US Army Corps
Of Engineers
New York District

New Jersey
Department of
Environmental
Protection

PASSAIC RIVER FLOODWAY BUYOUT STUDY
LIMITED UPDATE

Final REPORT &
ENVIRONMENTAL ASSESSMENT

MAIN REPORT

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August 2005

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SYLLABUS

This integrated report and Environmental Assessment has been prepared by the New York District of the U.S. Army Corps of Engineers (Corps), and provides a limited update to the Passaic River Floodway Buyout Study, October 1995. The report contained herein is a limited update of the 1995 report, as it focuses on two areas of the floodway in the Township of Wayne and Borough of Pompton Lakes and analyzes the acquisition of thirty (30) homes.

The non-Federal sponsor for this study, the State of New Jersey, Department of Environmental Protection (NJDEP), requested that acquisition of properties under this buyout focus on these two municipalities, due to the fact that NJDEP had already acquired properties in Pompton Lakes, and because the Township of Wayne had specifically requested NJDEP to address their flood problems in the Hoffman Grove area. The study includes an update of costs, benefits, and an environmental assessment to meet National Environmental Policy Act requirements.

No adverse environmental impacts would occur as a result of project implementation. However, a number of environmental benefits can be achieved through a buyout. They include space for recreation, restored wildlife habitat, improved water quality, and the elimination of pollution sources from future flood events. Other environmental benefits include a reduction in environmental remediation by cleanup of acquired properties.

The most obvious economic benefit of a buyout is the direct reduction of flood damages through the removal of flood-prone structures. Additionally, a buyout reduces publicly subsidized flood insurance costs, reduces uninsured private property losses, avoids lost wages for workers isolated at home or places of employment made inaccessible by flood events, and can reduce the community cost of flood emergencies and disaster relief.

Updated costs for the limited acquisition program amount to $9,946,400. The plan has total average annual costs of $ 576,700, total average annual benefits of $269,650, a benefit-cost ratio of 0.47 to 1, and negative annual net benefits of $307,050. The total project first costs - including Lands, Easements, Rights-of-way, Relocations, and Disposal areas (LERRD) - are shared on a 75 percent basis by the Federal government and a 25 percent basis by the non-Federal partner. The Federal share of the entire project's total first cost is $ 7,459,800; the non-Federal share is $ 2,486,600. The Federal Government will design the acquisition and demolition plans, prepare detailed plans/specifications and acquire residential properties on behalf of the non-Federal partner.

PERTINENT DATA

DESCRIPTION

The identified plan provides for the acquisition and demolition of thirty (30) residential structures in Wayne Township and Pompton Lakes Borough, Passaic County, New Jersey.

LOCATION

Passaic County, New Jersey

FLOOD DAMAGE REDUCTION FACILITIES

Level of Protection (storm with probability of exceedance)	PMF

REAL ESTATE REQUIREMENTS

Fee Simple Purchase (estimated total)	5.4 Acres

ENVIRONMENTAL MITIGATION

Impacts:

None

ECONOMICS

Initial Project Cost (December 2004 price level)	$9,946,400
Annualized Initial Cost (discounted at 5.375 % over a 50-year period)	$576,700
Operations and Maintenance (O&M) Costs	$0
Total Annual Cost (discounted at 5.375 % over a 50-year period)	$576,700
Average Annual Benefits	$269,650
Average Annual Net Benefits	($307,050)
Benefit-to-Cost Ratio	0.47

COST APPORTIONMENT

Federal Project Cost (75%)	$ 7,459,800
Non-Federal Project Cost (25%)	$ 2,486,600
Total Cost	**$ 9,946,400**

Finding of No Significant Impact (FONSI)

I. DESCRIPTION OF ACTION

The proposed action involves the voluntary acquisition and removal of 10 homes along River Edge Drive in Pompton Lakes and 20 homes in the Hoffman Grove area of Wayne Township. These homes are located within the State defined floodway and sustain damages during flood events. Subsequent to demolition and removal activities, the area will be reseeded with native herbaceous vegetation and will be allowed to revert back to a more natural floodplain environment. The proposed action is authorized in Section 1148 of the Water Resources Development Act of 1996 (WRDA 1996) and Section 327 of WRDA 2000.

II. ANTICIPATED ENVIRONMENTAL IMPACTS

No significant impacts to the environment are anticipated. My determination of a FONSI is based on the Environmental Assessment and the following considerations:

- The project will not negatively impact the quality of the human environment.
- The project will return the floodway to natural conditions.
- The project is not expected to have significant long-term impact on fish or endangered State and Federal species.
- Employing standard erosion control techniques will minimize excess sedimentation to the Pompton and Ramapo Rivers.
- No archaeological or historical resources will be affected by this project.
- The project will not adversely impact air quality.

III. CONCLUSION

Based on my review and evaluation of the environmental effects as presented in the Environmental Assessment, I have determined that the Passaic River Floodway Buyout Project is not a major federal action significantly affecting the quality of the human environment. Therefore, I have determined that this project is exempt from the requirement to prepare an Environmental Impact Statement.

Date: 17 August 2005

Richard J. Polo Jr.
Colonel, Corps of Engineers
District Engineer

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**Sections of text marked with an asterisk are applicable to the satisfaction of NEPA requirements*

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GLOSSARY OF TERMS, ACRONYMS, AND ABBREVIATIONS

CW	Civil Works Program
CEQ	Council On Environmental Quality
CFR	Code Of Federal Regulations
Corps	United States Army Corps Of Engineers
DEP	Department Of Environmental Protection (New Jersey)
EA	Environmental Assessment
EIS	Environmental Impact Statement
EM	Engineering Manual
ER	Engineering Regulation
FEMA	Federal Emergency Management Agency
FWCA	Fish and Wildlife Coordination Act
HTRW	Hazardous, Toxic, And Radiological Wastes
MCACES	Microcomputer Aided Cost Estimating System
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NGVD	National Geodetic Vertical Datum
NHP	Natural Heritage Program
NHPA	National Historic Preservation Act
N.J.A.C.	New Jersey Administrative Code
NJDEP	New Jersey Department Of Environmental Protection
NJSHPO	New Jersey State Historic Preservation Office
NRHP	National Register of Historic Places
O&M	Operations And Maintenance
P&G	Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies
PED	Preconstruction Engineering And Design
PMP	Project Management Plan
REP	Real Estate Plan
S&A	Supervision And Administration
USACE	United States Army Corps Of Engineers
USFWS	United States Fish And Wildlife Service
USGS	United States Geological Survey
WES	Waterways Experiment Station
WRDA	Water Resources Development Act
WSEL	Water Surface Elevation

PASSAIC RIVER FLOODWAY BUYOUT STUDY
LIMITED UPDATE

FLOOD DAMAGE REDUCTION

INTEGRATED REPORT & ENVIRONMENTAL ASSESSMENT

1. INTRODUCTION

This integrated report and Environmental Assessment has been prepared by the New York District of the U.S. Army Corps of Engineers (Corps), and provides a limited update to the Passaic River Floodway[1] Buyout Study, October 1995. The 1995 report assembled data on costs and other aspects of buyouts of various defined floodplains to provide a basis for direct comparison with the authorized flood damage reduction plan for the Passaic River Basin.

The floodway buyout involves the acquisition and removal of approximately 800 homes from the State defined floodway in the municipalities of Fairfield, Lincoln Park, Wayne, Pompton Lakes, Montville, East Hanover, Pequannock, Little Falls, and Riverdale. As documented in the 1995 report, these homes are subject to frequent flood damages. The general contents of the report were estimated costs of acquiring and removing most of the constructed environment of affected portions of the floodplains and a discussion of the consequences -- both positive and negative -- of a large non-structural flood damage reduction project.

The report contained herein is a limited update of the 1995 report, as it focuses on two areas of the floodway in the Township of Wayne (Passaic County, New Jersey) and Borough of Pompton Lakes (Passaic County, New Jersey), and analyzes the acquisition of thirty (30) homes. General location maps are provided on Figures 1-1 and 1-2. These two study areas comprise 135 properties, with 10 properties located between the Ramapo River and River Edge Drive in Pompton Lakes, and 125 properties along the Pompton River in the Hoffman Grove area of Wayne Township. The non-Federal sponsor for this study, the State of New Jersey, Department of Environmental Protection (NJDEP), requested that acquisition of properties under this buyout occur in these two municipalities, due to the fact that NJDEP had already acquired properties in Pompton Lakes, and because the Township of Wayne had specifically requested NJDEP to address their flood problems in the Hoffman Grove area.

The study includes an update of costs, benefits, and an environmental assessment to meet National Environmental Policy Act requirements. The New Jersey Department of

[1] The term "floodway" used throughout this report is defined as the channel of a natural stream and portions of the flood hazard area adjoining the channel which are reasonably required to carry and discharge the flood water or flood flow. Floodways are usually the area where water velocities and forces are the greatest and most destructive. National Flood Insurance Program (NFIP) regulations, adopted in local flood damage prevention ordinances, require that floodway encroachments, including fill, new construction, substantial improvements, and other development that would increase flood levels be prohibited.

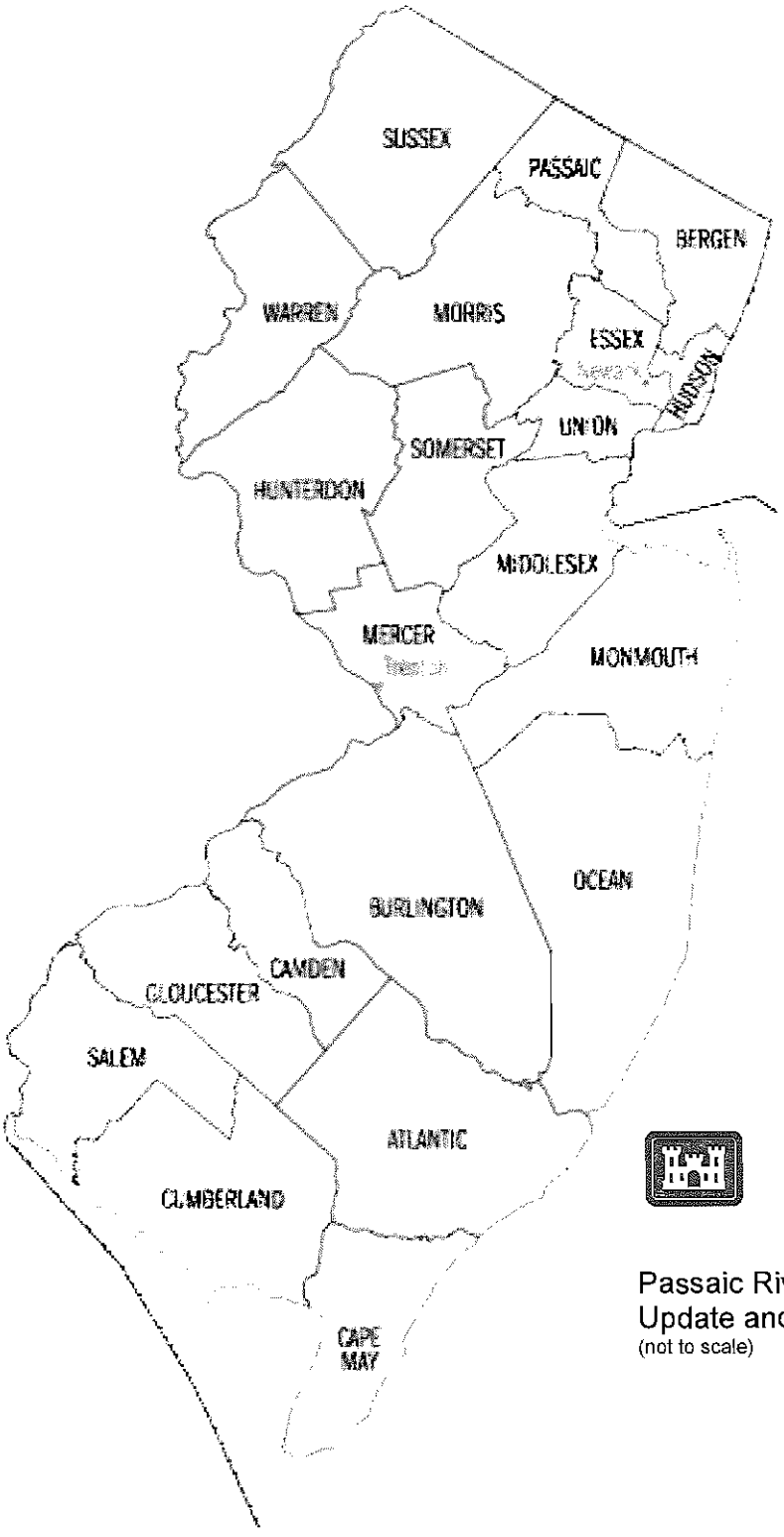

FIGURE 1-1:
Passaic County Within New Jersey

Passaic River Floodway Buyouts Limited Update and Environmental Assessment
(not to scale)

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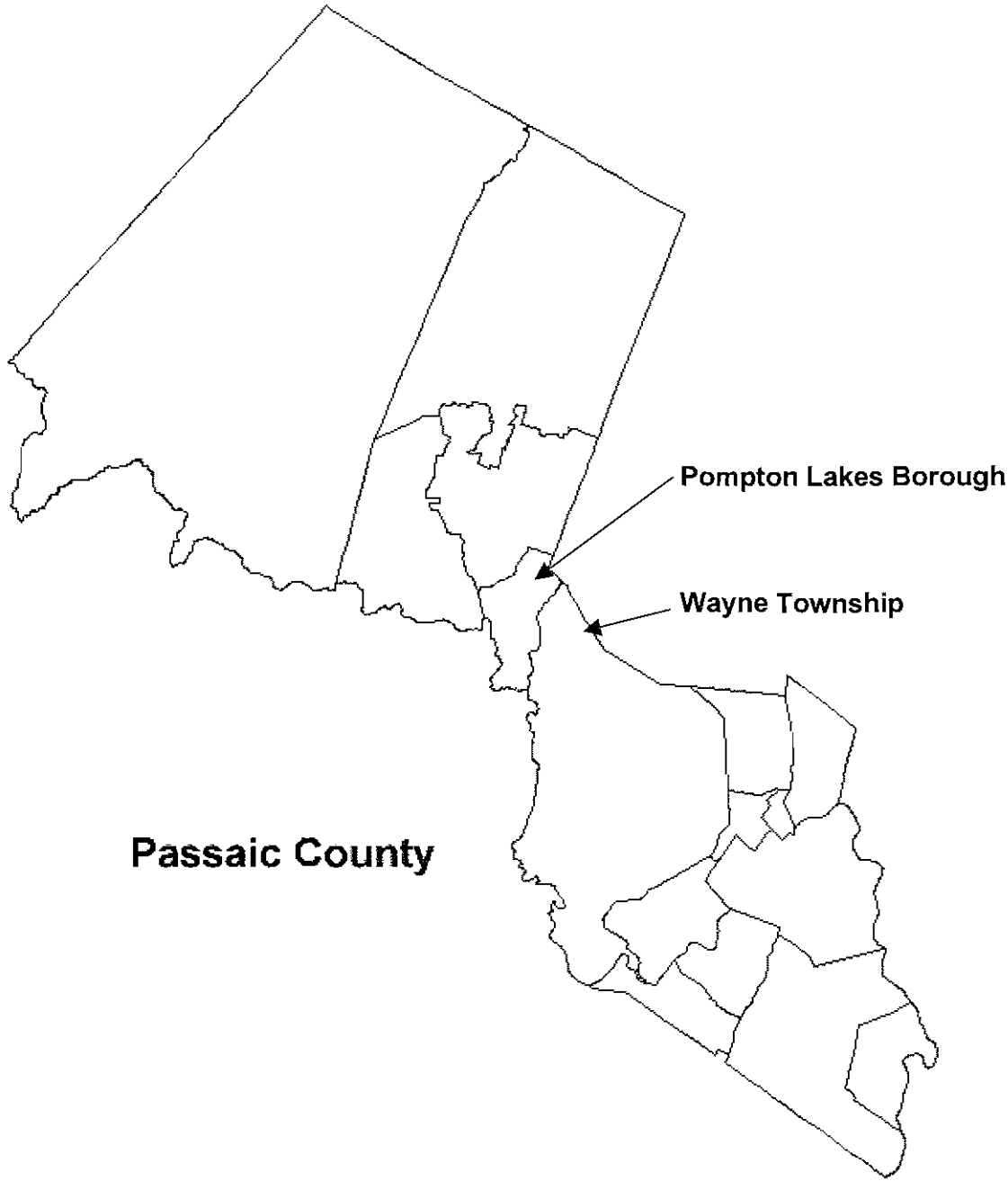

FIGURE 1-2:
Wayne Township and Pompton Lakes Borough
Within Passaic County, New Jersey

Passaic River Floodway Buyouts Limited Update and
Environmental Assessment
(not to scale)

Environmental Protection (NJDEP) is the non-Federal partner for this study and for any subsequent project implementation.

This document has been organized in a manner consistent with both Corps requirements for reports and with NEPA requirements. The main report summarizes the results of the limited update study and contains sections appropriate for EA documentation. Details of technical investigations conducted during the study are appended to this document. Some section headings are marked with an asterisk to indicate consistency with requirements of Corps studies and NEPA documents.

1.1 Acquisition of Floodway Properties

Permanent evacuation of the floodway involves the acquisition of land and structures by fee purchase, as participation is voluntary in this program. Following acquisition, all structures and improvements are to be demolished and disposed, or relocated. Defining buyout alternatives for study should follow beneficial criteria, each of which has significant policy implications. To establish the criteria, it is important to define the goals of a buyout effort. While public expectations vary, any buyout effort should accomplish the following:

- public acquisition and removal of flood-prone structures,
- assembly of vacant parcels to preclude development,
- prohibitions against new structures in the floodplain or floodproofing and stormwater management in some limited cases,
- development of permanent public open space to provide new recreational opportunities,
- removal or adjustments to the public infrastructure to eliminate intrusions into the floodplains and to prevent interruption of essential services during floods, and
- enforcement of land use controls to prevent redevelopment in acquired areas and establishment of water management standards at un-acquired properties.

All of these goals have important cost implications which should be clearly identified as each level of a buyout is defined, then weighed by the public.

1.1.1 Environmental Benefits of Acquisition

A number of environmental benefits can be achieved through a buyout. They include space for recreation, restored wildlife habitat, improved water quality, and the elimination of pollution sources from future flood events. Other environmental benefits include reduction in downstream flooding and environmental remediation by cleanup of acquired properties. Any buyout program must be analyzed to determine whether these benefits will occur and if so, whether they are significantly achieved.

1.1.2 Economic Benefits of Acquisition

The most obvious economic benefit of a buyout is the direct reduction of flood damages through the removal of flood-prone structures. Additionally, a buyout reduces publicly subsidized flood insurance costs, reduces uninsured private property losses, and avoids lost wages for workers isolated at home or places of employment made inaccessible by flood events. Property values of parcels adjacent to acquired floodprone areas can be enhanced, and the local economy can be stimulated through recreational and related commercial uses of acquired properties. Again, each of these benefits must be analyzed to determine the likelihood of occurrence and potential significance.

1.1.3 Community Advantages of Acquisition

Other potential benefits of acquisition programs relate to communities or regions not necessarily located in the floodplains. An acquisition program may reduce the cost of providing municipal services in flood prone neighborhoods or may create an incentive for flood proofing the remaining community infrastructure. Overall, acquisition of flood-prone homes should reduce the community cost of flood emergencies and disaster relief.

1.2 Study Authority

The Corps has been working on plans to reduce flooding in the basin since 1936, but no comprehensive plan has yet been implemented. Congress authorized a new study of the Passaic River Basin for the State of New Jersey in the Water Resources Development Act (WRDA) of 1976 (Public Law 94-587) which led to a plan authorized in WRDA 1990 and modified in WRDA 1992, WRDA 1996, and WRDA 2000. The project includes several elements, which are currently being implemented throughout the basin.

The project element discussed in this report is the Floodway Buyout (specific authorization: Section 1148 of WRDA 1996 and Section 327 of WRDA 2000). The cost sharing is set at 75 percent Federal and 25 percent non-Federal. The State of New Jersey through the New Jersey Department of Environmental Protection (NJDEP) is the non-Federal sponsor. The authorization specifies that the buyouts are to be strictly voluntary (i.e., participation only by willing sellers). The State began to implement the buyouts through the State's Blue Acres Program in the late 1990's utilizing the draft report and $15,000,000 in State funding, which has been expended.

1.3 * Study Purpose and Need

The purpose of the Passaic River Floodway Buyout Study (limited update) is to evaluate the feasibility of Federal participation in the acquisition of thirty (30) flood-prone homes located in Passaic County, New Jersey.

Flooding has long been a problem in the Passaic River Basin. Since colonial times, floods have claimed lives and damaged property. The most severe flood, the "flood of record," occurred in 1903, and more recent floods in 1968, 1971, 1972, 1973, two in 1975, 1984, 1992, and 1999 were sufficiently devastating to warrant Federal Disaster declarations. The flood of 1984 resulted in the loss of three lives and caused $658 million in damages (October 2004 dollars).

Tropical Storm Floyd in September 1999 caused over $263 million in flood damages (October 2004 dollars).

Implementation of a comprehensive solution to the flooding problems in the Passaic River Basin has been fraught with controversy and indecision. In the 50 years since the Corps was first directed to prepare solutions to the Passaic River Basin's flood problems, opposition has prevented the implementation of any of the six plans that were deemed feasible. This opposition revolved around the use of the upstream floodplain to protect downstream damage areas, intensive structural measures, including dams and levees, and implementation costs. These plans could not find universal acceptance and were rejected based on environmental, economic, and social arguments effectively put forward by various Passaic River Basin interests, including local governments, and non-governmental organizations. The many levels of political jurisdiction within the basin have further complicated resolution of the multiple issues surrounding flood damage reduction planning. As a result, the threat of property losses, hazards to health and safety, and injury and loss of life continue.

1.4 Prior Studies, Reports, and Existing Water Projects

The Corps involvement in Passaic River planning was first authorized in the Flood Control Act of 1936. Since then, reports recommending plans of action were issued in 1939, 1948, 1962, 1969, 1972, 1973, 1987 and 1995. None of these plans were implemented. Brief descriptions of major reports are provided below.

Survey Report of 1939. In the Flood Control Act of May 1936, and further in the Flood Control Act of December 1936, the Corps received its first authorization for water resources planning in the Passaic River Basin. The New York District prepared a survey report in 1939 that considered three alternative plans of improvement. Each plan included a dry flood detention reservoir and channel modifications. The recommended plan located the detention reservoir on the Passaic and Pompton Rivers at Two Bridges, and included channel modifications from Two Bridges downstream to Little Falls. The 1939 report was presented at a public meeting on December 1939 in Paterson, New Jersey. Concerns were then expressed about the great cost of the project and the financial burden its construction would impose on small municipalities. Opposition was voiced against any permanent reservoir in the central basin area, and concerns over the possibility of gates in Dundee Dam also surfaced.

Survey Report for the Passaic River Watershed, New Jersey, October 1948. In October 1948, the New York District prepared a survey report recommending the construction of a reservoir and channel modification as a project for flood control and other purposes within the Passaic River watershed, New Jersey.

Survey Report for the Passaic River Watershed, New Jersey, June 1962. In June 1962, the New York District submitted an updated and revised draft survey report recommending favorable action on an alternative plan of improvement for the Passaic River watershed.

Survey Report for the Passaic River Watershed, New Jersey, 1969. Seven new Basinwide plans were formulated and presented in a 1969 draft survey report. These plans included a reclamation plan, a flood detention plan, an intermediate conservation development plan, a maximum conservation development plan, a comprehensive reservoir-

tunnel plan, a tunnel plan, and a local protection plan. The intermediate conservation development plan was tentatively recommended in the 1969 draft report. It included a multiple-purpose reservoir in the Passaic River above Two Bridges, with a conservation pool for water supply, hydropower production and pollution abatement. It also included diversions of the Pompton River into the reservoir, and levees and floodwalls along the Pompton River and along the proposed diversion channel. The plan also included protection along the lower reaches of major tributaries within the backwater influence of the Passaic River from Two Bridges to the mouth and local protection measures in the tidal reach of the lower Passaic River against the tide of record.

Survey Report for the Passaic River Watershed, New Jersey, June 1972. The most recent survey report prepared by the Corps was issued in June 1972 and amended by a supplemental report in April 1973. In these reports, the District Engineer recommended for authorization a plan of improvement for flood protection and allied resources development in the Passaic River Basin. Included in this recommendation were local protection plans. The alternatives presented in the 1969 draft report were updated and revised during detailed planning, and five alternative plans of improvement and six local protection projects were presented in the 1972 survey report. The recommended plan, Plan III, included a multipurpose reservoir at Two Bridges, with a conservation pool for water supply and water quality enhancement in the Great Piece Meadows, and a multiple-purpose reservoir with conservation storage for water supply at Myers Road. It also featured channel modifications along the Passaic, Pompton, Pequannock, Wanaque, and Ramapo Rivers. The 1972 report also recommended six local protection projects located on the Saddle River at Lodi, New Jersey; on the Ramapo River at Pompton Lakes and Oakland, New Jersey; on the Rockaway River at Denville, New Jersey; on Nakoma Brook at Sloatsburg, New York; on the Ramapo and Mahwah Rivers at Mahwah, New Jersey and Suffern, New York and on Molly Ann's Brook at Haledon.

Public reaction to the 1972 Supplemental Report again reflected the divergence of opinion which, throughout the years, had lead to an inability to develop complete agreement among affected municipalities. This delayed implementation of any solution to the Passaic River Basin's flood problems. Among discordant voices, two groups were present at public meetings: those who advocated structural flood control measures, and those who opposed structural works largely out of concern for the environment. Structural measures were costly and often affected large land areas. However, nonstructural measures alone were also costly, ineffective for many areas, and required the kind of self-discipline in local development not always apparent in New Jersey.

Additional concerns were also expressed over the loss of tax ratables and the impact of project costs on local governments. These were the same concerns repeatedly expressed ever since the Corps formulated its first plans in 1939.

Passaic River Mainstem Feasibility Report, December 1987. A Feasibility Report and Environmental Impact Statement (EIS) for the Main Stem Passaic River was completed in December 1987 under the overall Phase 1 authority. The report recommendations were concurred with by the Board of Engineers for Rivers and Harbors in July 1988 and by the Chief of Engineers in February 1989. The Assistant Secretary of the Army transmitted the report to the Office of Management and Budget for review in October 1989. The recommended plan consisted of a 39 foot diameter, 13.5 mile long main tunnel; a 22 foot

diameter, 1.2 mile long spur tunnel; 5.9 miles of channel modifications; 37.3 miles of levees and floodwalls, and preservation of 5,350 acres of flood storage. This plan would protect flood-prone areas along the Passaic, Pompton, Pequannock, Wanaque, Ramapo, Rockaway and Whippany Rivers and Deepavaal and Pinch Brooks. Preconstruction engineering and design was initiated in FY89 and was scheduled for completion in September 1995. The study of the enhancement of the Passaic River's Flood Emergency Preparedness System resulted in a recommendation to improve the timeliness, accuracy and reliability of flood warnings throughout the Basin. The recommended plan included the establishment of local self-help programs, increased rain and stream gage density and automation, flood warning, improved computer software and flood warning hardware facilities, and enhancement of local response programs. Installation was completed in 1988 and the project is now operational. The project is operated and maintained by the Corps through a contract with the National Weather Service.

Passaic River Buyout Study, September 1995. In February 1994, New Jersey Governor Christine Whitman announced her interest in a formal evaluation of a buyout of residential and commercial properties in flood prone areas of the Basin for comparison to the authorized dual inlet tunnel plan. Governor Whitman called for a side-by-side study to enable the State government to make an informed decision. She called for analyses at various flood stage levels up to the 100-year recurrence interval. The study found that the direct cost of a buyout for a portion of the 10-year floodplain would reach 2.3 billion dollars (October 1994 price level) if fully funded with inflation for a 15-year implementation. The 25-year, 50-year, and 100-year floodplain buyout costs would be 3.2 billion, 4.0 billion, and 5.5 billion dollars, respectively (also October 1994 price level). None of the buyout programs studied in the report met Federal National Economic Development policy for a finding of Federal interest. This was due primarily to insufficient benefit-cost ratios calculated under mandated procedures. As a consequence, Federal funding of all or part of a buyout was not recommended or warranted.

Passaic River Floodway Buyout Study, October 1995. This report was a supplement to the Passaic River buyout Study dated September, 1995. The report was prepared to present data on the costs to buyout the floodways of the Central Passaic River Basin in a manner permitting cost comparisons with the four floodplains described in the September, 1995 report. Far fewer structures and fewer municipalities would be involved in a floodway buyout than the full scale floodplain buyouts evaluated in the September 1995 report. In the three counties of Essex, Morris, and Passaic, only nine municipalities would be affected by a Central Basin floodway buyout. The study found that the total first cost of the floodway buyout program would amount to $158,425,000 (October 1994 price level), the benefit-to-cost ratio was estimated to be 0.2, and net benefits were estimated to be negative $9,950,000 (October 1994 price level). Like the September 1995 report, the buyout program did not meet Federal National Economic Development policy for a finding of Federal interest.

1.5 Study Scope

This integrated report and Environmental Assessment investigates the feasibility of permanent evacuation of the floodway in the study areas. No environmental restoration component is

included. Of the combined 135 properties in the two municipalities, the recommended plan under this voluntary buyout consists of the acquisition of approximately thirty (30) properties.

This document is consistent with Federal water resources policies and practices, including *Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies* (P&G, 1983), the Corps *Planning Guidance Notebook* (ER-1105-2-100, 22 April 2000), and *Procedures for Implementing NEPA* (ER 200-2-2, 4 March 1988). Throughout this investigation, the Corps has worked closely with the non-Federal project partner, NJDEP, to explain the roles and responsibilities of the Corps and the non-Federal partner in project planning and implementation.

As an integrated report, this document also fully complies with requirements of the National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S.C. 4321 et seq.). The integration of the NEPA documentation with the report is consistent with NEPA guidance to combine required documents with other documents, when practicable.

1.6 National Environmental Policy Act Requirements

Unlike other single-topic environmental laws (e.g., Clean Air Act, or Clean Water Act), the National Environmental Policy Act (NEPA) encourages protection of all aspects of the environment. The President's Council on Environmental Quality (CEQ) has pointed out that "NEPA is distinguishable, purposefully so, from other environmental statutes. It targets no specific pollution sources or human health risks for treatment, prescribes formulation of no abetment techniques or remedial actions, and establishes neither milestones nor timetables for achieving its goals" (CEQ, 1990). Instead, NEPA requires that agencies take a systematic, interdisciplinary approach to agency decision making that will ensure the integrated use of the natural sciences, social sciences, and design arts.

An Environmental Assessment (EA) is a concise public document prepared by the Federal agency to determine whether the proposed action has the potential to cause significant environmental effects (40 CFR 1508.9(a)). The purposes of an EA are to:

- Provide evidence and analysis sufficient to determine whether an EIS is required,
- Aid a Federal agency's compliance with NEPA when no EIS is necessary,
- Facilitate preparation of an EIS when one is necessary, and
- Serve as the basis to justify a finding of no significant impact (FONSI).

The CEQ NEPA regulations (40 CFR 1500-1508) do not contain a detailed discussion regarding the format and content of an EA. However, the EA must discuss:

- The need for the proposed action,
- The proposed action and alternatives,
- The probable environmental impacts of the proposed action and alternatives, and
- The agencies and persons consulted during preparation of the EA.

NEPA requires federal agencies to integrate the environmental review into their planning and decision-making process. This integrated report is consistent with NEPA statutory requirements.

The report reflects an integrated planning process, which avoids, minimizes, and mitigates adverse project effects associated with flood damage reduction actions.

1.6.1 Areas of Controversy

At this time, there are no known major areas of controversy regarding the study and selected plan among agencies or the public interest.

1.6.2 Unresolved Issues

At this time, there are no known unresolved issues regarding the study and the selected plan.

1.7 Study Process

The New York District is responsible for conducting the overall study in cooperation with the non-Federal project partner, NJDEP. The limited evaluation and eventual implementation of the project continue to receive strong support from NJDEP and from local governments. The local governments and NJDEP are committed to working with the Corps to address flooding problems along the Passaic River.

2. * BASELINE CONDITIONS / AFFECTED ENVIRONMENT

This section of the report describes existing and most probable future without-project conditions in the study area. The description provides a baseline for measuring expected changes in the physical, environmental, cultural, social, and economic settings that would result from implementation of a floodway buyout project in the study area.

2.1 Topography and Soils

The project areas are characterized by mild slopes (0-1%) and are described as Urban Land. Areas with this classification have mild to nearly level slopes and have had greater than 80 percent of the land surface converted to impervious surfaces such as concrete, asphalt, and buildings (NJDWSC 2002).

2.2 Water Resources

The Ramapo and Pompton Rivers are situated within the Passaic River Basin. Originating above Monroe, New York, the Ramapo flows for approximately 36 miles before converging with the Pequannock River to form the Pompton River. The total drainage area is 160 square miles. The mainstem of the Ramapo River is designated FW2-NT. FW2 criteria uses include:

1. maintenance, migration, and propagation of the natural and established biota,
2. primary and secondary contact recreation,
3. industrial and agricultural water supply,
4. public potable water supply after conventional filtration treatment and disinfection, and
5. any other reasonable uses.

A tributary of the Ramapo River in Oakland is designated FW2-TP (trout production), (C1). C1 waters are those designated under N.J.A.C. 7:9B-1.5(d), "for protection from measurable changes in water quality characteristics because of their clarity, color, scenic setting, other characteristics of aesthetic value, exceptional ecological significance, exceptional recreational significance, exceptional water supply significance, or exceptional fisheries(s)." (NJDEP 2004).

The Pompton River begins at the confluence of the Pequannock and Ramapo Rivers and flows approximately 7 miles before discharging into the Passaic River. The total drainage area is 177 square miles. The entire length of the Pompton River is designated FW2-NT (non trout waters).

The water quality of both the Pompton and Ramapo Rivers has been adversely impacted due to the extensive amount of development that has occurred within the two watersheds. Factors contributing to water quality degradation include increased stormwater runoff, sedimentation and nutrient loading, and a loss of wetlands and riparian vegetation. As a result, the two watersheds have seen a decline in the diversity of aquatic biota.

2.3 Vegetation

2.3.1 Wetlands

Federal (33 CFR 328.3(b); EO 11990) and State (NJAC 7:7A1.4) definitions of wetlands are similar, identifying wetlands as "*those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.*" As defined above, wetlands generally include swamps, marshes, bogs and similar areas.

The Corps Civil Works (CW) Program recognizes that many wetlands are important natural resources that contribute significant benefits to both the natural and human environments as transitional areas between terrestrial and aquatic ecosystems. As transitional areas wetlands possess features of both aquatic and terrestrial systems. Consequently wetlands are generally areas of great natural productivity, hydrologic utility, and biodiversity, providing natural flood control, and contributing to improved water quality, flow stabilization of streams and rivers and habitat for fish and wildlife resources. Unnecessary alteration or destruction of wetlands is discouraged by the Corps as contrary to the public interest as these wetlands perform functions important to the public interest. As a result, the Corps CW Program follows a policy of no net loss of wetlands, and looks to increase the quality and quantity of the Nation's wetlands when possible.

Palustrine forested wetlands do occur at the Wayne (Hoffman Grove) study area, but they are located outside of immediate area of the project. There are no wetlands present within the Pompton Lakes project area.

2.3.2 Uplands

The upland habitats in the project areas primarily consist of disturbed lands including maintained ornamental lawns, shrubs, and mature evergreen and deciduous tree species. Upland species commonly found within the Study area include oak (*Quercus* spp.), ash (*Fraxinus* spp.) maple (*Acer* spp.), sycamore (*Platanus* spp.) willow (*Salix* spp.), and various evergreen species such as hemlock (*Tsuga* spp.) and pine (*Pinus* spp.).

2.4 Fish and Wildlife

2.4.1 Finfish

Pompton River

Commonly occurring fish species within the Pompton River include redfin pickerel (*Esox americanus*), carp (*Cyprinus carpio*), spottail shiner (*Notropis husonius*), white sucker (*Catostomus commersoni*), brown bullhead (*Ameiurus nebulosus*), redbreast sunfish (*Lepomis auritus*), pumpkinseed (*Lepomis gibbosus*), bluegill (*Lepomis marcrochirus*), largemouth bass (*Micropterus salmoides*), black crappie (*Pomoxis nigromaculatus*), and tesselated darter (*Etheostoma olmstedi*) (USACE 1987).

Ramapo River

Commonly occurring fish species within the Ramapo River include fallfish (*Semotilus corporalis*), white sucker, rock bass (*Ambloplites rupestris*), redbreast sunfish (*Lepomis auritus*), pumpkinseed, bluegill, smallmouth bass (*Micropterus dolomieu*), largemouth bass, and tesselated darter (USACE 1987).

2.4.2 Wildlife

Commonly occurring birds in the project areas include American goldfinch (*Carduelis tristis*), American robin (*Turdus migratorius*), black-capped chickadee (*Parus atricapillus*), blue jay (*Cyanocitta cristata*), European starling (*Sturnus vulgaris*), grackles (*Quiscalus quiscula*), house sparrow (*Passer domesticus*), house wren (*Troglodytes aedon*), mourning dove (*Zenaida macroura,*), northern cardinal (*Cardinalis cardinalis*), and tufted titmouse (*Paurs bicolor*)

Mammals within the project areas are those typically found in urban settings. These species include opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*), and muskrat (*Ondatra zibethica*), gray squirrel (*Sciurus carolinensis*), red squirrel (*Tamiasciurus hudsonicus*), Norway rat (*Rattus norvegicus*), skunk (*Conepauts mesoleucus*), and woodchuck (*Marmota monax*) (USACE 1987).

2.5 Threatened and Endangered Species

This section addresses the potential for the presence of threatened and endangered species, and their habitat within the study area. Section 7 of the Endangered Species Act requires Federal agencies to ensure that their actions will not adversely impact the continued existence of any endangered or threatened species, or result in the destruction or adverse modification of the critical habitat of such species. Consultation with, and the assistance of, the Secretaries of the Interior and Commerce is required to obtain information about listed or proposed threatened or endangered species and critical habitats found within the project area. The authority to conduct consultations has been delegated to the Director of the USFWS by the Secretary of the Interior.

Federal Species

The federally endangered Indiana bat (*Myotis sodalist)* is known to hibernate in Morris County within 11 miles of both study areas. Indiana bats from this hibernaculum may summer or forage within the study areas, particularly at the Wayne study site. With the exception of possible transients, no other Federal endangered or threatened species are known to utilize or reside in the project areas. Transient species may include the state and Federal threatened bald eagle, and the state endangered peregrine falcon since the project areas are located within their migratory flyway.

State Species

Fowler's toad (*Bufo woodhousii fowleri*), a State listed priority species, occurs within the Palustrine Forested wetland type on and surrounding the Wayne and Pompton Lakes study areas. Other species on the State priority list occur in upland forest within .25 mile south of the Wayne study area. The species include spotted turtle (*Clemmys guttata*), carpenter frog (*Rana virgatipes)*, fowler's toad, Baltimore oriole (*Icterus galbula*), eastern towhee (*Pipilo erythrophthalmus*), eastern wood-peewee (*Contopus virens*), gray catbird (*Dumetella*

carolinensis), hairy woodpecker (*Picoides villosus)*, red-eyed vireo (*Vireo olivaceus)*, rose-breasted grosbeak (*Pheucticus ludovicianus*), scarlet tanager (*Piranga olivacea),* veery (*Catharus fuscescens)*, and wood thrush (*Hylocichla mustelina)*.

2.6 Socioeconomics

2.6.1 Pompton Lakes

The U.S. Census Bureau 2000 census reports the population of Pompton Lakes is approximately 10,640 with 89 percent non-Hispanic White, 5.74 percent Hispanic, 1 percent African American, and 3 percent Asian. The median age of the population is 37 years and median per capita personal income is $26,802. The management and professional sectors are the largest employers in the Borough. Approximately 66 percent of the residences within Pompton Lakes are single family homes (U.S. Census Bureau, 2000).

2.6.2 Wayne Township

The U.S. Census Bureau 2000 census reports the population of Wayne Township is approximately 54,069 with 86 percent non-Hispanic White, 5 percent Hispanic, 1 percent African American, and 5.7 % Asian. The median age of the population is 40 years and median per capita personal income is $35,349. The management and professional sectors are the largest employers in the Township. Approximately 71% of the residences within the Wayne Township are single family homes (U.S. Census Bureau, 2000).

2.7 Cultural Resources

A cultural resource study was conducted in order to determine if the project will have an effect on historic properties in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended (Scarpa 2005). Other regulations that specifically apply to this cultural resources investigation include Section 101(b)(4) of the National Environmental Policy Act of 1969 and the Advisory Council Regulations for the Protection of Historic Properties (36 CFR Part 800).

2.7.1 Hoffman Grove, Wayne Township

Native Americans first began traveling throughout the region after the retreat of the last glacier associated with the Wisconsin Ice Age around 10,000 B.C. After the retreat of the last glaciers in the area, Native Americans traveled by land on the tundra-like landscape that was characteristic of Wayne and Pompton Lakes at the time. The Wayne area appears first to have been occupied around 8,000 years ago in the Early/Middle Archaic Period. By this time thick temperate climate forests became the typical upland environment in the area, travel by land became more difficult and the movement of people across the land was done most efficiently via water. After 500 A.D., the people of Wayne and Pompton Lakes began farming and occupying the area year-round. These prehistoric peoples favored the banks of rivers in this area for their village sites. Because fishing was a fundamental food source for these prehistoric people, the confluence of the Pompton and the Passaic Rivers just south of Hoffman Grove would have encouraged Native Americans to settle for periods of time in the area (Lenik 1985).

Archaeological surveys have been conducted along the river over the past one hundred years by a number of archaeologists. A site file search at the New Jersey State Museum did not locate previously recorded prehistoric sites directly within the project areas. However, many sites are located nearby. In the vicinity of Hoffman Grove, two campsites, one prehistoric lithic scatter and three miscellaneous prehistoric sites, were identified in the early part of the 20th century. No additional sites have been identified by subsequent surveys. The Hoffman Grove area is believed to possess a reasonable potential for recovery of prehistoric archaeological remains.

In the latter part of the 17th century, Captain Arent Schuyler, traveled the Minisink Trail through modern Wayne Township and Pompton Lakes. He and Major Anthony Brockholst formed an investment group with two wealthy New York merchants, Colonel Nicholas Bayard and Samuel Bayard, and a number of affluent farmers. The group purchased the land in 1695. The tract consisted of two thirds of what is now Wayne and much of Pompton Lakes on the eastern side of the Pequannock River (Caccioppo 1997).

In the late 18th century a man by the name of John Mead established a settlement in the southwestern section of Wayne Township. The small community was called Mead's Basin and it served the needs of local farmers in the area for a time. Later, with the construction of the Morris Canal and the Pompton feeder in 1836-1837, iron, timber, and coal industries and shipping brought economic progress to the village. The name, Mead's Basin came from a boat basin constructed by Mead along the Morris Canal where many travelers would dock their boats for a bite to eat or a night's stay (Tobin 2001). The Morris Canal ran on the opposite side of the Pompton River from the current project area.

In 1847, Wayne Township became an independent township. Throughout the 19th century the town continued to be characteristically farming-based with a number of gristmills and saw mills. Industry of the late 19th century included brick manufacture, gunpowder manufacture, and iron mining (Brubaker et al. 1976). In the early 1870's the Montclair Railway Company (later the New York and Erie Lake and Western Railway) and the Delaware, Lackawanna, and Western Railroads (the Boonton Line) built lines running through southern Wayne Township. Two stations were eventually built in Wayne. The station located in the center of Mead's Basin was called Mountain View and before long the town adopted the name (Cacioppo 1997).

Mountain View began to grow in the early 1900's. With the advent of the railroad, many wealthy New York residents began looking for places to vacation and get out of the city. The Montclair Railroad advertised its line with sponsored excursions into the Wayne area and people began forming summer camping or bungalow communities (Cacioppo 1997). Hoffman Grove was one of the summer bungalow communities established in the early 20th century.

The Hoffman family was one of the owners of the tract during the first half of the 20th century. During that time they rented bungalows and campsites to summer vacationers. In the early 1920's, because of housing shortages, many people moved into their summer homes permanently. The Depression also caused an in-migration of people who could no longer afford living in New York City. This movement over a couple of decades changed the nature of the Mountain View area from seasonal recreation to mostly full-time residential (Connell 1972). The Hoffman Grove Association was formed as a co-op community more than fifty years ago when a group of home owners finally bought the tract and turned it into a co-op. The co-op remained intact until just recently when the lots were finally individually deeded (Sue Linton; Hoffman Grove Association Representative; Personal Correspondence).

There are four historic properties listed on the NRHP within a mile of the Hoffman Grove project area. These are the Morris Canal, the John Dod Tavern and House located approximately one mile from the project area on the opposite side of the Pompton River in Lincoln Park. One historic property, the Van Duyne House, is listed on the State Register of Historic Places. In addition, there are seven properties eligible for listing on the NRHP. These are the Pompton River Bridge, which carries the NJ Transit Boonton Line, the Wayne Radio Transmitter Building, Hixon's Hotel, the Sear's House, the Farsburg House, the VanDuyne house, and the Three Demarest Houses. None of these properties are within the project area and therefore will not be impacted by the project.

2.7.2 River Edge Drive, Pompton Lakes

The River Edge Drive Project area is located along the Ramapo River, which is a tributary to the Pompton River, and eventually the Passaic River. The prehistory of Pompton Lakes mirrors that of Wayne. Native Americans were attracted to the area due to the riverine environment consisting of freshwater springs and potable streams; favorable areas of occupation and resources for exploitation (Kraft 1981). The Ramapo River provided fish and mussels as well as the possibility of canoe transportation. The surrounding woodlands supplied materials for house construction and firewood as well as nuts and berries in season, birds, mammals and other faunal, and floral food resources (Lenik 1985). In the River Edge Drive project vicinity, three prehistoric lithic scatters, and five additional prehistoric sites were identified in the early 20th century. Two of the prehistoric sites are located on the opposite bank of the Ramapo River from the project area. A survey conducted by Herbert Kraft in 1981 of the riverbank and the surrounding area determined that the project area at River Edge Drive has a low to medium probability to yield prehistoric remains where ground has not been disturbed for construction of homes.

Originally a part of the Brockholst – Schuyler purchase, Pompton Lakes was first settled in the late 17th century. The first mill was erected in 1723 by Simon Van Ness. Also around this time, gristmills, sawmills and a tannery were built in Pompton Lakes. The Pompton Iron Works was the most important industry in Pompton. Built in 1726, the furnace turned out ammunition for the French and Indian War and later the Revolutionary War (Bzdak and Howson 1995).

Pompton was the setting for Revolutionary War activity. French and Patriot troops passed through the town frequently on their way to the Hudson River to the east or Morristown to the west where General Washington was headquartered for a time. During the Revolutionary War, the forge at Pompton Lake Dam produced cannon balls. In 1777 General Heard was sent with 200 men from the New Jersey militia to guard the furnace, roads, and the town. In 1781, the remaining troops at Pompton mutinied. General Washington stayed for a short time in the Hopper home, but what orders he issued from Pompton came from the Dey mansion, home of Colonel Theunis Dey of Pompton (Vreeland 1960). Following the Revolution, most people farmed and milling and smelting remained the only industries in the area. Soon after its construction, the Morris Canal and the Pompton Feeder carried materials like coal to the smelting furnaces and the finished materials out to city ports (Vreeland 1960).

Around the time of the Civil War, railroad expansion in the area peaked. Horner and Ludlum, who now owned the Pompton Furnace, manufactured springs for railway cars and renamed the company Pompton Iron and Steel Company. (Lenik et al. 1990). As the 20th century drew near,

many of the farmsteads became smaller and smaller as farmers sold off sections of their land for development. Summer communities developed here as they also did in Wayne. Sunnybank is a well-known summer community and the Riverview community, still identified as such, was also developed at this time. Permanent development increased in the area as it had in Wayne Township as people began moving in permanently to work the newly available jobs and to enjoy the country setting.

The 20th century saw rapid suburban growth. In the last fifty years, major growth has taken place in the areas between the Paterson and Hamburg Turnpike and the Pequannock River despite the risk of flooding (Bdzak and Howson 1995). The area of River Edge Drive has been developed in the 20th century. Use prior to that was likely farming if the land was dry enough to be farmed. Any evidence of nineteenth century structures is not seen in historic maps or early photographs. However, the Ramapo River once operated as a waterway, a part of the Pompton Feeder of the Morris Canal. Remains of the Feeder and associated elements are found along some portions of the Ramapo River.

There is one property within a mile of the River Edge Drive project area that is listed on the NRHP. The Schuyler Colfax House is situated along Hamburg Turnpike directly across the Ramapo River from the River Edge Drive project area. The Pompton Furnace Iron Works and Dam, and the Pompton Lakes Train Station are eligible for listing on the NRHP but are outside of the project area as well. In addition to these sites, the Colfax Bridge replacement concrete bridge, Dawes Avenue Bridge (eligible for listing on the NRHP), and the Ramapo River, a part of which was once a waterway for boats on the Pompton Feeder Canal (certain elements being potentially eligible for inclusion on the NRHP) are both adjacent to the project area but are not within the area of potential effects (APE).

2.8 Hazardous, Toxic, and Radioactive Waste

As required by ER 1165-2-132 (Hazardous, Toxic and Radioactive Waste Guidance for Civil Works, 26 June 1992), an assessment of hazardous, toxic, and radioactive waste (HTRW) was conducted in the project corridor. Hazardous, Toxic, and Radioactive Waste (HTRW) are defined as any "hazardous substance" regulated under Comprehensive, Environmental Response, Compensation, Liability Act (CERCLA), 42 U.S.C. 9601 et seq, including "hazardous wastes" under Section 3001 of the Resource Conservation and Recovery Act (RCRA), 42 U. S. C. 6921 et seq.

A review of current regulatory database and historical site information was conducted to assess the potential presence of any hazardous, toxic, and/or radioactive waste. Based on the review, the only potential sources of hazardous or toxic waste may be from underground storage tanks (UST) containing home heating oil, lead based paint (LBP) or asbestos containing materials (ACM). Prior to demolition of the homes, a more detailed assessment will be performed on each candidate house and the lot to determine the presence of any UST's, LBP and ACM. Removal of UST's, LBP and ACM will be the responsibility of the demolition contractor, and will be conducted in accordance with all state and Federal regulations.

2.9 Air Quality and Noise

2.9.1 Air Quality

The EPA assesses overall air quality according to the National Ambient Air Quality Standards (NAAQS) for six criteria pollutants: carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM), and sulfur dioxide (SO_2). Based on these measurements of air quality, the USEPA designates attainment areas and non-attainment areas nationwide. Non-attainment areas are designated in areas where air pollution levels persistently exceed the national ambient air quality standards. Commonly cited sources of criteria pollutants include automobile exhaust emissions, fossil fuel (coal and oil) fired power plants, oil refineries, ore smelters, storage and transfer operations involving solvents, and industrial emissions, among others (USEPA 1998).

Passaic County is located in the New York-New Jersey-Long Island Air Quality Control Region. Similar to most urban industrial areas, emissions from automobiles, manufacturing processes, utility plants, and refineries have impacted air quality in the Project Area. Based on the National Ambient Air Quality Standards (NAAQS) six primary pollutants, Passaic County is designated as a non-attainment area for ozone and an attainment area for carbon monoxide, sulfur dioxide, respirable particulate matter (PM10), lead and nitrogen oxide.

2.9.2 Noise

Noise is generally defined as unwanted sound. The primary source of noise in the project area is vehicular traffic on local roadways.

2.10 Coastal Zone Management

The proposed project area is not located within the State of New Jersey's Coastal Zone Management (CZM) District.

2.11 Future Without-Project Conditions / No Action Alternative

Future without-project conditions were determined by projecting conditions in the study area over a 50-year period of analysis (2010-2059). In the absence of Federal action, flooding problems associated with storms in the study area are expected to continue, and ecosystems within the study area will continue to exhibit limited functionality.

2.11.1 Flood Damages

The no-action alternative reflects the continuation of existing economic, social, and environmental conditions and trends within the affected area. Implicit in taking no action would be the continuation of Federally subsidized flood insurance coverage for property owners that is currently available through the National Flood Insurance Program and the enforcement of local flood plain zoning ordinances.

Failure to provide opportunities for permanent floodplain evacuation could, in the predictable occurrence of a significant flood, contribute to the loss of life and physical as well as

environmental damage to study area communities. Significant flooding can result in the contamination of drinking water supplies, dispersion of hazardous, toxic, and/or radioactive waste (HTRW) and dispersion of large quantities of solid waste. Experience has shown that vast quantities of debris (e.g., homes, vehicles, mobile homes, etc.) and sediment must be removed from the floodplain after a flood event. The physical removal of the debris from the flood plain typically involves large, heavy equipment and requires the removal of trees and vegetation to provide points of ingress and egress for the cleanup equipment. Hauling the collected debris to the local municipal landfill requires significant transportation resources, and involves huge quantities of solid waste that fill available landfill space.

2.11.2 Study Area Conditions That Are Unlikely To Change

Some existing conditions are not expected to undergo significant change during the period of analysis (2010-2059). For example, most aspects of the physical setting are expected to remain largely unchanged over the planning period, specifically: geology, physiography, topography, and soils. In addition, no significant changes are anticipated for cultural and historic resources, air quality, noise, HTRW, aesthetics, and infrastructure.

2.11.3 Study Area Conditions That Are Likely To Change

Other aspects of existing conditions are likely to change during the period of analysis. In particular, it is likely that several study area conditions related to flooding would undergo some changes over time. Ongoing urbanization of the Passaic River watershed could exacerbate flood risks by accelerating runoff from the watershed during storms, although future increases in vulnerability would be mitigated by municipal flood plain management ordinances.

3. PLAN EVALUATION

The term "floodway" was defined in Section 1 of this document as:

> *the channel of a natural stream and portions of the flood hazard area adjoining the channel which are reasonably required to carry and discharge the flood water or flood flow. Floodways are usually the area where water velocities and forces are the greatest and most destructive. National Flood Insurance Program (NFIP) regulations, adopted in local flood damage prevention ordinances, require that floodway encroachments, including fill, new construction, substantial improvements and other development that would increase flood levels, be prohibited.*

This section provides an evaluation of the limited floodway buyout program. Planning objectives and constraints under which the voluntary buyout program was conceived are first discussed, followed by a description of the methods used to estimate existing conditions flood damages, and concludes with an economic analysis of the limited buyout program.

3.1 Planning Objectives & Constraints

The following discussions identify critical objectives, constraints, and assumptions used to develop and evaluate alternative plans. The goal was to address problems and opportunities and to determine the Federal interest in flood damage reduction for the study areas.

3.1.1 Planning Objectives

The Federal objectives in making investments in flood damage reduction projects are to contribute to National Economic Development (NED). The pursuit of planning objectives must be consistent with Federal, State and local laws and policies, and technical, economic, environmental, regional, social, and institutional considerations. Recommended plans should avoid, minimize, and then mitigate, if necessary, adverse project impacts to the environment. They should also maximize net economic benefit, avoid adverse social impacts, and meet local preferences to the fullest extent possible.

Based on the problems and opportunities within the study area, local desires, and the intent of the current authorization, the planning objectives of this study have been identified as follows:

- develop cost-effective plans to provide the flood protection for the project area, which complies with all laws and regulations,
- reduce to the extent possible financial and personal losses,
- maintain to the extent possible the social and cultural resources study areas,
- minimize to the extent possible the social and economic disruptions within the study areas,
- develop the most socially acceptable and environmentally sound plan, and
- avoid and minimize adverse environmental impacts.

3.1.2 Planning Constraints

The formulation and evaluation of alternative plans was constrained by a variety of considerations. The planning constraints used to guide the study are listed below:

- Technical constraints include the need for plans to be: (1) sound, safe, and acceptable solutions, (2) in compliance with sound engineering practices, (3) realistic and state-of-the-art, (4) consistent with existing local plans, and (5) complete and not dependent on future projects.
- Economic constraints include: (1) the need for flood damage reduction features to be efficient (*i.e.*, average annual benefits exceed average annual costs); and (2) the requirement to select the flood damage reduction plan that maximizes net excess benefits (*i.e.*, the NED plan) unless there are overwhelming reasons to select a different plan and an exception is granted by the Assistant Secretary of the Army (Civil Works).
- Environmental constraints affecting the formulation and selection of flood damage reduction plans include the need to: (1) avoid unreasonable impacts to environmental resources, and (2) first consider avoidance followed by minimization, mitigation, and replacement.
- Regional and social constraints include the need for plans to: (1) weigh the interests of State and local public institutions and the public at large, and (2) consider the potential impacts of the project on other areas and groups.
- Institutional constraints include the need for plans to: (1) be consistent with existing Federal, State and local laws, (2) be locally supported, (3) provide public access to the project in accordance with Federal and State laws and regulations, and (4) find overall support in the region and state.

3.2 Flood Damage Analyses

Flood damages under future with- and without-project conditions were estimated through: (1) an inventory of flood plain development, (2) estimation of depreciated structure replacement costs and content damages, and (3) combination of stage/frequency relationships and stage/damage relationships into frequency/damage relationships. The process and results of damage estimation for the study areas is summarized below.

3.2.1 Residential Structure Surveys

A structure inventory was compiled by conducting field surveys of structures in the study area floodways during September, 2004. There are approximately 135 total structures within the study area floodways. Each structure was assigned a unique structure identification number. First floor and low opening elevations (measured off known benchmarks using a transit) and street addresses were recorded for all structures. Structure information required to compute depreciated replacement values was collected for residential structures based on Means Real Estate Valuation Guide. Data collected included the following categories: structure type, style, construction material, quality, condition, effective age, finished floor area, and other exterior

characteristics. Content values were estimated in accordance with guidance provided in Corps economic guidance memoranda EGM 01-03 and 04-01[2].

3.2.1.1 Principal Flood Damage Reaches

The study areas were divided into two reaches: Hoffman Grove (reach 1) and Pompton Lakes (reach 2). Figure 3-1 shows an aerial photograph of the general study area marked with the locations of reaches 1 and 2. Closer views of Reaches 1 and 2 are shown on Figures 3-2, and 3-3. These two flood damage reaches were used to evaluate the costs of structural and nonstructural flood damage reduction measures and to estimate the benefits of the limited buyout plans, based on the corresponding reduction in flood damages.

With- and without-project future conditions for the flood damage reaches assume a stable level of development. Because flood plain regulations restrict new construction in areas that are subject to damage by a 100-year flood event, it was assumed that development of new residential, commercial, and industrial uses in the study area flood plain is not likely.

3.2.2 Hydrologic and Hydraulic Analyses

Hydrologic and hydraulic data used in this analysis were extracted from the Passaic River Flood Damage Reduction Project General Design Memorandum (GDM), Appendix C -Hydrology dated September 1995 (model year 1992). Water surface profiles for the eight modeled design storm events (1-, 2-, 5-, 10-, 25-, 50-, 100-, and 500-year return intervals) are provided in Table 3-1 below. Cross sections are shown for stations in the immediate vicinity of the damage centers.

Table 3-1
Water Surface Profiles for Eight Modeled Storm Events

		Water Surface Elevation (NGVD)							
	River Station	**1-Yr**	**2-Yr**	**5-Yr**	**10-Yr**	**25-Yr**	**50-Yr**	**100-Yr**	**500-Yr**
Reach 1	9.940 on Pompton River (Hoffman Grove)	165.88	167.96	170.24	171.86	174.15	175.51	176.72	179.47
Reach 2	7.800 on Ramapo River (Pompton Lakes)	179.86	181.72	184.15	185.73	187.98	188.93	189.77	191.14

[2] These economic guidance memoranda prescribe a methodology for valuing contents damages that differs from those used in past Corps of Engineers flood damage economic analyses. While prior analyses used a content-to-structure ratio of 0.50, this analysis uses new depth-damage relationship curves developed by the Corps. The new depth-damage curves (full set available in October 2003) model content damages as a percentage of structure value. This differs from the previous technique of first developing content valuations and then content damage relationships as a function of contents valuations. Corps policy states that use of the new damage curves eliminates the need to establish content-to-structure ratios through surveys.

Final

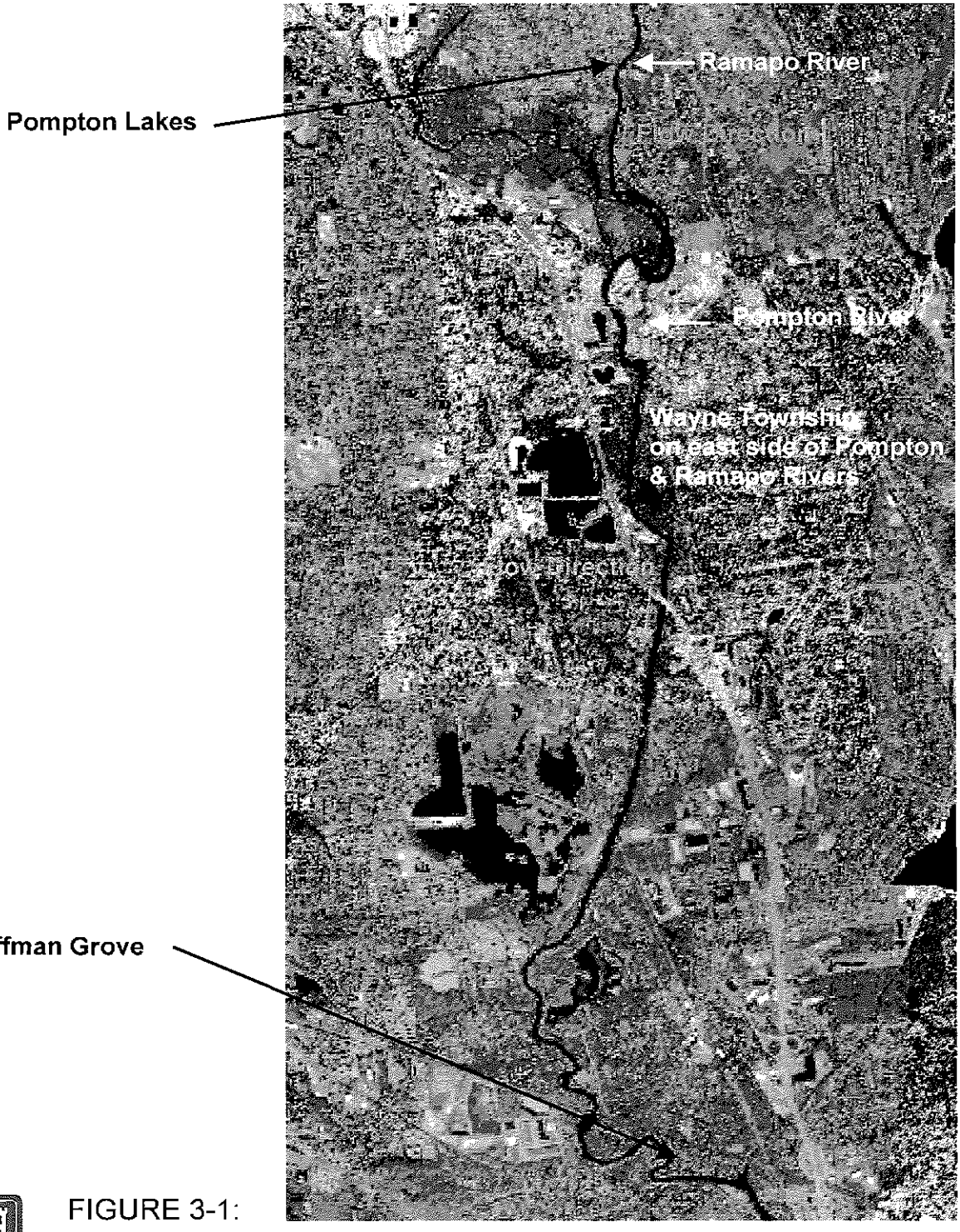

FIGURE 3-1:
Study Area Locations

Passaic River Floodway Buyouts Limited Update and Environmental Assessment
(not to scale)

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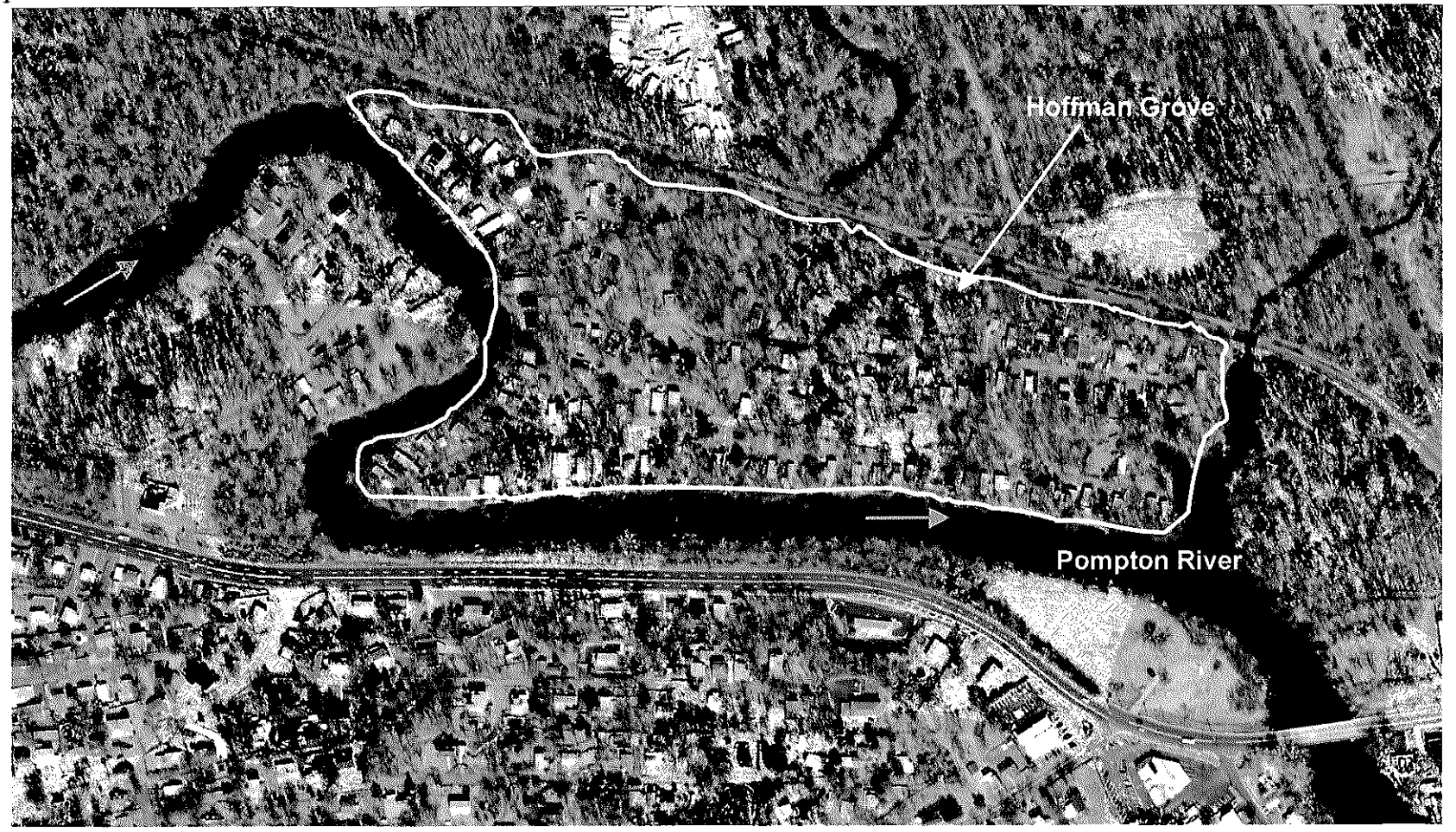


FIGURE 3-2:
Hoffman Grove

N

Passaic River Floodway Buyouts Limited Update and Environmental Assessment
(not to scale)

FIGURE 3-3:
Pompton Lakes

Passaic River Floodway Buyouts Limited Update and Environmental Assessment
(not to scale)

3.2.3 Depth-Damage Relationships

Depth-damage functions from Economic Guidance Memorandum 01-03 – *Generic Depth-Damage Relationships for Residential Structures without Basements* and Economic Guidance Memorandum 04-01 – *Generic Depth-Damage Relationships for Residential Structures with Basements* were applied to the inventory of residential floodplain properties in order to develop depth-damage relationships. Current HEC-RAS output (discharge-frequency-water surface elevations) was combined with the depth-damage data in order to calculate average annual damages under existing conditions.

3.2.4 Structure and Contents Damage Model

Given the relatively low number of structures in this analysis, a risk-based spreadsheet model (MS Excel running statistical modeling software) was used to estimate flood damages to non-residential and residential structures and contents. Structure specific information (identification number, structure type, value, first floor elevation, zero damage level, and reach designation) was included in a structure inventory database for input to the model. Residential structures were classified as one of five types: one-story with a basement, one-story without a basement, split-level, two-story with a basement, and two-story without a basement. The model used depth-percent damage curves corresponding to the structure type to relate flood depth to percent damage for residential and selected non-residential structures and their contents. Each structure was referenced to a cross section which was used to determine the water surface elevations for the storm frequency events of 1-, 2-, 5-, 10-, 25-, 50-, 100-, and 500-year return intervals.

3.2.4.1 Risk and Uncertainty

Planning guidance requires that risk and uncertainty be incorporated into flood damage reduction studies. Statistical modeling software and Microsoft Excel were used to incorporate uncertainty from damage input variables into the analysis. The evaluation process uses Monte Carlo Simulation to compute the expected value of damages while incorporating the variability associated with each input variable.

Under the Monte Carlo approach, multiple iterations selected input values from the full range of possible values for each variable identified as a source of uncertainty. Expected values and standard deviations for each key input variable were used to develop distributions from which sample variables were randomly selected in the calculation of flood damages.

In normal distributions, 68 percent of the sampled values of a particular variable are within one standard deviation on either side of the mean, 95 percent within two standard deviations from the mean, and 99.7 percent within three standard deviations from the mean. With each iteration of the model a value is randomly selected from the key hydraulic and economic variable distributions and used in the calculation of structure and contents flood damages for that particular iteration. The sum of all flood damage calculations divided by the number of iterations yields the expected value of flood damages for the model run. Ten thousand iterations were run for each flood damage reach to ensure that the full range of possible outcomes was represented in the analysis.

Some of the important uncertainties specific to this particular analysis are described below.

Hydrologic and Hydraulic Uncertainty

Hydrologic and hydraulic uncertainty factors include hydrologic data record lengths that are often short or do not exist, precipitation-runoff computational methods that are not precisely known, and imprecise knowledge of the effectiveness of flow regulation. Additional uncertainty arises from the use of simplified models to describe complex hydraulic phenomena, including the lack of detailed geometric data, misalignments of hydraulic structures, material variability, and errors in estimating slope and roughness factors. Water surface elevations were allowed to vary based on the relative standard deviations (standard deviation as a percent of expected value) for specific return events taken from a recent study on the Upper Passaic River (*Upper Passaic River at Long Hill Township Detailed Project Report, October 2004*, New York District, USACE).

Economic Uncertainty

Economic uncertainty factors include land uses, depth/damage relationships, structure/content values, structure locations, first floor elevations, floodwater velocity, the amount of debris and mud, flood duration, and warning time and response of floodplain inhabitants. Variability in depth-damage curves was incorporated into the model by using standard deviations for specific damage percents taken directly from depth-damage functions provided in Corps economic guidance memoranda EGM 01-03 and EGM 04-01. Additional variability in first floor survey error (5 percent), and depreciated replacement values (estimated as a percent of the range shown in Means Cost Estimating Guides) were captured in the damage model.

3.2.5 Existing Conditions Damages

Table 3-2 shows damages to residential structures in the floodway at Hoffman Grove (reach 1) and Pompton Lakes (reach 2). The complete inventory of Hoffman Grove is shown in the first column of the table. A subset of 20 structures in Hoffman Grove that are most impacted (on an average annual damages basis) by flooding is shown in the second column of the table. This subset of 20 structures from Hoffman Grove will be used in benefit-to-cost ratio and net benefit analyses later in this section. Average annual damages to the entire inventory of Hoffman Grove is $326,050 (not used in the economic performance analysis), to the subset 20 structures in Hoffman Grove is $133,125 and to Pompton Lakes is $176,100.

Table 3-2
Damages to Residential Structures and Contents
Without Project Conditions

	Hoffman Grove Complete Inventory		Hoffman Grove 20 Most Damaged Structures		Pompton Lakes Complete Inventory	
Recurrence Interval	Structures Damaged	Damages ($1,000)	Structures Damaged	Damages ($1,000)	Structures Damaged	Damages ($1,000)
1-year	2	9.9	2	9.9	3	26.7
2-year	5	34.5	4	33.5	3	67.8
5-year	57	237.8	19	172.2	7	239.1
10-year	113	848.9	20	370.7	7	420.5
25-year	124	2,285.6	20	682.8	10	789.6
50-year	124	3,199.3	20	832.0	10	947.3
100-year	124	3,850.7	20	943.5	10	1,088.6
500-year	124[3]	5,059.0	20	1,217.4	10	1,305.5

3.3 Economic Benefits

Corps procedures typically calculate benefits based on the difference between the expected annual damages with and without alternative flood protection plans. The implicit assumption incorporated into this procedure is that the reduction in flood damages is directly translatable into increased net income to flood plain land uses. In the case of permanent evacuation measures, however, only the portion of the flood damage that is subsidized by outside agencies qualifies as National Economic Development (NED) benefits. Benefits from future use of the vacated floodplain also qualify as NED benefits, though re-use benefits have not been estimated for this analysis.

Permanent evacuation projects can claim both the reduction in costs of administering flood insurance programs and the elimination of national flood insurance subsidies as benefits. These subsidies consist of the financial support provided by the Federal Emergency Management Agency (FEMA) for flood insurance. The flood insurance subsidy is determined by deducting the average annual insurance premium from the average annual expected insured loss and the

[3] There are minor discrepancies between the ownership information obtained from the Township of Wayne's Assessor's Office for properties located in Hoffman Grove and the inventory conducted as part of the economic analyses. In total, the minor discrepancies resulted in one more residential property identified from the Assessor's Office data than identified from the economic inventory. As the project moves into the acquisition phase these discrepancies will be resolved, since this is a voluntary buyout under which the owner must first notify the non-Federal sponsor of their intent to sell. Subsequent to this notification, a title report and on-site appraisal will be prepared for each property to be acquired.

administrative costs of flood insurance. The insured loss assumes coverage of all physical costs including damage to the building, damage to contents and cleanup of the structure and contents.

Tables 3-3 and 3-4 show the figures used to determine the average annual subsidy per household in each of the study areas. Policyholder annual costs, shown in Table 3-3, are calculated as the sum of the average premium paid (obtained from FEMA statistics for New Jersey municipalities), uninsurable average annual damages (calculated as 5 percent of average annual contents damages), and the annual expected deductible.

Table 3-3 Average Annual Flood Insurance Subsidy Calculation
Policyholder's Costs Per Policy

	Hoffman Grove Reach 1	Pompton Lakes Reach 2
Average Premium Paid	$ 831	$ 927
Residential Annual Uninsurable Damage (5% contents damages)	$ 173	$ 398
Annual Expected Deductible	$ 500	$ 500
Total Annual Policyholder's Cost	**$ 1,504**	**$ 1,825**

Agency costs per policy are shown in Table 3-4. Agency costs are equal to the sum of average annual damages[4], Agent's fees (previously calculated as 15 percent of premium costs), and administration costs (provided by EGM 05-07, December 2004).

Table 3-4 Average Annual Flood Insurance Subsidy Calculation
Agency Costs Per Policy

	Hoffman Grove Reach 1	Pompton Lakes Reach 2
Agency Average Annual Damages	$ 6,656	$ 17,608
Agent's Fee (15% of premium)	$ 125	$ 139
Administration Costs	$ 163	$ 163
Total Agency Costs	**$ 6,944**	**$ 17,910**

Based on the data shown in tables 3-3 and 3-4 the average annual subsidy per household is calculated at $5,440 for homes in Hoffman Grove and $16,085 for homes in Pompton Lakes.

[4] It is recognized that average annual damages appear high relative to those seen in most Corps flood damage reduction studies. However, because the study area homes incur damage at high frequency events, and have long been involved in buyout programs, a high level of average annual damages is to be expected.

Total annual benefits, which are equal to the annual subsidy per household multiplied by the number of households (20 for Hoffman Grove and 10 for Pompton Lakes Borough) are shown in Table 3-5. Total benefits from implementation of the buyout program could also include reductions in emergency services costs and increases in recreation benefits, though with acquisition of only 30 structures, measurable benefits from these categories would be negligible.

Table 3-5
Average Annual Benefits of Acquisition Plan

Damage Reach	Flood Insurance Subsidy Reduction Benefits
Reach 1 - Hoffman Grove	$ 108,800
Reach 2 - Pompton Lakes	$ 160,850
Total Benefits	$ 269,650

3.4 Limited Floodway Buyout Cost Estimate

The largest component of cost for each buyout is compensation to property owners based on the fair market value of their land and building improvements.

3.4.1 Real Estate

As described in the Real Estate Plan (Appendix A) and summarized in Table 3-6, fee simple acquisition of approximately 30 properties will be necessary. Since a list of impacted property owners interested in participating in this voluntary buyout is to be generated by the Township of Wayne and the Borough of Pompton Lakes, total acreage for these properties cannot accurately be determined at this time. However, a rough estimate of 30 randomly selected properties would yield a total acreage of 5.4 acres (though shown as "TBD" in Table 3-6). Costs were estimated using a December 2004 valuation (reconnaissance estimate). Project real estate requirements would be met using fee simple purchase.

Table 3-6
Lands, Damages and Relocations

Real Estate Cost Item	Cost
30 properties (Fee Simple Purchase)	$ 6,840,500
Administrative Costs	$ 135,000
Contingency (20%)	$1,395,100
Total (30 properties, Acreage TBD)	**$8,370,600**

Detail on the costs summarized in Table 3-6 is provided in Table 3-7.

Table 3-7
Detailed Real Estate Acquisition Costs

Real Estate Cost Item	Base Cost	Contingency	Total Cost
Title Evidence	$ 18,000	$ 3,600	$ 21,600
Closing Costs	$ 27,000	$ 5,400	$ 32,400
Plats and Legal Descriptions	$ 18,000	$ 3,600	$ 21,600
Negotiations	$ 30,000	$ 6,000	$ 36,000
Coordination/PDT Meetings	$ 8,000	$ 1,600	$ 9,600
APPRAISALS -	$ 24,000	$ 4,800	$ 28,800
PL 91-646 ASSISTANCE	$ 10,000	$ 2,000	$ 12,000
REAL ESTATE PAYMENTS	$ 6,753,000	$ 1,350,600	$ 8,103,600
PL 91-646 Assistance Payments	$ 87,500	$ 17,500	$ 105,000
Total Real Estate Costs	**$ 6,975,500**	**$ 1,395,100**	**$ 8,370,600**

3.4.2 Demolition and Disposal Costs

Any extensive buyout will entail the demolition of a substantial number and variety of buildings now standing in the study areas. These buildings, as might be expected, are predominantly of older construction, were built with a range of materials, and will vary in their cost to demolish. Construction materials, as well as size, affect the actual cost of demolition, but more importantly, greatly affect the complexity and cost of disposing of the resulting debris. Some materials are expensive to haul away while other materials are hazardous and difficult to dispose. Landfill space is scarce in northern New Jersey, even for such common, non-hazardous materials as clean wood and bricks.

A detailed cost estimate for demolition and disposal of the 30 residential structures was developed using the Microcomputer Aided Cost Estimating System (MCACES) program. The MCACES estimate provides the cost of demolition for 30 residential structures, debris removal and disposal.

A review of 55 residential structures led to the determination of the number of houses likely to be 1-story or 2-story structures, whether the structures have basements, and whether the basements are located above or below grade. The structures are located in the Central Passaic River Basin. The estimate includes filling incidental excavations and compaction and finish grading to match existing topography and seeding. The price level of the estimate is November 2004, with the application of prevailing Davis Bacon wage rates for Passaic County, New Jersey and current equipment usage costs. The entire work has been assumed to be performed by a single general contractor.

An overall 20 percent contingency rate has been applied to the estimate to account for the possible cost of the abatement and disposal of asbestos and other hazardous materials associated with the buildings' superstructures and underground fuel and/or septic tanks.

A summary of the cost estimate for the limited buyout is provided in Table 3-8.

Table 3-8
MCACES Cost Estimate Summary – Limited Floodway Buyout

Item	Cost	Contingencies	Total Cost
Lands and Damages	$ 6,975,500	$ 1,395,100	$ 8,370,600
Demolition of 30 Residential Structures	$ 875,300	$ 175,100	$ 1,050,300
Planning, Engineering, and Design	$ 374,100	$ 37,400	$ 411,500
Construction Management	$ 95,000	$ 19,000	$ 114,000
TOTAL	$ 8,319,900	$ 1,626,600	$ 9,946,400

Additional detail on the items contained in the MCACES demolition estimate is provided in Table 3-9 (the full MCACES cost estimate is provided in Appendix B). As shown in the table, the summary data includes the cost of site infrastructure removal, utility shut-off, basement wall demolition to specified depths, sidewalk and driveway removal, and site grading and seeding. All disposal costs, such as hauling, and tipping fees also are included.

Table 3-9
Demolition and Disposal Activities Included in MCACES Cost Estimate

Wood Frame Building Demolition
Landfill Tip Fee for Wood Frame Building
Utility Disconnection
Remove & Dispose Fuel / Septic Tank
Remove Concrete Slab
Site Demolition - Bituminous Driveways
Site Demolition Chain Link Fence
Site Demolition - Footers & Foundation
Permitting Inspection
Fine Grading
Spread & Compact
Seeding

Table 3-10 shows the project economic summary for the limited buyout plan. The plan has total average annual costs of $ 576,700, total average annual benefits of $269,650, a benefit-cost ratio of 0.47 to 1, and negative annual net benefits of $ 307,050.

Table 3-10
Project Economic Summary
April 2003 Price Level, 5.375% Discount Rate, 50 Year Period of Analysis

Costs	
Real Estate Acquisition Costs	$ 8,370,600
Demolition & Disposal Costs	$ 1,050,300
Planning, Engineering & Design	$ 411,500
Construction Management	$ 114,000
Interest During Construction[5]	$ 0
Total Investment Costs	**$ 9,946,400**
Annualized Investment Costs	$ 576,700
Annual Operations & Maintenance Costs	$ 0
Total Average Annual Costs	**$ 576,700**
Benefits	
Flood Insurance Subsidy Reduction	269,650
Total Average Annual Benefits	**269,650**
Benefit to Cost Ratio	**0.47**
Net Benefits	**- 307,050**

3.5 * Environmental Mitigation Requirements

As this project is cost-shared under the Civil Works (CW) program, the actions of this project must be in compliance with all applicable Federal and State laws and regulations with regard to environmental compliance (ER 1105-2-100 (2-7)). For purposes of this report, Federal mitigation will not be required.

[5] Interest during construction is equal to zero because full project benefits (100 percent damage reduction) are achieved immediately upon purchase of the residential structure.

4. * ENVIRONMENTAL CONSEQUENCES

Consistent with CW Planning Guidance (EP1165-2-1, ER1105-2-100), EO 11990, NEPA and CEQ regulations, plan formulation of flood damage reduction features have avoided adverse project effects (project implementation or O&M) to the fullest extent practicable. The following is a summary of anticipated adverse effects of the environmental consequences expected to accompany the recommended plan for flood damage reduction.

4.1 Topography and Soils

No significant impacts to topography or geology will result from the implementation of the preferred alternative. Any grading activities will be restricted to the structure footprint, driveway or areas where underground storage tanks are removed. Suitable fill material will be brought in to bring any excavated area to grade.

4.2 Water Resources

Since demolition activities will be contained to the footprint of the structure and does not involve any in-channel work, no impacts to the Pompton and Ramapo Rivers are expected. Erosion control measures such as silt fence and temporary stabilization of unvegetated areas will be implemented during demolition activities to minimize sedimentation to the Ramapo and Pompton Rivers. Additionally, limits of disturbance will be established during demolition activities to help maintain a buffer between the Rivers and the work area.

4.3 Vegetation

Vegetation immediately next to the structures, driveways and any underground storage tank may need to be removed for equipment access. However, the area will be reseeded with native vegetation upon completion of demolition and removal activities. Therefore, no adverse impacts resulting from the project are anticipated.

4.3.1 Wetlands

No adverse impacts to wetlands will occur as a result of project implementation.

4.3.2 Uplands

No adverse impacts to uplands will occur as a result of project implementation.

4.4 Wildlife Resources

4.4.1 Finfish

As previously stated, no in-channel work is proposed as part of this project. Erosion and sediment controls along with establishing a work limits of disturbance will prevent excess sedimentation to the rivers. Therefore, no adverse impacts to fish species are expected as a result from project implementation.

4.4.2 Wildlife

Birds and mammals in the area may temporarily be affected by construction activities. During construction, increased noise levels, and earth moving activities may cause displacement of individuals. However, both species are highly mobile and are expected to avoid direct mortality. The return of the floodplain to a more natural state will provide better habitat to wildlife than the current conditions. Consequently, no significant impacts are anticipated.

4.5 Threatened and Endangered Species

Summer foraging and roosting habitats for the Indiana bat consist of riparian and floodplain forests. Indiana bats typically prefer roosting in the cavities or under the bark of dead or dying trees. Clearing activities, if necessary, will be restricted to the immediate footprint of the structures, driveways and any underground storage tanks. The presence of dead or dying trees around the structures is doubtful since they would presumably be removed due to being a potential hazard to the structures. Therefore, impacts to trees that provide Indiana bat habitat are not expected. However, the Corps will assess site conditions at the time when the structures to be removed are identified and will consult with the U.S. Fish and Wildlife Service as necessary. Similarly, no impacts to State listed priority species are expected from project implementation.

4.6 Socioeconomics

Implementation of the project is not expected to have any temporary or long-term adverse socioeconomic impacts. Homeowners participating in the voluntary buyout program will receive fair market value for their home. It should be noted, however, that the market value of any given Hoffman Grove home likely to be acquired in this phase of the project (only 20 homes) appears to be roughly half of the median home value in Wayne Township, New Jersey. Therefore, it may be difficult for participants to purchase a residential property comparable in price and location.

Although there may be a loss of property values from the tax roll, the quantity of the homes being removed should not constitute an appreciable financial loss to Pompton Lakes Borough or Wayne Township. Job loss is not expected to occur from this project since the structures that are being removed from the floodway are residential. The project may provide some benefits to recreational opportunities; particularly in the Pompton Lakes project area, where a small park is located. Removal of the homes could allow the potential expansion of the park.

4.7 Cultural Resources

4.7.1 Hoffman Grove, Wayne Township

It is believed that there is a reasonable potential for prehistoric cultural resources to exist in the Hoffman Grove project area in locations where natural soils remain. Removal of the houses is expected to consist of excavation of basements when present and removal of septic tanks. However, none of the houses in Hoffman Grove appear to have basements, and any disturbance generated during construction of the houses would have destroyed any prehistoric resources located within the house footprint. When houses have been selected for removal, a careful

evaluation will be made of the existing limits of disturbance and archaeological testing or monitoring will be recommended if new limits of disturbance are created.

Hoffman Grove developed as part of a movement of upper-middle class city dwellers out of New York City and into the country for summer vacationing. The evolution of vacation bungalows and camping grounds into year-round residences is a nationally significant development that is evident today in the very existence of the structures. Its association to the Depression and the lack of housing in the early twentieth century is notable. However, the community's most significant period is the summer bungalow community period. The bungalow style is prevalent throughout the neighborhood and most of the houses in Hoffman Grove were built in a characteristic bungalow form. However, all of the bungalows in the area have been altered over the last 70 to 100 years. As a result, the development no longer possesses the integrity of that style and because of this, the community as a unit, cannot purvey the appearance of a summer bungalow community. Hoffman Grove is not eligible for listing on the National Register as a district. None of the houses in Hoffman Grove were determined eligible for listing as individual structures. No further evaluation of these houses will be necessary provided the project plans remain the same.

The New Jersey State Historic Preservation Office concurs with these findings.

4.7.2 River Edge Drive, Pompton Lakes

The demolition of the houses will be conducted similarly to the Hoffman Grove demolitions; however, it is more likely that a number of the River Edge Drive houses will have a basement of some kind. The area is believed to have a reasonable potential for prehistoric archaeological remains but a low impact on undisturbed deposits. At the time the demolition plans are developed, a careful evaluation of the proposed area of disturbance shall be done to compare the original boundaries of disturbance to the current plans. Subsurface testing of the areas where new disturbance is anticipated shall be undertaken to determine whether significant archaeological deposits are present. If this is not feasible then archaeological monitoring shall be undertaken during construction. None of the houses within the project area were found to be eligible for inclusion in the NRHP. They are modern in character and do not possess any distinct historic quality that would make them eligible either individually or as a district. The Colfax Bridge and elements of the Pompton Feeder slack water canal, although eligible for listing in the NRHP, will not be impacted by the project. No further work is recommended for historic cultural resources.

The New Jersey State Historic Preservation Office concurs with these findings.

4.8 Hazardous, Toxic, and Radioactive Waste (HTRW)

No adverse impacts are anticipated from implementation of the preferred plan. Any UST and associated piping will be pumped dry, excavated, and removed by a contractor certified to do such work. Similarly, a certified contractor will remove any ACM and secure the material in designated containers for disposal in a regulated landfill prior to demolition. Only after a house has been cleared of USTs and ACM will it be demolished.

4.9 Air Quality and Noise

4.9.1 Air Quality

Heavy equipment used during construction may contribute minor amounts of carbon monoxide or other pollutants in the immediate vicinity of the Project. However, construction activities will have no significant or long-term impact on air quality. Emission calculations based upon the equipment inventory developed to construct the project have determined that the emissions resulting from the project remain under the NAAQS criteria threshold. A draft Record of Non-Applicability is appended to this report (Appendix C).

4.9.2 Noise

There will be a minor increase in noise levels in the immediate project area during operation of construction equipment. However these impacts are expected to be minimal and short-term and limited to the period of active construction. There will be no long-term impact on noise levels.

4.10 Cumulative Impacts

Cumulative impacts result when the effects of an action are added to or interact with other effects in a particular place and within a particular time frame. Therefore, the cumulative impacts of an action can be viewed as the total effects on a resource or ecosystem of that action and all other activities affecting that resource regardless of the entity (federal, non-federal, or private) taking the actions. CEQ's regulations require that cumulative impacts be considered along with temporary and long term impacts in order to ensure that the range of actions considered in NEPA documents includes not only the proposed action, but also all actions that could contribute to cumulative impacts.

The authority under which this project is funded authorizes the buyout and removal of approximately 800 homes throughout the Passaic River Basin. However, the non-federal sponsor, NJDEP, has indicated its desire to proceed with the acquisition and removal of homes in this area at this time. The Corps is currently constructing a flood damage reduction project in Oakland and Pompton Lakes that includes channel modification, installation of flood control gates at Pompton Lake Dam and creation of an eight-acre wetland (for mitigation) in Potash Lake. Construction is scheduled to be completed on this project by April 2006.

Acquisition of the homes to be removed under the floodway buyout project is anticipated to begin in December 2005. While construction activities on both projects are expected to overlap, the only foreseeable temporary impact would be a minor increase in emissions from construction equipment. A beneficial cumulative long term impact is reduced flood damages to a greater area in Pompton Lakes and Wayne Township.

5. PLAN IMPLEMENTATION

As non-Federal project partner, NJDEP must sign a Project Cooperation Agreement (PCA), which will carry the project through the completion of acquisition and demolition phase. Funds must be budgeted by the Federal Government and the non-Federal partner to support these activities. A Project Management Plan (PMP) will be developed to identify tasks, responsibilities, and financial requirements of the Federal Government and the non-Federal partner through completion of construction. A project schedule will be established based on reasonable assumptions for the acquisition and demolition schedules.

5.1 General

The completion of this report and recommendation by the District Engineer is the first step toward implementing the floodway buyout program in the study areas. The New York District will complete a Quality Control / Quality Assurance review, respond to comments from other agencies and interested parties, and then submit the final version of the report to the North Atlantic Division Commander for approval. The project will be considered for inclusion in the President's budget on the basis of national priorities, magnitude of the Federal commitment, economic and environmental feasibility, level of local support, willingness of the non-Federal partner to fund its share of the project cost, and budgetary constraints that may exist at the time of funding.

5.2 Local Cooperation

A fully coordinated PCA package, which will include the non-Federal partner's financing plan, will be prepared subsequent to the approval of the study report. The non-Federal partner, NJDEP, has indicated support for recommendations presented in this report and its desire to execute a PCA for the buyout plan.

As the non-Federal project partner, NJDEP must comply with all applicable Federal laws and policies and other requirements, including but not limited to:

Project Responsibility

- Hold and save the United States free from all damages arising from the construction, operation, maintenance, repair, replacement, and rehabilitation of the Project and any Project-related betterments, except for damages due to the fault or negligence of the United States or its contractors.
- Assume complete financial responsibility, as between the Federal Government and the non-Federal project partner for all necessary cleanup and response costs of any Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) regulated materials located in, on, or under lands, easements, or rights-of-way that the Federal Government determines to be necessary for the construction, operation, or maintenance of the Project.
- Operate the project for the purpose of CERCLA liability. To the maximum extent practicable, operate, maintain, repair, replace and rehabilitate the Project in a manner that will not cause liability to arise under CERCLA.

- Comply with the applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, as amended by Title IV of the Surface Transportation and Uniform Relocation Assistance Act of 1987 (Public Law 100-17),and the Uniform Regulations contained in 49 CFR Part 24, in acquiring lands, easements, and rights-of-way, required for the construction, operation, and maintenance of the Project, including those necessary for relocations, borrow materials, and dredged or excavated material disposal, and inform all affected persons of applicable benefits, policies, and procedures in connection with said Act.
- Comply with all applicable Federal and State laws and regulations, including, but not limited to, Section 601 of the Civil Rights Act of 1964, Public Law 88-352 (42 U.S.C. 2000d), and Department of Defense directive 5500.11 issued pursuant thereto, as well as Army regulation 600- 7, entitled "Nondiscrimination on the Basis of Handicap in Programs and Activities Assisted or Conducted by the Department of the Army."

Floodplain Management

- Participate in and comply with applicable Federal flood plain management and flood insurance programs and comply with the requirements in Section 402 of the Water Resources Development Act of 1986, as amended.
- Publicize flood plain information in the area concerned and provide this information to zoning and other regulatory agencies for their use in preventing unwise future development in the flood plain and in adopting such regulations as may be necessary to prevent unwise future development and to ensure compatibility with the protection provided by the project.

Financial & Administrative Management

- Comply with Section 221 of Public Law 91-611, Flood Control Act of 1970, as amended, and Section 103 of the Water Resources Development Act of 1986, Public Law 99-662, as amended, which provides that the Secretary of the Army shall not commence the construction of any water resources project or separable element thereof, until the non-Federal project partner has entered into a written agreement to furnish its required cooperation for the project or separable element.
- Provide, during the first year of construction, any additional funds needed to cover the non-Federal share of PED costs.
- Provide, during construction, any additional funds needed to cover the non-Federal share of costs.
- Keep, and maintain books, records, documents, and other evidence pertaining to costs and expenses incurred pursuant to the Project in accordance with the standards for financial management systems set forth in the Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments at 32 Codes of Federal regulations (CFR) Section 33.20.

- Not use Federal funds to meet the non-Federal sponsor's share of total project costs unless the Federal granting agency verifies in writing that the expenditure of such funds is authorized.
- Provide the non-Federal share of that portion of the costs of mitigation and data recovery activities associated with historic preservation, that are in excess of 1 percent of the total amount authorized to be appropriated for the project, in accordance with the cost sharing provisions of the agreement.

Inspection, Performance, and Maintenance

- Grant the Government a right to enter, at reasonable times and in a reasonable manner, upon land which the non-Federal project partner owns or controls for access to the project for the purpose of inspection and, if necessary, for the purpose of completing, operating, maintaining, repairing, replacing or rehabilitating the project.
- Prevent obstructions of or encroachments on the project (including prescribing and enforcing regulations to prevent such obstructions or encroachments) which might hinder its operation and maintenance, or interfere with its proper function, such as any new development on project lands or the addition of facilities which would degrade the benefits of the project.
- Provide to the Federal Government a right to enter, at reasonable times and in a reasonable manner, upon property that the non-Federal project partner, now or hereafter, owns or controls for access to the Project for the purpose of inspection, and, if necessary after failure to perform by the non-Federal project partner, for the purpose of completing, operating, maintaining, repairing, replacing, or rehabilitating the Project. No completion, operation, maintenance, repair, replacement, or rehabilitation by the Federal Government shall operate to relieve the non-Federal project partner of responsibility to meet the non-Federal project partner's obligations, or to preclude the Federal Government from pursuing any other remedy at law or equity to ensure faithful performance.
- Not less than once each year inform affected interests of the extent of protection afforded by the Project.
- Provide and maintain necessary access roads, parking areas, and other public use facilities, open and available to all on equal terms.

5.3 Cost Sharing

Table 5-1 displays the apportionment of cost sharing responsibilities between the Federal government and the non-Federal sponsor, NJDEP. The total project first costs - including Lands, Easements, Rights-of-way, Relocations, and Disposal areas (LERRD) - are shared on a 75 percent basis by the Federal government and a 25 percent basis by the non-Federal partner. As indicated in the table the Federal share of the entire project's total first cost is $ 7,459,800; the non-Federal share is $ 2,486,600. The Federal Government will design the acquisition and demolition plans, prepare detailed plans/specifications and acquire residential properties on behalf of the non-Federal partner.

Table 5-1
Cost Apportionment
Federal and Non-Federal Responsibilities

Federal Project Cost (75%)	**$ 7,459,800**
Non-Federal Project Cost (25%)	**$ 2,486,600**
Total Project Cost (100%)	**$ 9,946,400**

It should be noted that the costs presented are estimated and that actual costs will be determined based upon financial accounting as stipulated in the construction Project Cooperation Agreement that will be executed with the NJDEP prior to actual implementation of the acquisition plan.

5.4 Implementation Schedule

A preliminary implementation schedule was developed for the selected plan. The schedule is based on information available to date, and is largely dependent on whether the Project continues to receive Congressionally-directed funding. The estimated implementation schedule for the first group of buyouts is provided below:

- Project Cooperation Agreement Execution – Sepember 2005 - October 2005
- Plans and Specifications Phase Begins – October 2005
    - Real Estate Activities and Acquisitions– October 2005 – April 2006
    - Plans and Specifications for Demolition – January 2006 – April 2006
- Construction Phase Begins – May 2006
    - Advertisement and Contract Award – May 2006 – July 2006
    - Demolition – August 2006 – April 2008

For the remaining structures, the estimated implementation schedule is contingent on Congressionally-directed funding. If funding is available, Real Estate Acquisition will continue through September 2007.

5.5 Financial Analysis

For purposes of executing the PCA, the NJDEP has stated its intention to act as the non-Federal partner. The state will provide funds in increments appropriate to the proportion of the amount of Federal funds to be expended on the project each year. State funds will be derived through the State's annual budget process. The State has indicated its intent to enter into a PCA at the conclusion of this study. The State of New Jersey has secured funding for the first year of the acquisition phase.

5.6 Views of Non-Federal Partners and Other Agencies

The selected plan has received strong support from the non-Federal project partner, NJDEP, as well as other agencies of the State of New Jersey. The affected local governments, Passaic County, Pompton Lakes Borough, and the Township of Wayne, New Jersey also have expressed their support for the project. A meeting was held on August 17, 2005 with the NJDEP, the Township of Wayne, the Borough of Pompton Lakes, and the Corps to discuss the implemenatation of the project.

5.7 Areas Of Concern

There are no outstanding areas of concern regarding the acquisition plan. The plan is fully voluntary, supported by the non-Federal project partner, NJDEP, as well as affected local governments and interested Federal agencies. These parties have full confidence in the anticipated performance of the plan in terms of flood damage reduction and impacts on the environment.

6 * COORDINATION AND COMPLIANCE WITH ENVIRONMENTAL REQUIREMENTS

The Draft report was coordinated with the public and involved agencies through targeted mailings, placement of the report in public repositories at the local library and town hall, and by advertisement of the document's availability on the New York District's web site. The Notice of Availability of the Draft EA was issued on July 11, 2005 and had a 30-day public comment period, ending on August 9. With the exception of a letter supporting the project from the Mayor of the Township of Wayne, no comments were received. The mailing list comprising of the state and Federal agencies, and interested organizations and stakeholders who received a copy of the Draft report is located in Appendix F.
The Fish and Wildlife Coordination Act Report is located in Appendix E. The Corps received concurrence on its recommendations regarding the cultural resources assessment from the New Jersey State Historic Preservation Office on June 1, 2005. The correspondence is located in Appendix D. Applicable laws and regulations to federal actions are summarized in Table 6-1.

Table 6-1
Summary of Primary Laws and Regulations Applicable to the Proposed Project

Legislative Title	U.S. Code/Other	Compliance
Clean Air Act	42 U.S.C. §§ 7401-7671g	An air quality analysis was completed for the project (See Appendix C). Based upon the completed analysis, the emissions from the project are considered to have an insignificant impact on the regional air quality, and according to 40 CFR 93.153 (f) and (g) the proposed project is presumed to conform to the SIP. A Record of Non-Applicability is appended to the Draft Environmental Assessment.
Clean Water Act	33 U.S.C. §§ 1251 et seq.	The project does not involve any discharge or fill of the Ramapo and Pompton Rivers or associated wetlands. Erosion and sediment control measures will be implemented during construction to minimize sedimentation to the rivers. Therefore, the project is in compliance with this Act.
Endangered Species Act of 1973	16 U.S.C. §§ 1531 et seq.	Per coordination with the U.S. Fish and Wildlife Service, the project area has potential Indiana bat habitat. Although the proposed project is not expected to have adverse impacts to any endangered or threatened species, any tree clearing activities conducted from April 1 through September 30 will require formal consultation.
Fish and Wildlife Coordination Act	16 U.S.C. § 661 et seq.	The FWCAR is located in Appendix E.
National Environmental	42 U.S.C. §§ 4321-4347	The circulation of the Draft and Final

Policy Act of 1969		Environmental Assessment fulfills requirements of this act.
National Historic Preservation Act of 1966	16 U.S.C. §§ 470 et seq.	The NJSHPO concurrence letter is located in Appendix D The Corps will continue to coordinate with the State Historic Preservation Office throughout the project to fulfill requirements of this act.
Executive Order 11990, Protection of Wetlands	May 24, 1977	Circulation of this report for public and agency review fulfills the requirements of this order.
Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks	April 21, 1997	Implementation of this project will reduce environmental health risks. Circulation of this report for public and agency review fulfills the requirements of this order.

During construction, best management procedures will be followed to maintain compliance with Standards for Soil Erosion and Sediment Control in New Jersey (NJAC 2:90), and NJDEP Water Quality Certifications (NJAC 7:7A-2.1(d)).

The following measures will be taken to minimize and avoid adverse environmental impacts:

- Establishing a limit of disturbance to maintain a buffer between the demolition area and the Rivers,
- Employing erosion and sediment controls to reduce the potential of sedimentation to the Ramapo and Pompton Rivers, and
- Reseeding the area with native vegetation to enhance the habitat value of the site.

7. RECOMMENDATIONS

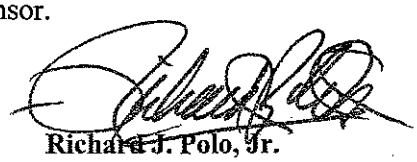
In making the following recommendations, I have given consideration to all significant aspects in the overall public interest, including environmental, social and economic effects, engineering feasibility and compatibility of the project with the policies, desires and capabilities of the State of New Jersey and other non-Federal interests.

Although the project is not economically justified, I recommend that the selected plan for acquisition of thirty (30) residential structures located within the floodway of the Passaic River be implemented as a Federal project for flood damage reduction, subject to such modifications as may be prescribed by the Chief of Engineers and to the extent that funds have been appropriated by the U.S. Congress. To date, $1,250,000 has been appropriated. These funds, coupled with the non-Federal sponsor's share of project costs, will be used to initiate the buyout program. If additional appropriations are made, those funds will be used to advance the buyout program toward completion, as well.

The recommendations contained herein reflect the information available at this time and current departmental policies governing individual projects. They do not reflect program and budgeting priorities inherent in the formulation of a national Civil Works construction program nor the perspective of higher review levels within the Executive Branch. Consequently, the recommendations may be modified. The non-Federal project partner (the New Jersey Department of Environmental Protection), interested Federal agencies, and other parties will be advised of any modifications and will be afforded an opportunity to comment further.

These recommendations are made with the provisions that local interests will:

a. Hold and save the United States free from claims for damages which may result from construction and subsequent maintenance, operation, and public use of the project, except damages due to the fault or negligence of the United States or its contractors.
b. Maintain public ownership and public use of the areas upon which the amount of Federal participation is based during the economic life of the project.
c. Provide and maintain necessary access roads, parking areas, and other public use facilities open and available to all on equal terms.
d. Contribute the local share of non-Federal costs for initial construction and operation and maintenance over the economic life of the project, as required to serve the intended purposes.
e. Upon completion of each project feature, acquire, rehabilitate, repair, replace, operate and maintain easements for public access to areas created or enhanced by the project. The cost of the operation and maintenance of these easements will be the responsibility of the non-Federal sponsor.



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