WEA 2.0 Regulatory Update

In response to Executive Order 13407[1], the 109th Congress passed the *Warning, Alert, and Response Network Act* (*WARN Act*). Enacted on October 13, 2006, the *WARN Act* called for establishing a National Alert System to provide a public communications system capable of alerting the public on a national, regional, or local basis to emergencies requiring a public response. The WARN Act expanded government-issued emergency alert communications to mobile devices. These messages would be created by authorized alerting authorities which may include city and state elected officials or their designees, and local emergency managers, among others. In the original Wireless Emergency Alert (WEA) regulations, referred to as WEA 1.0, there were three categories of alert messages: *Presidential Alert*, *Imminent Threat Alert,* and *Child Abduction Emergency/AMBER Alerts*. The WEA 1.0 regulations prohibited embedded references, such as hyperlinked Uniform Resource Locators (URLs) and phone numbers, and restricted WEA messages to a maximum of 90 alphanumeric characters (i.e., short-form messages). WEA regulations allowed for the use of unique sound and vibrations signals, specifically aimed at making message notifications accessible to people with sensory disabilities. On April 7, 2012, the first WEA message was sent. WEA 1.0 was active for four years before the FCC published a Fourth Report and Order[2] in September of 2016, enhancing the system with updates to the WEA regulations referred to hereafter as WEA 2.0. In WEA 2.0, the FCC increased the maximum character length for WEA messages from 90 alphanumeric characters to 360 alphanumeric characters (i.e., long-form messages). WEA 2.0 also established a new alert category (Public Safety Messages), allowed support for embedded references (hyperlinked URLs and phone numbers), and introduced Spanish-language alert messages. Finally, WEA 2.0 established state and local WEA testing support by approved alerting authorities.

Background

The paper, "Evaluating the Impact of WEA 2.0 Regulations on WEA Message Content Accessibility," explores the accessibility of emergency management message content. Prior survey research queried 425 FEMA-approved Integrated Public Alert and Warning System (IPAWS) alerting authorities and people with disabilities and identified factors that could

[1] Executive Order 13407—*Public Alert and Warning System* June, 26, 2006
[2] [FCC 16-127; PS Docket No. 15-91]

potentially impact the accessibility of emergency messages.[3] Alert originator concerns largely focused on the message content. "Those posting them [WEAs] should be mindful of the fact that the public at large likely do not fully understand their inside shorthand so that they can ensure clarity," shared an alert originator. Concerns over the use of jargon, abbreviations, and acronyms were confirmed in a 2014 review of 9,135 archived WEA messages[4] that found 99% of the messages included an abbreviation or acronym, which might have been confusing to some recipients. This current study replicates the 2014 study, evaluating methods that alert originators can use to reduce accessibility barriers in WEA message content. The IPAWS dataset analyzed in the current study included messages from June 1, 2012, to September 14, 2020, and contained 56,513 WEA messages.

Methods
Utilizing the same coding schema from the 2014 study allowed researchers to observe change in messaging over time. The codes included use of jargon, abbreviations, and acronyms (JAA); no action/instructions given; no sending agency included, and vague messages. The use of jargon, abbreviations, and acronyms was operationalized as emergency management phrases that are not plain English, such as "W/F," "CDT," "Seda," "wht." These forms of jargon and abbreviations reduce the accessibility of the messages for people with disabilities and non-native English speakers.[5] The second code, "no action/instructions given," referred to messages where the public agency did not offer any specific protective actions in the WEA message. This code appeared in instances when the sending agency would use language such as "monitor your radio and tv," or "call 511" for more information. This reference to other sources of information is problematic for some people with disabilities as those sources may not be consistently accessible. In the prior study, participants observed that this absence of information reduced (perceived) trustworthiness of the message and the likelihood that they would take protective actions. The inclusion of URL links and phone numbers were also included in the analysis. Active URLs and dialable phone numbers can provide more detailed emergency information in accessible formats. The raw data Excel file was analyzed separately for each category using the "Find" key to locate these instances and codes.

Summary Results
Overall, across all features for measures of WEA message accessibility, there were 148,524 instances of reduced accessibility in the 2012-2020 dataset. Of the 5,209 long-form text messages in the dataset, there were 8,802 occurrences of jargon, phrases, abbreviations, and acronyms which indicates that some messages had more than one instance of reduced accessibility by using

[3]H. Mitchell, S. LaForce, D. Bennett, L. Levy, K. Chiodo, & F. Lucia. *Gaps in WEA effectiveness for people with disabilities* [Research Report]. FEMA's IPAWS PMO, contract # HSFE5-13-R-0031, 2014.

[4] Wireless RERC (2015). *Wireless Emergency Alerts (WEA) / Emergency Alert System (EAS) Survey Comparison.* https://www.wirelessrerc.gatech.edu/sites/default/files/publications/wea_eas_researchbrief_final_1.pdf

[5] Mitchell, H., LaForce, S., Bennett, D., Levy, L., Chiodo, K., Lucia, F. "Gaps in WEA Effectiveness for people with disabilities," FEMA's IPAWS PMO, contract # HSFE5-13-R-0031, October 2014.

a combination of accessibility limiting factors in the same message (e.g., "Silver Alert" and "CDT"). To understand the impact of long-form messages on message accessibility, equal groups were created. Instances of inaccessibility were calculated in the ten months preceding when WEA 2.0 became effective (February 18, 2019–December 17, 2020) and ten months after WEA 2.0 became effective (December 18, 2019–September 2020). The results showed that the pre-WEA 2.0 short-form messages had 20,344 instances of reduced accessibility, while the post-WEA 2.0 long-form messages had 8,998 instances of reduced accessibility. This comparison evidences that long-form messages produced 11,346 fewer (44% less) instances of reduced accessibility. We surmise this to be a consequence of the long-form message diminishing the reliance on abbreviations and acronyms to make the message content fit into 90 characters.

In the WEA 2.0 regulatory update, the FCC permitted hyperlinked (i.e., touch-to-call) phone numbers and clickable URLs. Prior to the updates, phone numbers and links were text-based, i.e., inactive. Persons who received these unclickable telephone numbers in the WEA message would be required to enter the number manually. This method is ineffective during emergencies because it requires an additional step for users and opens the possibility of mistyping or misremembering the telephone number. For people with learning disabilities, like Dyscalculia, the manual re-entry of a phone number from the WEA message to the dial-pad adds a layer of complexity. Touch-to-call phone numbers increase accessibility by allowing consumers to click the telephone number and connect to the appropriate service. Likewise, hyperlinked URLs allow for accessing more detailed emergency information more expediently and enables the presentation of emergency information in accessible formats. Between 2012 and 2016, 92 WEA messages included a text-based telephone number, and from 2017 to 2020, 334 messages included a touch-to-call phone number. Likewise, there was a steep uptick in URL usage from 11 to 875 in the short-form messages and 689 in the long-form messages. However, the increase in active phone numbers and URLs only account for a fraction of total messages sent during the 2017-2020 period, 1.19% and 5.6%, respectively.

Summary Conclusion and Recommendations
The examination of IPAWS WEA messages over the last eight years revealed a gradual and relative improvement in accessibility. After the WEA 2.0 regulations became effective and enforceable, there were fewer inaccessible elements in WEA messages. However, the regulatory change does not appear to completely eliminate the influence of acquired knowledge, habit, and resultant practices of alert originators, explaining, in part, why inaccessible elements in WEA messages persist. With an alert originator training intervention, WEA message accessibility could be bolstered even further than the WEA rule changes alone achieved.

WEA 2.0 allowed for URLs in WEA messages, which could provide additional information about the emergency event and protective actions in accessible formats, such as ASL interpretation, screen reader access, and font enlargement, to name a few. However, the total use of URLs in

WEA 2.0 messages was nominal. Training alert originators about the need to accelerate the use of URLs in WEA messages, the value of URL inclusion, and providing practical advice on standardizing URL implementation is recommended.

The full study is available in the Journal of Emergency Management and Disaster Communications (JEMDC): LaForce, S. & Bright, D. (2022) Evaluating the Impact of WEA 2.0 Regulations on WEA Message Content Accessibility. *Journal of Emergency Management and Disaster Communications, 1-19.*