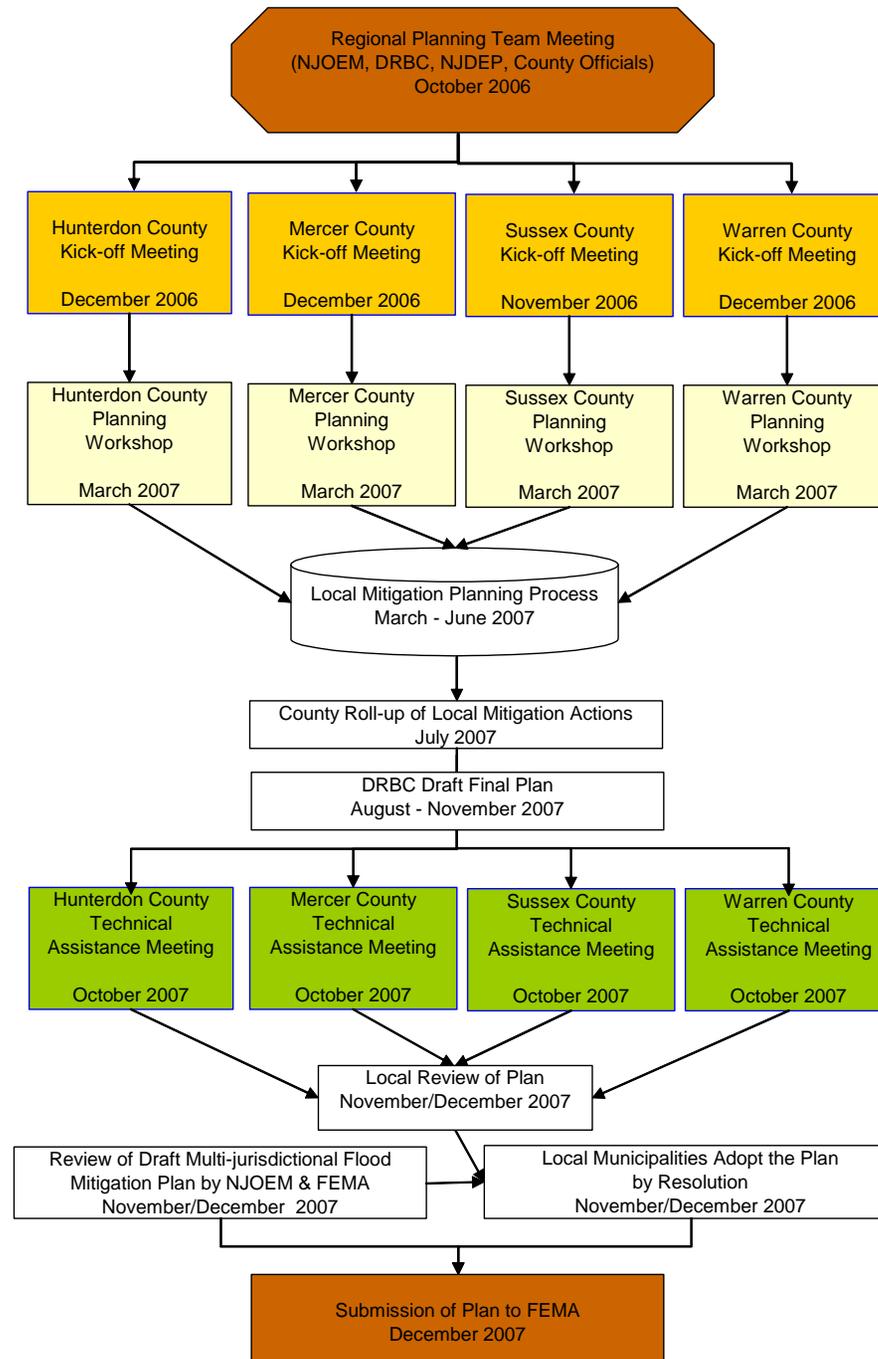


# A Flood Mitigation Plan for the Non-Tidal N.J. Section of the Delaware River Basin



Warren County Technical Workshop  
(3rd Meeting)  
October 17, 2007



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

# Study Area Participation:

## Hunterdon:

16 Eligible Municipalities  
15 Participating

## Mercer:

9 Eligible Municipalities  
6 Participating

## Sussex:

17 Eligible Municipalities  
12 Statements of Intent

## Warren:

22 Municipalities  
21 Participating

## Total Actively Participating:

54 municipalities!



# Ongoing Initiatives

- Delaware River Basin Interstate Flood Mitigation Task Force
  - Final Report Issued - July 2007
  - Congressional Briefing
  - NJDEP Briefing
- Flood Analysis Model

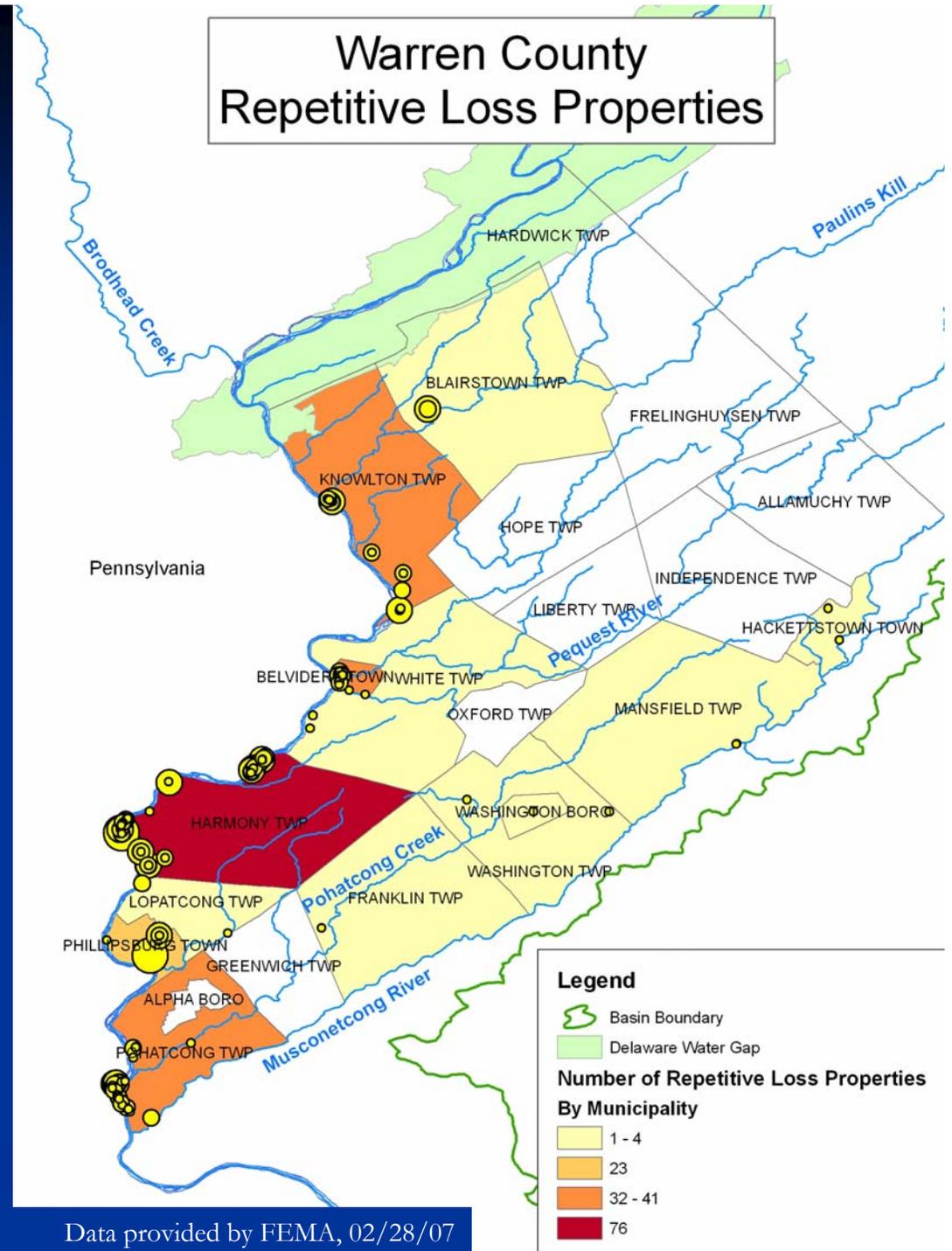
# Repetitive Loss Properties

## Warren County:

225 Repetitive Loss Properties  
\$24.5 Million in Total Payouts

### Municipalities with the most Loss Properties:

	<u>Properties</u>	<u>Cost</u>
Harmony	76	\$11.6M
Belvidere	41	\$2.1M
Knowlton	37	\$3.6M
Pohatcong	32	\$3.2M
Phillipsburg	23	\$3.3M
Blairstown	4	\$0.9M
Hackettstown	2	\$0.05M
White	2	\$0.09M
Mansfield	2	\$0.06M
Washington Twp	2	\$0.01M
Lopatcong	2	\$0.2M
Franklin	1	\$0.007M
Washington Boro	1	\$0.06M



# Severe Repetitive Loss Properties

## Warren County:

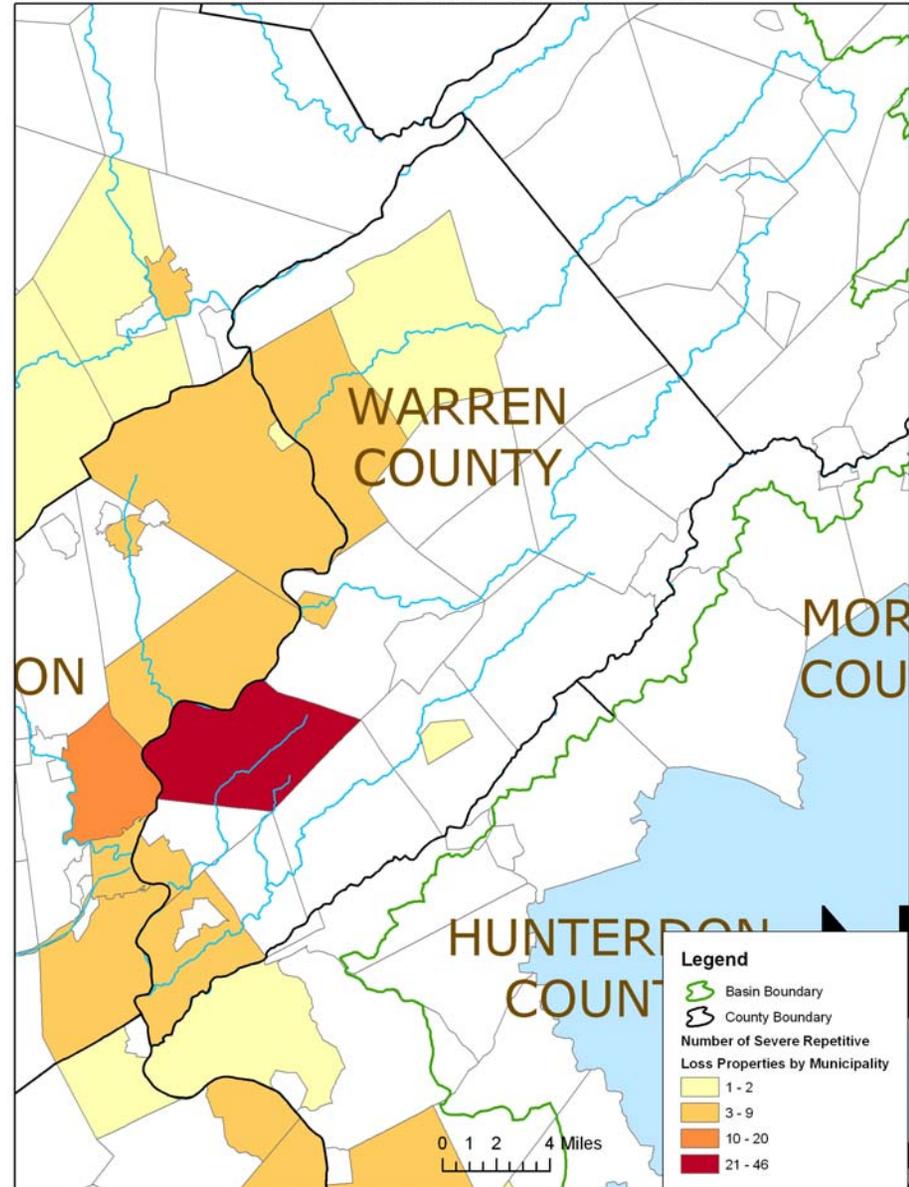
60 Severe Rep Loss Properties  
\$12.1 Million in Total Payouts

### Municipalities with the most Severe Repetitive Loss Properties:

	<u>Properties</u>	<u>Cost</u>
Harmony	29	\$5.9M
Knowlton	9	\$1.6M
Phillipsburg	8	\$2.0M
Pohatcong	7	\$1.4M
Belvidere	4	\$0.6M
Blairstown	2	\$0.5M
Washington Boro	1	\$0.06M

Data provided by FEMA, 02/28/07

## Severe Repetitive Loss Properties in the Delaware River Basin



Source: Federal Emergency Management Agency (FEMA). A property is considered a severe repetitive loss property either when there are at least 4 losses each exceeding \$5000 or when there are 2 or more losses where the building payments exceed the property value. Losses from 01/01/1978 - 02/28/07 that are closed are considered.

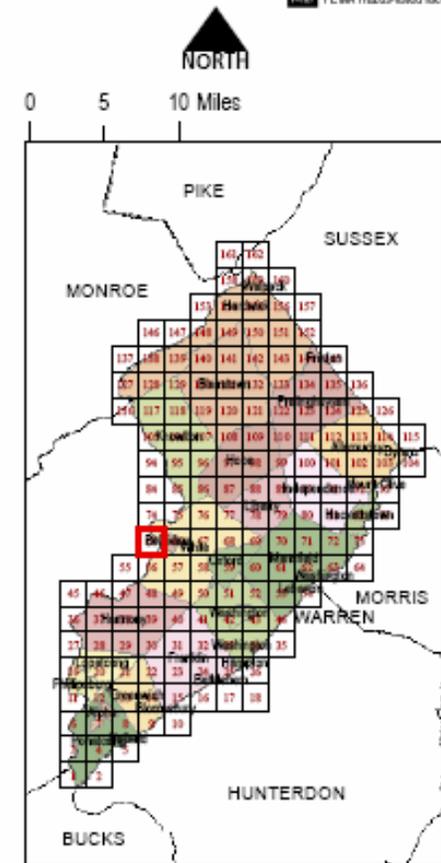
Prepared by Delaware River Basin Commission Staff, April 2007.

0 0.5 1 Miles



Warren County Critical facilities 65

- Legend**
- ▲ County-identified facilities
  - FEMA Hazus services**
    - ★ Emergency management
    - 🚒 Fire department
    - 👮 Police station
    - H Hospital
    - S School
  - FEMA Hazus utilities**
    - 💧 Potable water facility
    - ♻️ Waste water treatment
  - Hydrology**
    - 🌊 Named stream
    - 🌊 Unnamed stream
    - 🌀 100-year floodplain
    - 🌀 500-year floodplain
  - Administrative boundaries**
    - 📏 Municipal boundary
    - 📏 County boundary
    - 🌳 National Park
  - Critical facilities identifier (see spreadsheet)**
    - 📦 County-identified facility
    - 📦 FEMA Hazus-listed facility

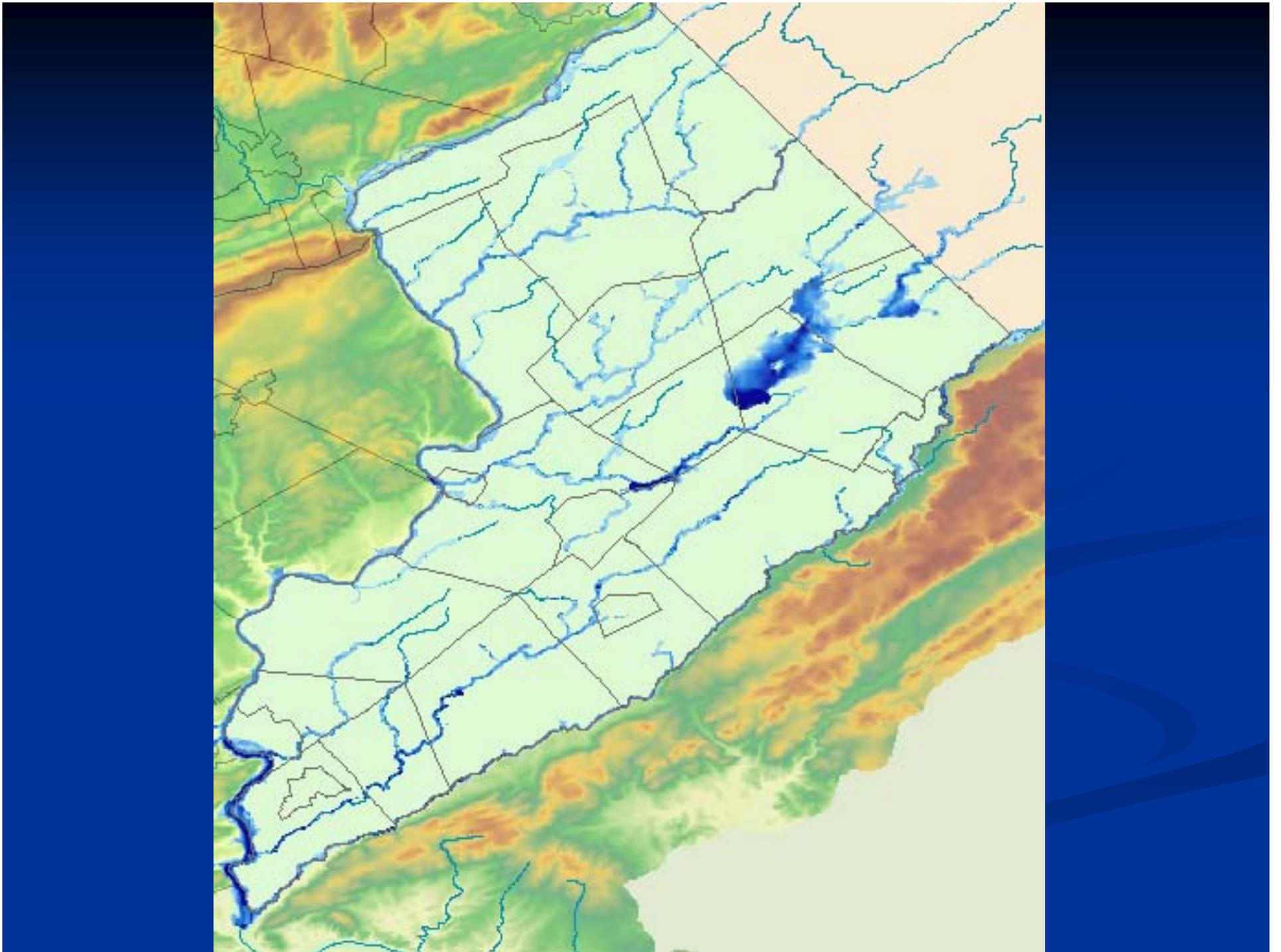


Sources: Warren County, New Jersey Department of Transportation (2002-2005), FEMA Q3 floodplains, FEMA Hazus dataset, New Jersey orthophotos (2002).  
 Prepared by DRBC staff April 2007.

# 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



## General Building Stock in the Floodplain

Return Period:	Population	Residential	Commercial	Industrial	Agriculture	Religion	Government	Education
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### Total Exposure in the Floodplain (thousands of dollars)

100 year	5010	444,831	117,390	12,402	4,493	7,179	1,020	6,694
500 year	6600	585,907	172,683	15,246	5,174	9,747	2,231	9,135

### Building Count (# of buildings) in the floodplain

100 year		1476	22	2	1	2	1	1
500 year		1966	32	2	1	2	1	1

## Economic Loss (General Building Stock)

### Total Loss (thousands of dollars)

100 year	22,921	8,169	695	585	815	34	513
500 year	40,401	16,099	1,169	903	1,871	87	1,141

## Essential Facilities Shown by HAZUS to be Inundated by a 100 Year-Flood

### FIRE

Tri County Fire CO	1720 State Route 57	Hackettstown	NJ
Belvidere Fire House Hall	659 Water St	Belvidere	NJ
Goodwill Fire CO	689 Water St	Belvidere	NJ
Phillipsburg Fire Dept 94-4	220 S Main St	Phillipsburg	NJ
Phillipsburg Fire Dept 94-3	540 S Main St	Phillipsburg	NJ
Volunteer Fire Department	Rte 46	Independence	NJ

### POLICE

Belvidere Police Dept	691 Water St	Belvidere	NJ
NJ State Police	Route 521, Hope	Hope Township	NJ

### EMERGENCY CENTER

Blairstown Ambulance Corps	2 Stillwater Road, Blairstown	Blairstown Township	NJ
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### CARE FACILITY

Hulses' Rest Home	763 Pequest Road	Liberty Township	NJ
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### SCHOOL

ANDOVER-MORRIS E.S.	712 SOUTH MAIN ST	PHILLIPSBURG	NJ
BLAIR ACADEMY	2 Park Street	BLAIRSTOWN	NJ
BLAIRSTOWN E.S.	1 SUNSET HILL ROAD	BLAIRSTOWN	NJ
OXFORD CENTRAL E.S.	17 KENT ST	OXFORD	NJ

## Essential Facilities Shown by HAZUS to be Inundated by a 100 Year-Flood

### AIRPORT

JOHN E. ROGERS

GREAT MEADOWS

NJ

### WASTEWATER FACILITY

OXFORD AREA WTF

148 PEQUEST ROAD

OXFORD

NJ

### USER DEFINED

Food Mart

253 Water Street

Belvidere Town

NJ

Zack's Pharmacy

10 Market Street

Belvidere Town

NJ

Independence Municipal Complex

Rt. 46

Independence

NJ

Blairstown Township Road Dept.

25 Lambert Road, Blairstown

Blairstown Township

NJ

## Additional Essential Facilities Shown by HAZUS to be Inundated by a 500 Year-Flood

### FIRE

Huntington Fire Co.

Maple Ave

Pohatcong Township NJ

### EMERGENCY CENTER

Emergency Squad

4 Regina Lane

Independence NJ

### SCHOOL

INDEPENDENCE TOWNSHIP CENTRAL

281 ROUTE 46

GREAT MEADOWS NJ

### AIRPORT

WEISS FARM

ALLAMUCHY NJ

### WASTEWATER FACILITY

PHILLIPSBURG TOWN OF STP

900 SO MAIN STREET

PHILLIPSBURG NJ

# Importance of Local Participation:



Lambertville, NJ - April 2005

- Crucial for the successful development of a Flood Mitigation Plan that contains mitigation actions able to be implemented in the future.
- Participation by the counties and municipalities is also required by FEMA in order for them to be eligible to adopt the Plan.

# Warren County Participation

as of 10/16/2007

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

# Participation cont.

as of 10/16/2007

Municipality	Issued Public Notice	Held Public Meeting	Composed Goals	Listed Draft Mitigation Actions
Allamuchy Township				
Alpha Borough				
Belvidere Township	X	X	X	X
Blairstown Township	X	X	X	X
Franklin Township				
Frelinghuysen Township	X	X	X	X
Greenwich Township				
Hackettstown Town	X	X		
Hardwick Township	X	X	X	X
Harmony Township	X	X	X	
Hope Township			X	
Independence Township	X	X		
Knowlton Township	X	X	X	X
Liberty Township				
Lopatcong Township	X	X	X	
Mansfield Township	X	X	X	X
Oxford Township	X	X		
Phillipsburg Town	X	X	X	X
Pohatcong Township	X		X	
Washington Township				
White Township			X	

# Local Municipality Requirements

1. Submit a Statement of Intent for your municipality
2. Designate a local liaison for your municipality
3. Attend county meetings and planning workshops
4. Form a local flood mitigation planning committee
5. Document your local planning process
6. Complete the municipal questionnaire
7. Publish notice of the municipality's intent to prepare a Flood Mitigation Plan to encourage public participation
8. Distribute a prepared questionnaire to residents known to be in the flood prone areas

# Local Municipality Requirements (cont.)

9. Allow time for comment at two public meetings; once during the drafting stage and another prior to adopting the plan.
10. Collect resident questionnaires and summarize public comments
11. Create a list of flood mitigation goals for your community
12. Compose a list of community goals and desired local mitigation actions
13. Adopt the final plan locally by resolution

- 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 \_\_\_\_\_

# Flood Mitigation Action Categories

1. **Prevention** (Open space preservation, Floodplain regs)
2. **Property Protection** (Acquisition, Elevation, Relocation, Structural Retrofits)
3. **Public Information and Awareness** (Outreach, Education, Training)
4. **Emergency Services** (Warning systems; Community Notification Systems)
5. **Natural Resource Protection** (Floodplain protection, Riparian buffers)
6. **Structural Projects** (Levees, floodwalls, floodgates, Stormwater Retrofits)

# Next Steps - Municipalities

- Submit FINAL Municipal Worksheet by October 31st!
- Ensure Completion of:
  - Prioritized Local Mitigation Actions
  - Public Participation Process
    - Publish Notice of Intent
    - Flood Prone Resident Questionnaire
    - Allow Comment at a Public Meeting
    - Summarize Public Comment
  - Flood Mitigation Goals

**Submit FINAL Municipal  
Worksheet by October 31<sup>st</sup>!**

<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