IPAWS Toolkit for Alerting Authorities

The *IPAWS Toolkit for Alerting Authorities* supports Local, State, Territorial, Tribal, and Federal emergency management officials to incorporate IPAWS, adopt the Common Alerting Protocol, and ensure communities understand how to access, use, and respond to public alerts and warnings

http://www.fema.gov/ipaws
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FEMA

This document replaces the
2012 State Toolkit
for Adopting IPAWS

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Message from the Director

In times of crisis, the American people continually demonstrate resilience. Timely and effective emergency alert and warning messages can add to that resilience by providing information that citizens can use to make informed decisions and take action to save lives and reduce property losses, effectively reducing the impact of disaster and speeding community recovery. Effective alerts and warnings can help prevent hazards from becoming disasters.

The Integrated Public Alert and Warning System (IPAWS) is a national alert and warning infrastructure available for use by Local, State, Territorial, Tribal, and Federal public alerting authorities to send emergency alerts to citizens. The IPAWS Program Management Office (PMO) works to provide non-Federal alerting authorities with the capabilities and resiliency that IPAWS offers and has produced this toolkit to provide information about how to become an effective IPAWS user.

Local, State, Territorial, Tribal, and Federal authorities may choose to use IPAWS and may also integrate local alerting or emergency response systems that use Common Alerting Protocol (CAP) standards with the IPAWS infrastructure. IPAWS provides public safety officials an integrated gateway to send alert and warning messages to the public using the Emergency Alert System (EAS), Wireless Emergency Alerts (WEA), NOAA Weather Radio (NWR), and other public alerting systems, all from a single interface.

Recognizing that well-trained users will make the best use of IPAWS, the IPAWS PMO provides and supports Local, State, Territorial, Tribal, and Federal public safety officials with online training, alerting best practices, testing, and public education campaign tools and resources.

The *IPAWS Toolkit for Alerting Authorities* provides public safety officials with resources to assist them as they adopt CAP,

incorporate IPAWS, and ensure their communities understand how to access, use, and respond to public alert and warning information. New alert and warning technologies, particularly alerts to personal cell phones, will only be effective if the public understands the avenues over which alerts are delivered and trusts the emergency messages being sent.

FEMA encourages public safety officials to take full advantage of this Toolkit, which is available on the IPAWS website at www.fema.gov/informational-materials. Please contact the IPAWS PMO at ipaws@dhs.gov if you have questions or are interested in learning more about resources and public education products you can leverage.

Sincerely,

Antwane Johnson, Director
Integrated Public Alert and Warning System (IPAWS) Division
DHS FEMA National Continuity Programs Directorate

IPAWS Vision, Mission, and Goals

In June 2006, the President signed Executive Order 13407, "Public Alert and Warning System," which states, "It is the policy of the United States to have an effective, reliable, integrated, flexible, and comprehensive system to alert and warn the American people . . . establish or adopt, as appropriate, common alerting and warning protocols, standards, terminology, and operating procedures for the public alert and warning system to enable interoperability and the secure delivery of coordinated messages to the American people through as many communication pathways as practicable . . ." In response, FEMA established the Integrated Public Alert and Warning System (IPAWS) Program Management Office (PMO) in 2007.

Vision: Timely alert and warning to American citizens in the preservation of life and property.

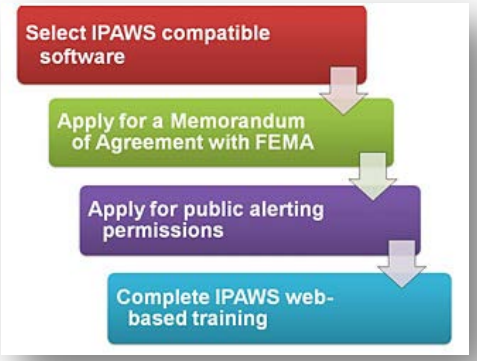
Mission: Provide integrated services and capabilities to Federal, State, territorial, tribal, and local authorities that enable them to alert and warn their respective communities via multiple communications methods.

Strategic Goals: To attain the vision and accomplish the mission, FEMA has established three overarching long-term goals:

Goal 1 – Create and maintain an integrated interoperable environment for alert and warning
Goal 2 – Make alert and warning more effective
Goal 3 – Strengthen the resilience of IPAWS infrastructure

Qualifying to be an Authorized IPAWS Alerting Authority

Any qualifying public safety organization, recognized by appropriate Local, State, Territorial, Tribal, or Federal authorities, may apply for authorization to use IPAWS to send alerts to the public. Public safety organizations may apply to use IPAWS to exchange alert information with other IPAWS users with CAP compatible origination software. Each organization that successfully applies to be an IPAWS user is designated as a Collaborative Operating Group or "COG." A COG may have members from multiple organizations (e.g. a regional mutual aid organization). A COG does not have the authority to send alerts to the public through IPAWS until additional coordination and approval steps are completed.



Step #1 – Select an IPAWS-compatible Alert Origination Software

Access to IPAWS is free; however, to send a message using IPAWS, an organization must procure its own IPAWS-compatible alert origination software. The developer of the alert origination software must have executed a Memorandum of Agreement (MOA) with FEMA to develop IPAWS-OPEN compatible alerting software. Consult your software developer to ensure your alert origination software is IPAWS-OPEN compatible and provides the capabilities that your organization requires. You can view the list of private sector developers that have executed a MOA with FEMA

at this address: http://www.fema.gov/alert-origination-service-providers

Step #2 – Apply for a MOA with FEMA
The COG application process requires the execution of a MOA between the sponsoring organization and FEMA. Each MOA is specifically tailored to the sponsoring organization and its interoperable alert origination software. To begin the process, please download the MOA application located at http://www.fema.gov/alerting-authorities#3, follow the instructions, and complete and return the application to IPAWS@dhs.gov. Please indicate "Operational COG Application" in the subject line of the email. Organizations applying to use IPAWS solely for the exchange of alerting information with other COGs are authorized to do so after completing this step.

Step #3 – Apply for public alerting permissions
State and local alerting authorities who want to send alerts to the public through IPAWS must then complete an application indicating the types of dissemination systems, the extent of the geographic warning area in their jurisdiction, and the event codes they intend to use. The application for IPAWS public alerting authority will be provided during the initial COG application process, along with contact information for a designated state reviewer. In order to ensure consistency with appropriate Local, State, Territorial, Tribal, and Federal alerting plans, the application must be reviewed and signed by the designated State or appropriate official before it is submitted to FEMA. The IPAWS PMO can assist with finding an appropriate contact for public alerting permissions in your area.

Step #4 – Complete IPAWS web-based training
FEMA's Emergency Management Institute (EMI) offers the independent study course, IS-247.A "Integrated Public Alert and Warning System." All IPAWS public alerting authorities are required to successfully complete IS-247.A. The course is available online at:
https://training.fema.gov/EMIWeb/IS/is247a.asp.

Completing the application
After the MOA is signed by the sponsoring organization, it will be routed to FEMA for signatures. Once the MOA has been executed, a COG identification and digital certificate will be generated and implemented in IPAWS-OPEN. A copy of the executed MOA, along with the COG ID and digital certificate will be provided to the sponsoring organization. The COG ID and digital certificate are necessary for the proper configuration of the IPAWS compatible software system.

Once the public alerting application and web-based training are completed, specific alerting permissions will be enabled in IPAWS-OPEN, which will allow the COG to begin sending public alerts and warnings in their jurisdiction.

Selecting an Alert Origination Software for IPAWS

The first step to become an IPAWS alerting authority is to select IPAWS compatible alert origination software. The applying organization should consult private sector developers to ensure the alert origination software is compatible and has been successfully tested in the IPAWS-OPEN test environment. When selecting an alert and warning origination software, keep in mind the following questions that may help guide the discussion with vendors and ensure the software is the best fit for your needs in using IPAWS.

- Who will be sending alerts in your organization?
- What types of alerts do you intend to send?
- Do you require the use of message templates?
- Do you require alerting software that is integrated with current tools or is this intended to be a stand-alone capability?
- What security mechanisms are provided to ensure strong access controls and authentication of users?
- What support will be necessary in the future?
- What support and services are provided by the software provider? (e.g. license and maintenance fees, updates to the software, etc.)

There are numerous features available in alert origination software. When you are acquiring alert origination software, make sure it has the features that meet your minimum requirements as an alerting authority and prospective buyer. Some recommended features are listed below.

1. WEA-compatible
2. EAS-compatible
3. HazCollect-compatible
4. Channel Block
5. COG-to-COG
6. Update
7. Cancel
8. Alert
9. Mapping – polygon
10. PROD/JITC
11. Attachments
12. Streaming/URL

The IPAWS PMO recently hosted a series of webinars in response to requests to provide more information on Alert Origination Service Provider (AOSP) software on the market. The IPAWS PMO does not endorse or promote any one vendor and provides the webinars for informational purposes only. In the spring of 2014, the IPAWS PMO plans to host a series of webinars focused on emergency redistribution systems. Recordings of the recent AOSP Webinar Series, as well as other IPAWS-hosted webinars, can be found on the IPAWS website at www.fema.gov/ipaws.

COG Management

BEST PRACTICES FOR COG STRUCTURE

There is no one perfect way to establish a COG. COGs should be set up based on your needs and what works best for your organization and jurisdiction. Before establishing a COG, consider how your organization relates, shares, and coordinates alert and warning information with your neighboring jurisdictions, public and private emergency response partners.

Even within a single jurisdiction, multiple agencies such as the police and fire departments may have authority to issue alerts. When multiple agencies possess the ability to issue alerts in an area, confusion can arise from redundant or contradictory alerts. Avoiding this situation requires coordination.

Standard Operating Procedures (SOPs) and Memorandums of Understanding (MOUs) can be established between two or more COGs to determine which alerting authority is responsible for sending an alert. For example, COG responsibilities can be determined by the incident-type, geographic location of the event, or other factors. Establishing communication procedures and cross-coordinated message exchanges between COGs when an event occurs can minimize redundant alerts, contradictory messaging, and over-alerting. Training sessions and tests between COGs can be conducted to assess communication issues, identify potential operational issues and establish best practices.

MOUs ensure that the systems are deployed for official use only, and prevent duplicate or frivolous alerts from being disseminated to the public.

BEST PRACTICES FOR COG ADMINISTRATION

Alerting authorities should reference their local and State emergency communications and EAS plans to govern alerting responsibilities for their state and local jurisdictions. COG

permissions, including alerting jurisdictions and permissible alerting codes, should be established in accordance with State emergency communications plans.

Delegating Alerting Authority
The individual who signs the IPAWS MOA application is responsible for how he/she uses the IPAWS-OPEN system.

In addition, this person is also responsible for the following:

- Monitoring the actions of his/her staff members during their use of IPAWS-OPEN
- Reporting security incidents and/or violations of *IPAWS Rules of Behavior*
- Reporting to FEMA changes in the Primary, Alternate, or Technical Point of Contact for access to IPAWS-OPEN

Changing COG Permissions
When the MOA process is complete, the COG structure and points of contacts are established and the requested permissions are enabled. These parameters are part of a living document and can be updated as needed. When changes are required to the COG, please contact IPAWS@dhs.gov.

Granting Access to the IPAWS-OPEN System
Before the alerting authority grants a new user access to IPAWS-OPEN, each user must:

- Complete the *IS-247.A–"Integrated Public Alert and Warning System"* EMI web-based training. In addition, it is recommended that new users complete training and materials that are specific to their organization. Most alerting authorities receive training from their alert origination software developer. Where applicable, document and maintain records of successful completion of FEMA-required training and produce such documentation in response to official inquiries or requests.
- Read, understand, and sign the *IPAWS Rules of Behavior.* This document helps public safety officials understand that the IPAWS-OPEN system:
    - Is for official use only
    - Requires approved email accounts for access
    - Requires users to create user IDs and passwords based on the provided guidelines
    - Requires users to follow guidelines for protecting physical devices used for accessing IPAWS-OPEN and to use only officially approved devices

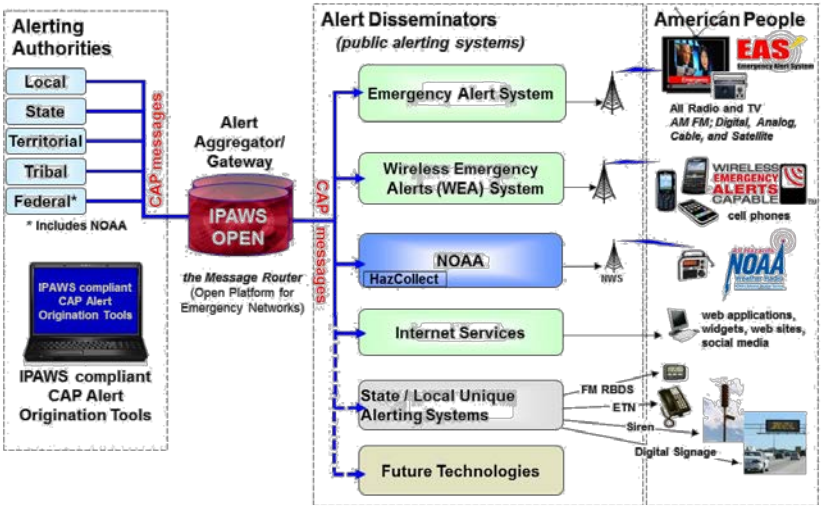
Managing Level of Access to IPAWS-OPEN
Emergency Managers or the person(s) in charge of originating and issuing alerts to the COG should ensure that users are provided the appropriate level of access to IPAWS-OPEN commensurate with their roles and authority.

The level of access to IPAWS-OPEN and access to the alert origination software is typically granted based on the user's position within the organization.

Monitoring Access to IPAWS-OPEN
When users sign the *IPAWS Rules of Behavior,* they acknowledge that they will access the system for official use only. However, the responsibility for the release of individual alert messages falls on the IPAWS COG System Owner who is responsible for anyone with access to the IPAWS-OPEN system using that COG ID.

FEMA IPAWS knows when a COG issues a message to IPAWS-OPEN; however, there is no way for FEMA IPAWS to know which individual user of the COG issued the message. The COG system owner should establish security procedures to minimize the possibility of inadvertent or unauthorized alert messages. Violations of the *IPAWS Rules of Behavior* may result in revocation of an MOA certificate.

IPAWS Capabilities



Wireless Emergency Alerts (WEA)

Wireless Emergency Alerts (WEA) are short emergency messages from authorized public alerting authorities that can be broadcast to any WEA-enabled mobile device in a locally targeted area. The WEA channel of IPAWS can be used for three alert categories: Presidential, AMBER, and Imminent Threat. WEA messages are broadcast from cellular towers in the designated alert area to any WEA-enabled mobile devices that communicate with the cell tower during the alert duration. Wireless carriers primarily use cell broadcast technology for WEA message delivery. WEA is a partnership between FEMA, the Federal Communications Commission (FCC), and wireless carriers, to enhance public safety. The overarching rules for WEA are published by the FCC in 47 CFR Part 10.

- **Unique Ring Tone & Vibration:** WEAs automatically "pop up" on the mobile device screen and are limited to 90 characters. WEAs use a unique ring tone and vibration

designed to draw attention and alert people to an emergency. The unique vibration, which distinguishes the alert from a regular text message, is particularly helpful to people with hearing or vision-related disabilities.

- **Geo-targeted alerts:** WEAs are targeted to the specific geographic area of the emergency. If a WEA-capable mobile device is physically located in that area, it will automatically receive and display the message.

- **Non-subscription based:** WEAs are not subscription based, so customers of participating wireless carriers with WEA-capable phones do not sign up to receive the alerts. Instead, they automatically receive WEAs if a WEA is active in the area in which they are located. Wireless customers are not charged for the delivery of WEA messages and may opt-out of Imminent Threat or AMBER alerts, but may not opt-out of Presidential alerts.

- **Avoids congestion:** WEAs use SMS-Cell Broadcast (SMS-CB), a one-to-many service, which simultaneously delivers messages to multiple recipients in a specified area. By using SMS-CB as the delivery service technology, WEAs avoid congestion issues experienced by traditional voice and text messaging (SMS-PP) alerting services, which translates into faster and more comprehensive delivery of messages during times of emergency.

All the major U.S. cell carriers are participating in WEA on a voluntary basis. Wireless carriers are currently selling mobile devices with WEA

capability included; however, not all handsets currently on the market are capable of receiving WEAs. It is anticipated that most commercially available phones will be WEA-capable in the near future. To find out what mobile devices are capable of receiving WEAs check with your local cell provider.

Emergency Alert System (EAS)

The Emergency Alert System (EAS) is used by alerting authorities to send detailed warnings via broadcast, cable, satellite, and wireline radio and television channels. EAS Participants-radio and TV providers nationwide-are the stewards of this important public service in close partnership with alerting officials at all levels of government. The EAS is included as a component of the IPAWS for integrated multi-channel alert and warning.

In many cases, radio and TV stations continue to operate when other means of alerting the public are unavailable, providing a layer of resiliency to the suite of available emergency communication tools. The EAS is in a constant state of improvement to assure seamless integration of CAP-based emerging technologies. FEMA, with support of the Federal Communications Commission (FCC), is responsible for implementation, maintenance, and operation of the EAS at the Federal level.

EAS Modernization

The modernization of the EAS began with FEMA's adoption of a new digital standard for distribution of alert messages to EAS Participants. IPAWS delivers alert and warning info to EAS stations in the same CAP standard as all other IPAWS components. EAS Participants must monitor IPAWS in addition to other emergency information sources that may be detailed in each State's EAS Plan. The addition of CAP

distribution for EAS provides enhanced alerting capabilities and makes the EAS more resilient.

EAS Participants connect to IPAWS via the EAS CAP feed. The EAS CAP feed is polled by equipment at radio and TV for alerts applicable to their listening/viewing area. If you intend to use the IPAWS EAS Feed to communicate alerts to EAS stations in your area, the IPAWS PMO recommends that you coordinate with local stations to understand their procedures for broadcasting alerts. The IPAWS PMO published an "Emergency Alert System Best Practices Guide", available on the IPAWS website, which provides some general EAS information and guidelines for EAS planning and operations.

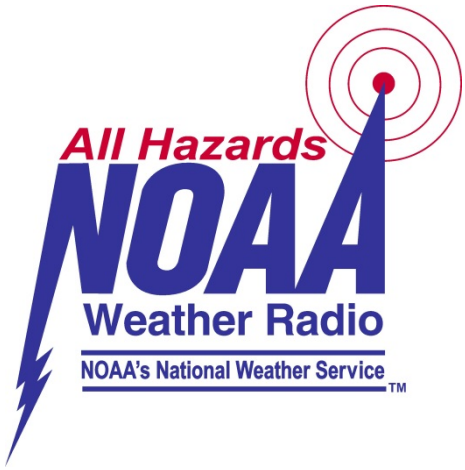
Primary Entry Point (PEP) Stations

Primary Entry Point (PEP) Stations are private or commercial radio stations that cooperatively participate with FEMA to provide a continuous all-hazards ready state for the broadcast of a Presidential National Emergency Alert Notification to the public before, during, and after an emergency. PEP stations are located across the country and include FEMA provided resiliency improvements such as generators and extended fuel supplies to enable operation when commercial power is interrupted. State and local public safety officials, in coordination with the radio station owner or operator, can leverage them before, during, and after FEMA provided resiliency of PEP stations for local emergencies when the National EAS is not in use by the President.

NOAA HazCollect

FEMA and the National Weather Service (NWS) have partnered to provide the NWS family of dissemination systems as an additional channel through which alerting authorities using IPAWS can send public alerts and warnings. This is made possible through the All-Hazards Emergency Message Collection System, also known as "HazCollect," which automatically relays Non-Weather Emergency Messages (NWEMs) from NWS approved officials to NWS dissemination systems including NOAA's All Hazards Weather Radio.

The NWS family of dissemination systems includes the NOAA All Hazards Weather Radio (NWR), NOAA Weather Wire Service (NWWS), Emergency Managers Weather Information Network (EMWIN), NWS websites and internet feeds. The NWR is a nationwide network of radio stations including 1000 transmitters covering all 50 states, adjacent coastal waters, Puerto Rico, the U.S. Virgin Islands, and the U.S. Pacific Territories. Radio and television broadcasters, and other EAS participants, generally monitor the NWS as an alternate source, providing backup for alerts delivered to the EAS via other methods.



Government organizations responsible for public alerting that wish to utilize HazCollect must first successfully complete the MOA process with IPAWS. Upon completion and approval of the IPAWS Public Alerting application COGs will be directed to NOAA to obtain permission from the National Weather Service to be a HazCollect alerting authority.

Internet Capabilities

Internet web services and applications may complete a MOA with IPAWS allowing them to access, monitor, and retrieve public alerts in CAP format from an IPAWS Public Alerts Feed that can be monitored over an internet connection. Organizations and the general public may then subscribe to the 3rd party internet web services and applications to receive public alerts that have been issued through IPAWS by any IPAWS alerting authority.

Unique Systems & Emerging Technologies

All interoperation with IPAWS is based upon the Common Alerting Protocol (CAP) message exchange data standard, an open and internationally recognized Extensible Markup Language (XML). Technologies that can communicate through internet channels and use the CAP can be programmed to interoperate with IPAWS for various alert and warning functions.

Many alerting authorities already have a range of unique tools, systems and technologies for public alerting or alert and warning coordination at their disposal. These systems could include, but are not limited to, emergency telephone networks, siren systems, or digital road signs. Many unique systems may already be or can be upgraded to be CAP compliant, allowing public safety officials to use IPAWS to streamline and increase available alerting channels to improve alerting reach and resilience of local alerting capabilities.

By making unique alerting services CAP-compliant and integrating them with IPAWS, alerting authorities will be able to send a single alert from or to their unique system through IPAWS that will reach radio, television, cell phones and other mobile devices, internet services, and all future CAP-compliant IPAWS connected technologies. Utilizing multiple channels for public alerts increases the likelihood that the message will successfully reach the public. In addition, using a single CAP alert message reduces the amount of time required to prepare separate system-specific alerts, thus, speeding the delivery of critical, lifesaving information.

Use of the CAP standard enables industry partners to develop content and/or devices that can be used by individuals with disabilities and others with access and functional needs to receive emergency alerts. CAP alerts can transport rich multi-media attachments and links in alert messages. The IPAWS PMO participates in operational testing and evaluation of products and is continually working toward integrating additional technologies and encouraging industry or private sector innovation to meet the needs of the whole community.

Computer gaming systems, digital signs, siren systems, internet search engines, social sharing websites, and instant messaging are all examples of technologies that could use IPAWS to deliver lifesaving emergency alerts to the public in the future.

Alerting Best Practices

Deciding whether to issue a public warning can be a difficult decision. Ultimately it will be a matter of local judgment; however, you may find it helpful to have an outline of decision criteria to assist you with the process and ensure that a timely decision is made. When deciding whether to issue a public alert or warning, the following criteria could be applied:

1. Does the hazardous situation require the public to take immediate action?
2. Does the hazardous situation pose a serious threat to life or property?
3. Is there a high degree of probability the hazard situation will occur?

Your State or local EAS plan or other emergency plans may provide criteria for issuing public alerts, and if so, should be incorporated into your IPAWS procedures.

Components of Effective Warning Messages

Effective warnings are those that result in the public taking recommended actions to protect themselves. To help ensure that warning messages are effective, they must be issued in a timely manner and the following components should be included:

- **Specific Hazard**: What is/are the hazards that are threatening? What are the potential risks for the community?
- **Location:** Where will the impacts occur? Is the location described so those without local knowledge can understand their risk?
- **Timeframes:** When will it arrive at various locations? How long will the impacts last? When should people take action?
- **Source of Warning**: Who is issuing the warning? Is it an official source with public credibility?

- **Magnitude:** A description of the expected impact. How bad is it likely to get?
- **Likelihood:** The probability of occurrence of the impact.
- **Protective Behavior:** What protective actions should people take and when? If evacuation is called for, where should people go and what should they take with them?

Effective Style Guidelines for Warning Messages

How you write an alert/warning message is nearly as important as what you write. Poorly written warnings can undermine both understanding and credibility. Here are some style elements to consider when writing alert and warning messages.

- **Specific:** If the message is not specific enough about the "Who? What? When? Where? Why? How?," the public will spend more time seeking specific information to confirm the risk. Be specific about what is or is not known about the hazard.
- **Consistent:** An alert/warning should be internally consistent, that is, one part of the message should not contradict another part. It should be consistent with messages that are distributed via other channels. To the extent possible, alerts/warnings should be consistent

from event to event, to the degree that the hazard is similar.

- **Certain:** Use authoritative language and avoid conveying a sense of uncertainty, either in content or in tone. Confine the message to what is known, or if necessary, describe what is unknown in certain terms. Do not guess or speculate.
- **Clear:** Use common words that can easily be understood. Do not use technical terminology or jargon. If protective instructions are precautionary, state so clearly. If the probability of occurrence of the hazard event is less than 100%, try to convey in simple terms what the likelihood is of it occurring.
- **Accurate:** Do not overstate or understate the facts. Do not omit important information. Convey respect for the intelligence and judgment of your public.

Criteria for Appropriately Issuing Alert Messages

The following factors should be considered in the selection of appropriate event codes:

- **Hazardous weather and coastal events:** Event codes relating to hazardous weather and coastal events are reserved for the National Weather Service.
- **State/Local Emergency Plans:** State or local EAS plans may limit the types of codes which EAS participants (e.g., broadcasters) are assigned to monitor for EAS broadcasts.
- **Relevant hazards:** Certain types of hazards may not be relevant to the risks in your community. For example, volcanoes or avalanches may not be present in your part of the country.
- **Event codes specified in your application and implemented in IPAWS:** The event codes that are specified in your application and implemented in IPAWS will determine which types of alerts your COG is permitted to relay to alert dissemination services.

- **Local knowledge:** Finally, the selection of an event code may determine what is displayed in a television message "crawl" and your selection of an event code may depend on what members of your community will understand based on local practice.

Event Codes

The following list of event codes and names are generally related to the type of hazardous situation:

Warnings:

- Avalanche Warning (AVW)
- Civil Danger Warning (CDW)
- Earthquake Warning (EQW)
- Fire Warning (FRW)
- Hazardous Materials Warning (HMW)
- Law Enforcement Warning (LEW)
- Nuclear Power Plant Warning (NUW)
- Radiological Hazard Warning (RHW)
- Volcano Warning (VOW)

Emergencies:

- Avalanche Watch (AVA)
- Child Abduction Emergency (CAE)
- Civil Emergency Message (CEM)
- Local Area Emergency (LAE)
- 911 Telephone Outage Emergency (TOE)

If you wish to focus more on the instructions to the public than the particular hazard, there are two instruction-specific event names/codes available:

- **Evacuation Immediate (EVI):** This event name/code is most appropriately used to instruct the public to evacuate for imminent events. For longer lead times, (e.g. several days), other methods of communication may be more appropriate such as media advisories.
- **Shelter in Place Warning (SPW):** This event name/code may be appropriate for hazardous materials, radiological, law enforcement, or other types of events; however it is more effective if your community has been educated as to its meaning in advance.

Accessible Alert and Warning Messages for Persons with Disabilities and Others with Access and Functional Needs

As the message originator, you should keep in mind the needs of persons with disabilities and others with access and functional needs.

- **Clear and simple language**: A general guideline to follow is to use clear and simple language whenever possible, with minimal use of abbreviations. The most important information should be presented first.
- **Text-to-speech conversion:** Care must be taken when composing text that is converted to audio by text-to-speech equipment.
- **Consistent audio:** IPAWS and CAP can accommodate pre-recorded audio files that may be used by EAS participants (e.g., broadcasters) and that assist the blind or those with limited vision. The audio should be as consistent as possible with the text and should ensure that any abbreviations are explained.
- **Ample text and audio to explain images/maps:** Because IPAWS-OPEN provides the capability to deliver multimedia messages, ample text and audio should be

provided to explain images or maps, so that message recipients can understand the meaning of what is being conveyed graphically.

- **Screen reading and text-to-speech devices:** Some mobile devices and currently software provide screen reading and text-to-speech conversion capabilities for alerts delivered via internet technologies. When considering these and other translation technologies, craft messages that avoid non-standard language formats and terminology.

Accessible Alert and Warning Messages for Persons with English as a Second Language

Non-English-speaking persons may not understand warnings that are provided in English. Communities with high percentages of non-English-speaking people may consider issuing warnings in multiple language(s), as well as in English.

IPAWS does not provide translation services, but it is capable of accepting and relaying alerts in multiple languages as composed by the alert originator.

Your alert authoring or other software programs may provide automated translation, but you should validate any automatically translated text with a fluent speaker of the language to avoid errors. The use of pre-translated templates may serve to minimize the amount of information requiring translation for actual alerts.

Coordinating with Alerting Partners

Effective alerting demands that information is clearly and unambiguously delivered to the public. When multiple alerting agencies possess the ability to issue alerts in an area, confusion can arise from redundant or contradictory alerts. Avoiding this situation requires coordination with all involved local authorities and officials. As you are preparing best practices for alerting, consider cases where an emergency event may cross jurisdictional boundaries, such as a drifting cloud of toxic gas released from an industrial accident, or a flood resulting from a dam break. Establish Memoranda of Understanding (MOUs) with adjacent jurisdictions that address coordination of alerting to avoid inconsistencies and redundancies.

Beyond your neighboring alerting authorities, it is also critical to coordinate with specialized communities in your jurisdiction that may be involved with emergencies and recovery efforts. These specialized communities will vary greatly in each community and can include, but are not limited to, universities, nuclear power plants, chemical facilities, military bases, Federal agencies,

hospitals, etc. Some of these entities have the capability to become an IPAWS COG to allow another origination source of alerts in your community. Alerting authorities should coordinate with these organizations to better determine the risks that exist as well as coordinate emergency plans.

Private sector alert disseminators are also critical partners in the alerting process before, during, and after an emergency. Broadcasters and broadcast engineers are an important part of this process and a strong relationship is critical with local broadcasters as the alerting process progresses. Due to the addition of WEAs, the involvement of private sector partners in the wireless industry has expanded. Commercial Mobile Service Providers (cell phone carriers) are part of the partnership with FCC and FEMA that make WEAs a reality.

There is some variability of WEA implementation among cell phone carriers. It is critical that you are aware of which cell phone carriers operate in your jurisdictions and what WEA coverage is available.

The limitation of 90 characters for WEA messages is a challenge to consider when planning how to effectively send emergency alert information out to the public. Plans for how to convey additional information and details to the public after an initial WEA should be developed. In many cases, the EAS or upfront coordination with local broadcasters can provide a two pronged plan for quickly getting the public's attention with a WEA and then providing them detailed information through local broadcast

radio and TV. Due to the reach of WEAs, it is imperative that other outlets providing information to the public are prepared to handle the additional questions and requests for information that WEAs create. It is critical that alerting authorities build and strengthen their relationships with broadcasters, 9-1-1 centers, and other sources the public turns to for more information during an emergency. Preparing these partners in advance will enable a coordinated and consistent public information response.

Due to likely alert message bleed-over into neighboring jurisdictions when using any of the alerting channels accessible via IPAWS, the officials there must be prepared to field questions from the public. Alerting authorities should establish coordination policies and procedures to notify public safety and emergency management agencies in neighboring jurisdictions about the planned use of IPAWS for sending WEAs, or broadcasting alerts via EAS or NWR.

IPAWS Testing

Testing your systems and tools is a critical part of preparing to send effective alerts. Internal testing will tell you whether your staff knows how to use your IPAWS-compatible alert origination software, if the alert origination software meets requirements, and that you have established your connection to IPAWS-OPEN. It may also expose gaps in your Standard Operating Procedures (SOPs), which you can address by revising them to include procedures specific to the implementation of IPAWS capabilities.

Through an Inter-Agency Agreement, the Joint Interoperability Test Command (JITC) hosts the IPAWS Demonstration and Test (D&T) center that provides technical support to the IPAWS PMO with tests, assessments, and exercises. JITC, a command of the DOD's Defense Information Systems Agency (DISA), is an independent test and evaluation agency and maintains the IPAWS laboratory. JITC also provides FEMA with interoperability and functional testing support, Information Assurance (IA) support, and overall technical support.

The IPAWS PMO and JITC are available to help public alerting authorities with the testing process. Please contact the IPAWS PMO to coordinate guidance at IPAWS@dhs.gov.

Once you are connected with the IPAWS PMO and JITC, you will work through a three-phase process to complete the testing process.

Phase 1 – Preparing to Test

- What do you want out of the testing process? What functional requirements do you want to test?
- Are you an IPAWS alerting authority? Do you have a testing certificate and are you ready to test at JITC?
- Do you have IPAWS-compatible alert origination software?
- Is your tool ready to test? Have you been able to confirm the system and component installation? Does JITC have copies of your tech manuals, etc.?

After all of these questions and categories are covered with the IPAWS PMO and JITC, your alerting authority organization is required to submit a formal letter requesting that the JITC test the set of functional requirements that you have identified. These system functional requirements will be used by JITC to create a testing document and the test scripts.

Phase 2 – Controlled Environment Testing

JITC staff will follow the test plan and execute the repeatable test scripts to assess the functional requirements of the alert origination software as outlined by the alerting authority organization. Throughout the testing phase, the JITC staff will provide status reports. Once JITC staff confirm the process is complete, the testing moves onto Phase 3.

Phase 3 – Operational Field Assessment

In the third phase, you will confirm the findings of Phase 2 in the real world. The test is executed in the field and the results are observed and then analyzed. After the results are in, a Final Assessment Report is produced analyzing the results of the testing.

Public Education Resources

In times of crisis, the American people continually demonstrate resilience. Therefore, it is essential that the American people have timely information to allow them to take the necessary actions to ensure their safety and minimize damage to property. New public education products are designed to ensure the American people understand the functions of IPAWS and how to access, use, and respond to information from public safety officials.

Alerting authorities sending alert messages know their communities best, so you should have an active public education campaign to make sure that people understand the alerts, how to respond, and do not opt out of receiving future alerts. Alerting authorities are welcome to adopt, use, and tailor IPAWS public education materials to their own campaigns.

The IPAWS PMO, in partnership with Ready.gov and the Ad Council, created WEA Public Service Announcements (PSAs) for radio and TV. The PMO is collaborating with key partners, including the National Association of Broadcasters (NAB) and the National Alliance of State Broadcasters Associations (NASBA), to encourage broadcasters to air the WEA PSAs using broadcaster-donated time for public service announcements. The WEA PSAs are available to IPAWS partners to support their outreach efforts.

PSAs were created as a means to draw the public's attention to WEAs and describe how they are an important lifesaving tool that

public safety officials, like you, are using to ensure that the public is aware of threats to their lives and property. Learn more about lifesaving alerts at our new webpage, www.Ready.gov/alerts.

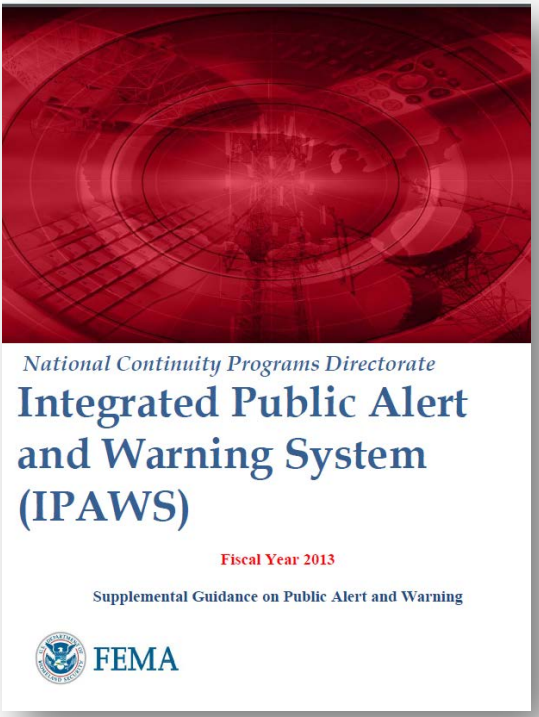
Ready.gov provides up-to-date information about how to prepare for emergencies. The www.ready.gov/alerts webpage provides information on WEAs, EAS, and NOAA's All Hazards Radio, in addition to access to the WEA PSAs and other helpful information about emergency alerts for the public.

The IPAWS PMO also developed a second EMI web-based training course entitled, "IPAWS and the American People". Type "FEMA EMI IS 248" into your search engine to access this course. The course is designed to educate the American people about the variety of alert and warning tools and technologies public safety officials can use to send them life-saving alerts. The course also has a section focused on how the public should respond when they receive an alert.

FEMA encourages public safety officials to take full advantage of all of these products. For example, you can work with your local broadcasters to make the WEA PSA a part of your local public education campaigns by individualizing the PSA tagline. Please contact the IPAWS PMO at ipaws@dhs.gov if you are interested in incorporating the WEA PSAs and/or other products into your State and local public education campaigns.

Grants and IPAWS

Funding from the Homeland Security Grant Program (HSGP) and Tribal Homeland Security Grant Program (THSGP) may be used to adopt IPAWS and enhance your alert and warning capabilities.



The IPAWS PMO published the FY13 "Supplemental Guidance on Public Alert and Warning" to provide guidance on eligible public alert and warning activities and equipment standards for prospective grantees, promote consistency in policies across Federal grant programs, and ensure compatibility among federally-funded projects. This guidance can be found at www.fema.gov/informational-materials.

Grants can be used for *planning, training, exercises, and equipment* purchases:

- *Planning*: development or enhancement of public alert and warning plans, interoperability of governing bodies, assessments and inventories, protocols, and/or planning for emerging technologies

- *Training*: personnel expenses, development, delivery, attendance, evaluation of training, training conferences, and other expenses related to training
- *Exercises*: planning and conducting exercises in compliance with NIMS and HSEEP, preparation of after-action reports and improvement plans, using emerging technology systems, equipment, or testing SOPs
- *Equipment*: design, procurement, enhancement, replacement, and maintenance of emergency response communications systems and equipment, and deployment of emerging technology systems

Remember, FEMA does its business with the State---counties, locals, etc., must coordinate with the State to obtain grant funds.

Common Grant Restrictions:

- Grantees must ensure that Federal funds are used for purposes that were proposed and approved, and must have financial systems in place to properly manage grant funds
- Grantees cannot commingle Federal sources of funding; the accounting systems of all grantees and sub-grantees must ensure that Federal funds are not commingled with funds from other awards or Federal agencies
- Each award must be accounted for separately

Organizations seeking grants are encouraged to contact the FEMA Grants Office and IPAWS PMO prior to initiating program activities and identify a point of contact so each program can provide program guidance, tools, resources, and updates.

Stay Connected to the IPAWS PMO

Join the IPAWS Webinars for Practitioners

The IPAWS PMO holds regular webinars on the latest topics in IPAWS development and solicits practitioners to ask questions directly to guest presenters from the IPAWS PMO and private sector.

To receive email updates with the dates and times for the IPAWS Practitioner Special Interest Group webinars, or to view past webinars, visit: http://www.fema.gov/integrated-public-alert-and-warning-system-working-groups.

Connect with IPAWS PMO leadership and subject matter experts at conferences and events

IPAWS PMO leadership and subject matter experts speak at and participate in numerous industry, professional associations, and government conferences and events, in addition to hosting focused working groups, webinars, and roundtables. At conferences, IPAWS PMO staff demonstrates alert origination and dissemination technologies and takes questions from alerting authorities, private sector developers, and the general public. For a list of upcoming events, visit: http://www.fema.gov/ipaws-upcoming-conferences-events-and-speaking-engagements.

Access resources to help public safety officials understand, adopt, and use IPAWS -- and educate the American public about how to access, use, and respond to information in public alerts and warnings

The IPAWS PMO develops resources for public safety officials that are designed to encourage, assist, and enable partners to incorporate IPAWS into governance structures, strategies, policies, business models, and standard operating procedures. Additionally, there are several resources available to help public safety officials ensure the American people understand the

functions of IPAWS and how to respond to alerts and warnings from public safety officials. Visit the IPAWS website at http://www.fema.gov/informational-materials to access these resources for your use.

Success Stories: WEAs in Action

On July 1, 2013, five counselors and 29 children in East Windsor, Connecticut, were in the Sports World complex soccer dome having fun at summer camp. Shortly after 1:30 p.m., the manager received a Wireless Emergency Alert (WEA) from the National Weather Service stating that a tornado warning had been issued for the area until 2:00 p.m. The manager immediately evacuated everyone into an adjoining building, and within about two minutes of the alert, a category EF-1 tornado hit the dome and sent it flying into the air. Due to the manager's quick and correct response to the WEA alert, no one at the summer camp was injured.

This is an example of the life-saving alerts that are being sent out through IPAWS WEA. The IPAWS PMO is working hard with all of our alerting partners to continue to ensure that the American people have timely information to allow them to take the necessary actions to ensure their safety and minimize damage to property. There are 34 people in East Windsor, Connecticut, who are living proof.

Below are a few stories that also demonstrate how State and local public safety officials have used WEAs to communicate with their communities in times of disaster for the purpose of saving lives and protecting property. Additional stories can be found at www.fema.gov/ipaws.

SUPERSTORM SANDY

As Superstorm Sandy headed for New York City, sirens began ringing on some New Yorkers' cell phones. The WEAs were accompanied by messages telling them to stay inside; not to drive; or for those in Zone A, to evacuate. Superstorm Sandy was the first time WEAs were used in New York.[1]

[1] New York Times, November 9, 2012

"This Emergency Alert [WEA] just popped up on my phone. Ten seconds later, the TV went out. Here we go…"[2]

"COOL TECH: Loud alarm and screen alert [WEA] about [SuperStorm Sandy] making landfall in NYC."[3]

BOSTON MARATHON BOMBING AND MAN HUNT

Boston officials used Wireless Emergency Alerts (WEA) in the aftermath of the Boston Marathon bombings…the Massachusetts Emergency Management Agency (MEMA) has the ability and authority to issue imminent threat WEA messages and issued a shelter-in-place order stating, "Shelter in place still in effect, it does not prevent employees from returning home –MEMA."[4]

TORNADOS

"When we were driving thru Georgia, almost to Adairsville, I received an EXTREME ALERT message on my cell phone, warning of a tornado in my area. Is this [WEA] something that is on all cell phones? I was amazed and happy for the warning. We continued driving, but were certainly watching the skies. We were actually on Interstate 75 as the tornado crossed right in front of us. All of the vehicles came to a stop as we watched. We had to weave thru the debris in order to find our way to the next exit. Thankfully we were stopped and not caught up in the tornado…billboard signs and huge trees were destroyed! It was quite a site!"[5]

[2] Heidi N. Moore, October 30, 2012
[3] Sree Sreenivasan, October 28, 2012
[4] http://www.radioworld.com/article/report-boston-did-use-wireless-alerts/219096 April 24, 2013
[5] New Yorker, traveling through Adairsville, Georgia, January 30, 2013

"We [National Weather Service] put out the early warning, people got notice and knew what to do when a tornado approaches. The damage was bad, but we're happy that no one got hurt, so that's a success story we feel pretty good about. The more ways we can get the information out, the better the chance people have to be warned."[6]

"Your warning of a tornado imminent in my area of New York, sent 7/26/12 via text message to my cell, was invaluable! From the bottom of my heart- THANK YOU National Weather Service!"[7]

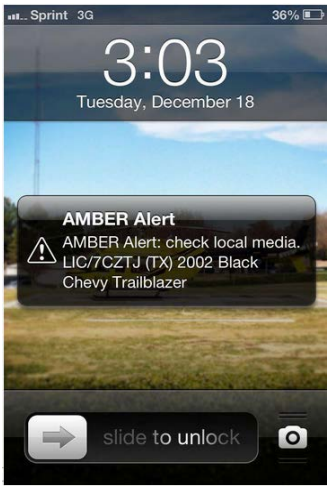
"While I am pretty calm in the face of severe weather…keeping The Weather Channel on tends to make my four year old paranoid. So instead of watching the weather, we hung out in the play room…from the other side of the house, I heard an unusual ringing. It sounded like an emergency alert ring, but I was sure the TV was off… I headed off to investigate. The TV was off. Could that sound have come from my phone? It sure did. My Samsung Galaxy S III sent me a text alert [WEA] letting me know there was severe weather in my area. But this was no ordinary text message, the notification came with a special forced tone alert that overrode my volume setting. How smart is that?! When I turned on my phone I found a message from the National Weather Service alerting me to a tornado warning in the area. I turned on the TV, and sure enough a tornado warning had just been issued. Now that's the way technology should work!"[8]

AMBER ALERTS

On September 5, 2013 in Tulsa County, Oklahoma, a man at a fishing pond spotted the vehicle that had been plastered in AMBER alerts all over broadcast media, WEAs, Facebook, asking the public to look for a child taken by his father. The man crawled through tall weeds to confirm the license plate and then called the

[6] Local New York NWS Spokesman, Star Gazette, August 1, 2012
[7] Citizen Post of Facebook, FCC Blog, August 30, 2012
[8] http://www.thesuburbanmom.com/2012/08/31/technology-that-keeps-us-safe-wireless-emergency-alerts

police. The father and 2-year-old son were asleep inside the vehicle. "I said, wait a minute, that's an AMBER alert. I got it from FOX 23, all you guys from the news; it hit my Facebook, and my [WEA] phone. I didn't think none of it; just keep an eye out and next thing I know, I'm fishing the next morning and here we are..." [9]



On August 30, 2013 in High Point, North Carolina, a 17-month-old who was inside a vehicle that was stolen outside a grocery store on Thursday night, was found safe on Friday morning. A student at UNCG, who received a WEA AMBER Alert describing the vehicle and license plate number, was walking to her apartment when she heard a baby crying. She checked the WEA AMBER Alert on her phone and immediately called police. "I heard the baby crying and I saw the car, so I looked up the car again to make sure it's the right one…I looked at my phone and I saw the AMBER Alert…it's the exact same car."[10]

On July 1, 2013, in Huron, Ohio, a little boy was reunited with his mother after a WEA AMBER Alert was issued and four friends spotted the suspect's vehicle while they were eating breakfast at a diner. One man received the WEA AMBER alert on his iPhone and the group of friends made a point to remember the information. A few hours later, they spotted the suspect on Route 6 in Erie County. "I just went up to the window and looked out and I remembered the plate… and I was like, that's it, that's the AMBER Alert." The friends called 911, left the restaurant to follow the

[9] http://wnow.worldnow.com/story/23346951/sperry-man-describes-finding-toddler-in-tulsa-amber-alert
Posted Sep. 5, 2013 08:49AM Updated Sep 05, 2013 4:58 PM
[10] http://myfox8.com/2013/08/30/police-searching-for-17-month-old-kidnapped-high-point/
Posted on: 12:03 am, August 30, 2013, by Scott Gustin, Ryan Sullivan and Mitch Carr

suspect, and stayed on the phone with the police until the suspect was apprehended and the child was safely recovered.[11]

On February 21, 2013 in Minneapolis, Minnesota, a teenager noticed a WEA AMBER alert on her father's cell phone. Within an hour of receiving the WEA, she spotted the car. "'I was so shocked,' she recalled. "I was like, Oh my God. This is the car. So, I ran back inside the house and told my dad." Although city officials have credited her a hero, she doesn't think of herself as a hero. Instead, she credits the WEA AMBER Alert that came across her father's cell phone just an hour before police reunited the boy with his mother. [12]

[11] http://fox8.com/2013/07/01/good-samaritans-go-after-amber-alert-suspect/
Good Samaritans Go After Amber Alert Suspect Posted: on 6:08 pm, July 1, 2013 by Mark Zinni

[12] http://www.myfoxtwincities.com/story/21303100/minneapolis-teen-awarded-for-leading-police-to-amber-alert-suspect
Posted: Feb 21, 2013 8:58 PM EST Updated: Feb 21, 2013 10:05 PM EST, By Iris Perez MINNEAPOLIS (KMSP)

Acronym List

AMBER Alert	America's Missing: Broadcast Emergency Response
CAP	Common Alerting Protocol
CMAS	Commercial Mobile Alert System
CMSP	Commercial Mobile Service Providers
COG	Collaborative Operating Group
EAS	Emergency Alert System
EMI	Emergency Management Institute
EDXL-DE	Emergency Data Exchange Language - Distribution Element
FCC	Federal Communications Commission
FIPS Codes	Federal Information Processing Standards Codes
HazCollect	National Weather Service All-Hazards Emergency Message Collection System
IPAWS	Integrated Public Alert and Warning System
IPAWS-OPEN	IPAWS Open Platform for Emergency Networks
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
NWEM	Non-Weather Emergency Message
NWR	National Weather Radio
NWS	National Weather Service
OASIS	Organization for the Advancement of Structured Information Standards
PEP	Primary Entry Point Stations
PMO	Program Management Office
SOP	Standard Operating Procedures
WEA	Wireless Emergency Alert

A glossary of alert and warning terms can be found at www.fema.gov/informational-materials.

For more information on IPAWS please contact the IPAWS Program Management Office

E-Mail
ipaws@dhs.gov

Web Site
http://www.fema.gov/ipaws