July 18, 2017

Via FCC Electronic Comment Filing System

Ms. Marlene Dortch

Secretary

Federal Communications Commission

445 12th Street, SW

Washington, DC 20554

Re: Wireless Emergency Alerts (WEA) – Proceeding 15-91 and 15-94

Dear Ms. Dortch:

At the request of the FCC, I met with members of the FCC Public Safety and Homeland Security Bureau on July 10, 2017. Attendees from the FCC included James Wiley, Linda Nagel, Eric Manski, and David Mansor. We discussed several aspects of Wireless Emergency Alerts (WEA) related to Proceeding 15-91 and 15-94 including Geo-targeting, Multimedia, Alert Preservation, and Disaster Relief Two Way Messaging. The following notes are intended to memorialize the discussion.

Summary

Improvements need to be made that increase WEA’s effectiveness at saving lives and the general public’s trust in WEA. The NWS and other publicly safety agencies have stated in previous filings to the commission, and we wish to reiterate in this filing, that there is a pressing need is for device-assisted geo-targeting. Device assisted geo-targeting provides comparison of the actual alert area to the device’s known, or approximately known location, such that if the device is within the alert area, the alert is rendered on the device.

Geo-targeting

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.

Emergency Management (EM) officials, from various parts of the country, have stated in multiple FCC filings that highly accurate geo-targeting is necessary to prevent alert fatigue and unnecessary panic. The NWS, who partners with EM officials to provide life-saving information and effective disaster response, agrees. Over the past decade, there has been a proliferation of mobile devices with applications that leverage the device’s location finding capabilities to provide highly geo-targeted information. Based on complaints from the general public over the past few years about WEA messages reaching outside the actual threat area, it is clear the general public has come to expect more accurate geo-targeting from WEA.

The NWS has a need to maximize the distribution of WEA messages to mobile devices inside the actual threat while eliminating the rendering of WEA messages on mobile devices outside the actual threat area. The NWS also recognizes that the general public may wish to receive WEA messages for more than one location, such as the location of their home, children’s school, place of business, or commuting route. Users should be provided with the capability to easily and explicitly define these locations.

Due to the nature of cell broadcast geo-targeting, WEA often overreaches and activates cell phones that are a few or more miles outside the actual threat area as defined by the alerting authority. Below are a few recent examples where NWS received complaints about geo-targeting from EM officials and the general public.

On July 2 and 3, 2017, the NWS office in Norman, Oklahoma issued Flash Flood and Tornado Warnings that resulted in the activation of WEA on cell phones up to 15 miles outside the NWS defined polygon warning area (see Figures 1 and 2). Device assisted geo-targeting would have much more accurately geo-targeted the WEA by rendering it only on mobile devices in the path of the threat as defined by NWS.

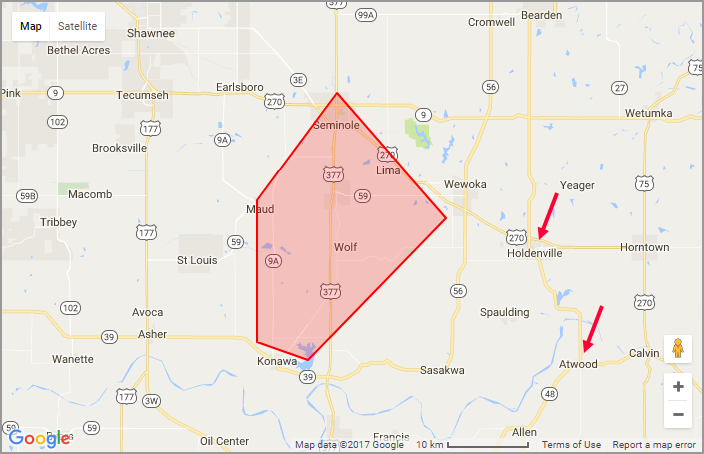


Figure 1. Flash Flood Warning polygon issued by NWS Norman, Oklahoma at 418 pm CDT July 2, 2017. WEA received in Holdenville as well as Atwood which is about 15 miles from the edge of the polygon.

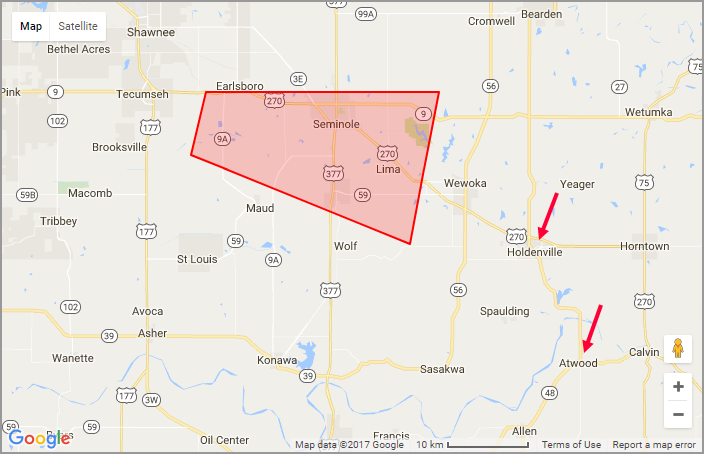


Figure 2. Tornado Warning polygon issued by NWS Norman, Oklahoma at 1030 pm CDT July 3, 2017. WEA was received in Holdenville and Atwood as depicted by the red arrows.

NWS also receives complaints about cases where alerts reach cell phones located hundreds of miles outside the actual threat area. On July 11 and 12, 2017, two Flash Flood Warnings for the Chicago area resulted in the activation of WEA on cell phones near Denver, Kansas City, and Green Bay (see Figure 3). On March 30 and July 9, 2017, Dust Storm Warnings issued by NWS offices in Las Vegas, Nevada and Phoenix, Arizona resulted in the activation of WEA on some cell phones in the San Francisco Bay Area. While alerts reaching hundreds of miles outside the alerting authority’s actual threat area are likely caused by some factor other than cell broadcast overreach, device assisted geo-targeting would have avoided this problem because WEA messages would have only been rendered on mobile devices in the actual threat area as defined by NWS.

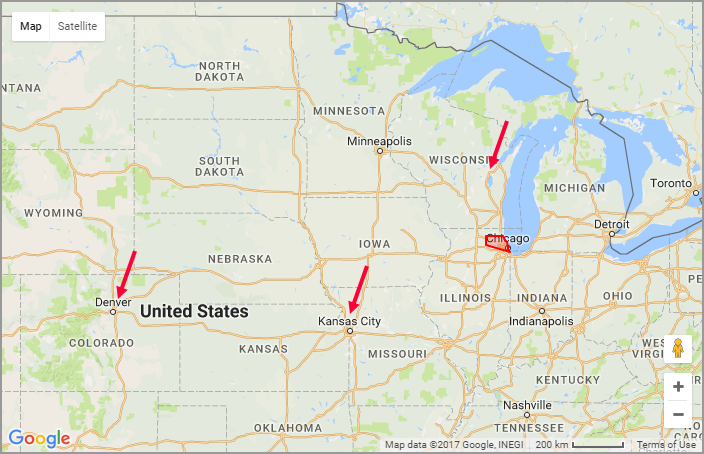


Figure 3. Flash Flood Warning issued by NWS Chicago, Illinois at 1044 pm CDT July 11, 2017. WEA was received in Colorado, Missouri, and Wisconsin as depicted by the red arrows.

The commission is aware of a study funded by the Department of Homeland Security in which Carnegie Mellon University developed a technique that significantly reduces the amount of data required to convey the location, size, and shape of an NWS alert polygon. As stated in previous NWS filings, only a portion of the future 360 character WEA transmission is necessary to carry the vertices of an NWS alert polygon for device-assisted geo-targeting and other device-based capabilities that could leverage it. The other portion of the WEA transmission would include the displayable WEA message. Allocation of the 360 characters for the polygon and displayable WEA message might be pre-defined or done in real-time, where the alert author draws the polygon and the authoring tool allocates remaining space for the displayable WEA message.

Multimedia

The NWS wishes to reiterate the need for WEA to display a map of the recipient’s location relative to the threat area. This is necessary in order to better personalize the threat and increase the likelihood that people in the path of the threat take decisive life-saving action. Once the alert polygon vertices are broadcast to the device for device-assisted geo-targeting, the same vertices may be used plot the recipient’s location relative to the threat area. WEA may leverage maps that are already built into the device (e.g. Google Maps, Apple Maps, etc.) or other maps included as part of the WEA application.

While cell broadcast will be limited to 360 characters for the foreseeable future, WEA could leverage built-in capabilities to render supporting life-saving information in graphical, audio, or disability friendly formats. For example, life-saving instructions in video, audio, textual, or other formats could be built into the application and rendered automatically upon receipt of the WEA message or recalled at the request of the recipient.

Alert Preservation

WEA recipients should be able to immediately recall valid (i.e. still in effect) WEA messages that have been dismissed. There are multiple reasons for this. For example, a WEA recipient may inadvertently dismiss a life-saving WEA message or dismiss the WEA message to avoid interruption, such as when in a meeting or performing another activity. In other cases, the recipient may need to go back and review life-saving information.

Since WEA's deployment in 2012, many WEA issues have been reported to the NWS by the general public and EM officials. Each of these issues requires the NWS to go back and obtain substantive information from the recipient (e.g. screen capture of the WEA on the recipient’s device, time when and location where the WEA was received, etc.) in order for the carrier to investigate and resolve the matter. Thus, WEA messages should be archived and accessible on the device for at least two weeks from receipt.

WEA is a life-saving tool that should continue to be pre-installed on every device, rather than a voluntary download from an application store. However, the NWS is in favor of downloadable updates to WEA that provide life-saving enhancements.

Two Way Messaging

If WEA were to eventually include a two-way messaging capability that allows for tracking participation in WEA and/or the ability to gain additional information, NWS could leverage this capability. The NWS may seek real-time feedback from WEA message recipients such as reports on extreme weather hazards, storm damage, flooding, power outages, impacted populations requiring assistance, or other valuable emergency information relevant to NWS public safety partners.

Conclusion

**WEA notifications must keep pace with advancements in wireless technology, mobile devices, and the evolving capabilities of alerting authorities.** For example, NOAA’s National Severe Storm Laboratory is already experimenting with capabilities such as Forecasting a Continuum of Environment Threats (FACETS) which is more dynamic than a static warning polygon (See http://www.nssl.noaa.gov/projects/facets ).

In a December 8, 2016 filing to the FCC, AT&T urged “investigation of the feasibility of using a software application that is controlled and managed by a trusted source for these and other WEA enhancements through an industry-led standards effort in ATIS”. Alternatively, and in addition, the NWS would support an Application Programming Interface (API) to WEA for trusted developers who can see the needed enhancements to fruition. The bottom line is that **WEA should be managed in whatever way necessary in order to achieve these goals outlined in this filing in a timely manner and as long as it is in the best interest of public safety.**

Sincerely,

/s/ Michael E. Gerber

Physical Scientist, Office of Dissemination

NOAA/National Weather Service