VAUGHN’S BRANCH
HAZARD MITIGATION PROJECT

(A LEXINGTON SUCCESS STORY)

PRESENTED BY:

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ORIGINAL PRESENTATION

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LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT

Vaughn's Branch Flood Hazard Mitigation Project
Project Cost: $1,225,006.25
Contract No.: 596-2009

MAYOR JIM NEWBERRY
URBAN COUNTY COUNCIL
DEPARTMENT OF PUBLIC WORKS,
DIVISION OF ENGINEERING

LOCATION MAP
Major Flooding

- JUNE 1992

Study / Planning / Design

- GRANT APPLICATION PROCESS
- DESIGN AND PERMITTING

Hazard Mitigation

- CONSTRUCTION
OVERVIEW AND PROJECT HISTORY

Major Flood
- June 18, 1992 - 4.99 inches in approximately 18 hours
  - Less than 1.0% Annual Chance Event
- County-wide flooding, major impact to several areas

Recovery/Mitigation Planning
- 1993 - PDR (Tetra Tech) Engineers complete county wide stormwater survey identifying Viley Neighborhood Project
- 1997 - US Army Corps of Engineers conducted hydrologic & hydraulic (H&H) study of Vaughn’s Branch with mitigation recommendation (30’ wide channel w/ 2.5:1 sides 4’ deep)
- 1998 - Urban County Council requests Viley Neighborhood Project to mitigate future flooding disasters.
FLOOD INSURANCE RATE MAP – FIRM

VAUGHN'S BRANCH - 1,400 AC
Trib to Wolf Run
OVERVIEW AND PROJECT HISTORY, CONT’D

Planning

- 1997-2000 – Series of Public Meetings to identify issues

- Issues Identified:
  - Water 5’ deep in basements
  - Street flooding
  - Sanitary sewer overflows and backups
  - Trash and erosion
  - At least 4 homes on Kilrush Dr. severely damaged

- Alternative Mitigation Solutions Presented
OVERVIEW AND PROJECT HISTORY, CONT’D

Hazard Mitigation

- Phase I - Acquisition and Demolition of Deauville Dr. properties

- Phase II- Acquisition and Demolition of Kilrush Dr. properties with FEMA grant

- Phase III- Sugar Mill / Vaughn’s Branch Mitigation Project.
Phase I – Deauville Dr

- Approximately 20 properties in the floodplain were acquired and the structures demolished to mitigate future flooding and losses. Area is now green space.
Phase II – Kilrush Dr

- 19 additional properties in the floodplain were acquired and the structures demolished with help from FEMA Grant.
PHASE III – VAUGHN’S BRANCH FLOOD HAZARD MITIGATION PROJECT
GRANT APPLICATION PROCESS

- September 2003 - Initial application to FEMA Region IV
  Wait

- January 2004 - Site meeting with FEMA and KYEM
  Wait

- April 2004 - Application amended to “Phase” the project
  - design and construction

- April 2004 - Initial B/C analysis data to FEMA
  Wait

- July 2004 – September 2005
  - Discussions between LFUCG, KYEM, and FEMA about the
    application and CLOMR regarding eligible reimbursement
    costs for engineering services.
GRANT APPLICATION PROCESS, CONT’D

- September 2005 - Grant application revised
  - back to a single phase project
- September 2005 - CLOMR application submitted to FEMA for review
  - Wait
- May 2006 - CLOMR approved by FEMA
  - Wait
- October 2006 - Grant funding approved by FEMA!
  - Final B/C Ratio of 1.09
  - Benefits of $2,359,083 vs. Cost of $2,162,000
    - Celebrate!
- January 2007 - Award briefing with KYEM.
DESIGN AND PERMITTING

✓ July 2007 - Final Design started

✓ January 2008 – Construction Permitting started
  ✓ State (401) and Federal (USACE) permit applications prepared and submitted.

✓ February 2008- State permits issued
  Wait

✓ May 2008 - USACE permit issues Nationwide permit
  ✓ USACE allowed the project to be considered two distinct parts

Final design fee - $250,000
ROW ACQUISITION

✓ December 2008 – Begin Process
  ✓ Appraisals
  ✓ Offers
  ✓ Negotiations

Wait

✓ September 2009 - Acquisition complete.
  ✓ 25 easements
  ✓ 1 fee simple acquisition
  ✓ property owners included a church, a hospital, and the local Housing Authority

Celebrate!

Total ROW Cost $399,000
PHASE III
APPLICATION.....
DESIGN/PERMITTING.....
ROW ACQUISITION.....
Construction?

Time: 6 Years
September 2003 to September 2009

Cost: $550,000+
BIDDING

- **Two Bid Packages:**
  - To allow the culvert manufacturer to have a lead on General Contractor for shop drawing preparation and fabrication.

- **April 2009 - Culvert Package**
  - $319,000 for culverts and wingwalls
  - Independent Concrete Pipe

- **July 2009 - General Construction**
  - $1,225,000 for Installation and Construction
  - Bluegrass Contracting, Inc.
CONSTRUCTION

- October 2009 - Construction started!
BANK STABILIZATION UPSTREAM OF SUMMERVILLE DR.
DETENTION BASIN LOOKING TOWARD VERSAILLES RD AT PROJECT COMPLETION
Phase III – Completed August 2010

Detention Area upstream of Versailles Rd
# PROJECT BENEFITS

## VAUGHN’S BRANCH PROJECT EFFECTIVE FIS BASE FLOOD REDUCTION

<table>
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<tr>
<th>FIS SECTION</th>
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PROJECT BENEFITS, CONT’D

✓ STRUCTURES PROTECTED*
  ✓ 24 HOMES
  ✓ 6 APARTMENT BUILDINGS
  ✓ 1 CHURCH
  ✓ 1 PUBLIC BUILDING
  *(Does not include 40+ removed initially)

✓ ENVIRONMENTAL
  ✓ BANK STABILIZATION - 8 DIFFERENT METHODS
  ✓ RIPARIAN BUFFER - 12 TREE SPECIES, 45’ WIDE
  ✓ NATURAL BOTTOM STRUCTURES
DETENTION BASIN 3 YEARS AFTER CONSTRUCTION
-TREES AND RIPARIAN ZONE ALONG STREAM ARE MATURING
Thanks to the following project partners:

– UK Hazard Mitigation Program (Kentucky Division of Emergency Management)
– LFUCG Division of Water Quality Construction Management Section
– Tetra Tech, Inc.
– Independent Concrete Pipe
– Bluegrass Contracting