NEPA Scoping Meeting
Rahway River Basin, New Jersey
Flood Risk Management Feasibility Study

U.S. Army Corps of Engineers
New York District

New Jersey
Department of Environmental Protection
Non-Federal Sponsor

15 June 2015

US Army
Corps of Engineers

Photo By The Cranford Chronicle

Rahway River Basin Flood Risk Management Feasibility Study

Scoping Meeting Outline

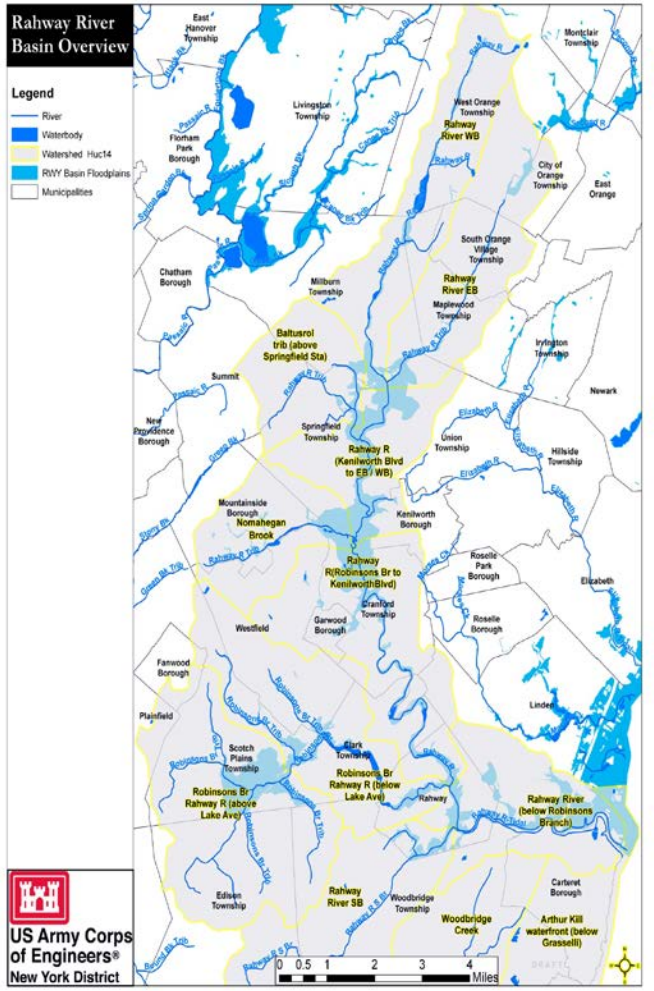
- Study Background
- NEPA Overview
- Alternative Formulation Process
- Alternatives Description
- Next Steps
- Study Schedule
- Contact Information

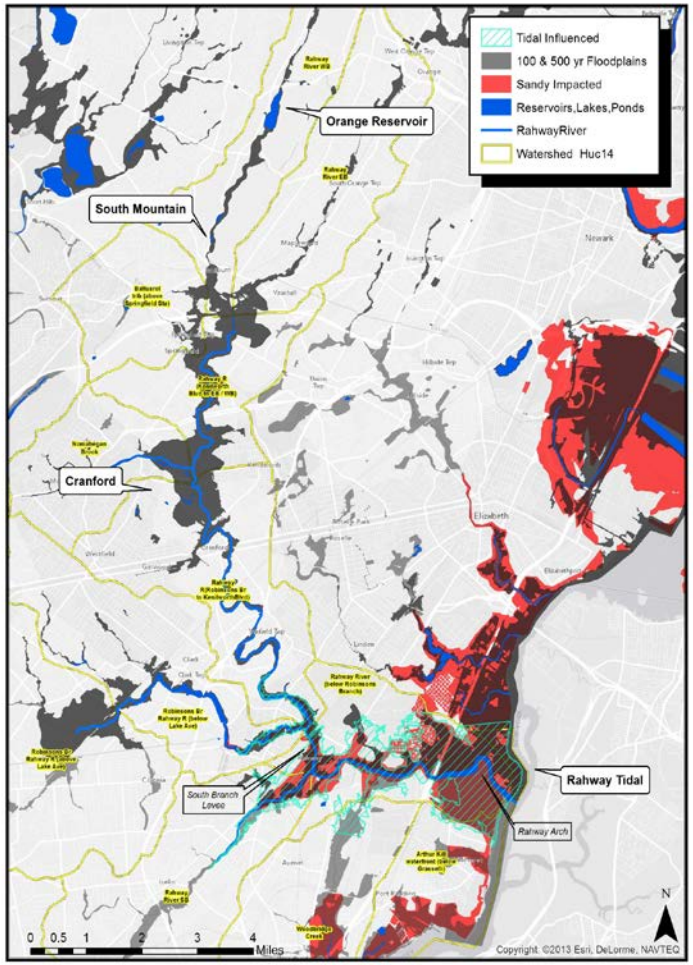
Background

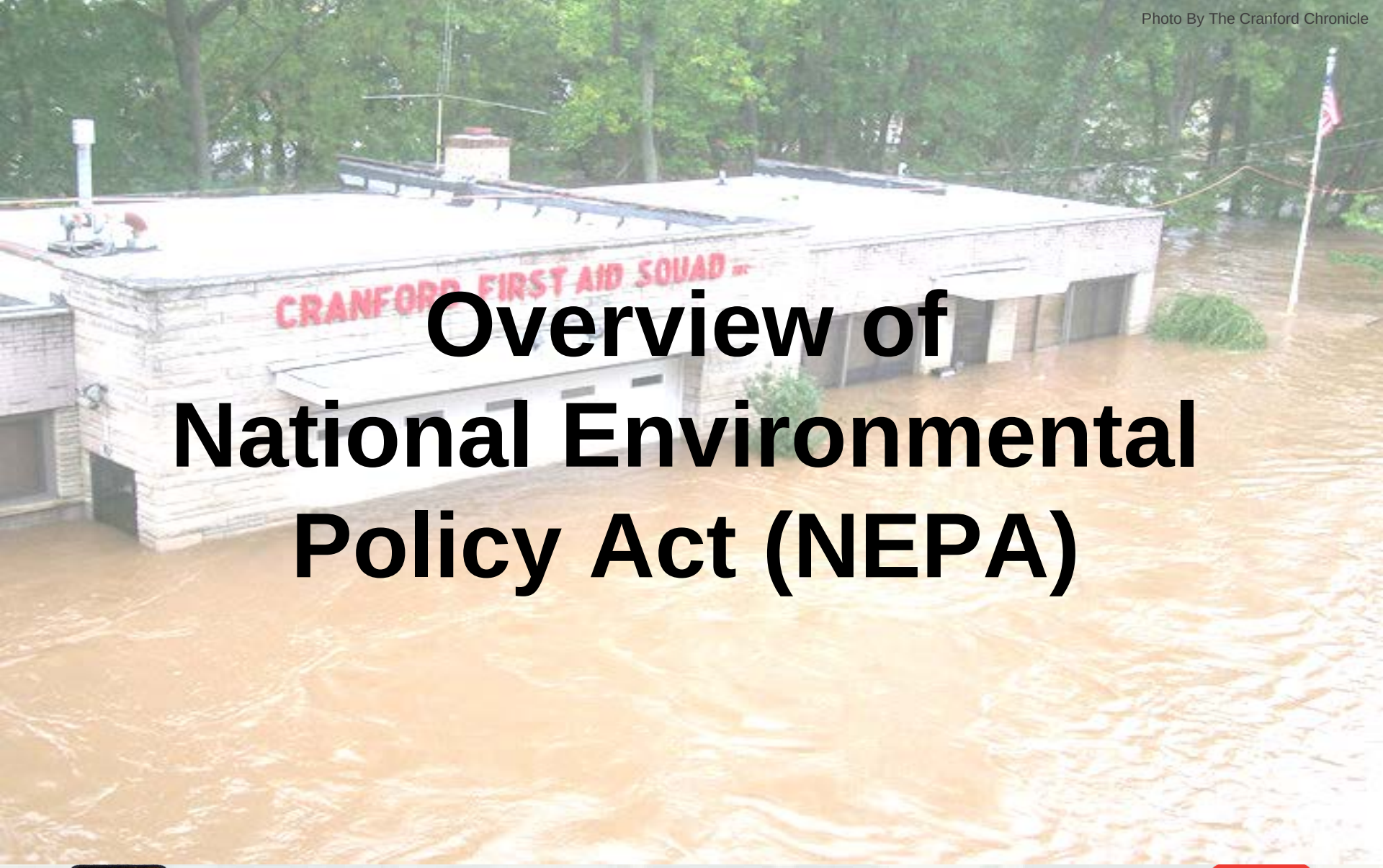
- 1999: Completion of a Reconnaissance Report recommending a feasibility study to develop flood risk management alternatives within the Rahway River Basin.
- 2002: Feasibility Study Cost Share Agreement (FCSA) executed between the USACE and New Jersey Department of Environmental Protection (NJDEP) as the Non-federal sponsor.
- 2006: Completion of an Initial Screening Report identifying Cranford Township and a portion of the City of Rahway along Robinson's Branch having greatest potential for Federal Interest.
- 2011: Study Area expanded to areas upstream of Cranford Township as a result of Tropical Storm Irene.
- 2014: Separate Tidal Study Area initiated as a result of Hurricane Sandy.

Rahway River Basin Flood Risk Management

Project Area Description







Overview of National Environmental Policy Act (NEPA)

National Environmental Policy Act (NEPA)

- Federal agencies are required to determine and consider the "effect of their actions on the human environment" during planning and decision making:
  - Social
  - Economic
  - Natural Resources
  - Historic Resources
- Federal Actions that can trigger NEPA:
  - Funding
  - Permits
  - Construction

National Environmental Policy Act (NEPA)

- Multiple laws, executive orders and regulations are considered as part of the NEPA process.
  - Clean Water Act
  - Endangered Species Act
  - Environmental Justice
  - National Historic Preservation Act
  - Clean Air Act
  - State laws
- Disclosure: proposed action, alternatives, environmental effects, and mitigation.

Types of NEPA Analysis

- Council on Environmental Quality (CEQ) regulations provide three types of NEPA analysis based upon potential for significant impact:
  - Categorical Exclusion
  - Environmental Assessment
  - Environmental Impact Statement (EIS)

Scoping Process

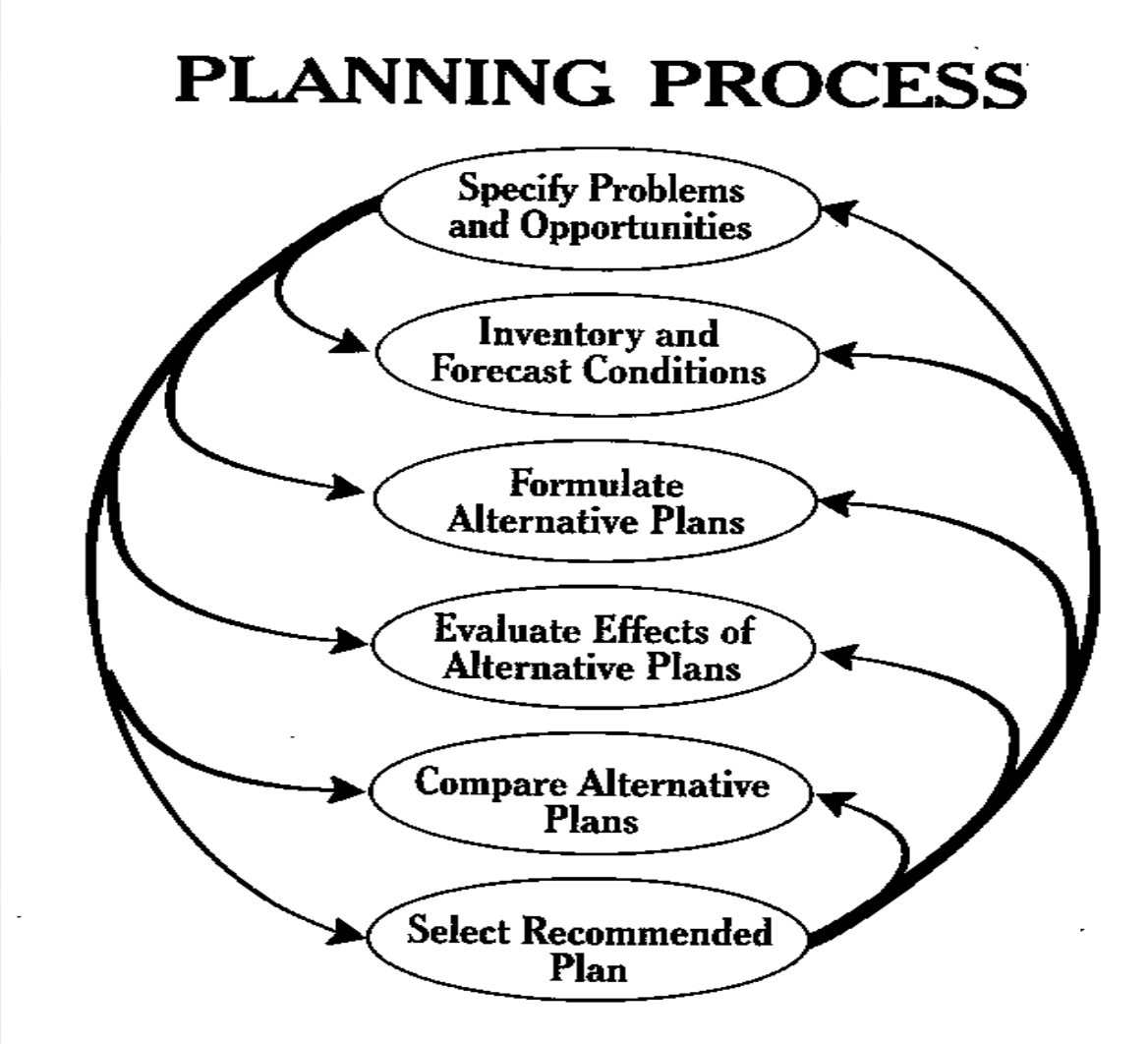
- Required when preparing an EIS.
- Identify people or organizations who are interested in the proposed action.
- Identifies any information sources that might be available to analyze and evaluate impacts.
- Assists with plan formulation process.
- Identifies significant resources to be evaluated.
- NEPA Scoping Document: www.nan.usace.army.mil/Rahway
- Citizens Guide to NEPA: Having Your Voice Heard. Located at http://energy.gov/nepa/public-participation

USACE Alternative Formulation Process and Alternatives

Flood Risk Management (FRM)

- No Flood Risk Management project can eliminate the risk of flooding. Given a long enough period of time, most projects will experience an event that is larger than the event which they were designed.
- Flood Risk Management projects can only reduce the frequency and/or severity of flooding and provide additional time to respond.
- Physical features are only a single component of a flood risk management approach. Insurance, zoning and an Emergency Action Plan (EAP) are some other important aspects of Flood Risk Management.
- Communication of accurate and timely information about the risk of living in a flood prone area is critical and best implemented at the local level.
- Flood safety is a shared responsibility and a collaborative approach is required to effectively manage the risk of flooding and to save lives. (Corps, FEMA, State, County, Local Gov., Emergency Personnel, Residents)

USACE Alternative Formulation Process



USACE Alternative Formulation Process

- Formulate Flood Risk Management (FRM) Alternatives
- Evaluate Alternatives
  - Plans are screened for completeness, effectiveness, efficiency, and acceptability.
  - Compare reduced damages of proposed alternatives against without project conditions to determine benefits.
  - Perform initial evaluation of Environmental Impacts.
  - Compare benefits to costs for each alternative. To be economically justified a plan must have a Benefit-to-Cost Ratio (BCR) greater than one.

USACE Alternative Formulation Process

- Determine Tentatively Selected Plan (TSP)
  - The Alternative that maximizes net benefits relative to other alternatives is identified as the Tentatively Selected Plan (TSP).
- The non-Federal sponsor can request a Locally Preferred Plan (LPP).
- A TSP or a LPP must have a BCR>1.
- Optimize & Select a Plan
  - The TSP size that maximizes net benefits relative to other TSP sizes is identified as the National Economic Development Plan, or NED Plan.
- Establish the Recommended Plan – NED Plan, LPP or other.
- No action would be recommended if all alternatives have a BCR <1.
- Project Cost must be shared (Fed & Non-Fed sponsor).

USACE Alternative Formulation Process

No alternatives analyses is complete until the following evaluations are conducted:

1. Hydrology & Hydraulics
   - Model existing and improved conditions of the project area, including flows and water surface elevations.
   - Perform Risk and Uncertainty Analysis.
2. Cost Estimates
   - Determine costs based on quantities and mitigation.
3. Economic Justification for Plan Selection
   - Determine Benefits.
   - Develop Benefit Cost Ratio (>1) & Maximum net benefits.
4. Environmental Impacts
   - Cultural Resources, HTRW, Biological and Habitat considerations.
5. Social Consequences
   - Community impacts (e.g. displacement, recreational feature/business loss or gains).

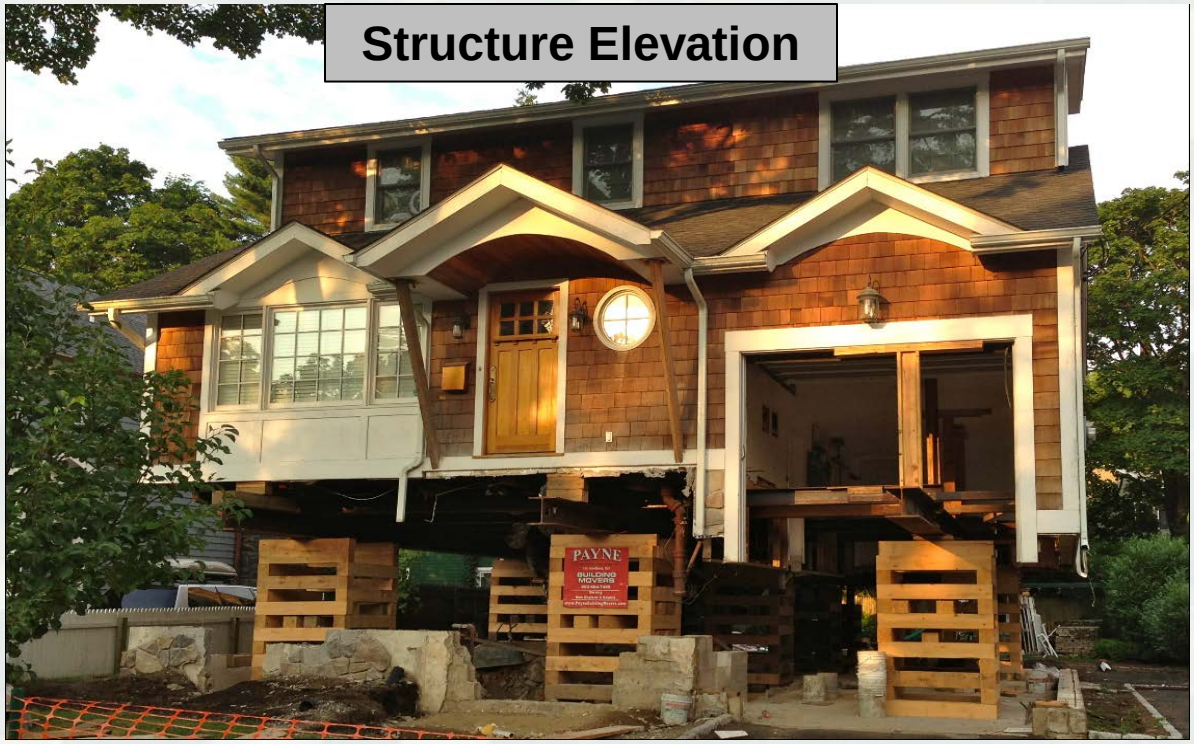
Alternatives Overview

- No Action
- Non-Structural
- Cranford Alt. 4 - Channel Improvements and Orange Reservoir Outlet Modification
- Cranford Alt. 8 – Lenape Park Levee and Orange Reservoir Outlet Modifications
- Cranford Alt. 9 – Lenape Park Detention Basin, Orange Reservoir Outlet Modifications and Channel Improvements
- Robinson’s Branch Alt. 1: Levees/floodwalls and Channel Improvements
- Robinson’s Branch Alt. 2: Middlesex Reservoir Modification

Alternatives

- No Action
  - No additional Federal Actions would be taken to provide for flood risk management.
  - Serves as a baseline for the existing and future trends against which other alternatives are measured.
  - Required under NEPA.
- Non-Structural
  - Structure Raising
  - Wet or Dry Floodproofing
  - Ringwalls
  - Buy-out

Typical Non-structural Measures



Rahway River Basin Flood Risk Management Feasibility Study

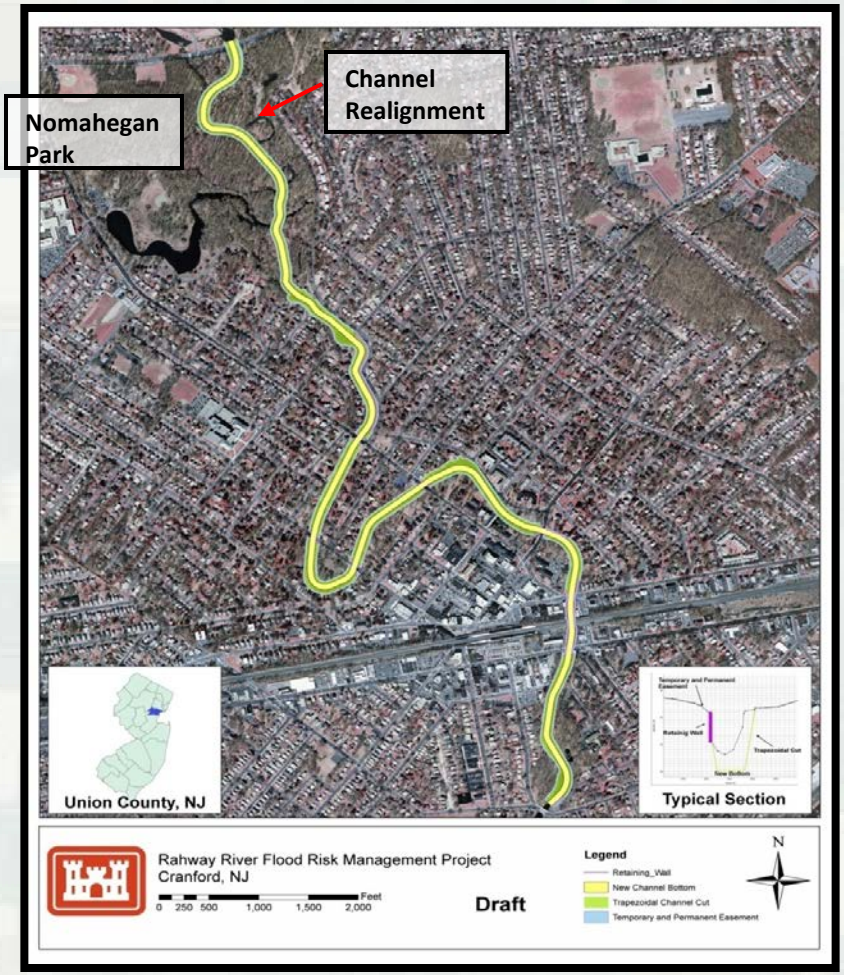
Cranford Alt. 4: Channel Improvements and Orange Reservoir Outlet Modification

- Description:
  - New outlet 2- 36” pipes at Orange Reservoir, with manual operation.
  - Approximately 15,500 ft of trapezoidal channel improvements throughout the Rahway River in Cranford Township.
  - Two bridge replacements.
  - Removal of Droescher’s and Hansel Dam.
  - Utility relocation.
- This alternative is likely to contain the 1%-2% chance of annual exceedance flood in Cranford Township. The flow detention capacity of the Orange Reservoir will mitigate the increase in downstream flow caused by deepening and widening the channel.
- Potential Environmental Considerations:
  - Aquatic, Wetland and Riparian Habitats
  - Historic Properties
  - Green Acres

*Events	Time
Drawdown	2 days
Re-fill - (25 yr event)	30 hrs
Re-fill - (1 yr event)	One week
Maximum re-fill	Two weeks

*Drawdown and refill depth = 15ft.

Rahway River Basin Flood Risk Management Feasibility Study
Cranford Alt. 4: Channel Improvement and Orange Reservoir Outlet Modification



Typical Channel Improvement
South Orange, NJ, 30 ft wide + retaining walls

Rahway River Basin Flood Risk Management Study
Cranford Alt. 8: Lenape Park Dam and Orange Reservoir Outlet Modifications

- Description:
  - New outlet 2- 36” pipes at Orange Reservoir, with manual operation.
  - Raising the existing Lenape Dam structure and widening the orifice.
  - Raising existing Lenape embankments six feet above current top elevation.
  - Addition of 6 ft of floodwalls to existing embankments in northern area of Lenape Park near Fadem Rd at Springfield township.
- This alternative is likely to contain the 4% chance of annual exceedance flood in Cranford Township and has some addition benefits below Cranford.
- Potential Environmental Considerations:
  - Aquatic, Wetland and Riparian Habitats
  - 50 ft no woody (trees and shrubs) vegetation buffer on either side of dam/embankment per Corps Policy.
  - Historic Properties
  - Green Acres

Typical Dry Detention Basin
Lenape Park, Springfield/Cranford, NJ

Rahway River Basin Flood Risk Management Feasibility Study
Cranford Alt. 9: Lenape Park Dam and Orange Reservoir Outlet Modifications and Channel Improvements

- Description:
  - New outlet 2- 30” pipes at Orange Reservoir, with manual operation.
  - Raising the exisiting Lenape Dam structure and widening the orifice.
  - Raising existing Lenape embankments six feet above current top elevation.
  - Addition of 6 ft of floodwalls to existing embankments in northern area of Lenape Park near Fadem Rd at Springfield township.
  - Up to 9,000 ft of channel improvement.
- This alternative is likely to contain the 2% chance of annual exceedance flood in Cranford Township and has some additional small benefits downstream of Cranford.
- Potential Environmental Considerations:
  - Aquatic, Wetland and Riparian Habitats
  - Historic Properties
  - Green Acres
  - 50 ft no woody (trees and shrubs) vegetation buffer on either side of dam/embankment per Corps Policy.

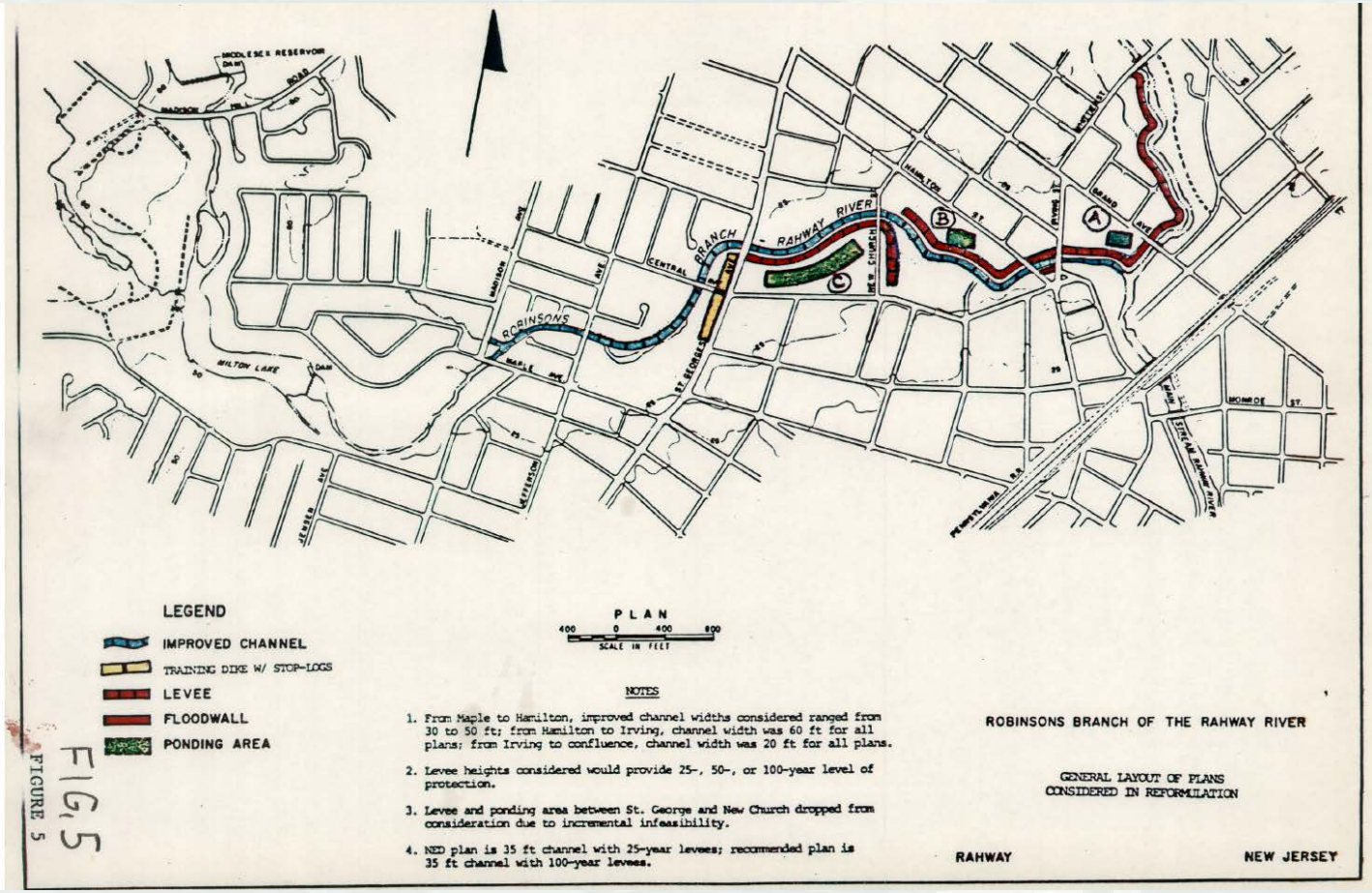
Rahway River Basin Flood Risk Management Feasibility Study

Robinson's Branch Alt. 1 Channel Improvements with Levees & Floodwalls

- Description: Re-evaluate the1985 GRR Channel & Levee/Floodwall Plan
  - Approximately 6,500 ft of 35' wide trapezoidal channel from confluence to Maple Ave. with 750 ft of retaining walls.
  - Approximately 6,600 ft of levees/floodwalls.
  - Three ponding areas.
- This alternative is likely to contain the 1% to 4% chance of annual exceedance flood in Rahway along the Robinson's Branch.
- Potential Environmental Considerations:
  - Aquatic, Wetland and Riparian Habitats
  - Historic Properties
  - Green Acres

Rahway River Basin Flood Risk Management Feasibility Study

Robinson's Branch Alt. 1 Channel Improvements with Levees & Floodwalls



Rahway River Basin Flood Risk Management Feasibility Study

Robinson's Branch Alt. 2 Modifications to Robinson's Branch Dam (Middlesex Reservoir)

- Description:
  - New outlets or modified spillway at Middlesex Dam, with manual operation to lower the reservoir before a pending storm.
- The degree of flood risk reduction in Rahway along the Robinson's Branch is unknown at this time.
- Potential Environmental Considerations:
  - Aquatic, Wetland and Riparian Habitats
  - Historic Properties
  - Green Acres

Photo By The Cranford Chronicle

Next Steps

Rahway River Basin Flood Risk Management Study Feasibility

Next Steps

- Receipt of Public Scoping Comments – 15 July 2015.
- Preparation of Response to Comment Document.
- Economic Analysis, Benefit-to-Cost Ratio for Robinson's Branch measures.
- Basin wide determination and optimization of Tentatively Selected Plan for Cranford measures & Robinson's Branch measures (TSP).
- Conduct Environmental Field Investigations.
- Develop Real Estate Plan.
- Prepare a Feasibility Report and NEPA Documentation (Environmental Impact Statement).
- Public and Agency Reviews.
  - Draft EIS 45 day review and comment period.
  - Final EIS 30 day review and comment period.

Rahway River Basin Flood Risk Management Feasibility Study

Feasibility Study Schedule

Milestones	
Milestones	**Dates**
Tentatively Selected Plan	**March 2016**
Release of Draft Report	**June 2016**
Final Report	**January 2017**
Chief's Report (for Congress)	**June 2017**

Rahway River Basin Flood Risk Management Feasibility Study

Study Contact and Webpage Information

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Project Webpage

www.nan.usace.army.mil/Rahway