



Hazard Mitigation Plan Update

Steering Committee Meeting

May 23, 2023
10:00-11:30 am



 Division of Crisis
Management & Preparedness



Agenda



- Safety Moment
- Project Update
 - Chapter 1: Planning Process
 - Chapter 2: University Profile
 - Chapter 3: Risk Assessment
 - Chapter 4: Mitigation Strategy
 - Chapter 5: Plan Maintenance



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

Safety Moment



Be prepared for ticks

- Use a sheet over car seats to catch hitch hikers
- Conduct frequent tick checks
- Shower as soon as practicable
- Tumble clothes on high heat before putting in laundry

After a tick bite

- Remove the tick immediately using pointed tweezers or a “tick key”; pull gently & steadily
- Seal the tick in a container and place in a freezer
- Wash the wound site and your hands with soap and water; cleanse the bite with an antiseptic wipe
- Take a photo of the bite site; watch for an expanding rash / lesion, or unexplained fever / aches / fatigue



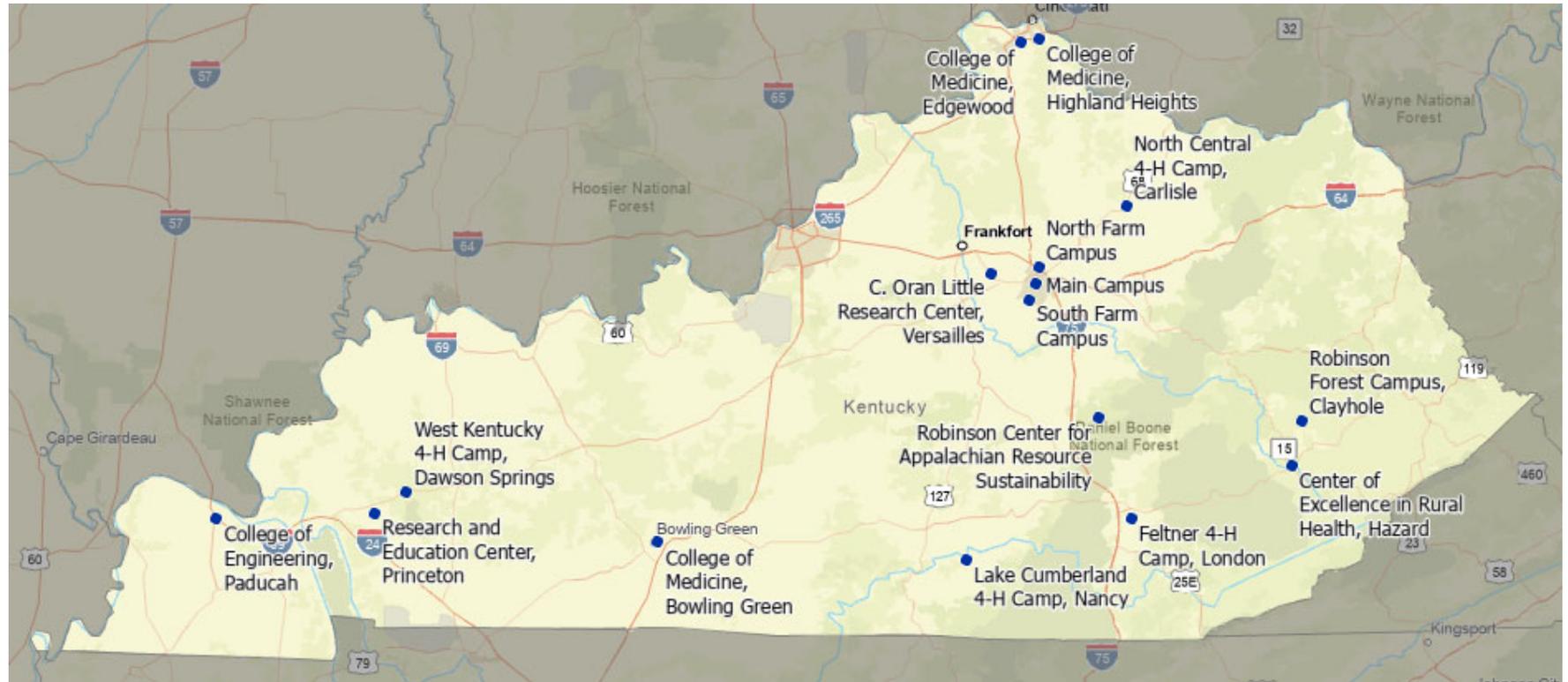
Project Update



- Plan Components:
 - Chapter 1: Planning Process
 - Chapter 2: University Profile
 - Main Campus
 - Clery Act Campuses
 - 4-H Camps
 - Chapter 3: Risk Assessment
 - Critical Facilities
 - Risk and Vulnerability Profiles
 - Chapter 4: Mitigation Strategy
 - Goals
 - Capability Assessment
 - 2023 Mitigation Action Workbook
 - 2016 Actions Updated
 - Chapter 5: Plan Adoption and Maintenance
- Draft Document
- Interviews Performed:
 - Risk Management
 - Research
 - GIS
 - Facilities
 - Hazardous Materials
 - IT
 - Agriculture
 - Health Care
 - Equity – Office for Institutional Diversity
 - Kentucky Climate Consortium



Campus Locations



Risk Assessment – Hazards Reviewed



Weather Hazards

- Extreme Heat
- Extreme Cold
- Wildfire
- Hail
- Severe Storm
- Severe Winter Storm
- Tornado



Hydrological Hazards

- Flood
- Drought
- Dam/Levee Failure



Geological Hazards

- Earthquake
- Landslide
- Karst



Industrial Hazards

- Hazardous Materials Release



Human-Caused Hazards

- Cyber Attack
- Emerging Infectious Disease



Losses: Summary of Key Findings



Events with Greatest Losses (\$)

- UKREC
 - Tornado December 2021
 - \$26M in damages

- July 2022 Floods
 - RCARS and Robinson Forest
 - \$2M+ in damages

- Bosomworth Health Sciences
 - Burst water main in January 2014
 - \$556K in damages

- Other claims-related losses are less than \$100K



Vulnerability: Summary of Key Findings



Dam/Levee Failure

- No buildings in mapped inundation areas

Flood

- 11 buildings in 100-year floodplain
- 5 buildings in 500-year floodplain

Earthquake

- High Hazard Areas
 - Paducah College of Engineering
 - Research and Education Center (Princeton)

Karst

- 763 in karst risk areas

Landslide

- 38 buildings in moderate risk areas
- 79 buildings in high risk areas

Hazardous Materials Release

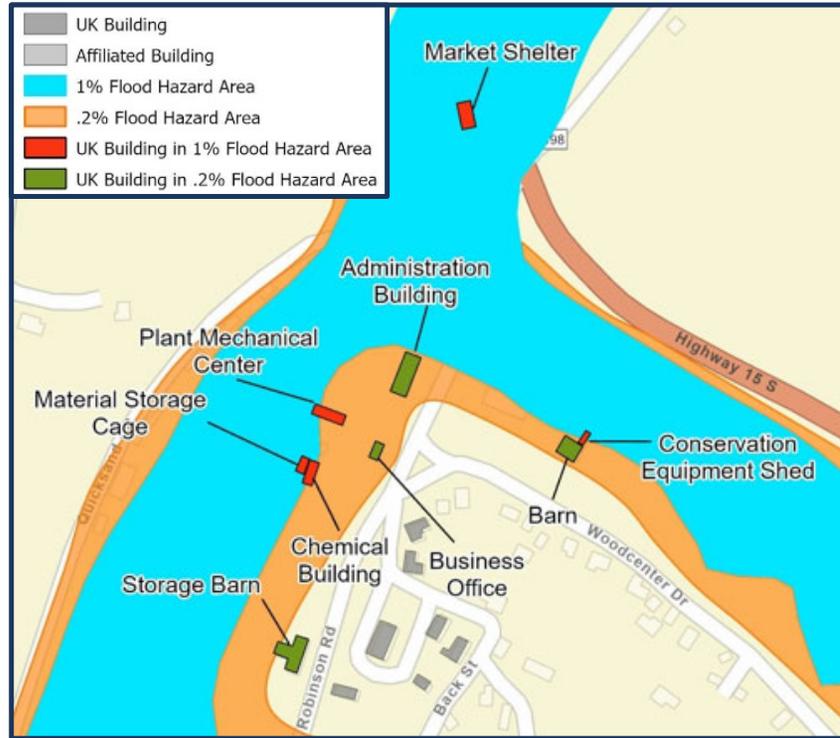
- Fixed-site:
 - 10 in primary buffer
 - 571 in secondary buffer
- Mobile:
 - 485 in primary buffer
 - 440 in secondary buffer

Wildfire

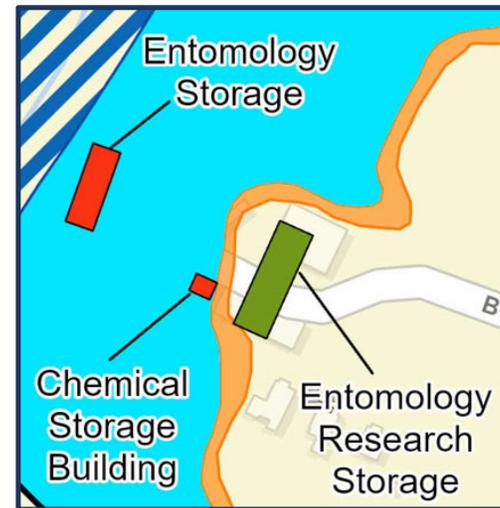
- Highest Probability Areas
 - Robinson Forest - Clayhole
 - RCARS
 - Feltner 4-H Camp - Hazard
 - Lake Cumberland 4-H Camp



Flood



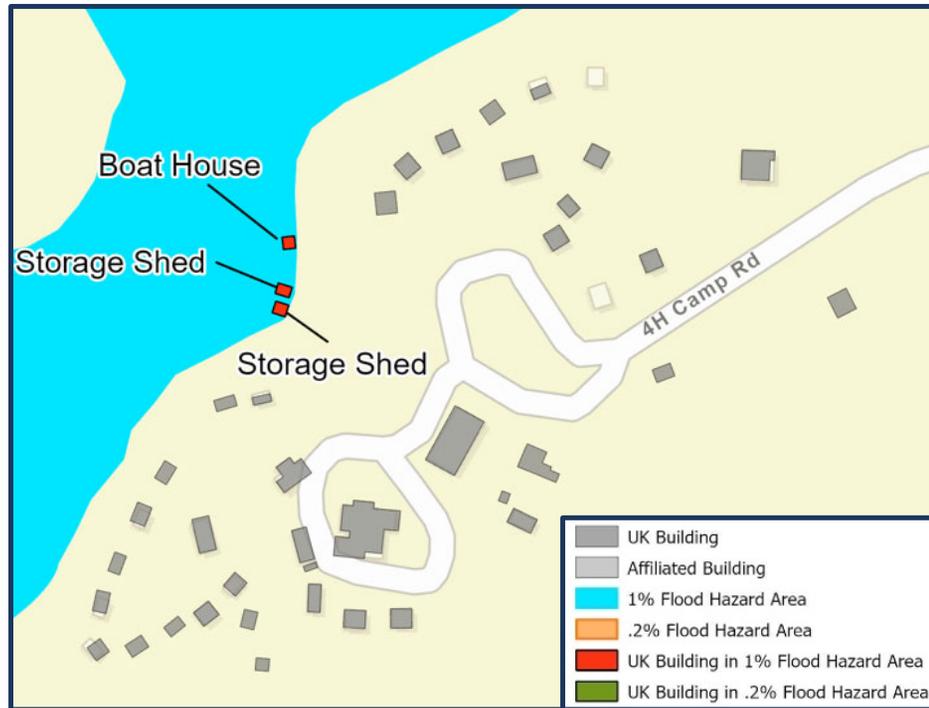
➤ RCARS



➤ North Farm



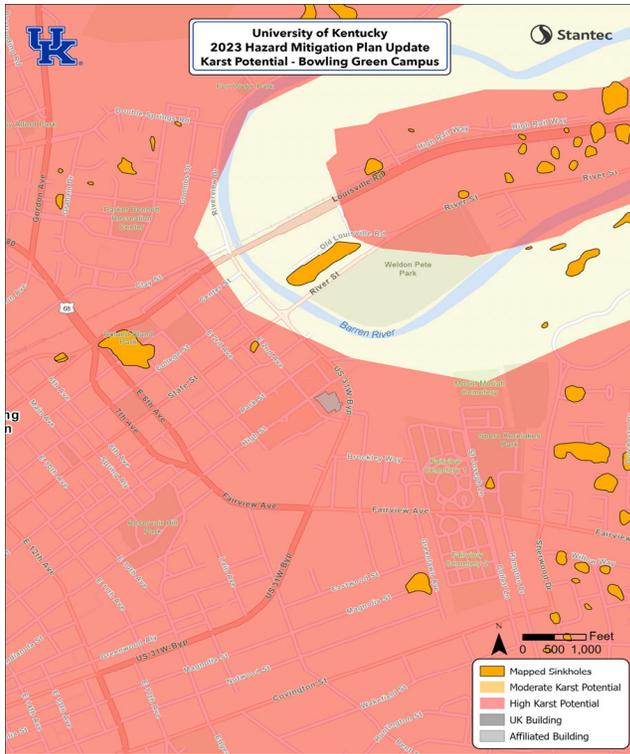
Flood



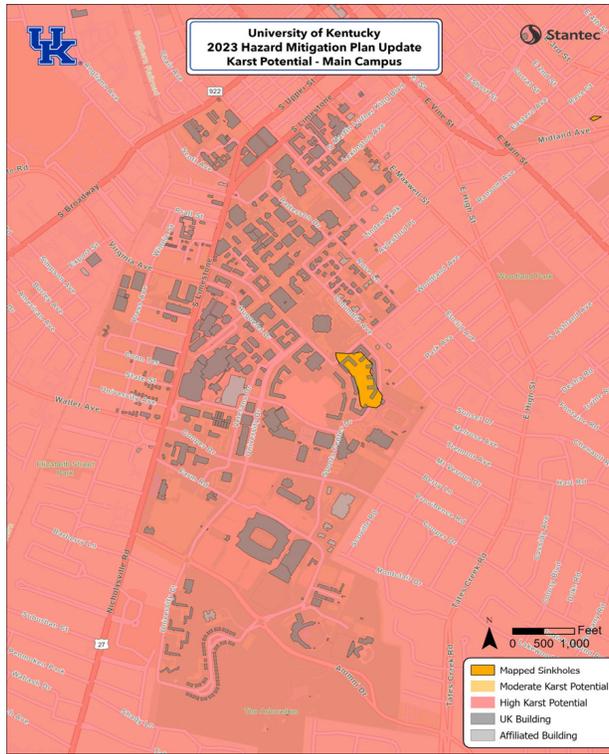
➤ West Kentucky 4-H Camp



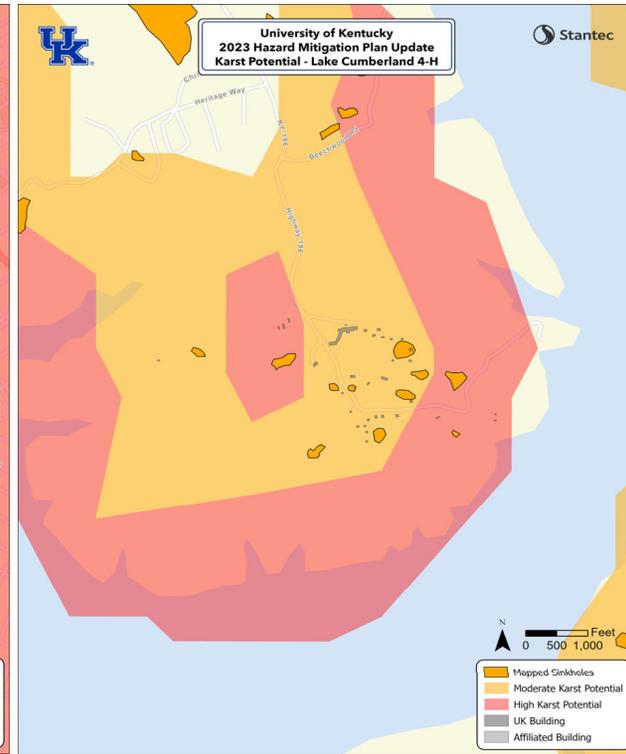
Karst



➤ Bowling Green



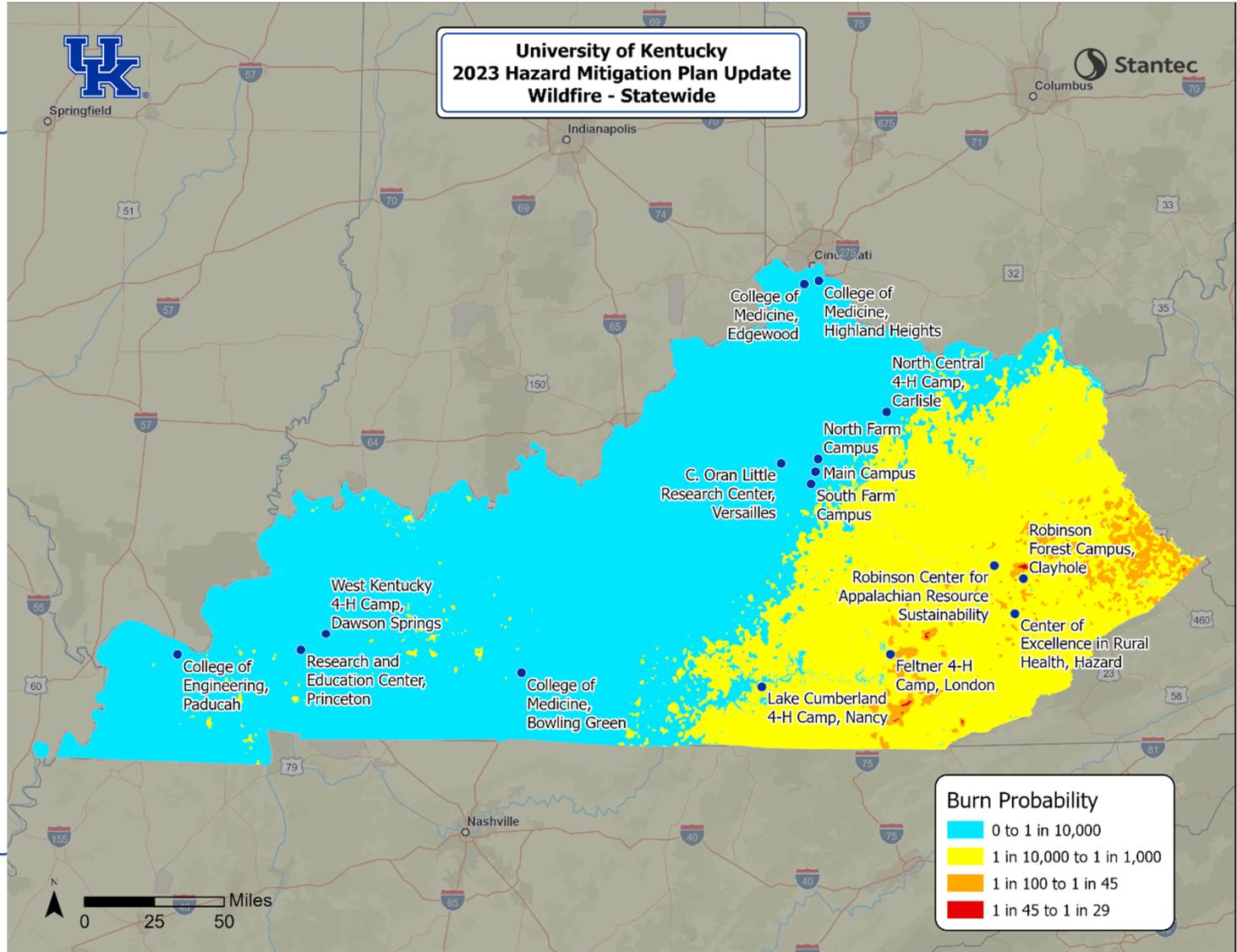
➤ Main Campus



➤ Lake Cumberland 4-H Camp



Wildfire



UK University of Kentucky

Capability Assessment Recommendations



- Disaster Recovery Plan
- Document lessons learned from past events to share with the Workgroup and other relevant University departments to inform future mitigation efforts.
- Resilience Program
- Workgroup implementation meetings to encourage increased communications and education between stakeholders, improve plan implementation, and documenting successes, needs, and capabilities.
- Invite the Office of Institutional Diversity and the Disability Resource Center to the Workgroup meetings to include equity considerations during plan implementation.
- Invite the Kentucky Climate Consortium to the Workgroup meetings to solicit input regarding climate change impacts affecting the University.
- Continued cyber security education for students, faculty, and staff
- Update the UK Hazard Mitigation GIS geodatabase



2015 Mitigation Goals



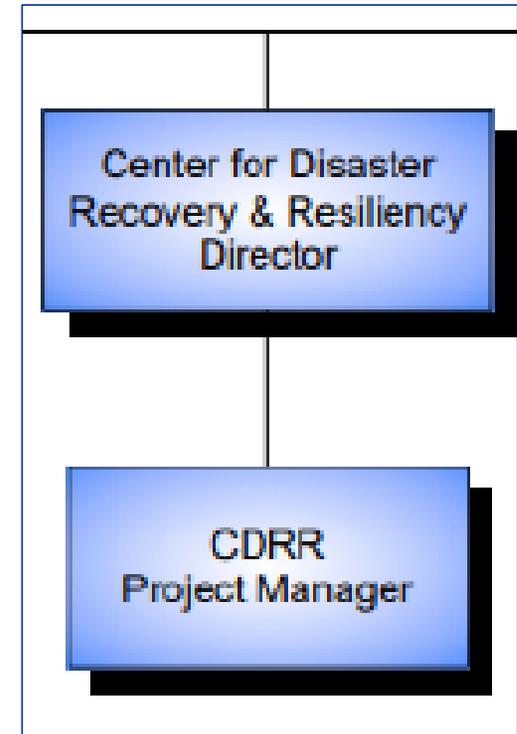
GOAL 1 Protect lives and reduce injuries from hazards and threats.

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 and response through mitigation education and outreach.



2023 Mitigation Actions



- Action Name
- Action Description
- Responsible Department/Office
- Prioritization Score
- Potential Funding Source
- Project Type
- Other Partners
- Project Schedule
- Comments and Status

MITIGATION ACTIONS

Action Item	Action Name	Action Description	Responsible Department/Office	Hazards Addressed	Feasibility	Climate Resilience	Public (Project Type)	Public (Hazard of Greatest Concern)	Risk Reduction/Benefit	Costs	Total Prioritization	Potential Funding Source	Project Type	Other Partners	Implementation Schedule	Comments and Status
1	Disaster Recovery Manager	Hire Disaster Recovery Manager for the Center for Disaster Recovery and Resilience	Center for Disaster Recovery and Resilience	All Hazards	100	100	50	50	60	100	460	General Fund	Prevention	None	2023	
2	Center of Recovery and Resilience	The University will establish the Center for Disaster Recovery and Resilience. The goal of this office is to serve as the designated University entity to collaborate and streamline efforts to lessen the impact of adverse incidents to the University by developing strategic resilience and implementing mitigation actions to reduce hazards risks. In order to accomplish this, the Office will plan and facilitate long-term recovery from disasters and mitigation to hazard events that may cause an operational interruption, injury, illness, or death; damage to or loss of equipment, infrastructure services, or property or functional degradation to social, economic, or environmental aspects of the University.	Crisis Management and Preparedness	All Hazards	100	100	50	50	60	100	460	General Fund	Public Education and Awareness	0	2023	
3	Generators	Identify locations with existing generators and distinguish the type of generator (partial vs. full load). Identify the location needs and whether current generators are sufficient for location needs or additional generators are required. As development occurs, determine the locations and needs for additional generators to acquire and install. This action includes buildings on the main campus (residence halls and medical facilities). Off-campus facilities are also included: 4-H camps, medical facilities, and Clergy Act defined campuses.	Facilities Management	All Hazards	20	60	50	50	60	20	260	General Fund	Structural Projects	University Fire Marshal	2023-2028	



2023 Mitigation Actions



Name:		Disaster Recovery Manager	Description:	Hire Disaster Recovery Manager for the Center for Disaster Recovery and Resilience	Responsible Department	Center for Disaster Recovery and Resilience
Prioritization Metric	Weighting Factor	Scoring Criteria		Score	Points	Notes
1	Feasibility	20%	5 – Funding identified, easily implemented within five years 3 – Funding identified, implemented with only moderate complexity or delays 1 – Funding identified, implementation is complex and faces certain delays for implementation 0 – Not feasible, no funding identified and/or not able to be implemented	5	100	
2	Climate Resilience	20%	5 – Very High (Action provides multiple benefits for climate resilience or adaptive measures) 3 – High (Action provides at least one benefit for climate resilience) 1 – Moderate (Action provides limited benefits for climate resilience) 0 – Low (Action does not provide benefits for climate resilience)	5	100	
3	Public (Project Type)	10%	5 – Structural Projects 5 – Public Education and Awareness 3 – Natural Resources Protection 3 – Property Protection 3 – Emergency Services 1 – Prevention	5	50	
4	Public (Hazard of greatest concern)	10%	5 – Action addresses one or more hazards identified by the university community as being a high threat to the University 3 – Action addresses one or more hazards identified by the university community as being a moderate threat to the University 1 – Action addresses one or more hazards identified by the university community as being a minimal threat to the University	5	50	
5	Risk Reduction/Benefits	20%	5 – Very High (Significant losses avoided and/or significant benefits with consideration to economic, social, and environmental factors) 3 – High (Numerous losses avoided and/or numerous benefits with consideration to economic, social, and environmental factors) 1 – Moderate (Some losses avoided, some benefits with consideration to economic, social, and environmental factors) 0 – Low (No losses avoided, no public benefits with consideration to economic, social, and environmental factors)	3	60	
6	Costs	20%	5 – Project Costs are predominantly staff time 3 – Project Costs are estimated between \$0-\$100,000 1 – Project Costs are estimated between \$100,001-\$500,000 0 – Project Costs are estimated above \$500,000	5	100	
Total		100%	sum of parameter scores (max = 500)			460



2023 Mitigation Actions – Prioritization



Action Item	Action Name	Action Description	Responsible Department/Office	Hazards Addressed	Feasibility	Climate Resilience	Public (Project Type)	Public (Hazard of Greatest Concern)	Risk Reduction Benefits	Cost	Total Prioritization	Potential Funding Source	Project Type	Other Partners	Implementation Schedule	Comments/Status	
1	Disaster Recovery Manager	Hire Disaster Recovery Manager for the Center for Disaster Recovery and Resilience. The goal of this office is to serve as the designated University entity to collaborate and streamline efforts to lessen the impact of adverse incidents to the University by developing strategic resilience and implementing mitigation actions to reduce hazards risks. In order to accomplish this, the Office will plan and facilitate long-term recovery from disasters and mitigation to hazard events that may cause an operational interruption, injury, illness, or death;	Center for Disaster Recovery and Resilience	Multiple Hazards	100	100	50	50	60	100	460	General Fund	Prevention	None	2023		
2	Center of Recovery and Resilience	Maintain and update the hazard mitigation website and educational materials, including social media updates, with relevant information regarding ways to mitigate hazards and vulnerabilities. Encourage university participation in hazard mitigation outreach programs, including UK Alert.	Crisis Management and Preparedness	All Hazards	100	100	50	50	60	100	460	General Fund	Public Education and Awareness		0	2023	
14	Education and Awareness	Document and map the indoor shut off valves, fire protection, and critical equipment.	UK Police Department	Multiple Hazards	100	100	50	50	60	100	460	General Fund	Public Education and Awareness	Housing, Office for Student Success, Center for Recovery and Resilience, PR & Marketing		2023-2028	
17	Geospatially Identify Shut Off Valves and Other Equipment	Perform thermal imagery flyover that will be used to detect steam system leaks and roof anomalies. Document thermal imagery flyover findings and perform analysis to determine locations for repairs. Identify funding and schedule to perform repairs.	Facilities Management	Multiple Hazards	100	100	50	50	60	100	460	General Fund	Structural Projects	ITS Geospatial		2023-2024	
18	Thermal Imagery Flyover	Implement education and outreach programs on UK campuses focused on preparedness, including disaster kits and emergency shelters	Facilities Management	Multiple Hazards	100	100	50	50	60	100	460	General Fund	Prevention		0	2023-2024	
13	Personal Preparedness		Crisis Management and Preparedness, Center for Recovery and Resilience	Multiple Hazards	100	60	50	50	60	100	420	General Funds	Public Education and Awareness	Environmental Health & Safety, PR & Marketing		2023-2028	

Prioritization Overview

Summary

Mitigation Action 1

Mitigation Action 2

Mitigation Action 3

Mitigation Action 4

Mitigation Acti... (+)



2023 Mitigation Actions – Draft Prioritization



1. Hire Disaster Recovery Manager
2. Center for Disaster Recovery and Resilience
3. Education and Awareness – Maintain and update educational resources
4. Geospatially Identify Shut Off Valves and Other Equipment
5. Thermal Imagery Flyover
6. Personal Preparedness
7. Record Disaster Management Data
8. Hazard Mitigation Education in UK 101
9. Construction Impacts – improve communication regarding construction impacts to mobility
10. Emergency Plans and Procedures (CAFE BEAPs)
11. Tree Inventory
12. Business Continuity Plan
13. Campus CERT Program
14. Generators at UK HealthCare facilities
15. Training for Campus Recreation Staff and Ras
16. Hazard Mitigation Workgroup
17. Develop New Planning Documents
18. Resilience Hubs/Centers
19. LFUCG and State HMP Participation
20. Hospital Incident Command
21. Improvements to 4-H Camp Buildings
22. Facilities Improvements at REC, RCARS, and Robinson Forest
23. Construction Drawings
24. Update Hazard Mitigation Geodatabase
25. Stormwater and Sewer Master Plans
26. Generators for Main Campus
27. Lightening Protection
28. Underground Utility Lines at 4-H Camps
29. Cybersecurity
30. Mock dorm room burn unit
31. Mobile response unit
32. Improve Karst Resilience
33. New Police Department with EOC



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.

Adoption and Plan Maintenance



- KYEM and FEMA review
- University Adoption
- Regularly scheduled check in meetings
- Document progress and needs
- Coordinating funding and grant opportunities



Aerial view of the UK Research and Education Center after it took a direct hit from a weekend tornado. Photo by Matt Barton, UK agricultural communications.



Questions and Contact Information



Laurel Wood

laurel.wood@uky.edu

859-257-6655

Kristen Hewes

kristen.hewes@stantec.com

502-595-8238

Christina Hurley

christina.hurley@stantec.com

910-540-9215



Thank you!

