University of Kentucky
Hazard Mitigation Plan Update

Kick-off Steering Committee Meeting
November 7, 2014
Agenda

1. Introduction: Updating our Plan

   Break

2. Revisiting our Mitigation Strategy
It happened before...

Aftermath of 1890 tornado
Louisville, KY

Source: UofL Photo Archives

Severe Flooding
41 counties affected
December 3-10, 1978

Source: The Courier Journal

Surveying ice storm damage
Marion, Crittendon County
January 2, 1902

Source: http://www.flickr.com/photos/7388762@N03/4751621029/
...it will happen again.

Aftermath of 2012 tornado
West Liberty, Morgan County

Source: The Lane Report

Ice storm aftermath
Jeffersonville, KY
January 28, 2009

Source: The Courier Journal
So, why should we plan?

A measure of your community’s ability to utilize resources to prepare for, respond to, and recover from disasters.

**RISK**
The potential that your community could be affected by a hazard event.

**MITIGATION**
What your community can do to reduce losses resulting from hazard events.

**COMMUNITY RESILIENCE**
Understanding the lingo of mitigation...

### hazard types
- Earthquake
- Extreme Heat
- Hailstorm
- Karst/Sinkhole
- Severe Storm
- Tornado
- Severe Winter Weather
- Flood

### factors

**HAZARD**
- Occurrences
- Magnitude
- Cost of damage
- Injuries/Death

**EXPOSURE**
- Population
- Vulnerable Groups
- Critical Infrastructure

What are the potential hazards that my community may face?
Understanding the lingo of mitigation...

<table>
<thead>
<tr>
<th>mitigation</th>
<th>6 types</th>
</tr>
</thead>
</table>
| What can my community do to reduce death and damages resulting from hazard events? | - Prevention  
- Property Protection  
- Structural Projects  
- Natural Resource Protection  
- Emergency Services  
- Public Information and Awareness |
Disaster Mitigation Act of 2000

Communities must have an approved plan in order to be eligible for Post-Disaster HMGP funding (projects and planning).

What hazards affect our community?
What can we do to reduce losses from events?

Establishes a process

Encourages stakeholder involvement at all levels from initial planning to implementation of hazard mitigation activities

Enables multi-sector participation

Mitigation contributes to more resilient communities

Why mitigation?

Mandates a Plan

Encourages equitable planning processes by including stakeholder involvement of vulnerable populations.

Enables community representation
## Local Mitigation Plan Review

### Regulation Checklist

**Instructions:** The Regulation Checklist must be completed by FEMA. The purpose of the Checklist is to identify the location of relevant or applicable content in the Plan by Element/sub-element and to determine if each requirement has been ‘Met’ or ‘Not Met.’ The ‘Required Revisions’ summary at the bottom of each Element must be completed by FEMA to provide a clear explanation of the revisions that are required for plan approval. Required revisions must be explained for each plan sub-element that is ‘Not Met.’ Sub-elements should be referenced in each summary by using the appropriate numbers (A1, B3, etc.), where applicable. Requirements for each Element and sub-element are described in detail in this Plan Review Guide in Section 4, Regulation Checklist.

### 1. Regulation Checklist

<table>
<thead>
<tr>
<th>Regulation (44 CFR 201.6 Local Mitigation Plans)</th>
<th>Location in Plan (section and/or page number)</th>
<th>Met</th>
<th>Not Met</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Element A: Planning Process</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A.1. Does the Plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction? (requirement §201.6(a)(1))</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A.2. Does the Plan document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development as well as other interests to be involved in the planning process? (requirement §201.6(b)(1))</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A.3. Does the Plan document how the public was involved in the planning process during the drafting stage? (requirement §201.6(b)(1))</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>A.4. Does the Plan describe the review and incorporation of existing plans, studies, reports, and technical information? (requirement §201.6(b)(2))</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A.5. Is there a description of how the community(ies) will continue public participation in the plan maintenance process? (requirement §201.6(c)(4)(ii))</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>A.6. Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within a 5 year cycle)? (requirement §201.6(c)(4)(iv))</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Element A: Required Revisions


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*Local Mitigation Plan Review Guide*

October 1, 2011

*FEMA*
Geography of Hazard Mitigation Plans

Other Local Plans:
- University of Louisville
- University of Kentucky
- Kentucky Community & Technical College System
- Kentucky State University
Mission Statement

The University of Kentucky Hazard Mitigation Plan Update is designed to sustain the community by mitigating damage and losses caused by natural hazards.
What are the parts of a mitigation plan?

Step 1: Planning Process
Step 2: Risk Assessment
Step 3: Mitigation Strategy
Step 4: Plan Maintenance
Step 5: Plan Adoption
PLANNING PROCESS
**PLANNING PROCESS**

The “who, what, when, where, and why” of plan development.

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<td>A1. Does the Plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction? (Requirement §201.6(c)(1))</td>
<td></td>
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<tr>
<td>A2. Does the Plan document the opportunity for neighboring communities and other agencies involved in hazard mitigation activities, agencies that have the authority to regulate development as well as other interests to be involved in the planning process? (Requirement §201.6(c)(2))</td>
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<td></td>
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<tr>
<td>A3. Does the Plan document how the public was involved in the planning process during the drafting stage? (Requirement §201.6(c)(2))</td>
<td></td>
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<tr>
<td>A4. Does the Plan describe the review and incorporation of existing plans, studies, reports, and technical information? (Requirement §201.6(b)(3))</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>A5. Is there discussion of how the community(ies) will continue public participation in the plan maintenance process? (Requirement §201.6(c)(4)(i))</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>A6. Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within a 5-year cycle)? (Requirement §201.6(c)(4)(i))</td>
<td></td>
<td></td>
<td></td>
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**ELEMENT A: REQUIRED REVISIONS**
Planning Process

Guiding Principle:

Process is as important as the plan itself.

Requirements ask for “what” rather than “how” it must be done.
Plan Development Timeline

1. Risk Assessment
2. Mitigation Strategy
3. Plan Review & Evaluation
4. Plan Adoption

Fall 2014 → Spring 2015
Agency and Public Involvement

Steering Committee Meetings

1. Kick-off meeting
2. Introducing hazard vulnerability
3. Developing a mitigation strategy
4. Draft plan review

Individual Stakeholder Meetings

• Data collection
• Mitigation/Plan Maintenance strategy development
Planning Process

• Involve stakeholders and the public.
  
  Why? Ensures citizens understand risks and vulnerability, can work to support mitigation policies, action, and tools...

• Document the process.
  
  Why? Turnover among stakeholder groups and to describe how decisions were made.

Other elements of the Planning Process

• What plans or studies were incorporated?
• How will the plan be implemented?
Who’s Involved?

- University departments/divisions

- Local and regional agencies involved in hazard mitigation; public works, zoning, emergency management, local floodplain administrator, and GIS departments.

- Agencies that have the authority to regulate development; planning and community development departments, building officials, planning commissions, or other elected officials.

- Neighboring communities include adjacent counties and municipalities.

- Other interests; business, academic, and other private and non-profit interests.
The University of Kentucky’s Hazard Mitigation Plan was last approved in February 2010 and 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, until February 9, 2015. As a result, the University is an eligible applicant for state and federal funds for mitigation and disaster assistance grant programs administered by the Federal Emergency Management Agency (FEMA).

University of Kentucky’s Hazard Mitigation Goals:

1. Protect Lives
2. Protect University Property
3. Enhance Existing or Develop New University Policies
4. Build and Sustain Partnerships
5. Increase Campus Community Understanding
6. Integrate Risk Reduction Strategies

The 2015 update to the University of Kentucky Hazard Mitigation Plan will be a collaborative effort on the part of UK Police; Division of Crisis Management and Preparedness, the UK Hazard Mitigation Steering Committee, state and local agencies, the University of Louisville Center for Hazards Research and Policy Development, and interested members of the UK community. A series of steering committee meetings will be held on UK’s campus to accomplish the following:

1. Update UK’s hazard vulnerability assessment
2. Measure progress and update UK’s five-year mitigation action plan
3. Commit to plan maintenance measures for the next five-year cycle

The projects identified and the priority placed upon them through this planning process will guide the University and influence opportunities for FEMA funding over the next five years.
Other Methods: Online Social Media

• Meeting Information

• Hazard-related news

• Public Comment and Review
Ranking UK’s Hazards
How we ranked our hazards in 2008

1. Severe Storm
2. Tornado
3. Winter Storm
4. Hailstorm
5. Flood
6. Extreme Heat
7. Drought
8. Karst/Sinkhole
9. Earthquake
10. Wildfire
11. Mine Subsidence
12. Landslide
13. Dam Failure
Risk Assessment

Requirement:

The risk assessment shall include a description of the type, location, and extent of all hazards that can affect the jurisdiction.

Include previous and probability of future hazard events.
# Risk Assessment

Looking forward and backward.
What could occur? Has occurred?
Where are our assets?
Where are our vulnerabilities?

## 1. Regulation Checklist

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<table>
<thead>
<tr>
<th><strong>ELEMENT B. HAZARD IDENTIFICATION AND RISK ASSESSMENT</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>B1. Does the Plan include a description of the type, location, and extent of all natural hazards that can affect each jurisdiction(s)? (Requirement §201.6(c)(2)(i))</td>
</tr>
<tr>
<td>B2. Does the Plan include information on previous occurrences of hazard events and on the probability of future hazard events for each jurisdiction? (Requirement §201.6(c)(2)(ii))</td>
</tr>
<tr>
<td>B3. Is there a description of each identified hazard’s impact on the community as well as an overall summary of the community’s vulnerability for each jurisdiction? (Requirement §201.6(c)(2)(iii))</td>
</tr>
<tr>
<td>B4. Does the Plan address NFIP insured structures within the jurisdiction in accordance with the requirements of Section 201.6(c)(2)(iv)? (Requirement §201.6(c)(2)(iv))</td>
</tr>
</tbody>
</table>
Tornado: March 2012

Before

After

Morgan County Extension Office
Flooding & Mudslides: 2009

Robinson Forest
Assessing Vulnerability

**Vulnerability Score = Exposure Score x Hazard Score**

CHR’s Vulnerability methodology was designed to be flexible and rely on GIS production. CHR derived a methodology to achieve a “Vulnerability Score” which is the foundation in our vulnerability/risk assessment. This Vulnerability Score is built on multiple layers of data and provides the foundation for the Plan.
Identify & Profiling Hazards

What has happened before?

Where is our exposure?

Building Blocks to Assessing Vulnerability
What data is used to determine Vulnerability?

**Exposure:**
- Population (human & animal)
- Building replacement values
- Building content value
- Building condition
- Critical facilities
- Hazardous materials
  - radioactive materials
  - biological agents

**Hazard:**
- Hazard occurrences
- Hazard losses
- Geographic extent
Geographic Information Systems (GIS)

- GIS architecture facilitates an inventory of assets.
- Ability to visualize on a map which buildings/areas are more vulnerable.
- GIS architecture allows for a model to calculate vulnerabilities via the digital database created for the vulnerability assessment.
Mapping Your University’s Hazard Vulnerability

- Identifying vulnerable properties
- Target project areas
- Use assessment results to drive other planning initiatives.
## Data Collection

<table>
<thead>
<tr>
<th>Data Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>University Owned Building Data</td>
<td>(Replacement Costs, building materials, content costs, current building conditions, research values, Geo-Referenced Locations)</td>
</tr>
<tr>
<td>University Owned Property Data</td>
<td></td>
</tr>
<tr>
<td>Hazard Occurrence Data</td>
<td>(Insurance Claims, Number of Tornados or Floods that have happened in certain areas)</td>
</tr>
<tr>
<td>Loss from events</td>
<td>(Dollar amounts from certain events)</td>
</tr>
<tr>
<td>Hazard Boundary Data</td>
<td>(Floodplain and Landslide)</td>
</tr>
<tr>
<td>Transportation systems</td>
<td>(Roads and Bridges)</td>
</tr>
<tr>
<td>Utility system data</td>
<td></td>
</tr>
<tr>
<td>General Hazard knowledge</td>
<td></td>
</tr>
</tbody>
</table>

**FORMAT types**

- Electronic database
- GIS format
- Excel format
Existing Planning Mechanisms

- University Strategic Plans
- Emergency Operations Plan
- Emergency Notification Plans
- Evacuation Plans
- Building Guidelines & Standards
- Hazardous Materials Plans
- Education & Outreach Programs

FORMAT types
PDF, Word Documents
MITIGATION STRATEGY
Mitigation Strategy

What are our mitigation goals and actions?

How will the Plan be integrated into planning mechanisms?
Guides the selection of activities to mitigate and reduce potential losses based on the risk assessment.

There are 3 parts to the mitigation strategy:

1. Goals
2. Objectives
3. Action Items
### Components of a Mitigation Strategy

<table>
<thead>
<tr>
<th><strong>Goals:</strong></th>
<th>What long-term outcomes do you want to achieve?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objectives:</strong></td>
<td>What are the more measurable outcomes that the University wants to achieve?</td>
</tr>
<tr>
<td><strong>Action Items:</strong></td>
<td>What specific actions will the university take to reduce risk to hazards?</td>
</tr>
<tr>
<td><strong>Action Plan:</strong></td>
<td>How will the actions be prioritized and implemented?</td>
</tr>
</tbody>
</table>
## 2010 Mitigation Strategy

### Figure 58. Mitigation Strategy Matrix

<table>
<thead>
<tr>
<th>Source</th>
<th>Priority</th>
<th>Hazard</th>
<th>Type of Action or Project</th>
<th>Lead Department/Contact Person</th>
<th>Proposed Schedule</th>
<th>Funding/Budget Considerations</th>
<th>Matches Goals</th>
<th>Activity Reduces Affects on New or Existing Structures</th>
<th>Benefit/Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action Report Form</td>
<td>B</td>
<td>All Hazards</td>
<td>Establish procedures and guidance from Student Affairs Cabinet to manage hazardous events that might affect students and campus community</td>
<td>Student Affairs, UKPD, UKEM</td>
<td>Ongoing</td>
<td>Internal</td>
<td>1,2,3,4,5,6</td>
<td>New and Existing</td>
<td>Medium</td>
</tr>
<tr>
<td>After Action meeting from the 2009 Ice Storm</td>
<td>B</td>
<td>All Hazards</td>
<td>Re-do utility lines at ALL 4-H camps throughout the state so that they are underground</td>
<td>Agriculture</td>
<td>Ongoing</td>
<td>Unidentified</td>
<td>1,2,3</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>After Action meeting from the 2009 Ice Storm</td>
<td>B</td>
<td>All Hazards</td>
<td>Install Generators at ALL 4-H Camps and other Agriculture research facilities across the state</td>
<td>Agriculture</td>
<td>One-time</td>
<td>Unidentified</td>
<td>1,2,3</td>
<td>New and Existing</td>
<td>High</td>
</tr>
<tr>
<td>After Action meeting from the 2009 Ice Storm</td>
<td>B</td>
<td>All Hazards</td>
<td>Schedule yearly visit by trained arborist to ALL 4-H Camps and other Agriculture facilities in order to assess trees and provide suggestions for regular branch trimming and tree removal</td>
<td>Agriculture</td>
<td>Ongoing</td>
<td>Unidentified</td>
<td>1,2,3</td>
<td>New and Existing</td>
<td>High</td>
</tr>
<tr>
<td>Meeting 11.19.08</td>
<td>C</td>
<td>Severe Storm Tornado Winter Storm Earthquake</td>
<td>Update and maintain Severe Storm Shelter website and insure green shelter signs are posted in appropriate areas in all buildings on campus.</td>
<td>Various Departments</td>
<td>On-going</td>
<td>Internal</td>
<td>1,4,5,6</td>
<td>Existing</td>
<td>Medium</td>
</tr>
</tbody>
</table>
GOAL 1: Protect Lives

Protect lives and reduce injuries that could be caused by natural hazards.
GOAL 1: Protect Lives

- Construct Retention and channel modification projects
- Connecting 4-H Camps to city sewer
- Construct safe rooms
- Evacuation Support Kits
GOAL 2: Property Protection

Protect University property and research data from damage that could be caused by natural hazards.
GOAL 2: Property Protection

- Install lightning protection
- Install underground utility lines for all 4-H campus throughout the state
- Assess structural conditions of buildings
- Construct underground retention for Press Ave.
Enhance existing, or develop new University policies and technical capabilities that will reduce damaging effects of natural hazards.
GOAL 3: Policies and Capabilities

- Complete development of building emergency action plans
- Create and enforce university design and construction standards
- Develop BMP’s for stormwater management
GOAL 4: Partnerships

Continue to build and strengthen partnerships and synergies among university agencies, state and local governments, the campus community and the general public to promote effective mitigation strategies in a comprehensive and collaborative effort.
GOAL 4: Partnerships

- Assign member of UK committee to other hazard workgroups
- Encourage incorporation of educational materials into school education programs
GOAL 5: Education and Awareness

Increase campus community understanding of natural hazard mitigation through the promotion of mitigation education and awareness of natural hazards.
GOAL 5: Education and Awareness

- Develop a campus CERT program
- Identify and procure addition warning communication systems
- Build more awareness of UK Alert
- Create training and informational videos
Integrate risk reduction strategies into university plans, policies, standards and practices.
GOAL 6: Risk Reduction

- Defining and designating communication links and roles
- Conduct a storm management study
- Establish procedures and guidance from Student Affairs Cabinet to manage hazard events
# Updating the Mitigation Strategy

**1. Protect lives and minimize injuries from hazard events.**

1.1 Improve emergency notification procedures to alert the university community of hazard events.

<table>
<thead>
<tr>
<th>Action</th>
<th>Benefit-Cost</th>
<th>Timeframe</th>
<th>Hazards Addressed</th>
<th>Description</th>
<th>Offices Responsible</th>
<th>Funding</th>
<th>CHAMPS Module(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1.1</td>
<td>High</td>
<td>1-3 years</td>
<td>All-hazards</td>
<td>Distribute weather radios to all KSU buildings and designated floor leaders.</td>
<td>Franklin EM, Residence Life, Safety &amp; Compliance, Police Department, Public Relations</td>
<td>External</td>
<td>Projects: Apply for funds</td>
</tr>
<tr>
<td>1.1.2</td>
<td>High</td>
<td>Ongoing</td>
<td>All-hazards</td>
<td>Continue to communicate via email (IT), text messaging (Police), Voice over Internet Protocol (VOIP) (IT), digital signage (Public Relations), web-based notification for emergency notification and preparedness information.</td>
<td>Public Relations, Police Department, Information Technology</td>
<td>Internal</td>
<td>Plans: Develop procedures</td>
</tr>
<tr>
<td>1.1.3</td>
<td>High</td>
<td>1 year</td>
<td>All-hazards</td>
<td>Establish and maintain social media pages to communicate emergency notification and preparedness information.</td>
<td>Safety &amp; Compliance, Public Relations</td>
<td>Internal</td>
<td></td>
</tr>
<tr>
<td>1.1.4</td>
<td>High</td>
<td>1-3 years</td>
<td>Tornado, Severe Storm, Hailstorm</td>
<td>Install outdoor warning sirens in partnership with Frankfort/Franklin County EM.</td>
<td>Franklin EM, Safety &amp; Compliance, Police Department</td>
<td>External</td>
<td>Projects: Apply for funds</td>
</tr>
</tbody>
</table>
PLAN MAINTENANCE
## Maintaining Your Plan

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ongoing</td>
<td>Monitor and evaluate progress of Five-Year Action Plan.</td>
</tr>
<tr>
<td>Ongoing</td>
<td>Coordinate local efforts to monitor evaluate and update plan.</td>
</tr>
<tr>
<td>Annual</td>
<td>1. Submit request for completion of project progress reports for HMP to the Steering Committee.</td>
</tr>
<tr>
<td>Annual</td>
<td>2. Complete and return project progress reports.</td>
</tr>
<tr>
<td>Annual</td>
<td>3. Compile progress reports and produce annual report.</td>
</tr>
<tr>
<td>Annual</td>
<td>4. Conduct annual steering committee meeting to present draft annual report.</td>
</tr>
<tr>
<td>Annual</td>
<td>5. Finalize and issue annual report.</td>
</tr>
<tr>
<td>Annual</td>
<td>6. Submit annual report to Mayor/CRS/FEMA/State/Steering Committee by October 1.</td>
</tr>
<tr>
<td>Annual</td>
<td>7. Issue press release and post link to annual report on website(s).</td>
</tr>
<tr>
<td>5 years</td>
<td>Submit updated plan to State and FEMA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>Quarter 1</td>
<td>01/01-03/31</td>
</tr>
<tr>
<td>Quarter 2</td>
<td>04/01-06/30</td>
</tr>
<tr>
<td>Quarter 3</td>
<td>07/01-09/30</td>
</tr>
<tr>
<td>Quarter 4</td>
<td>10/01-12/31</td>
</tr>
</tbody>
</table>
Document the plan adoption.
Recap: Sections of the mitigation plan

Step 1: Planning Process
Step 2: Risk Assessment
Step 3: Mitigation Strategy
Step 4: Plan Maintenance
Step 5: Plan Adoption
Next Steps:

- Follow-up on data collection for Risk Assessment
- Review Mitigation Strategy from previous plan
- Steering Committee Meeting 2 - December