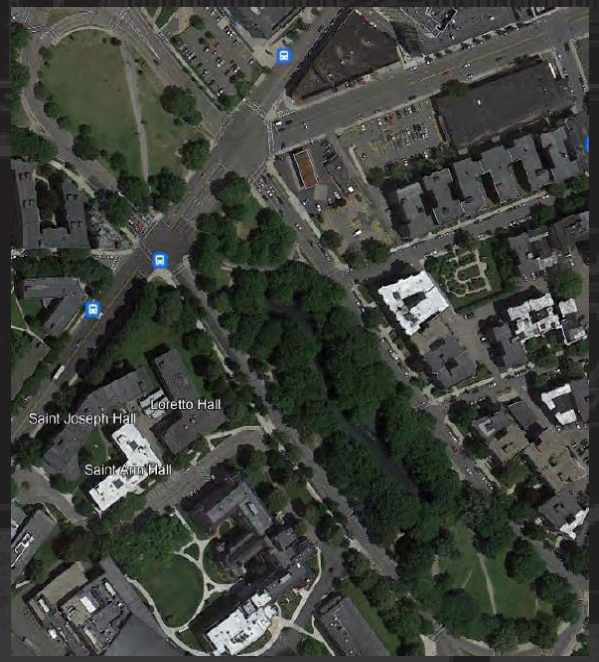
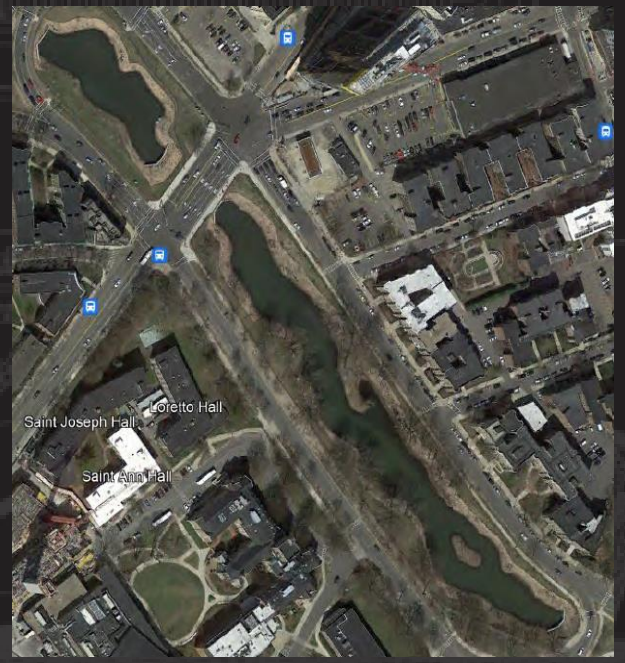
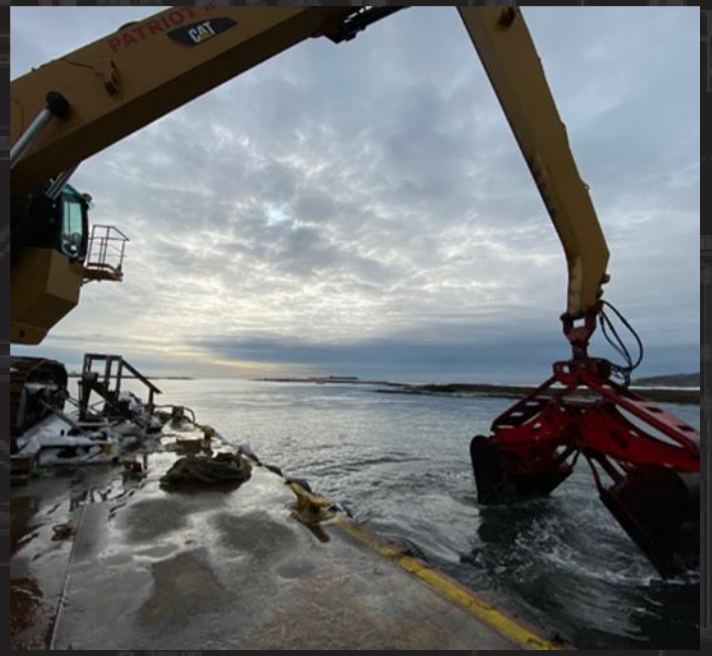
USACE NEW ENGLAND DISTRICT PAWTUXET RIVER FLOOD COMMISSION

Chris Hatfield
Plan Formulation Branch Chief
New England District

December 17, 2025







U.S. ARMY

US Army Corps of Engineers®
New England District

USACE PRIMARY MISSION AREAS

NAVIGATION

- Larger ports (30’ +) such as Boston, New Haven, Portsmouth, Portland & Providence responding to changes in ship sizes
- Modifications to smaller ports (< 30’) in response to increased number of users

FLOOD RISK MANAGEMENT

- Watershed scale solutions
- Large, complex multi-purpose urban flooding problems
- Coastal and storm damage related problems

AQUATIC ECOSYSTEM RESTORATION

- Coastal salt marsh and wetlands restoration
- Dam removal or other means of fish passage
- Watershed studies relating to flows & WQ impacts to aquatic environments

USACE AND PAWTUXET RIVER FLOODING

1939 - Flood Survey
(Pontiac Diversion Channel and Clyde Levee on North Branch)

1944 - Pontiac Diversion Report

1971 - Pawtuxet River Watershed Reconnaissance Report

1976 - Pawtuxet River Watershed Interim Report

1981 - Big River Reservoir Report

USACE AND PAWTUXET RIVER FLOODING

1982 - Pawtuxet River Flood Damage Reduction Report

1983 – Reconnaissance Study GE Facility in Warwick
(no Federal interest in floodproofing)

1985 - Belmont Park Non-Structural Project Constructed

1987 – Flood Control Re-Analysis – Pawtuxet River Basin

2012 - Pawtuxet River 905(b) Report in Response to 2010 Flood
(No local support to continue feasibility study)

U.S. ARMY

WATER AND RELATED LAND RESOURCES INVESTIGATION
PAWCATUCK RIVER AND
NARRAGANSETT BAY DRAINAGE BASINS

PAWTUXET RIVER WATERSHED
INTERIM REPORT

Main Report

DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION, CORPS OF ENGINEERS
WALTHAM, MASS.

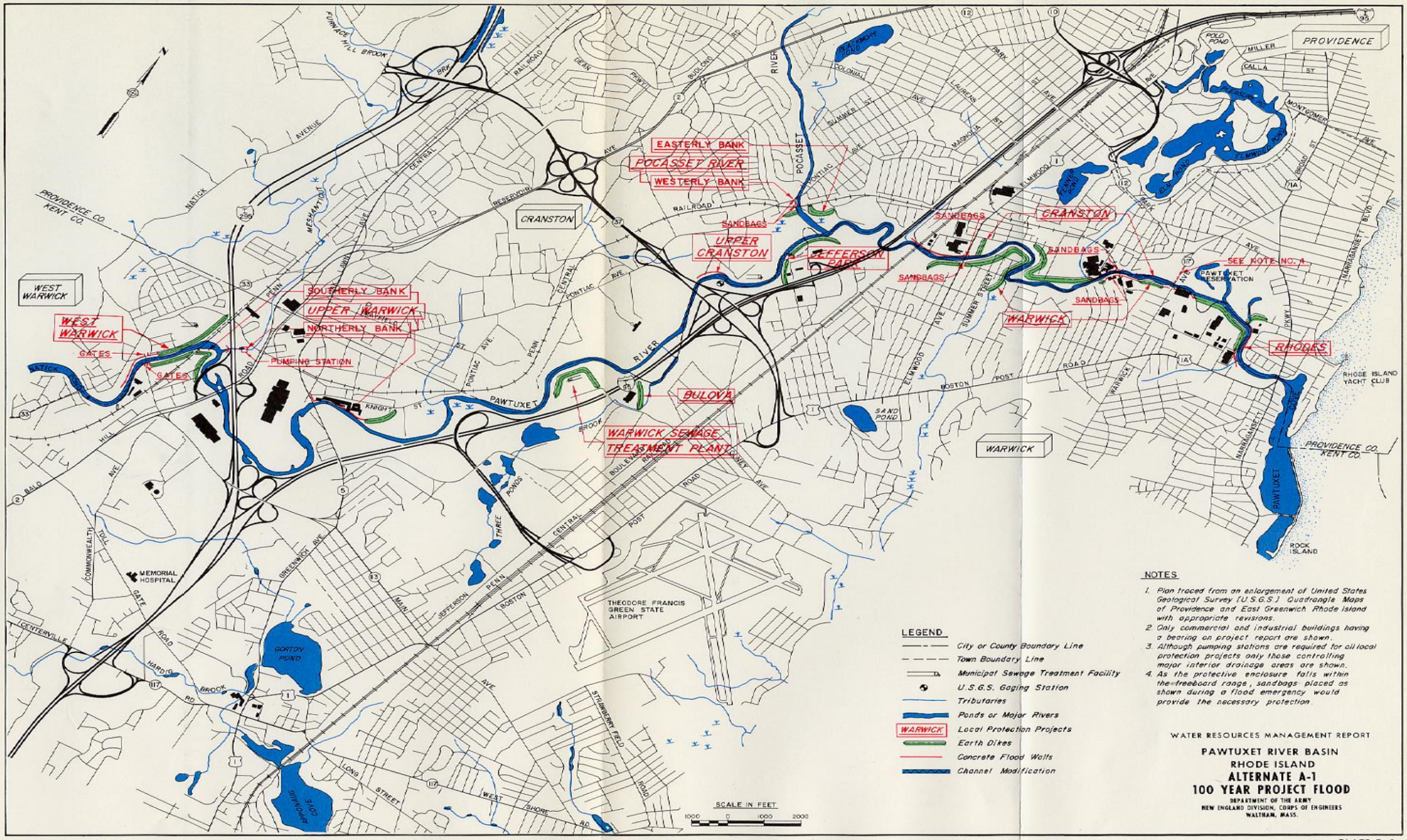
108

PAWTUXET INTERIM REPORT SUMMARY

- Walls , levees, reservoirs, land management, removal of dams, diversion of flow, channel modifications, and flood proofing structures initially examined

- **Channel modifications were found to be economically and hydraulically impractical because of excessive depths of flooding encountered and existing flat stream gradients**

- Small local protection projects (levees, walls, etc.) also found to be economically impracticable unless combined with reservoir management or diversion of flows.



LEGEND

- City or County Boundary Line
- Town Boundary Line
- Municipal Sewage Treatment Facility
- U.S.G.S. Gaging Station
- Tributaries
- Ponds or Major Rivers
- WARWICK — Local Protection Projects
- Earth Dikes
- Concrete Flood Walls
- Channel Modification

NOTES

1. Plan traced from an enlargement of United States Geological Survey (U.S.G.S.) Quadrangle Maps of Providence and East Greenwich Rhode Island with appropriate revisions.
2. Only commercial and industrial buildings having a bearing on project report are shown.
3. Although pumping stations are required for all local protection projects only those controlling major interior drainage areas are shown.
4. As the protective enclosure falls within the freeboard range, sandbags placed as shown during a flood emergency would provide the necessary protection.

WATER RESOURCES MANAGEMENT REPORT

PAWTUXET RIVER BASIN
RHODE ISLAND
ALTERNATE A-1
100 YEAR PROJECT FLOOD

DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION, CORPS OF ENGINEERS
WALTHAM, MASS.

PLATE D-2

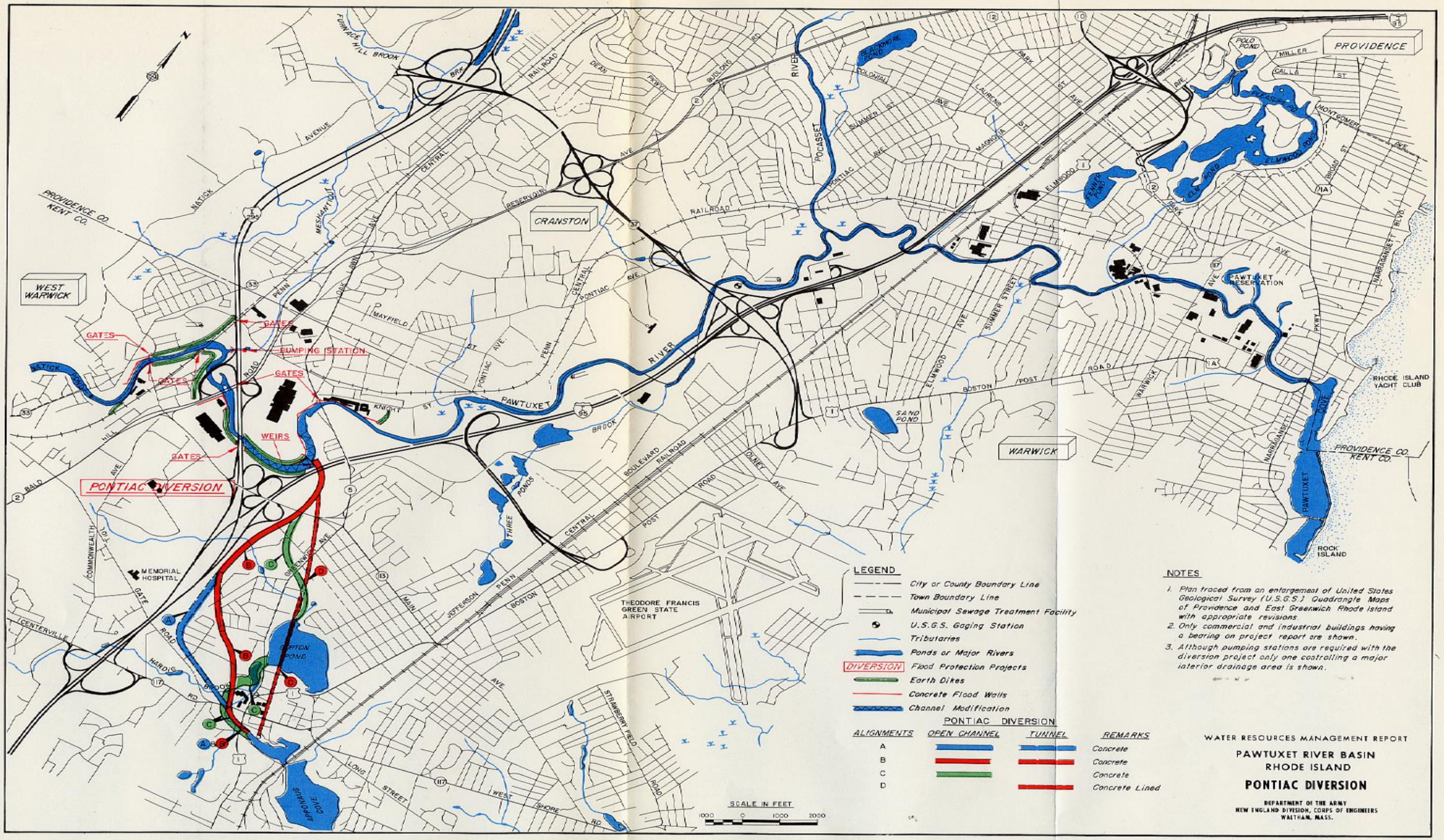
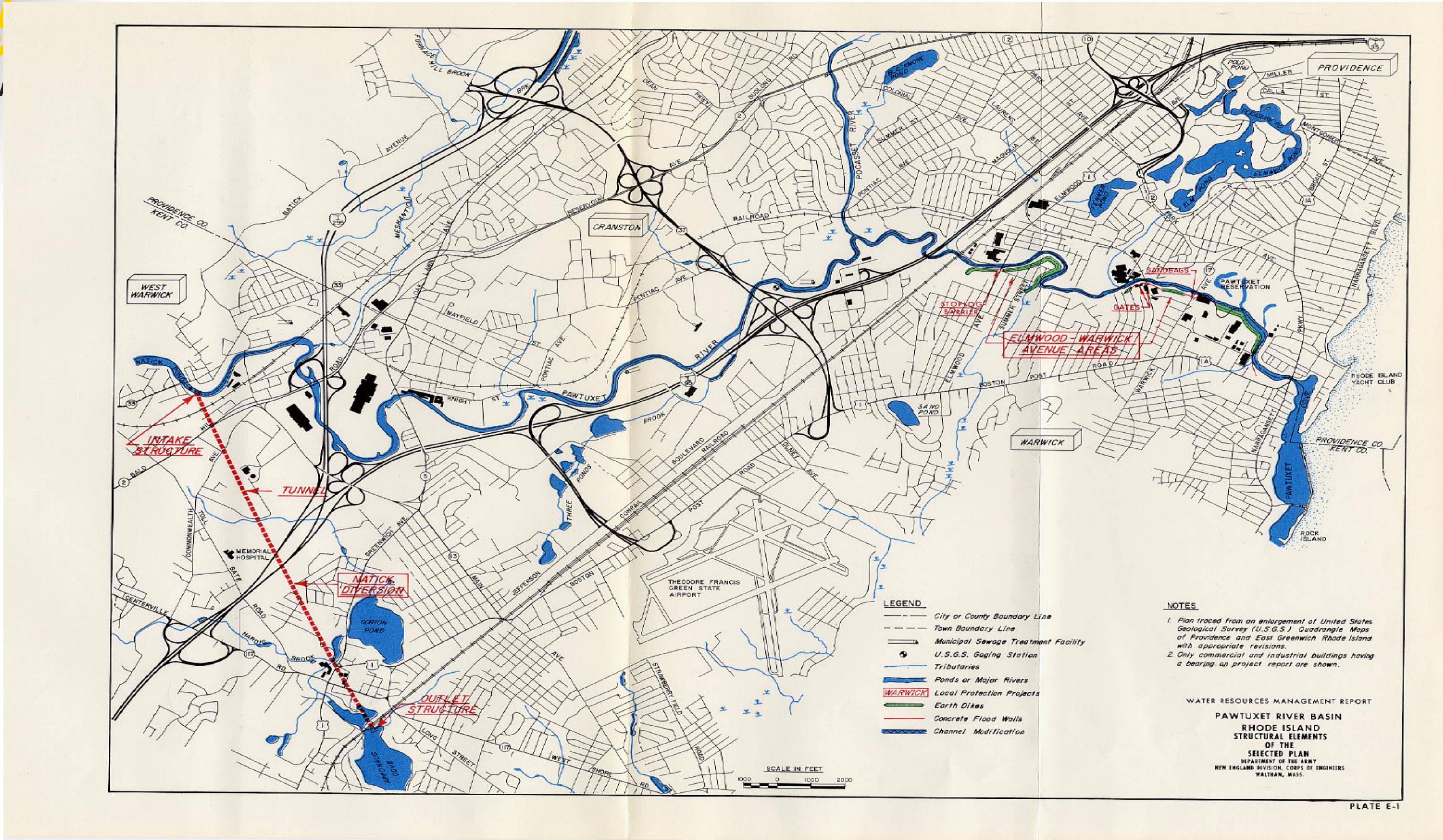

PROVIDENCE
CRANSTON
WEST WARWICK
WARWICK
PONTIAC DIVERSION
GATES
PUMPING STATION
WEIRS
PAWTUXET RIVER
POCASSET RIVER
THEODORE FRANCIS GREEN STATE AIRPORT
MEMORIAL HOSPITAL
PAWTUXET RESERVATION
RHODE ISLAND YACHT CLUB
ROCK ISLAND
PROVIDENCE CO.
KENT CO.
LEGEND
City or County Boundary Line
Town Boundary Line
Municipal Sewage Treatment Facility
U.S.G.S. Gaging Station
Tributaries
Ponds or Major Rivers
DIVERSION Flood Protection Projects
Earth Dikes
Concrete Flood Walls
Channel Modification
PONTIAC DIVERSION
ALIGNMENTS OPEN CHANNEL TUNNEL REMARKS
A Concrete
B Concrete
C Concrete
D Concrete Lined
NOTES
1. Plan traced from an enlargement of United States Geological Survey (U.S.G.S.) Quadrangle Maps of Providence and East Greenwich Rhode Island with appropriate revisions.
2. Only commercial and industrial buildings having a bearing on project report are shown.
3. Although pumping stations are required with the diversion project only one controlling a major interior drainage area is shown.
SCALE IN FEET
1000 0 1000 2000
WATER RESOURCES MANAGEMENT REPORT
PAWTUXET RIVER BASIN
RHODE ISLAND
PONTIAC DIVERSION
DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION, CORPS OF ENGINEERS
WALTHAM, MASS.

PLATE D-3


PROVIDENCE
CRANSTON
WEST WARWICK
WARWICK
PROVIDENCE CO.
KENT CO.
INTAKE STRUCTURE
TUNNEL
NATICK DIVERSION
OUTLET STRUCTURE
STOPLOG BARRIER
GATES
SANDBAGS
ELMWOOD - WARWICK AVENUE AREAS
NATICK POND
PAWTUXET RIVER
POCASSET RIVER
GORTON POND
APPONAUG COVE
SAND POND
PAWTUXET COVE
PAWTUXET RESERVATION
RHODE ISLAND YACHT CLUB
ROCK ISLAND
MEMORIAL HOSPITAL
THEODORE FRANCIS GREEN STATE AIRPORT
SCALE IN FEET
1000 0 1000 2000
LEGEND
City or County Boundary Line
Town Boundary Line
Municipal Sewage Treatment Facility
U.S.G.S. Gaging Station
Tributaries
Ponds or Major Rivers
WARWICK Local Protection Projects
Earth Dikes
Concrete Flood Walls
Channel Modification
NOTES
1. Plan traced from an enlargement of United States Geological Survey (U.S.G.S.) Quadrangle Maps of Providence and East Greenwich Rhode Island with appropriate revisions.
2. Only commercial and industrial buildings having a bearing on project report are shown.
WATER RESOURCES MANAGEMENT REPORT
PAWTUXET RIVER BASIN
RHODE ISLAND
STRUCTURAL ELEMENTS
OF THE
SELECTED PLAN
DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION, CORPS OF ENGINEERS
WALTHAM, MASS.
PLATE E-1

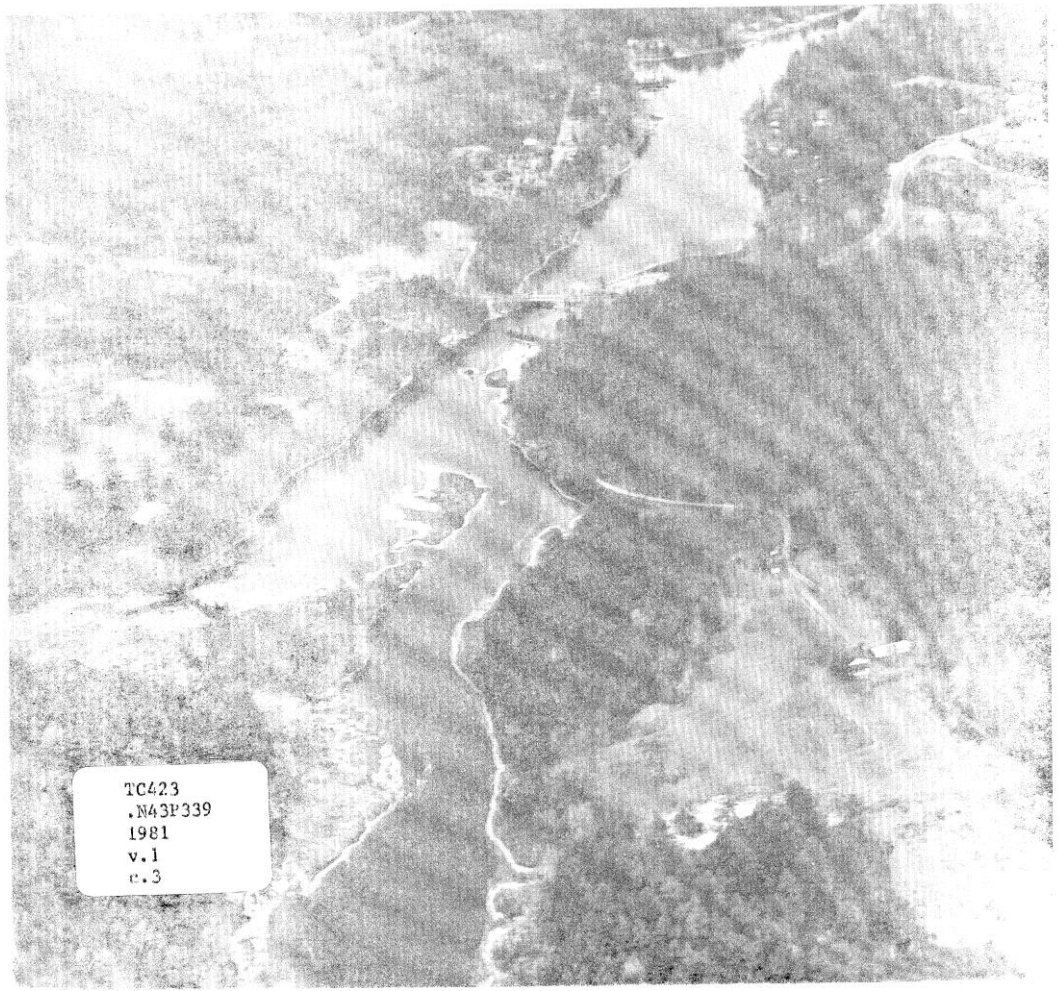
PAWTUXET INTERIM REPORT RECOMMENDED PROJECT

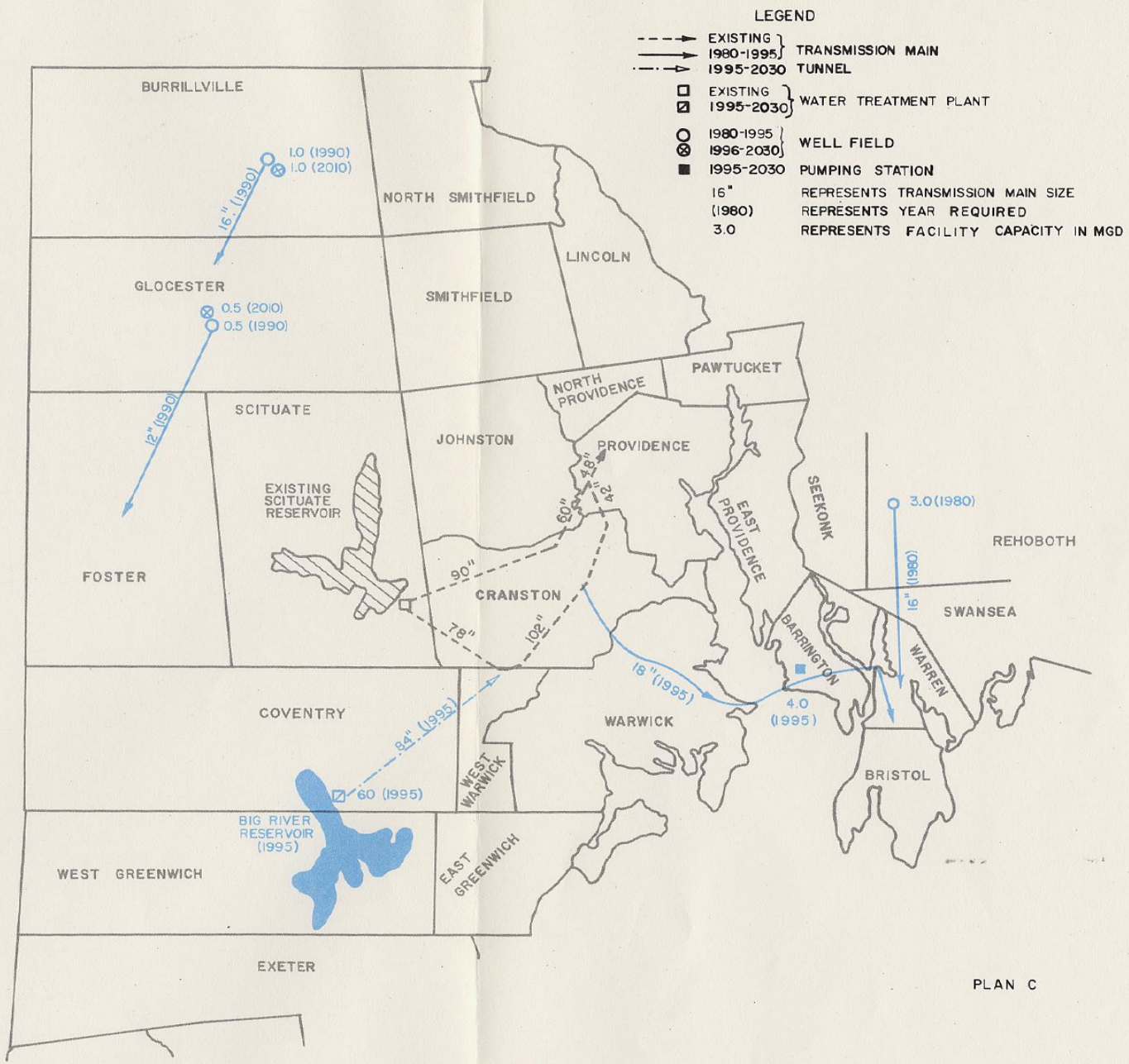
- Diversion structure (2.5 mile long, 30’ diameter concrete lined tunnel) and flood protection levees (tidal flooding) in the Elmwood and Warwick Avenue areas
- Total cost $59million @ 1976 price levels
- Lower 1% Annual Exceedance Probability (“100-yr”) flood elevations **by ~2.0’** downstream
- **Plan was not supported by the public mainly due to high costs and environmental concerns.**

U.S. ARMY

Interim Report
Volume I - Main Report, July 1981

Big River Reservoir Project





PLAN C

PLATE 10

BIG RIVER SUMMARY

- Result of the Governor's request in 1978 that USACE investigate the feasibility of a multi-purpose (water supply, flood control, and recreation) at the Big River in East Greenwich and Coventry

- Recommended a 2,400' long x 70' high (max height) earthen dam and reservoir (3400 acres or 5.3 square miles)

- Total cost $71.2million ($37.6million for state owned lands) @ 1980 price levels

- Storage allocation: 77% water supply, 13% conservation, and 10% flood control.

- Lower 1% Annual Exceedance Probability ("100-yr") flood elevations **by ~1.5'** immediately downstream and **< 1.0'** along lower mainstem

- **Plan was not supported due to its impact on the environment and unclear need for additional water supply**

U.S. ARMY

Detailed Project Report/Environmental Assessment
Pawtuxet River
Warwick (Belmont Park), R.I.

Flood Damage Reduction

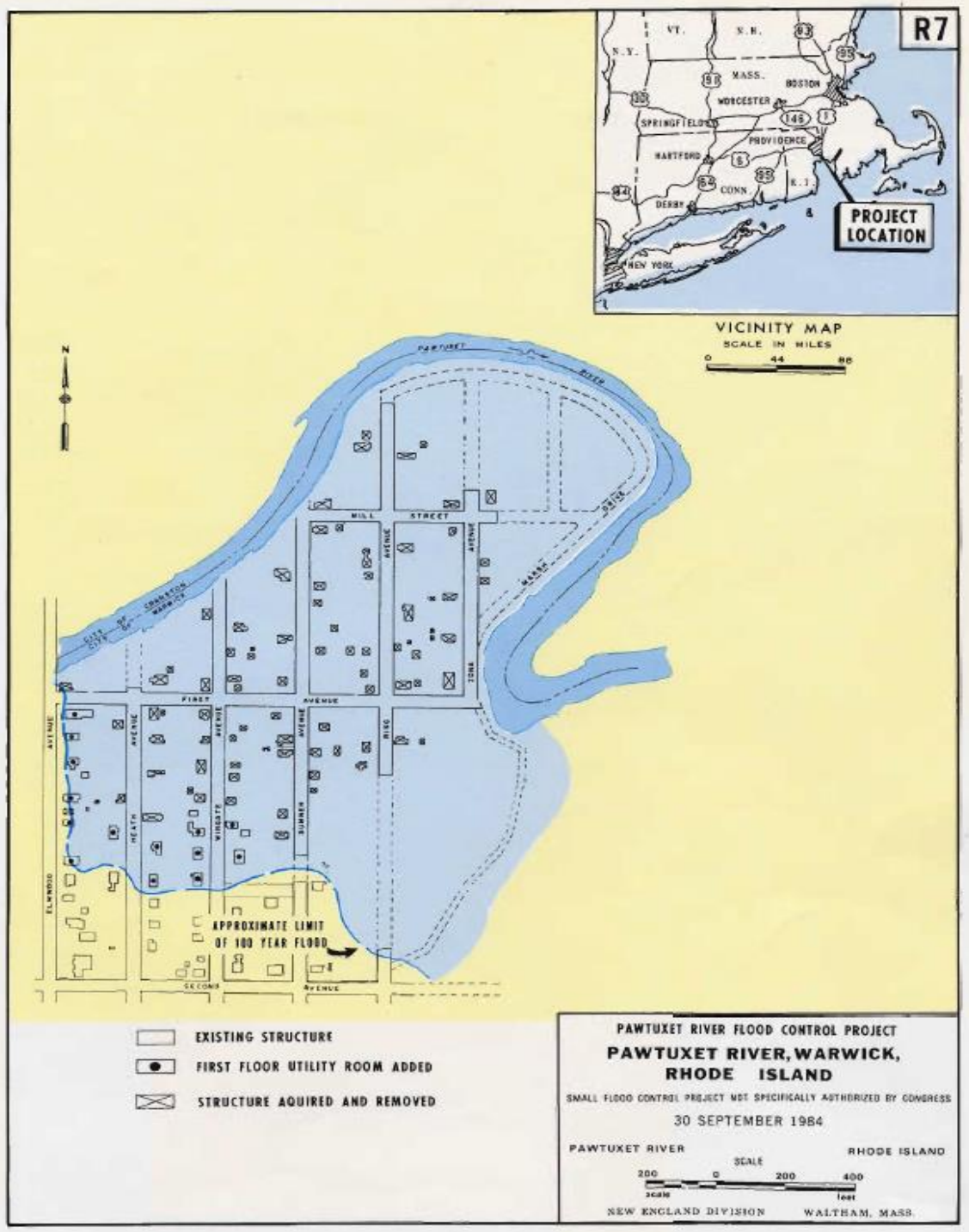
June 1982

US Army Corps
of Engineers
New England Division

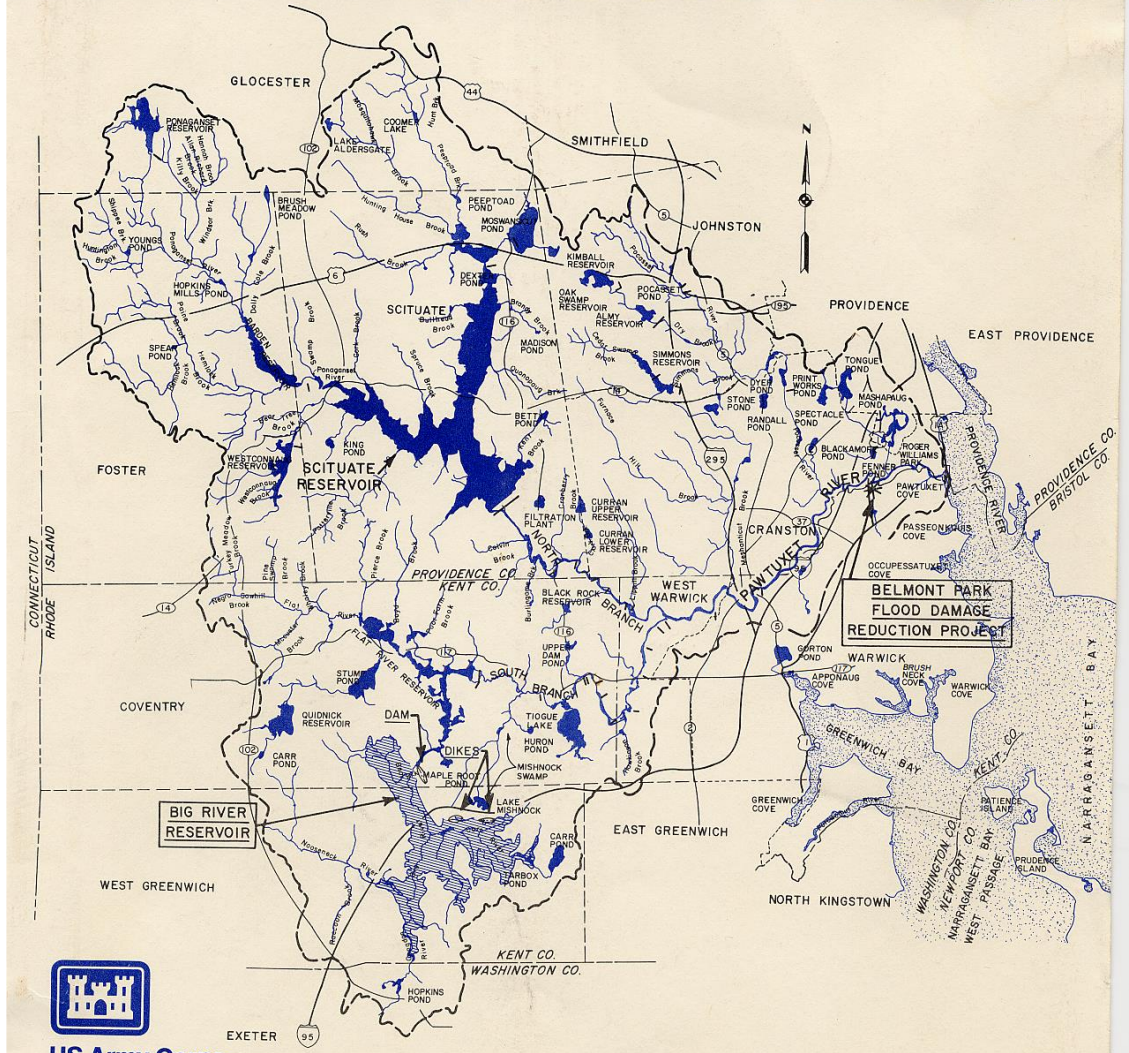
U.S. ARMY

"BELMONT PARK" PROJECT
(SECTION 205 OF THE CONTINUING AUTHORITIES PROGRAM)

- 58 structures demolished or removed
- 19 empty lots acquired
- 17 elevated utility rooms constructed
- Automated flood warning system installed



FLOOD CONTROL REANALYSIS
PAWTUXET RIVER BASIN
RHODE ISLAND
JUNE 1987



RE-ANALYSIS SUMMARY

- Updated hydrology of the basin to include 1979, 1982, and 1983 floods

- Determined flood elevations could be reduced downstream (Cranston flow gage) by **1.5 - 3.8'**, depending on how Scituate and Big River reservoirs are operated (incidental vs. design)

- Re-evaluation of the **Natick Diversion tunnel found that it was no longer conomically justified** (i.e. benefit to cost ratio < 1.0) due to lowered benefits (Warwick WWTP and Belmont Park projects) and increased costs

- Same re-evaluation of the Warwick Local Protection Project resulted in a BCR < 1.0 due to higher costs and changing benefit pool

- **Recommended:**
  - **Construction of the Big River Reservoir (authorized by Section 601 of WRDA 1986), with dedicated flood storage, operating in concert with a re-regulated Scituate Reseroir**
  - **Stricter enforcement of floodplain regulations by local authorities**
  - **Installation of an automated flood warning system.**

U.S. ARMY

QUESTIONS ?