

RAHWAY RIVER BASIN (FLUVIAL), NEW JERSEY FLOOD RISK MANAGEMENT FEASIBILITY STUDY

U.S. Army Corps of Engineers, New York District
New Jersey Department of Environmental Protection

Alternatives Presented at the Alternative Milestone Meeting (AMM)
18 September 2023

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RAHWAY RIVER BASIN, NEW JERSEY – MANAGEMENT MEASURES

STRUCTURAL MEASURES

- Levees
- Floodwalls
- Channel modification
- Dams (new dry or wet detention basins)

NONSTRUCTURAL MEASURES

- Buyouts/Acquisition
- Relocation
- Elevation
- Floodproofing (wet or dry)

NATURAL AND NATURE BASED FEATURES (NNBFs)

- Stream Restoration
- Smaller Detention Ponds
- Restoration after Nonstructural Measure



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RAHWAY RIVER BASIN, NEW JERSEY – ALTERNATIVES

The array of alternatives is formulated from the FRM measures. All retained measures are considered in the initial array of alternatives.

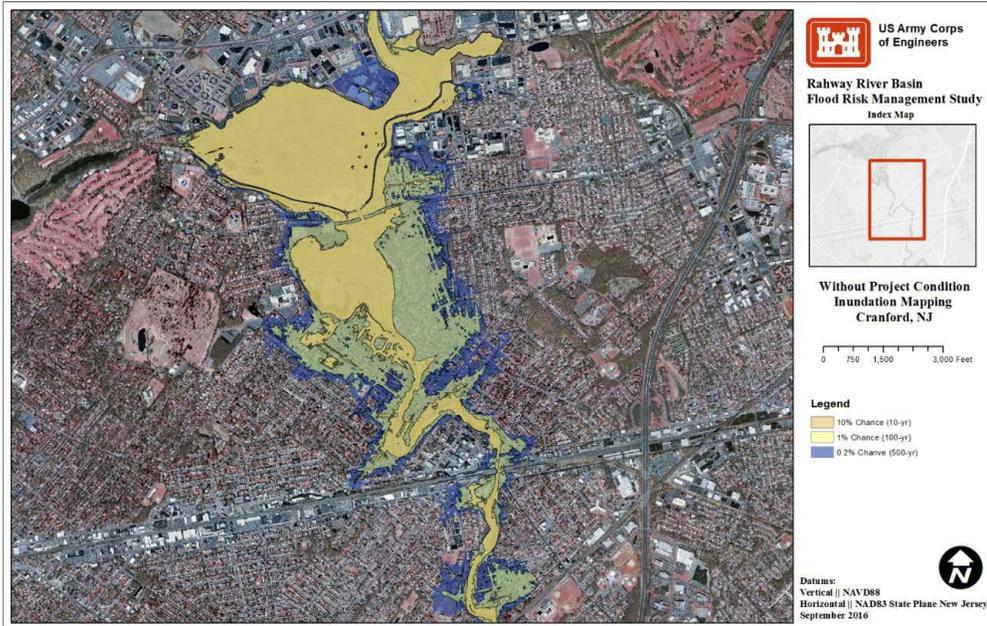
Alternative	Alternative Description
Alternative 1	No Action
Alternative 2	Upstream Detention
Alternative 3	Combination plan – targeted channelization, along with buyouts and potential localized storage from bought out areas, and targeted levees and floodwalls
Alternative 4	Nonstructural Plan consisting of acquisition, relocation, elevation, and floodproofing
Alternative 5	Lenape Park Detention Basin & Channel Modifications



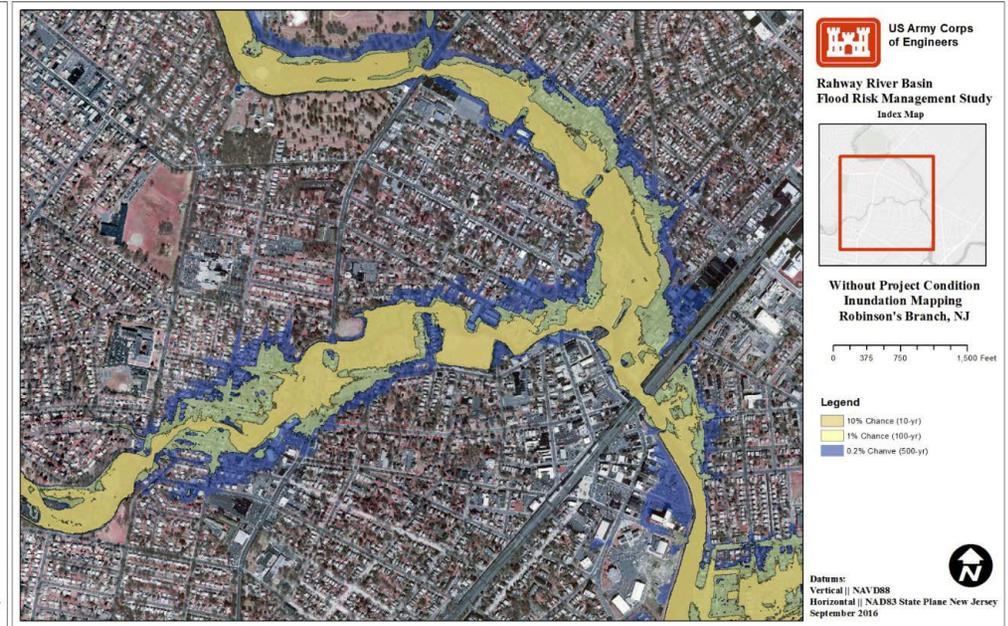
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ALTERNATIVE 1 – NO ACTION



Cranford/Upstream

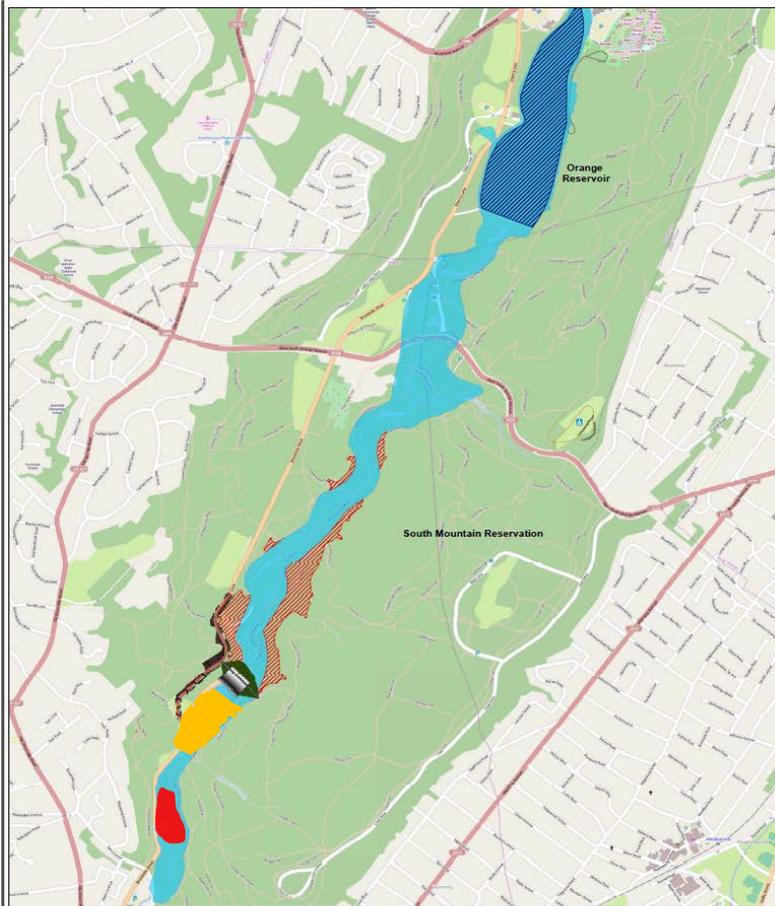


Robinson's Branch

No Action plan provides baseline against which the project benefits are measured. Structure inventory will be updated for future without project damages.



ALTERNATIVE 2 – UPSTREAM DETENTION



Rahway River Flood Risk Management Study
Alternatives #5a & 6a: Proposed Dry Detention Basin at South Mountain
Reservation and Brookside Dr. relocation



Upstream Detention Basin:

- **South Mountain Dry Detention standalone**
- South Mountain Dry Detention with channel improvement
- Modification to existing small ponds (Campbell and Diamond Mill) with channel improvement

Legend

-  Orange Reservoir
-  1% inundation after dam
-  1% Existing Inundation - FEMA
-  Campbells Pond
-  Diamond Mill Pond

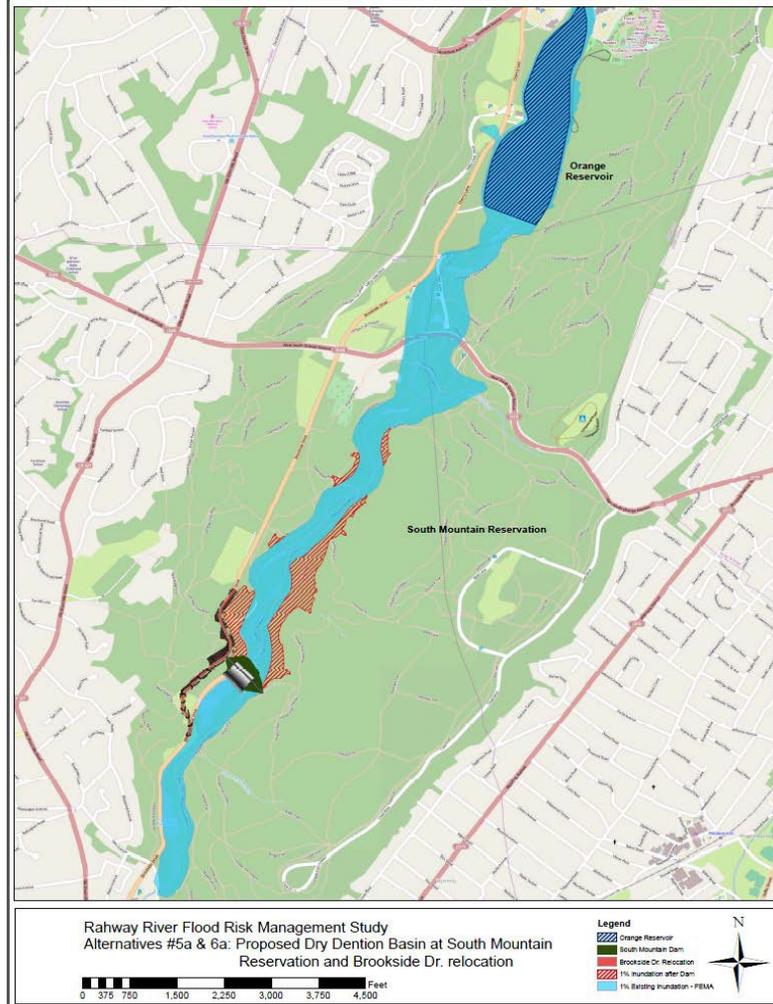


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ALTERNATIVE 2 – UPSTREAM DRY DETENTION BASIN

6



Project Features:

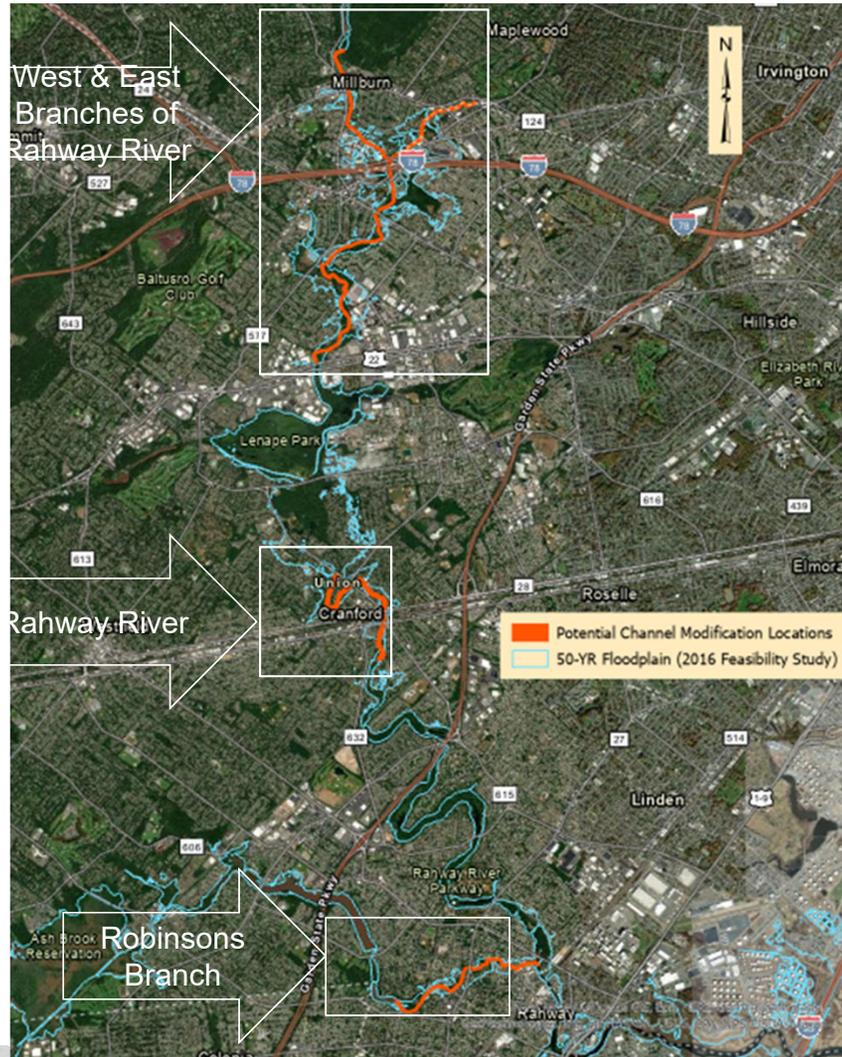
- South Mountain Reservation Dry Detention Basin standalone similar to the plan developed in 2016 Draft Feasibility Report:
 - Approx 70 ft high and 810 ft long; BCR was 1.1
 - Situated above Campbells Pond
 - Potential Relocation of a portion of Brookside Drive



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ALTERNATIVE 3 – COMBINATION PLAN

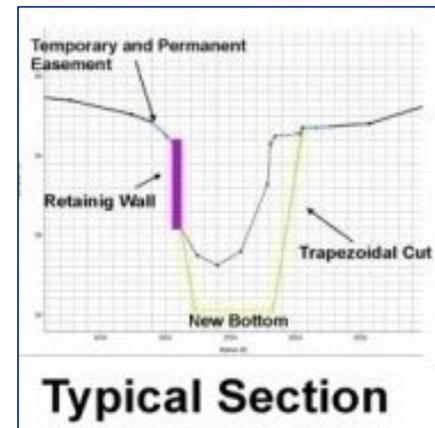


Potential Project Features *Note: Still under development

- Channel Modifications- 88,500 LF
 - East Branch Rahway River
 - Rahway River
 - Robinson's Branch
- Storage in natural areas

Legend

-  Potential Channel Modification Locations
-  50 yr Floodplain



ALTERNATIVE 4 – NONSTRUCTURAL PLAN

Nonstructural Potential Aggregation Method

Characteristic	Grouping	Explanation
Hydraulic	Left/Right Bank	Indicates where the channel is
	Source of Flooding	Indicates where the water comes from
	Frequency of Flooding	Damage loss is proportional to flooding frequency
	Physics of Flooding (depths)	Damage loss is proportional to depth of water
Structure	First Floor Elevation	Damage loss is negatively related to elevation height
	Land use, Structure type	Structures of similar type would likely be damaged in comparable ways
Community	Political Jurisdictions	Incorporates socio-economic differences across census tracts



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ALTERNATIVE 4 – NONSTRUCTURAL

9

Benefits and costs estimations update with inflation cost adjustment from 2016 to 2023

Nonstructural Alternatives	Number of Structures	Annual Benefits	Annual Cost	Net Benefits	BCR
Low 10-yr floodplain (Robinson's Branch)	21	\$ 2,008,500	\$ 562,973	\$ 1,445,527	3.6
High 100-yr floodplain (Robinson's Branch)	224	\$ 3,055,400	\$ 2,125,042	\$ 930,358	1.4
Low 10-yr floodplain (Cranford Upstream)	66	\$1,466,900	\$ 1,226,998	\$ 239,902	1.2
High 100-yr floodplain (Cranford Upstream)	726	\$ 3,374,100	\$ 9,695,288	\$(6,321,188)	0.3

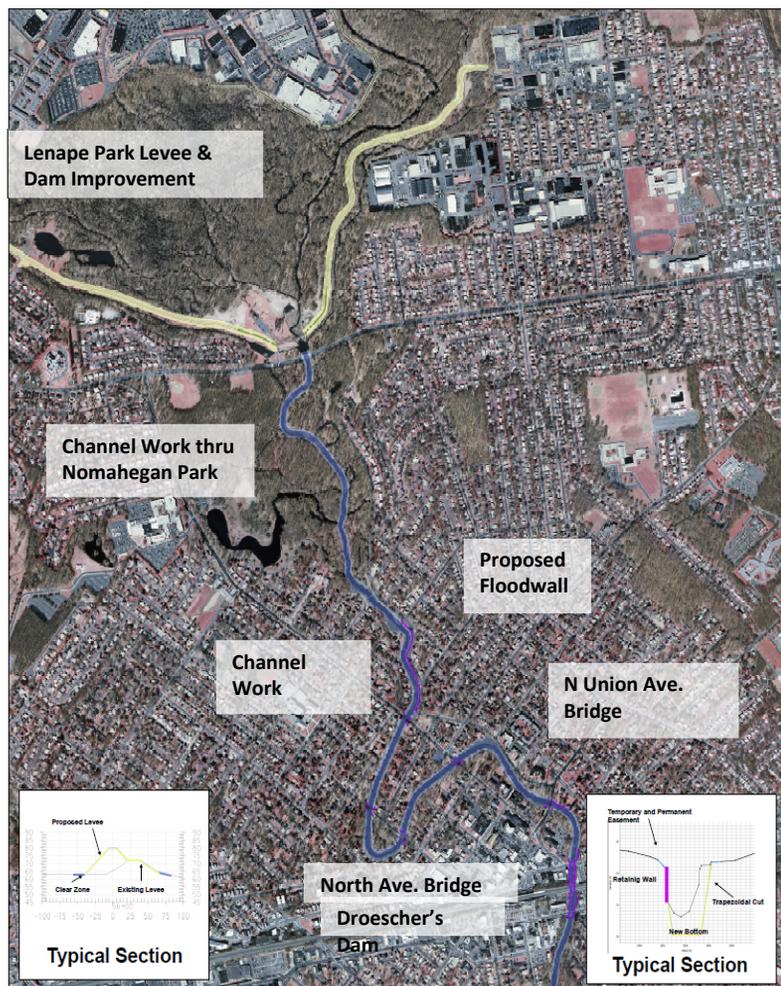


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ALTERNATIVE 5: LENAPE PARK

10



Channel modification at the Rahway River in Cranford Township, and modification to Lenape Park Detention Basin

Potential Project Features (2016 Report):

- Replacing the existing Lenape Dam spillway structure and raising by 6 ft.
- Widening the spillway by 100 ft.
- Widening the orifice to 40 ft. and lowering by 0.5 ft.
- Modifying 10,000 ft. dam embankments by raising 6 ft.
- Widening the auxiliary spillway to 400 ft.
- Adding 6 ft. of floodwalls to the existing embankments in the northern area of Lenape Park near Fadem Rd. at Springfield Township.

0.6 BCR in the 2016 Draft Report

*NFS requested this alternative to be reevaluated



RAHWAY RIVER BASIN, NEW JERSEY – ENVIRONMENTAL COMPLIANCE AND AGENCY COORDINATION ¹¹

- Agency Coordination Meeting – August 8, 2023 (Agencies include USFWS, EPA, FHWA & FEMA)
- Coordination Meeting with NJDEP - August 1, 2023 (Green Acres, Land Resource Protection, Division of Fish & Wildlife, and State Historic Preservation Office)
- Letters to Cooperating/Participating Agencies – July 19, 2023
 - USFWS, EPA and FHWA accepted Cooperating Agency invitation
 - FEMA requested to serve as Participating Agency vs Cooperating Agency
- Endangered Species
 - Indiana, northern long-eared and tri-colored bat (Study Area)
 - Bog turtle (South Mountain Reservation)
- NEPA documentation – Assuming EIS
- Public meetings anticipated:
 - NEPA Scoping Meetings
 - Release of draft report



RAHWAY RIVER BASIN, NEW JERSEY – ENVIRONMENTAL JUSTICE

TOOLS USED

- CEQ Climate and Economic Justice Screening
- Environmental Protection Agency EJ Screen
- New Jersey Department Environmental Justice Mapping, Assessment and Protection Tool

EJ/DISADVANTAGED COMMUNITY CONCERNS IDENTIFIED IN:

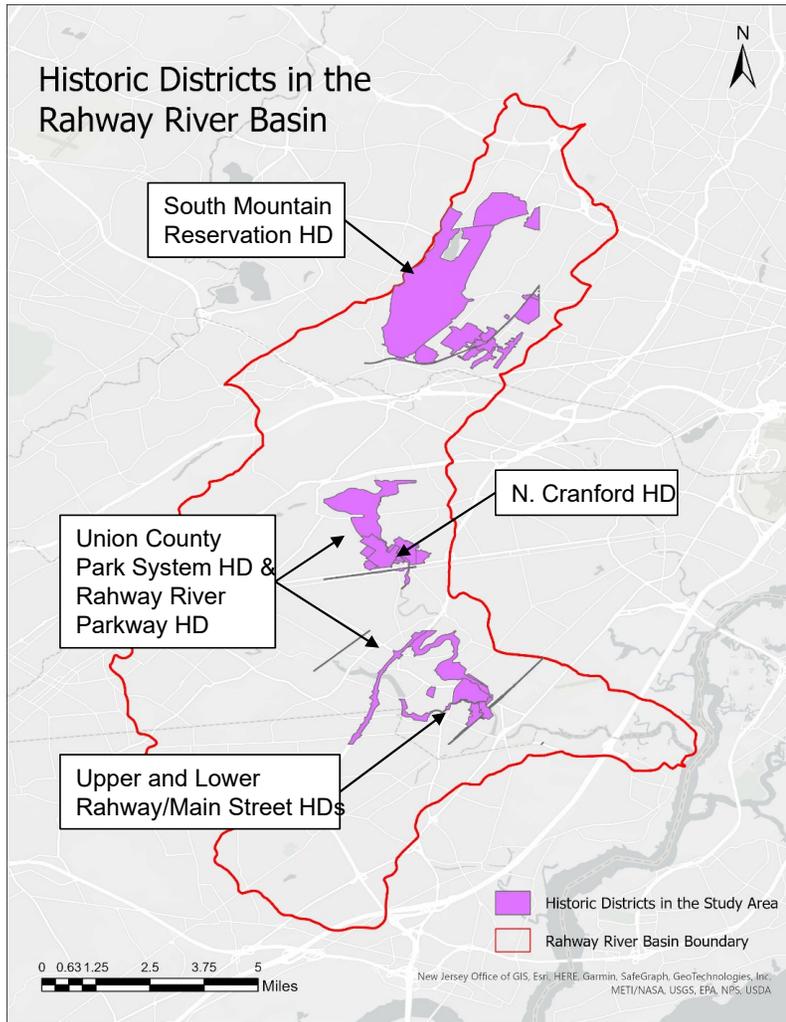
- City of Orange
- City of Rahway
- Within portions of each municipality throughout the Study Area

Burden Thresholds

- Low Income
- Minority
- Limited English Proficiency (portion of City of Orange)



RAHWAY RIVER BASIN – CULTURAL RESOURCES CONSIDERATIONS



Cultural Resources in the Study Area –

- Pre-Contact Period and historic archaeological sites
- National Register of Historic Places (NRHP) properties/districts

Notable Historic Districts –

- South Mountain Reservation*
- North Cranford Historic District
- Rahway River Parkway
- Union County Park System
- Upper & Lower Rahway/Main Street

Consulting Tribal Nations –

- The Delaware Nation
- The Delaware Tribe of Indians

Potential Consulting Parties –

- Cranford Historical Society
- Merchant and Drivers Tavern Museum
- North Cranford Historic Preservation Advisory Board
- Union County Department of Parks and Recreation
- West Orange Historic Preservation Commission

*Within the direct APE for currently proposed measures

References:

NJ SHPO Cultural Resources GIS (CRGIS) Online Database
 Phase IA Cultural Resources Investigation of the Study Area (Panamerican Consultants, Inc. 2017)



RAHWAY RIVER BASIN, NEW JERSEY – TENTATIVE STUDY SCHEDULE

✓ FCSA Execution	✓ 28 Feb 2023
✓ Charrette (NAN, NJDEP & Local Municipalities)	✓ 23-24 May 2023
✓ Interagency Meeting	✓ 8-Aug-2023
Alternatives Milestone Meeting (AMM)	18 Sept 2023
Federal Interest Determination (FID)*	18 Sept 2023
Vertical Team Alignment Memo (VTAM)	30-Nov-2023
Tentatively Selected Plan (TSP) Milestone	April 2024
Draft Report Released (Concurrent Public, Agency, and IEPR review)	May/June 2024
Public Comment Period Ends	July 2024
Agency Decision Milestone (ADM)	Oct 2024
Final Report to MSC for Approval	September 2025
Chief's Report	February 2026

* FID at the AMM



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