



# Hazard Mitigation Plan Update

## Hazard Identification Meeting

October 27, 2022  
9:30-10:30 am



# Agenda



- Safety Moment
- Welcome and Introductions
- Mitigation Successes
- Mitigation Projects and Research
- Planning Process
- Data Collection and Hazard Identification
- Next Steps



# Safety Moment



**Using VoIP to Call  
Emergency Services (ES)**

**Voice over Internet Protocol (VoIP) - transmission of voice and multimedia over internet connection**

**VoIP allows you to make calls from your computer (Teams)**

**ES Operators cannot geolocate if working remote (home/travel/field)**

**You must provide ES Operator with your physical address**

**If possible, use a landline to call ES**



# Welcome and Introductions

## University of Kentucky Team – Planning Team



- Laurel Wood
- Joe Monroe
- Nathan Brown
- Mandi Banahan
- Veronda Holcombe Lewis
- Jay Overman
- Cory Pelarski
- Robert Turner
- Sally Woodson

## Stantec Team

- Kristen Hewes
- Christina Hurley
- Rebecca Leitschuh
- John Bucher
- Mike Greene
- Matthew Moy
- Sam Lee





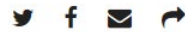
# Recent Events – December Tornado, July Flooding



## A key UK agriculture station that helps Kentucky farmers was destroyed by tornadoes

BY JANET PATTON

UPDATED AUGUST 03, 2022 3:35 PM



The UK Research and Education Center in Princeton took a direct hit from the powerful tornado that began in northwestern Arkansas and carved a path of destruction across the western half of Kentucky.

BY UNIVERSITY OF KENTUCKY

## Historic July 26th-July 30th, 2022 Eastern Kentucky Flooding

[Weather.gov](#) > [Jackson, KY](#) > Historic July 26th-July 30th, 2022 Eastern Kentucky Flooding

Jackson, KY  
Weather Forecast Office

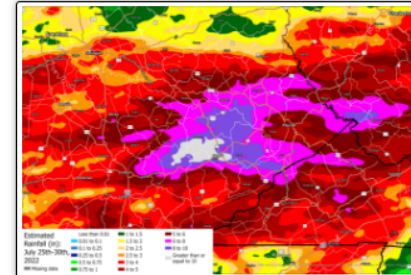
[Current Hazards](#) [Current Conditions](#) [Radar](#) [Forecasts](#) [Rivers and Lakes](#) [Climate and Past Weather](#) [Local Programs](#)

### Overview

Between July 25th and July 30th, 2022, several complexes of training thunderstorms developed south of I-64 and brought heavy rain, deadly flash flooding, and devastating river flooding to eastern Kentucky and central Appalachia. These thunderstorms, at times, caused rainfall rates in excess of 4"/hr across complex terrain that led to widespread devastating impacts. While it did not rain continuously during this 4-day stretch, the overwhelming amounts of rain and resultant flooding led to 39 deaths and widespread catastrophic damage. Entire homes and parts of some communities were swept away by flood waters, leading to costly damage to infrastructure in the region. Over 600 helicopter rescues and countless swift water rescues by boat were needed to evacuate people who were trapped by the quickly-rising flood waters. In total, 24 Flash Flood Warnings were issued between July 26th and July 30th. Between the evening of July 27th and the mid-morning hours on July 28th (the peak of the event), 13 warnings were issued, 3 of which were upgraded to a Flash Flood Emergency.

Radar-based rainfall estimates suggest that upwards of 14-16" of rain fell during this 5-day period in a narrow swath, with many more locations receiving 6-10" of rain. Most of this rain fell during the night of July 27th into the morning of July 28th, which is when the most devastating impacts were felt. The highest totals occurred across an axis that stretches from northern Clay and southern Owsley counties, east through southern Breathitt and northern Leslie counties, into Perry, Knott and Letcher counties. The highest rainfall total report was from southern Knott County, where 14.00" fell between July 25th and July 29th. This site, a cooperative (COOP) observer at Carr Creek Lake, reported 6.71" from 7am July 28th to 7am July 29th, following a report of 6.50" at that site on the previous day. Another COOP site in Buckhorn reported 8.00" of rain for the 24-hour period ending 7am on July 28th. The rainfall total in Buckhorn from July 25th to July 29th was 11.76". These rainfall values occurring in such a short period of time are incredibly rare: there is less than a 1 in 1000 chance for this much rainfall over five days in a given year.

The incredible rainfall also led to significant rises and flooding on many rivers in eastern Kentucky including on the main stem of the Kentucky River; North, Middle and South forks of the Kentucky River; Red River and Licking River. At Whitesburg, the North Fork of the Kentucky River swelled well above major flood stage, reaching close to 21' before gauge failure (the previous flood of record was 14.7' in 1957). The North Fork of the Kentucky River at Jackson also reached major flood, setting a new record crest of 43.47' (the previous record was 43.1' set in 1939). The river flooding caused a second round of destruction for communities in the region, and caused flooding in downstream areas that did not receive as much rainfall.



Estimated rainfall totals from July 25th through July 30th, 2022 via NCEP Stage IV precipitation data.



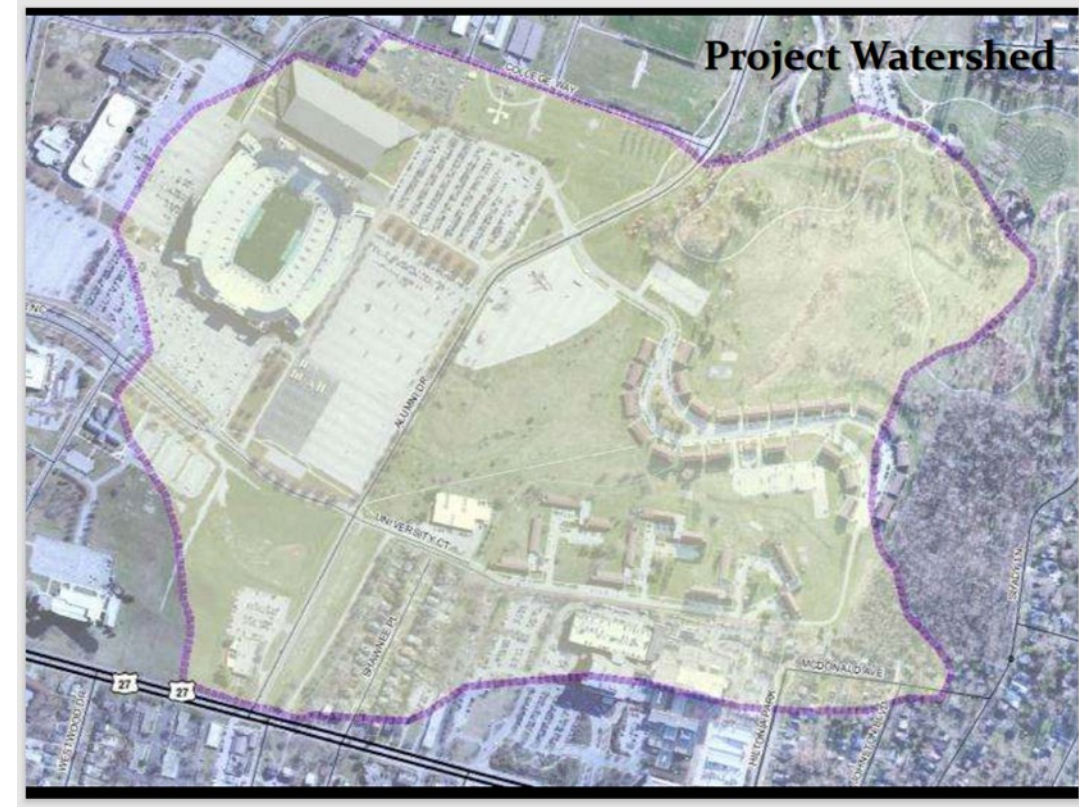
Flash Flood Warnings issued by NWS Jackson, KY from July 26th through July 30th, 2022. Three of these warnings were "Flash Flood Emergencies." This type of Flash Flood Warning is reserved for catastrophic flash flooding events.



# UK Mitigation Successes



- Blue Emergency Notification Towers
- WUKY Main Transmission Site
- Robinson Forest
- Tornado Safe Rooms
- Nicholasville Road, Culvert Upgrade and Alumni Drive Mitigation Project
  - 1,300 Linear Feet Stream Restoration
  - Detention Basins
  - Permeable Pavement



# UK Projects and Research



- Disaster Preparedness Toolkit for Older Adults
- UK Professor Designing More Sustainable Future for Appalachia
- Federal Grant Will Help KGS Researchers Develop Landslide Models, Risk Assessments in Eastern Kentucky
- UK Project Aims to Reduce Sinkhole-related Damage
- UK Animal Resource Exercise Will Help Prepare for Emergencies





# Why are we updating the plan?



- Meet FEMA requirements for funding
- Build on previous successes
- Integrate with other plans and efforts
- Continued improvement - More actionable plan with improved coordination
- New FEMA guidelines
  - Climate Integration
  - Equity Considerations

Campus News

## UK specialists offer flood clean-up strategies

By Aimee Nielson Aug. 3, 2022



Flooding in Whitesburg, Letcher County. Photo by Shad Baker, UK extension agent for agriculture and natural resources.

### Media Resources

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### Share This

[FACEBOOK](#) [TWITTER](#) [@](#)

### Latest Stories

**CAMPUS NEWS Thursday**  
UK expands measures to ensure safety of community

**CAMPUS NEWS Thursday**  
Back and joint health benefit now available to UK-insured employees

**CAMPUS NEWS Thursday**  
Vehicle relocation required for home football game Saturday, Sept. 17



# Hazard Mitigation Plan Sections



**Element A.** Planning Process

**Element B.** Hazard Identification & Risk Assessment

**Element C.** Mitigation Strategy

**Element D.** Plan Maintenance

**Element E.** Plan Adoption



## Local Mitigation Planning Handbook

March 2013



# Risk Assessment



## General process:

- Data collection
- Hazard identification
- Profiles (current and future considerations)
- Structure-based results

### FEMA profile requirements:

- Description
- Location
- Previous Occurrences
- Probability
- Severity
- Vulnerability

### Hazards:

- Dam Failure
- Drought
- Earthquake
- Extreme Temperature
- Flood
- Forest Fire
- Hailstorm
- Karst/Sinkhole
- Landslide
- Severe Storm
- Severe Winter Storm
- Tornado
- \*Hazardous Materials
- \*Emerging Infectious Diseases
- \*Cybersecurity Threats





# Risk Assessment Data Collection



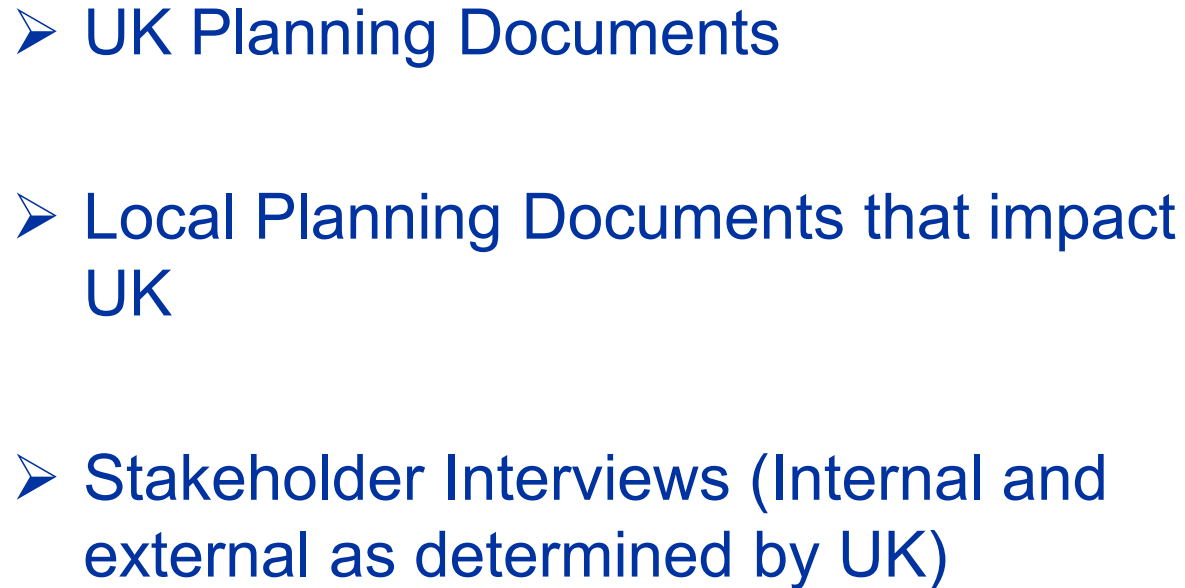
## University-provided data:

- GIS building footprints
- Hazard loss data for all recorded hazard occurrences (e.g., claims data)
- Building replacement values
- Building content values (included research and research equipment)
- Building condition codes
- Building hazardous contents
- Building occupancy
- Critical facilities

## Additional sources:

- UK's open data portal
- LFUCG
- Kentucky Area Development Districts
- Kentucky Geological Survey





**Requirement §201.6(c)(4)(ii):** [The plan **shall** include a] process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.



Photo Source: <http://www.ukathletics.com/athletic-dept/facilities.html>



# Mitigation Strategy



- Review Goals
- Review Existing Actions
- Develop New Actions
  - Risk assessment results
  - Capability assessment results
  - Interviews
  - University planning documents
  - Steering Committee
  - University input
- Outcomes
  - More actionable plan, with improved coordination and documentation

Professional News

## Farmers, Tornado Victims Help Others Recover

By Jeff Franklin and Katie Pratt March 15, 2022



Video Produced by the UK College of Agriculture, Food and Environment.

### Media Resources

#### CONTACT

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### Share This



### Latest Stories

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UK expands measures to ensure safety of community

CAMPUS NEWS Thursday

Back and joint health benefit now available to UK-insured employees







# Adoption and Plan Maintenance



- Regularly scheduled check in meetings
- Document progress and needs
- Coordinating funding and grant opportunities



## Western Kentucky Tornadoes Spur Engineering Undergrad Research





# Hazard Identification

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Place holder for hazard ranking poll





# Hazard Identification

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Place holder for climate change impact ranking poll





# Next Steps



- Complete the Survey
- Provide information on the maps
- Visit the website for project updates

[Hazard Mitigation Plan | University of Kentucky Police Department \(uky.edu\)](#)



# Questions and Contact Information



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**Thank you!**

