Tookany Creek Feasibility Study

Public Meeting

May 21, 2015

Cheltenham Township

US Army Corps of Engineers

BUILDING STRONG®

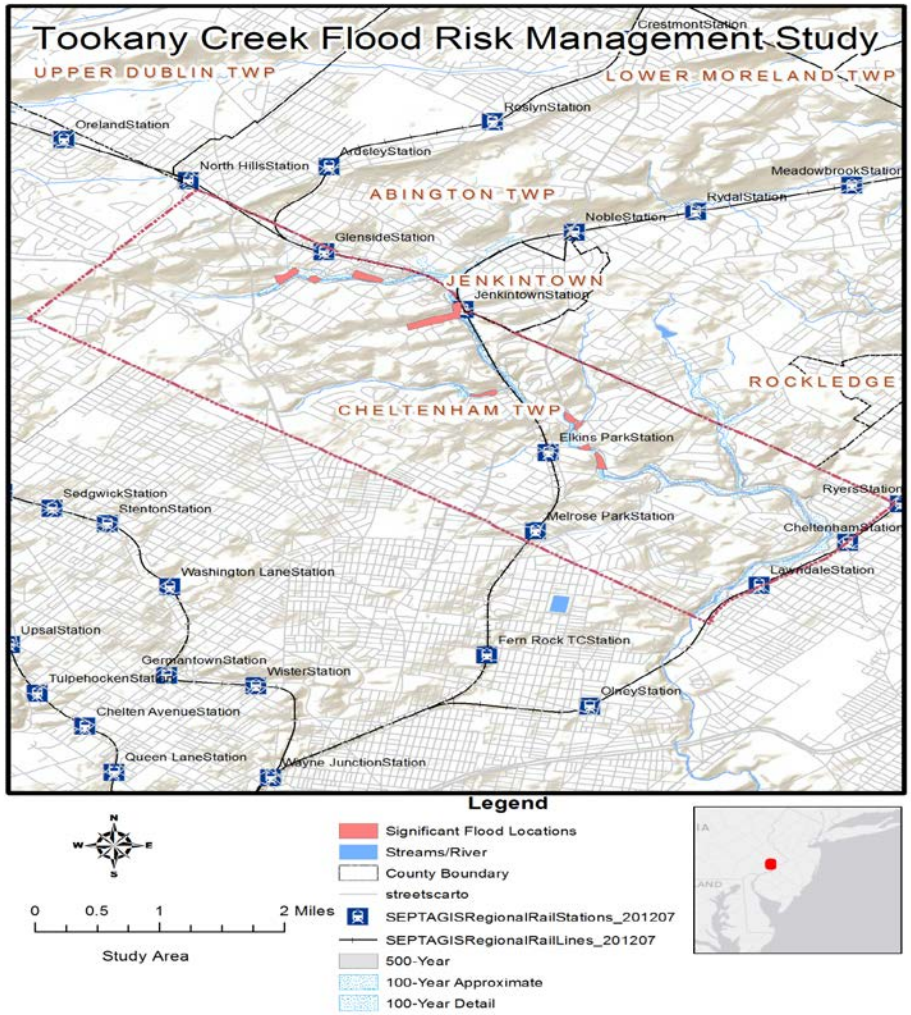
FEASIBILITY STUDY PURPOSE

- Investigate Federal interest in providing flood risk management in Cheltenham Township, Montgomery County, PA related to flooding in the Tookany Creek Watershed
- Federal interest has been demonstrated via the feasibility study

FEASIBILTY STUDY AUTHORITY

- Section 205 of the Flood Control Act of 1948, as amended
- Authorizes USACE to plan, design and construct small flood control projects with and without specific Congressional authorization

FEASIBLITY STUDY AREA



BASELINE CONDITIONS

- **Existing Conditions** – Major flooding in the study area may occur during any season
  - Summer and Fall – Flooding typically results from widespread heavy rainfall often associated with tropical storms moving up Atlantic coastline
  - Spring – Flooding generally the result of a combination of heavy rains on frozen ground augmented by melting snow

BASELINE CONDITIONS

- **Future Without Project Conditions**
  - The magnitude and frequency of flood-related problems will likely increase in the future
  - Local FRM efforts, including the PADEP and SEPTA projects, do not preclude the need for a Federal project to mitigate future flood risks

PROBLEM STATEMENT

- Urbanization has resulted in increased stormwater runoff and floodplain recession leading to reduced carrying capacity for Tookany Creek, increased height and destructive capability of floodwaters in Tookany Creek and a floodplain that cannot store large quantities of water in the Tookany Creek watershed

PLANNING OBJECTIVE & CONSTRAINTS

- Objective: Reduce flood hazards, including risks to life safety and damages to private and public infrastructure in the Tookany Creek watershed in Cheltenham Township, PA.

- Constraints:
  - Avoid inducing flood damages
  - Avoid and minimize adverse impacts to in-stream or adjacent native habitat
  - Avoid degradation to water quality
  - Avoid impacting or exacerbating existing HTRW within the project footprint
  - Minimize effects on cultural resources and historic structures, sites and features
  - Limit extensive changes to local land use designations and zoning

PLAN FORMULATION

- Flood Risk Management Measures Evaluated:
  - Inlet Modifications
  - Bridge Modifications
  - Channel Modifications (Levees and Floodwalls)
  - Reconnection of floodplains and riparian buffer
  - Aboveground Storage
  - Underground Storage
  - Stormwater Control
  - Porous Pavement
  - Residential Rain Gardens
  - Rain Barrels
  - Bio-swales
  - Flood Proofing
  - Floodplain Evacuation
  - Floodplain Management

PLAN FORMULATION

- Flood Risk Management Measure Screening
  - Completeness
  - Effectiveness
  - Efficiency
  - Acceptability
- All measures screened out, except for Aboveground Storage Areas
- “Dry” Detention Basins determined to be more effective and acceptable than retention basins containing a “permanent” pool of water

PLAN FORMULATION

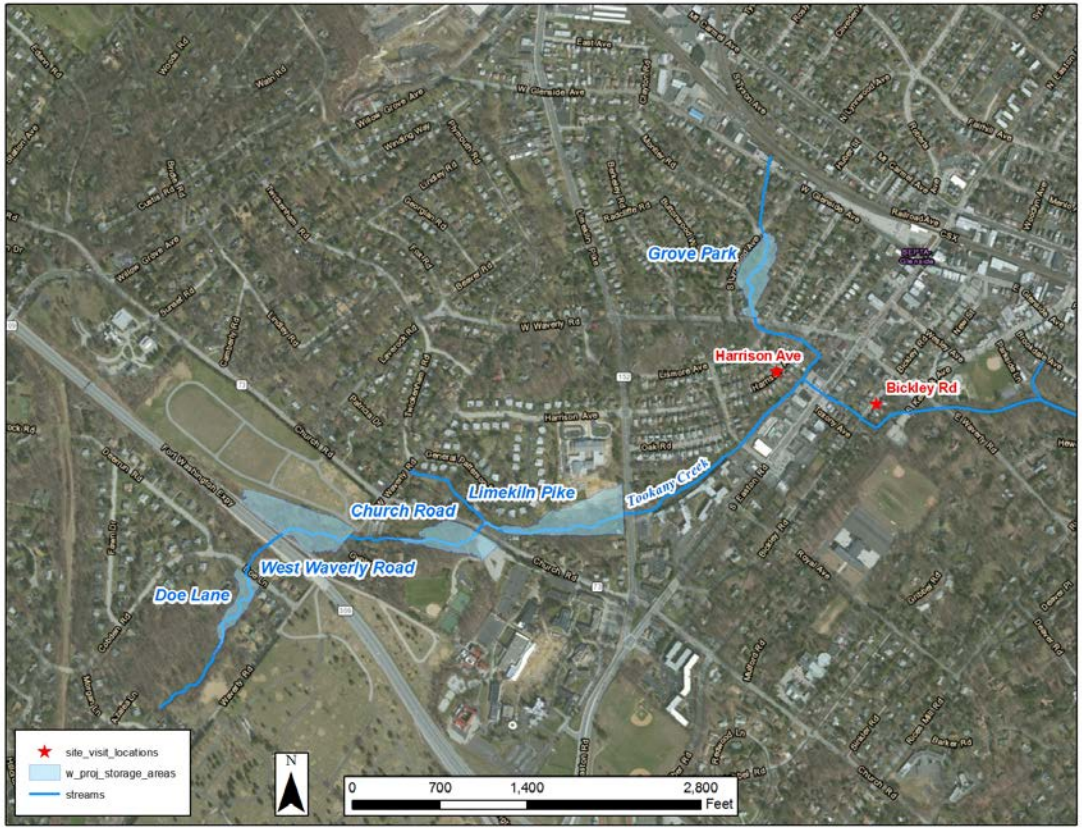
- Initially, 13 potential detention basin locations identified
- 9 of the 13 basin locations carried forward for detail analysis
- Multiple combinations of basins were analyzed to develop an array of alternatives

PLAN FORMULATION

- Final Array of Alternatives
  - Alternative 1: No Action Plan
  - Alternative 2: The Upper Tookany Creek Plan
  - Alternative 3: The Baederwood Creek Plan
  - Alternative 4: The Comprehensive Plan
  - Alternative 5: The Rock Creek Plan

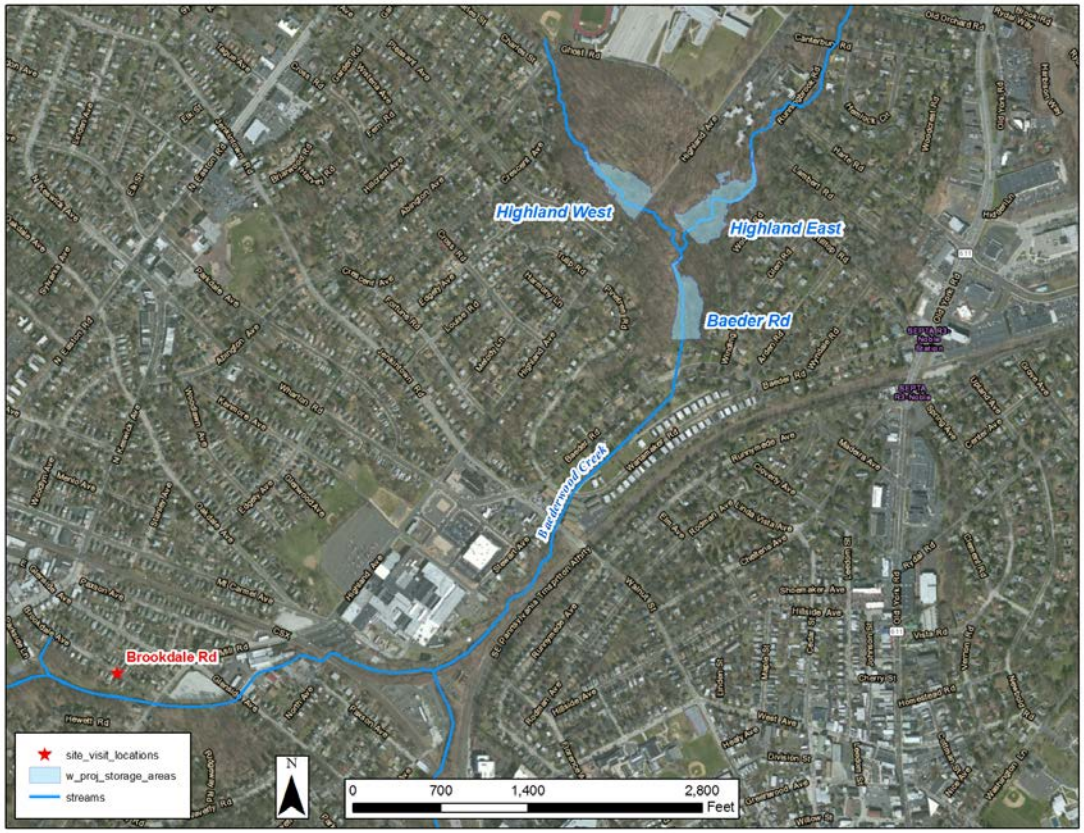
PLAN FORMULATION

- Alternative 2 – The Upper Tookany Creek Plan



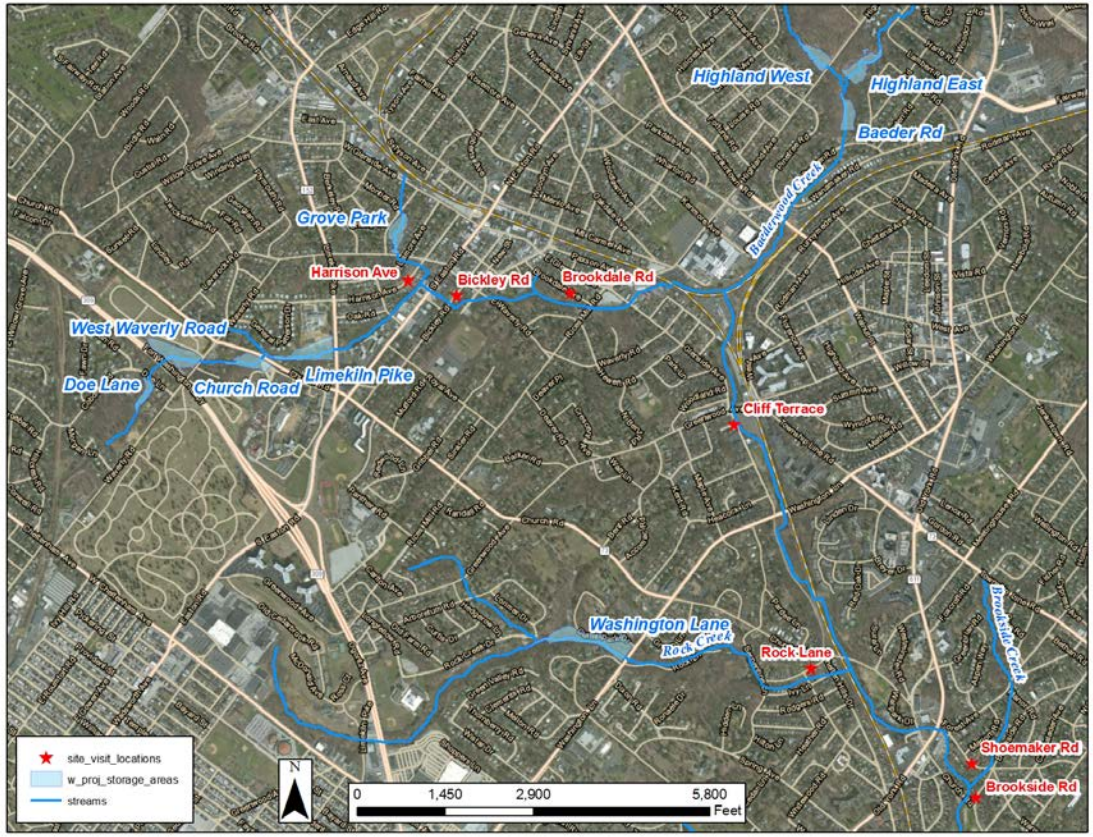
PLAN FORMULATION

- Alternative 3: The Baederwood Creek Plan



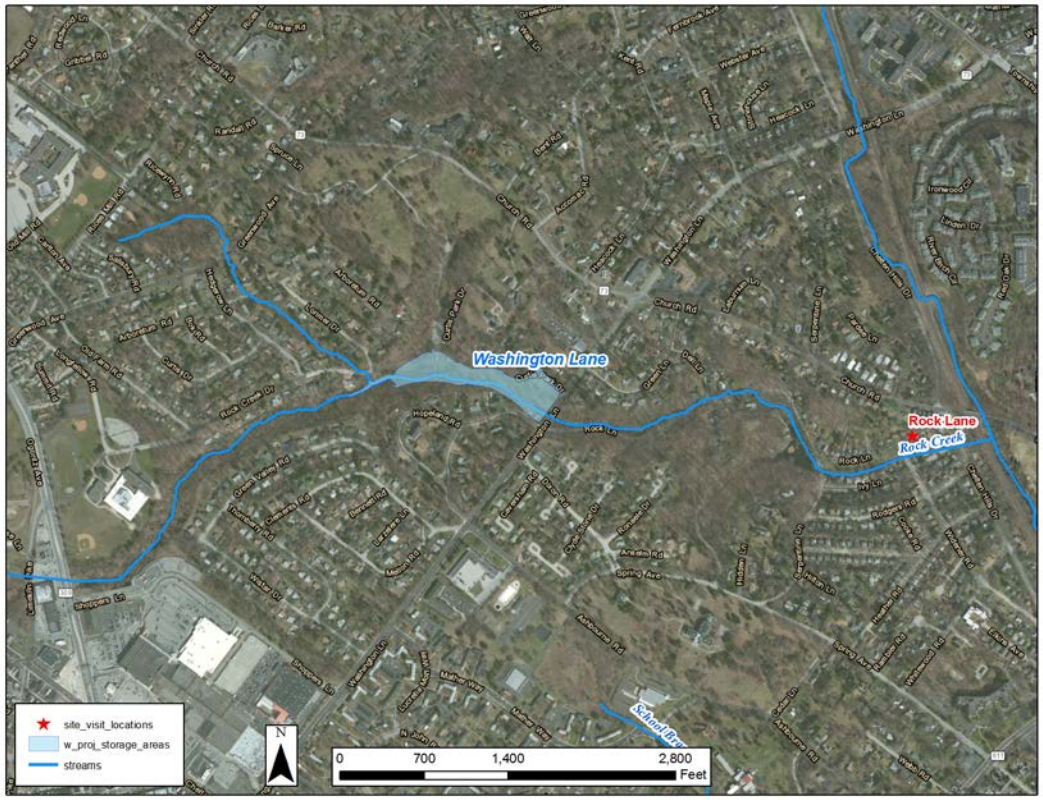
PLAN FORMULATION

- Alternative 4: The Comprehensive Plan



PLAN FORMULATION

- Alternative 5: The Rock Creek Plan



PLAN FORMULATION

- The Selected Plan is **Alternative 4: The Comprehensive Plan**!
  - All-encompassing plan with the largest watershed-wide FRM benefit
  - Includes 9 dry detention basins along Tookany Creek and 2 tributaries:
    - Tookany Creek Basins – Doe Lane, West Waverly Road, Church Road (Arcadia University), Limekiln Pike, Grove Park
    - Baederwood Creek Basins – Highland West, Highland East, Baeder Road
    - Rock Creek Basin – Washington Lane

SUMMARY OF ALTERNATIVE COSTS & BENEFITS

- **Total Cost of Recommended Plan – $8.6M**
  - Construction Cost – $6.3M

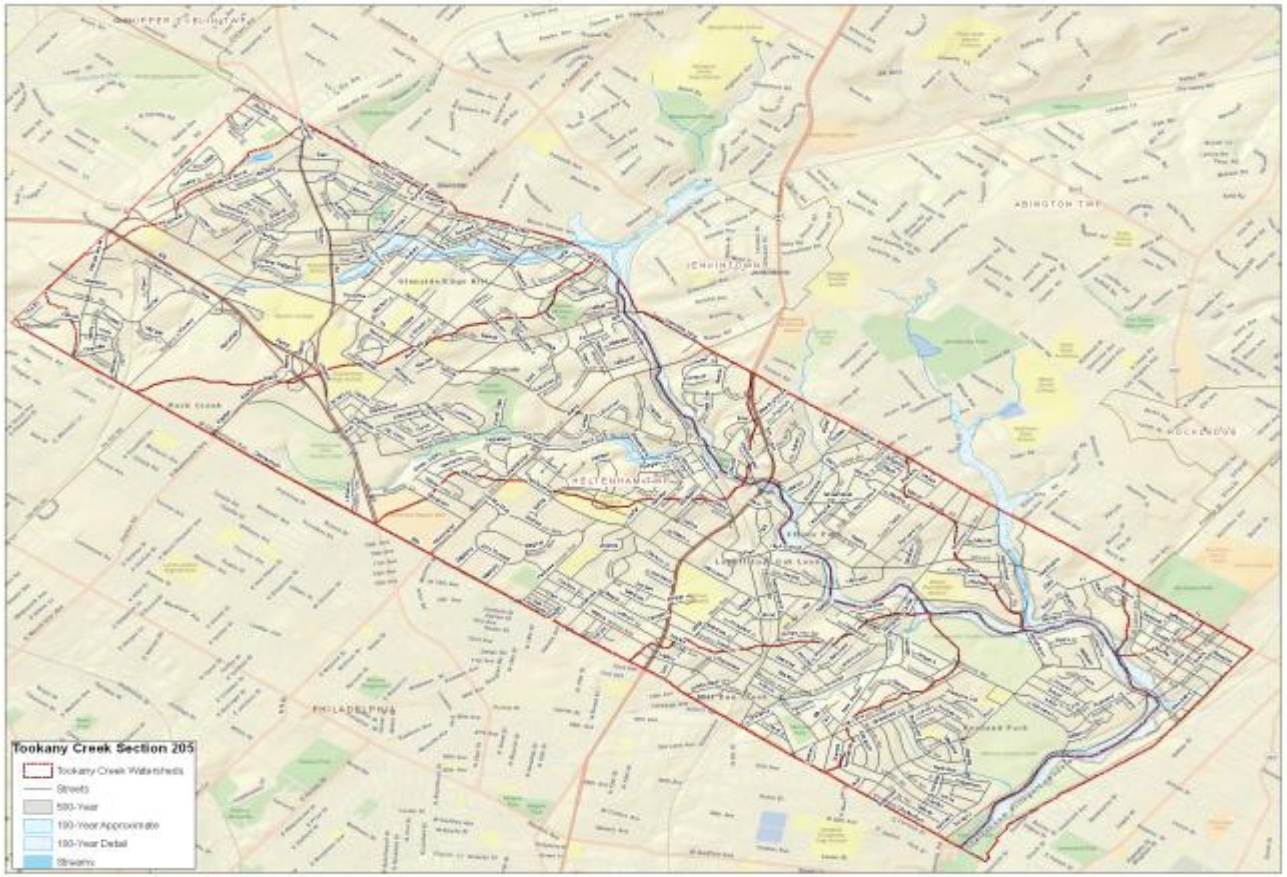
Alternative	Average Annual Costs	Average Annual Benefits	Annual Net Benefits	BCR
Alternative 1: No Action Plan				
Alternative 2: The Upper Tookany Creek Plan				
a. 5-basin plan	$233,000	$190,000	-$43,000	0.82
b. 3-basin plan	$74,000	$43,000	-$31,000	0.58
Alternative 3: The Baederwood Creek Plan				
a. 3-basin plan	$77,000	$42,000	-$35,000	0.55
b. 1-basin plan (Highland West)	$27,000	$8,000	-$19,000	0.30
Alternative 4: The Comprehensive Plan				
a. 9-basin plan	$371,000	$435,000	$64,000	**1.17**
b. 5-basin plan	$221,000	$200,000	-$21,000	0.90
Alternative 5: The Rock Creek Plan	$91,000	$136,000	$45,000	**1.50**

SCHEDULE & PATH FORWARD

- Public Release of Draft Report: July 2015
- Feasibility Report Finalization: End of August 2015
- Project Design: September 2015 to September 2016
- Permit Acquisition: July 2016 to January 2017
- Begin Construction: February/March 2017

QUESTIONS & ANSWERS

Tookany Creek
Cheltenham Township, Montgomery County, Pennsylvania
SECTION 205, FLOOD DAMAGE REDUCTION



Contact

- http://www.nap.usace.army.mil