Mitigation & Preparation
Mitigation

- is the effort to reduce loss of life and property by lessening the impact of disasters.

-is taking action *now*—before the next disaster—to reduce human and financial consequences later (analyzing risk, reducing risk, insuring against risk).

-Effective mitigation requires that we *all* understand local risks, address the hard choices and invest in long-term community well-being. Without mitigation actions, we jeopardize our safety, financial security and self-reliance.

> Disasters can happen at anytime and anyplace; their human and financial consequences are hard to predict.

> The number of disasters each year is increasing but only 50% of events trigger federal assistance.

> FEMA's mitigation programs help reduce the impact of events—and our dependence on taxpayers and the Treasury for disaster relief.
Preparation

: the activity or process of making something ready or of becoming ready for something

: things that are done to make something ready or to become ready for something
Mitigation Examples

May 2, 2010 flood washed building away

Building replaced at higher elevation

Building Elevation increased 30 feet
Bowling Green, KY Hailstorm

On April 16, 1998, a classic supercell thunderstorm moved from northern Logan County through central parts of Warren, Barren, and Metcalfe counties and then into western Adair County in South-Central Kentucky.

The weather pattern on April 16 was characterized by a low pressure center over Northern Indiana with a cold front extending southwest into Western Kentucky and Tennessee. Warm, moist, unstable air lay ahead of the cold front. A strong jet stream extended from Oklahoma to Michigan.

**Effects of Hailstorm**
- $10 million in damage at Greenwood Mall
  - Cars totaled at all area dealerships
  - Roof and water damage at Bowling Green High School
  - Several minor injuries
- Major damage:
  - > 800 homes, 900 mobile homes
  - > 4000 vehicles
  - > 37 businesses
  - > 14 apartments
- Minor damage:
  - > 1000 homes
  - > 6000 vehicles
  - > 42 businesses
  - > 4 churches

**TOTAL DAMAGE:** $510 million

*When the storm was over, the hail covered the ground like snow. All trees were defoliated. Branches were broken. Pieces of houses and dormitory were everywhere. It was the only storm I have experienced where the afternoon looked like a winter scene. Many parking lots on campus were under 3 to 6 feet of water. All you could see was the tops of cars. It truly was the worst thunderstorm I've ever seen in the 34 years I've lived in Kentucky.*

- Shawn Crow, Former Meteorology & Broadcasting Director at WKU

**Counties Affected**

**Tornado Damage Summary**

- **F2:** Metcalfe County
  - 1 fatality
  - 54 structures destroyed
  - 43 structures received major damage
  - 19 structures minimally damaged

- **F3:** Logan, Warren, Allen, and Barren Counties
  - 2 fatalities in Barren County
  - 146 homes and 50 mobile homes damaged or destroyed
  - Glasgow
    - 46 homes, 25 mobile homes, and 25 barns destroyed or badly damaged
    - Winds = 175 mph

- **F3:** Adair County
  - Portland + Perryton
    - 14 houses destroyed or received major damage
    - 3 mobile homes and 21 barns destroyed

**Damaged/Destroyed:**
- 30 homes
- 46 homes
- 2 schools
- 8 businesses
Metcalf County Tornadoes

- 3/1/1997, F0
- 5/8/2009, EF1
- 11/26/1965, F2
- 4/20/1996, F1
- 1/24/1997, F1
- 4/16/1998, F2
- 5/18/1995, F2
- 5/9/1933, F2
- 3/28/1997, F2
- 4/7/2006, F2
- 3/18/1925, F4
- 6/11/2009, EF1
Metcalfe County 2004
Population 10,300

One siren has a radius of approximately 2 miles depending on terrain.

To cover Metcalfe County with outdoor sirens it would take in excess of 4 million dollars.

1 additional siren was added by Kingsford Manufacturing.
Metcalfe County
2006
Population
10,300

One siren has a radius of approximately 2 miles depending on terrain

To cover Metcalfe County with outdoor sirens it would take in excess of 4 million dollars

1 additional siren was added by Kingsford Manufacturing
Outdoor Warning Sirens

They are what the name implies only good for outdoors and then only for about 2 miles.
Metcalfe County
2009
Population
10,300
One siren has a radius of approximately 2 miles depending on terrain

Addition of Reverse Call system

To cover Metcalfe County with outdoor sirens it would take in excess of 4 million dollars

1 additional siren was added by Kingsford Manufacturing

2nd Mitigation Step
Reverse Call System (Reverse 911)
Take time to notify not feasible in severe weather
Reverse calling (Reverse 911)

A joint venture between Barren and Metcalfe County for the purchase and use of Alert Sense. All landlines are uploaded. Cell phone must register for the service.

Time restriction too long to notify residence in a severe weather event.
Metcalfe County
2012
Population
10,300

One siren has a radius of approximately 2 miles depending on terrain

Addition of Reverse Call system

To cover Metcalfe County with outdoor sirens it would take in excess of 4 million dollars

1 additional siren was added by Kingsford Manufacturing
Community Tornado Safe Rooms
2013 - 10 safe rooms constructed
Community Tornado Safe Rooms
2016 – 4 additional safe rooms constructed
Metcalfe County
2012
Population
10,300

One siren has a radius of approximately 2 miles depending on terrain

Addition of Reverse Call system

To cover Metcalfe County with outdoor sirens it would take in excess of 4 million dollars

1 additional siren was added by Kingsford Manufacturing
Investigate how to get notification to citizens in a timely manner

Grant and Purchase 6500 Midland Weather Radios
National Weather Service Coverage Via Drive Study
How to fix no coverage

Work with the National Weather Service: Purchase and Install a 300 watt Armstrong Transmitter
After it was decided that every occupied structure would have a radio, how would we get them programmed? We work it out with Midland to program and deliver to the county all 6500 radios.
Metcalfe County
5-2015
Population
10,300

One siren has a radius of approximately 2 miles depending on terrain

Addition of Reverse Call system

Coverage after radio’s and transmitted delivered and installed

Purchase and Install Armstrong transmitter and 6500 weather radios

1 additional siren was added by Kingsford Manufacturing
NWS Issues a warning

Warning is transmitted

Metcalfe County citizens receive warning

Safe Rooms unlocked

Citizens are Safe
Metcalfe County
12-2016
Population 9,993

One siren has a radius of approximately 2 miles depending on terrain

Addition of Reverse Call system

Purchase and Install Armstrong transmitter and 6500 weather radios

1 additional siren was added by Kingsford Manufacturing
End of 2016
14 Tornado Safe Rooms
6500 Weather Radios (every occupied structure)
300 watt repeater to broadcast warning.
6 Outdoor warning Sirens
1 reverse call system with IPAWS.

Estimated 98% coverage for residents of Metcalfe County.

“We all knew what was going on with the weather (tornado warnings) since we had our NOAA weather radio.”

Resident of Boonville, IN
Questions ??
Amanda B. LeMaster
Department of Military Affairs
Kentucky Emergency Management
100 Airport Rd
Frankfort, KY 40601
Office: 502-607-5745
Email: amanda.lemaster.nfg@mail.mil

Emory Kidd
Director
Metcalf County Emergency Management
Office: 270-432-3181
Email: edkidd@metcalfecoem.com