Comments on Notice of Proposed Rule-making, PS Docket No. 15-91
Improving Wireless Emergency Alerts and Community-Initiated Alerting

United States Geological Survey

The U.S. Geological Survey (USGS) is the Federal agency responsible for monitoring and notification of earthquakes, volcanic activity, and landslides in the United States. As part of the four-agency National Earthquake Hazard Reduction Program, the USGS is authorized by the Earthquake Hazards Reduction Act of 1977, 42 U.S.C. §§ 7701 et seq, to provide public warnings of imminent strong earthquake shaking, commonly known as Earthquake Early Warning (EEW). In cooperation with university, state, private sector and other partners, the USGS has developed an EEW system, called ShakeAlert, that can be used to initiate automated actions and warn individuals in order to enhance personal safety and reduce losses to critical infrastructure. Very fast mass distribution of these alerts is a critical component of the system, and USGS is an authorized alert originator for WEA messages. However, the effectiveness of public EEW alerts over WEA is seriously hampered by current limitations of the WEA system, some of which are addressed in the proposed rules changes. These are described below.

A. WEA Messaging
1. INCREASING MAXIMUM WEA CHARACTER LENGTH

We favor increasing the maximum length of messages to 360 characters of alphanumeric text. This will allow much richer content to be carried in each message. We support a single compliance date of 1-year after adoption and do not support co-existence of 90- and 360-character WEA messages. This would cause confusion and force use of the 90-character limit to ensure proper delivery across the board, thus nullifying the change. Implementation should not be tied to external milestone, as this could delay progress indefinitely.

2. CLASSIFYING EMERGENCY GOVERNMENT INFORMATION

Other classes of alerts should be considered for inclusion in WEA. Specifically, a machine-readable alert type is needed that could be captured and interpreted by phone apps for particular purposes. In the case of EEW alerts, cell broadcast via WEA is the most efficient way to notify the public that they are about to experience heavy shaking. The severity and time of arrival of that shaking could be easily calculated by a phone app based on each individual's location. A message type that would make this possible is critical to maximizing the public safety impact of EEW and other hazard warnings.

The assumption that WEA message content will only be viewed directly by humans severely limits its usefulness. Likewise, the assumption that the phone will respond only with a preconfigured tone, cadence, and message precludes the possibility of developing apps that provide greater functionality that uses the user's location and context. More sophisticated logic could give context-specific instructions if someone is, for example, driving, in a tall building, or in a tsunami zone.

3. CONTENT IN WEA ALERTS

We support allowing embedded phone numbers and URLs in messages. Social science research tells us that people's first reaction to emergency alerts is to seek confirmation. This can be provided by websites.

4. PROVIDING MULTILINGUAL WEA MESSAGES

We support having the capability to transmit emergency messages in other languages and to those with disabilities.

B. WEA GEO-TARGETING

We strongly support enhanced geo-targeting. Hazards do not respect borders or artificial boundaries. The Common Alert Protocol (CAP) message format used by IPAWS can define an affected region using circles, polygons, or SAME/FIPS regions. WEA should fully support all of these approaches. In the case of EEW, the ShakeAlert system can define polygons within which different levels of shaking will be felt and, therefore, different actions should be taken. With precise geo-targeting using polygons this detail can be broadcast via WEA. Any limits on the number of vertices or the shape of a valid polygon must be explicitly documented for the sake of both originators and receivers. We also support adoption of techniques like those developed at Carnegie Mellon to reduce the size of polygon vertices and embed them in WEA messages.

More precise geo-targeting will reduce "over alerting" which undermines public confidence in the system.

We also support pursuing geo-targeting using network-based, device-based, and third-party-assisted solutions. "Smart" devices are now ubiquitous and it is irresponsible not to harness their capabilities to refine and customize alerts.

E. WEA ATTENTION SIGNALS AND PUBLIC SERVICE ANNOUNCEMENT

We support allowing broadcast and transmission of the WEA Attention Signal as part of PSAs in order to raise public awareness about WEA. Training and education is critical to effective use of the system, including demonstrating the alert sounds. However, the current language limiting use to "government-developed" PSAs is too restrictive and would prevent NGOs from doing local PSAs. .

G. PRIORITIZATION

We strongly agree that some critical alert types be given higher priority and be allowed to preempt all voice and data sessions. In the case of EEW, blocking an alert due to a phone call or data session could mean the difference between life and death for the recipient.

| Douglas Given, Earthquake Early Warning Coordinator
| U.S. Geological Survey
| Earthquake Hazards Program
| doug@usgs.gov