



Hazard Mitigation Plan Update

Steering Committee Meeting

September 29, 2022
10 a.m. – 12 p.m.



 Division of Crisis
Management & Preparedness



Agenda



- Safety Moment
- Welcome and Introductions
- Mitigation Successes
- What is Hazard Mitigation?
- Review of Planning Process
 - Schedule
 - Steering Committee Roles
 - University Involvement
 - Risk Assessment/Data Collection
 - Capability Assessment
 - Mitigation Strategy
 - Adoption and Plan Maintenance
- Funding Opportunities
- Next Steps



Invasive Species

- Report sightings to your local authority
- Plant native plants in your yard
- Regularly clean your outdoor equipment



Welcome and Introductions

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



Welcome and Introductions



Steering Committee

1. Name
2. Department or Agency
3. Do you have experience with hazard mitigation planning?
4. How can you help?



Recent Events – December Tornado, July Flooding



KENTUCKY

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

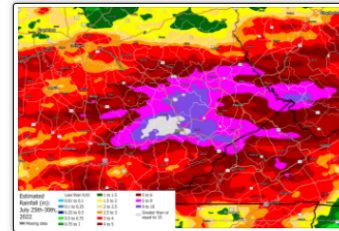
[Current Hazards](#) [Current Conditions](#) [Radar](#) [Forecasts](#) [Rivers and Lakes](#) [Climate and Past Weather](#) [Local Programs](#)

Overview

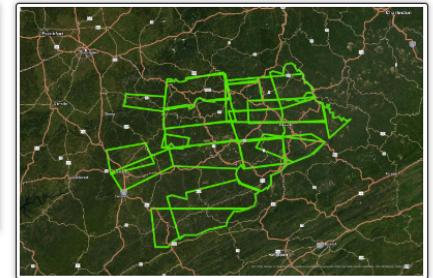
Between July 25th and July 30th, 2022, several complexes of training thunderstorms developed south of I-64 and brought heavy rain, deadly flash flooding, and devastating river flooding to eastern Kentucky and central Appalachia. These thunderstorms, at times, caused rainfall rates in excess of 4"hr across 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.



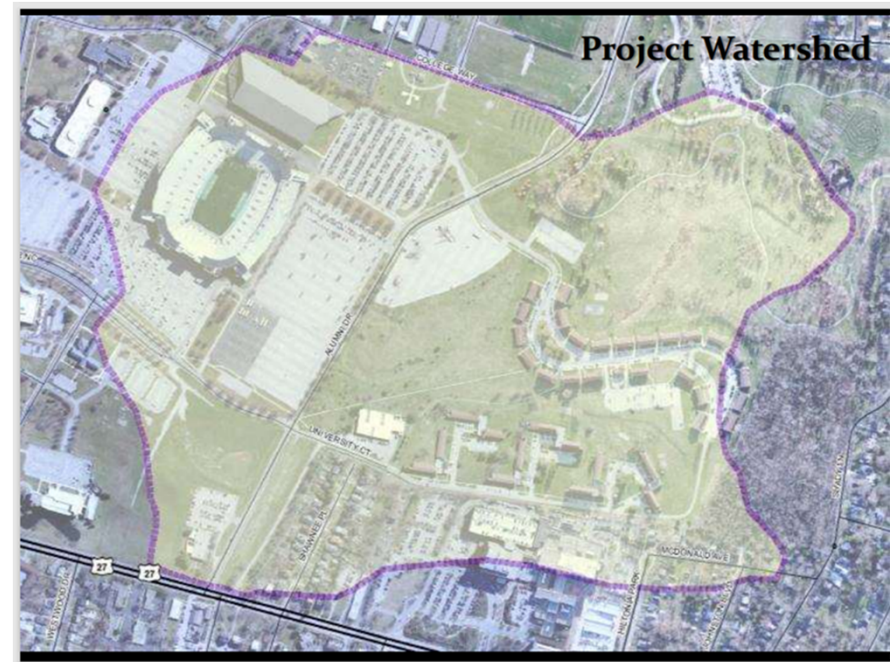
Flash Flood Warnings issued by NWS Jackson, KY from July 26th through July 30th, 2022. Three of these warnings were "Flash Flood Emergencies." This type of Flash Flood Warning is reserved for catastrophic flash flooding events.



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



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](#)

CONTACT
DANIELLE DONHAM
danielle.donham@uky.edu
859-562-2660

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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

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



Planning Process

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



Steering Committee Workshops



1. **Kick-off** - Today
2. **Hazard Identification** – Thursday, 10/27
3. **Risk Assessment** – Tuesday, 12/6
4. **Mitigation Strategy** – Late January
5. **Draft Plan** – April



2015 Plan Update Steering
Committee Meeting



Steering Committee Roles



University Outreach

- Participate in workshops
- Share information regarding the planning process

Share knowledge

- University hazards
- Data
- Capability Assessment
- Mitigation Strategy

Review Draft Plan



2015 Plan Update Steering Committee Meeting

University Involvement

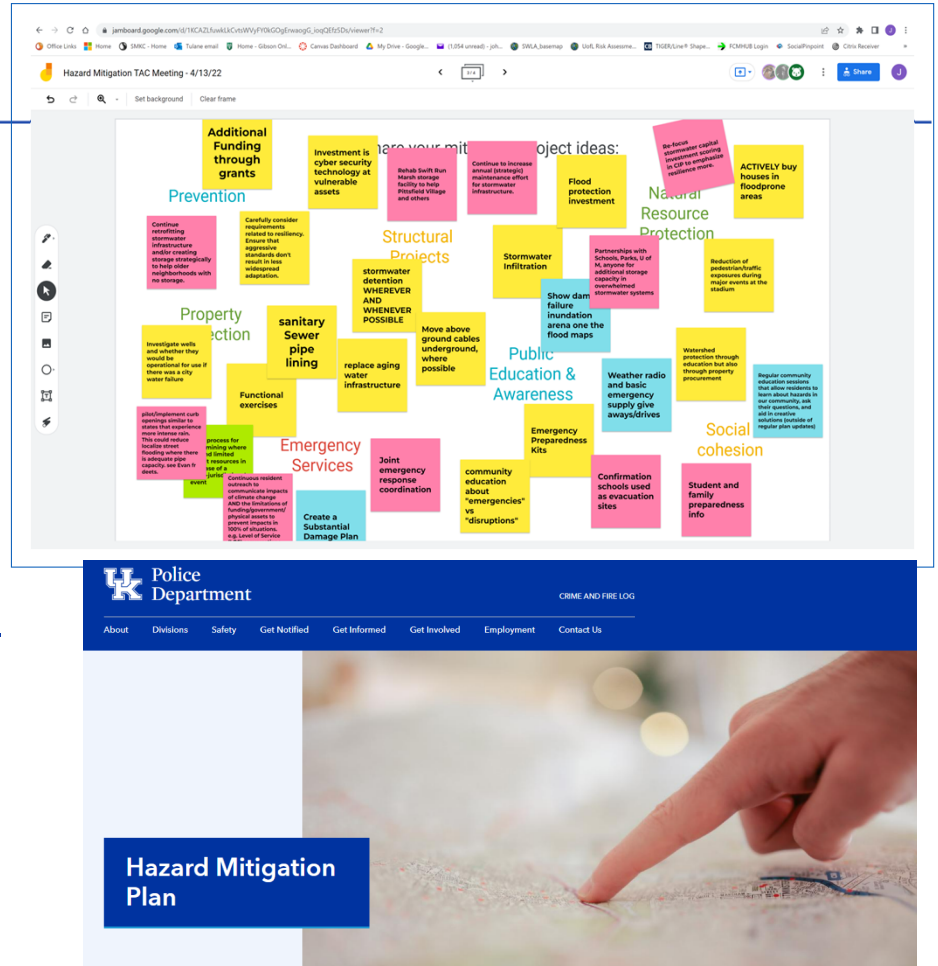


Hazard Identification Workshop

Draft Plan Workshop

Online Engagement

- Survey
- Jamboard
- Website: [Hazard Mitigation Plan | University of Kentucky Police Department \(uky.edu\)](https://www.uky.edu/pd/HazardMitigationPlan/)

Hazard Mitigation TAC Meeting - 4/13/22

Prevention

- Additional Funding through grants
- Investment is cyber security technology at vulnerable assets
- Continue to increase annual (strategic) maintenance effort for stormwater infrastructure.
- Rebuild Swift Run Mouth storage facility to help protect village and others
- Continued retrofiting infrastructure and/or creating storage strategically to help other neighborhoods with no storage.
- Investigate wells and whether they would be operational for use if there was a city water failure.
- plan/Implement code changes similar to design codes that require more frequent inspections.
- Requiring plans there is a regular plan quality and EIR checks.
- Continued research to communicate impacts of climate change AND the limitations of flood management of physical assets to prevent impacts to lives or structures, e.g. Level of Service

Structural Projects

- stormwater detention WHEREVER AND WHENEVER POSSIBLE
- replace aging water infrastructure
- sanitary sewer pipe lining
- Functional exercises
- Move above ground cables underground, where possible
- stormwater infiltration
- Partnerships with Goshawk, Barks, U of K, anyone for additional storage capacity in interconnected stormwater systems
- Show dam failure inundation areas on the flood maps
- Water shed protection through education but also through property improvements
- Weather radio and basic emergency supply give away/driver
- Regular community education sessions to learn about hazards in our community, and ask questions, and address concerns of residents (update of regular plan updates)
- Student and family preparedness info

Property Protection

- Joint emergency response coordination
- community education about "emergencies" vs "disruptions"
- Emergency Preparedness Kits
- Confirmation schools used as evacuation sites
- ACTIVELY buy houses in flood-prone areas
- Be force capital investment scoring systems more.
- Reduce to increase annual (strategic) maintenance effort for stormwater infrastructure.
- Partnerships with Goshawk, Barks, U of K, anyone for additional storage capacity in interconnected stormwater systems
- Show dam failure inundation areas on the flood maps
- Water shed protection through education but also through property improvements
- Weather radio and basic emergency supply give away/driver
- Regular community education sessions to learn about hazards in our community, and ask questions, and address concerns of residents (update of regular plan updates)
- Student and family preparedness info

Emergency Services

- Joint emergency response coordination
- community education about "emergencies" vs "disruptions"
- Emergency Preparedness Kits
- Confirmation schools used as evacuation sites

Public Education & Awareness

- Joint emergency response coordination
- community education about "emergencies" vs "disruptions"
- Emergency Preparedness Kits
- Confirmation schools used as evacuation sites

Natural Resource Protection

- Joint emergency response coordination
- community education about "emergencies" vs "disruptions"
- Emergency Preparedness Kits
- Confirmation schools used as evacuation sites

Social Cohesion

- Joint emergency response coordination
- community education about "emergencies" vs "disruptions"
- Emergency Preparedness Kits
- Confirmation schools used as evacuation sites

Police Department

CRIME AND FIRE LOG

About Divisions Safety Get Notified Get Informed Get Involved Employment Contact Us

Hazard Mitigation Plan

Risk Assessment

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



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





- UK Planning Documents
- Local Planning Documents that impact UK
- Stakeholder Interviews (Internal and external as determined by UK)

Incorporation into Existing Planning Mechanisms

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.



[Map of all UK athletics facilities](#)

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

Mitigation Strategy

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



Watch on  YouTube

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

[Media Resources](#)

CONTACT
DANIELLE DONHAM
danielle.donham@uky.edu
859-562-2660

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CAMPUS NEWS Thursday
UK expands measures to ensure safety of community

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



Mission Statement

The University of Kentucky (UK) Hazard Mitigation Plan (HMP) update is designed to sustain the university by mitigating damage and losses caused by natural hazards.



GOAL 1

Protect lives and reduce injuries from hazards and threats.

GOAL 2

Protect university property, organizational information, and research from hazards and threats.

GOAL 3

Enhance existing, or develop new University policies and practices that are designed to reduce damaging effects from hazards and threats.

GOAL 4

Build stronger partnerships between government, educational institutions, business, and the community.

GOAL 5

Build disaster preparedness through mitigation education and outreach.



Mitigation Strategy



1

Protect lives and minimize injuries from hazard events.

Action	Benefit-Cost	Timeframe	Hazards Addressed	Description	Offices Responsible	Funding	CHAMPS Module(s)
1.1	Medium	1-2 years	 Flood	Construct retention and channel modification projects (Alumni Drive).	Facilities Management	Grants Internal External	 Projects Manage Projects
1.2	High	3-5 years	 Applicable to All Identified Hazards	Install Generators at identified university facilities.	CMP Physical Plant Division College of Agriculture	Internal External	 Projects Apply for Funds
1.3	Very High	As Needed	Forest Fire	Conduct fuel break restoration (4-H camps).	College of Agriculture	Internal	-
1.4	Very High	When Needed	Severe Storm Tornado	Identify NWS approved shelters/FEMA safe rooms within new and existing buildings.	CMP EHS	Internal	 Projects Apply for funds
1.5	High	2-4 years	Earthquake Severe Storm Tornado	Build storm shelters/safe rooms for 4-H camps and apply seismic retrofits to Western KY 4-H camps near the New Madrid fault.	CMP College of Agriculture CPM	Internal External	 Projects Apply for funds
1.6	High	When Needed	 Applicable to All Identified Hazards	Identify and procure additional warning communication systems (digital media boards, network pop-ups, voice-over IP, etc.).	MP Div. of Student Affairs Housing IT	Internal External	 Projects Apply for funds
1.7	High	When Needed	Severe Storm Tornado	Identify areas and pursue safe room construction.	CMP College of Agriculture	Internal External	 Projects Apply for funds
1.8 (new)	Medium	3-5 years	Karst/Sinkhole	Conduct assessment, monitor and incorporate structural designs and new construction requirements for areas susceptible to subsidence including non-campus facilities.	CMP CPM Facilities Information Service Facilities Management GIS Kentucky Geological Survey	Internal	-

Adoption and Plan Maintenance

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



Funding Opportunities

Funding Opportunities



- Hazard Mitigation Grant Program (HMGP)
- Flood Mitigation Assistance (FMA)
- Building Resilient Infrastructure and Communities (BRIC)



Entrance of the Robinson Center for Appalachian Resource Sustainability (RCARS). Photo by Daniel Wilson.

Next Steps

Next Steps



- University Hazard Identification Meeting on October 27, 2022
- Data Collection for Risk and Capability Assessments
- Interviews
- Review Mitigation Strategy



Dear Colleague:

Thanks to your notable contributions to the university community in the past, as well as the efforts of your colleagues, the University of Kentucky Hazard Mitigation Plan was approved in February 2010 and again on March 10, 2016.

The Plan has kept the university in compliance with federal hazard mitigation planning standards resulting from the Disaster Mitigation Act of 2000, as contained in 44 CFR 201.6. The current Plan is approved for a period of five years. As a result, UK is eligible to apply for state and federal funds for mitigation and disaster assistance grant programs administered by the Federal Emergency Management Agency (FEMA).

This plan is a critical part of how we take care of our people — a core principle in UK's strategic plan. In this spirit, I ask for your commitment to the 2023 University of Kentucky Hazard Mitigation Plan Update. Steering Committee members will include university stakeholders throughout campus and the greater Lexington community. Your contributions and expertise will guide hazard mitigation activities over the coming years.

Your commitment is imperative to the success of the Plan's goals:

1. Protect lives
2. Protect university property
3. Enhance existing or develop new university policies
4. Build and strengthen partnerships
5. Increase campus community understanding
6. Integrate risk reduction strategies

The 2023 update to the University of Kentucky Hazard Mitigation Plan will be a collaborative effort between the UK Police Department's (UKPD) Division of Crisis Management and Preparedness; the UK Hazard Mitigation Plan Steering Committee; state and local agencies; and Stantec Consulting Services, Inc.

In the coming months, you will begin receiving invitations to participate in five Steering Committee meetings that will be held on campus and will take place between September 2022 and May 2023.

I deeply appreciate your willingness to serve our community in such an important way and look forward to your involvement and input. For more information, please do not hesitate to contact Laurel Wood, Director of Business Continuity for UKPD, at cmp@uky.edu or 859-257-6655. You also can find more information [here](#).

Thank you for all you do to advance Kentucky.

Eric Monday
Executive Vice President for Finance and Administration

Questions and Contact Information



Laurel Wood

laurel.wood@uky.edu

859-257-6655

Kristen Hewes

kristen.hewes@stantec.com

502-595-8238

John Bucher

john.bucher@stantec.com

828-242-4384

Christina Hurley

christina.hurley@stantec.com

910-540-9215



Thank you!

