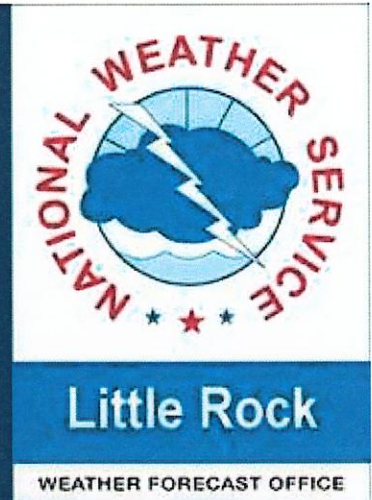


EXHIBIT E2

Advanced Communications Committee: Weather Warnings



Dennis Cavanaugh
National Weather Service Little Rock

Severe Storm Hazards

Wind



Hail



Photo: Alfonso Espinoza

Tornado

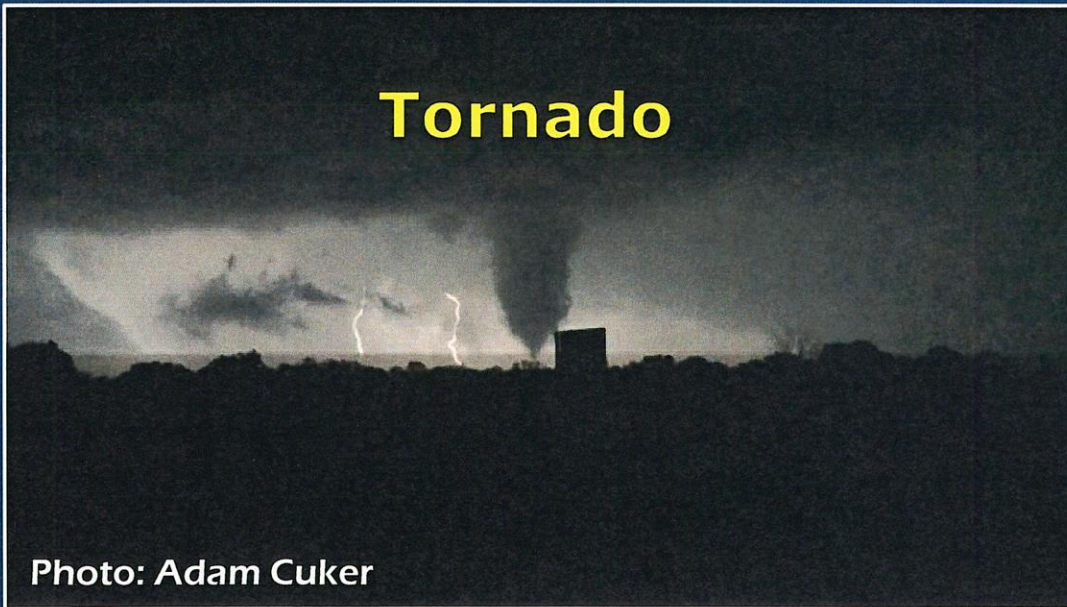


Photo: Adam Cuker

**Heavy
Rain/Flooding**

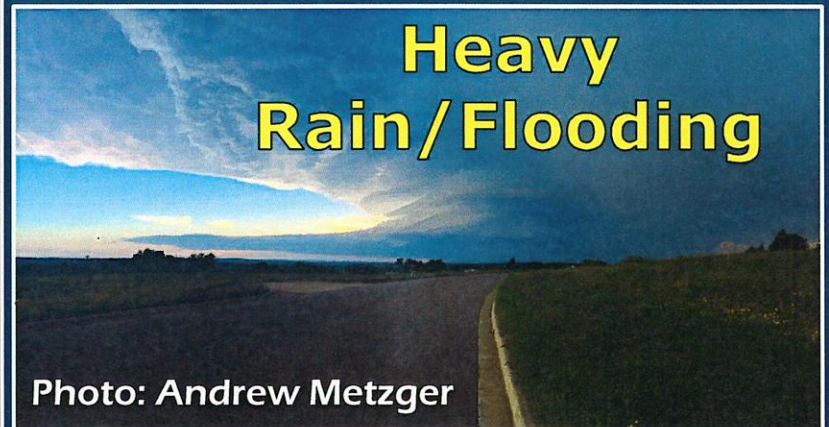


Photo: Andrew Metzger

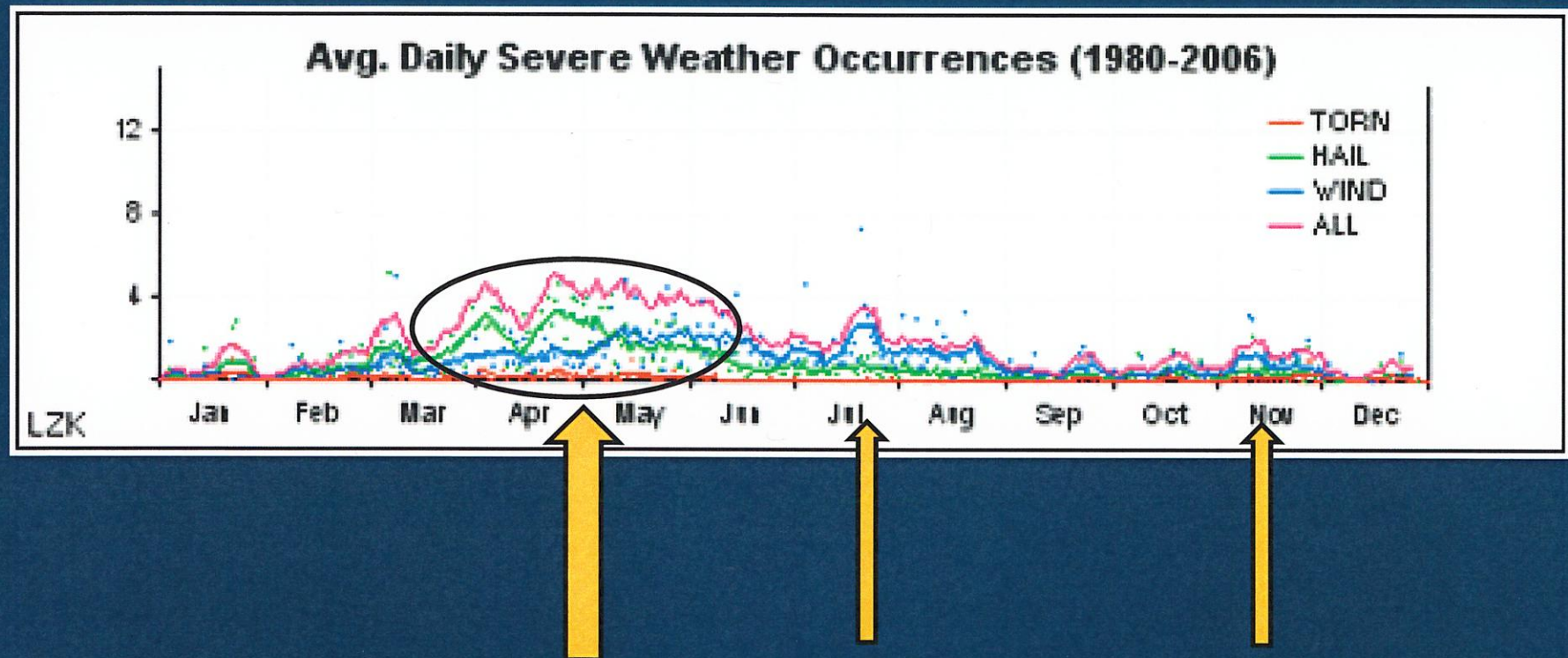


Arkansas Tornado Tracks 1950 - 2014

National Weather Service Arkansas



When is our Severe Storms Season?



How Do I Know It's Coming?

Information Available

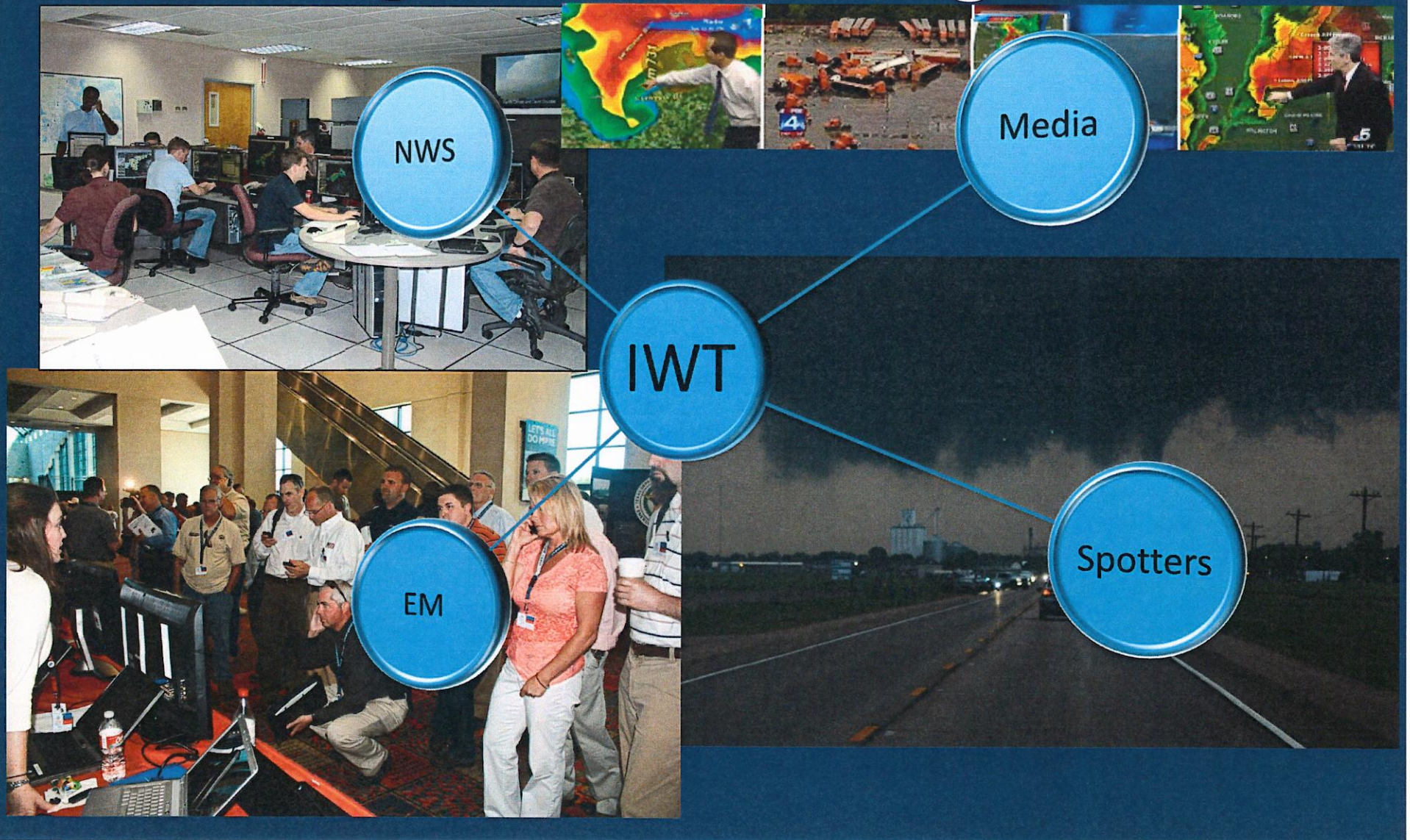
Internal Communication

- Broadcast Media (Radio/TV)
 - Open Source Radar
 - Social Media
 - Wireless Emergency Alerts
 - Emergency Alert System
 - Subscription-based alerts (ex. Code Red)
-
- NWS Chat
 - HAM Radio- Storm Spotters
 - Public Safety Radio (Police/Fire)

The General Public

- Broadcast Media (Radio/TV)
 - Open Source Radar
 - Social Media
 - Wireless Emergency Alerts
 - Emergency Alert System
 - Subscription-based alerts (ex. Code Red)
-
- Atmospheric Clues
 - Outdoor Warning Sirens

Greater Arkansas Integrated Warning Team

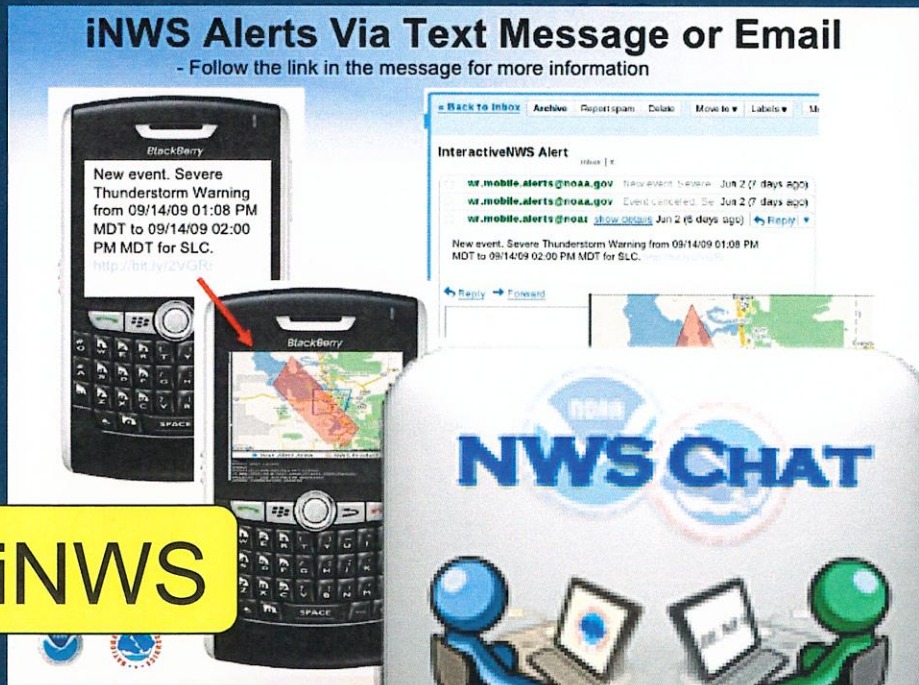


IWT Working Together:

Communication

Arkansas Wireless Information Network (AWIN)

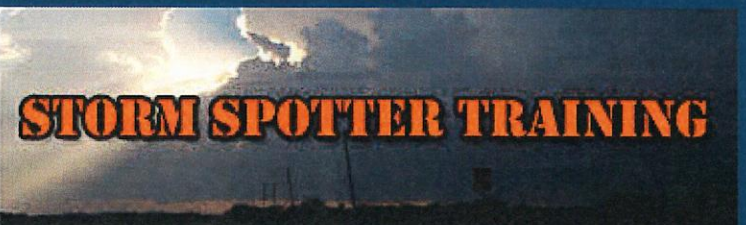
iNWS Alerts Via Text Message or Email
- Follow the link in the message for more information



The image shows two BlackBerry phones. The left phone displays a text message: "New event. Severe Thunderstorm Warning from 09/14/09 01:08 PM MDT to 09/14/09 02:00 PM MDT for SLC. http://bit.ly/2VGR9". The right phone displays a map of the state of Arkansas with a red shaded area indicating the warning region. A red arrow points from the text message on the left phone to the map on the right phone.

iNWS

Preparedness



Warning the Public:

NWS Warnings

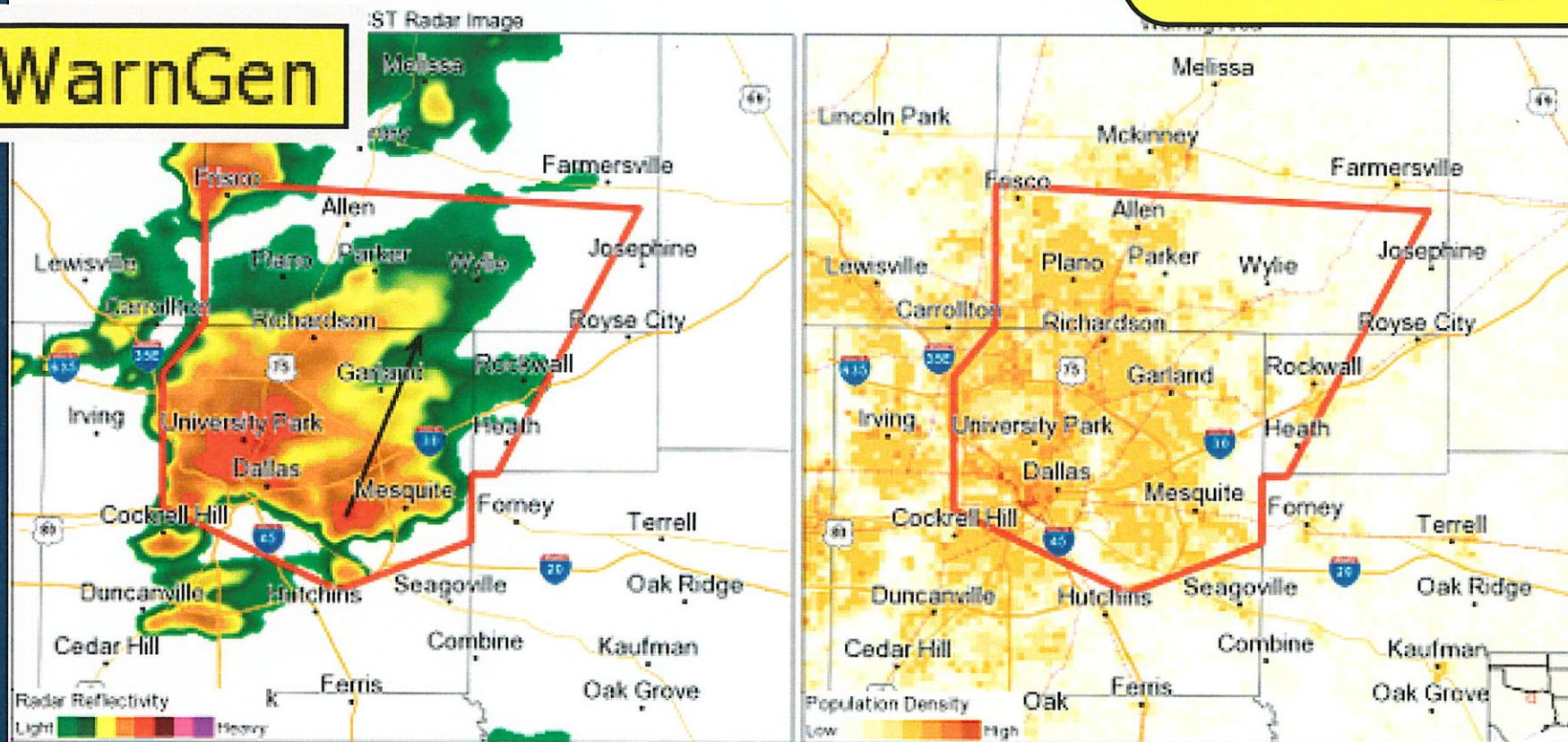


Tornado Warning

Valid until December 26th, 2015 at 7:30 PM CST

Created

WarnGen



Impact Statistics

Population: 2,265,807
Area: 765 square miles

Miles of interstate: 81
Miles of railroad: 265

Public Schools: 579
Hospitals: 51

Airports: 4
National Parks: 0

Storm Information

Moving to the North at 45 MPH

Hail up to 1.00 inches in diameter

Tornado Radar Indicated



How Do I Get a Warning???

From the NWS: Weather Radio

NOAA Weather Radio continuously broadcasts weather information 24 hours a day on seven dedicated frequencies.



Social Media

*From the NWS:
Social Media*



Like

US National
Weather Service
Little Rock
Arkansas ✓
@NWSLittleRock



@NWSLittleRock

#ARwx



WEA Highlights

GET ALERTS, STAY ALIVE

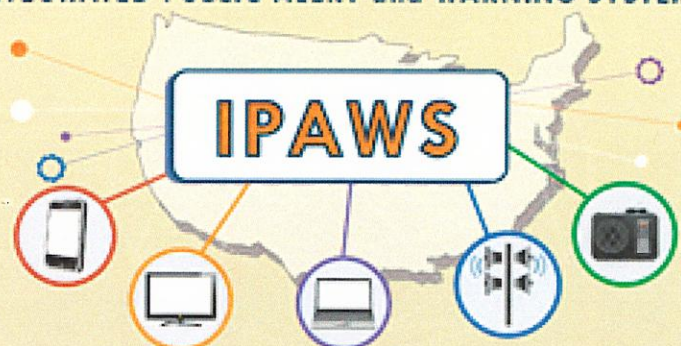


How do we get important information from our Public Safety Officials?

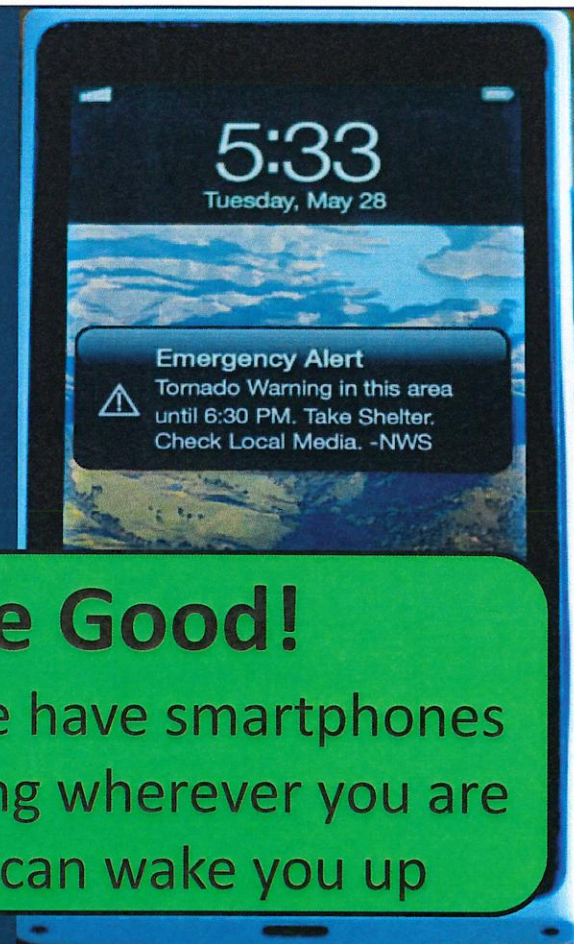


Public Safety Officials create and send messages to the public through the

INTEGRATED PUBLIC ALERT and WARNING SYSTEM



To make sure that no matter where you are, at home, at school, at work, or even on vacation, you can get life saving alerts!



The Good!

Most people have smartphones
Get a warning wherever you are
It's loud, can wake you up

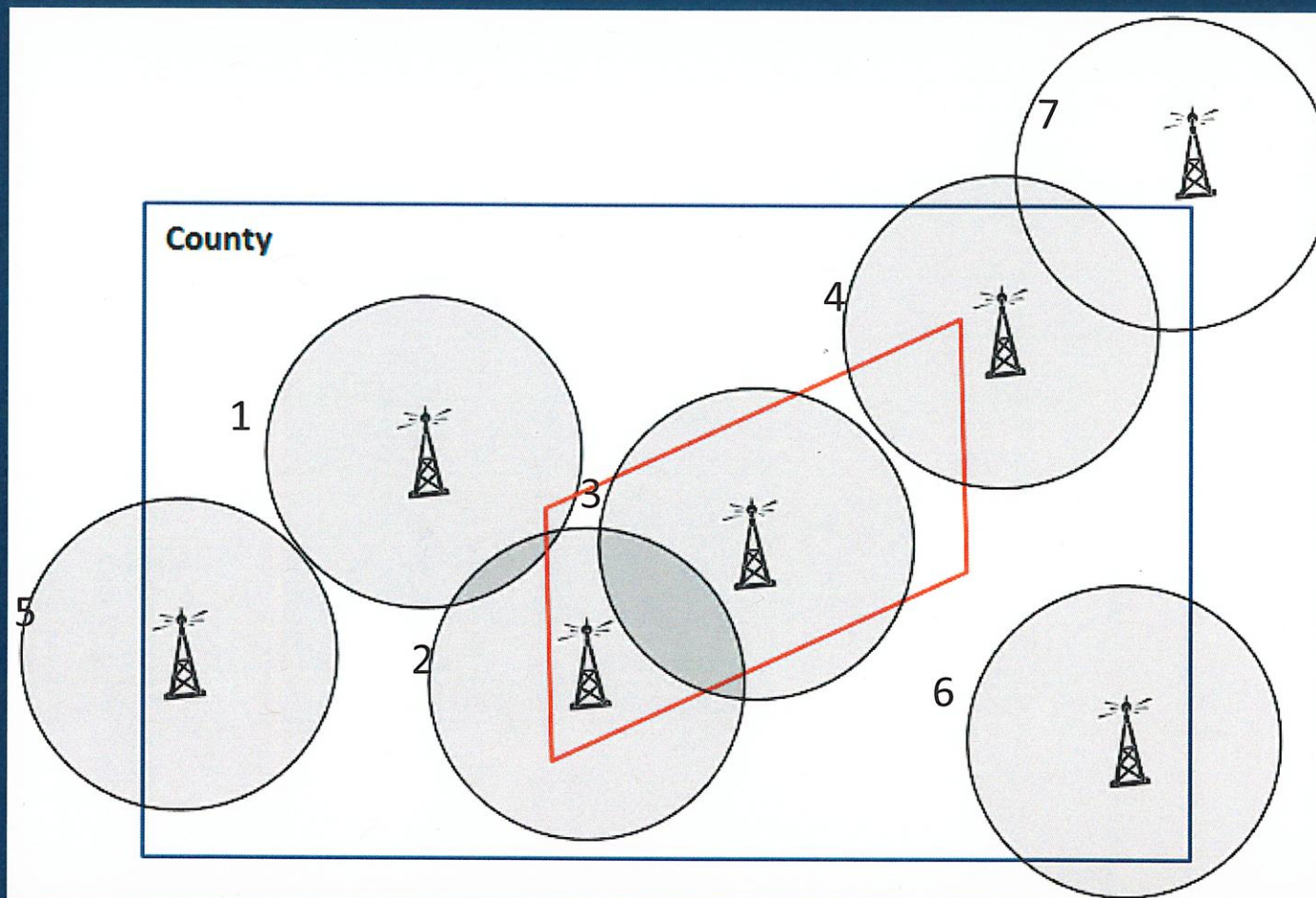
The Limitations

You can turn alerts off forever
Limited text → misunderstanding
It's up to cell phone companies to decide to broadcast or not

Carrier Targeting of the WEA Broadcast

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

Red polygon represents a warning



- FCC reg says carriers can broadcast to county (towers 1-6), even if alert only at sub-county level
- As of 2/7/13, all major carriers target sub-county (a good thing) when sub-county alerts are issued
 - Some carriers broadcast from cell towers within sub-county alert area (towers 2 and 3)
 - Some also broadcast where signal overlaps sub-county alert area (adds towers 1 and 4)

WEA Messages from NWS Warnings

Extreme

Severe

Warning Type	WEA Message
	Tsunami danger on the coast. Go to high ground or move inland.
	Listen to local news. -NWS
Tornado Warning	Tornado Warning in this area til hh:mm tzT. Take shelter now. Check local media. -NWS
	Extreme Wind Warning this area til hh:mm tzT ddd. Take shelter.
	NWS
	Hurricane Warning this area til hh:mm tzT ddd. Check local media and authorities. -NWS
	Typhoon Warning this area til hh:mm tzT ddd. Check local media and authorities. -NWS
Flash Flood Warning	Flash Flood Warning this area til hh:mm tzT. Avoid flooded areas. Check local media. -NWS
	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 activated for Tsunami Warnings when Tsunami Watch or Tsunami Advisory not previously in effect.

Warnings from Apps



NWS is not allowed to
develop an app

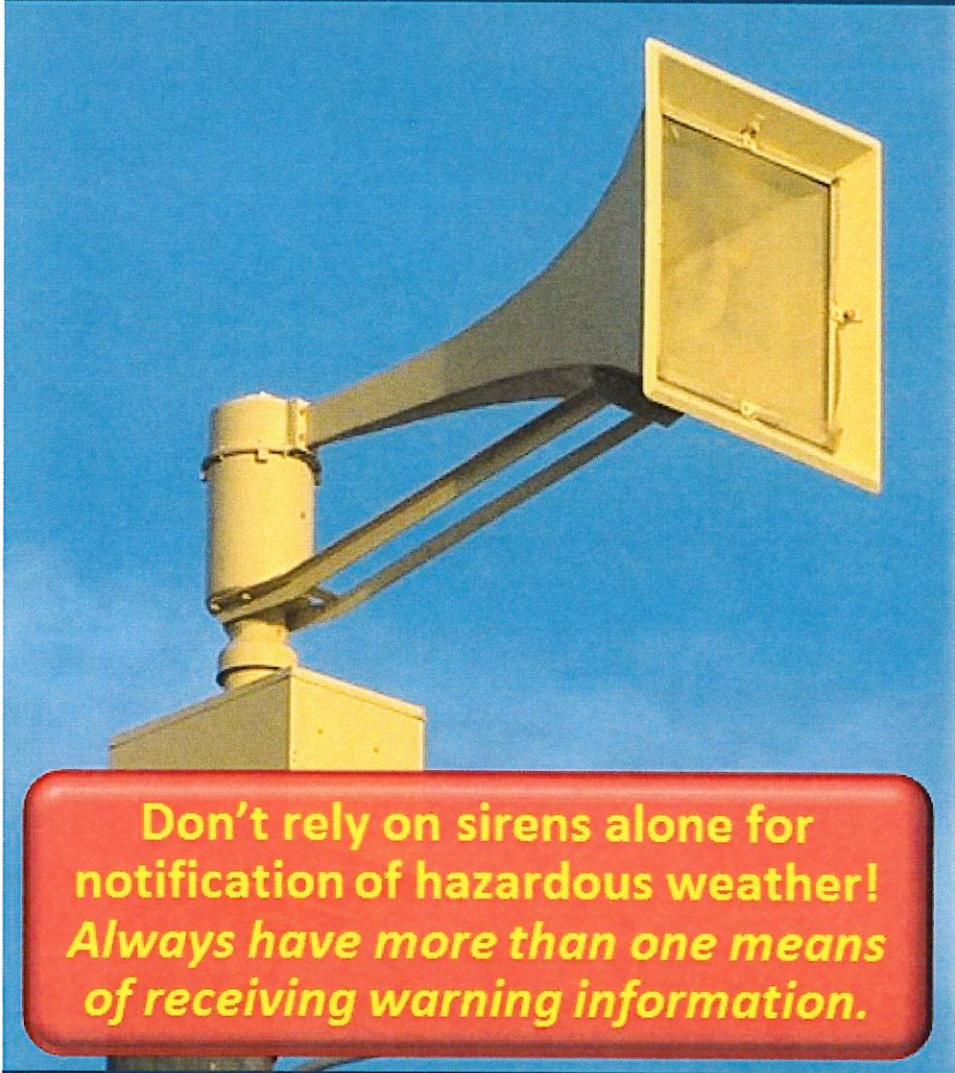
FEMA

Red Cross

TV Stations

Private Weather
Companies

Outdoor Warning Siren Misconceptions



Don't rely on sirens alone for notification of hazardous weather!
Always have more than one means of receiving warning information.

Only designed to be heard **INDOORS**

NWS has **NO** control over siren activation or policy

Siren policy often varies quite a bit from place to place

City of Little Rock Outdoor Warning System Proposed Design Layout

Summary of Design

When evaluating the City of Little Rock's existing warning system, SafetyCom/Carter & Burgess reviewed data from potential sites, and utilize GIS analysis to provide a complete system design.

Design Criteria for evaluating the existing warning system and system recommendation:

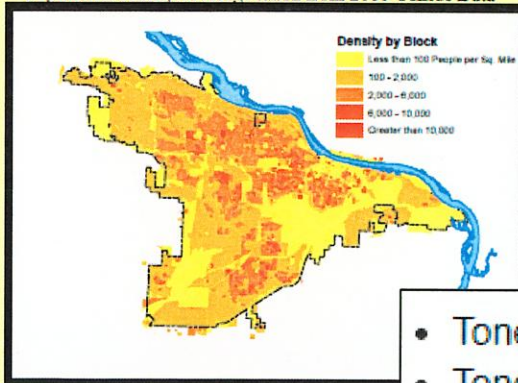
Geographic and Topographic Aspects at proposed locations.
Population Density at proposed locations.
Ambient Noise at proposed locations.
GIS data and USGS contour models.

Recommended sirens based on this design.

Ten Cell = 45 each
Six Cell = 11 each

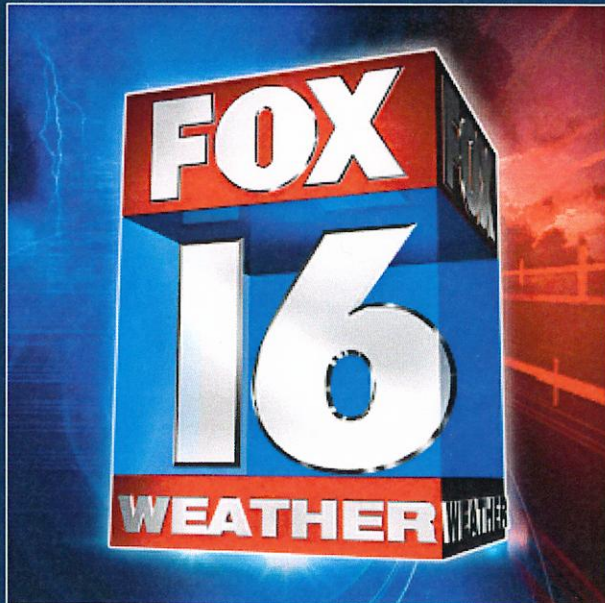
Total number of sirens = 56

Population density coverage taken from 2000 Census Data



- Tone 1 – WAIL – Wildfire Alert
- Tone 2 – ATTACK – Evacuation Tone
- Tone 3 – ALERT – Tornado Warning
- Tone 4 – HI/LO – Hazardous Materials Incident
- Tone 5 – AIR HORN – All Clear
- Tone 6 – SLOW WHOOP – Test

Local TV Stations



Takeaways

- We encourage the Public to have a couple of reliable ways to receive a warning
- Very few high impact severe weather events actually occur without warning
- When you get a warning, have a plan in place so you know what to do quickly (preparedness)

Questions? Contact Us!

US National Weather Service Little Rock

@NWSLittleRock

501.834.0308

www.weather.gov/LZK

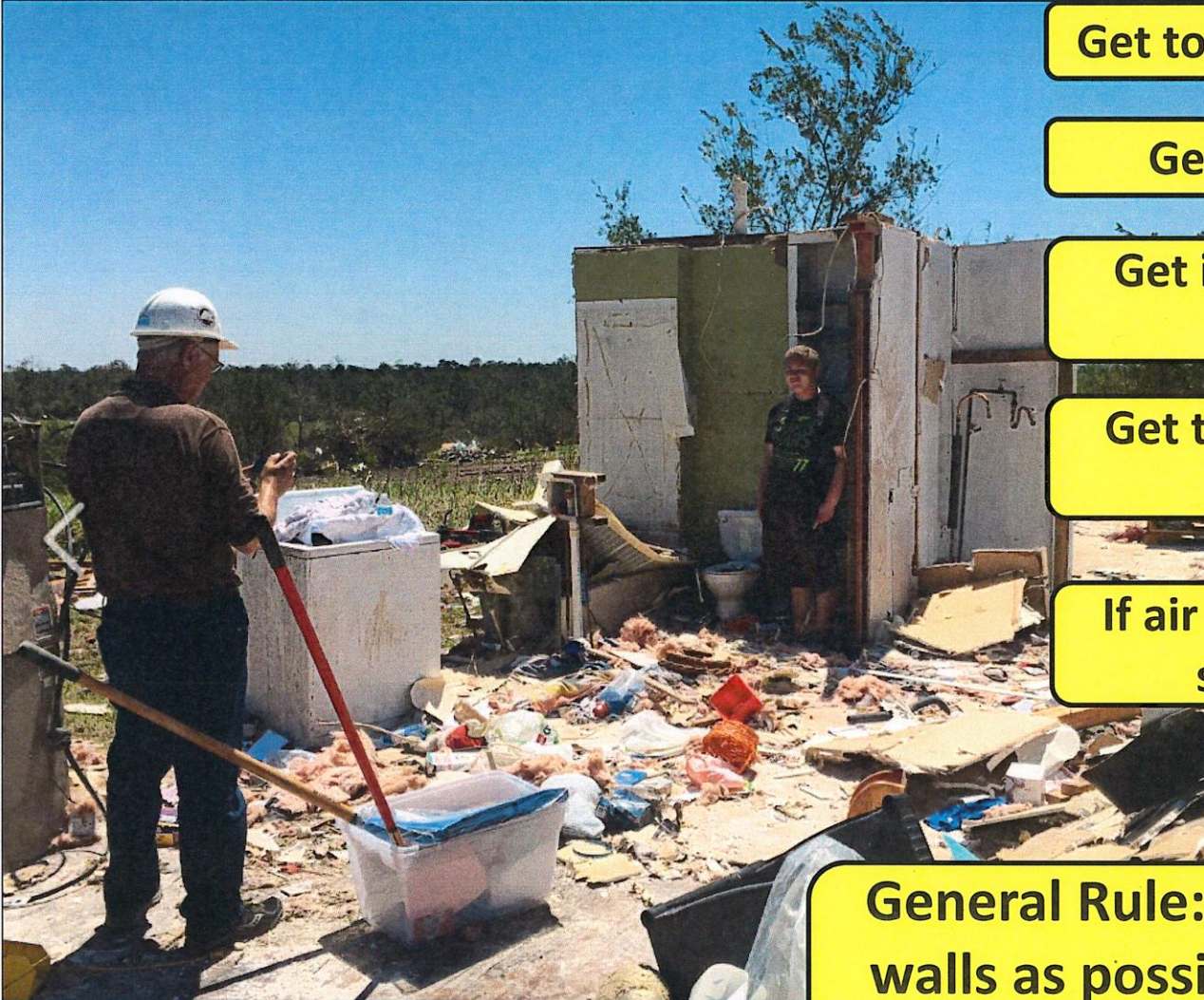


@NWSLittleRock
weather.gov/lzk

E-mail:

Dennis.Cavanaugh@noaa.gov

Tornado Safety/Sheltering



Get to an approved storm shelter!

Get BELOW GROUND level!

Get inside a house with a solid foundation!

Get to the lowest floor, internal room!

If air can get UNDER you or your shelter, IT IS NOT SAFE!

General Rule: Put as many walls as possible between you and the tornado!

Photo: NWS Oklahoma City