

# **TOWN OF BLOOMSBURG, COLUMBIA COUNTY, PA FLOOD DAMAGE REDUCTION PROJECT**

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## **FINAL INTEGRATED FEASIBILITY REPORT/ ENVIRONMENTAL IMPACT STATEMENT**

**Civil Works Review Board  
September 22, 2005  
Washington, DC**



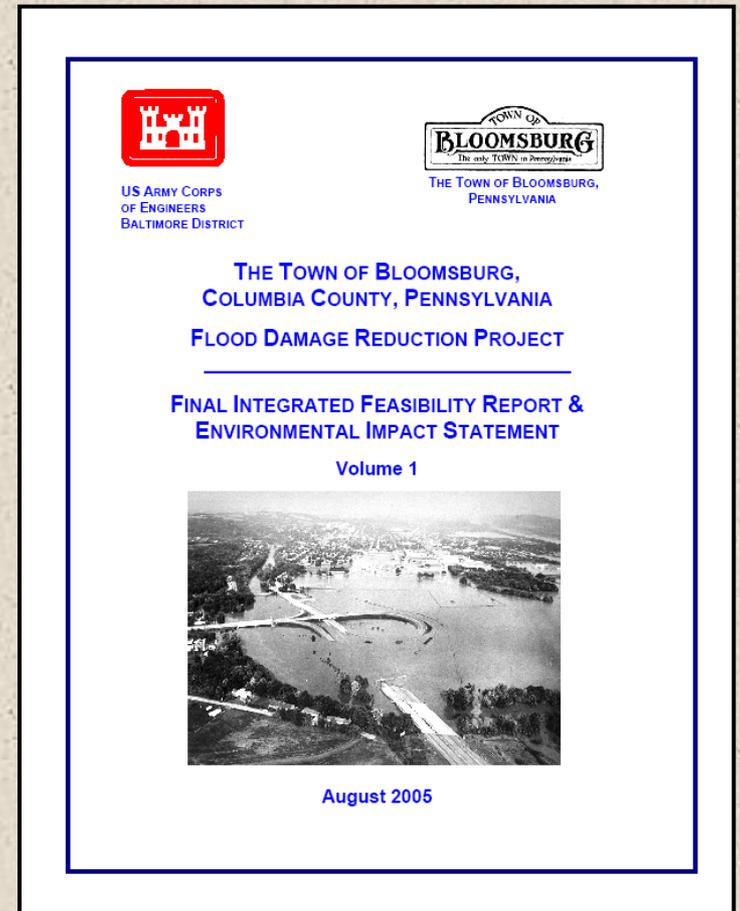
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Bloomsburg FR/EIS



# PRESENTATION OVERVIEW

- Purpose of this Presentation
- Study Authority/Background/Purpose
- Planning Objectives
- Alternatives considered
- NED/Recommended Plan
- ITR and policy comments
- Public comment/community input
- Sponsor Support
- MSC Briefing
- Policy Review Assessment
- Systems and Watershed Context
- Environmental Operating Principles
- Lessons Learned
- Project Summary



# PURPOSE OF THIS PRESENTATION

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To seek approval from the Civil Works Review Board to release the draft final FR/EIS for State and Federal agency review



# STUDY AUTHORIZATION

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Resolution of the Committee on Transportation and Infrastructure of the U.S. House of Representatives, adopted 14 September 1995 which states:

*“Resolved by the Committee on Transportation and Infrastructure of the United States House of Representatives, that the Secretary of the Army review the report of the Chief of Engineers on the Susquehanna River, New York, PA, and Maryland, published as House Document No. 702, 77<sup>th</sup> Congress, to determine whether flood damage reduction measures should be implemented in the Town of Bloomsburg”*

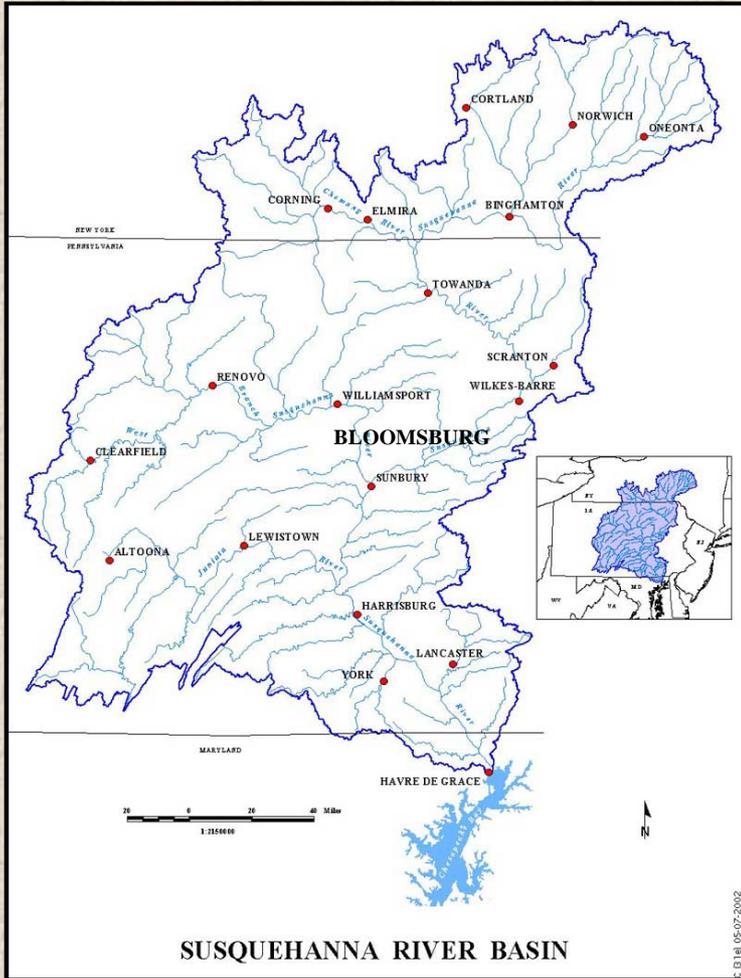
## Prior reports:

- Previous studies in 1934, 1942, 1956, 1970, 1980 and 1983 – no Federal interest
- Section 205, Aug 1994 recommended new recon under GI Program
- Section 905(b), May 1998 concurred that there was potential for Federal interest
  - Feasibility Cost Sharing Agreement (FCSA) executed in June 1999

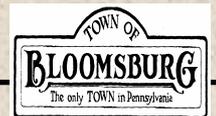


# STUDY LOCATION AND SPONSOR

**Non-Federal Sponsor: Town of Bloomsburg, PA with PA DEP as technical and financial partner**



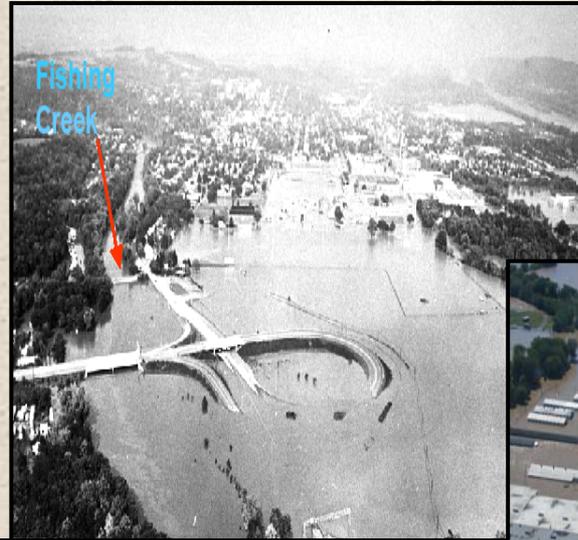
**Bloomsburg is located in central PA, 135 miles west of Philadelphia in Columbia County.**



# PROBLEMS AND OPPORTUNITIES



1972 event



1975 event



2004 event



1936 event



# History of Past Flooding

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Flood stage is 19 feet.

Since 1901, there have been 34 floods,  
ALL with flood stages greater than 19 feet

Most recent significant events:

- Jan 1996 event – Presidential disaster declared in PA
- Sep 1975 event – Caused by Hurricane Eloise
- Jun 1972 event – Caused by Hurricane Agnes



# FLOODS ARE COSTLY

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June 1972 “Agnes” \$ 81,430,700

Jan 1996 \$ 8,083,556

Sep 2004 “Ivan” \$ 2,700,000

These are damages incurred to the community in 2004 dollars. This information has been provided by the Town of Bloomsburg.



# PURPOSE AND SCOPE

Evaluate the feasibility of Federal participation to implement solutions to reduce damages from the Susquehanna River and Fishing Creek:



Inundation from 1972 event (Figure 3-5 in Main Report)

- Identify flooding problems
- Evaluates the technical, economic, environmental, and institutional feasibility of proposed solutions



# PLANNING OBJECTIVES

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Fairgrounds & Magee 1975

- Reduce the frequency and severity of flood damages of flooding from the Susquehanna River and Fishing Creek
- Identify adverse hydraulic impacts and appropriate mitigation actions

- Avoid, minimize, mitigate for adverse environmental impacts
- Limit alignment impacts to known landfills and prime and unique farmland
- Maintain community cohesion



# Flood Damage Reduction Measures Considered

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## Non-structural solutions

Floodproofing, property acquisition, floodplain zoning

## Structural solutions

Channel modifications: dredging, channel widening

Detention basins

Floodwater barriers

Earthen levees

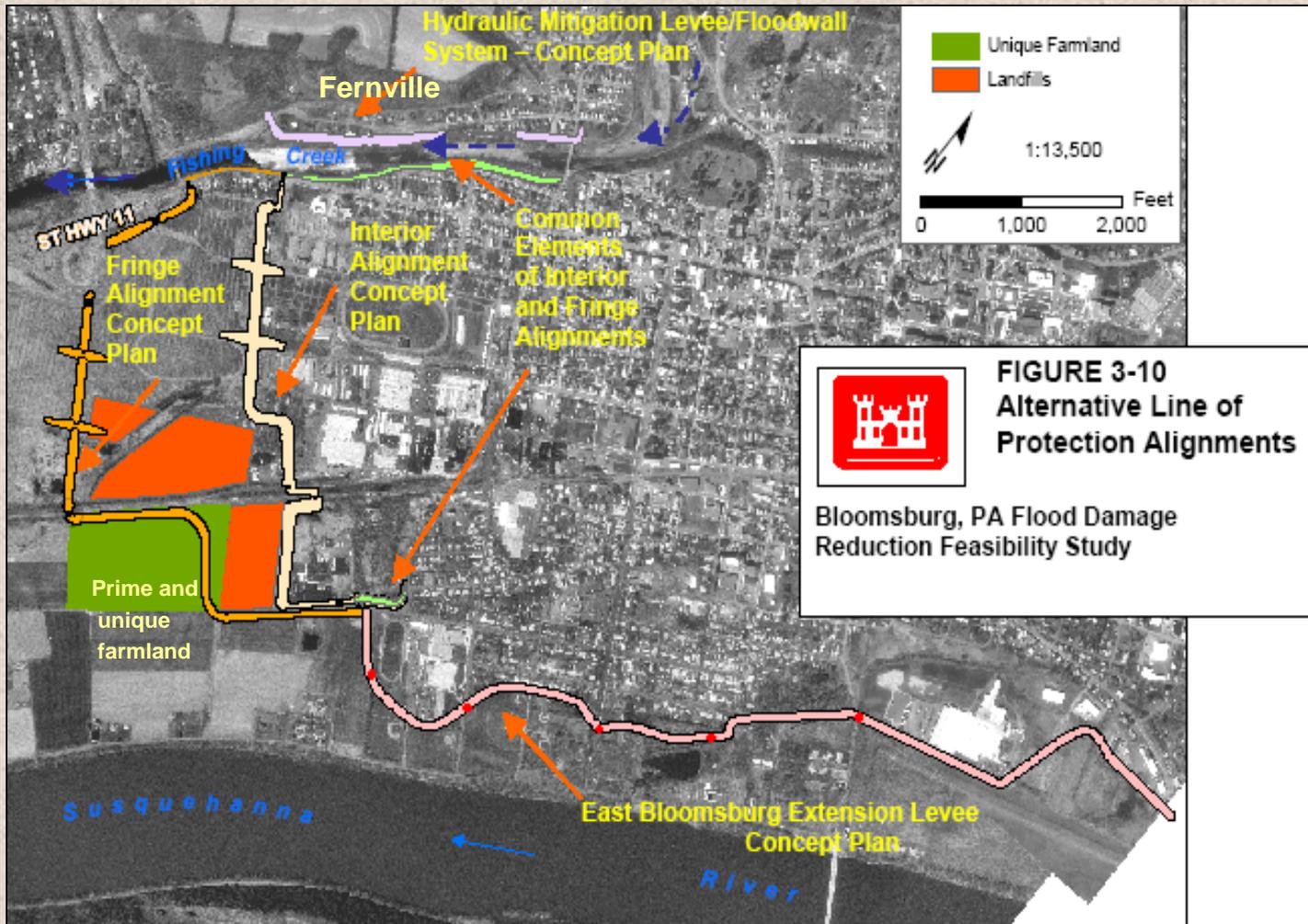
Mechanically-stabilized earth (MSE) walls

Concrete floodwalls

Floodwater barriers determined to be the most viable solution to meet defined objectives



# Plan Formulation

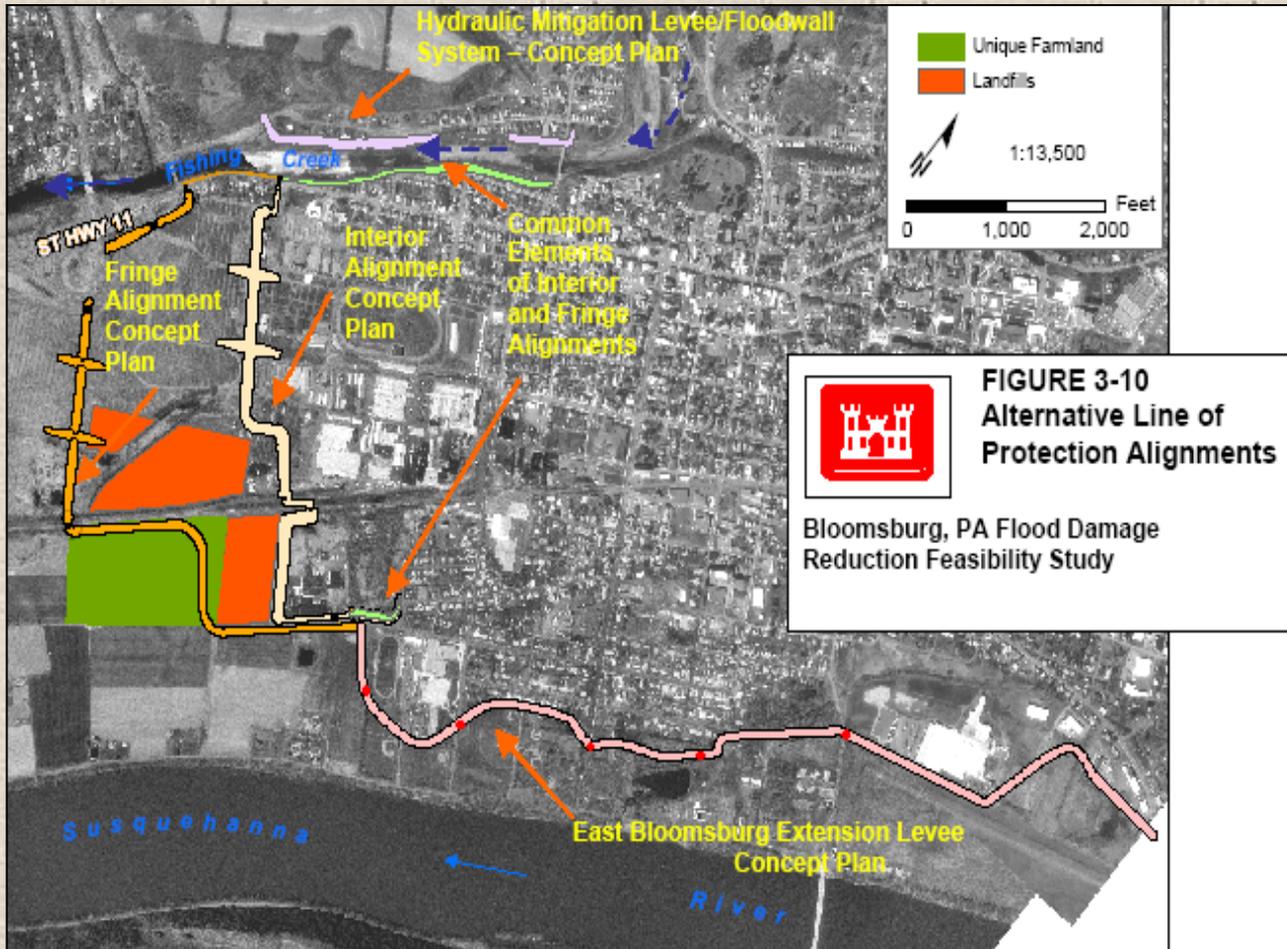


Alignment  
Alternatives were  
formulated based on:

- ✓ Town layout
- ✓ available high ground to tie into
- ✓ protecting life and property
- ✓ avoiding landfills
- ✓ keeping prime and unique farmlands intact

# PLAN FORMULATION

## DEVELOPMENT OF ALTERNATIVES



Nine alternatives

- No action
- Interior alignment with and without:
  - East extension alignment
  - Fernville protection
  - Fernville buy-outs
- Fringe alignment with and without:
  - East extension alignment
  - Fernville protection
  - Fernville buy-outs



# Preliminary Economic Evaluation of Alternative Plans (Table 3-11 in Main Report)

	Alternative Plans							
	2	3	4	5	6	7	8	9
<b>Annualized Cost</b>	3,643	3,116	1,907	2,399	3,651	3,165	1,955	2,443
<b>Total Annual Benefits</b>	3,586	3,553	3,034	3,067	3,604	3,572	3,053	3,085
<b>Total Remaining Damages</b>	1,016	1,048	1,567	1,535	998	1,030	1,549	1,517
<b>Benefit-to-Cost Ratio</b>	0.98	1.14	1.59	1.28	0.99	1.13	1.56	1.26
<b>Net Benefits</b>	(57)	438	1,128	667	(48)	407	1,097	641

Alternative 4 maximizes the net benefits & appears to be the NED plan.

Alternative 4 also met ALL the planning objectives.

NED plan is the Recommended Plan.

(March 2004 price levels, 50-year period of analysis, \$ in thousands)



# NED Plan Alignment and Features

(Figure 4-1 in Main Report)



Provides Agnes-level Protection from the Susquehanna River and 100-yr level protection from Fishing Creek

Town-side:

9,600 LF of earthen levee  
760 LF of MSE wall  
1,153 LF of concrete floodwall

Fernville-side:

4,350 LF of earthen levee  
710 LF of MSE wall

Total avg annual costs @ \$2.58 million

Total avg annual benefits @ \$3.57 million -- BCR @ 1.38

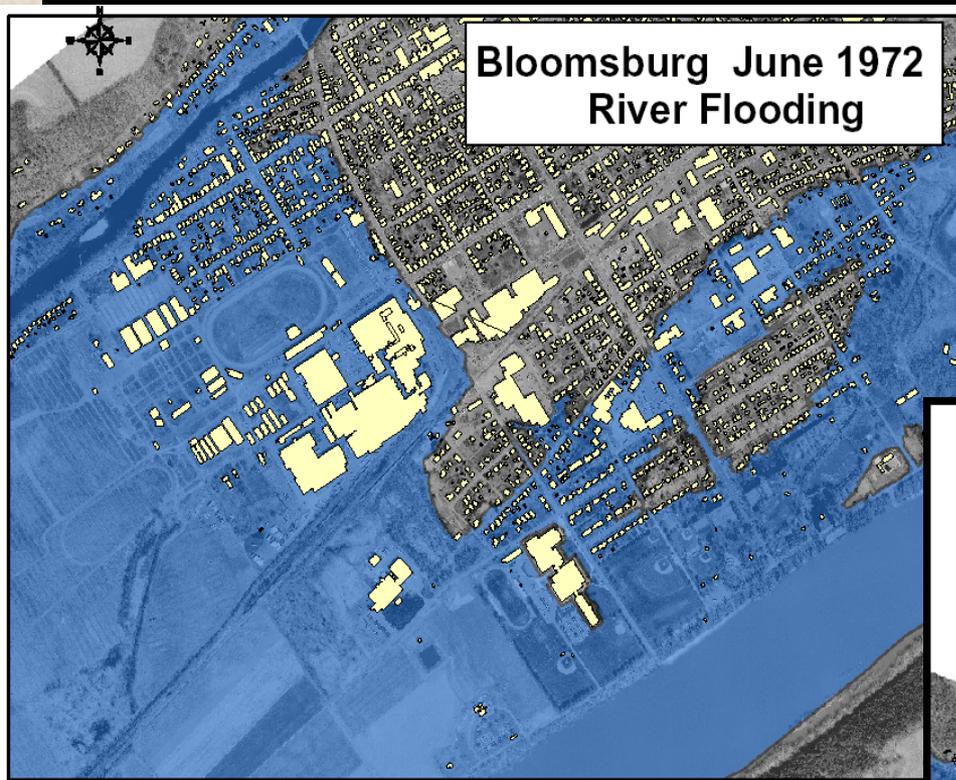
Mitigation:

Hydraulic and environmental



# Agnes Event “With” and “Without Project”

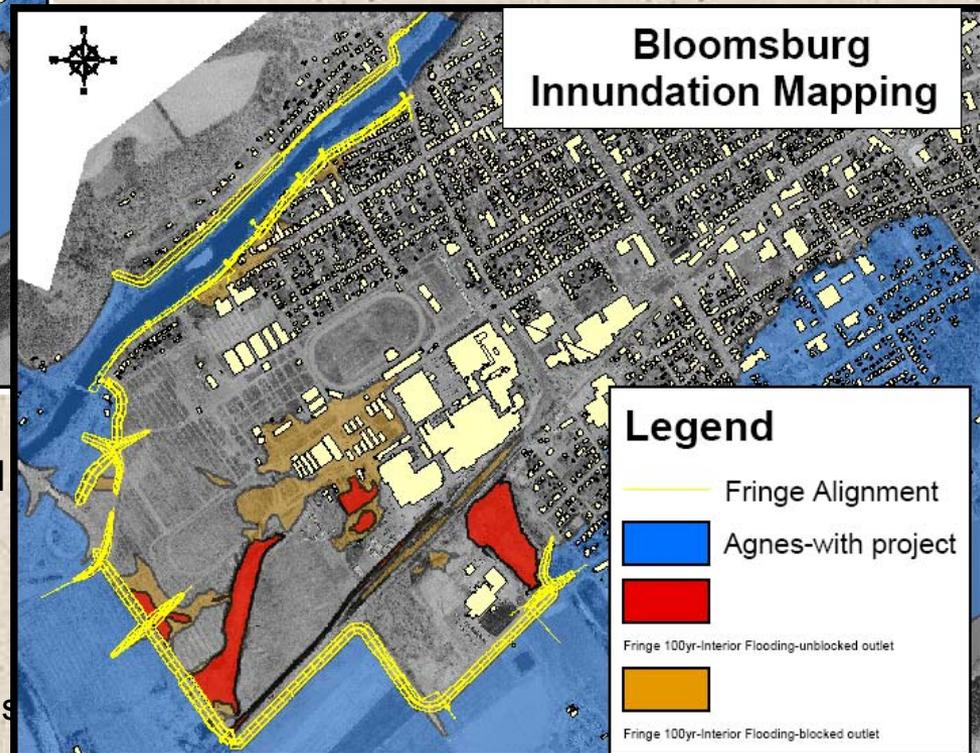
Bloomsburg June 1972  
River Flooding



Without the project,  
average annual  
damages is  
estimated at  
at \$4.6 million.

Average annual  
damages prevented  
by the NED plan  
is estimated at  
\$3.51 million.

Bloomsburg  
Innundation Mapping



# NED Project Area: Community Assets\*

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624 households in Bloomsburg and Fernville (1,441 people)

Two major industries

Industrial jobs – 842

Businesses – 32 with 150 jobs

Bloomsburg fairgrounds

Property assessed value - \$49,855,785

Public infrastructure in Bloomsburg and Fernville - \$5,200,000

\*Town-provided info



# RECOMMENDED PLAN: TOTAL PROJECT COST

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**Total Project Cost: \$46,239,000**

Cost sharing: 65% Federal, 35% non-Federal

@ \$46,239,000:

- \$30,055,350 Federal
- \$16,183,650 non-Federal (DEP funds 50%)

**Non-Federal Share consists of:**

- 5% minimum of Total Project Cost in cash  
@ \$46,239,000, 5% = \$2,311,950
- All real estate costs
- Utility relocation costs



# INDEPENDENT TECHNICAL REVIEW (ITR)

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- Continuous throughout feasibility phase
- Accomplished with internal peer review

No unresolved ITR concerns



# HQ POLICY REVIEW

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- **Mitigation (Done)**
  - Method to determine the need for mitigation
  - Method to determine the most efficient mitigation
- **HQ concerns about deferring tasks to design phase**

**Project design activities** – Deferred activities represent low-cost risks that should not alter conclusions and BCR. Some deferrals are potential betterments that are not incrementally justified.

**Cultural/archaeological investigation** -- Programmatic agreement developed with PA SHPO to identify the appropriate action to be taken if resources are found.



# The Recommended Plan: Community Input



April 5, 2005



Public reaction to the recommended plan:

“Why not extend the protection to include the east side?”

## Response:

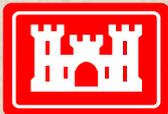
Most of the east side is on higher ground. There are also interior drainage issues on the east side, not to mention crossing Kinney Run.

-Cost for the east extension @ \$18.6M

-BCR @ 0.43

Per Mayor Coffman,

“Some protection is better than no protection. We have to start somewhere. The locally-preferred plan is the recommended plan.”



# SPONSOR SUPPORT

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Here today from the  
Town of Bloomsburg  
and PA DEP:

- George Turner
- Dan Bauman
- Mike Conway
- Ken Criswell  
& Denny Blewett
- Bill Seigel

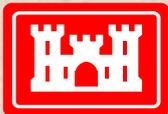
**Per Mayor Coffman,  
“The recommended plan  
gives Bloomsburg its  
long-sought goal for  
flood protection.  
Besides protecting  
human lives and  
property, at stake are  
1,000 jobs.”**



# North Atlantic Division Position

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- Concurrence with NAB District Commander's findings & recommendations
- Confirm that the report complies with all applicable policy & laws in place at this time.
- Anticipate questions on status of local support in response to the draft Chief's Report recommendation.
- In light of Hurricane Katrina, our proposed flood damage reduction projects, particularly the people that they would protect are a major priority.



# Quality Assurance Briefing: North Atlantic Division

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- QC Report dated Sept 2005.
- Review Certification Signatures for entire study team and QC team members are listed.
- Resolved policy concerns include:
  - √ Documentation on mitigation.
  - √ Resolution of acquisitions and relocations.
  - √ Revisions to report cover sheet and summary.
  - √ Floodplain evacuation nonstructural alternative.



# Certification of Legal & Policy Compliance

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- Legal certification of feasibility report made by NAB District Counsel on 7 Sept 2005.
- Policy Compliance: ITR certification includes signatures of review team. All comments have been resolved by NAB and are documented in QC Report.
- Revise ecosystem mitigation, revise and clearly present HTRW documentation and clarify relocations/acquisitions are examples of ITR comments.



# Civil Works Review Board

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*Significant Policy Review Concerns*

**Bloomsburg, PA – Final Feasibility Report/EIS**

Cliff Fitzsimmons, PE

Office of Water Project Review

Policy and Policy Compliance Division

Washington, DC – September 22, 2005



# **Policy Compliance Review – Bloomsburg, PA**

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## **HQUSACE Policy Compliance Review Team Recommendation**

**Release the report/FEIS for S&A Review & EPA Filing,  
subject to modifying it to fulfill CEQ Requirements**



# Policy Compliance Review – Bloomsburg, PA

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## Areas of Policy Concern

- **Prior Reviews – FSM & AFB**
- **Prior Reviews – Draft Report**
- **CEQ Regulations**
- **USFWS Coordination Act Report**
- **Cultural Resource Mitigation Costs**



# **Policy Compliance Review – Bloomsburg, PA**

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## **Prior Reviews – FSM & AFB**

**Concern: Not held – impact on final report**

**Basis: ER 1105-2-100**

**Significance: Lost opportunity to identify & resolve policy issues early**

- HQ now seeing PGM actions for the first time**
- Possible rework that could have been avoided**
- e.g., cost estimate / allocation displays**

**Opportunity: Lesson Learned – improve future study efficiency & timeliness of future reports**



# Policy Compliance Review – Bloomsburg, PA

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## Prior Review – Draft Report Overview

**Concern:** Many comments (41) - mostly about documentation rather than unsupportable analyses or conclusions

**Basis:** P&G calls for clear, concise document that explains basic assumptions, decisions and reasons – enables public, agencies & decision makers to concur more easily

**Significance:** Potential for ITR improvement

**Opportunity:** Lesson Learned – improve future study efficiency



# Policy Compliance Review – Bloomsburg, PA

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## **Concern/Reason : Compliance with CEQ Regulations**

- No summary display comparing impacts of alternative plans
- No responses to NEPA review comments, including EPA rating DEIS as EC-2 (environmental concerns, inadequate information, may change preferred plan)
- Environmentally Preferable Alternative not designated
- Environmental statute compliance not where expected

**Significance: Regulations are codified – low risk but potential legal vulnerability, could affect acceptance by higher authority**

**Resolution: Edit specific paragraphs & tables before filing FEIS**

**Impact: No significant addition to the 2+ weeks needed by the District to print and mail the report/EIS**



# **Policy Compliance Review – Bloomsburg, PA**

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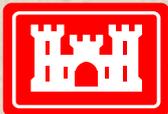
**Concern: No USFWS Coordination Act Report (CAR)**

**Reason: PAL and CAR intended to help formulate alternatives**

**Significance: uncertainty about USFWS views, impact on formulation, & level of cooperation**

**Resolution: Add paragraph on coordination, recommend separate AAR**

**Impact: No significant addition to the 2+ weeks needed by the District to print and mail the report/EIS**



# **Policy Compliance Review – Bloomsburg, PA**

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**Concern: Basis for Cultural Resource Mitigation Costs**

**Reason: Programmatic Agreement with SHPO not signed, no details on cultural resource mitigation plan**

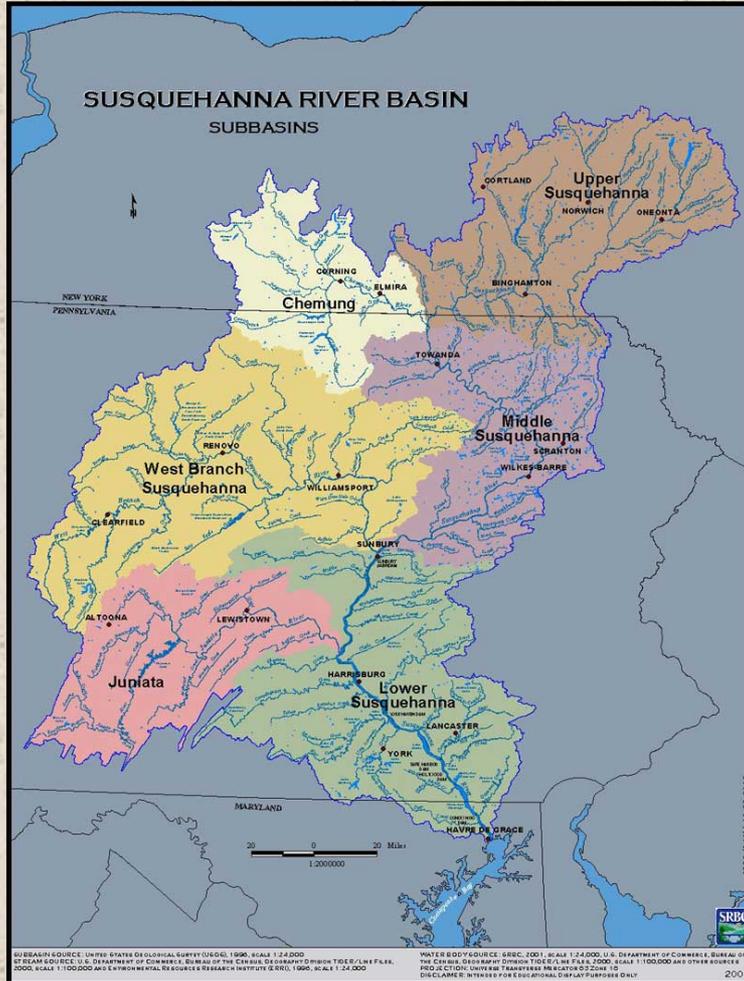
**Significance: Recommended feature inadequately defined**

**Resolution: Include 23 Aug 05 SHPO letter & add info on known structures & sites in report**

**Impact: No significant addition to the 2+ weeks needed by the District to print and mail the report/EIS**



# SYSTEMS/WATERSHED CONTEXT



The Recommended Plan supports:

- Local land use planning
- recreation, and
- wildlife habitat preservation



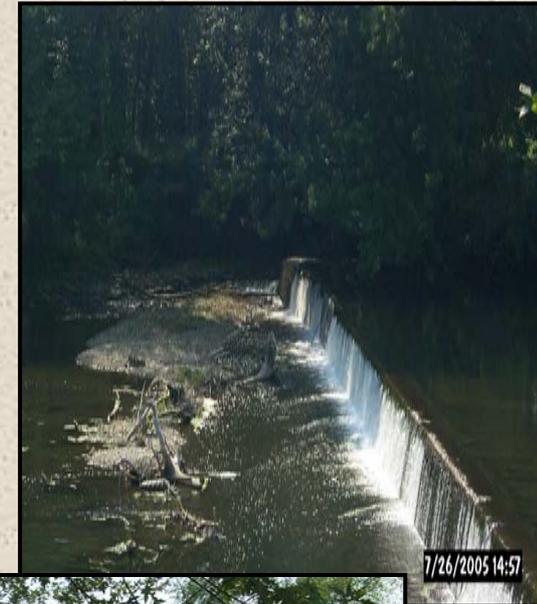
# Environmental Operating Principles

Project development guided by EOP's.

Stakeholder involvement to understand project impacts and collaboration to avoid, minimize, and mitigate impacts

Examples:

- Reduced the amount of area to be rip-rapped
- Plans to improve fish passage
- Worked to avoid wetlands and plans to replace those that could not be avoided
- Developed plan to protect Fernville and maintain community cohesion
- During construction, commitment to develop plans to minimize disruptions to traffic and noise levels



# SUMMARY

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In summary, the Recommended Plan:

- Provides protection at Agnes-level from Susquehanna River and 100-yr from Fishing Creek
- Has a BCR of 1.38
- Appears affordable
- Is supported by the local sponsor and PA DEP
- Is the best plan for the community, formulated IAW Corps principles and guidelines and is complete, acceptable, effective and efficient

