**INTERGOVERNMENTAL ADVISORY COMMITTEE**

**to the**

**FEDERAL COMMUNICATIONS COMMISSION**

**ADVISORY RECOMMENDATION No: 2019-5**

**In the Matter of Multilingual Emergency Alerting**

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## I.  INTRODUCTION

The Federal Communications Commission's (FCC) Intergovernmental Advisory Committee (IAC) met at FCC headquarters on October 4, 2018, March 22, 2019, and on June 14, 2019.  The IAC is comprised of elected and appointed state, local, Tribal and territorial (SLTT) officials.  At its October meeting, the IAC was tasked with recommending ways to promote the delivery of multilingual emergency alerts to those who communicate in a language other than English or may have a limited understanding of the English language.  Specifically, the IAC was asked to develop best practices with respect to two aspects of multilingual emergency alerting:

- Best practices for incorporating multilingual alerts into states' emergency communications and response plans.[1]
- Best practices for the events that trigger an alert.  These best practices would explore the nexus between alerting procedures and state/local emergency response procedures required under the National Incident Management System (NIMS).[2]

Further, the IAC determined that the inclusion of not only those with a limited understanding of English should be included, but also those with disabilities, as the challenges have many similarities.  These concepts guided our exploration of the current and potential emergency alerting practices.  Use of this principle challenges us to think beyond the current practices and to new possibilities.

Accordingly, the IAC chose to frame this work with a fundamental principle:

*We should assume communities have the responsibility to alert ALL people in their geographic parameters of emergency situations, regardless of language or disability.*

As the IAC task force began its work on this project, we acknowledged that an advisory committee comprised of elected and appointed state, local, Tribal and territorial officials may not be subject matter experts on the current emergency alerting technology and that making recommendations on multilingual alerting—to meet the goals of providing emergency alert messages to the entire population, in multiple languages, understandable to persons with a variety of disabilities, and across the wide variety of delivery systems—would be difficult.  However, our recommendations herein are guided and informed through a combination of FCC staff presentations, interviews and webinars from various individuals and stakeholders around the country, and through insights gleaned from the panelists at the June 28, 2019, FCC Workshop, "Promoting the Use of Multilingual Emergency Alerting."  Our recommendations represent a policy-focused review of problems and limitations with the current system, identifies goals for multilingual emergency alerting, and provides policy-oriented recommendations.[3]

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[1] For the purposes of this report, we include State EAS Plans within the definition of states' emergency communications and response plans.  State EAS Plans are drafted by State Emergency Communications Committees (SECCs) pursuant to section 11.21 of the Commission's EAS rules.  *See* 47 CFR §11.21.  SECCs are volunteer organizations composed of state broadcast associations, EAS Participants, emergency management personnel, and other EAS stakeholders.  SECCs prepare coordinated emergency communications systems and develop state and local emergency communications plans and procedures for EAS alert dissemination in both the EAS Protocol and CAP, as well as other public alert and warning systems the state may use in combination with EAS.  *See* Amendment of Part 11 of the Commission's Rules Regarding the Emergency Alert System, *Notice of Proposed Rulemaking*, 31 FCC Rcd 594, 599-600 (2016).

[2] Actions of SLTT Emergency Managers should be in coordination with FEMA and NIMS and consistent with State SECC Plans.

[3] For ease of review, some foundational material may not be specifically cited herein.

Our discussion is organized as follows:

- Delivering the Alert
- Understanding the Alert
- Trusting the Alert
- Responding to the Alert
- State Experience
- Emergency Communications on Tribal Lands
- Access to Emergency Alerting for People with Disabilities
- Conclusions
- Recommendations

These categories contain some ideas that are universal for emergency alerting and beyond the boundaries of multilingual alerting yet are important to lay a foundation of best practice recommendations by the IAC.

## II.       DISCUSSION

### A.       Delivering the Alert

This section discusses the various methods used to deliver an emergency alert and identifies some of the challenges and limitations of each as they pertain to our objective.  Importantly, these methods relate to all emergency alerts and not just to those alerts to reach the multilingual communities and individuals with disabilities.

It is important to recognize the differences between an emergency alert prior to an emergency and emergency information during and after an event.  Emergency alerts are generally pre-emptive, where emergency information gives information to the public on what to do during and after the event like instructions on who to call or where to get food and shelter.

### 1.       EAS–Emergency Alert System

The Emergency Alert System (EAS)[4] is a national public warning system through which broadcasters, cable systems, and other EAS Participants[5] deliver alerts to the public to warn them of impending emergencies and dangers to life and property.  The primary purpose of the EAS is to provide the President with "the capability to provide immediate communications and information to the general public at the National, State and Local Area levels during periods of national emergency."[6]  The EAS also is used to distribute alerts issued by state and local governments, as well as by the National Weather Service (NWS).

The EAS is a broadcast-based, hierarchical alert message distribution system in which an alert message originator at the local, state, or national level encodes (or arranges to have encoded) a message in the EAS Protocol.  The alert is then broadcast from one or more EAS Participants, and subsequently

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[4] A good description of EAS, WEA, IPAWS and CAP can be found at https://www.fcc.gov/document/fcc-report-2018-nationwide-emergency-alert-test, Appendix: "How WEA and EAS Work."

[5] The EAS uses the transmission facilities of radio and television broadcast stations, cable operators, satellite radio and television service providers, and wireline video service providers (collectively referred to as "EAS Participants").  *See* 47 CFR § 11.2(c).

[6] 47 CFR § 11.1.

relayed from one station to another until all affected EAS Participants have received the alert and delivered it to the public. This process of EAS alert distribution among EAS Participants is often referred as the "daisy chain" distribution architecture.[7] Because this EAS architecture has been in place since the inception of the EAS, it is also referred to as the "legacy EAS." This legacy EAS architecture provides certain inherent operational benefits, including a robust capability to provide the public with alerts even after damage to the electrical power grid.[8] The legacy EAS remains the backbone for distributing information between EAS Participants via the daisy chain process.

Since June 30, 2012, authorized emergency alert authorities also have been able to distribute EAS alerts over the Internet to EAS Participants (who in turn deliver the alert to the public) by formatting those alerts in the Common Alerting Protocol (CAP)[9] and delivering those alerts through the FEMA administered Integrated Public Alert and Warning System (IPAWS). This CAP-based process for distributing alerts to EAS Participants represents the "IP-based EAS."

The Code of Federal Regulations relates how messages are originated, coded and broadcast and otherwise delivered via audio and visual crawls and how they are monitored throughout the daisy chain alert distribution cycle.[10] In terms of timing, state and local EAS alerts are required to be broadcast within fifteen minutes of receipt, and the alert messages themselves are typically limited to a duration of two minutes.[11]

Critical gaps to delivery of alerts through EAS are:

- Streaming video—The trends point to a large shift in the number of people who watch streaming video versus broadcast or cable (cord-cutters). EAS alerts do not scroll on or interrupt streaming video. This leaves a large and growing population vulnerable and unable to receive alerts.
- Digital broadcast (multicast) channels—Primary broadcast channels carry the alerts, however the secondary broadcast channels, even though required to do so under FCC rules, do not consistently carry these alerts (i.e., channel 4.1 is primary and does, but channels 4.2, 4.3 and 4.4 do not). While we are unsure of the numbers of people who watch the secondary channels, those who do may be vulnerable and unable to receive the alerts.
- Gaming platforms—Emergency alerts do not interrupt interactive gaming platforms.

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[7] At the national level, EAS message distribution starts at Primary Entry Point (PEP) stations, which are a group of geographically diverse, high power radio stations designated and tasked by FEMA to transmit "Presidential Level" messages initiated by FEMA. At the state level, state governors and state and local emergency operations managers activate the EAS by utilizing state-designated EAS entry points – specifically, State Primary stations and "State Relay" stations.

[8] *See Fifth Report and Order*, 27 FCC Rcd at 654-55, para. 27.

[9] CAP is an open, interoperable protocol that incorporates an XML-based language developed and widely used for web documents. Alerts formatted in CAP can include audio, video or data files, images, non-English translations of alerts, and links providing detailed information. *See* Report on 2017 Nationwide Emergency Alert System, 2018 WL 1805118 (2018). CAP messages contain standardized fields that facilitate interoperability between and among devices, and are backwards-compatible with the EAS Protocol. *See id.*

[10] 47 CFR § 11.31; *see also* 47 CFR § 11.51(d), (g)(3), (h)(3), (j)(2). For state and local alerts, EAS Participants broadcast any accompanying audio message on a permissive basis but are required to broadcast the Presidential audio associated with the federal Emergency Action Notification. *See* 47 CFR § 11.51(a)-(b).

[11] *See* 47 CFR §§ 11.51(n), 11.33(a)(9). Presidential Alerts and nationwide tests must be transmitted immediately upon receipt.

### 2. WEA

Wireless Emergency Alerts (WEA) is an opt-out alert notification system that can be enabled on most smartphones that were manufactured after 2012, depending on the whether the wireless provider has elected to participate in WEA. Except for Presidential alerts, people can elect not to receive locally originated WEA alerts, but they have to turn them off. Stakeholders inform us only a small number of people decide or even know how to do this, which solves the participation problem that affects commercial opt-in systems. A WEA alert on your phone uses the familiar EAS tone, vibration, and a pop-up message with text information.

The immediate benefits of WEA are:

- Widely available on most smartphones made after 2012.
- An opt-out system with a high participation rate.
- Uses geo-location so alerts are based on the phone's location and not a registered address. The geo-accuracy of these alerts has been greatly improved, and, as of November 30, 2019, wireless providers that participate in WEA are required to deliver alerts to the area specified by the alert originator with no more than one-tenth of a mile overshoot.
- WEA messages will be expanded to accommodate 360 characters, once FEMA adds support for this feature to IPAWS.
- WEA messages allow for the ability to embed a hyperlink that can direct the recipient to a website, video, or document that gives them more information about the alert and how to respond.
- Also waiting for FEMA to update the IPAWS platform is the requirement that WEA must deliver Spanish alerts provided by the alert originator.
- Following FEMA's updates to IPAWS, SLTT alert initiators will be able to conduct State/Local WEA tests to the public with opt-in participation without having to seek a waiver from the FCC.

Some challenges of WEA are:

- The technology can still be unreliable for WEA delivery and performance. When a WEA is issued, some phones receive it and some do not. It does not seem to be related to the model of the phone or the wireless provider.
- When creating a WEA warning area polygon on a map, for some providers only cell sites within the warning area polygon will be activated, even if cell sites outside the polygon are needed to reach the entire warning area.
- Lack of progress on needed improvements to the wireless providers' networks can limit the effectiveness of WEA. WEA is managed by wireless providers and accessed via FEMA's IPAWS.
- The process to issue a WEA is complicated. From the decision process to issue a WEA to interfacing with IPAWS, local tests have shown that it can take between 30-40 minutes to issue a WEA.
- The WEA capability was given to local jurisdictions with very little guidance on implementation and best practice from FEMA.

### 3. Amateur (ham) Radio

Ham radio's ability to operate when other telecommunications systems cannot, is critical to understand in this discussion. While many ham voice transmissions are in English, ham radio transmissions are not required, by rule, to be in English and other languages are common. Ham radio

operators also use Morse code and certain other digital modes instead of speech to convey messages.

Ham radio resources are available for emergency communications support to any public service agency and can bridge interoperability gaps between served agencies on a local, Tribal, and/or state level.[12]

Potential ham radio deployment locations include, but are not limited to, auxiliary command posts, emergency operations centers, emergency shelters, evacuation sites, fire stations, medical facilities, mobile disaster vehicles, police stations, public works sites, and volunteer intake centers. They can also be deployed to provide mobile links to:

- Create communications links between similar agencies across political boundaries, especially where there are misalignments in frequencies as assigned to the amateur radio service;
- Establish communications in locations outside the existing coverage areas of public service and commercial communications systems;
- "Shadow" critical public officials and emergency management personnel to facilitate constant and rapid contact;
- Monitor crucial infrastructure (such as highways and bridges) and provide periodic situation reports; and
- Provide periodic situation reports from observation posts (river levels, flooding, damaged areas).
- Serve hospitals' use of ham radio stations on premises. These systems are tested on a very regular basis. A typical emergency activity might be identifying which hospitals have the available capacity to accept injured after an event.
- Provide continuing communication support through ham radio after an event. An example, of this would be after a hurricane has blown through or a wildfire has been put out, and there is still no power or phone service, ham radio operators have provided on-going coordination of delivery of water and food to the survivors for weeks, as well as providing communications to families outside the disaster area.

### 4. Commercial Alerting Systems

Commercially available public alert and warning software is another tool that has been widely available for more than fifteen years. It provides excellent technology that can give jurisdictions a wide array of options for messaging the public. Typical systems can make phone calls, send emails and text messages, with some even providing their own smartphone applications. It also gives the message originator the ability to issue location-based notifications by drawing warning areas on a map. Systems like these are widely used throughout Arizona and across the country. Unfortunately, these systems have two major shortcomings that prevent them from being a reliable, primary means for issuing emergency alerts:

- They tend to be "opt-in" systems. This means that members of the public must register their phone numbers and email addresses if they are to receive the alert. Public participation in these opt-in systems is notoriously low. As an example, Maricopa County utilizes such a system called the Community Emergency Notification System (CENS). As of May 29, 2019, only .008% of Maricopa County's population is registered in CENS, which makes its effectiveness as a warning tool statistically insignificant.

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[12] https://www.domesticpreparedness.com/preparedness/ham-radio-in-emergency-operations/. As a provider of communications, ham radio falls under the Emergency Support Function #2 umbrella. See https://www.fema.gov/pdf/emergency/nrf/nrf-esf-02.pdf.

- The warning areas are based on physical addresses registered in the system, not the physical location of people. In other words, they do not use smartphone geolocation. This means that people visiting areas other than their home or work address will not receive a warning issued for that area.

### 5. The Emergence of Next-Generation TV (ATSC 3.0) and HD Radio

Emerging technologies will enhance the ability of EAS and WEA to include more robust translations, detailed instructions and more timely interactions with multilingual communities and individuals with disabilities. For example, the new television broadcast standard, ATSC 3.0, merges the capabilities of over-the-air (OTA) broadcasting with the broadband viewing and information delivery methods of the Internet, and will allow broadcasters to offer enhanced public safety capabilities, such as geo-targeting of emergency alerts to tailor information to particular communities, emergency alerting capable of waking up sleeping devices to warn consumers of imminent emergencies, and advanced accessibility options.[13] Similarly, the digital data capabilities High Definition (HD) radio technology enable digital broadcasters to "enhance their emergency messaging broadcasts by providing more rich and detailed content, including, for example, alternative languages, message text, pictures, and maps.[14]

### B. Understanding the Alert

In order for any of the emergency alerts to be effective and helpful, they must be delivered in a fashion that is understandable by all of the recipients of the alert. Each of the alert delivery systems have limitations in accomplishing this goal, yet there is a lot the current systems can do to provide multilingual alerts.

### 1. EAS

Both the legacy and IP-based EAS architectures are designed so that EAS Participants deliver to the public the alert content they receive from the EAS sources they monitor. Further, the EAS architecture and equipment is designed to operate automatically, both to minimize the risk of operator error and to facilitate EAS operation at unattended stations. Because the EAS is a top-down, closed, automated message distribution system in which alert messages are passed along from one entity to another—under tight technical tolerances required to ensure that the system functions properly—EAS Participants currently have a limited capacity to alter the content of the alert messages they receive, including translations of messages to alternate languages.

IPAWS based EAS that uses a CAP based alert allows an alert originator to initiate an alert in multiple languages that then are decoded by the EAS Participant and broadcast to the public. The legacy EAS cannot do this. The language used with the legacy EAS is primarily English and is baked into the system. An EAS Participant may choose to broadcast its translation after receiving the English based alert.

An EAS Participant seeking to broadcast a non-English language translation of the audio message

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[13] *See Authorizing Permissive Use of the "Next Generation" Broadcast Television Standard*, Report and Order and Further Notice of Proposed Rulemaking, 32 FCC Rcd 9930, 9931 (2017) (*Next Gen TV Report and Order and FNPRM*). *See also* ATSC Newsletter, *Special Report: Re-imagining: Emergency Alerting with ATSC 3.0.* , https://www.atsc.org/newsletter/special-report-re-imagining-emergency-alerting-with-atsc-3-0/ (2014) (noting capability of ATSC 3.0 to provide the prospect for broadcast viewers to select their language of choice for receiving emergency information).

[14] See Xperi Corporation White Paper, Upgrading the Emergency Alert system: HD Radio™, http://www.insideradio.com/app/Image2019/EASHD.pdf (2019)

contained in the EAS alert message it receives within the parameters of the EAS rules, would have to manually (1) ensure the entire length of the alert, including the translated audio portion, did not exceed two minutes, and (2) complete the translation and insertion processes within fifteen minutes. Although EAS Participants currently have limited capacity to alter the alert message content they receive, the Part 11 rules allow EAS Participants that provide non-English language programming to broadcast state and local EAS announcements in the primary language of the EAS Participant.[15] Accordingly, non-English language EAS Participants may, for example, broadcast required visual crawls in their primary language and include in such crawls translations of other language(s), if their equipment permits.

While there are mechanisms in place currently to distribute multilingual EAS alerts, FEMA cautions that some EAS equipment lack text-to-speech software to convert multilingual text in the CAP message into multilingual audio.[16]

Comments from Panel #1 of the FCC Workshop, "Promoting the Use of Multilingual Emergency Alerting," on June 28, 2019,[17] clearly indicated that alert originators are best positioned to effect multilingual alerting, since station operators simply pass down the EAS message as received within the allotted two-minute timeframe and, by and large, do not have the necessary capabilities and/or time to translate that alert into another language. While this may work in some cases, in others, the alert originators at the state or federal level are not in the best position as the local public safety officials further down the chain, to know whether certain segments of the local population require different language options in order to understand the emergency message. The Commission has observed that mandated "one size fits all" solutions to addressing the issue of multilingual EAS alert content and, more generally, non-EAS emergency information, may not account for the variance of key factors, such as the make-up of the local population or topography, that applies in each market. Rather, reliance by alert originators on census data, community outreach and locally targeted demographic surveys will more appropriately dictate the particular multilingual needs and nuances of the listening area – nuances that cannot be properly assessed and addressed with an across-the-board mandate. Nor would such mandates account for the varying levels of resources available to EAS Participants to implement solutions.

Key limitations of EAS to meet the principle of reaching all people regardless of their language or disability are:

- Resources/budgets of stations to translate the message.
- Resources and training for local originators to create the alerts in multiple languages in a timely fashion.
- Turnaround time to translate and broadcast the message.
- Coverage area of broadcasts likely encompass multiple languages, not always predictable. Minnesota TPT-Now Program translates into four languages, yet there are over 100 languages spoken in the state. New York City translates into thirteen languages, yet there are over 80 languages spoken, and Houston translates into six languages, yet there are over 145 languages spoken in that region. Census data only shows the people who live in a region, not all of the people who are present in a geographic area.
- Weaknesses of text-to-speech translation software in producing audio in multiple languages, including proper pronunciations and being culturally sensitive to the needs of those who speak different languages.

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[15] *See*, *e.g*., 47 CFR § 11.55(c)(4).

[16] FEMA IPAWS Program Office Comments at 1 (filed April 2, 2014).

[17] https://www.fcc.gov/news-events/events/2019/06/multilingual-alerting-workshop.

- To see or hear the alert, people need to be tuned into a broadcast.

### 2. WEA

The WEA system is a tool for authorized federal, state and local government entities to geographically target Presidential, imminent threat, and AMBER alerts to the WEA-capable mobile devices of participating commercial mobile service (CMS) providers' subscribers.[18] WEA is delivered through IPAWS which is based in CAP. The alert originator can break the alert into files such as audio or text in multiple languages. As of May 30, 2019, WEA is required to deliver alerts in Spanish. WEA alerts also have the ability to contain a hyperlink that can lead to multimedia resources, including enhanced information in different languages.

### 3. CAP/IPAWS

CAP provides alert originators with the capability to provide both enhanced text concerning an emergency condition (such as where to seek shelter) and multiple translations of such text, but such enhancements are not required. IPAWS is based in CAP and allows the use of language blocks that can be populated using a CAP authoring tool. The language blocks are sent through with the alert and those broadcasters and wireless providers can choose a primary and secondary language. IPAWS relies on the originators to make the translation, but also allows some flexibility for the downstream processes to choose the most appropriate language for their service area. IPAWS is currently limited to a Latin character set. Interested parties should check with FEMA at https://www.fema.gov/integrated-public-alert-warning-system for updates.

### 4. Low Power Radio/TV

When disaster occurs and large numbers of broadcast facilities go out of service, non-English speaking citizens may not have access to public alert and warning broadcasts. The FCC, FEMA, and Department of Defense (DoD) have developed an effective procedure to provide the necessary non-English emergency broadcasts. FEMA has prepared a pre-scripted mission assignment for deployment of DoD mobile, self-sustained AM/FM radio stations with multilingual broadcast capability during a disaster to provide English and multilingual public alert and warning broadcasts when the local broadcast capability has been severely damaged. When a DoD station is deployed, the FCC is charged with authorizing the frequency and power level, and coordinating the operation of the station with federal, state and local emergency operations officials, local broadcasters, and the state broadcasting association.

Many individuals with limited English proficiency (LEP) depend on low power TV (LPTV)stations for emergency alerts. The approximation of the number of individuals who would no longer be able to receive content in their own language if LPTV stations ceased to operate is estimated to be 100,000.

**Key Take-Aways on Understanding the Alert:**
- Translation capabilities are expanding and improving through EAS and WEA, and the best practice is to have the originators provide the alert in the different languages.
- There are census tools that could help the local originators better target to their non-English speaking populations.
- WEA is likely the best option of the current systems to reach individuals with disabilities.
- The use of embedded links offers an opportunity to help more people understand the alert through videos, PSAs, websites, and documents in their desired language. Training

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[18] *See*, *e.g.*, 47 CFR § 10.450 (geo-targeting); § 10.430 (character limit); § 10.400 (classification).

originators on the development of linkable content is critical to make the most of this opportunity.

- The toolbox of methods to allow understanding of alerts is important to reaching those in question, but gaps still remain. EAS and WEA are text-based alerts with accompanying alert messages and/or sounds. The gaps could be closed through complimentary, non-language-based alerting approaches.

### C.  Trusting the Alert

Emergency alerts should come from trusted sources. Trusted sources recognized today are:

- The President of the United States
- The National Weather Service
- State, local, county governments
    - Emergency management agencies
    - State police
- National Center for Missing and Exploited Children (NCMEC) for AMBER Alerts

EAS and WEA are closed and tightly regulated systems that ensure an efficient and trustworthy result. They provide an environment with accuracy and integrity where the message that is originated is the message that is received. Translation at origination seems important to ensure the accuracy and integrity of the alert. There are translation tools at the handsets or other parts of the "edge" that have the promise of translating to different languages but are suspect in their ability to accurately navigate the cultural, language and dialect differences that exist.

The trusted sources are well contained within the EAS and WEA delivery methods, but perhaps not with other methods. Most notably are the messages on social media. Many emergency responders use social media to increase their reach, but the possibility and probability of confusing the public by appearing to be a trusted source or just establishing a rumor in this space creates uncertainty of which messages to believe. Third-party applications also have this concern of trust implied. Consideration might be given to creating certification or authorizing the trusted resources on third-party applications, websites and social media with a "badge" of sorts to indicate they are trusted.

### D.  Responding to the Alert

Emergency alerts provide critical warning and, in the case of text-based alerts, they can also provide valuable information or instructions to persons in affected areas. But for text-based alerts to be effective, recipients of such alerts must understand them so that they may act accordingly. Messages that tell people to "go to the basement," "go to higher ground," "evacuate the area," and so forth, may not always be intuitive to everyone.

CAP provides alert originators with the capability to provide both enhanced text concerning an emergency condition (such as where to seek shelter) and multiple translations of such text.

WEA provides the ability to embed a hyperlink in an alert. The hyperlink can take the user to a website, video or text that is translated in the language of choice and gives more detailed instructions about the alert and the action that is necessary. One challenge is to develop these resources in the languages and work with the alert originators to include the links. The enhancement of translated text templates and PSAs in multiple languages that give general directions might be helpful to ensure the safety of the target community.

Another challenge is to ensure that communities understand what to do or where to go if they

receive an enhanced alert or a hyperlink with more detailed information. Community outreach, awareness training, or drills will likely be important steps to ensure the overall effectiveness of text-based alerts. The potential of providing access to secondary resources like websites, electronic signing, notifying churches and community centers, or even door-to-door efforts may be required to supplement the initial warning systems.

### E.    Experience of the States

#### 1.    Minnesota - Public Broadcasting Service (PBS)

Minnesota uses PBS to provide emergency alerting in four languages through its TPT-Now dashboard. They prioritized the languages through considerable community outreach. Content is provided through trusted government partners and the station becomes a constant place for those in the community to receive critical information. The system pushes the messages out through radio, Internet and some social media platforms. Minnesota also delivers alerts in four languages (English, Spanish, Somali, and Hmong) over the EAS.

Key lessons from this system are:

- The need for a common vehicle to carry the information—in their case, this was a PBS channel 2.5
- The need for significant community outreach and ongoing communication in culturally-diverse communities prior to emergency events to know which languages to prioritize and the best ways to reach these populations. Working with these communities to customize alerts in their own languages, Minnesota created templates that can be pushed out quickly when an alert is received from government partners.
- The need for reliable content developed through partnerships with trusted, government sources, such as the National Weather Service, city and county emergency management teams, the state department of transportation, city, county and state health departments, and others.
- The importance of trust developed through significant personal interactions with the people they are trying to reach and an understanding that delivering in their language creates trust and conveys the seriousness of the message.
- The value of redundant alerting systems that promote delivery and believability.

#### 2.    Harris County Texas

Harris County Texas is an area that encompasses Houston and an area where there are 145 languages spoken. One-third of the population speaks English, one-third Spanish, and one-third other languages. As they determine the priority languages, they warn to use the data correctly. Just because someone's primary language is a language other than English doesn't mean they don't understand English. Instead, it is important to focus on those groups that don't understand English as they prioritize which languages to use.

Houston has three major Spanish language stations, each with a Translation Room where alerts are translated in real-time by certified translators. The Translation Rooms also include American Sign Language (ASL) interpreters. Then rooms focus on "transcreating" not "translating," mindful of being culturally competent in the wording and phrasing of the alerts.

In preparation, they try to understand how and where the non-English speaking populations are consuming the data to improve the probability of getting the message to them. They attempt to hit all platforms with alerts multiple times. They have taken proactive steps to develop just-in-time PSAs in the

priority languages for the emergencies that are most likely in the region.  The messages are basic preparedness messages.  The PSAs are available to link to on multimedia platforms.

### 3. North Carolina – UNC-TV

UNC-TV is part of the PBS system in North Carolina.  One of their purposes is public safety.  During emergency events, they receive live broadcasts from the Governor and other state public safety officials.  These messages are carried on a webstream with captions in English and Spanish, which are made available to the other stations in North Carolina for broadcast.  They use Spanish interpreters from the courts who are certified and capable of translating the messages accurately.

### 4. The Spanish Broadcasting System

A network of Spanish radio and television stations link together to provide emergency alerts and emergency information to the Spanish speaking communities.  During an emergency, they have on-air talent and journalists at the station to provide continuous real-time information to their communities.  By linking the stations, they cascade these reports to all of the other stations in their network, creating a sense of reliability, trust, and accuracy.  They receive EAS alerts in English and translate them live.  The Spanish Broadcasting System also provides help to other communities that have Spanish speaking populations, but no ability to do the translations.

### F. Emergency Communications on Tribal Lands

Tribal lands, depending on location and local access, struggle with emergency alerting.  If the Tribe has a radio station, they can register with the National Weather Service to obtain direct information regarding their lands, but if a Tribe does not have its own radio station, it is reliant upon local community radio.  Tribal nations may use a wide variety of communication methods to reach their membership, such a social media, mass texting, prerecorded voice service, and mass email notification.  If a Tribe has a law enforcement department or presence or an emergency responder network, such as hazardous materials, fire, or emergency medical teams, there would be a communications plan for reaching those effected by the danger involved.

IPAWS is a free IP-based tool that Tribal officials can use for public alerts and warnings through multiple communications devices.

- Emergency Alert System (radio and television)
- Wireless Emergency Alerts (cell phones and mobile devices)
- National Weather Service's Dissemination Services (NOAA Weather Radios)
- Legacy Systems (sirens, digital road signs, etc.)

Tribal governments can sign up to issue alerts through a five-step process and technical assistance is available from FEMA.

The Tribal Radio Priority established in 2010 by the FCC allows Tribal nations to apply for and obtain broadcast radio licenses in both AM and FM bands that cover their Tribal lands.  The Priority helps to provide radio service to meet a Tribe's specific needs, including emergency alerting in a Tribe's local language.

Emergency alerting to Tribal areas can be difficult because "Tribal areas and communities continue to lag behind other areas and segments of American society with respect to broadband and telecommunications services.  High poverty rates and low-income levels in tribal lands—along with the fact that many tribal communities are located in remote rural areas (often with rugged terrain)—are major

factors that may explain why tribal areas have comparatively poor levels of broadband access, and why providers may lack an economic incentive to serve those areas."[19]

### G. Access to Emergency Alerting for People with Disabilities

The most recent disasters (natural, wildfire, civil unrest, etc.) have demonstrated the need to improve EAS systems and communications with all EAS participants and stakeholders. One group that needs additional focus, support, and improved notification options are individuals with disabilities. Access to emergency alerting and emergency information needs to be improved. The legitimate concerns of people with disabilities and others with access and functional needs in emergency situations are not always met nor addressed adequately.

The challenge and opportunity is for emergency managers and government leaders to address the needs of the whole community, including people with sensory disabilities (*e.g.*, individuals who are deaf, hard of hearing, blind, visually impaired, or deaf-blind), as well as people with speech, psychiatric, or cognitive disabilities.

Further complicating the need to provide uniform and comprehensive notification options is the diverse needs of individuals with disabilities which may not comport with the "one size fits all" approach. Also, some software or technologies exist that different community centers or schools use to notify their community members, but it may not be consistent throughout an area or state.

The National Council on Disability (NCD) has identified several barriers that individuals with disabilities must deal with during emergencies and disasters:[20]

- Televised emergency announcements by officials that may not include American Sign Language (ASL) interpreters;
- Inaccessible emergency notification systems;
- Inaccessible evacuation maps;
- Websites with emergency information that is not accessible to screen readers used by people who are blind or who have low vision;
- Shelters at which no one can communicate with people who are deaf or hard of hearing;
- Emergency communication in language that is inaccessible to people with cognitive disabilities; and
- 911 systems that do not allow people with disabilities to contact them via text-based communication, other than through teletypewriters (TTYs) or real-time text applications on wireless phones if the PSAP is text-capable.

Some work has been done in this area, but more is needed. Previous studies, reports, recommendations and conclusions include the following:

The FCC charged its Disability Advisory Committee (DAC), to develop best practices for the aural description (for people who are blind or visually impaired) of visual but non-textual emergency information provided by broadcasters, such as the critical details of an emergency conveyed by radar maps and other graphic displays. The Committee concluded that there is currently no clear technical

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[19] Congressional Research Service, 2019 (https://www.hsdl.org/?view&did=818858).

[20] See National Council on Disability, *Effective Communications for People with Disabilities: Before, During, and After Emergencies*, https://ncd.gov/publications/2014/05272014 (2014).

solution capable of describing images or dynamic video images in a timely, accurate, and reliable manner capable of being deployed across existing broadcast systems.[21]

In comments filed in CG Docket 15-91, the DAC stated that it believes providing the ability to access additional content by embedding telephone numbers and URLs into a WEA will be helpful to people with disabilities who need to be able to receive emergency information in ways that meet diverse needs.[22]  For example, local alert originators could embed URLs in WEA messages that direct the public, including individuals with disabilities, to a specific website for further information or instruction.  This information or instruction may be presented, for example, in various languages and video clips in American Sign Language (ASL).  In addition, the DAC recognized that access to additional content through embedded resources in a WEA could help consumers, particularly people with disabilities, to take action more quickly.

The DAC recognized, however, that the CSRIC IV report noted that further study is needed on the potential impacts to network congestion, positive and negative, that may result from enabling embedded telephone numbers and URLs into a WEA message.[23]  Therefore, the DAC recommended that the FCC request subject matter experts (*e.g*., ATIS) to further examine and explore the details of enabling local alert originators to embed telephone numbers and URLs in WEA messages, and report back to the FCC within a reasonable specified timeframe.[24]

In an *ex parte* filing to the FCC in 2015, the Rehabilitation Engineering Research Center for Wireless Technologies (Wireless RERC) reported on the results of research activities that examined the effectiveness of EAS and WEA to provide alerts to people with disabilities.[25]

From a comparative analysis of WEA and EAS surveys, the Wireless RERC findings support the hypothesis that the systems have similar accessibility barriers.  However, the rate at which those barriers impact the respondents with disabilities seems to be less with WEA messages, than with EAS messages on both television and radio.  Of note, both systems' sound attention signals are not always accessible to people who are hard of hearing due to the variability in high and low frequency hearing loss amongst the population.  Additionally, both systems shared a need to improve the quality of the audio portion of the message.

The Wireless RERC found that the nationwide test of EAS revealed the EAS alerts via television broadcasts were inconsistent in their use of audio and therefore not reliably accessible to people with vision loss.  Respondents and participants with hearing loss also found that the national EAS test message was not fully accessible, reporting problems with the attention signal and audio quality.  While the Wireless RERC realized that the nationwide EAS test was created to evaluate the effectiveness of the system, it served to highlight that there were inconsistencies in delivering the message.

Regarding WEA, the Wireless RERC found that the length of the message, use of jargon and

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[21] https://docs.fcc.gov/public/attachments/DOC-349762A1.pdf.

[22] https://docs.fcc.gov/public/attachments/DOC-339905A1.pdf.

[23] https://www.fcc.gov/about-fcc/advisory-committees/communications-security-reliability-and-interoperability-council.

[24] *See* 47 CFR § 10.441 (stating that participating CMS Providers are required to support Alert Messages that include an embedded Uniform Resource Locator (URL), which is a reference (an address) to a resource on the Internet, or an embedded telephone number.).

[25] http://wirelessrercarchive.gatech.edu/sites/default/files/publications/WEA_EAS_ResearchBrief_FINAL%201.pdf.

acronyms, and inadequate knowledge of WEA are limiting factors to the accessibility of WEA messages and their ability to elicit protective action behaviors. As the adoption rate of WEA increases among the state and local emergency management officials, WEA message awareness amongst the public should also increase.

**Current status and rules for EAS and WEA notifications for people with disabilities.[26]**

People with disabilities have unique needs that change over time.

The most common methods currently used to notify individuals with disabilities about an emergency are the EAS message transmitted via television and the distinct sound alert for radio prior to the EAS message. Some communities also use or recommend using a variety of notification methods including door-to-door visits, reverse 911, social media, and IPAWS.

The following rules are in place that each entity and group should implement fully and clearly. Rules requiring that a visual message be placed on the EAS alert, either in a video crawl or block text. This alert must be displayed at the top of the television screen, that it not interfere with other visual messages and in a manner that is readily readable, understandable, does not contain overlapping lines of text and must be fully displayed at least one time during the EAS message.[27] Further, the audio portion of the EAS message must play in full at least once during any EAS message.[28]

Participating CMS providers and equipment manufacturers shall only market devices for public use that include an audio attention signal and a vibration cadence capability.[29]

## III.    CONCLUSIONS ON ALERTING

The IAC frames its analysis of multilingual emergency alerting on the fundamental principle that: ***We should assume communities have the responsibility to alert ALL people in their geographic parameters of emergency situations, regardless of language or disability***. This principle forces us to think beyond current practices of translating messages to the majority languages. There is no way to understand the language needs and nuances of every person in our geographic parameters or to even know who is and isn't there at any given time. This calls for a generally understood symbol-based approach for the primary alerts, delivered over multiple modes, supplemented by language-based resources and community efforts to deliver detailed instructions on the proper actions and responses needed to be safe.

- The gaps for emergency alerts in the ever-changing environment of video streaming and gaming need to be addressed.

- Mandated, "one-size-fits-all" solutions to multilingual alerting may not take into consideration the unique and varied needs of the communities of interest. Local community engagement gives the best opportunity to understand how to successfully deliver understandable alerts to these groups.

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[26] This section deals only with FCC rules that apply to the EAS and WEA. Rules that apply to the related category of "emergency information" are contained in section 79.2 of the Commission's rules. *See* 47 CFR §79.2. https://ecfr.io/Title-47/se47.4.79_12.

[27] 47 CFR § 11.51(d)(1).

[28] 47 CFR § 11.51(d)(2).

[29] 47 CFR § 10.520;  47 CFR § 10.530.

- Local alert originators are best positioned to provide accurate and reliable translation of alerts. Moving the translation downstream has many challenges including accuracy and integrity. Technology is improving to do these translations at the device level but have not proven to be reliable.

- Attention must be given to community outreach for non-English speaking people and individuals with disabilities to understand their needs and preferences, provide information and education on emergency alerting, and to understand the language challenges they face in receiving these alerts.

- State SECC plans need to include direction on multilingual alerting and alerting that is accessible to individuals with disabilities. Given the nature of SECCs around the country, the FCC should give clear guidance to what is needed.

## IV.    ALERTING RECOMMENDATIONS

### A.    Recommended Best Practices for State, Local, Tribal, and Territorial Government Alerting Authorities

- SLTTs should guide their emergency managers and alert originators to the resources that identify the language groups in their areas. An important source is the U.S. Census website (data.census.gov). Access to this data will allow a better opportunity for identifying the starting point for understanding the alerting and educational needs of these groups of non-English speaking people.[30] SLTTs should be mindful of data that shows primary languages other than English may not mean they don't understand English. Priority should be given to those who don't understand English.

- SLTTs should develop community outreach programs that help them understand the language, cultural, and technology barriers that get in the way of emergency alerting to the populations of limited or non-English speaking people and for individuals with disabilities. Outreach should be an ongoing conversation that engages non-English speaking individuals and individuals with disabilities, educates them on the alerts and what to expect, and gains their help in crafting alerts and information that they understand and on platforms they use.

- SLTTs should include the development and encourage the use of secondary resources like websites, applications, PSAs, templates in priority languages or other methods that allow those who see an alert to have a trusted resource to get more information in a format they can understand. The use of links on WEA messages can easily lead to these resources. It is critical that all rich media posts, like video, are small enough to easily download to the user's device especially if connectivity is limited, or the network is congested.

- SLTTs should prioritize training of local alert originators. So much of the community knowledge and understanding is with the local alert originators and public safety people. They need to have a high level of understanding and competency with all available alerting tools and procedures to ensure that emergency alerts effectively reach non-English speaking individuals and individuals with disabilities.

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[30] See Appendix for step by step instructions on how to use this tool.

- SLTTs and alert originators should develop relationships with broadcasters and broadcaster associations before emergency events occur.

- SLTTs should be committed to sending alerts and emergency information to non-English speaking individuals and individuals with disabilities multiple times and on multiple platforms.

**B.   Recommended Best Practices for SECCs:**

- Need for SECCs to include plans for multilingual individuals and individuals with disabilities in their State EAS Plans.  Current State EAS Plans do not include multilingual activities and processes to reach individuals who are not proficient in the English language or individuals with disabilities that make it difficult for them to receive emergency alerts.  There are a few exceptions with Texas, California, North Dakota, and Ohio at least providing some guidance to multilingual alerting and alerting for those with disabilities.  All updates to State plans should include fundamental descriptions and processes that give guidance on these topics.  There is hope that the proposed online form for updating these plans will contain the proper information to support this task.

- Plans should include guidance on who has responsibility for translating emergency alerts; how to determine the priority languages in each community; tools that originators, broadcasters, wireless providers can use to get alerts to non-English speaking individuals and individuals with disabilities; options to more effectively connect and communicate with the communities of interest; and set in place alternative actions when those communities are not fully reached.

- SECCs should include in their plans the training needs of local originators.  So much of the community knowledge and understanding is with the local alert originators and public safety people.  They need to have a high level of understanding and competency with the tools and procedures to ensure that emergency alerts effectively reach non-English speaking individuals and individuals with disabilities.

- SECC plans should include guidance to encourage and build in redundancy across alerting systems to reach the maximum number of people.  This includes language and non-language-based systems in broadcast, mobile and community delivery methods. Any emergency situation should not rely solely on only one alerting method.

- SECC plans should provide guidance on the development of secondary resources like websites, applications, PSAs, templates in priority languages or other methods that allow those who see an alert to have a trusted resource to go for more information in a format they can understand.

- SECC plans and actions for states with Tribal lands should include:
    - States that have Tribal lands need to have a reserved dedicated seat on their SECC.  For Tribal lands not covered by Tribal law enforcement or emergency responder networks, it would important to work closely with the state, county or city government that would provide these services.

    - Ensure access to local radio stations for Tribes.  Tribes that don't have access to a Tribal operated radio station need to work with their local radio station to ensure coverage of the Tribal lands.  This could mean a seat on the advisory board for that particular radio station.

    - Establish memoranda of understanding or agreement between Tribes and the

local emergency responder network for city and county response. These agreements with volunteer departments will ensure that there is a clear communication path specifically for the multilingual community.

- Expectations that the Tribe will identify individuals with disabilities in their community and mapping of those homes or locations where potentially physical assistance would be necessary may already exist but sharing of that data with the responding agency should be established.

**C.      Recommendations to improve multilingual alerting**

o   Develop a non-language-oriented alert to compliment the current EAS and WEA alert systems. Most cultures understand and react to colors, symbols, and sounds as a means of communication. The use of universal colors, symbols and sounds takes the language barrier out of the equation. Red and yellow colors are widely understood to mean *danger* and *caution*, respectively. Symbols are used all over the world to communicate key information to all of the people. FEMA has a current library of emergency symbols that could be used in alerting.[31] Sounds are critical as a compliment to the other methods as well as helping those with limited vision. There are clearly technical issues to include these into EAS and WEA alerts, however we should strive to solve these issues so that all alerts will include these colors, symbols and sounds. Each of these may require an ongoing education component, but they are relatively basic, simple and intuitive. We recommend the use of colors, red = Danger, yellow = Caution, and green = Safe along with the FEMA emergency symbol. The colors, symbols, and sounds should complement the text messages. The use of this approach provides the best opportunity to reach ALL people in a community regardless of their language or disability.

o   Address gaps with alerting to people who are streaming video or gaming. The trend of cord-cutting and movement to streaming video and the continued rise of online gaming exposes a gap in emergency alerting. This gap should be addressed to ensure the safety of this large group of people. This may be done through major service providers, Internet service providers, gaming platforms, major content providers like Netflix, Amazon, Apple and others. Addressing these gaps indirectly affects the multilingual individuals and individuals with disabilities.

**D.      Recommendations to Strengthen Access to Alerting for People with Disabilities.**

A number of critical steps are needed to ensure effective emergency alerting to individuals with disabilities. First, government official should coordinate with national, state and community groups representing people with disabilities, as well as with individuals with disabilities in all aspects of emergency preparedness efforts, including as members of SECCs. Best practices should be identified, developed and implemented that will improve the notifications and standards for notifications to individuals with a wide range of disabilities. The following recommendations for implementation include:

o   Develop rules or programs to conduct outreach or surveys to identify the location of individuals with disabilities, not only at their homes, but also at designated community gathering locations such as schools, centers for the deaf and blind, special

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[31] https://www.fema.gov/media-library-data/1535634530975-18dc20274e5c7246dce320fffcff4b5c/Symbology_Slides.pdf.

needs facilities and support facilities.

- Identify what notification systems are in use
- Identify what is working and what needs to be improved
- Support and assist efforts to create a notification plan with the supervisors of each center

o Use census data, community outreach, local demographic surveys, meetings with local health and human service providers and other stakeholders to identify the needs of individuals with disabilities.

- Identify the alerting needs of each of the centers.

- Identify the alerting needs of the stakeholder groups.

o Work with local media, ISP's and other parties who received the EAS messages to improve notification methods and timeliness to the entire community, including individuals with disabilities.

o Encourage local 911 centers, media outlets and EAS Participants to maintain their equipment current by

- Promoting the use of text-to-speech software
- Encouraging amendments to state EAS plans and SECC's plans and operations to include individuals with disabilities in their scope and actions
- Encouraging EAS Participants and states to, as technology improves, to enable the delivery of video alerts in ASL format or operate in conjunction with some other application to provide that content
- Supporting communities, caregivers and families to create individual, home and facility notifications plans to accommodate the alerting of individuals with disabilities.
- Encouraging EAS participants and public safety offices to choose systems and software that smoothly integrates IPAWS to ensure the greatest outreach of EAS messages.

**APPENDIX**

**Memo: Finding Census Language Data**

This memo details how to find foreign language data on the census website for states and counties. A video tutorial that tracks these instructions can be found here: https://youtu.be/kmWazi8e2ss.

- Go to data.census.gov. **DO NOT** use www at the beginning.
- Locate the search bar that reads "I'm looking for…"
- Type "B16001" (sans quotes) into the search bar. This is the ID code of the dataset. Do not press enter.
  - If you did press enter, you can click on "View All Tables" for Table B16001 (the first one), then click on "Customize Table", and skip the next bullet point.
- Click the option in the dropdown menu that reads "B16001: Language Spoken at Home by Ability to Speak English for the Population 5 Years and Over".

You will see a data table on the lower half of the screen. Above the data table will be a bar with the dataset name in large bold letters.

- Click the two downward-facing arrows to the right of the bar.

A menu should expand below the bar. It should include options for "Geography", "Year", etc.

- To select your geography, click "Change geography".
- On the menu that appears with columns labeled "Filters" and "Geography", choose either "040-State" or "050-County" from the numbered list under the geography column.

IF YOU CLICKED STATE:

- In the new "040-State" column, click the checkbox next to the state you want to see.
- If you want to see multiple states, check multiple boxes.
- If you select the "All States in the US" option, it will show all 50 states and Puerto Rico
- Once you've made your selection, click the downward-facing arrows in the top right of the screen. The appropriate data should load.

IF YOU CLICKED COUNTY:

- In the new "050-County (State)" column, select the state your county is in.
- In the column for the chosen state, check the checkbox next to the county you want.
- If you want to see multiple counties, check multiple checkboxes. You can do this across states.
- You could also show all counties in the US by checking the corresponding checkbox
- Once you've made your selection, click the downward-facing arrows in the top right of the screen. The appropriate data should load.
  - If it doesn't, you may need to set the year to 2015 or earlier and set the estimates to 5-year, as explained below. The Census suppresses certain data categories for privacy reasons.

To change the year:

- Click "Change Year". Check the checkbox for the year you want.
- Click the downward facing arrow.
- If you have a county with less than 65,000 people, you may need to choose 2015 or earlier since the Census suppressed small county data after 2015.

You can also choose either 1-year or 5-year estimates. 1-year data is more current, but more prone to error. It only shows data from geographies (e.g. counties) with populations above 65,000. 5-year data has lower error but is less current. It includes information on all counties, although it was suppressed for all datasets after 2015. To choose your estimate type:

- Click the dropdown menu next to estimates. Select your appropriate option.
- If the table does not refresh (you should see it change), click "Change year", uncheck and check the year you want, then press the two downward facing arrows. This forces the data to reload.

You should now see language data for 40+ languages for your state or county.

- Note that it also shows how many speakers "Speak English very well". This is a **<u>rough</u>** measure of English proficiency of that population.

If you want to change to a different county or state:

- Click "Change Geography".
- Scroll to bottom of the menu that appears
- Click the x's in the grey bubbles that contain the states or counties that you previously chose or click 'clear all' if you want to get rid of all of them.
- Repeat the steps to choose geography, year, and estimates as necessary.