Kentucky Silver Jackets
Southeastern KY Loss Avoidance Study

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Silver Jackets Program Overview

- Interagency approach to sharing knowledge, leveraging resources, and collaboratively reducing flood risk

- Combines available agency resources
  - Funding
  - Programs
  - Technical expertise

- Collaboration is key!!!

Silver Jackets Website:
http://silverjackets.nfrmp.us/
Louisville District is the USACE Lead for Kentucky

Supporting USACE Districts
- Huntington
- Memphis
- Nashville

BUILDING STRONG®
and Taking Care of People!
Interagency Proposal

- Authority – Flood Plain Management Services (FPMS)

- Purpose of proposals
  - Work in cooperation with other partners to achieve flood risk management benefits that could not be achieved by any one party alone

- KAMM i am……..
  - Partnership required
    - USACE
    - KYDOW
    - FEMA
    - Others
Loss Avoidance Study (LAS)

- Federal and State funds are used to implement mitigation projects aimed at reducing the potential impact of natural disasters
  - These funds must often adhere to specific criteria including cost-effectiveness
  - Policy makers have taken interest in mitigation project performance during actual hazard events

- A Loss Avoidance Study (LAS) will help quantify the performance/success of flood mitigation projects over time at preventing physical damages
  - Success is usually viewed in terms of a BCR greater than 1.0
  - Over time, mitigation projects will continue to increase in BCR and prove successful

- FEMA has developed methodologies using a quantitative approach to assess the performance of mitigation projects based on actual post-construction hazard events.
  - This LAS will use FEMA’s methodology

- 3 Phases
  - Phase 1 – Initial Project Selection
  - Phase 2 – Physical Parameter Analysis
  - Phase 3 – Loss Estimation Analysis
Phase 1 – Initial Project Selection

- **Study Area(s)**
  - First discussed looking at an area with completed FEMA funded projects
    - Lack of readily available data
    - Extensive coordination needed done to collect required data
  - USACE Section 202 program in Pike County was ultimately selected
    - Focusing on the Tug Fork mainstem and not tributaries at this time
    - Approximately 260 structures
    - Floodproofing
    - Acquisition/Demolition
    - Implementation began in 1995

- **Collection of required data**
  - Actual project/structure cost
  - Date modification became functional
  - Structure location – lat/lon, address, parcel number
  - First floor elevation
  - Structure specific info - # floors, square footage, basement, garage, etc.
  - Actual physical damages – structure and contents
Phase 2 – Physical Parameter Analysis

- Goal is to identify list of flood events impacted project area after mitigation was implemented and determine impacts to the area.

- Minimum data required (for each flood event)
  - List of flood events that occurred after the baseline date at the project area
  - List of buildings that were impacted
  - Flood depths inside each impacted building

- Flood event data was collected from USGS gage readings, NWS historical events, and from KYDOW stored data.
Inundation Maps and Impacted Structures

Example flood event delineation with impacted mitigated structures
Phase 3 – Loss Estimation Analysis

- Calculate losses avoided
  - Need baseline project cost and historical damages collected in Phase 1
  - Need damage impacts from flood events collected in Phase 2

- The Return on Investment (ROI) is calculated by comparing the losses avoided to the project investment
  - An ROI of greater than 100% indicates that project benefits have exceeded project costs, and the project is considered cost-effective
  - However, the cost-effectiveness of a project should be evaluated relative to the amount of time that has passed since a project was completed. The cost-effectiveness increases as more storm events occur causing losses avoided to increase while initial project cost remains the same
    - Even if an ROI does not exceed 100%, the project may be considered successful

\[
MP_A - MP_C = L_A
\]

Where \( MP \) = Mitigation Project Absent
Where \( MP_A \) = Mitigation Project Complete
Where \( L_A \) = Losses Avoided
Goals of this LAS

- Understanding performance of implemented mitigation projects would ensure that current and future mitigation projects in KY are effective in reducing property loss and increasing resiliency by strengthening knowledge of avoided flood losses.

- Quantifying the actual losses avoided for mitigation projects where there has been a subsequent flood event will reinforce that mitigation is an investment that saves lives, enhances community resilience, and saves money.

- Publicizing the results to decision makers will increase future project funding and support.

- Determine potential impacts to NFIP
  - We hope to see positive impacts with successful mitigation projects.
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Thank You!