Flood Risk Products: Overview and Applications

Michael Taylor and Zachariah Cohoon
September 18, 2019
Flood Risk Products
Flood Risk Datasets and Products

Flood Risk Datasets

- Changes Since Last FIRM
- Flood Depth Grids
- Percent Chance Grids
- Areas of Mitigation Interest
Changes Since Last FIRM (CSLF)

- Helps communities understand changes to flood maps
- Identifies areas of flooding increases and decreases and zone changes
- Produces a spatial layer that identifies structures and parcels that are at risk
Changes Since Last FIRM (CSLF)
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Changes Since Last FIRM (CSLF)
Purpose of Flood Depth & Analysis Grids

• Show flood inundation as a function of an event’s magnitude or severity

• Show that flood risk varies within the floodplain

• Demonstrate the risks associated with different flood depths and probabilities

• Serve as key inputs to HAZUS Risk Assessment Analyses

• Can be used as pre-screening criteria for mitigation project potential

• Benefit Cost Analysis in 1% annual chance floodplain
  – Acquisition of structures less than $276,000
  – Elevation of structures costing less than $175,000
City of Princeton:
Caldwell County – Panel 0235
Caldwell County Depth Grids:
10% Annual Chance Event
Caldwell County Depth Grids:
4% Annual Chance Event
Caldwell County Depth Grids: 2% Annual Chance Event
Caldwell County Depth Grids: 1% Annual Chance Event
Caldwell County Depth Grids:
0.2% Annual Chance Event
Caldwell County Probability: Annual Chance Grids
Caldwell County Probability:
30-Year Chance Grids
City of Cadiz:
Trigg County – Panels 0230
Trigg County Depth Grids:
10% Annual Chance Event
Trigg County Depth Grids: 4% Annual Chance Event
Trigg County Depth Grids: 2% Annual Chance Event
Trigg County Depth Grids:
1% Annual Chance Event
Trigg County Depth Grids:
0.2% Annual Chance Event
Trigg County Probability: Annual Chance Grids
Trigg County Probability:
30-Year Chance Grids

City of Cadiz
Trigg, KY

Little River
Tributary 1

95.6%
14.3%
92.8%

30 Year Chance Value
High: 95.8
Low: 5.8
Areas of Mitigation Interest

Items that may have an impact on the identified flood hazards or flood risks

• Dams
• Levees
• Stream flow constriction
• Past Claims (Repetitive Loss Properties or Severe Repetitive Loss Properties)
• Critical Facilities
• Other Flood Risk Areas
Flood Risk Product Applications
**Mitigation Planning**

- The counties in the Lower Cumberland Watershed are also in the Pennyrile Area Development District.

- These flood risk products could be used in the update of the Pennyrile Regional Hazard Mitigation Plan.
Mitigation Goals

**Goal 1:** Improve the essential service capabilities of critical facilities and infrastructure during a hazard event by reducing vulnerability to these facilities.

**Goal 2:** Reduce the potential damaging effects of natural hazards through development policies without limiting the goals of growth for the community.

**Goal 3:** Project public health and safety by increasing public awareness of natural hazards that affect their jurisdiction and by fostering a sense of responsibility within the public for mitigation risks associated with those natural hazards.
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<thead>
<tr>
<th>Mitigation Goals</th>
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<td><strong>Goal 4:</strong> Efficiently make use of public and private funds to increase the capabilities of local jurisdictions to reduce potential losses associated with flood hazard events.</td>
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<td><strong>Goal 5:</strong> Protect each jurisdiction's most vulnerable populations, buildings and critical facilities and infrastructure through the implementation of cost-effective and technically feasible mitigation projects.</td>
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Mitigation Action #1: Prevention

- Planning and zoning
- Building codes
- Open space preservation
- Floodplain regulations
- Stormwater management regulations
- Drainage system maintenance
- Capital improvements programming
- Riverine zone setbacks

Source: Pennyrile Regional Hazard Mitigation Plan
Mitigation Action #2: Property Protection

- Acquisition
- Relocation
- Building elevation
- Critical facilities protection
- Flood proofing
- Insurance

Source: Pennyrile Regional Hazard Mitigation Plan
Mitigation Action #3: Structural Projects

- Reservoirs
- Dams
- Levees
- Dikes
- Flood walls
- Channel modification

Source: Pennyrile Regional Hazard Mitigation Plan
Mitigation Action #4: Emergency Services

- Warning systems
- Evacuation planning and management
- Sandbagging
- Temporary Shelters

Source: Pennyrile Regional Hazard Mitigation Plan
Mitigation Action #5: Public Education and Awareness

- Outreach projects
- Speaker events
- Hazard map information
- Real estate disclosure
- School education programs

Source: Pennyrile Regional Hazard Mitigation Plan
Mitigation Action #6: Natural Resource Protection

- Floodplain protection
- Watershed management
- Riparian buffers
- Erosion and sediment control
- Wetland preservation and restoration
- Habitat preservation
- Slope stabilization

Source: Pennyrile Regional Hazard Mitigation Plan
Risk MAP Communication Goal:
Explain Insurance Implications
Risk MAP Communication Goal: Encourage Communities to Act
Risk MAP Communication Goal: Encourage Communities to Act

Understand Your Flood Risk, Floyd County: Why You Shouldn’t Cancel Your Flood Insurance Policy if Your Flood Zone Is Changing from High Risk to Moderate or Low Risk

Preliminary flood insurance zones near Prestonsburg. High risk flood zones are identified in blue and moderate risk flood zones are identified in orange.
Communication Tools:
Virtual Reality
Communication Tools: Virtual Reality

Crittenden County, Kentucky – No Flooding
Communication Tools:
Virtual Reality

Crittenden County, Kentucky – 1% Annual Chance Event
Communication Tools: Virtual Reality

Crittenden County, Kentucky – 0.2% Annual Chance Event
Conclusions
Conclusions

• The Kentucky Risk MAP Program will be delivering Flood Risk Products to communities as watersheds are completed

• Floodplain administrators use the Flood Risk Products to develop a strategy for risk awareness and mitigation actions

• Emergency management officials and planners can use Flood Risk Products in the next Hazard Mitigation Plan update

• Local officials can use Flood Risk Products for communication and public education