census.gov/bkmk/table/1.0/en/COG/2012/ORG06.US01>; Subcounty General-Purpose Governments by Population-Size Group and State: 2012 - United States-States - <https://factfinder.census.gov/bkmk/table/1.0/en/COG/2012/ORG07.US01>; and Elementary and Secondary School Systems by Enrollment-Size Group and State: 2012 - United States-States. <https://factfinder.census.gov/bkmk/table/1.0/en/COG/2012/ORG11.US01>. While U.S. Census Bureau data did not provide a population breakout for special district governments, if the population of less than 50,000 for this category of local government is consistent with the other types of local governments the majority of the 38, 266 special district governments have populations of less than 50,000.

<sup>22</sup> *Id.*

10. *Wireless Telecommunications Carriers (except Satellite)*. This industry comprises establishments engaged in operating and maintaining switching and transmission facilities to provide communications via the airwaves. Establishments in this industry have spectrum licenses and provide services using that spectrum, such as cellular phone services, paging services, wireless Internet access, and wireless video services.<sup>23</sup> The appropriate size standard under SBA rules is that such a business is small if it has 1,500 or fewer employees.<sup>24</sup> For this industry, U.S. Census Bureau data for 2012 shows that there were 967 firms that operated for the entire year.<sup>25</sup> Of this total, 955 firms had employment of 999 or fewer employees and 12 had employment of 1000 employees or more.<sup>26</sup> Thus under this category and the associated size standard, the Commission estimates that the majority of wireless telecommunications carriers (except satellite) are small.

11. *Broadband Personal Communications Service*. The broadband personal communications services (PCS) spectrum is divided into six frequency blocks designated A through F, and the Commission has held auctions for each block. The Commission initially defined a “small business” for C- and F-Block licenses as an entity that has average gross revenues of \$40 million or less in the three previous calendar years.<sup>27</sup> For F-Block licenses, an additional small business size standard for “very small business” was added and is defined as an entity that, together with its affiliates, has average gross revenues of not more than \$15 million for the preceding three calendar years.<sup>28</sup> These small business size standards, in the context of broadband PCS auctions, have been approved by the SBA.<sup>29</sup> No small businesses within the SBA-approved small business size standards bid successfully for licenses in Blocks A and B. There were 90 winning bidders that claimed small business status in the first two C-Block auctions. A total of 93 bidders that claimed small business status won approximately 40 percent of the 1,479 licenses in the first auction for the D, E, and F Blocks.<sup>30</sup> On April 15, 1999, the Commission completed the reauction of 347 C-, D-, E-, and F-Block licenses in Auction No. 22.<sup>31</sup> Of the 57 winning bidders in that auction, 48 claimed small business status and won 277 licenses.

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<sup>23</sup> U.S. Census Bureau, North American Industry Classification System, Definition of “Wireless Telecommunications Carriers (except Satellite),” NAICS code 517210, available at <<http://www.census.gov/cgi-bin/sssd/naics/naicsrch?code=517210&search=2007%20NAICS%20Search>>

<sup>24</sup> See 13 CFR 121.201, NAICS Code 517210

<sup>25</sup> U.S. Census Bureau, *2012 Economic Census of the United States*, Table EC1251SSSZ5, Information: Subject Series: Estab and Firm Size: Employment Size of Firms for the U.S.: 2012 NAICS Code 517210 (rel. Jan. 8, 2016). [https://factfinder.census.gov/bkmk/table/1.0/en/ECN/2012\\_US/51SSSZ5//naics~517210](https://factfinder.census.gov/bkmk/table/1.0/en/ECN/2012_US/51SSSZ5//naics~517210).

<sup>26</sup> *Id.* Available census data do not provide a more precise estimate of the number of firms that have employment of 1,500 or fewer employees. The largest category provided is for firms with “1,000 employees or more”.

<sup>27</sup> See *Amendment of Parts 20 and 24 of the Commission’s Rules – Broadband PCS Competitive Bidding and the Commercial Mobile Radio Service Spectrum Cap; Amendment of the Commission’s Cellular/PCS Cross-Ownership Rule*; WT Docket No. 96-59, GN Docket No. 90-314, Report and Order, 11 FCC Rcd 7824, 7850-52, paras. 57-60 (1996) (*PCS Report and Order*); see also 47 CFR § 24.720(b).

<sup>28</sup> See *PCS Report and Order*, 11 FCC Rcd at 7852, para. 60.

<sup>29</sup> See Letter from Aida Alvarez, Administrator, SBA, to Amy Zoslov, Chief, Auctions and Industry Analysis Division, Wireless Telecommunications Bureau, FCC (filed Dec. 2, 1998) (*Alvarez Letter 1998*).

<sup>30</sup> See *Broadband PCS, D, E and F Block Auction Closes*, Public Notice, Doc. No. 89838 (rel. Jan. 14, 1997).

<sup>31</sup> See *C, D, E, and F Block Broadband PCS Auction Closes*, Public Notice, 14 FCC Rcd 6688 (WTB 1999). Before Auction No. 22, the Commission established a very small standard for the C Block to match the standard used for F Block. *Amendment of the Commission’s Rules Regarding Installment Payment Financing for Personal Communications Services (PCS) Licensees*, WT Docket No. 97-82, Fourth Report and Order, 13 FCC Rcd 15743, 15768, para. 46 (1998).

12. On January 26, 2001, the Commission completed the auction of 422 C and F Block Broadband PCS licenses in Auction No. 35. Of the 35 winning bidders in that auction, 29 claimed small business status.<sup>32</sup> Subsequent events concerning Auction 35, including judicial and agency determinations, resulted in a total of 163 C and F Block licenses being available for grant. On February 15, 2005, the Commission completed an auction of 242 C-, D-, E-, and F-Block licenses in Auction No. 58. Of the 24 winning bidders in that auction, 16 claimed small business status and won 156 licenses.<sup>33</sup> On May 21, 2007, the Commission completed an auction of 33 licenses in the A, C, and F Blocks in Auction No. 71.<sup>34</sup> Of the 12 winning bidders in that auction, five claimed small business status and won 18 licenses.<sup>35</sup> On August 20, 2008, the Commission completed the auction of 20 C-, D-, E-, and F-Block Broadband PCS licenses in Auction No. 78.<sup>36</sup> Of the eight winning bidders for Broadband PCS licenses in that auction, six claimed small business status and won 14 licenses.<sup>37</sup>

13. *Narrowband Personal Communications Service.* To date, two auctions of narrowband personal communications services (PCS) licenses have been conducted. For purposes of the two auctions that have already been held, “small businesses” were entities with average gross revenues for the prior three calendar years of \$40 million or less. Through these auctions, the Commission has awarded a total of 41 licenses, out of which 11 were obtained by small businesses. To ensure meaningful participation of small business entities in future auctions, the Commission has adopted a two-tiered small business size standard in the Narrowband PCS Second Report and Order.<sup>38</sup> A “small business” is an entity that, together with affiliates and controlling interests, has average gross revenues for the three preceding years of not more than \$40 million. A “very small business” is an entity that, together with affiliates and controlling interests, has average gross revenues for the three preceding years of not more than \$15 million. The SBA has approved these small business size standards.<sup>39</sup>

14. *Wireless Communications Services.* This service can be used for fixed, mobile, radiolocation, and digital audio broadcasting satellite uses. The Commission defined “small business” for the wireless communications services (WCS) auction as an entity with average gross revenues of \$40 million for each of the three preceding years, and a “very small business” as an entity with average gross revenues of \$15 million for each of the three preceding years.<sup>40</sup> The SBA has approved these small business size standards.<sup>41</sup> In the Commission’s auction for geographic area licenses in the WCS there

<sup>32</sup> See *C and F Block Broadband PCS Auction Closes; Winning Bidders Announced*, Public Notice, 16 FCC Rcd 2339 (2001).

<sup>33</sup> See *Broadband PCS Spectrum Auction Closes; Winning Bidders Announced for Auction No. 58*, Public Notice, 20 FCC Rcd 3703 (2005).

<sup>34</sup> See *Auction of Broadband PCS Spectrum Licenses Closes; Winning Bidders Announced for Auction No. 71*, Public Notice, 22 FCC Rcd 9247 (2007).

<sup>35</sup> *Id.*

<sup>36</sup> See *Auction of AWS-1 and Broadband PCS Licenses Closes; Winning Bidders Announced for Auction 78*, Public Notice, 23 FCC Rcd 12749 (WTB 2008).

<sup>37</sup> *Id.*

<sup>38</sup> *Amendment of the Commission’s Rules to Establish New Personal Communications Services, Narrowband PCS*, GEN Docket No. 90-314, ET Docket No. 92-100, PP Docket No. 93-253, Second Report and Order and Second Further Notice of Proposed Rulemaking, 15 FCC Rcd 10456 (2000).

<sup>39</sup> See Letter from Aida Alvarez, Administrator, SBA, to Amy Zoslov, Chief, Auctions and Industry Analysis Division, Wireless Telecommunications Bureau, FCC (filed Dec. 2, 1998) (*Alvarez Letter 1998*).

<sup>40</sup> *Amendment of the Commission’s Rules to Establish Part 27, the Wireless Communications Service (WCS)*, GN Docket No. 96-228, Report and Order, 12 FCC Rcd 10785, 10879, para. 194 (1997).

<sup>41</sup> See Letter from Aida Alvarez, Administrator, SBA, to Amy Zoslov, Chief, Auctions and Industry Analysis Division, Wireless Telecommunications Bureau, FCC (filed Dec. 2, 1998) (*Alvarez Letter 1998*).

were seven winning bidders that qualified as “very small business” entities, and one that qualified as a “small business” entity.

15. *700 MHz Guard Band Licensees.* In 2000, in the *700 MHz Guard Band Order*, the Commission adopted size standards for “small businesses” and “very small businesses” for purposes of determining their eligibility for special provisions such as bidding credits and installment payments.<sup>42</sup> A small business in this service is an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding \$40 million for the preceding three years.<sup>43</sup> Additionally, a very small business is an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than \$15 million for the preceding three years.<sup>44</sup> SBA approval of these definitions is not required.<sup>45</sup> An auction of 52 Major Economic Area licenses commenced on September 6, 2000, and closed on September 21, 2000.<sup>46</sup> Of the 104 licenses auctioned, 96 licenses were sold to nine bidders. Five of these bidders were small businesses that won a total of 26 licenses. A second auction of 700 MHz Guard Band licenses commenced on February 13, 2001, and closed on February 21, 2001. All eight of the licenses auctioned were sold to three bidders. One of these bidders was a small business that won a total of two licenses.<sup>47</sup>

16. *Lower 700 MHz Band Licenses.* The Commission previously adopted criteria for defining three groups of small businesses for purposes of determining their eligibility for special provisions such as bidding credits.<sup>48</sup> The Commission defined a “small business” as an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding \$40 million for the preceding three years.<sup>49</sup> A “very small business” is defined as an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than \$15 million for the preceding three years.<sup>50</sup> Additionally, the lower 700 MHz Service had a third category of small business status for Metropolitan/Rural Service Area (MSA/RSA) licenses—“entrepreneur”—which is defined as an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than \$3 million for the preceding three years.<sup>51</sup> The SBA approved these small size standards.<sup>52</sup> An auction of 740 licenses (one license in each of the 734 MSAs/RSAs and one license in each of the six Economic Area Groupings (EAGs)) commenced on August 27, 2002, and closed on September 18, 2002. Of the 740 licenses available for auction, 484 licenses were won by 102 winning

<sup>42</sup> See *Service Rules for the 746–764 MHz Bands, and Revisions to Part 27 of the Commission’s Rules*, WT Docket No. 99-168, Second Report and Order, 15 FCC Rcd 5299 (2000) (*746–764 MHz Band Second Report and Order*).

<sup>43</sup> See *id.* at 5343, para. 108.

<sup>44</sup> See *id.*

<sup>45</sup> See *id.* at 5343, para. 108 n.246 (for the 746–764 MHz and 776–794 MHz bands, the Commission is exempt from 15 U.S.C. § 632, which requires Federal agencies to obtain SBA approval before adopting small business size standards).

<sup>46</sup> See *700 MHz Guard Bands Auction Closes: Winning Bidders Announced*, Public Notice, 15 FCC Rcd 18026 (WTB 2000).

<sup>47</sup> See *700 MHz Guard Bands Auction Closes: Winning Bidders Announced*, Public Notice, 16 FCC Rcd 4590 (WTB 2001).

<sup>48</sup> See *Reallocation and Service Rules for the 698–746 MHz Spectrum Band (Television Channels 52–59)*, GN Docket No. 01-74, Report and Order, 17 FCC Rcd 1022 (2002) (*Channels 52–59 Report and Order*).

<sup>49</sup> See *id.* at 1087-88, para. 172.

<sup>50</sup> See *id.*

<sup>51</sup> See *id.*, at 1088, para. 173.

<sup>52</sup> See Letter from Aida Alvarez, Administrator, SBA, to Amy Zoslov, Chief, Auctions and Industry Analysis Division, Wireless Telecommunications Bureau, FCC (filed Dec. 2, 1998) (*Alvarez Letter 1998*).

bidders. Seventy-two of the winning bidders claimed small business, very small business or entrepreneur status and won a total of 329 licenses.<sup>53</sup> A second auction commenced on May 28, 2003, closed on June 13, 2003, and included 256 licenses: 5 EAG licenses and 476 Cellular Market Area licenses.<sup>54</sup> Seventeen winning bidders claimed small or very small business status and won 60 licenses, and nine winning bidders claimed entrepreneur status and won 154 licenses.<sup>55</sup> On July 26, 2005, the Commission completed an auction of 5 licenses in the Lower 700 MHz band (Auction No. 60). There were three winning bidders for five licenses. All three winning bidders claimed small business status.

17. In 2007, the Commission reexamined its rules governing the 700 MHz band in the *700 MHz Second Report and Order*.<sup>56</sup> An auction of 700 MHz licenses commenced January 24, 2008 and closed on March 18, 2008, which included, 176 Economic Area licenses in the A Block, 734 Cellular Market Area licenses in the B Block, and 176 EA licenses in the E Block.<sup>57</sup> Twenty winning bidders, claiming small business status (those with attributable average annual gross revenues that exceed \$15 million and do not exceed \$40 million for the preceding three years) won 49 licenses. Thirty-three winning bidders claiming very small business status (those with attributable average annual gross revenues that do not exceed \$15 million for the preceding three years) won 325 licenses.

18. *Upper 700 MHz Band Licenses*. In the *700 MHz Second Report and Order*, the Commission revised its rules regarding Upper 700 MHz licenses.<sup>58</sup> On January 24, 2008, the Commission commenced Auction 73 in which several licenses in the Upper 700 MHz band were available for licensing: 12 Regional Economic Area Grouping licenses in the C Block, and one nationwide license in the D Block.<sup>59</sup> The auction concluded on March 18, 2008, with 3 winning bidders claiming very small business status (those with attributable average annual gross revenues that do not exceed \$15 million for the preceding three years) and winning five licenses.

19. *Advanced Wireless Services (AWS) (1710–1755 MHz and 2110–2155 MHz bands (AWS-1); 1915–1920 MHz, 1995–2000 MHz, 2020–2025 MHz and 2175–2180 MHz bands (AWS-2); 2155–2175 MHz band (AWS-3))*. For the AWS-1 bands,<sup>60</sup> the Commission has defined a “small business” as an entity with average annual gross revenues for the preceding three years not exceeding \$40 million, and a “very small business” as an entity with average annual gross revenues for the preceding three years not exceeding \$15 million. For AWS-2 and AWS-3, although we do not know for certain which entities are likely to apply for these frequencies, we note that the AWS-1 bands are comparable to

<sup>53</sup> See *Lower 700 MHz Band Auction Closes*, Public Notice, 17 FCC Rcd 17272 (WTB 2002).

<sup>54</sup> See *id.*

<sup>55</sup> See *id.*

<sup>56</sup> *Service Rules for the 698–746, 747–762 and 777–792 MHz Band; Revision of the Commission’s Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems; Section 68.4(a) of the Commission’s Rules Governing Hearing Aid-Compatible Telephones; Biennial Regulatory Review—Amendment of Parts 1, 22, 24, 27, and 90 to Streamline and Harmonize Various Rules Affecting Wireless Radio Services; Former Nextel Communications, Inc. Upper 700 MHz Guard Band Licenses and Revisions to Part 27 of the Commission’s Rules; Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band; Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Communications Requirements Through the Year 2010; Declaratory Ruling on Reporting Requirement under Commission’s Part 1 Anti-Collusion Rule*, WT Docket Nos. 07-166, 06-169, 06-150, 03-264, 96-86, PS Docket No. 06-229, CC Docket No. 94-102, Second Report and Order, 22 FCC Rcd 15289, 15359 n. 434 (2007) (*700 MHz Second Report and Order*).

<sup>57</sup> See *Auction of 700 MHz Band Licenses Closes*, Public Notice, 23 FCC Rcd 4572 (WTB 2008).

<sup>58</sup> *700 MHz Second Report and Order*, 22 FCC Rcd 15289.

<sup>59</sup> See *Auction of 700 MHz Band Licenses Closes*, Public Notice, 23 FCC Rcd 4572 (WTB 2008).

<sup>60</sup> The service is defined in section 90.1301 *et seq.* of the Commission’s Rules, 47 CFR § 90.1301 *et seq.*



those used for cellular service and personal communications service. The Commission has not yet adopted size standards for the AWS-2 or AWS-3 bands but proposes to treat both AWS-2 and AWS-3 similarly to broadband PCS service and AWS-1 service due to the comparable capital requirements and other factors, such as issues involved in relocating incumbents and developing markets, technologies, and services.<sup>61</sup>

20. *Broadband Radio Service and Educational Broadband Service.* Broadband Radio Service systems, previously referred to as Multipoint Distribution Service (MDS) and Multichannel Multipoint Distribution Service (MMDS) systems, and “wireless cable,” transmit video programming to subscribers and provide two-way high-speed data operations using the microwave frequencies of the Broadband Radio Service (BRS) and Educational Broadband Service (EBS) (previously referred to as the Instructional Television Fixed Service (ITFS)).<sup>62</sup>

21. *BRS* – In connection with the 1996 BRS auction, the Commission established a small business size standard as an entity that had annual average gross revenues of no more than \$40 million in the previous three calendar years.<sup>63</sup> The BRS auctions resulted in 67 successful bidders obtaining licensing opportunities for 493 Basic Trading Areas (BTAs). Of the 67 auction winners, 61 met the definition of a small business. BRS also includes licensees of stations authorized prior to the auction. At this time, we estimate that of the 61 small business BRS auction winners, 48 remain small business licensees. In addition to the 48 small businesses that hold BTA authorizations, there are approximately 392 incumbent BRS licensees that are considered small entities.<sup>64</sup> After adding the number of small business auction licensees to the number of incumbent licensees not already counted, we find that there are currently approximately 440 BRS licensees that are defined as small businesses under either the SBA or the Commission’s rules.

22. In 2009, the Commission conducted Auction 86, the sale of 78 licenses in the BRS areas.<sup>65</sup> The Commission offered three levels of bidding credits: (i) a bidder with attributed average annual gross revenues that exceed \$15 million and do not exceed \$40 million for the preceding three years (small business) received a 15 percent discount on its winning bid; (ii) a bidder with attributed average annual gross revenues that exceed \$3 million and do not exceed \$15 million for the preceding three years (very small business) received a 25 percent discount on its winning bid; and (iii) a bidder with attributed average annual gross revenues that do not exceed \$3 million for the preceding three years

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<sup>61</sup> See *Service Rules for Advanced Wireless Services in the 1.7 GHz and 2.1 GHz Bands*, WT Docket No. 02-353, Report and Order, 18 FCC Rcd 25162, Appx. B (2003), modified by *Service Rules for Advanced Wireless Services in the 1.7 GHz and 2.1 GHz Bands*, WT Docket No. 02-353, Order on Reconsideration, 20 FCC Rcd 14058, Appx. C (2005); *Service Rules for Advanced Wireless Services in the 1915–1920 MHz, 1995–2000 MHz, 2020–2025 MHz and 2175–2180 MHz Bands*; *Service Rules for Advanced Wireless Services in the 1.7 GHz and 2.1 GHz Bands*, WT Docket Nos. 04-356, 02-353, Notice of Proposed Rulemaking, 19 FCC Rcd 19263, Appx. B (2005); *Service Rules for Advanced Wireless Services in the 2155–2175 MHz Band*, WT Docket No. 07-195, Notice of Proposed Rulemaking, 22 FCC Rcd 17035, Appx. (2007).

<sup>62</sup> *Amendment of Parts 21 and 74 of the Commission’s Rules with Regard to Filing Procedures in the Multipoint Distribution Service and in the Instructional Television Fixed Service and Implementation of Section 309(j) of the Communications Act—Competitive Bidding*, MM Docket No. 94-131, PP Docket No. 93-253, Report and Order, 10 FCC Rcd 9589, 9593, para. 7 (1995).

<sup>63</sup> 47 CFR § 21.961(b)(1).

<sup>64</sup> 47 U.S.C. § 309(j). Hundreds of stations were licensed to incumbent MDS licensees prior to implementation of Section 309(j) of the Communications Act of 1934, 47 U.S.C. § 309(j). For these pre-auction licenses, the applicable standard is SBA’s small business size standard of 1500 or fewer employees.

<sup>65</sup> Auction of Broadband Radio Service (BRS) Licenses, Scheduled for October 27, 2009, Notice and Filing Requirements, Minimum Opening Bids, Upfront Payments, and Other Procedures for Auction 86, AU Docket No. 09-56, *Public Notice*, 24 FCC Rcd 8277 (2009).

(entrepreneur) received a 35 percent discount on its winning bid.<sup>66</sup> Auction 86 concluded in 2009 with the sale of 61 licenses.<sup>67</sup> Of the ten winning bidders, two bidders that claimed small business status won 4 licenses; one bidder that claimed very small business status won three licenses; and two bidders that claimed entrepreneur status won six licenses.

23. *EBS* - The SBA's Cable Television Distribution Services small business size standard is applicable to EBS. There are presently 2,436 EBS licensees. All but 100 of these licenses are held by educational institutions. Educational institutions are included in this analysis as small entities.<sup>68</sup> Thus, we estimate that at least 2,336 licensees are small businesses. Since 2007, Cable Television Distribution Services have been defined within the broad economic census category of Wired Telecommunications Carriers. Wired Telecommunications Carriers are comprised of establishments primarily engaged in operating and/or providing access to transmission facilities and infrastructure that they own and/or lease for the transmission of voice, data, text, sound, and video using wired telecommunications networks. Transmission facilities may be based on a single technology or a combination of technologies.<sup>69</sup> The SBA's small business size standard for this category is all such firms having 1,500 or fewer employees.<sup>70</sup> U.S. Census Bureau data for 2012 shows that there were 3,117 firms that operated that year.<sup>71</sup> Of this total, 3,083 operated with fewer than 1,000 employees.<sup>72</sup> Thus, under this size standard, the majority of firms in this industry can be considered small.

24. *Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing*. This industry comprises establishments primarily engaged in manufacturing radio and television broadcast and wireless communications equipment.<sup>73</sup> Examples of products made by these establishments are: transmitting and receiving antennas, cable television equipment, GPS equipment, pagers, cellular phones, mobile communications equipment, and radio and television studio and broadcasting equipment.<sup>74</sup> The SBA has established a small business size standard for this industry of 1,250 employees or less.<sup>75</sup> U.S. Census Bureau data for 2012 shows that 841 establishments operated in

<sup>66</sup> *Id.* at 8296 para. 73.

<sup>67</sup> Auction of Broadband Radio Service Licenses Closes, Winning Bidders Announced for Auction 86, Down Payments Due November 23, 2009, Final Payments Due December 8, 2009, Ten-Day Petition to Deny Period, *Public Notice*, 24 FCC Rcd 13572 (2009).

<sup>68</sup> The term "small entity" within SBREFA applies to small organizations (nonprofits) and to small governmental jurisdictions (cities, counties, towns, townships, villages, school districts, and special districts with populations of less than 50,000). 5 U.S.C. §§ 601(4)-(6). We do not collect annual revenue data on EBS licensees.

<sup>69</sup> U.S. Census Bureau, 2017 NAICS Definitions, "517311 Wired Telecommunications Carriers," (partial definition), <http://www.census.gov/cgi-bin/sssd/naics/naicsrch?code=517311&search=2017>.

<sup>70</sup> *See*, 13 CFR § 121.201. The Wired Telecommunications Carrier category formerly used the NAICS code of 517110. As of 2017 the U.S. Census Bureau definition shows the NAICS code as 517311 for Wired Telecommunications Carriers. *See*, <https://www.census.gov/cgi-bin/sssd/naics/naicsrch?code=517311&search=2017>.

<sup>71</sup> *See* U.S. Census Bureau, 2012 *Economic Census of the United States*, Table No. EC1251SSSZ5, *Information: Subject Series - Estab & Firm Size: Employment Size of Firms: 2012* (517110 Wired Telecommunications Carriers). [https://factfinder.census.gov/bkmk/table/1.0/en/ECN/2012\\_US/51SSSZ5//naics~517110](https://factfinder.census.gov/bkmk/table/1.0/en/ECN/2012_US/51SSSZ5//naics~517110).

<sup>72</sup> *Id.*

<sup>73</sup> The NAICS Code for this service is 334220. 13 CFR 121.201. *See also* U.S. Census Bureau, 2012 NAICS Definitions, "334220 Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing" <https://factfinder.census.gov/faces/affhelp/jsf/pages/metadata.xhtml?lang=en&type=ib&id=ib.en./ECN.NAICS2012.334220#>.

<sup>74</sup> *Id.*

<sup>75</sup> 13 CFR § 121.201, NAICS Code 334220.

this industry in that year.<sup>76</sup> Of that number, 828 establishments operated with fewer than 1,000 employees, 7 establishments operated with between 1,000 and 2,499 employees and 6 establishments operated with 2,500 or more employees.<sup>77</sup> Based on this data, we conclude that a majority of manufacturers in this industry is small.

25. *Software Publishers.* This industry comprises establishments primarily engaged in computer software publishing or publishing and reproduction.<sup>78</sup> Establishments in this industry carry out operations necessary for producing and distributing computer software, such as designing, providing documentation, assisting in installation, and providing support services to software purchasers. These establishments may design, develop, and publish, or publish only.<sup>79</sup> The SBA has established a size standard for this industry of annual receipts of \$38.5 million per year.<sup>80</sup> U.S. Census data for 2012 indicates that 5,079 firms operated in that year.<sup>81</sup> Of that number 4,697 firms had annual receipts of \$25 million or less.<sup>82</sup> Based on that data, we conclude that a majority of firms in this industry are small.

26. *NCE and Public Broadcast Stations.* Non-commercial educational and public broadcast television stations fall within the U.S. Census Bureau's definition for Television Broadcasting.<sup>83</sup> This industry comprises establishments primarily engaged in broadcasting images together with sound and operating television broadcasting studios and facilities for the programming and transmission of programs to the public.<sup>84</sup> The Small Business Administration (SBA) small business size standard for Television Broadcasting entities consists of such businesses having \$38.5 million or less in annual receipts.<sup>85</sup> The 2012 Economic Census reports that 751 firms in this category operated in that year.<sup>86</sup> Of that number, 656 had annual receipts of \$25,000,000 or less, 25 had annual receipts between \$25,000,000 and \$49,999,999 and 70 had annual receipts of \$50,000,000 or more.<sup>87</sup> Based on this data we conclude that the majority of NCEs and Public Broadcast Stations are small entities under the applicable SBA size standard.

27. According to Commission staff review of the BIA Kelsey Inc. Media Access Pro

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<sup>76</sup> U.S. Census Bureau, *2012 Economic Census of the United States*, Table EC1231SG2, Manufacturing: Summary Series: General Summary: Industry Statistics for Subsectors and Industries by Employment Size: 2012, NAICS Code 334220, [https://factfinder.census.gov/bkmk/table/1.0/en/ECN/2012\\_US/31SG2//naics~334220](https://factfinder.census.gov/bkmk/table/1.0/en/ECN/2012_US/31SG2//naics~334220).

<sup>77</sup> *Id.*

<sup>78</sup> See U.S. Census Bureau, 2017 NAICS Definitions, "511210 Software Publishers," <https://www.census.gov/cgi-bin/sssd/naics/naicsrch?code=511210&search=2017>.

<sup>79</sup> *Id.*

<sup>80</sup> 13 CFR § 121.201, 511210.

<sup>81</sup> See U.S. Census Bureau, *2012 Economic Census of the United States*, Table EC1251SSSZ4, Information: Subject Series - Estab and Firm Size: Receipts Size of Firms for the United States: 2012, NAICS code 511210, [https://factfinder.census.gov/bkmk/table/1.0/en/ECN/2012\\_US/51SSSZ4//naics~511210](https://factfinder.census.gov/bkmk/table/1.0/en/ECN/2012_US/51SSSZ4//naics~511210).

<sup>82</sup> *Id.*

<sup>83</sup> U.S. Census Bureau, 2017 NAICS Definitions, "515120 Television Broadcasting," <https://www.census.gov/cgi-bin/sssd/naics/naicsrch?input=515120&search=2017+NAICS+Search&search=2017>.

<sup>84</sup> *Id.* (partial definition).

<sup>85</sup> 13 CFR § 121.201; 2012 NAICS code 515120.

<sup>86</sup> U.S. Census Bureau, Table No. EC1251SSSZ4, *Information: Subject Series - Establishment and Firm Size: Receipts Size of Firms for the United States: 2012 (515120 Television Broadcasting)*, [https://factfinder.census.gov/bkmk/table/1.0/en/ECN/2012\\_US/51SSSZ4//naics~515120](https://factfinder.census.gov/bkmk/table/1.0/en/ECN/2012_US/51SSSZ4//naics~515120).

<sup>87</sup> *Id.*

Television Database (BIA) on May 9, 2017, approximately 1,263 of the 1,383<sup>88</sup> licensed commercial television stations (or about 91 percent) had revenues of \$38.5 million or less, and therefore these licensees qualify as small entities under the SBA definition. The Commission also estimates that there are 394 licensed noncommercial educational television stations.<sup>89</sup> Notwithstanding, the Commission does not compile and otherwise does not have access to information on the revenue of NCE stations that would permit it to determine how many such stations would qualify as small entities. In addition to licensed commercial television stations and NCEs, there are also an estimated 2,382 low power television stations (LPTV), including Class A stations and 3,778 TV translator stations.<sup>90</sup> Given the nature of these services, we will presume that all of these entities qualify as small entities under the above SBA small business size standard.

28. We note however, in assessing whether a business concern qualifies as “small” under the above definition that business (control) affiliations<sup>91</sup> must be included. Our estimate, therefore likely overstates the number of small entities that might be affected by our action, because the revenue figure on which it is based does not include or aggregate revenues from affiliated companies. Moreover, the definition of “small business” also requires that an entity not be dominant in its field of operation and that the entity be independently owned and operated.<sup>92</sup> We are unable at this time to define or quantify the criteria that would establish whether a specific television broadcast station is dominant in its field of operation. The Commission further notes that it is difficult at times to assess these criteria in the context of media entities and therefore its estimates of small businesses to which they apply may be over-inclusive to this extent.

#### **E. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements**

29. We expect the amended rules will impose new or additional reporting, recordkeeping and/or other compliance obligations on small entities. In the *Second WEA Report and Order*, we amend our Part 10 rules for Participating CMS Providers, as defined in the WEA rules, to require geo-targeting of Alert Messages to an area that matches the target area specified by alert originators and where matching the target area is not possible the Participating CMS Provider must transmit the Alert Message to an area that best approximates the target area. The compliance timeframe for this requirement is November 30, 2019. We also require CMS Providers participating in WEA “in part” to provide additional disclosures about the availability of enhanced geo-targeting on mobile devices and their network. The compliance timeframe for this requirement is November 30, 2019, or as specified by publication in the *Federal Register* of a notice announcing OMB approval and the relevant effective date, whichever is later. We also require Participating CMS Providers to preserve Alert Messages in a consumer-accessible format and location for at least 24 hours after receipt. The compliance time frame for this requirement is November 30, 2019. Finally, we require CMS Providers to renew their election to participate in WEA to the extent a change to their WEA Election letter is necessary, consistent with the definitions of participation adopted today in the *Second Report and Order*. The compliance deadline for this requirement is 120 days from the publication in the *Federal Register* of a notice announcing OMB approval of the modified information collection requirements.

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<sup>88</sup> See Broadcast Station Totals as of March 31, 2017, Press Release (MB Apr. 11, 2017) (March 31, 2017 Broadcast Station Totals), [https://apps.fcc.gov/edocs\\_public/attachmatch/DOC-344256A1.pdf](https://apps.fcc.gov/edocs_public/attachmatch/DOC-344256A1.pdf).

<sup>89</sup> *Id.*

<sup>90</sup> *Id.*

<sup>91</sup> “[Business concerns] are affiliates of each other when one concern controls or has the power to control the other or a third party or parties’ controls or has the power to control both.” 13 CFR § 21.103(a)(1).

<sup>92</sup> See 15 U.S.C. § 632.

30. We consider compliance costs associated with election renewal to be reporting and recordkeeping costs. We note that, in response to the *WEA Election Report and Order*,<sup>93</sup> OMB approved our assessment that our election requirement would affect 1,253 entities that would be required to update this report, and that fulfillment of this requirement would take 30 minutes per report at a cost of approximately \$20,000.<sup>94</sup> We received no objections to this estimate in the record. We reason that no additional, ongoing or annualized burdens will result from this reporting obligation for small entities and other Participating CMS Providers because the requirement that we adopt today does not change the approach that Participating CMS Providers must take to updating their elections once this one-time renewed election is completed.

**F. Steps Taken to Minimize Significant Economic Impact on Small Entities, and Significant Alternatives Considered**

31. The RFA requires an agency to describe any significant, specifically small business alternatives that it has considered in developing its approach, which may include the following four alternatives (among others): “(1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting requirements under the rule for small entities; (3) the use of performance, rather than design, standards; and (4) an exemption from coverage of the rule, or any part thereof, for small entities.”<sup>95</sup>

32. Based on our review of the record, we find that it is practicable for small entities and all Participating CMS Providers, including non-nationwide Participating CMS Providers,<sup>96</sup> to implement WEA improvements without incurring unduly burdensome costs. The *Second WEA Report and Order* recognizes that technical and operational issues must be addressed before compliance can be required, and allows sufficient time for both nationwide and non-nationwide Participating CMS Providers to achieve compliance with today’s rules. We decline CCA’s request for an additional 12 to 24 months to support enhanced geo-targeting beyond the 36 months requested by CTIA. The requirement that we adopt today is technologically neutral; non-nationwide CMS Providers may elect to use technologies offered by a variety of vendors to implement enhanced geo-targeting, not only those that provide products to nationwide Participating CMS Providers.

33. In considering the record received in response to the *WEA NPRM*, we examined and adopted alternatives to ease the burden on smaller, non-nationwide Participating CMS Providers. These alternatives included exempting mobile devices with location services turned off from our enhanced geo-targeting requirement; requiring mobile devices to preserve Alert Messages for 24 hours, rather than until they expire, as proposed; and declining to revise our definition of mobile devices in a manner that could have created additional obligations for Participating CMS Providers. Additionally, the rules adopted in the *Second WEA Report and Order* are technologically neutral in order to provide small entities the flexibility to comply with our rules using technologies offered by a variety of vendors.

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<sup>93</sup> *WEA Election Report and Order*, 23 FCC Rcd at 12561.

<sup>94</sup> See OMB 3060-1113 (2011).

<sup>95</sup> 5 U.S.C. § 603(c)(1)-(4).

<sup>96</sup> See Annual Report and Analysis of Competitive Market Conditions with Respect to Mobile Wireless, Including Commercial Mobile Services, WT Docket No. 11-186, *Sixteenth Report*, 28 FCC Rcd 3700, 3736-37, para. 26 (observing that “there are four nationwide providers in the U.S. with networks that cover a majority of the population and land area of the country – Verizon Wireless, AT&T, Sprint, and T-Mobile –” and referring to other providers with “networks that are limited to regional and local areas” as “non-nationwide providers.”)

**G. Report to Congress**

34. The Commission will send a copy of the *Second WEA Report and Order*, including this FRFA, in a report to be sent to Congress pursuant to the Congressional Review Act.<sup>97</sup> In addition, the Commission will send a copy of the *Second WEA Report and Order*, including this FRFA, to the Chief Counsel for Advocacy of the SBA. A copy of the *Second WEA Report and Order* and FRFA (or summaries thereof) will also be published in the *Federal Register*.

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<sup>97</sup> See 5 U.S.C. § 801(a)(1)(A).

## APPENDIX C

**Supplemental Final Regulatory Flexibility Analysis**

1. As required by the Regulatory Flexibility Act of 1980 (RFA),<sup>1</sup> as amended, an Initial Regulatory Flexibility Analysis (IRFA) was incorporated in the *WEA Notice of Proposed Rulemaking (WEA NPRM)*, adopted in November 2015.<sup>2</sup> The Commission sought written public comment on the proposals in *NPRM*, including comments on the IRFA. No comments were filed addressing the IRFA. The Commission included a Final Regulatory Flexibility Analysis (FRFA) in Appendix C of the September 2016 *WEA R&O*.<sup>3</sup> This Supplemental Final Regulatory Flexibility Analysis (Supplemental FRFA) supplements the FRFA to reflect the actions taken in the *Second Order on Reconsideration* and conforms to the RFA.<sup>4</sup>

**A. Need for, and Objective of, the Order**

2. In the *WEA R&O*, we took advantage of the significant technological changes and improvements experienced by the mobile wireless industry since the passage of the Warning, Alert and Response Network (WARN) Act, and deployment of WEA to improve the utility of WEA as a life-saving tool. As pertinent to the *Second Order on Reconsideration* we adopt today, in the *WEA R&O* we adopted rules focused on improving WEA message content by requiring Participating Commercial Mobile Service (CMS) Providers to support Alert Messages initiated in Spanish, and set the deadline for compliance as two years (24 months) from the rules' publication in the *Federal Register*.

3. In this *Second Order on Reconsideration*, we grant, to the extent described herein, CTIA's Petition for Reconsideration of the *WEA R&O*, and extend the compliance deadline for support for Spanish-language alerting until May 1, 2019. The actions we take today allow us to continue to advance down the path outlined in the *WEA R&O* while supplying additional time for compliance in order to minimize compliance costs while retaining the rule's maximum benefit.

**B. Summary of Significant Issues Raised by Public Comments in Response to the IRFA**

4. There were no comments raised that specifically addressed the proposed rules and policies presented in the IRFA.

**C. Response to Comments by the Chief Counsel for Advocacy of the Small Business Administration**

5. Pursuant to the Small Business Jobs Act of 2010, which amended the RFA, the Commission is required to respond to any comments filed by the Chief Counsel of the Small Business Administration (SBA), and to provide a detailed statement of any change made to the proposed rule(s) as a result of those comments.<sup>5</sup>

6. The Chief Counsel did not file any comments in response to the proposed rules in this proceeding.

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<sup>1</sup> 5 U.S.C. § 603. The RFA, 5 U.S.C. §§ 601-612, was amended by the Small Business Regulatory Enforcement Fairness Act of 1996, Pub. L. No. 104-121, 110 Stat. 847 (1996).

<sup>2</sup> See Improving Wireless Emergency Alerts and Community-Initiated Alerting, PS Docket 15-91, *Notice of Proposed Rulemaking*, 30 FCC Rcd 13781 (2015) (*WEA NPRM*), Appendix. B.

<sup>3</sup> See Wireless Emergency Alerts; Amendments to Part 11 of the Commission's Rules Regarding the Emergency Alert System, PS Docket Nos. 15-91, 15-94, *Report and Order and Further Notice of Proposed Rulemaking*, 31 FCC Rcd 11112 (2016) (*WEA R&O* and *WEA FNPRM*), Appendix C.

<sup>4</sup> See 5 U.S.C. § 604.

<sup>5</sup> 5 U.S.C. § 604(a)(3).

**D. Description and Estimate of the Number of Small Entities to Which the Rules Will Apply**

7. The RFA directs agencies to provide a description of and, where feasible, an estimate of the number of small entities that may be affected by the rules adopted herein.<sup>6</sup> The RFA generally defines the term “small entity” as having the same meaning as the terms “small business,” “small organization,” and “small governmental jurisdiction.”<sup>7</sup> In addition, the term “small business” has the same meaning as the term “small business concern” under the Small Business Act.<sup>8</sup> A “small business concern” is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the SBA.<sup>9</sup>

8. As noted above, a FRFA was incorporated into the September 2016 *WEA R&O*. In that analysis, we described in detail the small entities that might be significantly affected by the rules adopted in the *WEA R&O*.<sup>10</sup> Those entities may be found in a number of services including, *e.g.*: Wireless Telecommunications Carriers, Broadband Personal Communications Service, Narrowband Personal Communications Service, Wireless Communications Services, Advanced Wireless Services, Lower and Upper 700 MHz Band licenses, Software Publishers, and Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing. In this Supplemental FRFA, we hereby incorporate by reference the descriptions and estimates of the number of small entities from the previous FRFA in this proceeding.

**E. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements for Small Entities**

9. The data, information and document collection required by the September 2016 *WEA R&O* as described in the previous FRFA in this proceeding is hereby incorporated by reference.<sup>11</sup> The actions taken in the *Second Order on Reconsideration* do not amend or otherwise revise those requirements, except to supply additional time for compliance with one of the requirements, *i.e.*, support for Alert Messages initiated in Spanish. More specifically, the Commission extends the compliance deadline for supporting Spanish-language Alert Messages from 24 months to 30 months from the rule’s publication in the *Federal Register*, to be consistent with the deadline for the rule that CMS Providers support WEA messages of up to 360 characters in length. This rule will become effective May 1, 2019.

**F. Steps Taken to Minimize the Significant Economic Impact on Small Entities, and Significant Alternatives Considered**

10. The RFA requires an agency to describe any significant alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives (among others): “(1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting requirements under the rule for small entities; (3) the use of performance, rather

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<sup>6</sup> *Id.* § 603(a)(4).

<sup>7</sup> *Id.* § 601(6).

<sup>8</sup> *Id.* § 601(3) (incorporating by reference the definition of “small-business concern” in the Small Business Act, 15 U.S.C. § 632). Pursuant to 5 U.S.C. § 601(3), the statutory definition of a small business applies “unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the *Federal Register*.”

<sup>9</sup> 15 U.S.C. § 632.

<sup>10</sup> See *WEA R&O*, 31 FCC Rcd at 11236-45, paras. 8-27.

<sup>11</sup> *Id.* at 11245, paras. 28-29.



than design, standards; and (4) and exemption from coverage of the rule, or any part thereof, for small entities.”<sup>12</sup>

11. The analysis of the Commission’s efforts to minimize the possible significant economic impact on small entities as described in the previous FRFA in this proceeding is hereby incorporated by reference.<sup>13</sup> Further, we reason that by requiring compliance with the Spanish-language alerting requirement on the same date as the expanded character limit (May 1, 2019), we prevent Participating CMS Providers, including small entities, from needing to engage in a duplicative testing phase, saving industry approximately \$28 million.

**G. Report to Congress**

12. The Commission will send a copy of the *Second Order on Reconsideration*, including this Supplemental FRFA, in a report to Congress pursuant to the Congressional Review Act.<sup>14</sup> In addition, the Commission will send a copy of the *Second Order on Reconsideration*, including this Supplemental FRFA, to the Chief Counsel for Advocacy of the SBA. A copy of the *Second Order on Reconsideration* and Supplemental FRFA (or summaries thereof) will also be published in the *Federal Register*.<sup>15</sup>

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<sup>12</sup> 5 U.S.C. § 603(c)(1)-(4).

<sup>13</sup> See *WEA R&O*, 31 FCC Rcd at 11245-46, paras. 30-34.

<sup>14</sup> 5 U.S.C. § 801(a)(1)(A).

<sup>15</sup> *Id.* § 604(b).

## APPENDIX D

List of Commenters to the Wireless Emergency Alerts (WEA) FNPRMPS Docket 15-91

| <b>Initial Commenters</b>   | <b>Abbreviation</b>       |
|---|---------------------------|
| AC&C, LLC   | AC&C                      |
| APCO International  | APCO                      |
| AT&T Services Inc.  | AT&T                      |
| Alliance for Telecommunications Industry Solutions  | ATIS                      |
| Bill Kivler   | Bill Kivler               |
| Bill DeBlasio, Mayor, City of New York  | Bill DeBlasio             |
| Bob Iberger   | Bob Iberger               |
| Calhoun County, AL, Emergency Management Agency   | Calhoun EMA               |
| California Governor's Office of Emergency Services  | California Governor's OES |
| City and County of San Francisco Department of Emergency Management   | SF DEM                    |
| Craig Craft   | Craig Craft               |
| CTIA  | CTIA                      |
| Darren P. Wilson  | Darren Wilson             |
| Harris County Office of Homeland Security & Emergency Management  | Harris County OHSEM       |
| Irwin Hoenig  | Irwin Hoenig              |
| Lower Colorado River Authority (Austin, TX), Llano County, TX, Travis County, TX, City of Austin, TX, Austin Water utility, TX, Caldwell County, TX, Blanco County, TX, Colorado County, TX, Williamson County TX, Bastrop County, TX, Fayette County, TX, Matagorda County, TX, Burnet County, TX, Wharton County, TX, Hays County, TX | Texas Counties            |
| Microsoft Corporation   | Microsoft                 |
| Mike Clements   | Mike Clements             |
| New Jersey Office of Homeland Security and Preparedness   | NJ OHSP                   |
| National Oceanic and Atmospheric Administration/ National Weather Service   | NOAA/NWS                  |

|  |                     |
|--|---------------------|
| New York City Emergency Management   | NYCEM               |
| Public Broadcasting Service,<br>Association of Public Television Stations, and Corporation for Public Broadcasting | PBS, APTS, and CPB  |
| Ralph Ladiner, Communications Captain, West Feliciana<br>Parish Sheriff's Office                                   | West Feliciana      |
| T-Mobile USA, Inc.   | T-Mobile            |
| Verizon  | Verizon             |
| Wireless RERC  | Wireless RERC       |
| <b>Reply Commenters</b>  | <b>Abbreviation</b> |
| AC&C, LLC  | AC&C                |
| Apple Inc.   | Apple               |
| AT&T Services Inc.   | AT&T                |
| CTIA   | CTIA                |
| National Oceanic and Atmospheric Administration/ National<br>Weather Service                                       | NOAA/NWS            |
| Ronald Prater  | Ronald Prater       |
| Sarah Poss, California Governor's Office of Emergency Services   | Cal Gov.'s OES      |
| Telecommunications for the Deaf and Hard of Hearing, Inc.  | TDI                 |
| <b>Ex Parte Filers</b>   | <b>Abbreviation</b> |
| APCO International   | APCO                |
| Apple  | Apple               |
| AC&C, LLC  | AC&C                |
| Alliance for Telecommunications Industry Solutions   | ATIS                |
| AT&T   | AT&T                |
| Big City Emergency Managers  | BCEM                |
| Bluegrass Cellular   | Bluegrass           |
| City and County of San Francisco Department of Emergency Management  | San Francisco DEM   |
| City of Riverside Fire Department  | Riverside OEM       |

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|   |                     |
|---|---------------------|
| City of San Francisco   |                     |
| City of Sonoma Board of Supervisors   | Sonoma County       |
| Commissioner James P. O'Neil, New York City Police Department                       | James O'Neil        |
| Competitive Carriers Association  | CCA                 |
| CTIA  | CTIA                |
| Dianne Jacob, County of San Diego Board of Supervisors                              | San Diego County    |
| District of Columbia Homeland Security and Emergency Management Agency              | DC HSEMA            |
| Federal Emergency Management Agency IPAWS Program Office                            | FEMA                |
| Francisco Sanchez, Harris County Office of Homeland Security & Emergency Management | Harris County OSHEM |
| Honorable Ed Emmett, Harris County Judge  | Ed Emmett           |
| Microsoft Corporation   | Microsoft           |
| National Center for Missing & Exploited Children                                    | NCMEC               |
| National Oceanic and Atmospheric Administration/ National Weather Service           | NOAA/NWS            |
| New York City Emergency Management Department                                       | NYCEM               |
| Next-Tech Wireless  | Nex-Tech            |
| Portland Bureau of Emergency Management   | Portland BEM        |
| Sean Donelan  | Sean Donelan        |
| San Bernardino County Office of Emergency Services                                  | San Bernardino OES  |
| Santa Barbara County Office of Emergency Management                                 | Santa Barbara OEM   |
| Sprint  | Sprint              |
| US Cellular Corp  | US Cellular         |
| Verizon   | Verizon             |

**STATEMENT OF  
CHAIRMAN AJIT PAI**

*Re: Wireless Emergency Alerts, PS Docket No. 15-91; Amendments to Part 11 of the Commission's Rules Regarding the Emergency Alert System, PS Docket No. 15-94.*

When disaster strikes, it's essential that Americans in harm's way get reliable information so that they can stay safe and protect their loved ones. The wireless emergency alert system, or WEA, is one important tool for emergency managers to quickly convey such information, such as tornado warnings, to the public on their mobile devices.

Since WEA became operational in 2012, it's been used over 33,000 times. Recently, WEA was used four times in response to wildfires in Northern California, and 16 times during the wildfires around Los Angeles. WEA was also used extensively in all areas affected by recent hurricanes, including 21 alerts sent in Puerto Rico alone.

But we've heard that many jurisdictions are hesitant to use WEA because it lacks granularity<sup>1</sup>—that is, people may receive the alert even though they're located well outside of an intended target area. Overbroad alerting can cause public confusion, lead some to opt out of receiving alerts altogether, and, in many instances, complicate rescue efforts by unnecessarily causing traffic congestion and overloading call centers.

As I've said before, people shouldn't miss out on potentially life-saving information just because "the alert system's current brushstroke is too broad."<sup>2</sup> This morning, we address this problem by bringing a finer brush to bear on the canvas.

Today's *Report and Order* requires participating wireless providers to deliver alerts to match 100% of the target area that overlaps with the wireless provider's network coverage area, with an overshoot of no more than one-tenth of a mile. This rule will help channel alerts to Americans who actually need them. And equally important, this rule will give alert originators the assurance they need to rely on WEA as a valuable tool to help save lives. Indeed, Harris County Deputy Emergency Management Coordinator Francisco Sanchez has said that this rule "will be the single most important improvement to the nation's alerts and warnings infrastructure in years."<sup>3</sup>

I understand that there is some division over the rule's November 2019 implementation deadline. Some say this schedule is too aggressive. Some say it's not aggressive enough. I think it's just right. On this public safety matter, I favor an approach that I believe is aggressive and achievable. The record indicates that November 2019 meets this test.

In short, this rule, coupled with the other improvements we adopt today—enabling consumers to retrieve alerts for 24 hours after they are received, clarifying the difference between providers

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<sup>1</sup> Aaron C. Davis and Sandhya Somashekhar, The only California county that sent a warning to residents' cellphones has no reported fatalities, *The Washington Post* (Oct. 13, 2017), available at [https://www.washingtonpost.com/investigations/the-only-california-county-that-sent-a-warning-to-residents-cellphones-has-no-reported-fatalities/2017/10/13/b28b5af4-b01f-11e7-a908-a3470754bbb9\\_story.html](https://www.washingtonpost.com/investigations/the-only-california-county-that-sent-a-warning-to-residents-cellphones-has-no-reported-fatalities/2017/10/13/b28b5af4-b01f-11e7-a908-a3470754bbb9_story.html).

<sup>2</sup> *Wireless Emergency Alerts; Amendments to Part 11 of the Commission's Rules Regarding the Emergency Alert System*, PS Docket Nos. 15-91, 15-94, Report and Order and Further Notice of Proposed Rulemaking, 31 FCC Rcd 11112, 11268 (2016) (Statement of Commissioner Ajit Pai), available at <https://www.fcc.gov/document/improving-wireless-emergency-alerts-and-community-initiated-alerting-1/pai-statement>.

<sup>3</sup> Letter from Francisco Sanchez, Deputy Emergency Management Coordinator, Harris County, to FCC Chairman Ajit Pai et al., PS Docket No. 15-94 (Jan. 19, 2018), <https://www.fcc.gov/ecfs/filing/101201689514842>; see also News Release, FCC, What They're Saying About Chairman Pai's WEA Proposal (Jan. 25, 2018), <https://www.fcc.gov/document/what-theyre-saying-about-chairman-pais-wea-proposal>.

participating in WEA “in part” versus “in whole,” and harmonizing the deadline for implementing Spanish language alerting with the deadline for implementing longer, 360-character length messages—will strengthen the WEA system and keep Americans safer.

Finally, I want to thank the staff of the Public Safety and Homeland Security Bureau for all their hard work and commitment to serving the public: Rochelle Cohen, Greg Cooke, Lisa Fowlkes, Megan Henry, Nicole McGinnis, Rasoul Safavian, Emily Talaga, and James Wiley. And from the Office of General Counsel, thanks to David Horowitz, Bill Richardson, and Anjali Singh.

**STATEMENT OF  
COMMISSIONER MIGNON L. CLYBURN**

*Re: Wireless Emergency Alerts, PS Docket No. 15-91; Amendments to Part 11 of the Commission's Rules Regarding the Emergency Alert System, PS Docket No. 15-94.*

Whether it is text-to-911, wireless location accuracy, or promoting the reliability of public safety communications, my approach when it comes to public safety issues has been shaped by three guiding principles: people with accessibility and access challenges must benefit; we should do all we can to educate consumers about these safety benefits; and collaboration among all stakeholders works better than litigation.

Frederick Douglass, one of the most influential Americans of the 19<sup>th</sup> century, is known to have said, "If there is no struggle, there is no progress." With African-American History Month just days away, I find this to be a particularly fitting quote to aptly describe most of the public safety proceedings I have participated in over the past eight years. Typically, proceedings start with the Commission setting an ambitious goal to improve these services. Then, in many cases, the communications industry pushes back on certain details. This is followed by the five of us not agreeing on all the policy details. But in the end, these struggles and collaboration among stakeholders have resulted in progress and improvements to emergency communications.

The same can be said for wireless emergency alerts or WEAs. Wireless carriers voluntarily participate and the WEA system enables authorized alert originators at the federal, tribal, state, and local levels, to warn the public about all levels of emergencies. First deployed, in April 2012, and thanks to the collaborative effort by industry and the public safety community, the WEA system has issued more than 33,000 emergency alerts.

We have worked, over the past few years, to more precisely target those alerts to cellphone users located in the exact area where the emergency exists. The risk here is that those who repeatedly get alerts which are not relevant to them may one day ignore an alert that directly impacts their safety and that would be extremely unfortunate. This is why, back in September of 2016, we sought comment on requiring the industry to go beyond the current geo-targeting standard, and more closely match the target area that an alert originator transmits. That Further Notice demonstrated again that despite differences on specific policy details, my colleagues and I considered the industry's challenges and worked toward supporting this goal.

Today's Order marks an important milestone because it follows through on the previous administration's enhanced geo-targeting proposal and requires the industry to meet the enhanced standard by November 30, 2019. I must admit that I had concerns about certain aspects of the draft originally circulated earlier this month. But I am pleased to report that I can now support the item because we were able to compromise on a few key areas.

The Order initially stated that a participating wireless company's network infrastructure could resort to a less accurate standard if it was "technically incapable" of matching a target area. I was concerned that the term could become a loophole. My colleagues agreed to my request to clarify that "technically incapable" does not include circumstances, when a carrier's own failure to adequately maintain or upgrade its network or devices, makes it unable to meet this enhanced standard. I want to commend APCO, the New York City Emergency Management Department, and others for their strong advocacy on this issue.

In addition, the original draft Order did not amend the subscriber notification rule to keep pace with the technical changes we are adopting today. Currently, consumers must be notified at the point of sale, if wireless companies do not offer WEAs at all, or if they offer WEAs only in part. If we really

believe that more precise geo-targeted alerts are important to keep people safe, then we should give all wireless customers the ability to choose more precise geo-targeting devices and services. Consumers cannot make that choice, if they do not have adequate notification. So, I thank my colleagues for agreeing to amend the rule to make clear that consumers must also be notified about the extent to which wireless companies offer enhanced geo-targeting alerts.

Finally, I was concerned that the initial draft had no mention of multimedia information in wireless emergency alerts. The September 2016 Further Notice specifically sought comment on this issue. And the New York City Emergency Management Department made a compelling case that it would have been very helpful if the alert about the Chelsea bombing in 2016, had included a photo of the suspect. So, I asked that the item include a Further Notice on multimedia information in these alerts. Although my colleagues would not agree to a Further Notice, I am pleased that they were willing to support directing the Public Safety and Homeland Security Bureau staff to issue a public notice to further develop the record on this issue.

So, for all of the reasons I have stated, this Order has my support. I thank Lisa Fowlkes and the dedicated staff of the Public Safety Homeland Security Bureau, for their work on this Order and my colleagues for working with me on this critical proceeding.



**STATEMENT OF  
COMMISSIONER MICHAEL O'RIELLY**

*Re: Wireless Emergency Alerts, PS Docket No. 15-91; Amendments to Part 11 of the Commission's Rules Regarding the Emergency Alert System, PS Docket No. 15-94.*

Everyone should be able to agree that providing agencies with the flexibility to pinpoint their wireless emergency alerts (WEA) to specific areas where there is a threat is an incredibly useful function. Public safety entities and industry are supportive of such geo-targeting capabilities and so am I. Therefore, I am generally in favor of today's order.

My concerns, however, center on the Commission's continuous need to mandate technologies before they may be ready, in timeframes that don't seem to be in line with the record. The notice that led to today's item, along with the Commission's Communications Security, Reliability, and Interoperability Council, commonly known as CSRIC, recommended that compliance should occur 42 months after adoption of a Commission Order. The wireless industry then said that they could probably do it faster and suggested 36 months.<sup>1</sup> Today's item adopts an inexplicable 22-month timeline based on no record evidence that this is actually achievable. Although wireless providers have stated that they will try to meet this aggressive timeline, they also stated that it will be incredibly challenging. Basically, the stars must align just right to make this happen in this time period.

While I understand that public safety entities want geo-targeting now, you cannot wish technology into existence. As the record reflects, further consideration is needed regarding how to effectuate geo-targeting, including such basics as the need for software or hardware changes and updated and new standards. This doesn't happen overnight. In fact, the standards setting bodies are still finalizing the last set of WEA changes the Commission passed, including Spanish-language messages and 360-character alerting requirements. Before these are even completed, and geo-targeting relies on the ability to send those longer alerts, we are adopting rules that will add additional requirements for standards setting bodies to work out. Based on the draft that was made public, the Alliance for Telecommunications Industry Solutions (ATIS) recently identified 25 standards that must be developed or modified to make geo-targeting possible.<sup>2</sup> Hopefully, this will be the end for a while. Let's not forget that a key priority for standard setting bodies should be 5G standards.

I also want to be clear that industry should be given the opportunity to figure out the best means to implement geo-targeting. It is paramount, in the context of public safety, that industry ensures that whatever means or technology they pick is tested and works. They should not be forced to cut corners or pick a lesser solution to meet an aspirational deadline. We went down this road for Phase II location accuracy, and it didn't work out well.

Therefore, if standards are delayed and industry needs more time to successfully deploy geo-targeting, I will be supportive of extending the November 30, 2019 deadline. For this reason, I am pleased that the Chairman agreed to my request to add language that the Commission will entertain a waiver of the 22-month deadline if the standards process is prolonged.<sup>3</sup> Ultimately, we must remember

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<sup>1</sup> See, e.g., *Ex Parte* Letter from Matthew Gerst, Assistant Vice President-Regulatory Affairs, CTIA, to Marlene H. Dortch, Secretary, Federal Communications Commission, PS Docket No. 15-91 (Dec. 21, 2017); *Ex Parte* Letter from Rebecca Murphy Thompson, General Counsel & Executive Vice President, Competitive Carriers Association, to Marlene H. Dortch, Secretary, Federal Communications Commission, PS Docket No. 15-91 (Dec. 29, 2017).

<sup>2</sup> See *Ex Parte* Letter from Thomas Goode, General Counsel, ATIS, to Marlene H. Dortch, Secretary, Federal Communications Commission, PS Docket No. 15-91 (Jan. 23, 2018).

<sup>3</sup> *Supra* note 78.

that this is a voluntary program. We certainly do not want providers opting out of the program because they cannot set the standards and integrate this functionality in 22 months.

This brings me to the cost-benefit analysis. While I remain skeptical of the flawed value of a statistical life metric and while some assumptions are made with little to no support, I appreciate efforts by the Chairman's Office and staff to improve this part of the item. Going forward, we should work towards improving cost-benefit analyses to ensure that they are based in fact and that there is actual proof or a high probability that the stated benefits will actually accrue from the burdens we impose. I hope under the new Office of Economics and Analytics, which we establish in a separate item, we can work on a framework in which any proposed rule must be shown to have a statistically significant likelihood of correlation or causation to any suggested benefit.

Further, I thank the Chairman for incorporating some of my additional edits, such as adding language to ensure that, for device-based solutions, the coordinate points and visible text fit within 360 characters.<sup>4</sup> I also thank the staff for all of the work they dedicated to this issue especially given the intense focus over the past few weeks after the unfortunate false alert in Hawaii.

I approve.

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<sup>4</sup> *Supra* note 43.

**STATEMENT OF  
COMMISSIONER BRENDAN CARR**

Re: *Wireless Emergency Alerts*, PS Docket No. 15-91; *Amendments to Part 11 of the Commission's Rules Regarding the Emergency Alert System*, PS Docket No. 15-94.

Wireless Emergency Alerts (WEAs) save lives. From a National Weather Service warning about an approaching hurricane, to AMBER alerts that bring a child home safely, emergency managers have sent more than 33,000 alerts aimed at keeping the public safe.

But an ineffective WEA system is no system at all. If emergency managers cannot count on the system to deliver their messages on-time and to the intended area—or if the public loses trust in WEAs' reliability—officials and the public will opt out. And a system that delivers few alerts to a dwindling audience becomes an afterthought rather than a life-saving tool.

Recent events in California and Hawaii remind us of the urgency of improving WEA. The massive wildfires that swept through Northern California in October caused the evacuation of tens of thousands of residents. The WEA system was designed for precisely this sort of situation: when lives and property are at stake, when a large number of Americans need to receive instructions, and when time is of the essence. Yet there are reports that officials in California chose not to use WEA because it lacks precise targeting. They feared the unintended consequences of alerting too many residents to evacuate.

We all have heard stories of the unthinkable panic that the people of Hawaii faced on the morning of January 13th. Many Hawaiian residents thought that their lives and the lives of their loved ones were at risk. It appears now that a series of errors caused those 38 minutes of confusion and fear. I commend the Chairman and the Public Safety and Homeland Security Bureau for immediately initiating an investigation into what went wrong in Hawaii. Whatever the cause, the false alert was inexcusable and unacceptable, and I am eager to continue exercising our oversight responsibility over the system.

Our experience with WEA over the last five years, and the significant submissions from the public safety community in the record, support the Commission's actions today. We now require that WEAs match the message originator's target area, to reduce the likelihood of overwarning and warning fatigue. We require that messages be preserved for 24 hours so that the public can review and share alerts after they have been sent. And we provide guidance on how legacy networks and devices can continue to comply with our rules.

In selecting the new deadlines, the Commission has attempted to balance the urgency we all feel to improve the WEA system with the speed at which the technology and standards are developing. I am confident that the Commission will continue to work with all stakeholders on implementing these upgrades and do so based on the recognition that working quickly and effectively together will save lives.

So thank you to the staff of the Public Safety and Homeland Security Bureau for all of your work on this item. I am pleased to support it.

**STATEMENT OF  
COMMISSIONER JESSICA ROSENWORCEL**

*Re: Wireless Emergency Alerts, PS Docket No. 15-91; Amendments to Part 11 of the Commission's Rules Regarding the Emergency Alert System, PS Docket No. 15-94.*

Our emergency alert systems were first designed for war and then rebuilt for peace. In the wake of the September 11th attacks, we reimagined them again for the smartphone era. Today, Wireless Emergency Alerts are a powerful tool to quickly send messages to people in imminent danger. Ninety characters to the right person at the right time can mean the difference between life and death. These messages have already saved countless lives and helped avert many more tragedies.

This past year, however, exposed too many shortcomings in our emergency alert systems. We saw this quite clearly earlier this month with the harrowing false alert announcing a ballistic missile attack in Hawaii. On top of this, last year was one of the most devastating on record for natural disasters in the United States. California experienced its most destructive and largest wildfire season, burning 1.2 million acres of land and killing 46 people. Hurricane Harvey shattered rainfall records for a single tropical storm, flooding parts of Texas with more than 4 feet of rain. Puerto Rico is still recovering from when Hurricane Maria made landfall on the island four months ago. More than 1,000 people died in the storm and its aftermath. Thirty percent of the island remains without power. And Puerto Rico is still waiting for a report and plan for communications recovery from this agency.

In too many cases in the last year, Wireless Emergency Alerts failed to perform. In California and Texas, for instance, emergency services were unable to transmit these messages because they were unable to target them accurately enough to ensure that they would help those in danger and not cause panic among those beyond the area of concern. That's troubling. Moreover, it's a problem when the repeated imprecision of these alerts causes those who receive them to disregard warnings. We've seen this happen before with destructive weather in areas where tornado sirens have been sounded too many times over too large an area overstating the scope of danger.

That is why in November of last year I urged the FCC to act swiftly to require more granular geotargeting. For this reason, I fully support the actions the agency is taking today. The rules we adopt here can significantly increase the precision of Wireless Emergency Alerts. As a result, they reduce the danger of over-alerting, making their use more effective, more efficient, and more likely to save lives.

It's also important that we do not stop here. We need to watch technical issues impacting the targeted availability of Wireless Emergency Alerts—and be on guard for ways these issues can be resolved so that everyone gets the emergency warning they need. We need to consider multimedia use in alerts, “many-to-one” feedback capabilities, and multilingual messaging. The record on these issues is already robust. So let's do something bold—and take them on now before the next disaster or crisis compels us to do so.