



Integrated Public Alert and Warning System IPAWS

Get Alerts, Stay Alive

Increasing Resiliency in Our Communities through IPAWS

November 2012



FEMA

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Introduction

Manny Centeno

EAS Test Program Manager, FEMA IPAWS

Manny Centeno began serving as a Program Manager at FEMA's Integrated Public Alert and Warning System in June of 2010. During his tenure at FEMA he led the first ever Nationwide Emergency Alert System (EAS) Test as well as the many test events and exercises leading up to it. Mr. Centeno is a frequently requested speaker with over 20 years of experience in broadcast and emergency communications as well as extensive technical experience directly working on public alert and warning systems.

Mike Gerber

NOAA/National Weather Service

(short bio)



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Due to the timing of discussion, only a few questions from the Q&A will be answered during the session.

Please submit more detailed questions, ideas, and comments on:

ipaws@dhs.gov

<https://www.fema.gov/ipaws>



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Discussion Topics

- **Public Alert & Warning Essentials - Manny Centeno, FEMA IPAWS**
 1. Identify your jurisdiction's vulnerabilities
 2. Identify who is authorized to originate and manage alerts
 3. Identify and engage warning partners
 4. Develop clear and repeatable policies and guidelines
 5. Review and frequently update plans and policies
 6. Educate the public
 7. Test and Exercise Frequently
- **Wireless Emergency Alert Best Practices – Michael Gerber, NOAA/ National Weather Service**
 - NWS WEA Update
 - Best Practices: Being Prepared
 - Best Practices: Message content
 - Best Practices: Monitoring/Feedback
 - Best Practices: Outreach



Public Alert & Warning Essentials

Manny Centeno

EAS Test Program Manager

FEMA IPAWS



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Public Alert and Warning Essentials

- The ability to warn the public of imminent danger has been a priority for civilizations throughout the world for thousands of years
- In ancient times, people would use available tools to alert and warn their groups and villages. These tools included town criers, horns, conch shells, wood sticks, smoke, bells and other devices
- As is now, in old times an effective warning required various steps to work well together. The alert and warning originator needed to have a basic process and infrastructure:
 - a. that effectively receives and shares information; and understands the emergency as it evolves
 - b. that includes a decision making process and authority to alert and warn
 - c. that provides a method or device to convey the alert and message
 - d. that provides for practice and testing



Public Alert and Warning Essentials

To plan for a public warning program, an authority should consider the following:

1. Identify your jurisdiction's vulnerabilities to identify needs and requirements
2. Identify who is authorized to originate and manage alerts (Emergency Manager, Incident Commander, Watch Officer, Public Information Officer, etc.)
3. Identify and engage with warning partners to seek their advice and council
4. Develop clear and repeatable warning policies, guidelines, procedures, training, test and exercise plans
5. Review and frequently update public warning plans and policies in close coordination with all warning partners
6. Educate the public on the importance of being informed and the use of warning sources
7. Test and Exercise Frequently



Public A&W Essentials – Identifying Vulnerabilities

Conduct a Vulnerability Assessment: What is the area vulnerable to?

- Understand geographical areas that may overlap or share boundaries with other jurisdictions.
- Understand areas where your agency may be alerting citizens in another jurisdiction. For example, another State may have small towns that are close to your State's borders. These areas may not be able to support their own public warning systems, and the their State government system may be too distant to be effective there. Seek agreements with adjacent State or counties.
- Identify areas where your State may be alerting citizens of another country (see above). Seek agreements with neighboring country with support from U.S. State Department.
- Identify Man-Made Vulnerabilities: Chemical Plants, Nuclear Plants, Fuel Depots, Trans-shipment Facilities, Cyber Attacks, Drinking Water Contamination, Shootings, Terrorist Attacks, etc.
- Identify Natural Vulnerabilities: Blizzards, Biological Threats, Severe Wind Storms, Floods, Earthquakes, Animal/Plant Diseases, Wildlife Fires, etc.

Public A&W Essentials – Identifying Vulnerabilities

- Identify your agency's physical vulnerabilities and provide resiliency or backup facilities and components to warn the public if the main site suffers damage or destruction.
- The Vulnerability Assessment results will assist in the development of a Public Warning Plan that:
 - a. Identifies the alert and warning codes for CAP and EAS
 - b. Provides officials with information and education to develop effective warning messages
 - c. Includes industries that may pose accidental risks to the public
 - d. Provides officials with information to educate the public for desired response
 - e. Engages and Invites all in the emergency management and emergency response community to provide input for the Vulnerability Assessment and Public Warning Plan

Public A&W Essentials – Who Originates?

Identify who is authorized to originate and manage alerts (Emergency Manager, Watch Officer, Public Information Officer, etc.). How is this determined?

Authority – Who in the organization has the authority to originate public warnings? This is determined by the emergency management agency or other agency or organization as determined by the State or local government

Trust – Public Warnings depend on and leverage the telecommunications capabilities of private-sector participants. These partners contribute willingly when their capabilities are used responsibly and effectively.



Availability – Public Warning originators must be available at any time of day or night, everyday. Emergencies affecting the public do not occur on a schedule. Many jurisdictions use properly trained watch officers to originate public warnings. In agencies where budget does not support 24/7 personnel, web and telephone technology allows for public warning origination capabilities.

Understanding and Training – All public warning originators must understand the incident, be trained to select the appropriate alert event codes, geo-codes, and know how to draft the right language for the warning.

Public A&W Essentials – Public Warning Partners

Public warning programs depend on and leverage the telecommunications capabilities of private-sector participants. Other agencies and partners, such as State Police, Justice (child-abduction), military installations, chemical and nuclear plants, may also need to use these capabilities. These partners contribute willingly when their knowledge and capabilities and are happy to participate responsibly and effectively. It is important to create and maintain a Governance Structure in order to secure the permanence of effective public warning through the years.

Establish strong working relationships with the following sectors:

- Broadcast Radio, Television and Cable Providers – Most jurisdictions have already established State Emergency Communications Committees (SECCs) and Local Emergency Communications Committees (LECCs) that include these sectors.
- Cellular Service Providers – Prior to IPAWS, radio, television and cable EAS Participants would represent the private sector. Now, with the distribution of cellular alerts as part of CMAS/WEA, it is important to include cellular representatives.
- County and City Governments – These sectors should be included to provide advice and to provide planning and operational coordination of the public warning system.



Public A&W Essentials – Policy, Guidelines, Procedures...

Clear and concise policies, plans, procedures, and guidelines support an effective and continual public warning program at the State and local levels.

All governments have an OBLIGATION to protect their citizens.

“Individuals, businesses, communities, organizations and governmental agencies that create, generate or hold information that can reduce risk have a fundamental moral duty to warn of impending danger.” – Partnership for Public Warning (PPW)

Public warning policy principles can be taken from several documents:

- Presidential Executive Order 13407
- PPW’s A “National Strategy For Integrated Public Warning Policy and Capability”
- PPW’s “Protecting America’s Communities – An Introduction to Public Alert and Warning”
- IPAWS Training - IS-247.a
- IPAWS EAS Best Practices Guide

Public A&W Essentials – Policy, Guidelines, Procedures...

- Before drafting new policy, understand alert and warning technology, nomenclature, and rules – seek support from jurisdictions that who have effective, well-exercised plans.
- Seek funding for initial deployment and sustainment.
- Communicate roles, instructions and expectations clearly.
- Create training and re-training programs for new staff and as a way to periodically “recertify” current staff.
- Develop security and accountability guidelines.
- Develop joint training opportunities with EAS, CMAS/WEA, and other public warning participants.

Public A&W Essentials – Regularly Update Policies, Guidelines, Procedures...

- Policies, guidelines, best-practices, procedures and other documentation need to be reviewed and refreshed regularly. This is necessary due to changing condition and needs, and technological advances.
- A solid stakeholder partnership and understanding of those stakeholder roles.
- An understanding of technology, and that technology requires funding.
- An understanding that no single method or technology will meet all needs.
- An understanding that no system will ever be perfect. Continual evolution and improvement is necessary in order to achieve incremental success.
- An expectation that due to the political process, leadership priorities will change. However, with strong policies, guidelines and procedures, sustainment of an enduring public warning framework is achievable.
- An understanding that regular practice and exercise supports improvement.
- An understanding that the public needs to be continually reminded that being informed is important for their safety.

Public A&W Essentials – Educating the Public

Public education is essential in order to achieve a successful warning program.

- Being informed is a shared responsibility
- Include information on public warning systems when providing preparedness advice to the public
- Educate the public on where to seek and validate information
- Inform the public that it is unsafe to “disconnect” from information sources, especially when living or transiting through disaster prone areas
- Exercise and test public warning systems and remind the public of its importance
- Provide the public with a method for providing feedback
- Engage mass media partners to assist with informing and educating the public
- Include public warning when conducting public disaster drills and exercises



**WIREFLESS
EMERGENCY
ALERTS
CAPABLE**



Emergency alerts settings

RECEIVE ALERTS

- Presidential alert
Mandatory alert
- Extreme alert
Extreme threat to life and property
- Severe alert
Severe threat to life and property
- AMBER alert
Child abduction emergency

WEA Best Practices

Michael Gerber

NOAA/National Weather Service

Silver Spring, MD

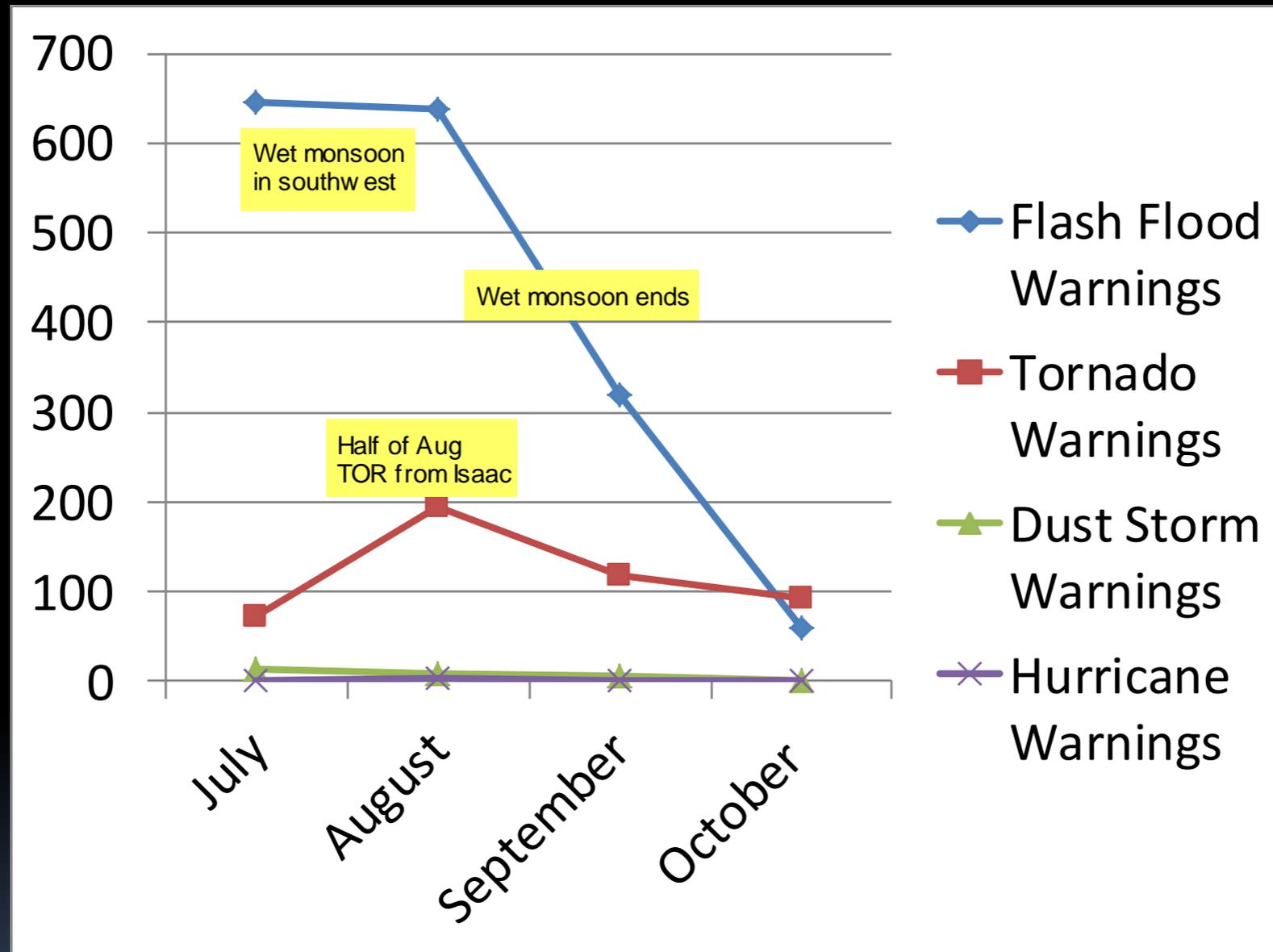
Government Alerts

- AMBER Alerts
- Emergency Alerts

Severe alert
2012-06-29, 10:17 pm

Flash Flood Warning this area til 1:15 AM EDT. Avoid flood areas. Check local media. -NWS

NWS Warnings Targeting WEA



NWS WEA During Sandy/Superstorm

- **4 Flash Flood Warnings**
- **13 Blizzard Warnings**
- **No Hurricane Warnings**
 - *High Wind Warnings issued, but don't currently trigger WEA*
 - *Service Assessment being conducted (typically done whenever storm with major impacts)*



WEA Messages Originated by NWS

When new alert or correction issued or time/area extended

Warning Type	CMAS Message
Tsunami Warning	Tsunami danger on the coast. Go to high ground or move inland. Check local media. -NWS
Tornado Warning	Tornado Warning in this area til hh:mm tzT. Take shelter now. Check local media. -NWS
Extreme Wind Warning	Extreme Wind Warning this area til hh:mm tzT ddd. Take shelter. -NWS
Flash Flood Warning	Flash Flood Warning this area til hh:mm tzT. Avoid flooded areas. Check local media. -NWS
Hurricane Warning	Hurricane Warning this area til hh:mm tzT ddd. Check local media and authorities. -NWS
Typhoon Warning	Typhoon Warning this area til hh:mm tzT ddd. Check local media and authorities. -NWS
Blizzard Warning	Blizzard Warning this area til hh:mm tzT ddd. Prepare. Avoid Travel. Check media. -NWS
Ice Storm Warning	Ice Storm Warning this area til hh:mm tzT ddd. Prepare. Avoid Travel. Check media. -NWS
Dust Storm Warning	Dust Storm Warning in this area til hh:mm tzT ddd. Avoid travel. Check local media. -NWS

Legend

tzT = timezone

ddd= three letter abbreviation for day of the week

WEA Feedback

Successes

- Numerous reports of WEA messages received within seconds
- Generally favorable feedback in big cities along east coast
- Elmira, NY - July 26 Tornado with 10 mile path, 4 homes destroyed and 16 damaged, people sheltered in response to WEA, only 1 minor injury

Opportunities for improvement

- Overreach in rural areas and larger counties
 - *Most pronounced in the west*
 - *Carrier dependent*

NWS Take: Most immediate need is improved geotargeting by carriers

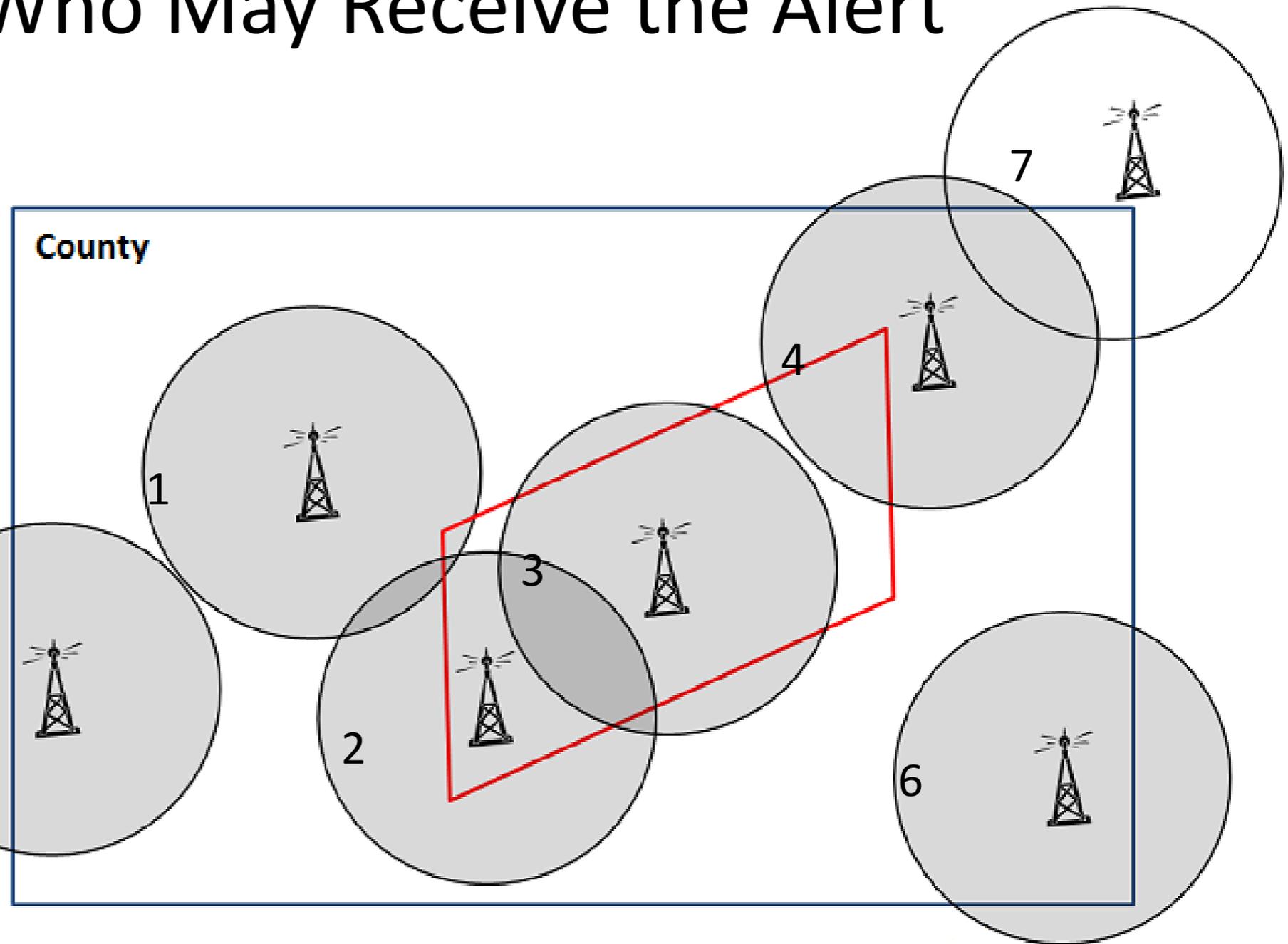
Best Practices: Being Prepared

Proficiency



- **Online Training with FEMA's IS-247**
 - *Introduction to IPAWS*
 - *Appropriate, Effective, and Accessible Alert and Warning Messages*
 - *Common Alerting Protocol Message Composition*
- **Practice/Drill**

Consider Who May Receive the Alert



Note: Map is not drawn to scale and is for illustrative purposes only.

Red polygon represents an alert issued at the sub-county level.

- Each carrier has adopted one of these methods for broadcasting alerts
 - All locations within the county or borough- cell towers 1 through 6
 - Only from towers within actual alert area- cell towers 2 and 3
 - From cell towers within actual alert area and from towers whose broadcast overlaps the actual alert area- cell towers 1 through 4

Find out the cell broadcast coverage area

- **Contact the predominant carriers in your area**
- **Speak to the local NWS Warning Coordination Meteorologist (WCM) who may have knowledge**
 - *<http://www.stormready.noaa.gov/contact.htm>*

Have customized WEA template messages ready to go

- See later slide on message content

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Extreme Wind Warning	Extreme Wind Warning this area til hh:mm tzT ddd. Take shelter. -NWS
Flash Flood Warning	Flash Flood Warning this area til hh:mm tzT. Avoid flooded areas. Check local media. -NWS
Hurricane Warning	Hurricane Warning this area til hh:mm tzT ddd. Check local media and authorities. -NWS
Typhoon Warning	Typhoon Warning this area til hh:mm tzT ddd. Check local media and authorities. -NWS
Blizzard Warning	Blizzard Warning this area til hh:mm tzT ddd. Prepare. Avoid Travel. Check media. -NWS
Ice Storm Warning	Ice Storm Warning this area til hh:mm tzT ddd. Prepare. Avoid Travel. Check media. -NWS
Dust Storm Warning	Dust Storm Warning in this area til hh:mm tzT ddd. Avoid travel. Check local media. -NWS

Regular Testing with FEMA IPAWS

- Test with FEMA IPAWS test environment (aka TDL)
- Validate IPAWS response is as expected



Best Practices: Message Content

Choose U-S-C and responseType carefully

- **Urgency, Severity, and Certainty elements must be at their two highest levels to trigger WEA**

Urgency	Severity	Urgency
- Immediate	- Extreme	- Observed
- Expected	- Severe	- Likely
- Future	- Moderate	- Possible
- Past	- Minor	- Unlikely
- Unknown	- Unknown	- Unknown

- **WEA will not be triggered if chosen responseType is “None”. “Assess” should not be used per the OASIS CAP specification.**

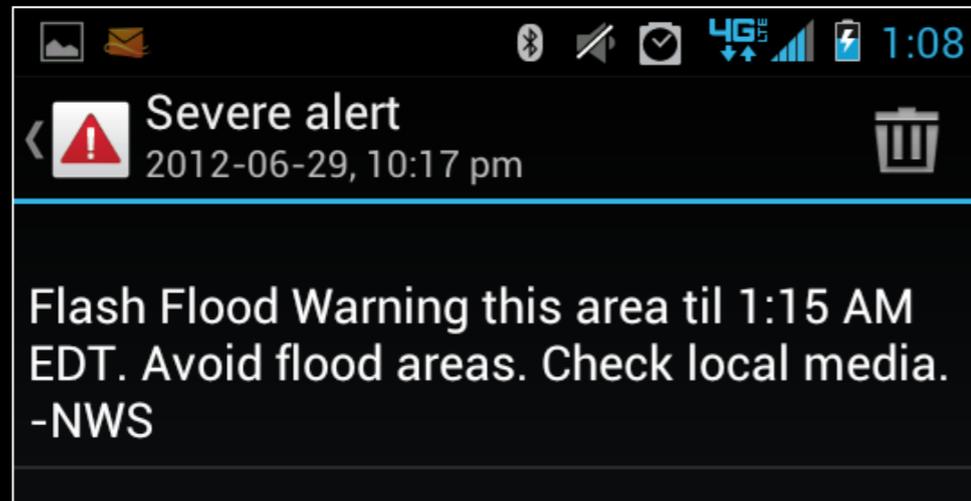
Expires Time Gotcha



- Expires time must be less than 24 hours out, otherwise WEA will not be triggered

Use CMAMText for custom WEA message

- Have templates for custom message



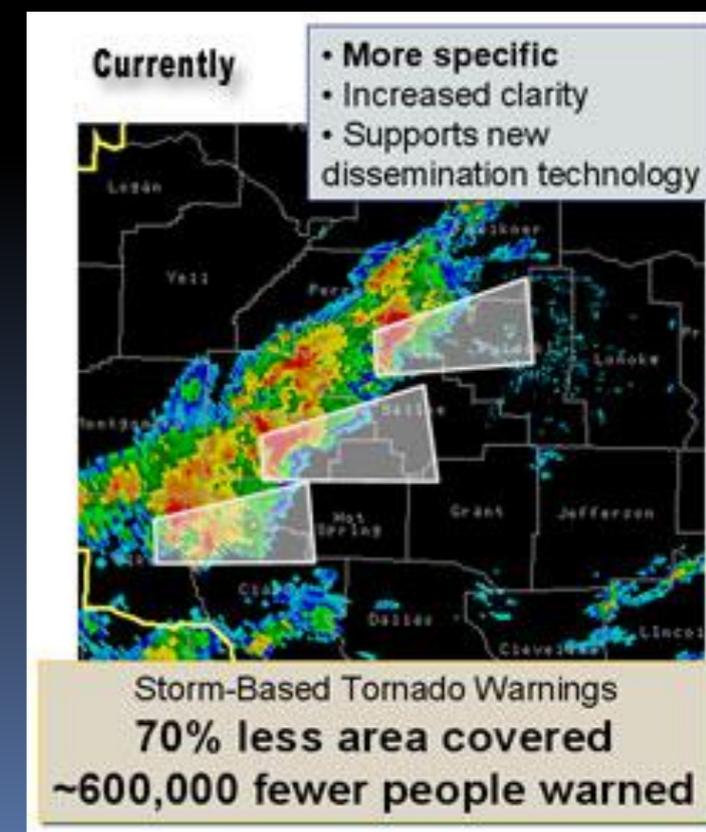
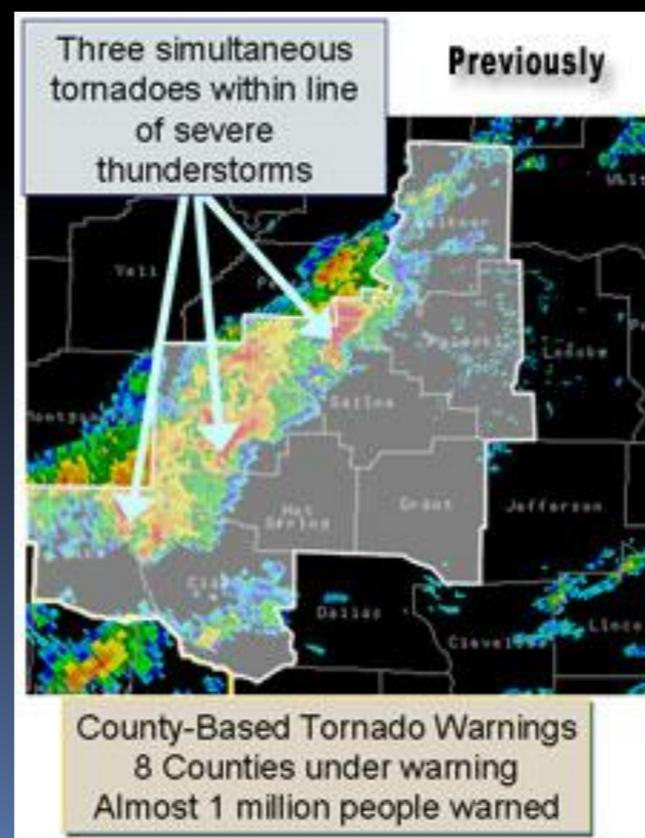
Alert Message Content (90 characters)

- What
- Where
- When
- How (to respond)
- Who (says)

- Messages issued by NYC OEM during superstorm
 - ***“MANDATORY EVACUATION Zone A, Rockaways, Hamilton Bch, City Is. NYC.gov or 311 for details”***
 - ***“Emergency Alert in this area until 8:00 AM GMT Take Shelter Now NYC_OEM”***
 - ***Go indoors immediately and remain inside. DO NOT DRIVE. Call 9-1-1 for emergencies only.***

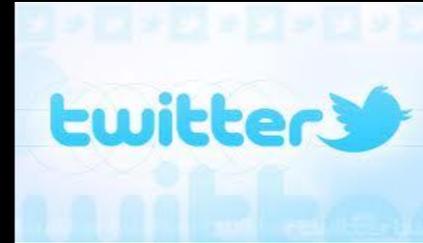
For best possible geotargetting, use polygon to describe threat area

- *Increase value and relevance of warning*
- *Compared to warning by county, polygon warnings can reduce warned area by 70% to 97%, especially in Western U.S.*
- *NWS went to polygon warnings October 1, 2007*
 - Tornado Warnings (trigger WEA)
 - Flash Flood Warnings (trigger WEA)
 - Severe Thunderstorm Warnings
 - Special Marine Warnings
 - Severe Weather Statements
 - Flash Flood Statements
 - Marine Weather Statements

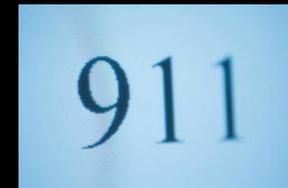


Monitor for Feedback

- Social media



- Call centers



- Family and friends



- NWS may have received calls/emails- ask your local WCM

Conduct Outreach

- **Set realistic expectations – WEA is a bell ringer, not a replacement for traditional warning systems**
- **Create one-page web/social media/handout preparemetrokc.org/WirelessEmergencyAlertFlier.pdf**
- **Media interviews, school and government officials, community events, PSAs, etc.**
- **CTIA links to WEA information for each major carrier at ctia.org/wea**
- **NWS FAQ at weather.gov/wirelessalerts**
- **Cell users should contact their carrier regarding WEA capability, to report issues, or seek assistance**

Integrated Public Alert and Warning System
Wireless Emergency Alerts

In weather emergencies, warnings can save lives. But traditional warning methods such as television, radio and outdoor sirens don't always reach everyone.

By July 2012, emergency officials will have a new way to send warnings directly to cell phones in affected areas — Wireless Emergency Alerts (WEAs).

These short messages may look like a text message, but unlike texts, which are sent directly to your phone number, these warnings will be broadcast to all phones within range of designated cell towers through the Commercial Mobile Alert System (CMAS).

The alerts will tell you the type of warning, the affected area, and the duration. You'll need to turn to other sources, such as television or your NOAA All-Hazards radio, to get more detailed information about what is happening and what actions you should take.



Key Things to Know:

- WEA messages may look like a text, or appear over your home screen.
- The alert message will include a unique ringtone and vibration.
- You will never be charged for WEA messages.
- Emergency alerts will not interrupt any calls or downloads in progress. If you're on the phone when the alert goes out, you'll get the message when you end your call.
- You need not have GPS or any other special features turned on to receive the alerts.
- The system does not identify your location or phone number — it simply sends the message to all devices in a given area.
- If you're on the road and enter an area with an active warning, you'll receive a WEA message as soon as you come within range of one of the affected cell towers.

Is your phone ready for WEA?
If you have an older model phone, you may not receive the Wireless Emergency Alerts. Some, such as newer-model iPhone and Android phones, will soon receive software updates that add this feature.

Check with your service provider to find out if your phone is WEA-capable. AT&T, Cricket, Sprint, T-Mobile and Verizon all have information about the new alert system on their websites. Search for WEA (Wireless Emergency Alerts) or CMAS (Commercial Mobile Alert System) to find your provider's list of WEA-capable phones.



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Questions?