

# A Flood Mitigation Plan for the Non-Tidal N.J. Section of the Delaware River Basin



Warren County Planning Workshop (2<sup>nd</sup> Meeting)

March 7, 2007

# Study Area Participation:

## Hunterdon:

16 Eligible Municipalities

15 Statements of Intent

## Mercer:

9 Eligible Municipalities

6 Statements of Intent

## Sussex:

17 Eligible Municipalities

11 Statements of Intent

## Warren:

22 Municipalities

22 Statements of Intent

## Total Participating:

54 municipalities



# Warren County Participation

Municipality	Submitted Statement of Intent	Submitted Municipal Questionnaire	Attended County Kick-off Meeting
Warren County			
Allamuchy Township	X		X
Alpha Borough	X		-
Belvidere Township	X	X	X
Blairstown Township	X	X	X
Franklin Township	X	X	X
Frelinghuysen Township	X	X	X
Greenwich Township	X	X	-
Hackettstown Town	X	X	X
Hardwick Township	X		X
Harmony Township	X	X	X
Hope Township	X	X	X
Independence Township	X	X	-
Knowlton Township	X	X	X
Liberty Township	X	X	X
Lopatcong Township	X	X	X
Mansfield Township	X	X	X
Oxford Township	X	X	-
Phillipsburg Town	X	X	X
Pohatcong Township	X	X	X
Washington Borough	X		X
Washington Township	X	X	X
White Township	X		X

\*as of 03/07/2007

# Next Steps in the Planning Process

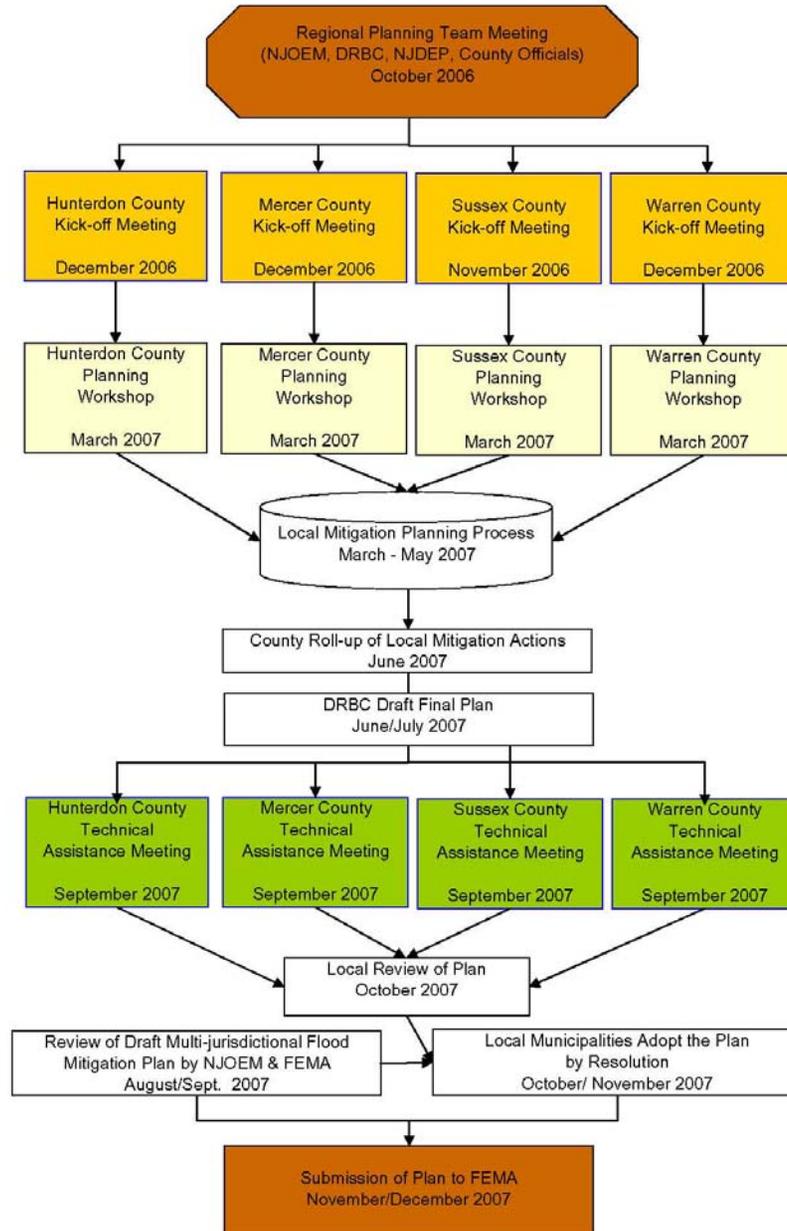


Lambertville, NJ - April 2005

- Project Management Team
- Regional Planning Team
- Local Municipalities

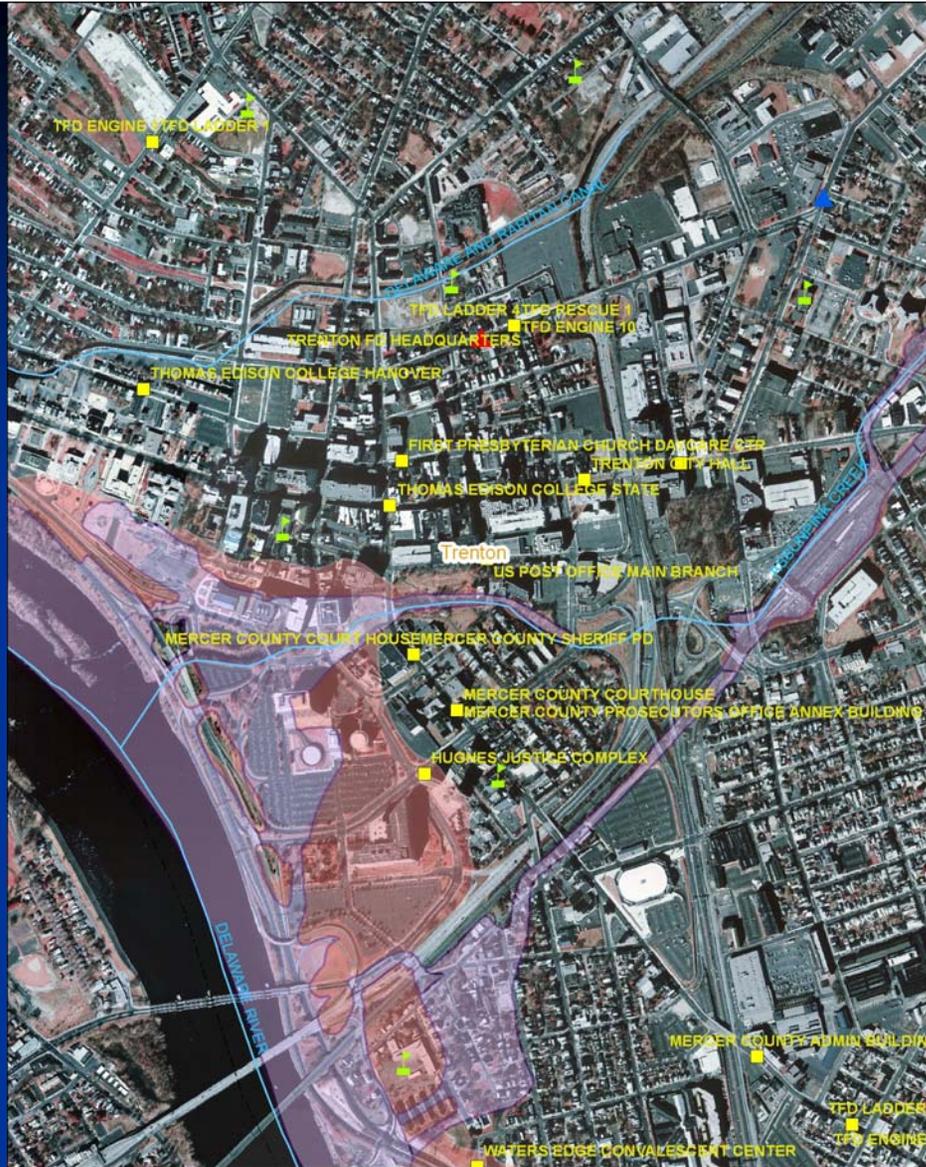
**A Multi-Jurisdictional Flood Mitigation Plan for the  
Non-Tidal N.J. Section of the Delaware River Basin**

**-Planning Process-**

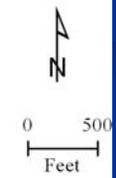


# Next Steps – Project Management Team

- Use data from Municipal Questionnaires and other sources to compose Flood Mitigation Plan
- Revise GIS Analysis of flood insurance claims and repetitive loss properties when needed
- Complete Flood hazard identification and vulnerability assessment (HAZUS)
  - Verification of Critical Facilities Important

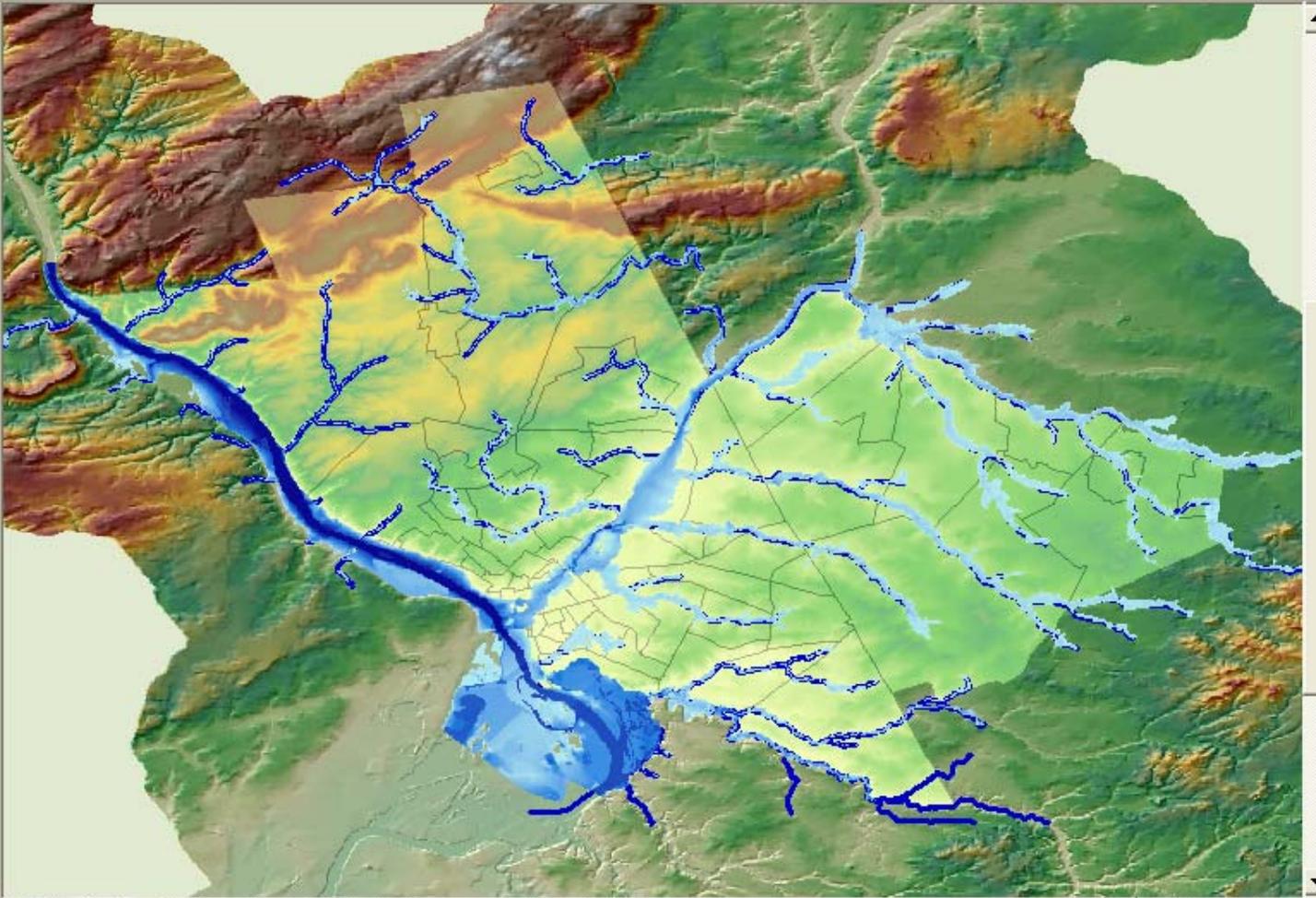


- Mercer County Critical Facility
- Waste Water Facility
- hzSchool
- Water Facility
- ▲ Police Station
- ▲ Fire Station
- H Emergency Center
- ⌂ Care Facility
- 100 Year Flood Plain
- 500 Year Flood Plain
- Municipal Boundary



**Layers**

- BoundaryPolygon
- rpd100
  - Value
  - High : 65.2265
  - Low : 0.000144958
- ChosenReaches
- School
- PoliceStation
- FireStation
- EmergencyCtr
- CareFlty
- Reaches
- RegionDEM
  - Value
  - High : 1013.49
  - Low : -45.687
- Census Blocks
- Census Tracts



# HAZUS Flood Model Results



- Hazard maps
  - Flood depth
- Building losses
  - By occupancy and by building type
  - By full replacement value and depreciated replacement value
- Essential facilities
  - Building and content losses
- Vehicles and agriculture losses
- Shelter requirements

# Next Steps – Regional Planning Team

- Critical Facilities Mapping
- Regional Collaboration of Flood Hazard Data (National Park Service, NJWSA, Watershed Associations)

## Counties:

- Document the county-level planning process
- Identify county critical facilities and unique flooding hazards
- Develop a list of county-level desired mitigation actions
- Allow time for public comment
- Collect, Review and Summarize Local Data (Municipal Worksheets) and Submit to DRBC

# Next Steps - Municipalities

- Continue to Document Local Planning Process
- Encourage Public Participation
  - Publish Notice of Intent
  - Distribute, Collect and Summarize Flood Prone Resident Questionnaire
  - Allow Time for Comment at Two (2) Public Meetings
  - Summarize Public Comment
- Develop Flood Mitigation Goals
- Compose List of Desired Local Mitigation Actions
- Prioritize List of Local Mitigation Actions
- Submit Information to County by June 1<sup>st</sup>



## Welcome to the Delaware River Basin Commission's Web Site

**"A river is more than an amenity, it is a treasure."  
(U.S. Supreme Court Justice Oliver Wendell Holmes,  
1931 Delaware River Diversion Case)**

- What We Do
- Who We Are
- Basin Location Map
- [Web Site Index](#)



Photo of the Week

### HIGHLIGHTS

[Reservoir Storage Graph](#)

[Flow & Storage Data](#)

[Flooding Information Home Page](#) including [June 2006 Flooding Information](#)

[Toxics and PCB Information](#)

[\(Link to EPA web site\)](#)

[Revised Calibration of the Water Quality Model for the Delaware Estuary for Penta-PCBs and Carbon](#)  
*(Adobe Reader required)*

[Water Resources Plan \(Basin Plan\)](#)

["Ed. Web" Education Web Page](#)

[Map Gallery](#)

[Project Application Status Page](#)

[Information for Local Watershed Groups, Including Basinwide Listing](#)

### WHAT'S NEW?

[Interstate Flood Mitigation Task Force including Public Review Draft of Preliminary Action Plan](#)  
*(Written Comments Accepted until March 7, 2007)*

[Basinwide Hydrologic Conditions Report -- February 27, 2007](#)

[Dockets Approved at the February 27, 2007 Commission Meeting](#)

[Notice of Proposed Rulemaking and Public Hearing Concerning a Flexible Flow Management Plan](#)

[Proposed Flexible Flow Management Plan \(FFMP\)](#)  
*(Adobe Reader required)*

[Related Decree Party Background Documents](#)

[2007 Spring Conference: Emergency Response and Drinking Water Resources in the Delaware River Basin](#)  
*(Adobe Reader required)*

**UPDATED** [Multi-Jurisdictional Flood Mitigation Plan for the Non-Tidal N.J. Section of the Delaware River Basin](#)

[Resolutions to Address Flooding Adopted at the Sept. 27, 2006 DRBC Meeting](#) including [Explanation of Temporary Spill Mitigation Program](#)

[Requests for Proposal and Quotation](#)  
March 5, 2007

[Delaware River Sojourn](#)

[Wild and Scenic Delaware River](#)

# Flood Mitigation Goals:

**Overall Goal:** *“To make the Delaware River Basin more disaster resistant by reducing the long-term risks to loss of life and property damage from flooding. The aim is to build sustainable communities that, when confronted by a natural disaster, will sustain fewer losses and recover more quickly.”*

## State of New Jersey Hazard Mitigation Plan Goals:

1. Protect Life
2. Protect Property
3. Promote a Sustainable Economy
4. Protect the Environment
5. Increase Public Preparedness

# Flood Mitigation Goals

## Examples of Common Goals:

- Increase the coordination and cooperation among intergovernmental entities in carrying out hazard mitigation
- Heighten public awareness and support for hazard mitigation
- Protect and promote public health and safety
- Safeguard critical public facilities and infrastructure
- Protect existing and new development
- Promote growth in a sustainable manner
- Support natural resource protection

# Flood Mitigation Goals

## Examples of Municipal Specific Goals:

- Educate our citizens regarding flood risk, sustainable development, disaster preparedness and hazard mitigation opportunities
- Maintain emergency access to all township residents and critical facilities
- Mitigate a specific critical facility and/or infrastructure and promote reliability and maintenance of operations during a flood event
- Reduce flood damages along \_\_\_(specific area prone to flood damages)

# Flood Mitigation Goals

## Examples of Municipal Specific Goals (continued):

- Reduce flood loss to promote and maintain a stable tax base
- Promote measures to ensure that development will not put people in harm's way or increase threats to existing properties
- Ensure training for local officials and enforcement of existing ordinances, codes and regulations

# Flood Mitigation Action Categories

## 1. Prevention

- Planning and zoning
- Building codes
- Hazard mapping
- Open space preservation
- Floodplain regulations
- Stormwater management
- Drainage system maintenance
- Capital improvements

# Flood Mitigation Action Categories

## 2. Property Protection

- Acquisition
- Building elevation
- Relocation
- Structural Retrofits (i.e., flood proofing, elevate utilities, etc.)
- Stormwater Retrofits (i.e., backflow prevention device, culvert resizing, etc.)
- Critical facilities protection
- Insurance

# Flood Mitigation Action Categories

## 3. Public Information and Awareness

- Outreach and education
- Training
- Speaker series, demonstration events
- Real estate disclosure

## 4. Emergency Services

- Warning systems; Reverse 9-1-1
- Search and rescue
- Evacuation planning and management

# Flood Mitigation Action Categories

## 5. Natural Resource Protection

- Floodplain protection
- Riparian buffers
- Erosion and sediment control
- Stream corridor restoration
- Watershed management
- Wetland restoration
- Habitat preservation

# Flood Mitigation Action Categories

## 6. Structural Projects

- Levees, dikes, or floodwalls
- Detention and retention basins
- Channel modification
- Stormwater Retrofits
- Maintenance of existing flood control structures

<b>Municipality</b>	<b>Program</b>	<b>Project</b>	<b>Federal</b>	<b>Non-Federal</b>
Harmony Township	Flood Mitigation Assistance Program (FMA)	Acquisition of 3 structures	\$ 674,640	\$ 224,880
Wayne Township	FMA	Acquisition	\$ 5,749,500	\$ 1,916,500
Little Falls Township	Repetitive Flood Claims Program	Acquisition of 5 structures	\$ 1,900,000	\$ -
Harmony Township	Hazard Mitigation Grant Program (HMGP)	Acquisition of 4 structures	\$ 858,900	\$ 286,300
Harmony Township	HMGP	Elevation of 8 structures	\$ 372,300	\$ 124,100
Pohatcong Township	HMGP	Acquisition of 2 structures	\$ 365,550	\$ 121,850
Fairfield Township	HMGP	Elevation of 6 structures	\$ 193,073	\$ 64,358
Carneys Point Township	Pre-Disaster Mitigation Grant Program (PDM)	Pump Station Upgrade	\$ 1,210,069	\$ 407,023

- Compose and prioritize a list of desired local mitigation actions (include estimated cost, organization responsible for implementation, implementation schedule, priority and potential funding sources)

**Implementation Strategy Table Sample**  
(adapted from Draft FEMA 386-8 Multi-jurisdictional How-To)

(Name of Jurisdiction) Town A

Mitigation action, program or project	Hazard(s) addressed	Applies to existing or new assets	Existing local planning mechanism through which action will be implemented	Responsible Party	Target date	Estimated cost (\$)	Funding source	Priority
<b>Action 2.1.1:</b> Bridge Replacement	Flood	Existing	Capital Improvement Plan	Planning Department	2 years from plan adoption date	\$90,000	Capital Improvement budget	High
<b>Action 2.1.2:</b> Property Acquisition	Flood	Existing	Floodplain Management Plan	Village Administrator	1 year	\$80,000	Pre-Disaster Mitigation Program (75%) and local match (open space program) (25%)	High
<b>Action 2.3.1:</b> Elevate critical facility (hospital)	Flood	Existing	NFIP participation	NFIP coordinator	2 years	\$50,000	Flood Mitigation Assistance Program grant	High
<b>Action 5.3.1:</b> Public awareness program on local TV channel	All	New and existing	NA	County Emergency Management Agency	6 months	\$5,000	Private Channel I	Medium
<b>Action 1.4.1:</b> Code update	Seismic and wind	New	Building Code Ordinance	Building Department of each jurisdiction	3 years	Staff time	Department budget	Medium

Prepared by:  
Name \_\_\_\_\_  
Title \_\_\_\_\_  
Telephone \_\_\_\_\_

**Sample STAPLEE ACTION EVALUATION TABLE: Town A**

Alternative Actions	STAPLEE Criteria Considerations																						
	+ Favorable      - Less favorable      N Not Applicable																						
	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)		E (Economic)			E (Environmental)						
Community Acceptance	Effect on Segment of Population	Technically Feasible	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocation	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT/Waste Sites	Consistent with Community Environmental Goals	Consistent with Federal Laws	
<b>Action 2.1.1:</b> Bridge Replacement	+	N	+	+	+	+	+	-	+	+	+	+	N	+	+	+	N	+		+	+	+	
<b>Action 2.1.2:</b> Property Acquisition	-	-	+	+	+	-	-	-	-	+	+	+	+	+	-	-	-	+	+	+	+	+	
<b>Action 2.3.1:</b> Elevate critical facility (hospital)	+	+	-	+	-	-	-	+	+	+	+	+	+	+	-	+	-	+	+	N	+	+	
<b>Action 5.3.1:</b> Public awareness program on local TV channel	+	+	+	+	+	-	-	-	+	+	-	+	N	N	+	+	+	-	N	N	N	+	+
<b>Action 1.4.1:</b> Code update	-		N	+	+	-	+	+	+	+	-	+	+	+	+	+	+	N	N	N	+	+	