

MIDDLESEX CANAL HERITAGE PARK FEASIBILITY STUDY

PREPARED FOR:
MIDDLESEX CANAL COMMISSION

PREPARED BY:
METROPOLITAN AREA PLANNING COUNCIL,
NORTHERN MIDDLESEX AREA COMMISSION

Adopted by Vote of the
Middlesex Canal Commission
as its Master Plan on
March 18, 1996

MIDDLESEX CANAL COMMISSION

Boston	Eugenie Beal
Somerville	Isobel Cheney Mary L. Pineo (Alternate)
Medford	Henry S. Condon William J. Corbett (Alternate)
Winchester	Frances B. Ver Planck (Secretary) Susan Keats (Alternate)
Woburn	Leonard H. Harmon (Chairman) Thomas Smith (Corresponding Secretary)
Wilmington	Stanley Webber Madelyn McKee (Alternate)
Billerica	Marion Potter
Chelmsford	Janet Lombard George Parkhurst (Alternate)
Lowell	Emily B. Tickell George Aliades (Alternate)
State Senator	Honorable Samuel Rotundi
State Representative	Honorable Nicholas Paleologos
Metropolitan Area Planning Council	Donald E. Megathlin, Jr.
Northern Middlesex Area Commission	Joseph Hannon
Department of Environmental Management	Richard Kendall
Archivist	Joseph Kopycinski
Consultant	Lt. Col. William M. Hoxie

ERRATA SHEET

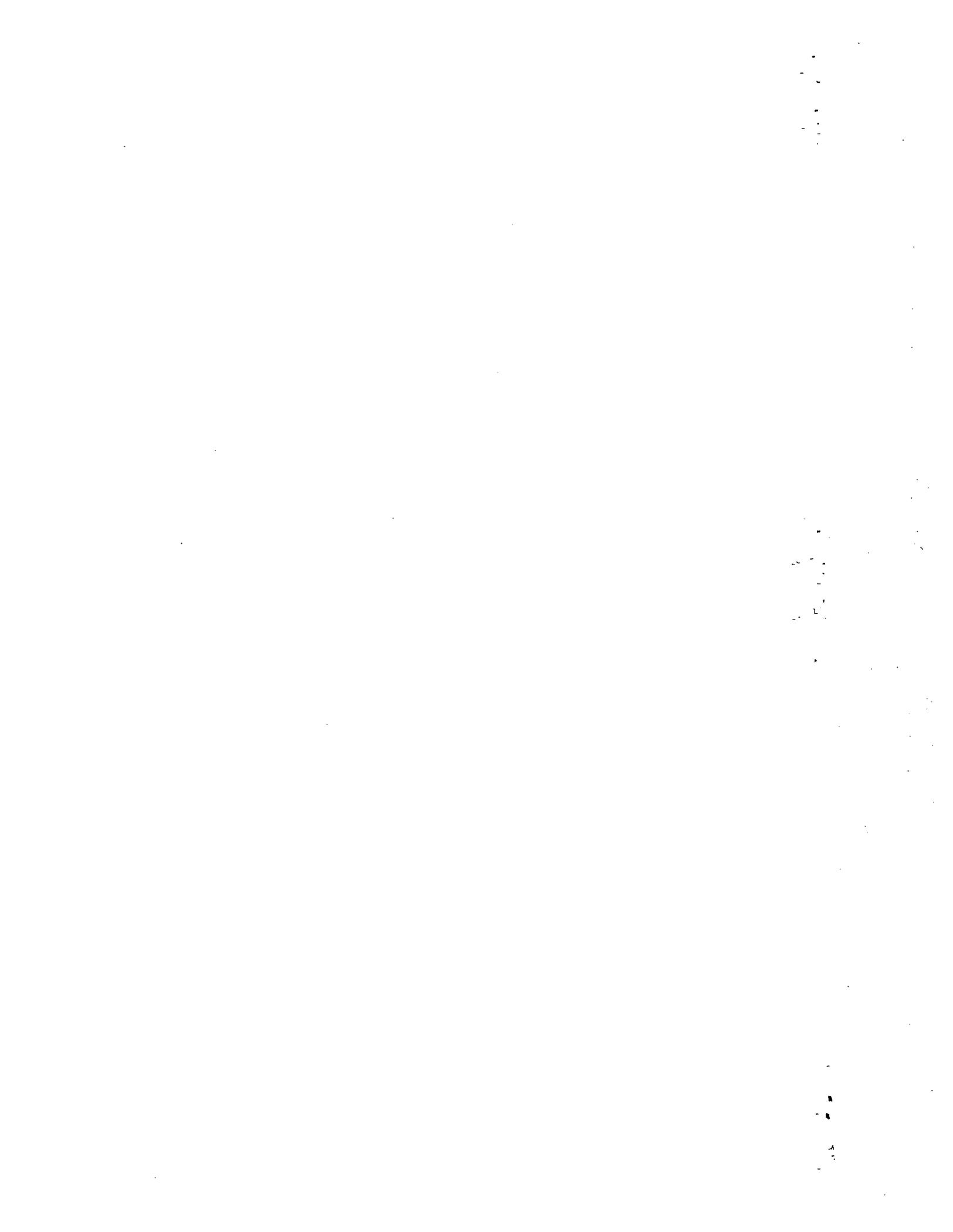
PAGE

ABOUT THIS
REPORT

- Ralph Bosner should read Ralph Basner.
- p. 1 Paragraph 2. 'In 1964, the Middlesex Canal Association was formed by
- p. 2 Paragraph 2. Footnote to 'waterway between Boston and Lowell'.*
- *During the period of Canal operation, the land on its route that today is owned by the City of Lowell, was part of the Town of Chelmsford.
- p. 6 Paragraph 1. demensions should read dimensions.
- p. 7 Paragraph 2. Last clause should read: '...it is recommended that the area be considered as a future part of the state's Park system'.
- p. 8 5th line from top and from bottom: Historic Commission should be Historical Commission
- p. 20 3rd paragraph. The Mystic View and Mystic River Public Housing projects are commonly known as the Mystic Housing Project.
- 6th paragraph should read 178 Sycamore St.
- p. 22 4th line should read Healy School
- p. 28 first paragraph Corridor should read Corridor
- p. 28 A. Seawall St. should read Sewall St.
- p. 28 B. 1970 dwellings 155 Sycamore St. Should read 1714 dwelling 178 Sycamore Street
- p. 30 "canal extension" should be amended to read, "The Medford Branch Canal". The "Branch" was not an extension of the Middlesex Canal but was chartered by an Act dated March 16, 1805 under the name of "The Proprietors of the Medford Branch Canal and Locks between the Middlesex Canal and Mystic River".
- p. 30 P3 "Isaac Royal" should be "Isaac Royall".
- p. 30 P5 "embankments" should be "abutments" and will be consistent with Page 38. In line 4 "Aquaduct" should be "Aqueduct".
- p. 31 P2 In this paragraph there are three instances referring to the "canal extension" (with 3 variations in the use or non-use of capitals) and should be amended to "Branch Canal".

- p. 31 P3 "Alewife Brook" in the paragraph heading is in error and should be amended to "Mystic Valley".
- Line 2 "World War I here" should be "World War I Hero".
- Line 5 The word "under" should be inserted so as to read, "----crossing under the Boston and Maine Railroad".
- p. 31 P4 "Alewife Brook" in the paragraph heading is in error and should be amended to "Mystic Valley". (Also, P3)
- p. 31 P4
(Cont.)
Line 5 "aquaduct" should be "aqueduct", also in Line 8.
- Line 6 "Bilson's Lock" should be "Gilson's Lock".
- Line 7 & 8 "----and the stone footing ----etc." should be amended to read "----and the stone abutments of the bridge are said to contain remnants of the aqueduct".
- p. 36 P2 "Dagamore Avenue" should be "Sagamore Avenue".
- p. 37 Under "MED-4" and "MED-5" "Canal Segments" should be amended from "Alewife Brook" Parkway to "Mystic Valley" Parkway in each instance.
- p. 39 PA In lines 1,2 and 4 "Royal" should be "Royall".
- p. 39 PC In line 4 "Royal" should be "Royall".
- Line 5 Should "or" be inserted between "six" and "more"?
- p. 40 P6 "Dome School" should be "Dame School".
- p. 45 1st line. Add the following sentence. Some of the stone remains can be found in the Winchester Town Forest.
- p. 68 Paragraph 2 line 4 is should read was. Paragraph 4 line 2 enters should read passes.
- p. 67-70 Segment WIL 3 . All of the 1750 foot canal route in this segment is owned by the Wilmington Historical Society.
- Segment WIL 5. Clark River should read Ipswich River.
- p. 71 Last paragraph. "Across the street" should read at this point.
- p. 77 Add Canal House at the intersection of Route 139 and Burlington Avenue.
- p. 79 Paragraph 2. single should read signal.
- p. 79 8th line from bottom: semicolon (;) should follow 15 percent.

- p. 104 Paragraph 1. Footnote to mileage:
* This mileage includes the short section running through present day Lowell. (See Map 1, p. 109.)
- p. 108 Riveredge Road should read Riverneck Road
- p. 117 Segment 6. Under 'Nearby Historical Features' the 17th c. house should be removed.
- p. 120 Item B should be removed.
- p. 124 Jacob Howard House should be deleted.
- p. 127 Paragraph 4. posses should read possess.
- p. 127 Paragraphs 4 and 5. In both cases historic commission should read historical commission.
- p. 128 Paragraph 3. porposed should be proposed.
- p. 128 Paragraph 4. Massachusetts Historic Commission should read Massachusetts Historical Commission.
- p. 129 Paragraph 5. Meddlesex should read Middlesex.
- p. 133 Title should read Selected Bibliography.



MIDDLESEX CANAL HERITAGE PARK FEASIBILITY STUDY

Prepared for the
Middlesex Canal Commission

by the

Metropolitan Area Planning Council

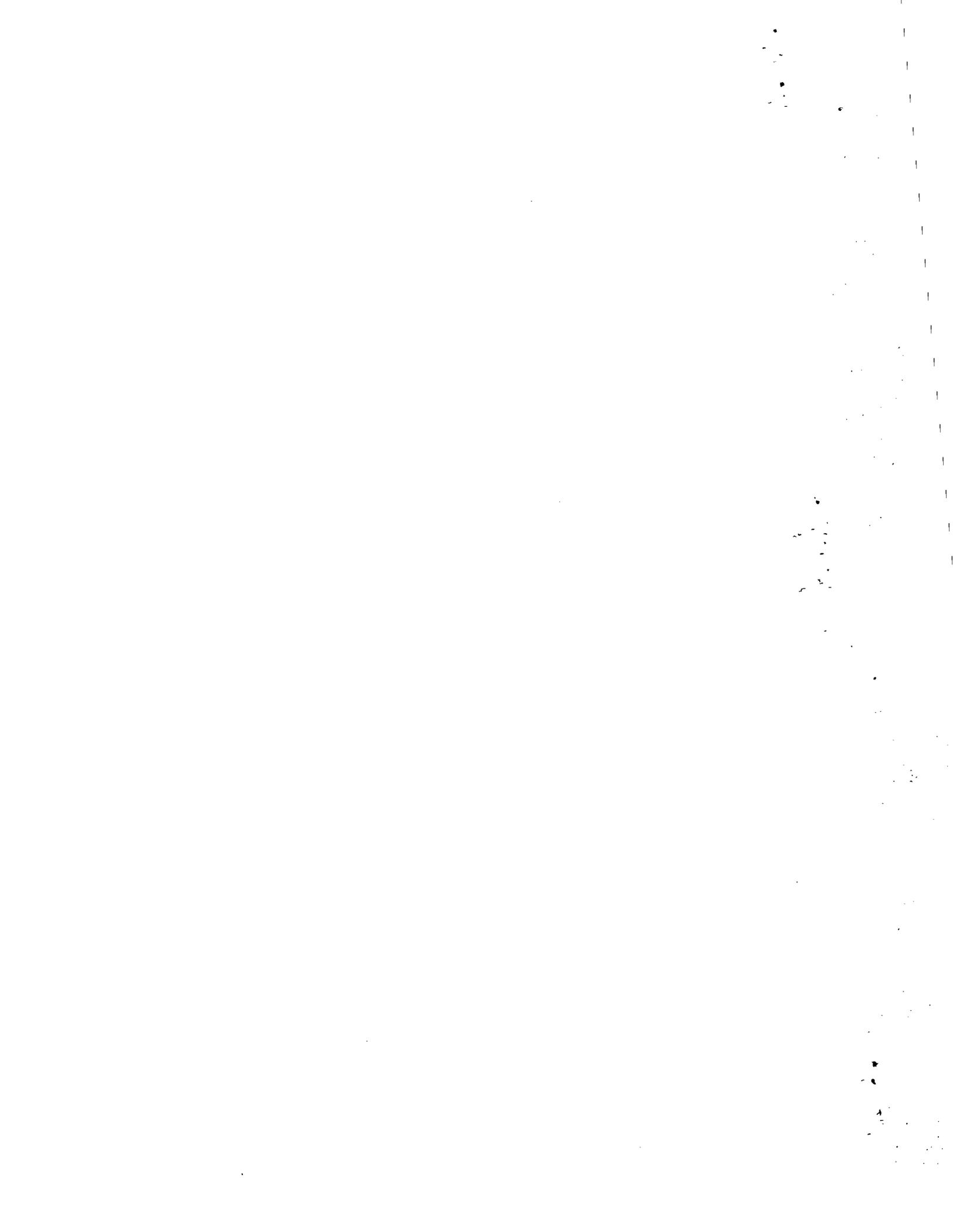
and the

Northern Middlesex Area Commission

August, 1980

This project has been funded in part with the assistance of a matching grant-in-aid from the Department of the Interior, Heritage Conservation and Recreation Service through the Massachusetts Historical Commission, under the provisions of the National Historic Preservation Act of 1966.

MAPC Report #5



ABSTRACT

The Middlesex Canal Heritage Park Feasibility Study provides a comprehensive inventory on the canal, its location, its condition and describes nearby significant environmental and development features for each of the nine cities and towns along the 27-mile canal route. The report also makes recommendations for reuse and preservation of the canal.

Cover from Louis Linscott painting titled General Sullivan. Courtesy of S.B. Goddard and Sons Co., Woburn.

ABOUT THIS REPORT

The Middlesex Canal Heritage Park Feasibility Study was prepared by the staffs of the Metropolitan Area Planning Council and the Northern Middlesex Area Commission under the supervision of their respective Executive Directors. The Metropolitan Area Planning Council and the Northern Middlesex Area Commission are the regional planning agencies for the cities and towns of their respective region.

The preparation of this report was financially assisted by the cities and towns of the MAPC and NMAC regions, a grant-in-aid from the U.S. Department of Interior's Heritage Conservation and Recreation Service, and in-kind services from the City of Lowell.

Additional copies of this report may be obtained from:

Metropolitan Area Planning Council
44 School Street
Boston, Massachusetts 02108

Northern Middlesex Area Commission
144 Merrimack Street
Lowell, Massachusetts 01852

1980-1981 MAPC Officers

Alan McClennen, Jr. President
Arlington

Elizabeth Bransfield, Vice President
Natick

Richard M. Doherty, Secretary
Westwood

William C. Sawyer, Treasurer
Acton

Donald E. Megathlin, Jr.
Executive Director

1980-1981 NMAC Officers

Paul Davies, Chairman
Westford

Warren Shaw, Vice Chairman
Dracut

Lucien Lacourse, Clerk
Tyngsborough

Edward Morris, Treasurer
Lowell

Joseph P. Hannon
Executive Director

MAPC Staff Credits

Writing & Research:

Russell J. Burke

Project Supervision &
Technical Review:

Allison Harper
Donald E. Megathlin, Jr.

Editing:

Janice Harrington

Cover Design:

David Speidel

Report Graphics:

Jennifer Spencer
Noga Waldman
Molly Lipshur

Typist:

Ladis Bernier

NMAC Staff Credits

Mary Gene Myer

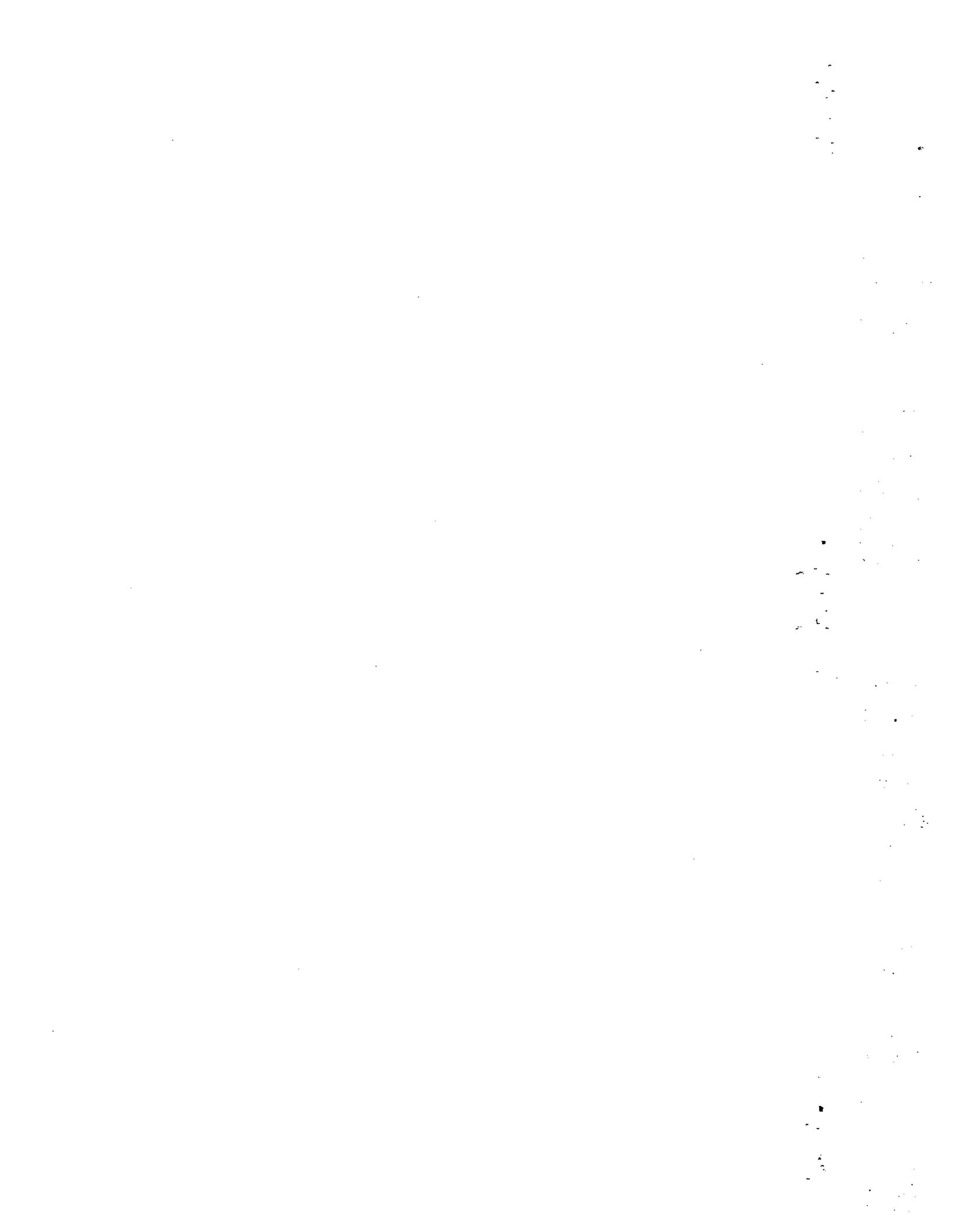
Barry Alberts
Michael DiGiano

Robert Malavich
(City of Lowell)
Ralph Bosner

Lorette Richards

TABLE OF CONTENTS

I	Introduction	1
II	History of the Canal	2
III	Summary of Report Recommendations	45
IV	Community by Community Overview	10
	Boston	10
	Somerville	20
	Medford	30
	Winchester	41
	Woburn	54
	Wilmington	68
	Billerica	79
	Chelmsford	104
	Lowell	115
V	Implementation Strategies	127
	Bibliography	133



INTRODUCTION

From 1803 to 1853 the Middlesex Canal, which ran from Charlestown to Lowell, represented a high technology transportation system that made a significant contribution to the economy of the region. Today, the 27-mile canal, abandoned for over a 100 years, is in various conditions: in some places obliterated by development; in other places overgrown with vegetation; in yet other segments, restored to its original condition.

In 1964, the Middlesex Canal Association was formed for canal enthusiasts to study and protect the canal. The Middlesex Canal Association was instrumental in the passage of a bill in 1978 by the Massachusetts Legislature creating the Middlesex Canal Commission. The Middlesex Canal Commission was formed for the purpose of "planning for, establishing, laying out, developing, and maintaining a park to be known as the Middlesex Canal Heritage Park."

The Commission was awarded a grant by the Massachusetts Historical Commission, which was matched by in-kind services from the Metropolitan Area Planning Council (MAPC), and the Northern Middlesex Planning Commission (NMAC), and the City of Lowell to undertake a feasibility study of the Middlesex Canal Heritage Park.

This report represents the culmination of this study. Included in all this report is a town by town inventory of the canal as it exists today in nine communities, and analysis of its potential, and recommendations for future reuse and/or restoration.

HISTORY OF THE CANAL

After the Revolutionary War, the financial and mercantile leaders of the country turned to developing the economy. Establishing transportation connections between the abundant resources of the interior and the manufacturing and distribution centers on the coast was important, although often difficult. Those port cities, like Boston, with no great navigable river reaching inland, stimulated particular concern, for the development of effective trade routes.

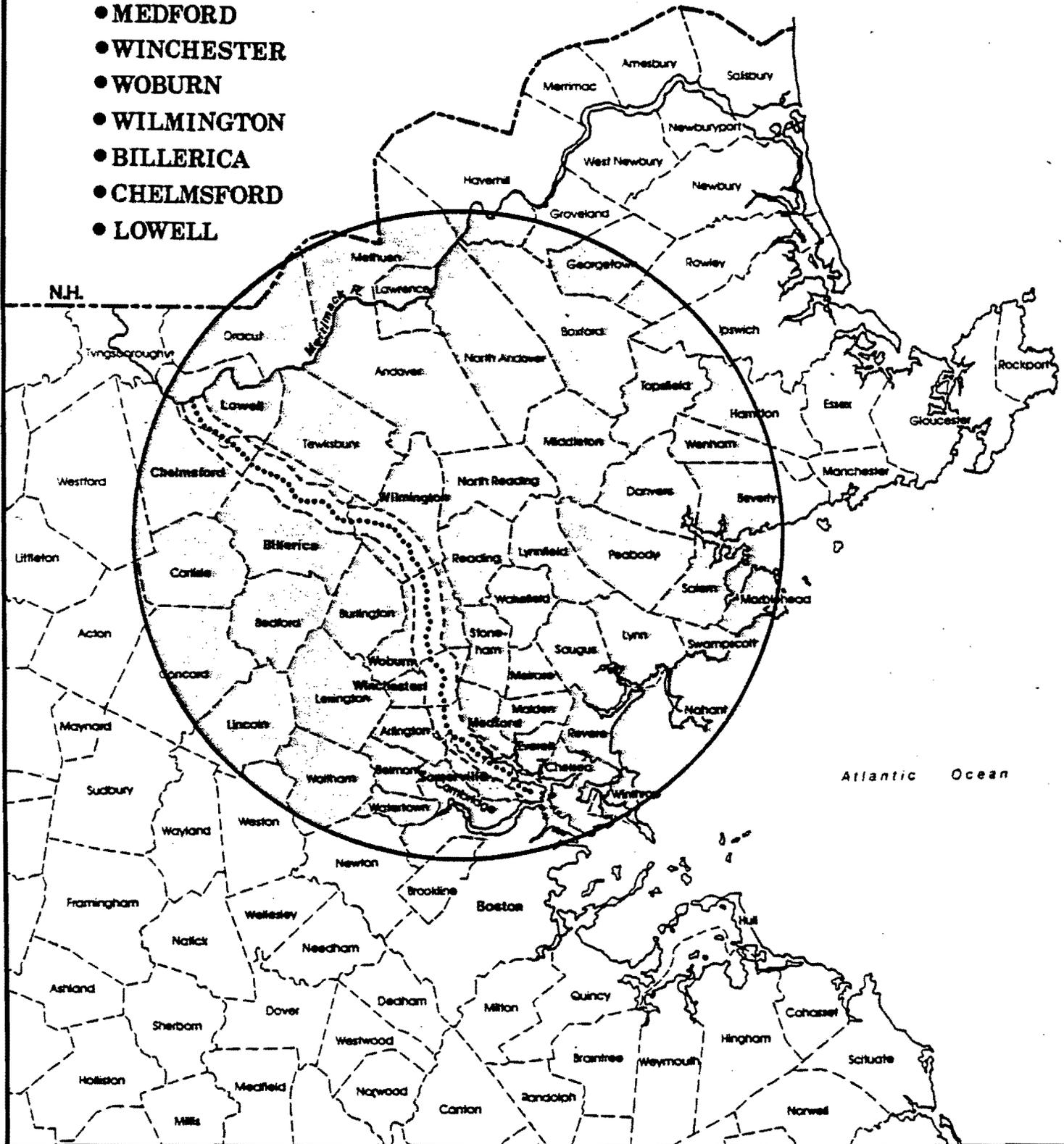
Highways in America were poor and travel was slow. Since the transport canal system in England was known to be successful and expanding, many felt that such a system could be developed in this country. In 1793, a group of enthusiastic investors incorporated as the Proprietors of the Middlesex Canal to construct a waterway between Boston and Lowell.

The project was a success. Ten years later the twenty-seven mile length of the Canal was opened to traffic. Only three feet deep, the Canal was twenty feet wide at the bottom of the trench widening to thirty and one half feet at the waterline. A ten foot wide towpath lay to the west; a five foot wide berm defined the eastern side. The Middlesex was the longest canal in the nation at that time and the most complicated and innovative in construction. Eight aqueducts carried the Canal across rivers; twenty locks were necessary to overcome the slightly more than one hundred feet of elevational difference between the two cities.

Although the Canal was popular and well used it was not a total financial success. The Canal required continuous and expensive maintenance. It is hypothesized that, had the railroad not gone through so soon and so successfully, the Canal would have paid handsome dividends. In fact, land receipts were reduced by one third in 1833, the Lowell railroad went into operation. Despite attempts to seek other uses for the Canal, such as an aqueduct to provide the City of Boston with drinking water, revenues continued to decrease. In 1851 there was no recorded data on Canal receipts; in 1852 the Canal was filled under its bridges and many of them were removed. Canal property was sold, and in 1859 the courts decreed that the proprietors had ceased to enjoy their rights.

The Canal gradually deteriorated. Parts of it were converted to other uses or filled. Efforts to revive it were unsuccessful. Until 1964, the future of the Canal as a physical entity seemed uncertain. In 1964, the Middlesex Canal Association formed to provide a forum for canal advocates and to "acquire, restore and preserve all extant remains of the old Middlesex Canal; to establish a museum..., to establish... parks for public recreational and or educational use...". The Canal Association has been instrumental in organizing support for the Canal and in encouraging further preservation steps on its behalf.

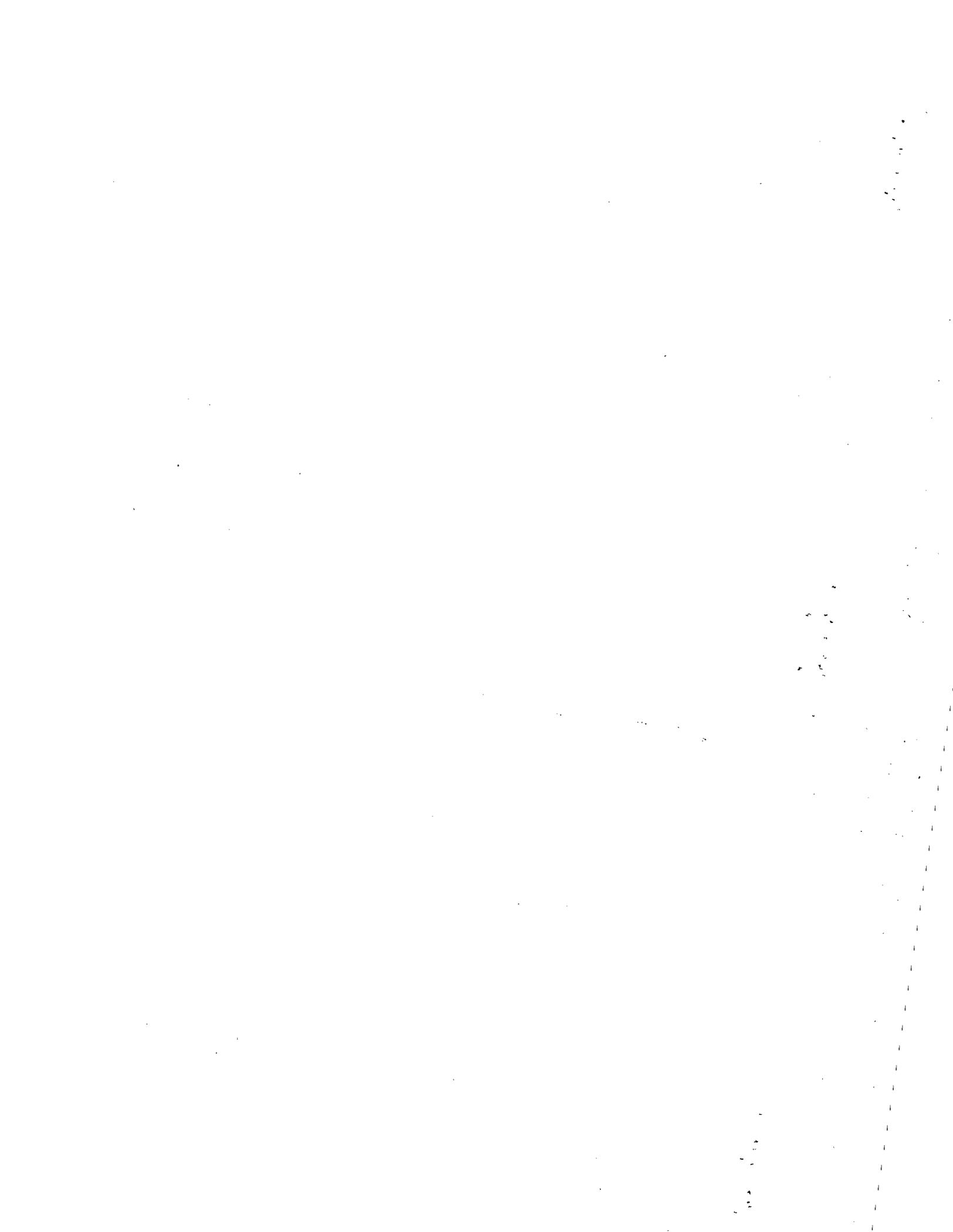
- BOSTON
- SOMERVILLE
- MEDFORD
- WINCHESTER
- WOBURN
- WILMINGTON
- BILLERICA
- CHELMSFORD
- LOWELL



Scale in Miles

..... Canal
 --- Canal Corridor





In 1967, the Canal was designated a National Historic Engineering Landmark and in 1972, parts of its route were listed in the National Register of Historic Places. The Register listing includes only the extant remains of the Canal between and including Lowell and Woburn. The status of Canal related structures such as the 'Canal Block' building in Billerica is unclear, as is the width of corridor included. It is defined in the application as "the area on either side of the canal which is necessary to maintain the integrity of the canal setting."

SUMMARY OF REPORT RECOMMENDATIONS

A distinctive quality of the Middlesex Canal is its linear structure and potential as a regional pedestrian and recreational connector. Enhancing this quality is the underlying purpose of the Middlesex Canal Heritage Park concept.

This report recognizes the regionality of the canal and recommends that more than sporadic, scattered efforts at preservation take place.¹ Recommendations included in this report require modest expenditures. Due to limited resources and competing needs, outright acquisition and restoration of the canal wherever possible, is unrealistic. Therefore, the study recommends modest yet effective techniques to preserve the canal short of restoration of the old canal route.

A system of signs along the canal is a crucial first step in expressing the continuity of the route. In conjunction with signage, distribution of a good map of the canal route, emphasizing its relationship with the road system would be helpful in bringing the canal to the attention of a wider audience. The sign system would include:

1. A major identifying sign to be placed at all intersections of the canal route with major roads and highways.
2. A smaller identifying sign to be placed at the intersection of the canal route with local roads and streets.
3. An informational sign possibly including informative graphics or mapping to be placed at public areas along the canal route or at the location of extant or demolished canal features. Such signage may be part of interpretive sites.

All of these signs should be designed as a related group, using a similar typeface, color series, and logo. The larger signs should include a map of the entire route to reinforce the regionality of the canal.

Stabilization

Portions of the canal that exist should be regularly cleaned and checked for increased bank erosion, or for filling due to siltation or dumping. Corrective measures should be taken if necessary. In some places, the canal contains excessive litter. Periodic cleanup campaigns should be organized to improve these conditions. In addition, steps should be taken by local governments and the Canal Commission to safeguard remaining portions of the canal from development. Possible safeguards include the acquisition of land, easements along the canal route, or protective zoning regulations which either restrict development on the Canal or require a special permit within 50 feet of the canal.

¹ Sections of the canal in various communities have, in recent years been acquired, improved, and/or restored. These are admirable efforts which deserve much credit. Yet no attempt has been made to coordinate these efforts either physically or conceptually.

Restoration/Reconstruction

As previously stated, this report limits the amount of restoration and/or reconstruction proposed for the canal. However, sites do exist which are suitable for such treatment. Additionally, future public projects which may impact the canal could be used as a catalyst for restoration as was the case with the relocation of Route 129 in Wilmington by the Massachusetts Department of Public Works. However, unlike the Wilmington reconstruction, the canal should be restored to its original dimensions and employ authentic material and construction techniques.

Recreational Reuse of the Canal

Due to its linear nature and the existence of open spaces along its route, the canal offers excellent opportunities for both active and passive recreation.

1. Bikeways

A bikeway system is proposed beginning at the Somerville-Medford boundary, across the Mystic River on Boston Avenue through to Lowell. The bikeway, whenever possible, would use the canal route. However, it would mostly parallel the route using existing surface roads marked by signs.

2. Walkways

The canal route affords opportunities for the development of walkways. The walkways can be either dirt or hardtop paths, wide enough to accommodate strollers and wheelchairs.

3. Bi-ways

A graded dirt or paved path for both bicycle and pedestrian traffic is proposed for some segments of the canal.

4. Hiking Trails

Using the existing canal bed, towpaths can serve as hiking trails in many areas.

Interpretive Sites

Many points along the canal route are ideally suited for formal and informal interpretive sites. An interpretive site is one which provides the user an opportunity to gain insight into the past history and importance of the canal and the role it played in the region's economy and development.

Among the interpretive sites proposed along the canal route are exhibits, thematic recreation equipment in playgrounds, street and building murals, and landscaping to delineate the actual canal route.

Another interpretive opportunity exists in schools along the canal route. These schools (and possibly all schools in each of the nine canal communities) should incorporate the canal into the curriculum. Such an inclusion would promote a greater awareness and understanding of the canal and its role in the history of the community. This awareness and understanding could also create a greater willingness among local residents to see some of the recommendations implemented.

Mill Pond Heritage Park

The Talbot Mill/Mill Pond area of north Billerica presents a major opportunity to create Middlesex Canal focal point that could be developed into major historic preservation and recreation area. Although it is recommended that this area be marked by signage and interpretive material, it is recommended that the area be investigated further as part of the state's Park system.



Bi-walk along the Middlesex Canal.

<u>Recommendation</u>	<u>Community(\$)</u>	<u>Possible Lead Agency(s)</u>	<u>Possible Funding Sources</u>
<u>Canal Signs</u>			
State Roads	All	Mass. Department of Public Works Metropolitan District Commission	Mass. Department of Public Works Heritage Conservation & Recreation Service
Local Roads	All	Local Department of Public Works	Local Funds Heritage Conservation & Recreation Service
Informational	All	Local Department of Public Works Local Historic Commission Canal Commission	Local Funds Heritage Conservation & Recreation Service
<u>Canal Stabilization</u>	All	Local Department of Public Works Canal Commission Local Service Organizations Metropolitan District Commission	Local Funds National Preservation Revolving Funds Private
<u>Restoration/Reconstruction</u>	Billerica Wilmington	Historic Commission Canal Commission	Heritage Conservation & Recreation Service Local Funds Private National Preservation Revolving Fund Mass. Self Help
<u>Recreational Reuse</u>	All	Local Parks Commission Metropolitan District Commission Conservation Commission	Mass. Department of Public Works Bond Issue Local Funds Heritage Conservation & Recreation Service
Bikeways	Medford Winchester Woburn Wilmington Billerica Chelmsford Lowell	Mass. Department of Public Works Local Department of Public Works Canal Commission	Community Development Block Grant Metropolitan District Commission
Walkways	Medford Winchester Woburn Wilmington Billerica Chelmsford Lowell		
Bi Ways	Medford Winchester Woburn Wilmington Billerica Chelmsford Lowell		
Hiking Trails	Woburn Wilmington Billerica Chelmsford Lowell		
Interpretive Sites	All	Canal Commission	Heritage Conservation & Recreation Service
Exhibits	All	Historic Commission Metropolitan District Commission	Community Development Block Grant Local Funds
Thematic Recreation	All	Local Parkland Recreation Commission	
School Curriculum	All	Conservation Commission	
Mill Pond Heritage Park	Billerica	Department of Environmental Management	Heritage Conservation & Recreation Service

The vagaries of the economy, canal condition, canal ownership and other aspects of the recommendations contained in this report make it difficult to pinpoint specific implementation costs. However, it is necessary that the relative costs associated with this report's recommendations be estimated to facilitate budgeting and allocation of resources for implementation. Therefore, the following estimate of approximate costs is offered to accomplish the above stated goals. It should be noted that these estimates are to serve only as a general guide. These estimates represent the relative magnitude of costs associated with the various recommendations. More detailed cost information should be incorporated into the detailed planning performed prior to implementation.

APPROXIMATE COSTS

	Signs	Stabilization	Restoration/ Reconstruction	Bikeways	BiWays	Hiking Trails	Interpretive Sites	Thematic Recreation	Mill Pond Heritage Park
BOSTON	\$800	-	-	-	-	-	\$5-10,000	-	-
SCHERVILLE	4,000	-	-	-	-	-	5-10,000	10,000	-
MEDFORD	4,000	-	-	1,000	-	-	5,000	5,000	-
WINCHESTER	2,000	5,000	-	2,000	-	-	10,000	20,000	-
WOBURN	3,000	5-10,000	*	*	-	*	5-10,000	-	-
WILMINGTON	2,000	5-10,000	20,000	5,000	-	1,000	5,000	-	-
BILLERICA	6,000	10,000	-	3,000	100,000	2,500	15,000	-	400-700,000
CHELMSFORD	1,000	10,000	-	7,500	60,000	5,000	-	-	-
LOWELL	5,000	-	-	15,000	30,000	2,500	15,000	-	-

* Presently exists

6

BOSTON

The Middlesex Canal began on what is today Rutherford Avenue in Charlestown. The exact location is at the intersection of Rutherford Avenue and Mill Street, almost directly in front of the H.P. Hood and Sons building. While no trace of the canal exists today, as shown on Map 1, having been filled in and developed, the area retains its importance for regional transportation systems. All northern freight and commuter railroad lines converge and terminate in the railroad yards located south of the canal terminus. In fact, it was the Boston to Lowell Railroad which eventually caused the demise of the canal.

The Middlesex Canal was connected to the Boston waterfront by a canal extension. This extension connected the Mill Pond Tidal Basin to the Mill Creek Canal, which cut through the downtown Boston peninsula and terminated at the easterly side of the North Quincy Market building, located on the city's waterfront. (See Map 2). It is interesting to note that the granite used in the construction of Quincy Market traveled down the Middlesex Canal on its way from New Hampshire to Boston.

The southern terminus of the Canal is no longer visible due to industrial development, to the south and residential uses on the north. Bunker Hill Community College and the Phipps Street Burial Ground on either side of Rutherford Avenue represent the only open spaces in the vicinity of the Canal. (See Map 3).

Four canal locks and the Tidal Basin are buried. The two Charles River Tidal Locks are buried under the southbound lane of Rutherford Avenue, the Mill Pond Lock is buried under the Rutherford Avenue underpass, and the Malden Road Lock is located under the building located at 26 Alcorn Avenue. During the construction of Bunker Hill Community College, rumors persisted that traces of canal features had been unearthed. Cartographic research by Industrial Archaeology Associates, however, indicated no basis for these rumors. The Mill Pond Tidal Basin no longer exists. The Tidal Basin was filled to create developable land. Map 2 illustrates the difference between the coastline of Charlestown and Boston in 1800 and today.

Boston and Charlestown abound in historic resources, which is a blessing and a bane for the Middlesex Canal. The canal exists in a setting which is rich in historic character. This creates an opportunity for linking the Canal to those resources of Boston's heritage. However, these same historic resources tend to overshadow the Middlesex Canal. This overshadowing is compounded by the lack of any tangible remnant of the Canal and its setting adjacent to an industrial area.

Much of the area surrounding the canal route is or will be subject to redevelopment plans. Most notable are the City of Boston's plans to redevelop the North Station area and the City of Cambridge's plans to redevelop Lechmere Square. Each plan calls for an extension of the Charles Riverfront park to the new Charlestown Dam under construction. Extension of these parks will provide access opportunities to the points where the canal extension route intersected the river.

on

TOTAL CANAL LENGTH IN CITY APPROX.

Physical Shape

Park Potential

CANAL SEGMENT	APPROX. LENGTH	CONDITION	PRIORITY	RECOMMENDATIONS	NOTES
Commercial Avenue Causeway Street		Obliderated	Medium	Signage	
Causeway Street to Intersection of Rutherford Avenue 111 Street		Obliderated	High	Signage at proposed parks along Charles River, tidal power interpretive exhibit at BHCC or Museum of Science	
Intersection of Rutherford Avenue 111 Street to Hivan Square	2,000'	Obliderated	Low	Marker implanted in Rutherford Avenue at actual Canal starting point	H.P. Hood & Sons has been very favorable to Canal heritage.
Hivan Square to Dorville City limits	1,750'	Obliderated	Low	Signage	

75 OR 3% OF TOTAL LENGTH

Boston

Public Ownership

ESS	EXTANT CANAL FEATURES	SIGNIFICANT ENVIRONMENTAL FEATURES	NEARBY HISTORICAL FEATURES	APPROX. LENGTH IN P.O.	PUBLIC PROPERTY ON ROUTE	NEARBY SCHOOLS & PUBLIC LAND	NAT. REG. SEC.
	None		Wealth of historic features	None			NA
	None	Charles River	Phipps Street Burial Ground Bunker Hill Monument	None			NA
	None		None			None	NA
	None	None	None	1,000'	MBTA Yards	None	NA

RECOMMENDATIONS

Segment BOS- A. Commercial Avenue to Causeway Street

This segment contains the Mill Creek Canal extension which cuts through the Boston peninsula. This route lies under the dense development of downtown Boston. As shown on Map 4, signage is recommended for this segment at the easterly side of the North Quincy Market Building to denote the terminus of the Mill Creek Canal extension.

Segment BOS-B. Causeway Street to the Intersection of Rutherford Avenue and Mill Street

This segment contains the route taken by canal boats across the Mill Pond Tidal Basin to the start of the canal. Since this segment crosses the Charles River, it is recommended that signage be incorporated with plans contemplated for extending the riverfront parks into the Charles River Basin. The City of Boston is currently preparing plans for developing the river's edge with housing and a riverfront park in conjunction with a major redevelopment of the North Station area. Signage is recommended for this park. Despite its industrial nature, the other side of the river is contemplated for a riverfront park by the Metropolitan District Commission. Should such a development occur, signage is recommended to link this riverfront park to the open space contemplated by the City of Cambridge's Lechmere Square Development Project.

It is recommended that an interpretive exhibit be created to demonstrate the workings of the basin locks which employed tidal power. Such an exhibit could be placed at either Bunker Hill Community College or the Museum of Science.

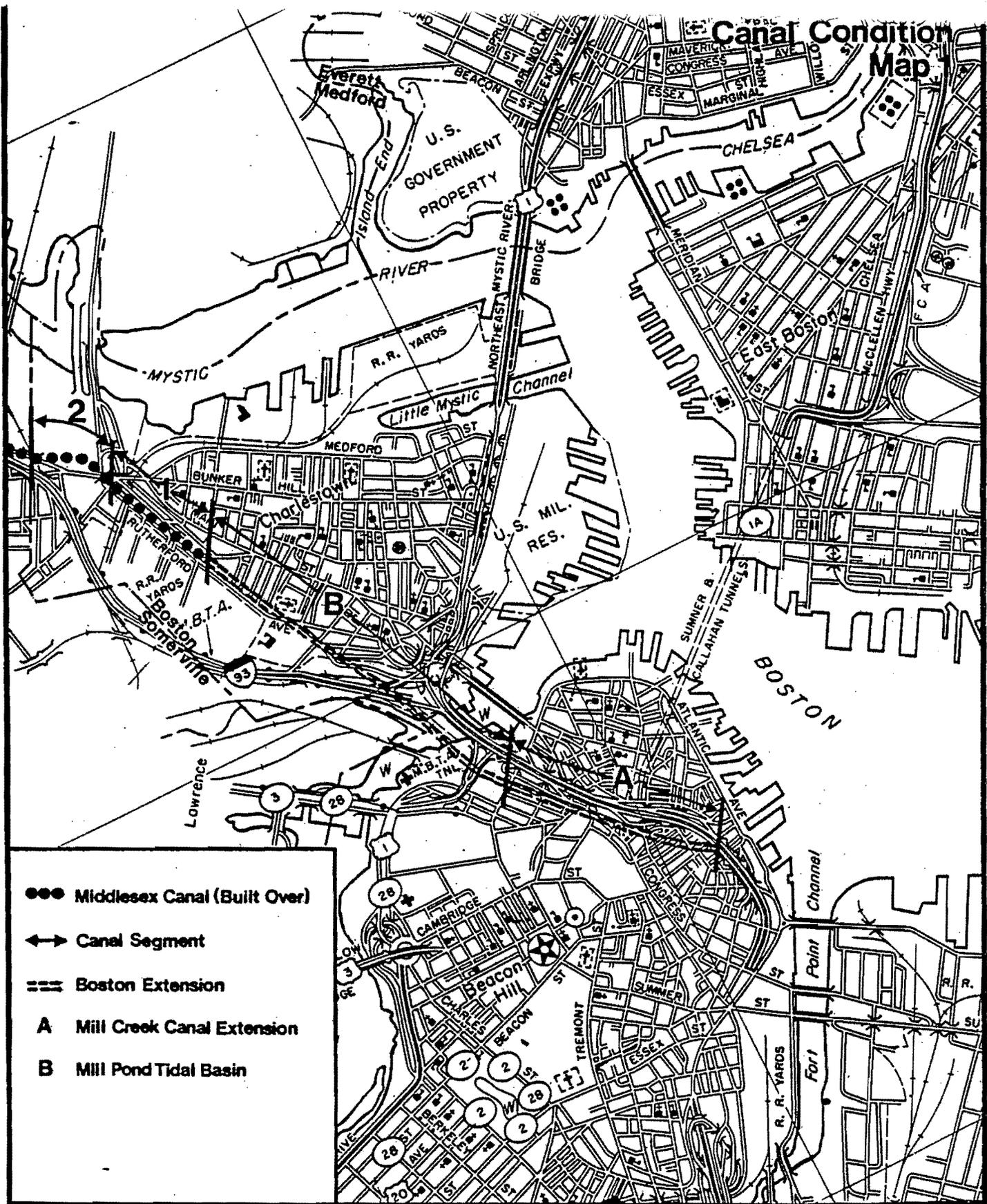
Segment BOS-1. Intersection of Rutherford Avenue and Mill Street to Sullivan Square

This segment represents the beginning of the Middlesex Canal. Signage presently exists on the H.P. Hood and Sons Building. A marker implanted in Rutherford Avenue at the actual location where the Canal began is recommended. The building located at 374-376 Main Street should be further studied to ascertain its role in the Middlesex Canal and to possibly preserve it as one of the few remaining Canal features in Charlestown.

Segment BOS-2. Sullivan Square to Somerville City Limit.

Running under the Sullivan Square traffic circle through the MBTA's Sullivan Square Bus Garage, this segment continues under the Interstate 93 rampway across Mystic Avenue into Somerville. Development and transportation improvements have totally obliterated traces of the Canal.

Canal Condition Map

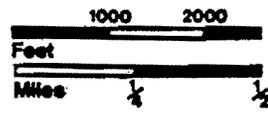


- Middlesex Canal (Built Over)
- ↔ Canal Segment
- === Boston Extension
- A Mill Creek Canal Extension
- B Mill Pond Tidal Basin

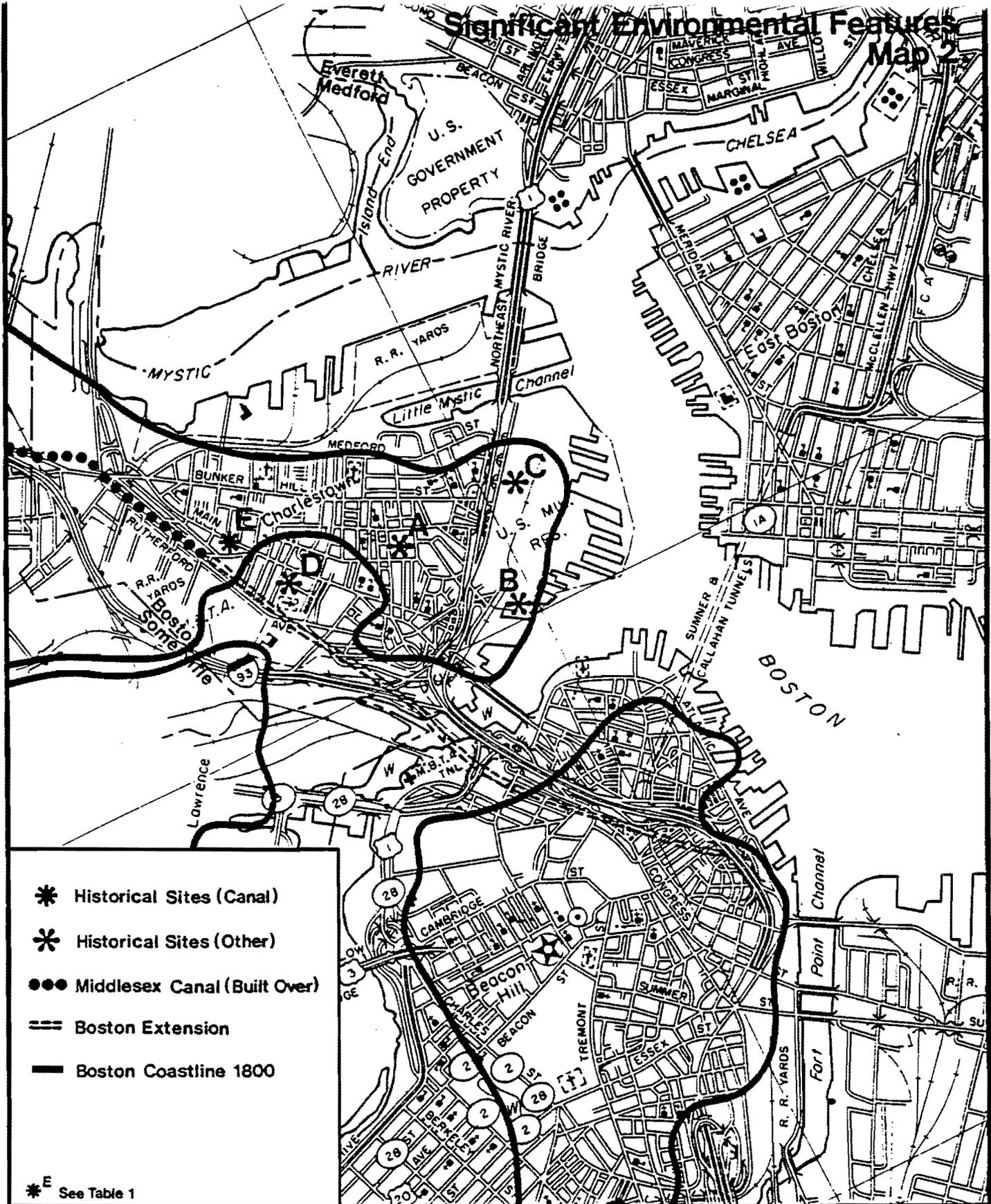
MIDDLESEX CANAL • BOSTON

Source: General Highway Map, Mass. Dept. of Public Works.

Prepared by:
Metropolitan Area Planning Council & Northern Middlesex Area Commission, 1980.



Significant Environmental Features Map 2



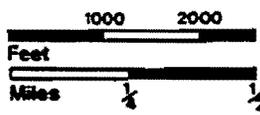
- * Historical Sites (Canal)
- * Historical Sites (Other)
- Middlesex Canal (Built Over)
- == Boston Extension
- Boston Coastline 1800

*^E See Table 1

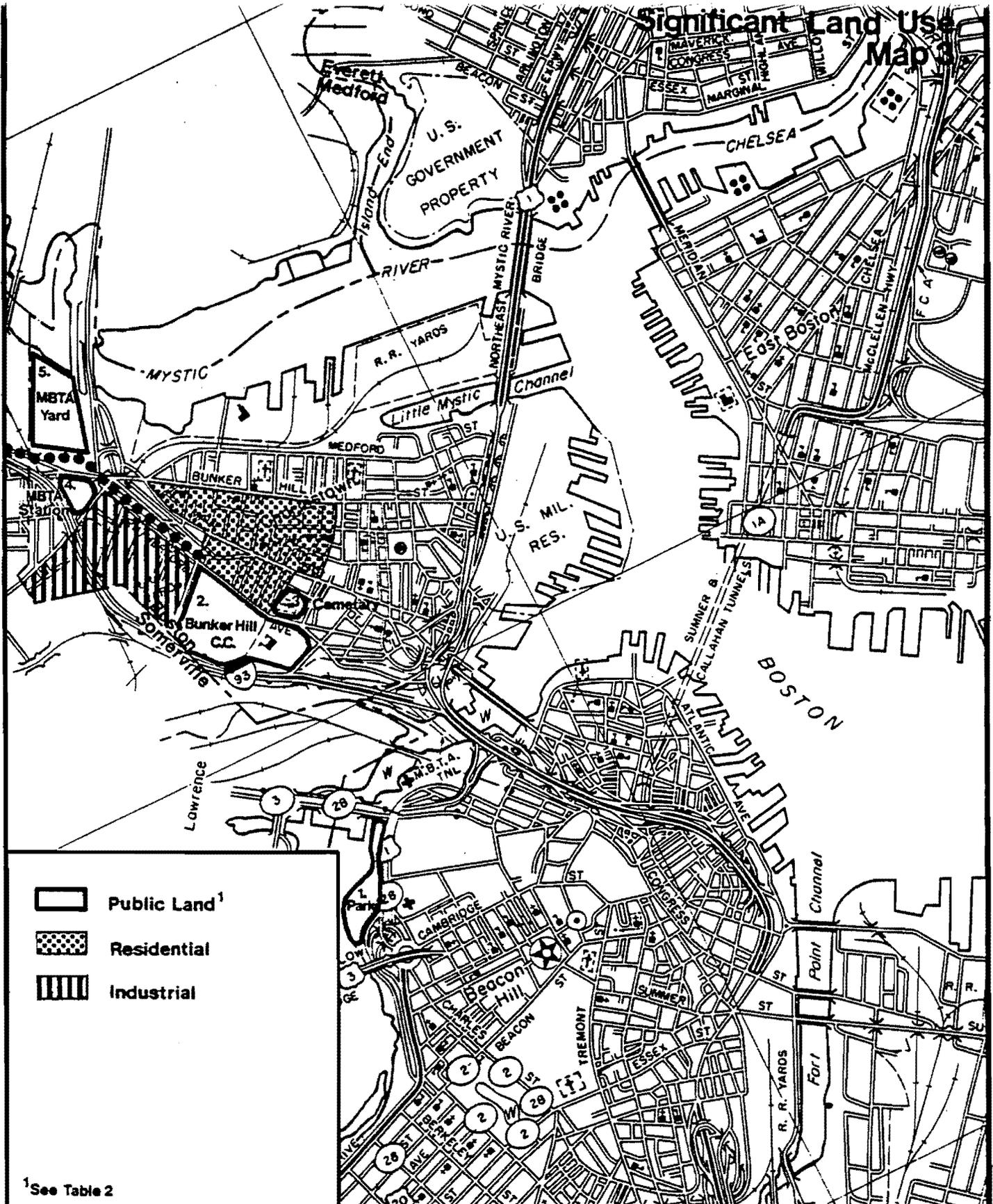
MIDDLESEX CANAL • BOSTON

Source: General Highway Map, Mass. Dept. of Public Works.

Prepared by:
Metropolitan Area Planning Council & Northern Middlesex Area Commission, 1980.



Significant Land Use Map 3



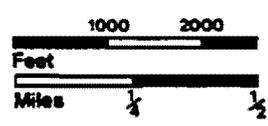
-  Public Land¹
-  Residential
-  Industrial

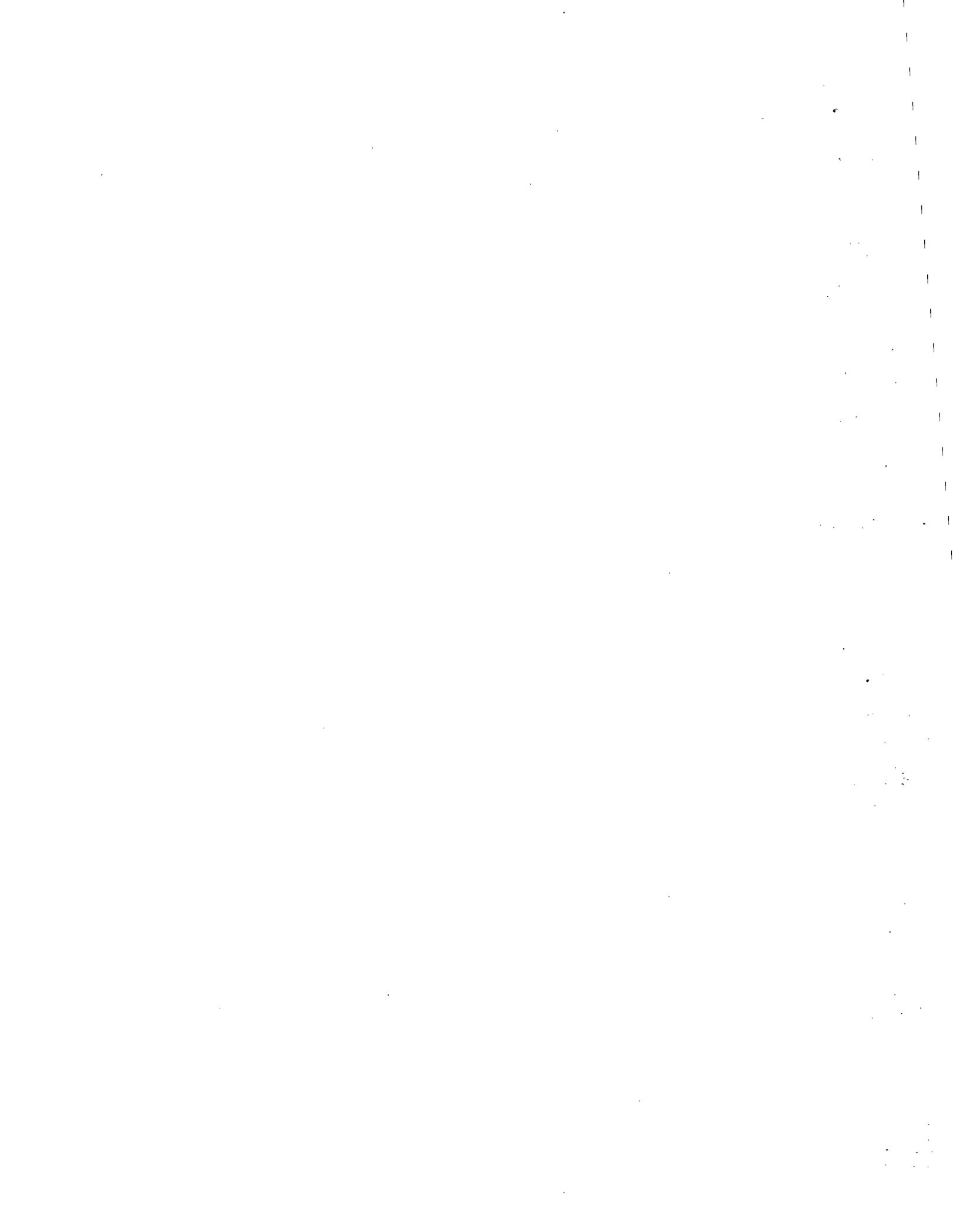
¹See Table 2

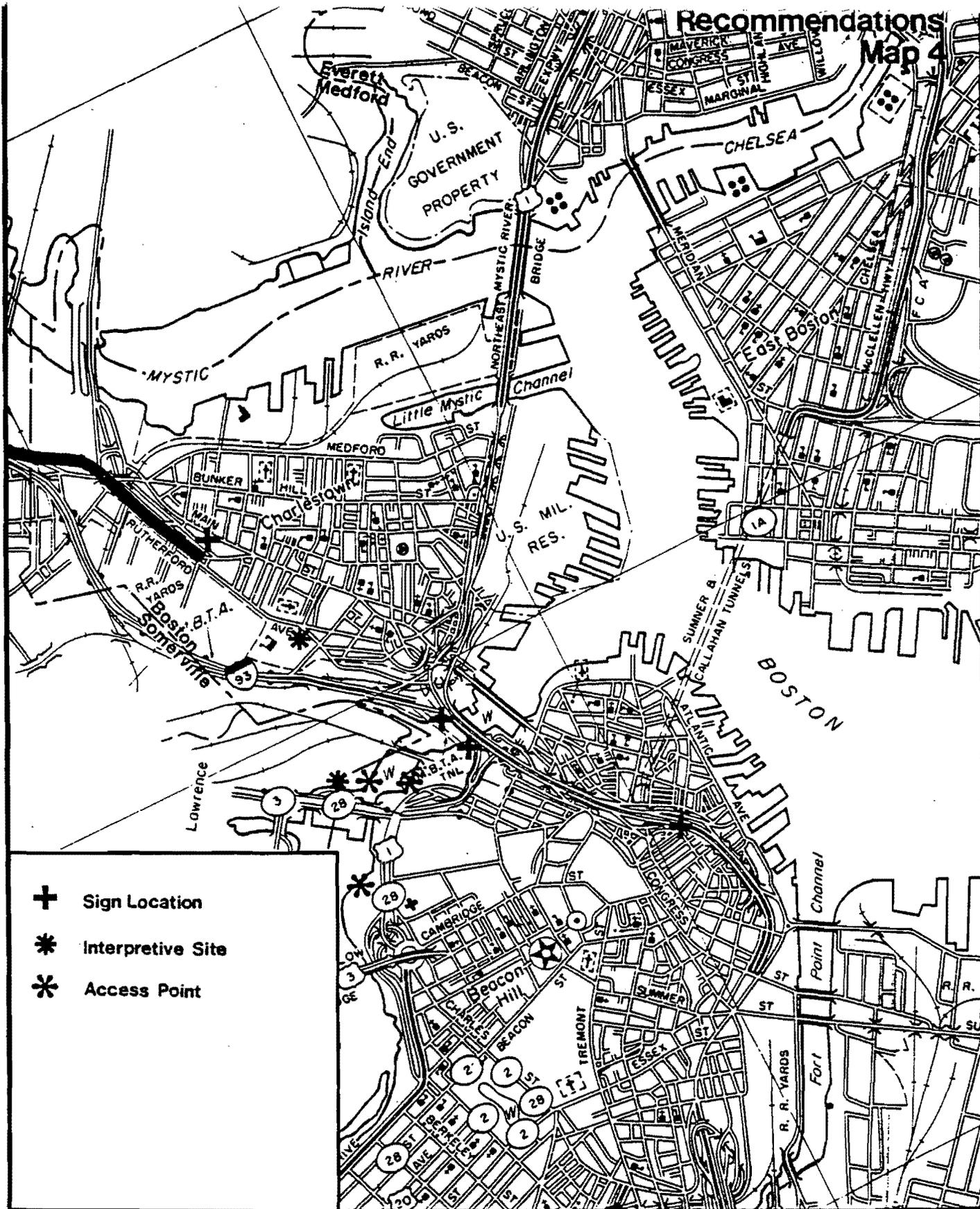
MIDDLESEX CANAL • BOSTON

Source: General Highway Map, Mass. Dept. of Public Works.

Prepared by:
Metropolitan Area Planning Council & Northern Middlesex Area Commission. 1980.



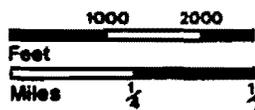


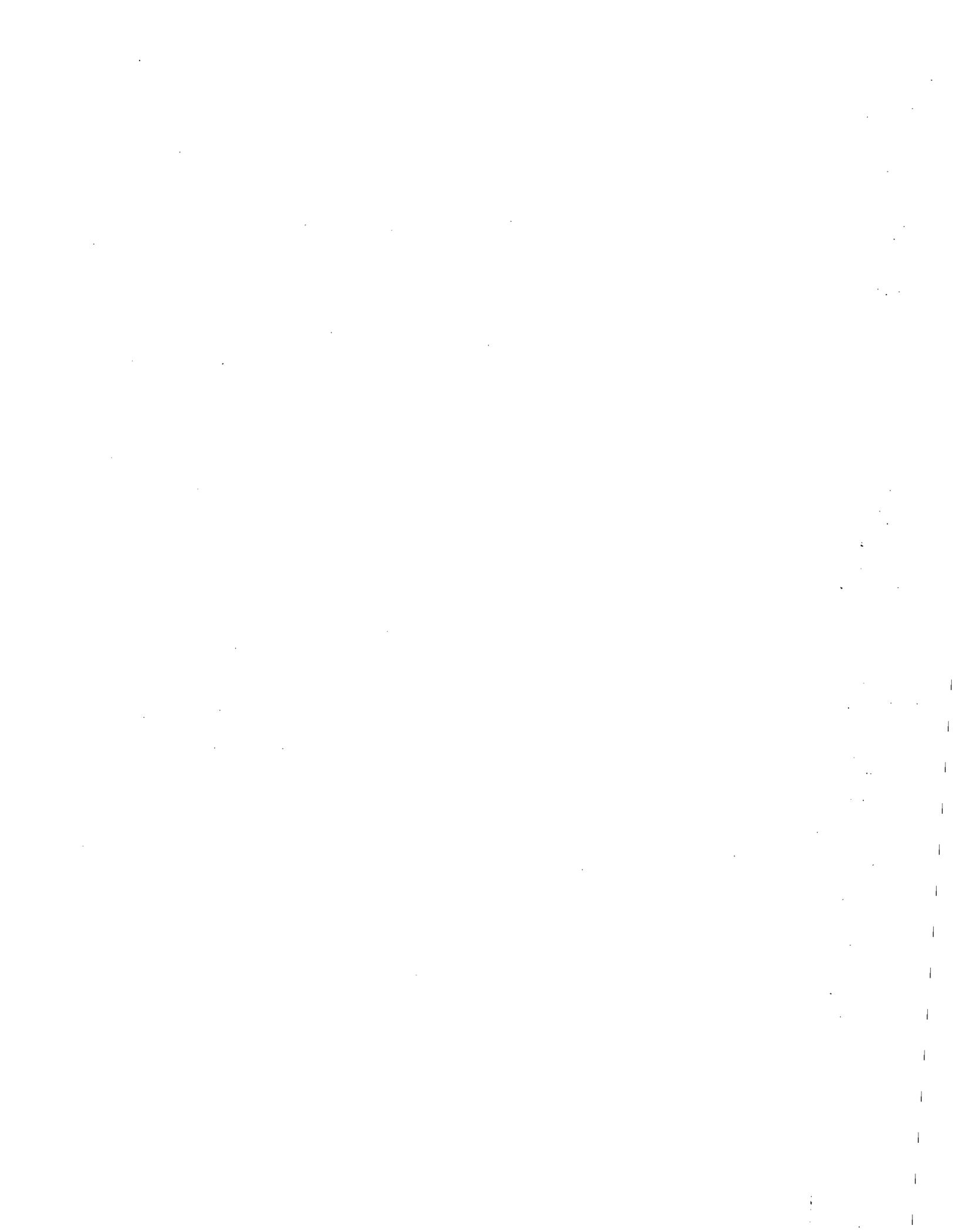


MIDDLESEX CANAL • BOSTON

Source: General Highway Map, Mass. Dept. of Public Works.

Prepared by:
Metropolitan Area Planning Council & Northern Middlesex Area Commission. 1980.





BOSTON

Inventory of Historic Buildings and Sites in the Middlesex Canal Corridor shown on Map 2.

- A. Bunkerhill Monument - Charlestown
- B. U.S. Constitution - Charlestown
- C. Boston Naval Shipyard - Charlestown
- D. Philips Street burying ground
- E. Canal Related Building - 374-376 Main Street, Charlestown

BOSTON

Public and Semi-Public land in the Middlesex Canal Corridor shown on Map 3.

1. Charles River Park - MDC owned
2. Bunker Hill Community College - Rutherford Avenue, Charlestown
3. Phipps Street Burial Ground - Rutherford Avenue, Charlestown
4. Sullivan Square MBTA Station
5. Sullivan Square MBTA Yards

SOMERVILLE

Being the most densely populated city in Massachusetts, it is not surprising that Somerville shows no visible traces of the Middlesex Canal as shown on Map 1. After crossing the city boundary and travelling under Interstate 93, the canal travels through a residential neighborhood until it crosses McGrath Highway (Routes 1 and 28).

At this point, the canal route crosses Foss Park the first open land to be crossed. The canal, however, has been filled in to accommodate the athletic fields and swimming pool. At the southern end of the park by Broadway, a stone marker stands which briefly describes the Middlesex Canal.

From Foss Park the canal route again passes through a residential neighborhood as it turns towards Mystic Avenue as shown on Map 3. Before reaching Mystic Avenue, the canal route passes through the Mystic View Housing Project. From the Mystic View Housing Project, the canal route runs along the southern edge of Mystic Avenue to the Medford City boundary.

The canal re-enters Somerville briefly from Medford as it crosses the Mystic River at Boston Avenue. This section is discussed in the Medford portion of the report.

The land use along the Somerville Canal route (shown on Map 3) is predominantly residential with scatterings of commercial and industrial uses. This developed nature precludes any linear treatment of the canal. Mystic Avenue travels a course parallel to the canal, however, its high traffic volumes and design does not lend itself to a bikeway which would parallel the canal route. A riverfront park along the southern shore of the Mystic River begins in Somerville which parallels the canal route. Interstate 93 acts a barrier and isolates this recreational amenity from the canal route.

No known historic features related to the canal exist in Somerville. There are four historic features in the canal corridor which are unrelated as shown on Map 2. A Georgian Style Federal House is located at the intersection of Seawall and Temple Streets. The Oliver Tufts House at 155 Sycamore Street was built in 1714 and was the headquarters of Major General Lee during the Revolutionary Siege of Boston. Paul Revere Park at the intersection of Broadway and Main Streets marks the site of Winter Hill Fort and the course of Paul Revere's ride.

RECOMMENDATIONS

Segment SOM-1. City boundary to McGrath Highway

No specific recommendations are proposed for this segment.

CANAL SEGMENT	Physical Shape		Park Potential		
	APPROX. LENGTH	CONDITION	PRIORITY	RECOMMENDATIONS	NOTES
Boundary to North Highway	3,000'	Poor	Low	None	Passes under Interstate 93
to Park	750'	Filled in	High	Interpretive exhibits landscaping and benches to denote actual Canal route, thematic playground equipment.	
to Park to Blue Street	1,500'	Poor	Low	Signage	
Blue Street to Medford City boundary	3,000'	Built over and filled in	High	Interpretive exhibits, street and wall murals of Canal at Mystic View Housing Project: signage at Medford/Somerville boundary.	Perfect opportunity for historic preservation in a low and moderate income setting.

ONE HALF MILE OR 6% OF TOTAL LENGTH

Somerville

Public Ownership

CLASS	EXTANT CANAL FEATURES	SIGNIFICANT ENVIRONMENTAL FEATURES	NEARBY HISTORICAL FEATURES	APPROX. LENGTH IN P.O.	PUBLIC PROPERTY ON ROUTE	NEARBY SCHOOLS & PUBLIC LAND	NAT. REG. SEC.
	None	None	None				NA
	None	None	None	750 ft.	Foss Park MDC Owned		NA
	None	None	Federal House		None		NA
	None	Mystic River	Oliver Tufts House Paul Revere Park	500 ft.	Mystic View Public Housing	Leahy School	NA

Segment SOM-2. Foss Park

Being a publicly owned undeveloped area, Foss Park affords excellent opportunity to be developed as an interpretive site as indicated on Map 4. The actual route of the Canal through Foss Park could be delineated with a walkway lined with benches, hedges, or berms to outline the trench and towpath. Signage at the park should be expanded to include historical graphics. A canal boat replica could be an added piece of playground apparatus.

Segment SOM-3. Foss Park to Temple Street

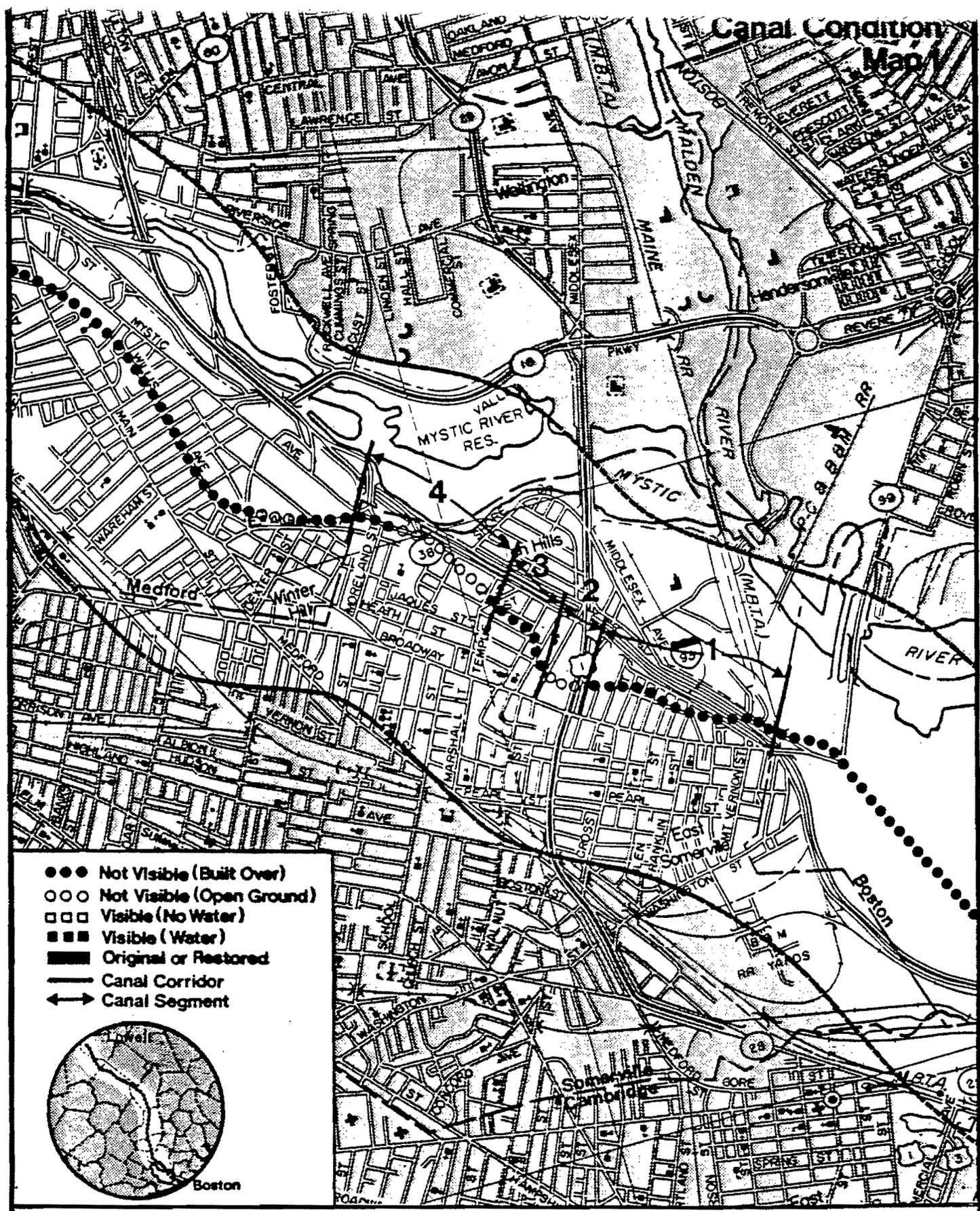
This segment of the canal route is built over by residential development. A sign is recommended on Temple Street at the location where the canal route passed.

Segment SOM-4. Temple Street to Medford City Boundary

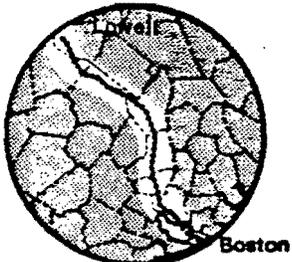
From Temple Street the canal route passes through the Mystic View Housing Project where signage and possible interpretive sites are proposed. In addition to signage, a community effort could possibly utilize project residents' talents (particularly children's) to delineate the canal route using sidewalk paintings and building murals depicting scenes of the canal. This will not only accentuate the canal route, but will positively affect the residential environment.

At the Somerville/Medford line, at the edge of Mystic Avenue, directly opposite the exit of Route 193, there is a small empty parcel with a billboard on it. The traffic and commercial-industrial character of the area make it an appropriate site for an interpretive display revealing the intersection of many different forms of transportation, starting with the Canal. An enlarged period painting depicting the ship building on the Mystic River mounted on the existing billboard should be explored.

Canal Condition Map

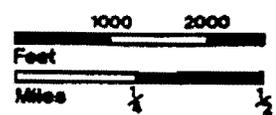


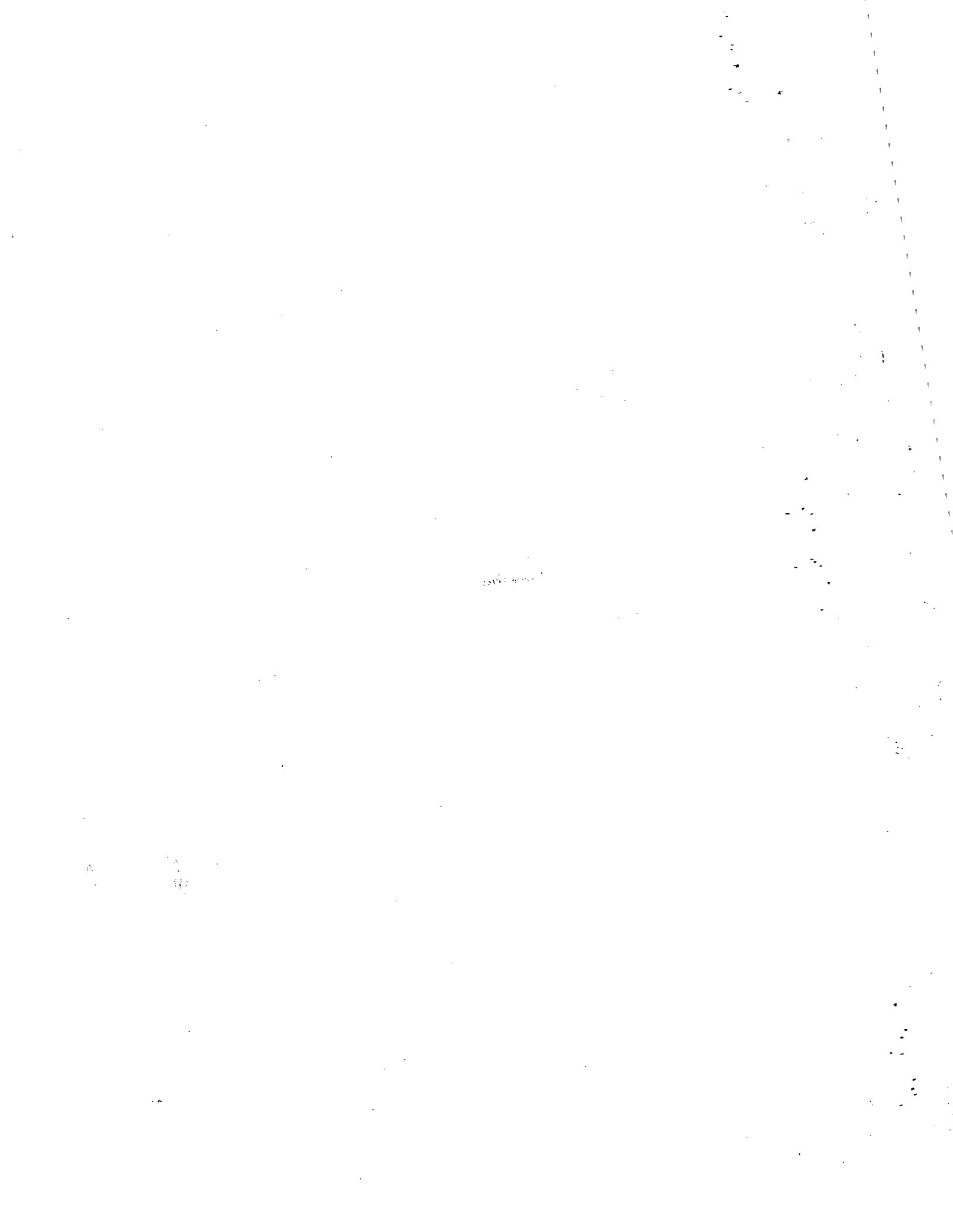
- Not Visible (Built Over)
- Not Visible (Open Ground)
- Visible (No Water)
- ■ ■ Visible (Water)
- ▬▬▬ Original or Restored
- Canal Corridor
- ↔ Canal Segment



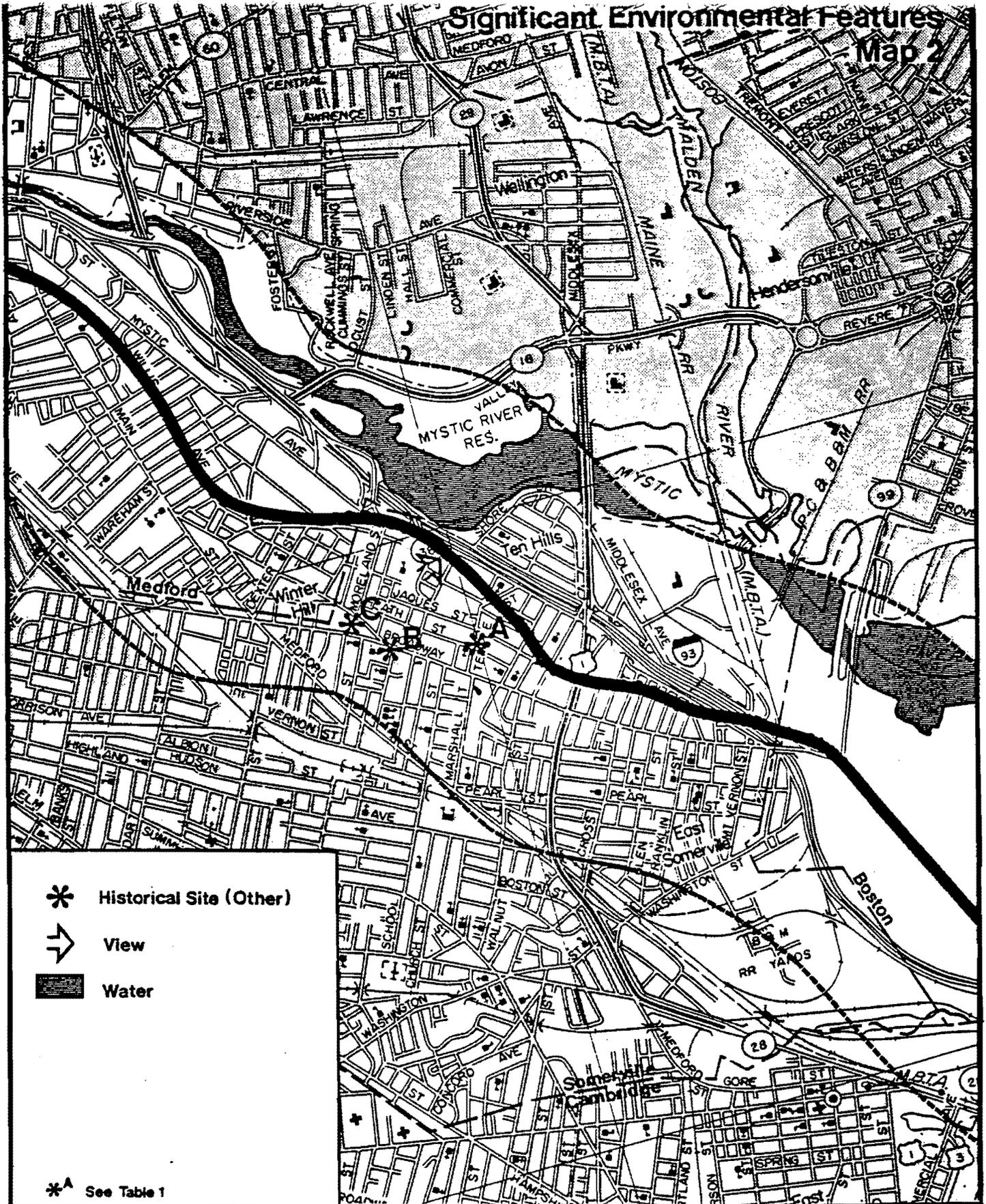
MIDDLESEX CANAL • SOMERVILLE

Source: General Highway Map, Mass. Dept. of Public Works.
 Prepared by:
 Metropolitan Area Planning Council & Northern Middlesex Area Commission, 1980.





Significant Environmental Features Map 2

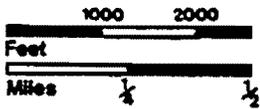


- * Historical Site (Other)
- ➔ View
- Water

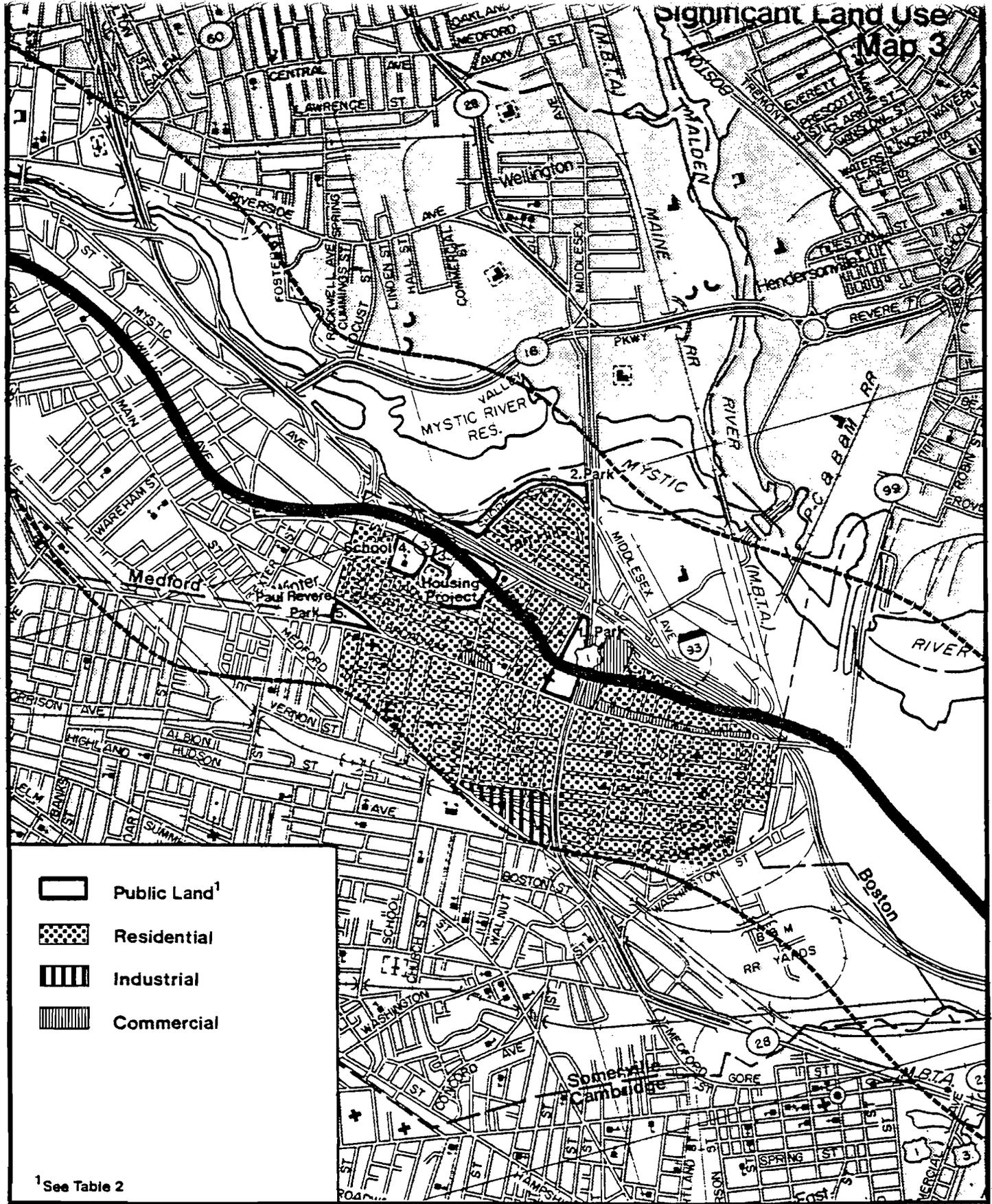
*A See Table 1

MIDDLESEX CANAL • SOMERVILLE

Source: General Highway Map, Mass. Dept. of Public Works.
 Prepared by:
 Metropolitan Area Planning Council & Northern Middlesex Area Commission, 1980.







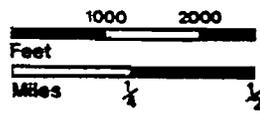
-  Public Land¹
-  Residential
-  Industrial
-  Commercial

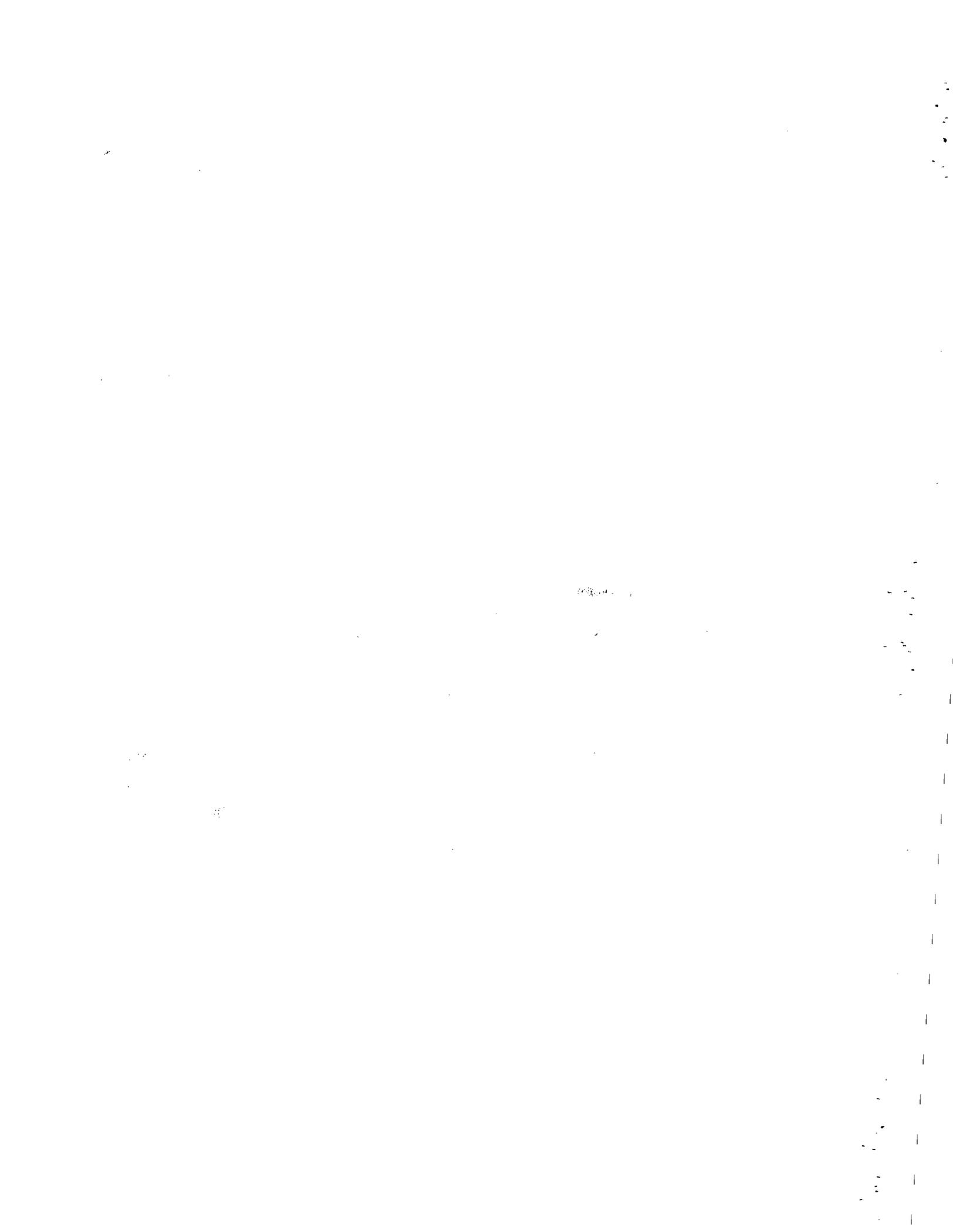
¹ See Table 2

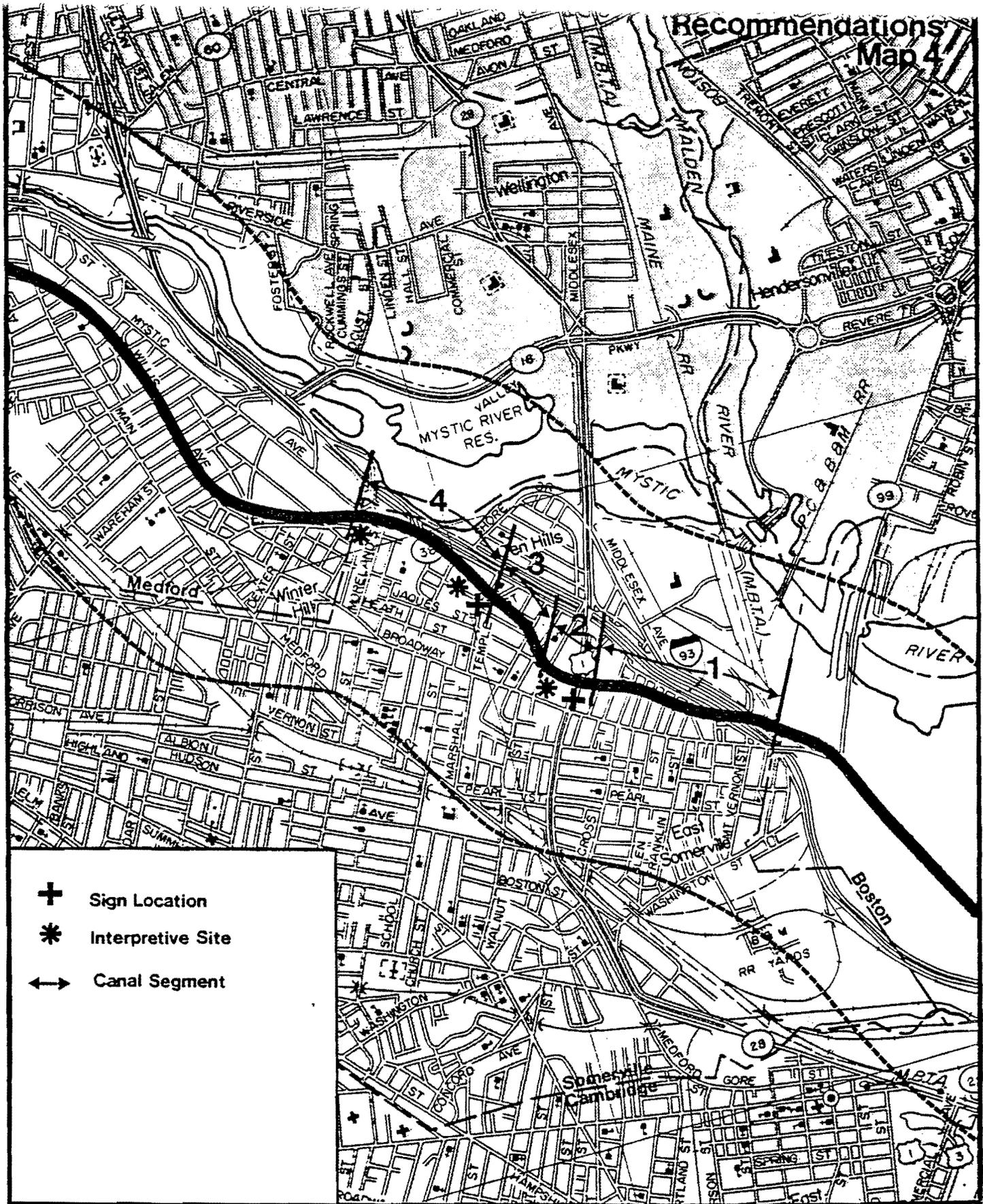
MIDDLESEX CANAL • SOMERVILLE

Source: General Highway Map, Mass. Dept. of Public Works.

Prepared by:
Metropolitan Area Planning Council & Northern Middlesex Area Commission, 1980.





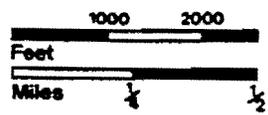


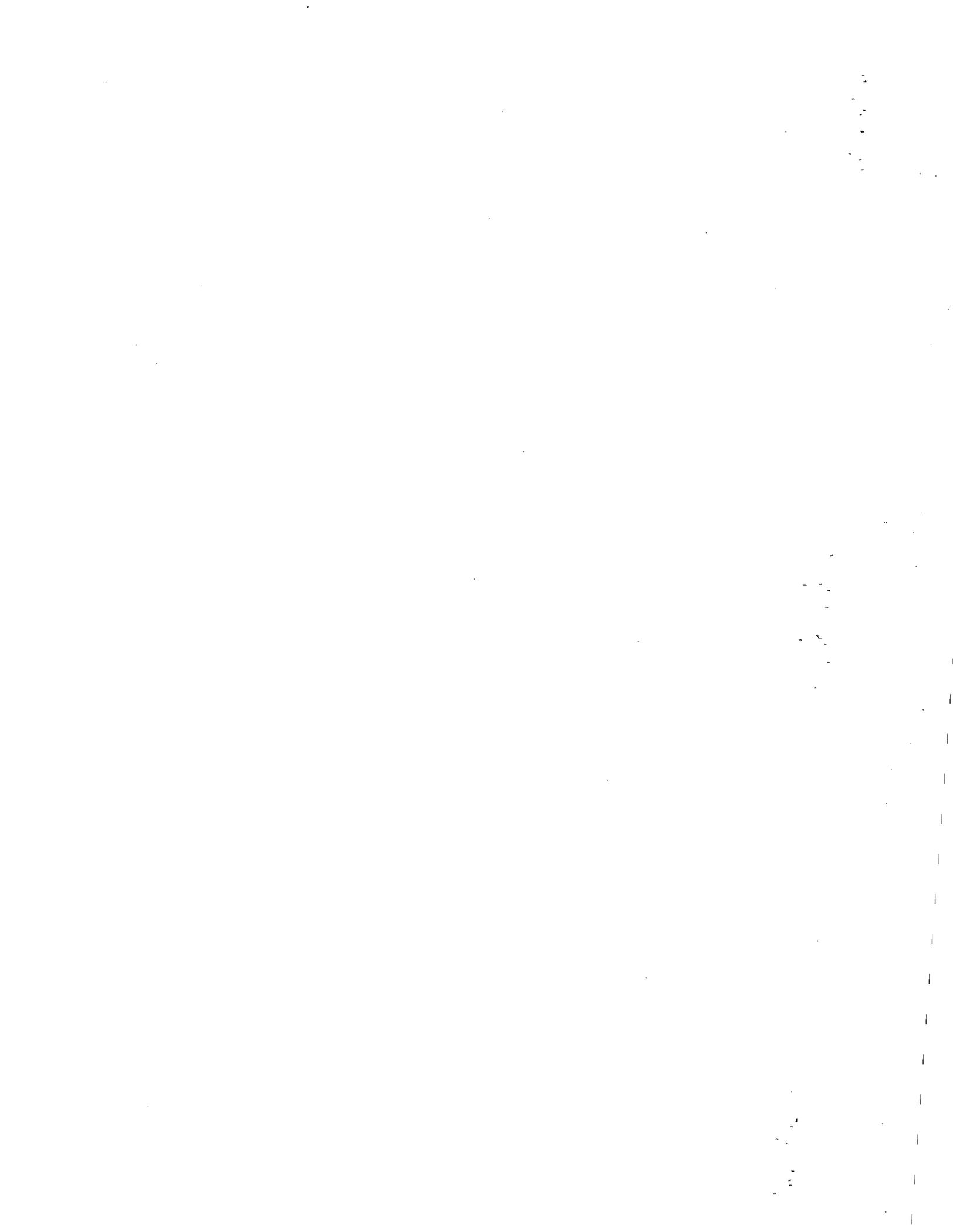
- + Sign Location
- * Interpretive Site
- ↔ Canal Segment

MIDDLESEX CANAL • SOMERVILLE

Source: General Highway Map, Mass. Dept. of Public Works.

Prepared by:
Metropolitan Area Planning Council & Northern Middlesex Area Commission, 1980.





SOMERVILLE

Inventory of Historic Buildings and Sites in the Middlesex Canal Corridor shown on Map 2.

- A. Federal House: dwelling 1750 (Temple and Seawall St. State Reg)
Style: Georgian
- B. Oliver Tufts House: 1970 dwelling 155 Sycamore St. (State Reg)
Headquarters of Major General Lee during Revolutionary siege of Boston.
- C. Paul Revere Park: Broadway - Main St., use: passive recreation.
Contains a lone pine tree thought to be the remainder of the original planting in front of the Hittinger Mansion which was destroyed, a stone designating the site for the Winter Hill Fort used in the siege of Boston and later as a prisoner of war camp and another stone designating the site of Paul Revere on his famous ride.

SOMERVILLE

Public and Semi-Public Land in the Middlesex Canal Corridor
shown on Map 3.

1. Foss Park - MDC Owned
2. Mystic Riverfront - MDC Owned
3. Mystic View Housing Project - Mystic Avenue, Somerville
4. Healy School and Playground
5. Paul Revere Park - City Owned

MEDFORD

The City of Medford provides the first significant linear recreation potential that either parallels and/or utilizes the actual canal route. The Mystic River, which eventually turns into Mystic Lake, has an extensive waterfront parkway system and roadways which are owned and maintained by the Metropolitan District Commission.

The City of Medford contains a rich historic heritage which, in part, can be linked with the Canal. As a major shipbuilding center during the 19th century, the industry depended on a New Hampshire wood supply which was transported over the canal. From the canal, it was transferred to the shipyards located on the Mystic River by a canal extension.

Medford abounds in historical sites, many of which are located in the canal corridor illustrated on Map 2. Among these sites are the Isaac Royal House which was built in the 18th century, the Greek Revival Paul Curtis House, and several homes which belonged to the influential Brooks family of West Medford.

The canal route crosses predominantly residential areas in Medford, which have been developed over the canal as shown on Map 3. Open stretches of land on the canal route are limited to publicly owned properties through or near which the canal passes. Among these properties are Columbus School and Playground, Tufts Playground, Barry Playground, Cummings Park, Thomas Brooks Park, and the Brooks Playstead. Additionally, the Mystic River and Lakes Parkway system provides an occasionally intersecting and parallel linear park system.

Through its route in Medford, the first potentially extant feature of the canal is visible as it crosses the Mystic River. The embankments of what is now the Boston Avenue Bridge over the canal are said to be constructed with stone used in the original aqueduct.

The City of Medford represents the first opportunity for recreational and interpretive uses of the canal route accessible to a significant number of persons.

RECOMMENDATIONS

Segment MED-1. City Boundary to Columbus School

After entering the City of Medford, the canal route veers away from Mystic Avenue and crosses a commercial area into Columbus School and Playground. This offers an opportunity for an interpretive site, as shown on Map 4, which could possibly be integrated into the school curriculum. Possible programs include highlighting the exact canal route on the school property through landscaping, street art, or other means. Students could be assigned to projects on the canal and its importance to the City of Medford. Reports, painting or even model building are some proposed activities. A sign noting the canal's route should be placed at the school.

Segment MED-2. Columbus School to Hancock School

From the Columbus School the canal lies under residential development. The Hancock School could incorporate the canal into its curriculum as well as use interpretive exhibits.

Segment MED-3. Hancock School to Winthrop Street

No visible features of the canal remain in this segment. However, this area was the location of the canal extension, the most significant canal feature in Medford. The Canal Extension connected the canal to the Mystic River where the shipbuilding yards were located. It is recommended that signage with accompanying charts and diagrams be posted at or near the intersection of Main Street and Mystic Avenue to mark the Canal extension and its importance to early Medford's development. One of the commercial tenants in the area might be amenable to sponsoring this exhibit.

Segment MED-4. Winthrop Street to Alewife Brook Parkway
(Includes part of Somerville)

The canal lies under residential development and passes through Leahy Square where a small marker exists honoring a World War I hero. Since the canal passed under this site, a second marker is recommended to note the canal's route. From Leahy Square the canal passes through residential, commercial, and industrial uses, crossing the Boston and Maine Railroad and briefly entering the City of Somerville as it joins Boston Avenue.

Segment MED-5. Alewife Brook Parkway to Arlington Street

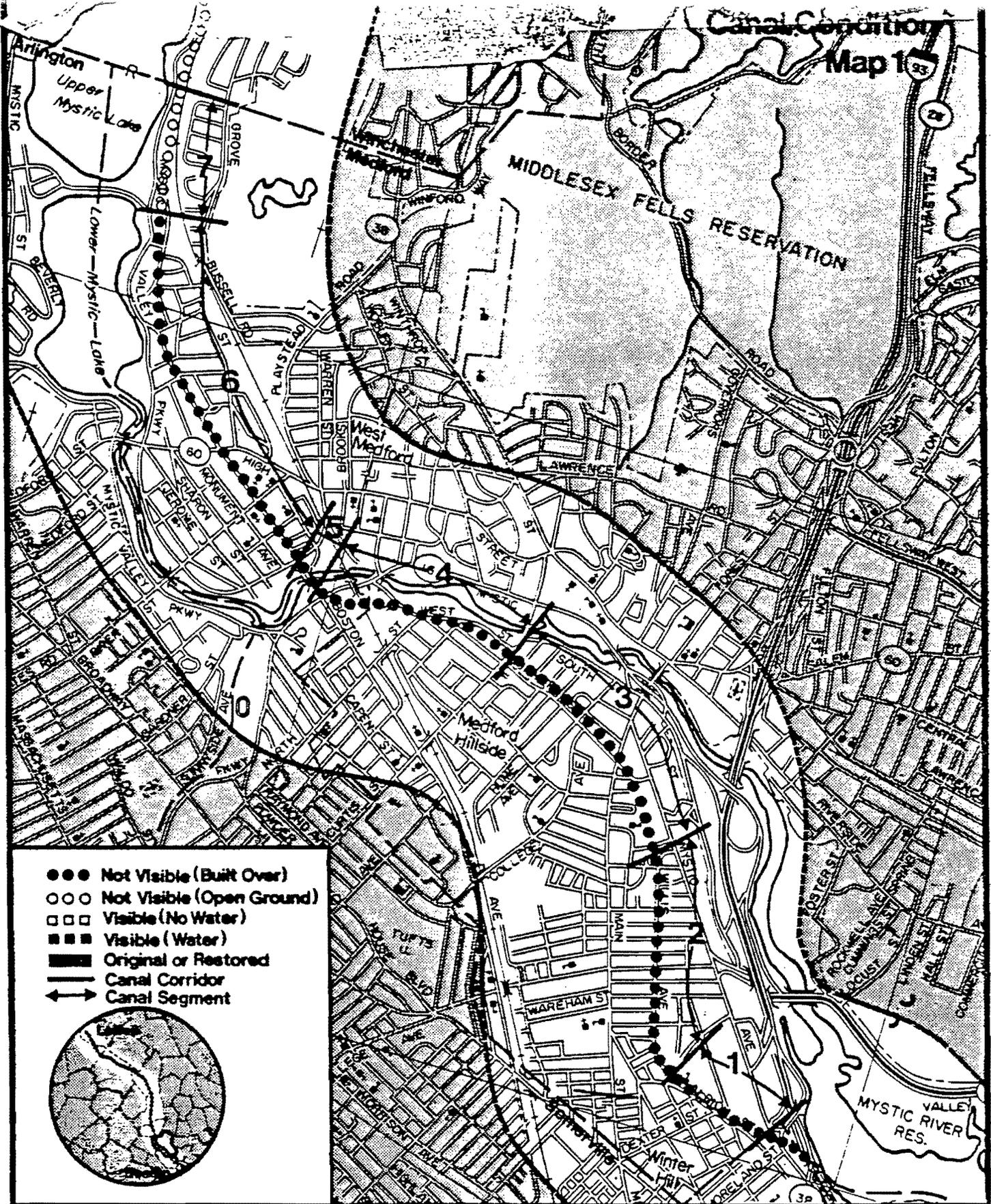
The first visible remnants of the canal appear in this area. Since this segment intersects with the Mystic River Park system of the MDC, this area holds potential as a prime interpretive site as well as an area for linking linear recreational opportunities with the remaining portion of the canal route. Here, by an aquaduct, the canal spanned the Mystic River, and Bilson's Lock elevated the canal for the first time, since it left Charlestown. The canal bed lies under Boston Avenue, and the stone footing of the bridge is said to be a remnant of the aquaduct. The first building on the right after crossing the bridge is said to be an old tavern, popular during canal trips.

It is recommended that the cities of Somerville and Medford collaborate with the MDC in developing this segment as an interpretive site to connect with other canal-related interpretive sites along the MDC Mystic Park system, i.e. bikeways, jogging, hiking, or cross country skiing.

It is at this section where a bikeway which will travel the remaining portion of the canal route is recommended to begin. This starting point would provide accessibility to nearby residents of Cambridge, Arlington, Medford and Somerville.

Segment MED-6. Arlington Street to Mystic Valley Parkway

The canal route continues up Boston Avenue, crosses High Street and continues under the present-day Sagamore Avenue.



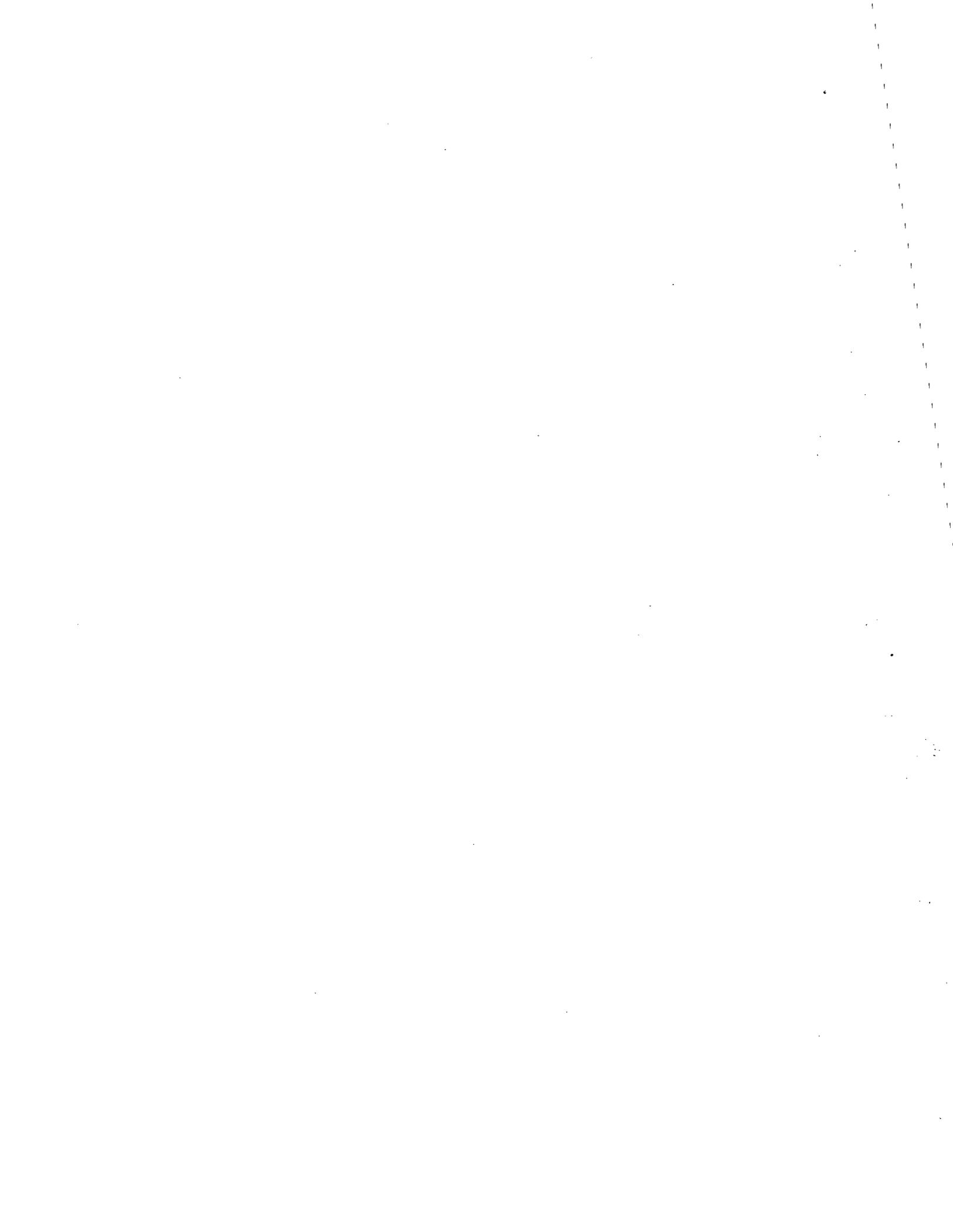
MIDDLESEX CANAL • MEDFORD

Source: General Highway Map. Mass. Dept. of Public Works

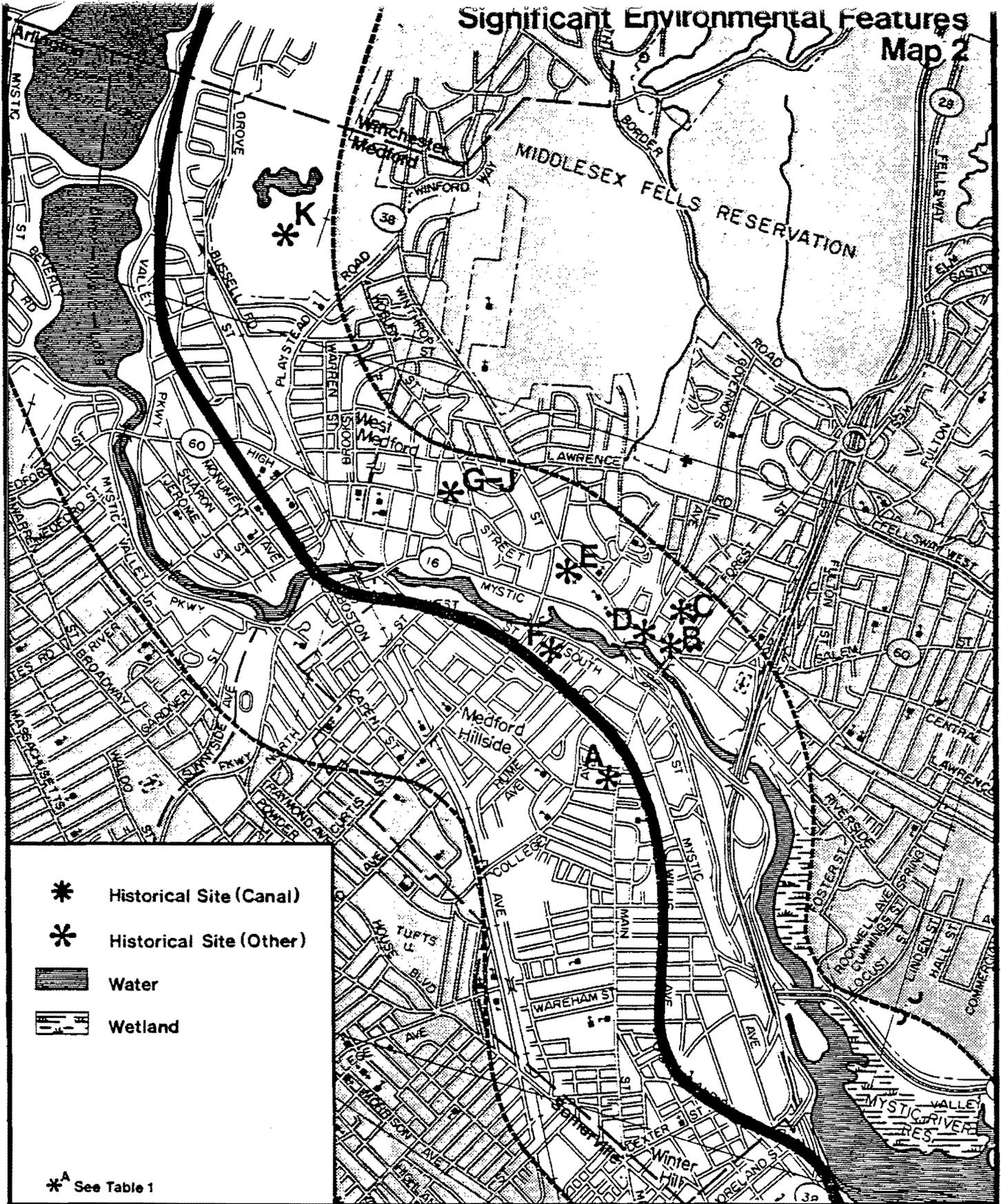
Prepared by:

Metropolitan Area Planning Council & Northern Middlesex Area Commission, 1980





Significant Environmental Features Map 2

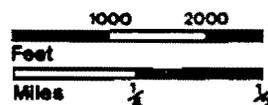


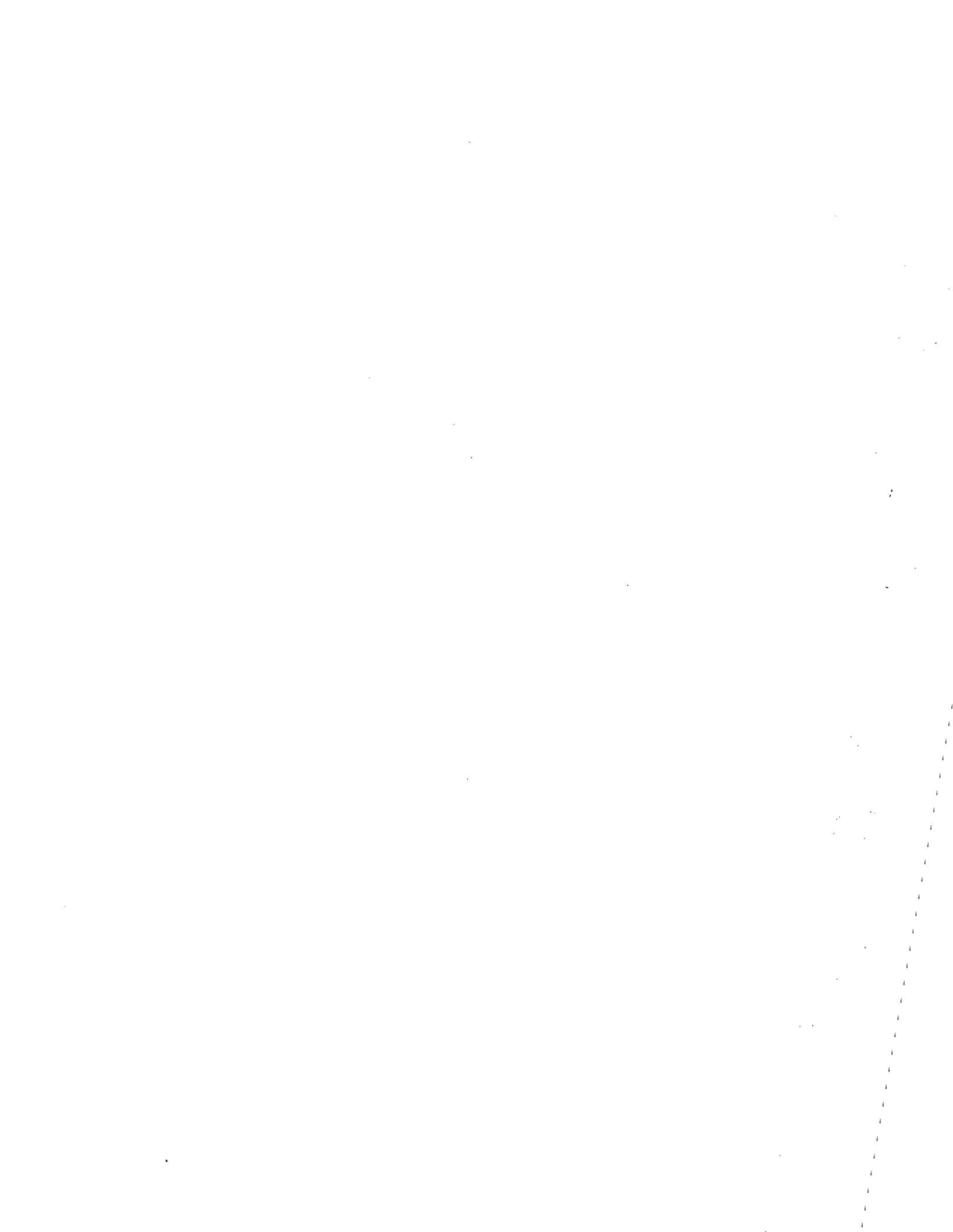
- * Historical Site (Canal)
- * Historical Site (Other)
- ▨ Water
- ▧ Wetland

*^A See Table 1

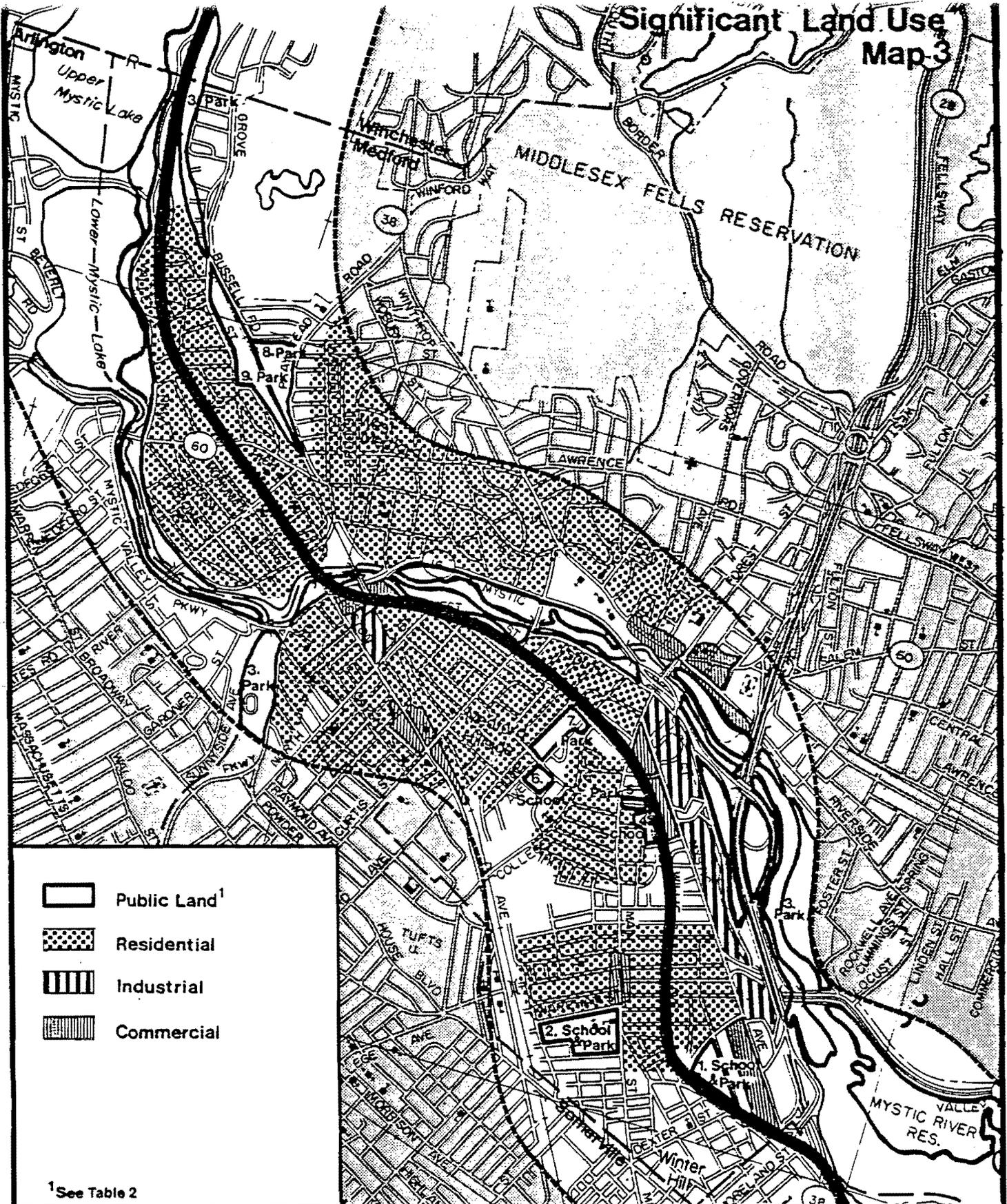
MIDDLESEX CANAL • MEDFORD

Source: General Highway Map, Mass. Dept. of Public Works
 Prepared by:
 Metropolitan Area Planning Council & Northern Middlesex Area Commission, 1980





Significant Land Use Map 3

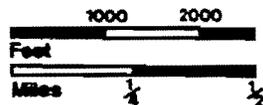


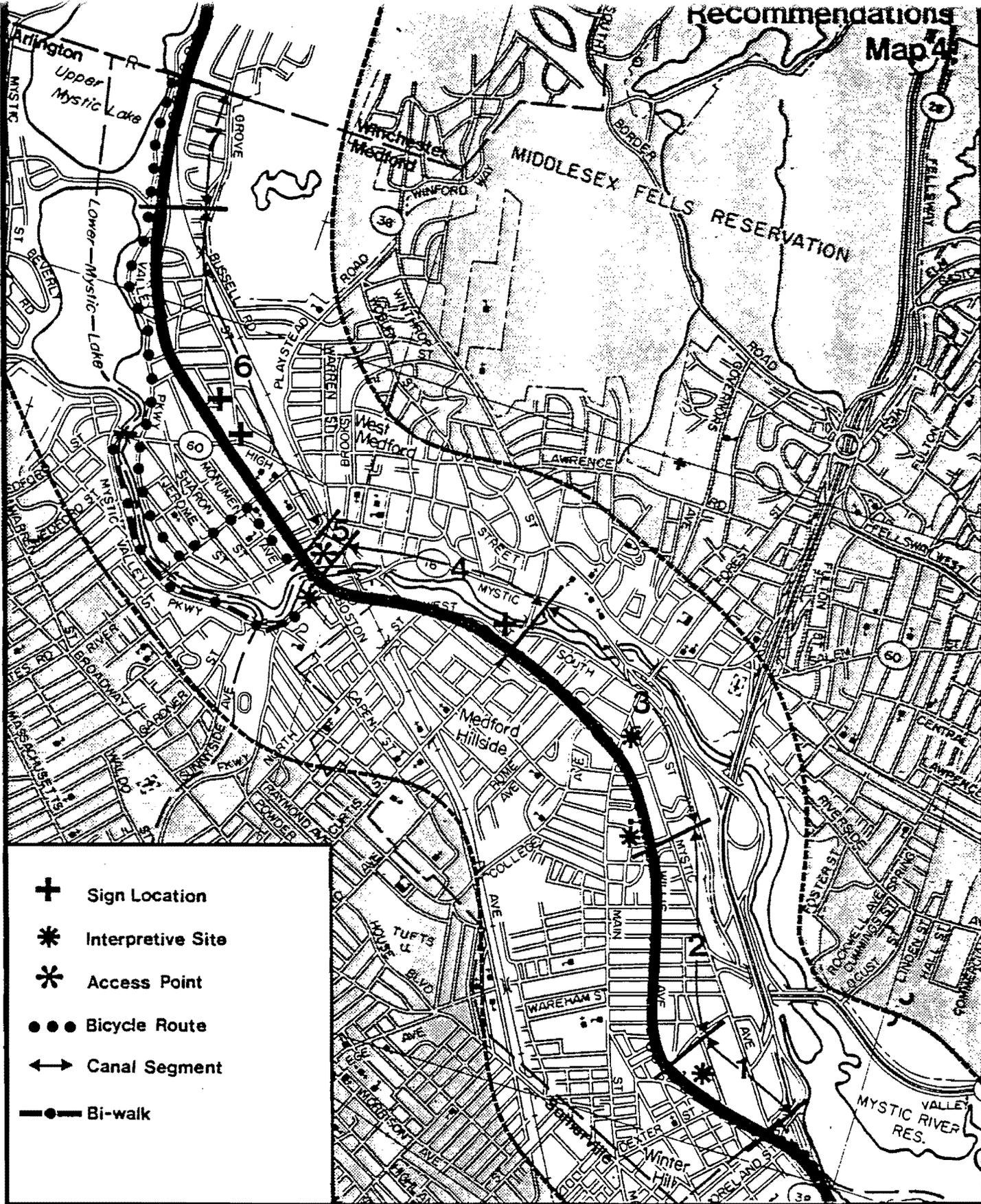
-  Public Land¹
-  Residential
-  Industrial
-  Commercial

¹See Table 2

MIDDLESEX CANAL • MEDFORD

Source: General Highway Map. Mass. Dept. of Public Works
 Prepared by:
 Metropolitan Area Planning Council & Northern Middlesex Area Commission, 1980

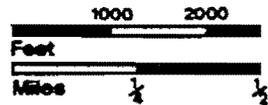




- ✚ Sign Location
- * Interpretive Site
- * Access Point
- Bicycle Route
- ↔ Canal Segment
- Bi-walk

MIDDLESEX CANAL • MEDFORD

Source: General Highway Map. Mass. Dept. of Public Works
 Prepared by:
 Metropolitan Area Planning Council & Northern Middlesex Area Commission, 1980



Where the route crosses High Street, a sign is suggested to note where it crosses the route of Paul Revere's Ride.

The Brooks Bridge, located at the site of the Sagamore John monument on Dagamore Avenue once spanned the canal to connect the farm of Peter Brooks. Although considered to be a significant architectural structure, the bridge was torn down in 1911. A marker is recommended at the Sagamore John monument containing a sketch or photograph of the bridge.

Segment MED-7. Mystic Valley Parkway to Winchester Town Line

The canal route joins with the MDC roadway to the Winchester line. Bikeways and signage are recommended along this recreational corridor which represents the first substantial undeveloped stretch of the canal route.

CANAL SEGMENT	Physical Shape		Park Potential		
	APPROX. LENGTH	CONDITION	PRIORITY	RECOMMENDATIONS	NOTES
boundary to Columbus School	2,500	Filled	Medium	Interpretive exhibit at Columbus School inclusion of canal in school curriculum	
Columbus School to Hancock School	4,000	Built over	Medium	Interpretive exhibit at Columbus School inclusion of canal in school curriculum	
Hancock School to Drop Street	3,750	Built over	Medium	Signage and interpretive site at site of intersection of Medford Branch Canal	Possible participation of commercial use
Drop St. to Life Brook way	2,000	Built over	Medium	Signage	Enters Somerville again
Life Brook Park to Arlington St	500	Filled in or Built over	High	Recreational interpretive mode beginning of bikeway	
Arlington St. to Pic Valley way	4,000	Filled in or Built over	Medium	Bikeway	Crosses route of Paul Revere Ride
Pic Valley Park to Winchester Boundary	4,000	Filled	High	Bikeway, signage	First significant undeveloped stretch of canal route

Public Ownership

ACCESS	EXTANT CANAL FEATURES	SIGNIFICANT ENVIRONMENTAL FEATURES	NEARBY HISTORICAL FEATURES	APPROX. LENGTH IN P.O.	PUBLIC PROPERTY ON ROUTE	NEARBY SCHOOLS & PUBLIC LAND	NAT. REG. SEC.
	None	Mystic River	None	500 ft.	Columbus School	Columbus School	NA
	None	Mystic River	None	300 ft.	Hancock School		NA
	None	Mystic River	Royall House Curtis House		None	Barry Playground	NA
	None	Mystic River	Royall House Curtis House	50'	Park		NA
	Stone abutments of Boston Avenue Bridge	Mystic River		100'	MDC Mystic River Park	MDC Mystic River Park	NA
	None	Mystic River	Brooks House			Brooks	NA
	None	Mystic River	Shepard Brooks Estate	2,000'	Mystic River Reservation		NA

MEDFORD

Inventory of Historic Buildings and Sites in the Middlesex Canal Corridor Shown on Map 2.

- A. Isaac Royal House: (Museum dwelling) Main & 15 George St., Medford
- 1732 Isaac Royal Sr. merchant of Antigua purchased and rebuilt house which had been home to Lt. Gov. John Usher.
- 1739-75 Home of Col. Isaac Royal Jr. - Gov. Council 23 years.
- 1782-84 Col. Gary Washington's aid who leased house.
- 1790 Boarding & Day school conducted by Wm. Woodbridge.
- B. Isaac Hall House: 43 High St., Medford, 1720
- C. Jonathan Wade House: 13 Bradlee Rd., Medford
- The Jonathan Wade House with its surviving 17th and 18th century facades is a rare example of early New England brick architecture. The Wade House, Peter Tufts House and Isaac Royal House are the only survivors of the six more brick houses built in Medford in the 17th century. Wade House is listed on National Reg.
- D. Lawrence Light Guard Armory
- E. Grace Episcopal Church: 160 High St., W. Medford
Designed in 1867 was one of H.H. Richardson's earliest works.
- F. Paul Curtis House: 114 South St., Medford
The Paul Curtis House is Medford's most elaborate example of Greek Revival architecture. House is listed on the National Register of Historic Places. In 1839, Paul Curtis established his own shipyard on the North Bank of the Mystic River where between 1839-1852 27 ships had been constructed at this site.
- G. John Wade House: 253 High St., Medford
- H. Charles Brooks House: 309 High St., Medford
Charles Brooks House was constructed before the birth of Charles Brooks and was owned for a period of time by his Uncle Isaac Brooks and later by his father Jonathan Brooks. During ownership; house known as "the Lilacs" Brooks (1795-1872) was a Unitarian minister and educational reformer.
- I. Thomas Brooks House: High St., Medford
Various local sources have been built as early as 1692. House bought in 1791 by Jonathan Brooks III, from John Brooks Jr. Jonathan Brooks family who owned most of West Medford during 17th, 18th and 19th century.
- J. George P. Fernald House: 12 Rock Hill Rd., Medford
The Fernald House is the most architecturally distinguished Colonial/Federal Revival House in Medford.
- K. Shepard Brook Estate: 275 Grove St., Medford
SBE is among the most architecturally distinguished late 19th century summer residence extant in Medford and the only estate to survive with extensive acreage of undeveloped land.

MEDFORD

Public and Semi-Public Land in the Middlesex Canal Corridor Shown on Map 3.

1. Columbus Park (city owned)
2. Tufts Park (city owned)
3. Veterans Memorial Park (M.D.C. owned)
4. Hancock School
5. Brooks Park (city owned)
6. Dome School
7. Barry Playground (city owned)
8. Brooks Playstead (city owned)
9. Thomas Brooks Park (city owned)

WINCHESTER

The first visible traces of the Middlesex Canal appear in the Town of Winchester as shown on Map 1. There are two separate locations where the canal is visible. The first is at Sandy Beach Reservation on the Mystic Lake. A paved path, under which sewer trunk lines are buried, is located on the Canal bed. On either side of the path remains of the canal berms are visible though overgrown with vegetation. The second area is between the backyards of the homes along Sheffield Street and Fletcher Road. However, the private ownership of the canal traces and their inaccessibility to the public, limit the amount of public utilization of these traces.

In addition to development which has altered the landscape of the canal route, the formation of a lake has altered the area where the canal once crossed the Aberjona River. During the operation of the canal, the northern portion of the Upper Mystic Lake was non existent. At the point the canal route crosses the present Mystic Lake, marked the place where the Aberjona River flowed into the lake. Construction of a dam between the Upper and Lower Mystic Lakes has created this existing northeast portion of the lake.

No traces remain of Gardner Double Locks and Tavern located on the northern side of Mystic Lake. As the canal route continues, it passes through a neighborhood of private homes of historical significance as shown on Map 2.

The only significant stretch of open space accessible to the public is Wildwood Cemetary, shown on Map 3 which is owned and maintained by the Town of Winchester. The Palmer Playground is across Palmer Street. Nearby on a parallel course with the canal route is the Horn Pond Brook Park.

Before leaving Winchester, the canal route crosses Horn Pond Brook. This Brook was the secondary source of water for the canal, after the Concord River.

RECOMMENDATIONS

Segment WIN-1. Medford City Boundary to Sandy Beach

This segment represents a continuation of the linear recreation corridor along the Mystic Valley Parkway. Bikeways and trails for hiking and jogging are recommended in addition to signs along the Canal route.

Segment WIN-2. Sand Beach Reservation

Sandy Beach Reservation is a peninsula created as a result of the construction of a dam between the Upper and Lower Mystic Lakes. Prior to the dam's construction, this area was the southern bank of the Aberjona River which entered the Mystic Lake.

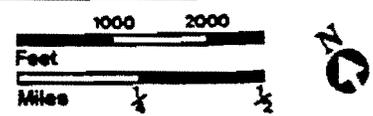
Presently owned by the Metropolitan District Commission, Sandy Beach serves as a public swimming and recreation area. It is at Sandy Beach, where the first traces of the canal become visible. A paved pathway travels the peninsula on what was formerly the canal bed. On either side of the pathway, traces of the canal bank are visible and extend the length of the path. Where the pathway terminates on the shore of the Mystic Lake, a stone parapet or embankment was built by the WPA in the 1930's using stone

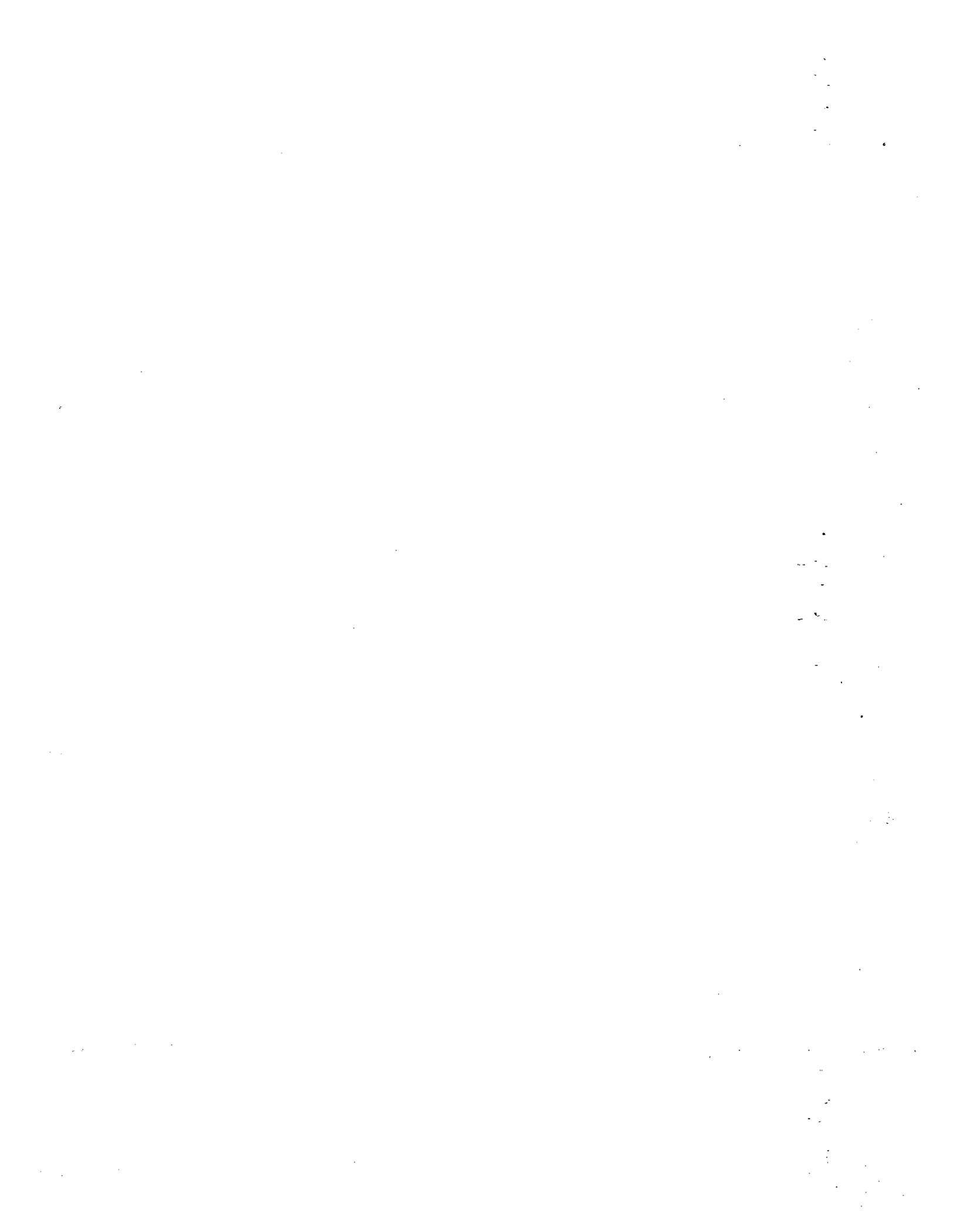
Canal Condition Map 1



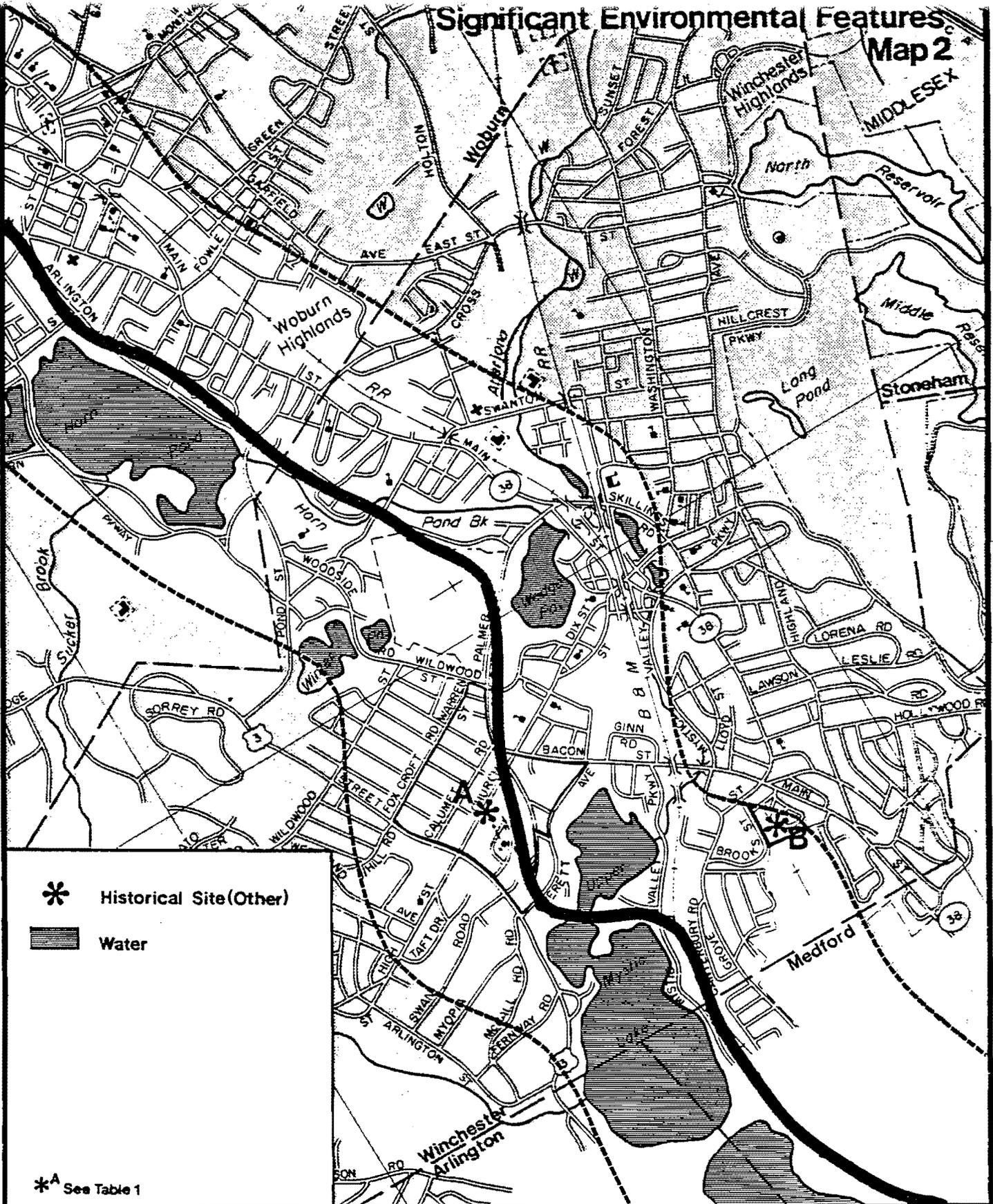
MIDDLESEX CANAL • WINCHESTER

Source: General Highway Map, Mass. Dept. of Public Works.
 Prepared by:
 Metropolitan Area Planning Council & Northern Middlesex Area Commission. 1980.





Significant Environmental Features Map 2

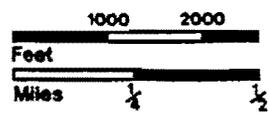


-  Historical Site (Other)
-  Water

*A See Table 1

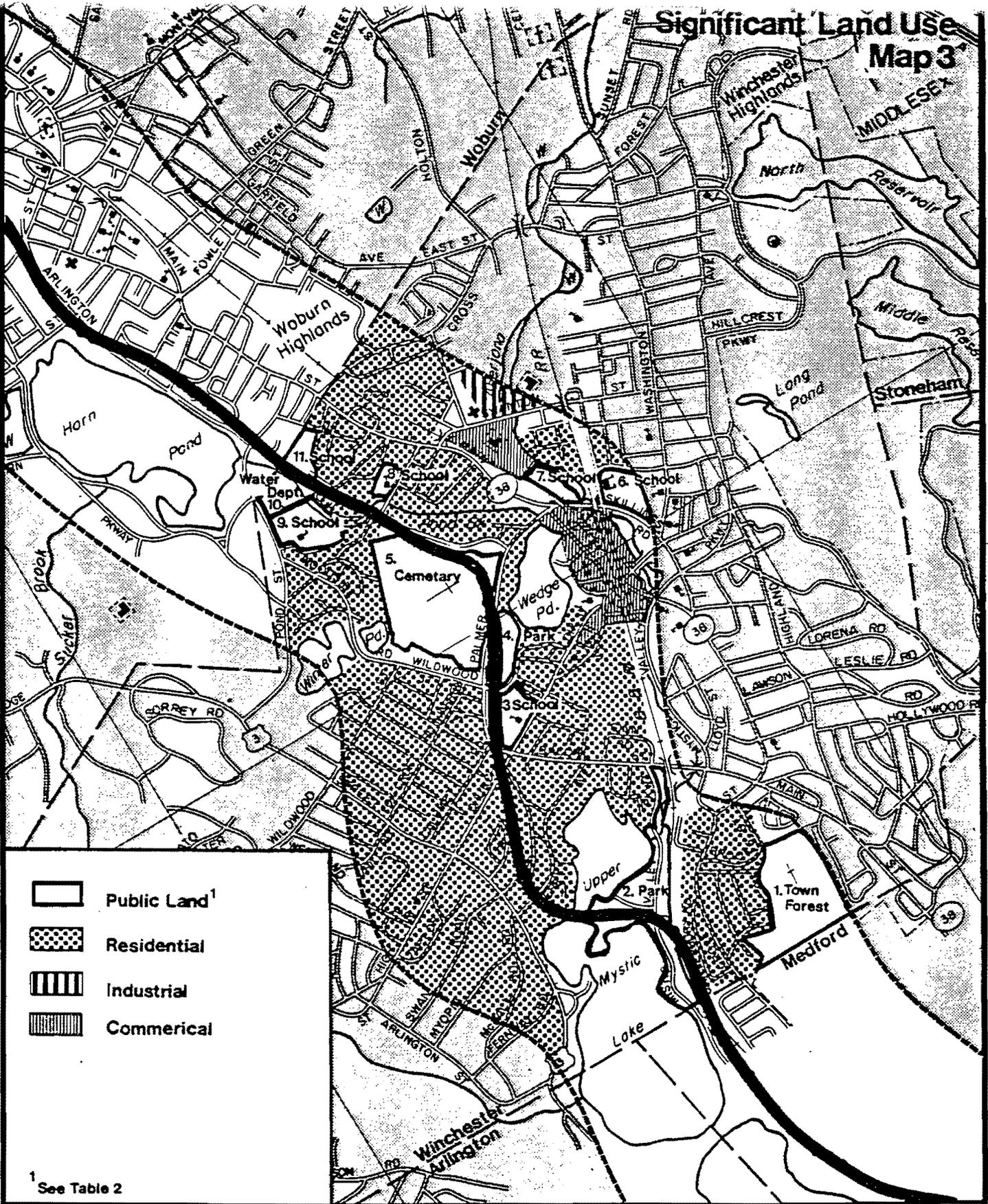
MIDDLESEX CANAL • WINCHESTER

Source: General Highway Map, Mass. Dept. of Public Works.
 Prepared by:
 Metropolitan Area Planning Council & Northern Middlesex Area Commission. 1980.





Significant Land Use Map 3

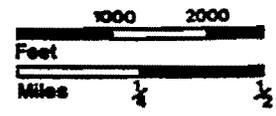


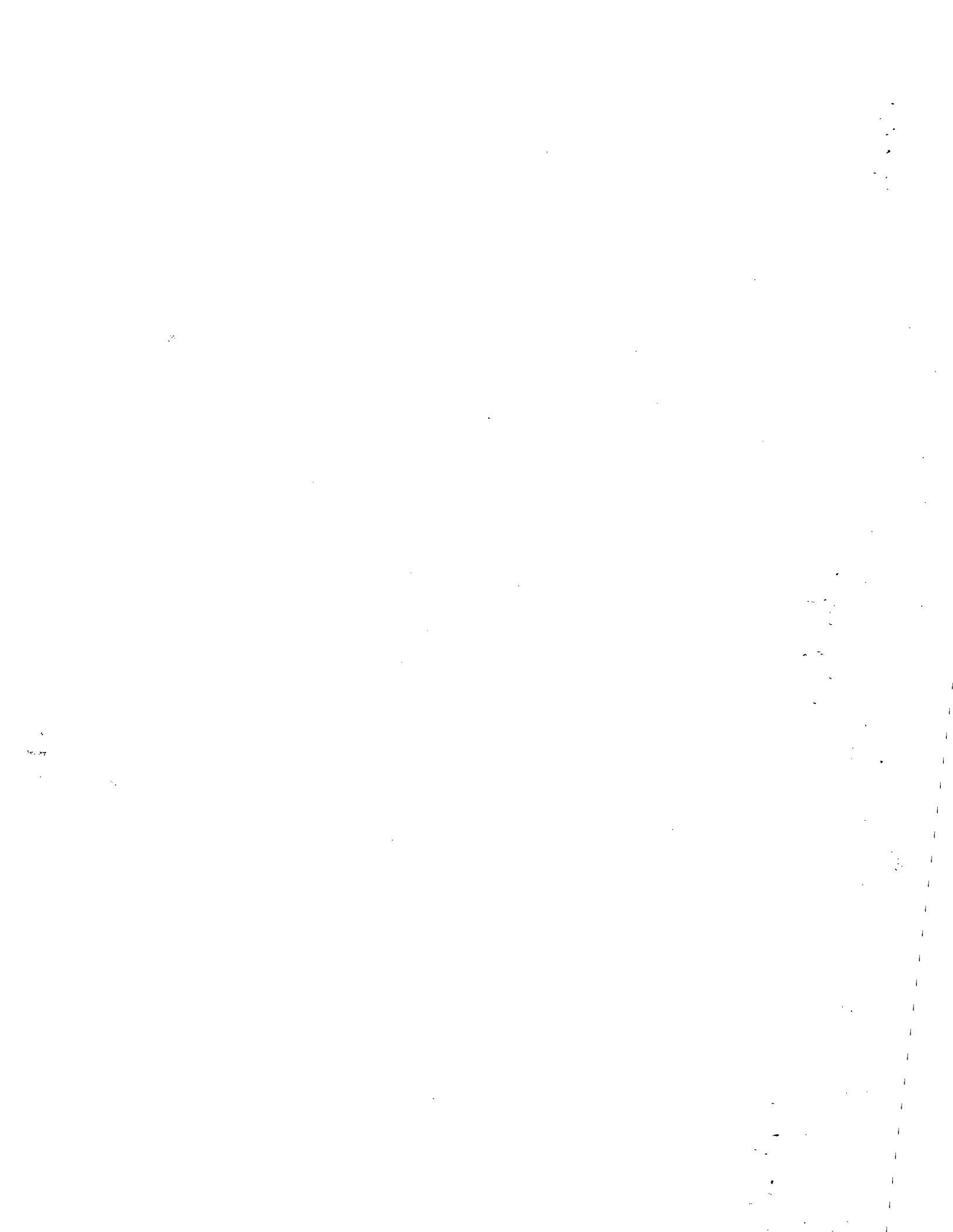
-  Public Land¹
-  Residential
-  Industrial
-  Commercial

¹ See Table 2

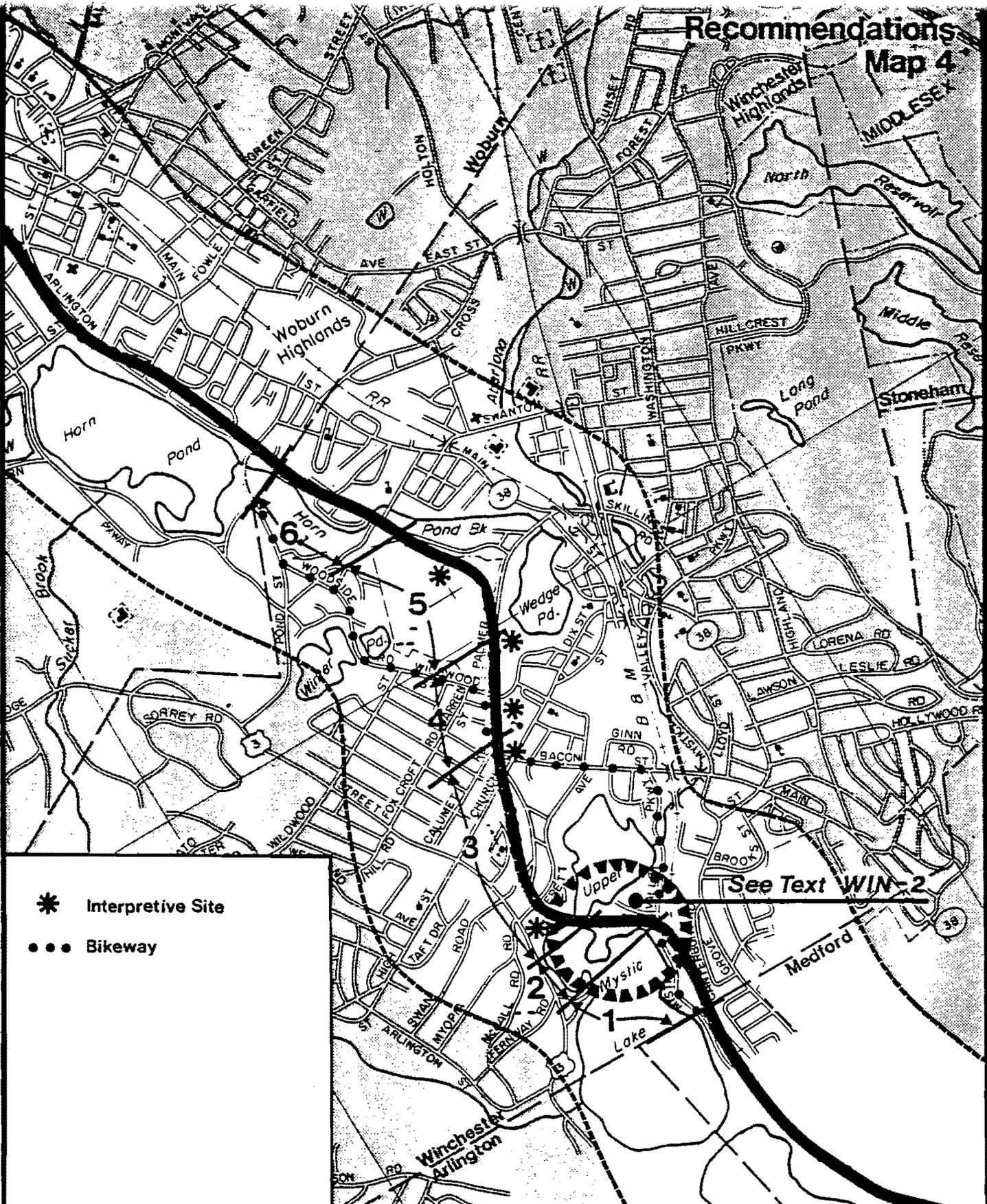
MIDDLESEX CANAL • WINCHESTER

Source: General Highway Map, Mass. Dept. of Public Works.
 Prepared by:
 Metropolitan Area Planning Council & Northern Middlesex Area Commission, 1980.





Recommendations Map 4

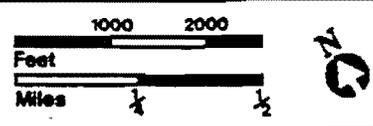


See Text WIN-2

- * Interpretive Site
- Bikeway

MIDDLESEX CANAL • WINCHESTER

Source: General Highway Map, Mass. Dept. of Public Works.
 Prepared by:
 Metropolitan Area Planning Council & Northern Middlesex Area Commission, 1980.





from the canal aquaduct which crossed the Aberjona River to the opposite shore.

Sandy Beach is recommended as a site for design treatment. Among the factors contributing to the selection of this site are, public ownership, present recreation use, accessibility, and visible remnants of the canal. This design should serve as a prototype for other recommended actions along the Canal to enhance its preservation.

Design Objectives

1. To maximize public awareness of the Middlesex Canal through meaningful interpretive sites.
2. To capitalize on the linear nature of the canal for recreational opportunities.
3. To seize opportunities which minimize land acquisition.
4. To minimize costs associated with implementation.
5. To be transferable to other sites along the canal route.

Design Recommendations

In order to achieve these objectives, the proposed design treatment concentrates on two major areas. The first is to preserve and enhance the remaining canal features and trace through physical improvements and informational exhibits along the canal route. The second is to provide an active interpretive opportunity for children through thematic recreation planning and development.

The first area is addressed by replanting along the existing canal bank to accentuate its presence. In addition to signage, permanent exhibits utilizing graphic aids should be installed to describe the history of the canal and its importance to the early commerce of the region. As the canal route travels towards the lake shore, it is recommended that the fence surrounding the stone parapet be removed. At the parapet, a graphic representation of the original aquaduct and a map of the area before the Aberjona was converted to the present lake could assist viewers in visualizing the site's past.

The interpretive goal is achieved by the proposed refitting of the existing playground area with apparatus reflective of the canal. An example of this would be scaled-down replicas of canal boats, constructed of durable material, sunk into the ground in a mock canal bed. Other thematic apparatus could include miniature buildings such as toll houses, warehouses or gate keeper's homes. Wading pools or sand boxes could be constructed which resemble the locks used along the canal route. A miniature aquaduct would illustrate how the canal was able to cross many of the obstacles along its route.

chester

TOTAL CANAL LENGTH APPROX TWO AND A HALF

CANAL SEGMENT	Physical Shape		Park Potential		
	APPROX. LENGTH	CONDITION	PRIORITY	RECOMMENDATIONS	NOTES
ford City idary to Sandy ch Reservation	1,500'	Filled in	High	Bikeway & Signage	
ly Beach ervation	1,250'	Visible - partially filled	High	Interpretive recreation, land- scaping to enhance remaining canal banks	First visible trace of canal
ic Lake to n Street	4,000'	Filled in some visible traces	Medium	Interpretive site Bikeway	
n St. to er playground	1,750'	Built over	Low	Interpretive site Bikeway	
er playground iddlesex St.	3,000	Filled in	Medium	Interpretive site Bikeway	
ilesex Street oburn City idary	2,000	Built over	Medium	Signage Interpretive site Bikeway	Horn Pond Brook was the only secondary water source for canal

OR 10% OF TOTAL LENGTH

Winchester

Public Ownership

CLASS	EXTANT CANAL FEATURES	SIGNIFICANT ENVIRONMENTAL FEATURES	NEARBY HISTORICAL FEATURES	APPROX. LENGTH IN P.O.	PUBLIC PROPERTY ON ROUTE	NEARBY SCHOOLS & PUBLIC LAND	NAT. REG. SEC.
	None	Mystic Lake	None	1,500'	MDC Mystic River Reservation		NA
	Canal banks stone abutment of aqueduct	Mystic Lake	None	1,250'	Sandy Beach		NA
	Some visible traces	Mystic Lake	33 historical homes in general vicinity		None	None	NA
	None	None	None	1,500'	School Palmer playground		NA
	None	Wedge Pond	None	3,000'	Wildwood Cemetary		NA
	None	Horn Pond Brook	None	500'	Jr. High School	Jr. High School	NA

These recommendations are indicative of the types of treatment available to provide children not only an opportunity to play, but to learn and pleasantly experience their heritage.

Segment WIN-3. Mystic Lake to Bacon Street

Passing through the backyards of privately owned homes and partly visible at some spots, the canal is inaccessible to the public. Two potential interpretive sites exist in this segment. The first, at the intersection of Edgewater Place and Sheffield Road which was the site of Gardner's Double Locks. The second is at the intersection of Church and Fletcher Streets and Sheffield Road. This site was the location of Huffmeister's Bridge and marked the intersection of the municipal boundaries of Charlestown, Medford, and Woburn before Winchester incorporated.

Segment WIN-4. Bacon Street to Palmer Playground

Segment WIN-4 passes through the Wyman School grounds. Interpretive exhibits and inclusion of the canal in school curriculum is recommended.

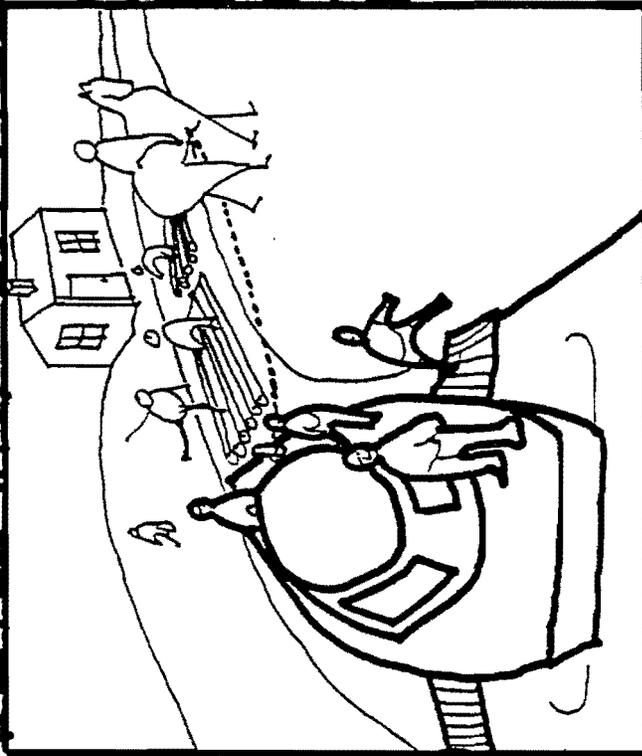
Segment WIN-5. Palmer Playground to Middlesex Street

This segment represents a stretch of open space along the canal route suitable for both passive and active interpretive sites. The Palmer Playground is suitable for a thematic treatment similar to Sandy Beach. Wildwood Cemetery is suitable for more passive interpretive exhibits.

Segment WIN-6. Middlesex Street to Woburn City Boundary

Signage is recommended along the canal route. The bikeway will rejoin the canal route shortly after entering Woburn.

WATER & RAFTS

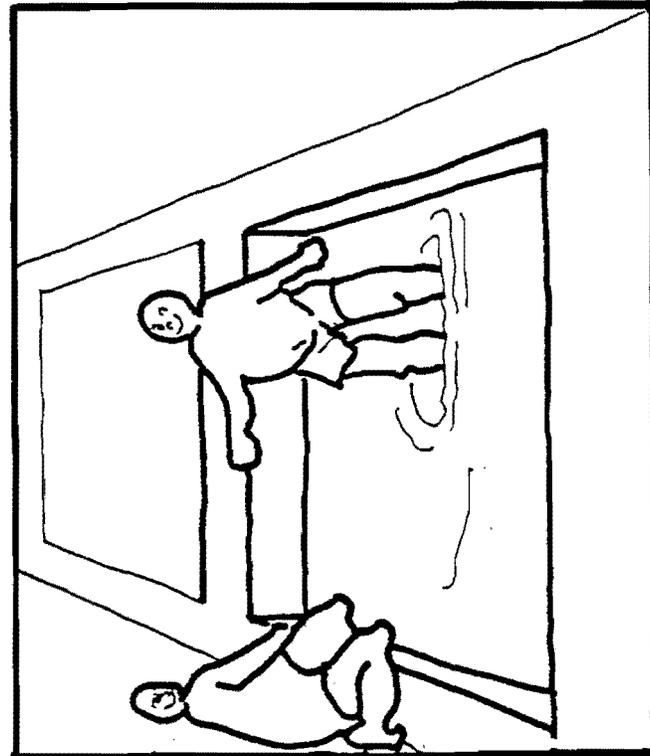


FLOAT

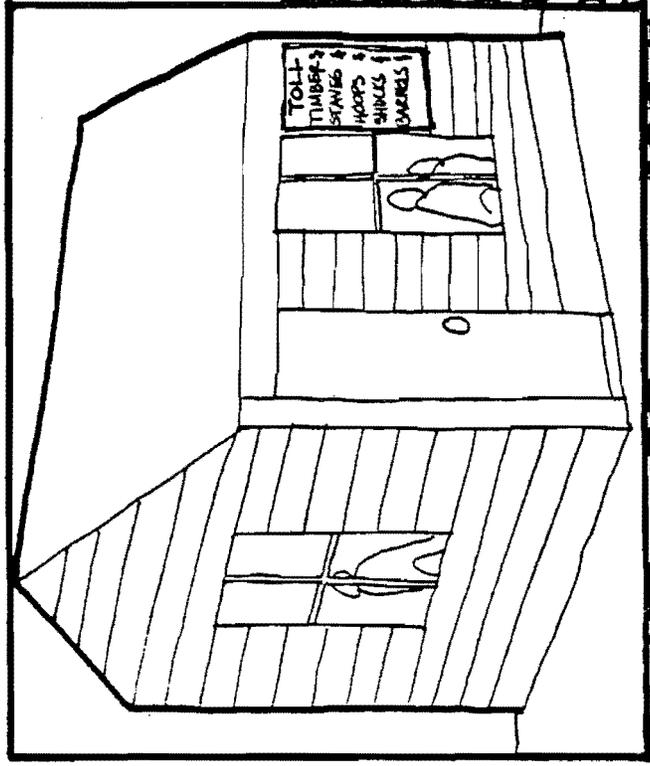
BARRELS



HOOPS



FISH LOCKS



WINDMILL

TOLL

CANAL PARAPET
 BEST SCENIC OVERLOOK ONTO NORTH LAKE
 TIES TO SITE HISTORY AND SIGNIFICANCE
 LINKS TO ORIGINAL HISTORICAL SIGNIFICANCE
 OF PARAPET AS ORIGINAL VESTIGE.

BANK EDGE
 NEED TO RECREATE ROUGH AREAS
 FOR MORE GRASSY AREAS THAT
 ARE ASKING FOR MORE OPEN AND INFORMAL
 ASCENT/DUNE

NAL BEED
 SENDS A MESSAGE
 FROM THE PAST
 TO THE PRESENT

EXISTING PLAYGROUND

PLAYGROUND

INTENSIFY PRESENT USE AND PROVIDE HORIZONTAL SIGNIFICANCE
 OF AREA BY CONSTRUCTION OF A PLAYGROUND LINKING CANAL
 CHILD SCALD ELEMENTS FROM THE ORIGINAL CANAL.
 PRESENT SITE IS THE BEST LOCATION FOR EXISTING USE
 AS IT IS AN AREA DUE TO LARGE EXPOSURE OF LEVEL LANDS
 VIEW AND EXISTING SHADE TREES. LOCATION ON
 TRIP TO RECREATION CENTER AND ADJUTANTIVE INFORMATIVE
 AND UNDEVELOPED ON SITE.
 FACILITATE CANAL - PROVIDES A UNIQUE EDUCATIONAL
 AND RECREATIONAL OPPORTUNITY, WHILE TAKING ADVANTAGE
 OF THIS PRIME LOCATION.

PARKING

EXISTING
 POOL

EXISTING PLAYGROUND

WINCHESTER

Historic Buildings and Sites in the Middlesex Canal Corridor Shown on Map 2.

- A. Area of 23 inventoried homes.
- B. Symmes Corner - 5 inventoried properties connected with Symmes family.

WINCHESTER

Public and Semi-Public Land in the Middlesex Canal Corridor
Shown on Map 3.

1. Town Forest
2. Sandy Beach
3. Wyman School
4. Palmer Playground
5. Wildwood Cemetary
6. Junior High School
7. Winchester High School
8. Noonam School
9. Lynch Jr. High School
10. Water Department

WOBURN

Woburn has restored a 1½ mile length of the canal. The city has carried on in the tradition of Colonel Baldwin, chief engineer of the Middlesex Canal, making the most of the cultural, recreational, and historical opportunities afforded by the canal. The City's efforts should serve as a model for other canal communities.

Beginning in Woburn at Kilby Street, the Middlesex Canal is listed on the National Register of Historic Places. This listing protects it from federally funded development.

While the canal route passes through relatively developed portions of the city, amazingly, a substantial portion remains visible and accessible as seen in Map 1. This may be attributed in part to the more recent nature of development in Woburn that was subject to review through zoning and subdivision regulations and perhaps a heightened awareness among community residents.

After passing Horn Pond, the route travels through a residential area built over the canal shown on Map 3. The route then goes through Woburn Center behind the Public Library into an area which is under excavation and contains a baseball field. The dry canal bed becomes visible as it leaves Woburn center and joins an abandoned railroad bed.

After crossing Winn Street, the canal bed, then its towpath as water becomes visible, serves as a jogging/fitness trail, illustrated in Map 2, which is interrupted as the canal crosses Route 128. Residential uses predominate in this portion of the canal route, though some agricultural uses exist. At the intersection of the canal route and Route 128, a hotel is situated.

Crossing Route 128, the canal has been restored for a 1½ mile stretch. The mansion of Laomi Baldwin was moved to this location. During the summer, canal boat rides are conducted for the public from 1 to 4. This restoration not only serves to preserve the canal as an actual working demonstration of its operation, but also serves as an attractive entrance to the northern part of Woburn.

After crossing School Street the canal becomes dry and its traces become less discernible due to encroaching development. Right before the canal route crosses Main Street (Route 38) and enters Wilmington, an auto junk yard is located on top of the canal route.

Substantial portions of the canal are either publicly owned or accessible to the public. The eastern shore of Horn Pond is a linear park along the route of the canal. The restored portion of the canal is another linear park.

The Towpath Trail laid out by the Woburn Historic Commission represents a jogging/hiking/bikeway network already in place that achieves the recreational linkages that follow or parallel the canal route.

Woburn

FE TOTAL LENGTH

Public Ownership

EXTANT CANAL FEATURES	SIGNIFICANT ENVIRONMENTAL FEATURES	NEARBY HISTORICAL FEATURES	APPROX. LENGTH IN P.O.	PUBLIC PROPERTY ON ROUTE	NEARBY SCHOOLS & PUBLIC LAND	NAT. REG. SEC.
None	Horn Pond	Old pump house Horn Pond house	500'	Horn Pond Park		NA
Tow path	Rag Rock	Woburn Library	600'	Library and Athletic Field		NA
Tow path Canal gate house	Wetlands	Converse House Thompson House				VI
Canal, Edgell's Bridge	Wetlands	Parker House Wyman House Cutler House			Town Forest	VI
1790 House Baldwin Man- sion, Baldwin Estate Bridge Nichol's Brid.		Rumford Birth- place Tidd House Tidd Shop Thompson Houses				V
None	Gravel Pit	None		None		V

Yoburn

TOTAL CANAL LENGTH IN CITY APPROX. FOUR

EG. NO.	CANAL SEGMENT	Physical Shape		Park Potential		
		APPROX. LENGTH	CONDITION	PRIORITY	RECOMMENDATIONS	NOTES
1	Winchester town boundary to Water Street	4,000	Filled in	High	Signage, interpretive site, and bikeway	Location of Stoddard Triple Locks
2	Water Street to Winn Street	3,000	Built over	Medium	Interpretive site and Bikeway	
3	Winn Street to Wyman Street	3,500	Visible traces	High	Maintain jogging trail	Abandoned railroad bed Beginning of National Register of Historic places
	Wyman Street to Route 128	3,000	Mostly visible, water filled	High	Maintain jogging trail, stabilize, interpretive site	First water filled segment
	Route 128 to School Street	3,750	Restored	High	Preserve & maintain	Finest example of canal restoration
	School Street to Wilmington town boundary	4,500	Filled in built over	Low	Signage and bikeway	

RECOMMENDATIONS

Segment WOB-1. Winchester Town Line to Sturgis Street

Following the eastern shore of Horn Pond, the canal route is located in publicly owned land. This segment was the site of a triple lock system, the Stoddard Locks, through which the canal rose an elevation of 50 feet. No traces of these structures remain. Signage and exhibits describing this significant engineering achievement are recommended in Map 4. Additionally, the shores of Horn Pond provide a pleasant setting for passive recreation.

Segment WOB-2. Sturgis Street (Water Street) to Winn Street

Obliterated by development and excavation, this segment travels through a residential neighborhood and runs behind the public library, before entering Woburn Center. Exhibits of the canal are recommended for the library.

Segment WOB-3. Winn Street to Wyman Street

Running along the course of an abandoned railroad right-of-way, this segment marks the beginning of the portion of the canal which is listed on the Register of Historic Places. This segment also marks the beginning of an existing jogging trail which utilizes the canal. It is recommended that the jogging trail be maintained and signage be placed along its course.

Segment WOB-4. Wyman Street to Route 128

This segment represents the first point along the canal route from Boston that water fills the canal bed. The jogging trail continues along this segment and terminates as it intersects Route 128. A hotel is located at the northern section of this segment. An interpretive treatment of this segment is recommended to provide guests with an understanding of the canal and its importance in the history of Woburn and the region. The existing jogging trail and proposed interpretive treatment of this segment will provide a unique amenity for Woburn residents and hotel guests.

Segment WOB-5. Route 128 to School Street

This segment represents the state of the art in restoration of the Middlesex Canal. In addition to markers and signs, rides are offered in a replica canal boat on Sunday afternoons during the summer. The only remaining task associated with this site is finding a suitable tenant for the Baldwin Mansion which was moved from its original location to this site.

Segment WOB-6. School Street to Wilmington Town Boundary

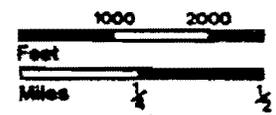
After crossing School Street the canal condition begins to deteriorate as it approaches the Wilmington Town boundary. In some instances, the canal becomes obliterated by development. Signage is recommended where the route crosses School Street and at the point where it crosses Route 38.

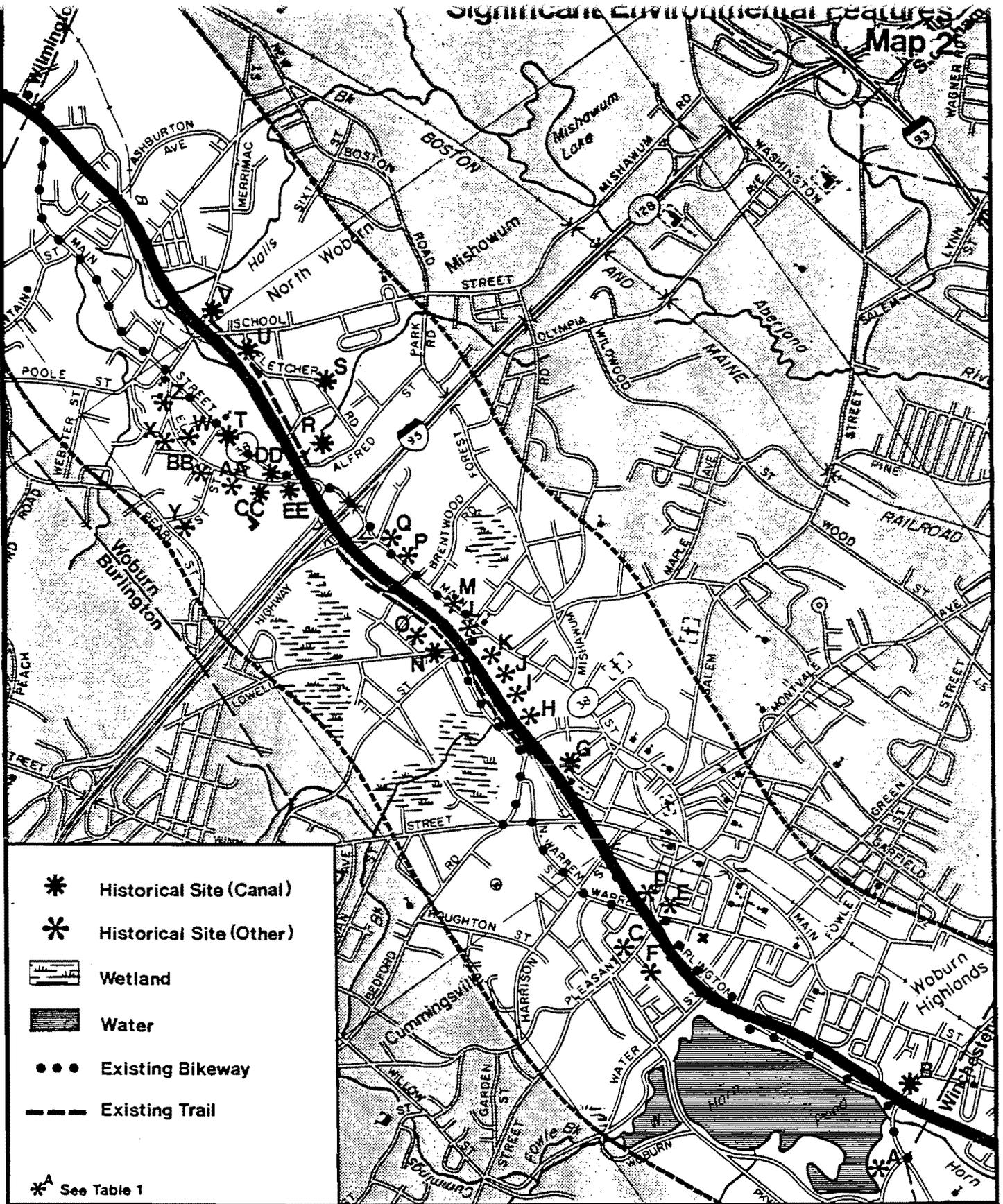


MIDDLESEX CANAL • WOBURN

Source: General Highway Map, Mass. Dept. of Public Works.

Prepared by:
Metropolitan Area Planning Council & Northern Middlesex Area Commission, 1980.



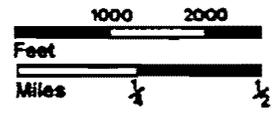


- * Historical Site (Canal)
- * Historical Site (Other)
- Wavy lines Wetland
- Solid black Water
- Existing Bikeway
- - - Existing Trail

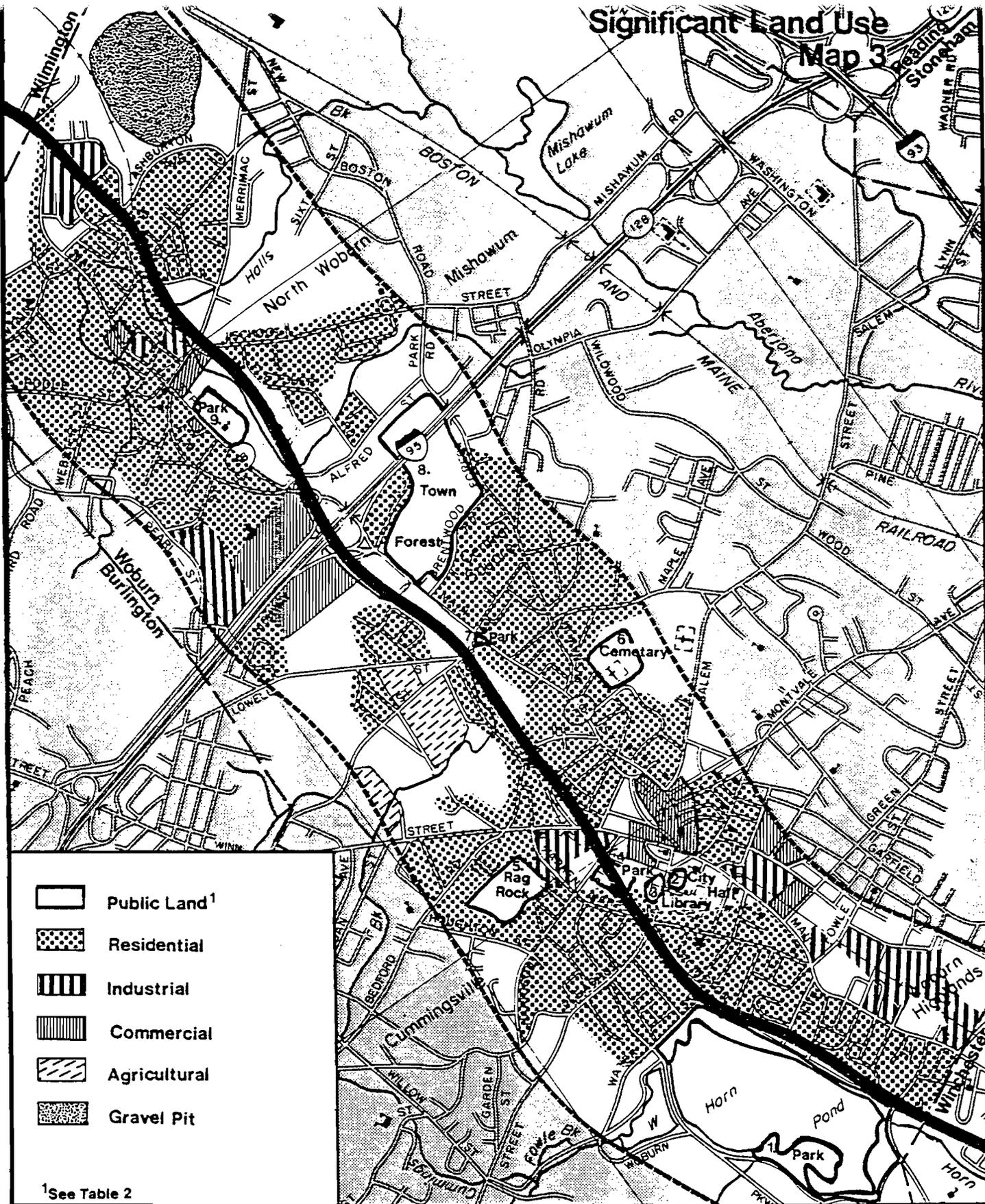
* See Table 1

MIDDLESEX CANAL • WOBURN

Source: General Highway Map, Mass. Dept. of Public Works.
 Prepared by:
 Metropolitan Area Planning Council & Northern Middlesex Area Commission, 1980.



Significant Land Use Map 3

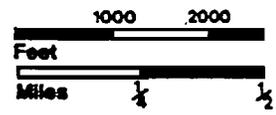


- Public Land¹
- Residential
- Industrial
- Commercial
- Agricultural
- Gravel Pit

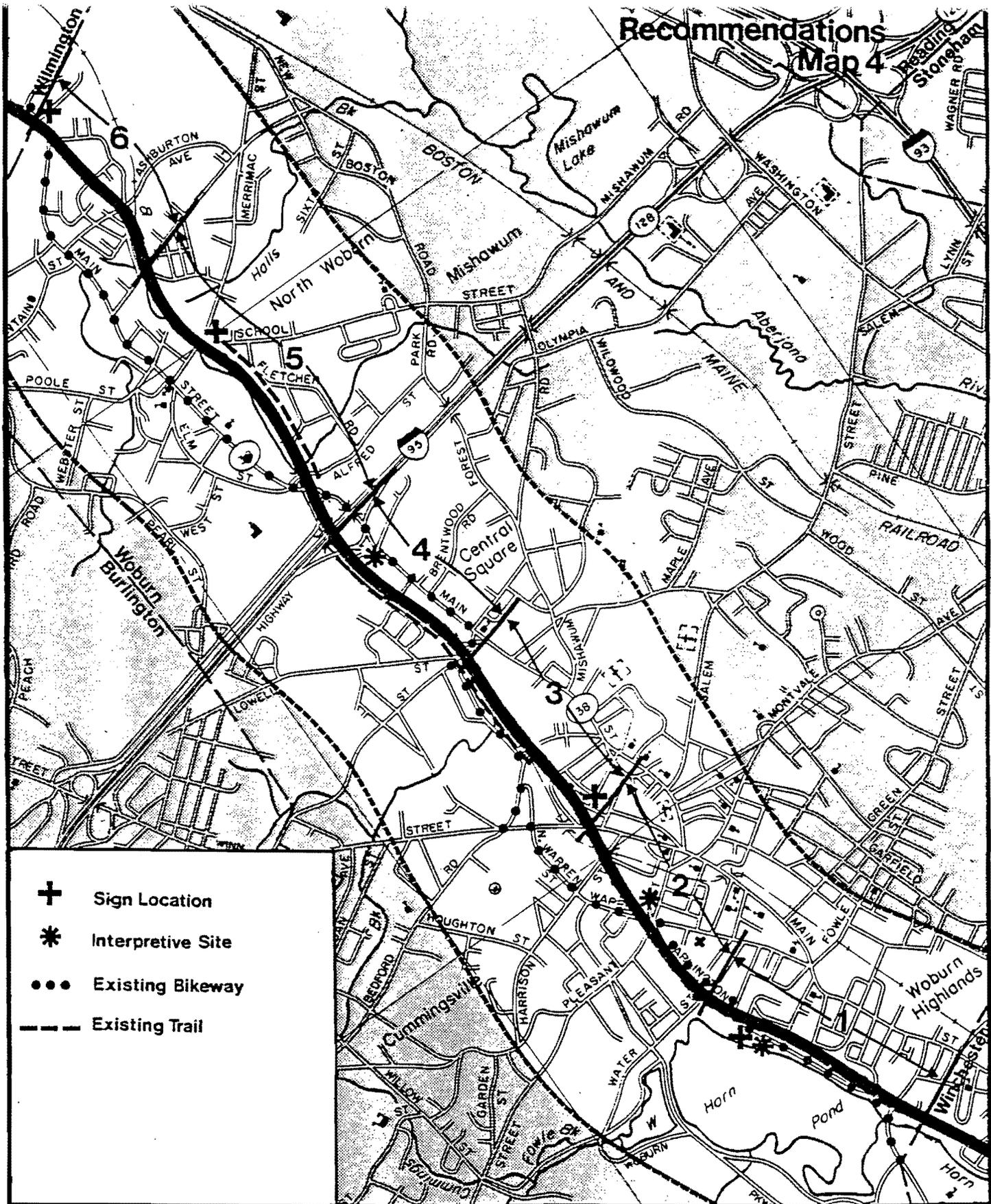
¹See Table 2

MIDDLESEX CANAL • WOBURN

Source: General Highway Map, Mass. Dept. of Public Works.
 Prepared by:
 Metropolitan Area Planning Council & Northern Middlesex Area Commission, 1980.



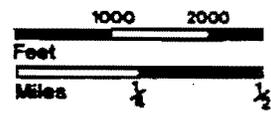
Recommendations Map 4



MIDDLESEX CANAL • WOBURN

Source: General Highway Map, Mass. Dept. of Public Works.

Prepared by:
Metropolitan Area Planning Council & Northern Middlesex Area Commission, 1980.



WOBURN

Inventory of Historic Buildings and Sites in the Middlesex Canal Corridor Shown on Map 2.

- A. Old Pump House (1872) at Horn Pond
Contains huge steam driven antique pumping apparatus originally used to deliver water from Horn Pond Reservoir.
- B. Horn Pond House (c. 1832) Lakeview Terrace, off Arlington Road.
Last remaining of the four canal taverns located at Horn Pond, the principle rest and resort area on the old canal.
- C. Thompson-Tidd House (1833) 60 Pleasant Street
Built by Merchant Jonathan Thompson. Here lived noted civil engineer Marshall M. Tidd, an early pioneer in public water works engineering.
- D. Woburn Public Library (1879) Pleasant Street, Woburn Centre
Designed by H.H. Richardson. One of earliest town libraries built on such grand scale in U.S. Listed on the National Register of Historic Places.
- E. Capt. William Martin House (1828) 10 Bennett Street
William Martin was a South Seas captain and adventurer who retired to Woburn and lived here.
- F. Woburn Common, Woburn Centre
Here on the common are located monuments and/or statues in honor of the Civil War, WWI, WWII, Spanish-American War, and Vietnam. A ventilator cowl from the USS Maine is also located here.
- G. Old Canal Gatehouse (c.1803) Middlesex Street
A single story dwelling used as gatekeeper's residence. A set of stop-gates were located on the canal here.
- H. Josiah Converse House (c. 1720) 638-40 Main Street
Fine example of early Georgian architecture. Home of several generations of shoemakers, one of the earliest trades followed in Woburn.
- I. Converse Cobbler Shop (c. 1748) 642 Main Street
Standing in the side yard of the Converse House. A shop on this site is recorded as early as 1748. In 1798 it measured 11 X 11. Small shop expanded into dwelling c. 1830.
- J. Converse-Pearson House (c. 1780) Main Street
Across from Josiah Converse House. Built by his grandson, Josiah Converse, 4th. Good example of Georgian architecture.

- K. Daniel Thompson House (1760) 649 Main Street
Home of Daniel Thompson, who fell in the Battles of Lexington and Concord. He is buried in the Ancient Burial Ground.
- L. Porter Parker House (c.1800) Corner of Main & Clinton Sts.
First mentioned in early narrative, 1832 as site of Parker's house and harness shop. Built most likely c. 1800.
- M. Wyman Schoolhouse (1894) Corner of Main & Eaton Avenue
An interesting "towered" Victorian structure still used as a public school.
- N. Edgell's Bridge: Corner of Lowell and Wyman Streets
Originally a wooden span across the canal, with stone abutments. Benjamin Edgell's dwelling was here on the banks. Bridge is now masonry, and culvert with substantial amount of the old stonework still intact.
- O. Zebediah Wyman House (c. 1770) 11 Lowell Street
Home of Zeb Wyman, noted early town official. His son, Capt. Jesse Wyman, an early military figure also lived here. Noah Eaton conducted a shoemaking operation here later.
- P. James Cutler House (c. 1838) 710 Main Street
Fine example of the common man's home of the past. A simple frame dwelling with little interior to exterior ornamentation. James Cutler was a mason. The land here runs to the canal banks.
- Q. Amos Fortune House (c. 1774) 725 Main Street
Fortune, made a slave in Africa, became a free man on the death of his owner. A tanner by trade, he built this simple dwelling for himself and other slaves whose freedom he purchased. Moving to Jaffrey, N.H., he became a well to do tanner and was the first Black founder of a public library in the United States.
- R. The 1803 Middlesex Canal Packet Boat, "Colonel Baldwin"
Located on the canal at the intersection of routes 128 and 38, next to the Baldwin Mansion. A full size authentic recreation of the earliest canal packet in America. Built with volunteer labor by the Woburn Historical Commission. During the summer season, the "Colonel Baldwin" is horse-drawn for public excursions along a restored stretch of canal for over one mile.
- S. Loammi Baldwin Mansion (1661) on the canal, 2 Alfred Street
Built in 1661 and altered to it's present Federal style in 1803 by Colonel Baldwin. Loammi Baldwin was the builder of the Middlesex Canal. He is also remembered as the "father" of the Baldwin apple. His son, Loammi Baldwin the younger, is considered the "Father of American Civil Engineering." Mansion is owned by Woburn Historical Commission, and is listed on the National Register of Historic Places and the Historic American Buildings Survey of the National Archives.

- T. The 1790 House (1790) 827 Main Street
This magnificent federalist mansion was constructed by Colonel Baldwin for his expatriot friend, Sir Benjamin Thompson, Count Rumford. Although the Count never returned to his native Woburn, the home's grand setting made it the social center of the Baldwin estate. A gala ball was held here on December 31, 1803, to celebrate the completion of the Middlesex Canal. Listed on the National Register and the Historic American Buildings Survey.
- U. Baldwin Estate Bridge (1803) on canal in Boggy Meadow
Stone abutments of small accommodation bridge used to allow passage of cows of Baldwin to pasture.
- V. Nichol's Bridge: Junction of School and Merrimac Streets
Site of wooden span over canal on old Reading road. Current masonry and culverts are result of 1930's WPA project.
- W. Count Rumford Birthplace National Landmark (1714) 90 Elm Street
From humble beginnings here, young Ben Thompson went forth to become General Sir Benjamin Thompson, the Count Rumford. He was one of the world's greatest scientists. Rumford's inventions included fireplaces and grates; thermometers and lamps; stoves and chimneys; cannons and coffee pots. This home is his memorial and contains his portraits, essays and experiment models. A National Landmark, the home is also on the National Register and the H.A.B.S.
- X. Marshall Tidd Shop (c. 1800) 11 Ward Street
Marshall Tidd was an American gunsmith of considerable fame. At his shop here, he developed not only firearms, but also numerous machines for use in the tanning industry.
- Y. Jonathan Tidd House (c. 1685) Pearl Street
A well-kept center chimney farmhouse, one of the few remaining within Woburn. Home of generations of Tidds, who were prominent in the development of the tanning industry here.
- Z. Jonathan Tidd Tavern (1809) 74 Elm Street
A huge three-story brick-ended tavern built when Elm Street was the main street, and lay on the principle coach route to the north. The Tidd Tavern was a gathering place for balls. Currently used as a home for elderly women.
- AA. Charles Thompson House (1800) 44 Elm Street
Home of Edward Everett Thompson, Mayor of Woburn in 1892. Also home of noted missionary and local historian, the Rev. Leander Thompson. The first Baldwin apple trees, after the original parent, were cultivated on Ward's Hill in the rear of the house here.

- BB. Charles Roswell Thompson House (c. 1800) Elm Street
A charming salt-box home, possibly built as early as the late 1700's by Abijah Thompson. Charles R. Thompson was a Deacon of the North Congo Church and carried on a harness makers shop here at his home.
- CC. Samuel Thompson House (1730) 31 Elm Street
The most noted occupant of this center-chimney house was Samuel Thompson, Esq. (1731-1814). He was a noted surveyor. Thompson surveyed and laid the line for the Middlesex Canal. While on an earlier survey in Wilmington, Thompson discovered the mutant variety of apples later popularized by his neighbor, Colonel Baldwin and given his name.
- DD. Baldwin Farmhouse (c. 1750) 18 Elm Street
Constructed by Colonel Baldwin's father, James Baldwin. First used as a country store and trading post. Later, it became the family estate's boardinghouse for the workmen.
- EE. Baldwin Green and Statue of Loammi Baldwin (1917) Main & Elm Streets
On this small public square which stands opposite the original site of the Baldwin Mansion (moved in 1971), this statue of Colonel Baldwin was erected by his decendants in 1917. The cannon in front of the statue is from Fort Strong, a War of 1812 fortification built by Loammi Baldwin the younger.

WOBURN

Public and Semi-Public Land in the Middlesex Canal Corridor
Shown in Map 3.

1. Horn Pond Reservation

In addition to sailboating on the pond's surface and the public bathing facility at Foley Beach, Horn Pond has many active and passive recreation areas. The total reservation encompasses some 500 acres, of which the pond covers 102. At the western extremity is a city-owned nine hole golf course. Along Arlington Road lies the Hudson Grove area. This is a picnic and fishing area of approximately four acres. The old Ice House lot off Sturgis Street encompasses a $\frac{1}{2}$ acre.

2. City Hall

3. Library Park

This area, immediately behind the Public Library in Woburn Center consists of a baseball diamond with stands and scoreboard. Library Field lies on the former line of the Middlesex Canal as it passed through the Town Meadows here.

4. Library Field Ballpark

5. Rag Rock

This craggy height (248 feet) well warrants it's name of "Rag" old English for rugged, which was given it by the earliest settlers. Called "Mianamo" by the Indians, it was for them a place of deep reverence and legend. Rag Rock is easy of access, except at one point, the eastern edge - where it is picturesquely precipitous. From the summit, there is a vast panorama covering a wide circuit. One of the most pleasant aspects of Woburn's landscape is her hilltops, providing a backdrop of green trees and dramatic rock outcrops above and beyond the busy urban street scene.

6. Woodbrook Cemetary

7. Wyman Green

This small green area in Central Square provides area residents with passive recreational possibilities. A bronze fountain commands the green's center.

8. The Forest Park

Located on Main Street, just north of Central Square, Forest Park, the city's public forest comprises nearly 30 acres of hilly, dense woodlands. It is an excellent area for hiking and wildlife observation. Horse back riding is a popular use for the area. A Little League ballpark is located at the eastern extremity.

9. North Woburn Playground

WILMINGTON

Lowlands and wetlands in Wilmington posed problems for the canal during its construction. Many interesting traces and features of the canal remain which reflect these problems.

The canal route encounters wetlands near Maple Meadow Brook, shown on Map 2. The canal embankments were built 25 feet high for a length of 1,320 feet to accommodate the wetlands. Upon entering Wilmington, the canal route passes through publicly owned land, shown on Map 3, which is being considered as a possible landfill site. It continues through a former landfill site operated by a private contractor. Shortly before crossing Maple Meadow Brook, the canal swings sharply around at a point known as Ox Bow to avoid further filling of wetland. At Ox Bow, as the towpath negotiated the outside of the curve, the tow ropes scraped on boulders on the other side of the canal. Grooves on these boulders are still visible today at Ox Bow which is located in the Wilmington Town forest shown on Map 1.

After Ox Bow in the town forest, the canal crosses Maple Meadow Brook by an aquaduct. Rebuilt during the 1930's by the WPA, the remains of the aquaduct still stands.

The Water Department's well field is adjacent to the west of the Town Forest. The canal enters this property after crossing Maple Meadow Brook.

As the canal route continues, the wetlands which made construction so difficult continues to be present. These wetlands however, have been somewhat instrumental in preventing development from occurring on the canal route.

After crossing Maple Meadow Brook, the canal begins to show traces of water, most probably due to ponding caused by the impermeable canal bed being positioned over wetlands.

At Burlington Avenue, the canal condition deteriorates as the route passes through and by industrial and commercial portions of Wilmington. However, after crossing Route 129, which was relocated by the Massachusetts Department of Public Works, the canal has received restoration treatment as part of the highway relocation project.

The restoration, while well intentioned, has been cited as an example of how not to restore the canal. Stone rip-rap installed along the canal bed in no way resembles original canal construction techniques. The restoration does provide a 1,400 foot linear corridor that is suitable for recreation and interpretive uses.

Crossing the wetlands around Lubber Brook, the canal encounters the Sinking Meadows where earth and gravel used to form the canal embankments continued to sink. Finally, after years of filling, the embankments stabilized.

The canal travels the remaining part of Wilmington through residential areas. The canal contains water in this portion and often serves to separate backyards.

CANAL SEGMENT	Physical Shape		Park Potential		
	APPROX. LENGTH	CONDITION	PRIORITY	RECOMMENDATIONS	NOTES
Wilmington City boundary to Wilmington Town Forest	3,000'	Filled	Low	Future interpretive site at proposed landfill site, bikeway	
Wilmington town forest to Maple Meadow Brook	3,000'	Visible	High	Hiking trail, interpretive exhibit	
Maple Meadow Brook to Butters Row	1,750'	Canal visible Partly water filled	High	Hiking trail, interpretive exhibit & restore Maple Meadow Brook aquaduct for pedestrian access to well field property	
Butters Row to Wilmington Ave.	4,000'	Trench visible	Low	Signage - parallel Bikeway	Privately owned
Wilmington Avenue to Route 129	2,900'	Filled in Built over	Medium	Signage - parallel Bikeway - Research structure on Shawsheen Avenue	
Route 129 to Lake Street	7,500'	Partially restored	High	Complete restoration, stabilization, hiking trail, interpretive site	Restored by MDPW during relocation of Route 129
Lake Street to Shawsheen River	4,500'	Water visible Overgrown	Low	Signage, parallel bike route	

Wilmington

OR 19% OF TOTAL LENGTH

Public Ownership

ADDRESS	EXTANT CANAL FEATURES	SIGNIFICANT ENVIRONMENTAL FEATURES	NEARBY HISTORICAL FEATURES	APPROX. LENGTH IN P.O.	PUBLIC PROPERTY ON ROUTE	NEARBY SCHOOLS & PUBLIC LAND	NAT. REG. SEC.
	None	Wetlands	None		Proposed land-fill site	None	V
	Canal Bed trenches Ox Bow	Wetlands	Ox Bow	3,000'	Town Forest		V
(present)	Maple Meadow Brook Aqueduct	Wetlands		1,000'	Water Department well field	None	V
	None	Wetlands	None				V
	House on Shawsheel Ave.	Wetlands Clark River	None			Walker School	V
	None	None	None			Shawsheen School	IV
	Trench					Mildred Rogers School	IV

RECOMMENDATIONS

Segment WIL-1. Woburn City limit to Wilimington Town Forest

Traveling through privately owned property, save a publicly owned parcel contemplated for a solid waste disposal site, this segment is relatively inaccessible. In addition to signage on Main Street, a future interpretive site, shown on Map 4, could be placed at the disposal site, either after it is full or in the event that it is never used as a disposal site.

A bike route should be explored along Main Street, (Route 38). The narrow width of the roadway, the lack of sidewalks, and the roadways heavy use would require some improvements to accommodate a safe bikeway route.

Segment WIL-2. Town Forest to Maple Meadow Brook

Appearing as a dirt route, the dry bed canal remains in relatively good condition as it travels through the Town Forest. The natural beauty of this area, coupled with the presence of Ox Bow and the remnants of the Maple Meadow Brook Aquaduct, render it a prime site for both interpretive and recreation adaptations of the canal. Signage and informative graphics at each of these features would greatly enhance the canal presence. This site is also suitable for a thematic playground recreation area similar to that recommended for Sandy Beach.

Segment WIL-3. Maple Meadow Brook to Butters Row

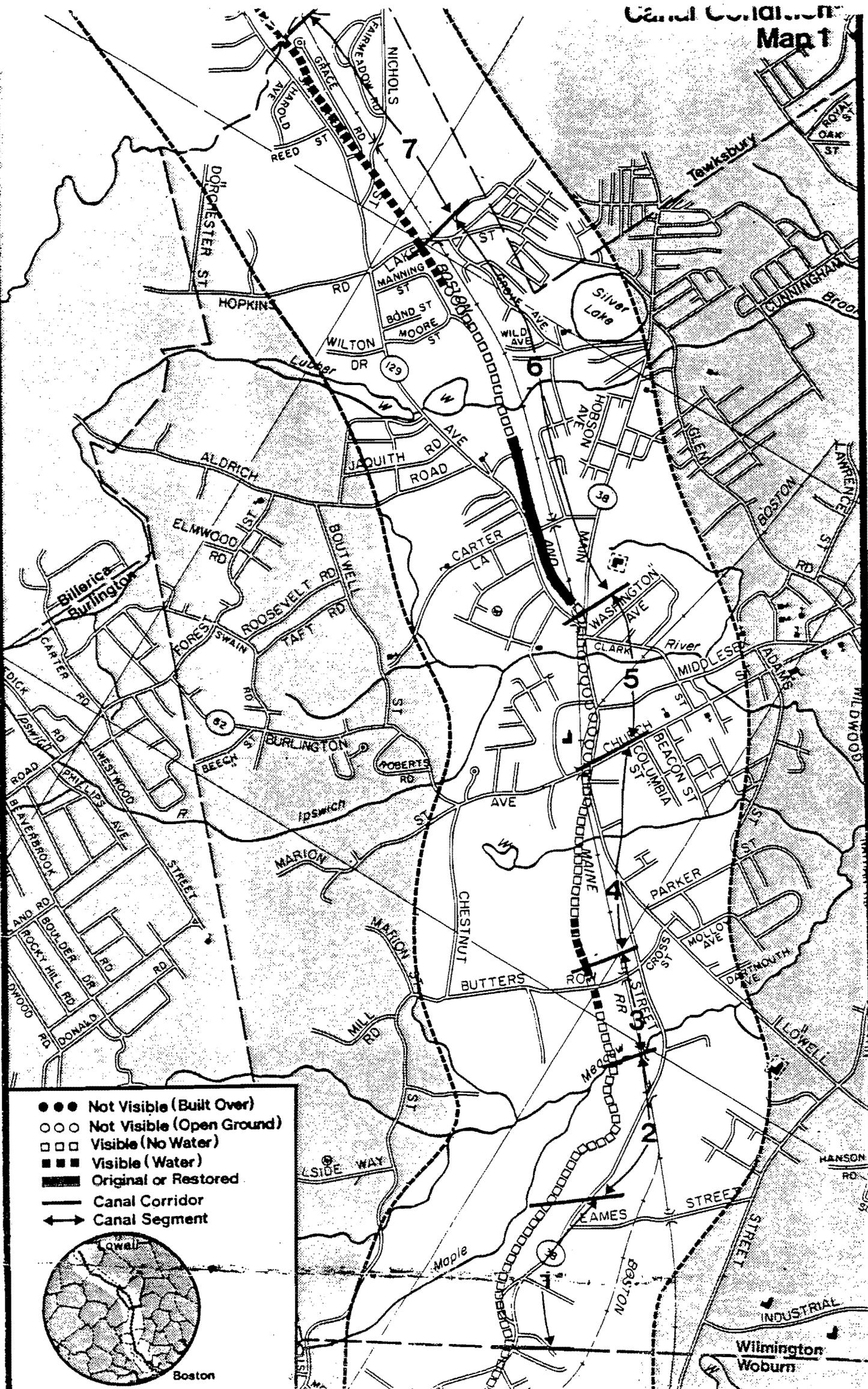
A portion of this segment is part of the Wilmington Water Departments wellfield. However, public access is limited by the Brook. Access to this site is recommended. A possible access point could be gained by restoration and adoption of the aquaduct for pedestrian traffic from the Town Forest.

Segment WIL-4. Butters Row to Burlington Avenue

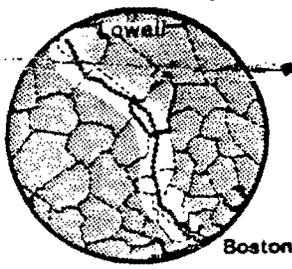
Travelling through privately owned wetlands which are inaccessible, this segment does not lend itself to adaptive or interpretive uses. Signage is recommended on the streets which define the segment.

Segment WIL-5. Burlington Avenue to Route 129 (Shawsheen Avenue)

The canal condition in this segment is deteriorated and built over with industrial development. At the intersection of the canal route and Shawsheen Avenue is the location of Gillis Lock which lies under the western abutment of the Shawsheen Avenue railroad bridge. Signage is recommended to mark this location. Across the street is a house which was a canal property. Further investigation of this structure is recommended.



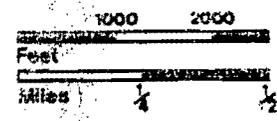
- Not Visible (Built Over)
- Not Visible (Open Ground)
- Visible (No Water)
- ■ ■ Visible (Water)
- ▬▬▬ Original or Restored
- Canal Corridor
- ↔ Canal Segment



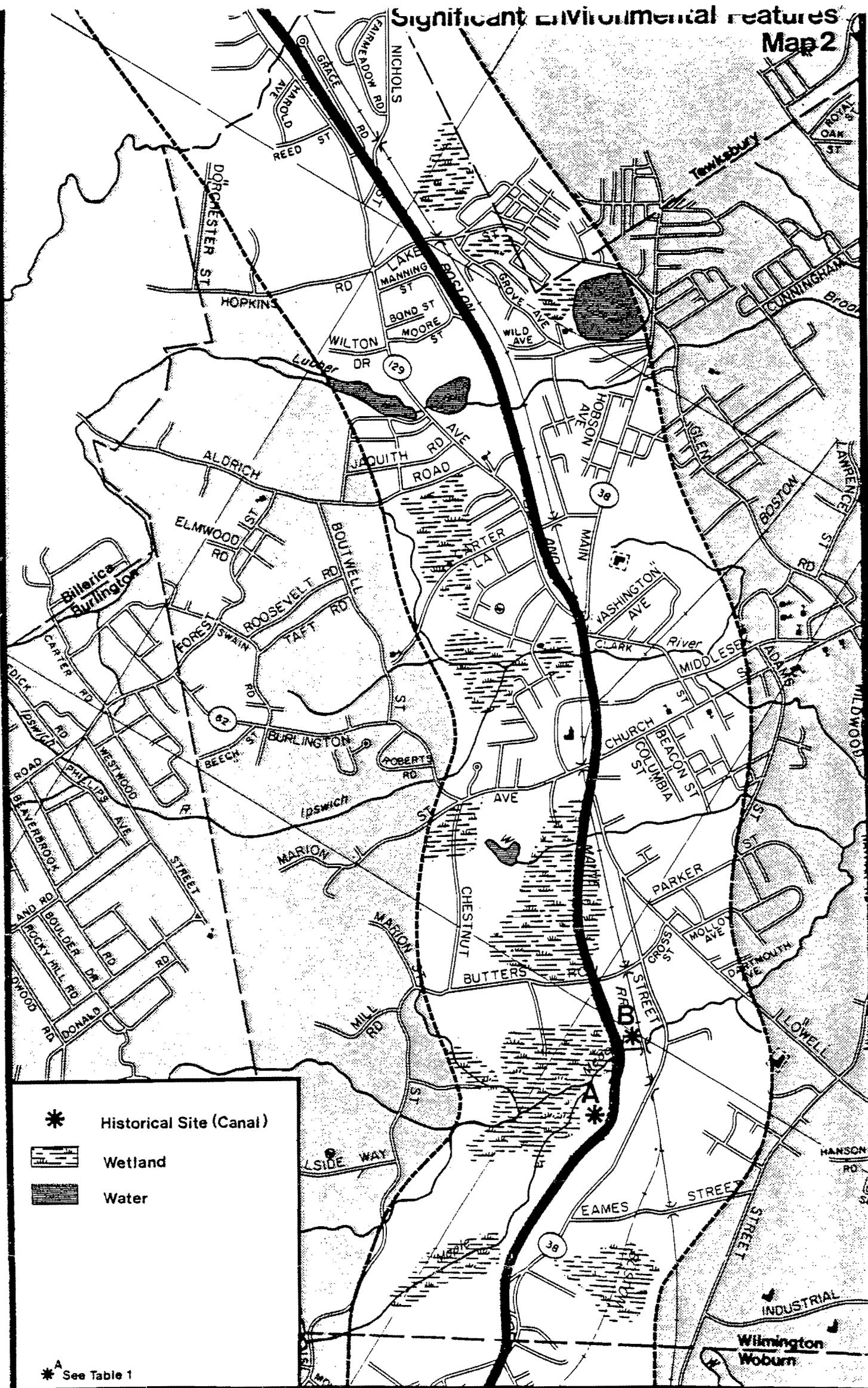
MIDDLESEX CANAL • WILMINGTON

Source: General Highway Map, Mass. Dept. of Public Works.

Prepared by:
Metropolitan Area Planning Council & Northern Middlesex Area Commission, 1980.



Significant Environmental Features Map 2



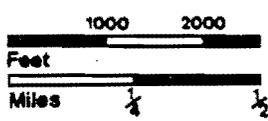
- * Historical Site (Canal)
- [Hatched Box] Wetland
- [Solid Black Box] Water

* See Table 1

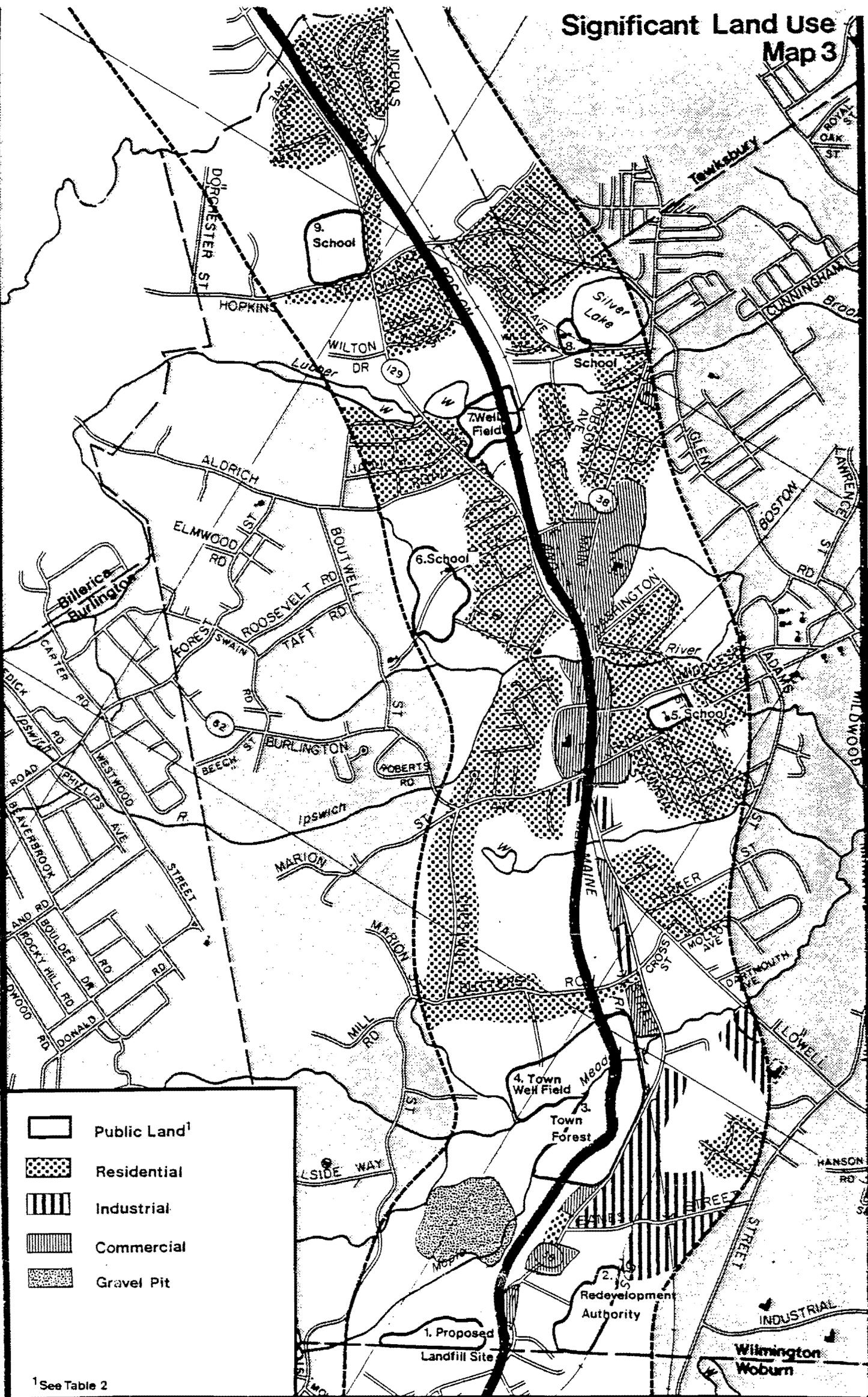
MIDDLESEX CANAL • WILMINGTON

Source: General Highway Map, Mass. Dept. of Public Works.

Prepared by:
Metropolitan Area Planning Council & Northern Middlesex Area Commission, 1980.



Significant Land Use Map 3



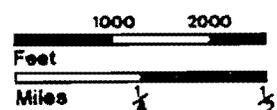
	Public Land ¹
	Residential
	Industrial
	Commercial
	Gravel Pit

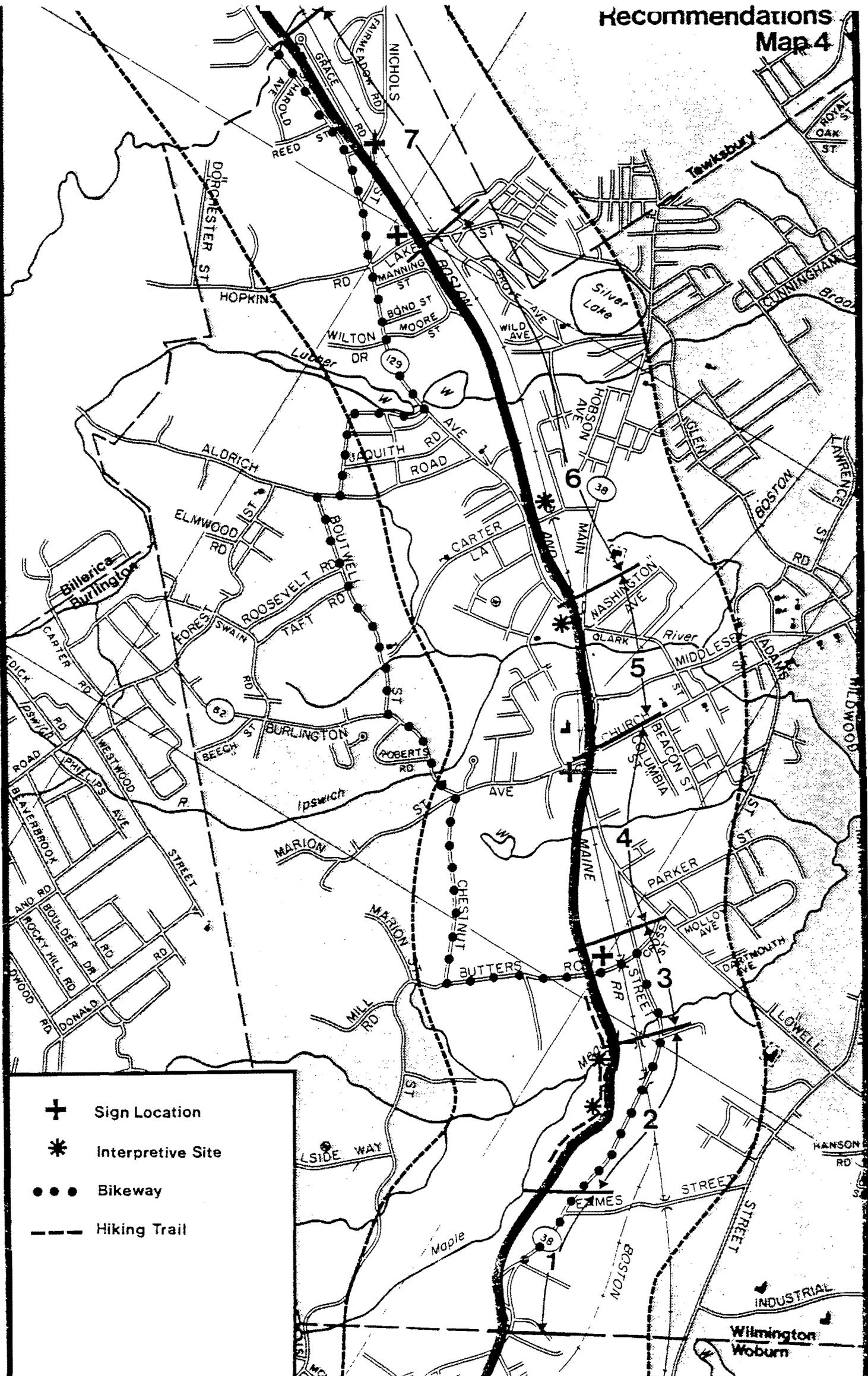
¹ See Table 2

MIDDLESEX CANAL • WILMINGTON

Source: General Highway Map, Mass. Dept. of Public Works.

Prepared by:
Metropolitan Area Planning Council & Northern Middlesex Area Commission, 1980.

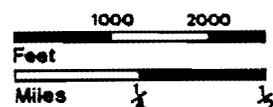




MIDDLESEX CANAL • WILMINGTON

Source: General Highway Map, Mass. Dept. of Public Works.

Prepared by:
Metropolitan Area Planning Council & Northern Middlesex Area Commission, 1980.



Segment WIL-6. Route 129 (Shawsheen Avenue) to Lake Street

Seizing upon the portion of the canal which was restored by the Massachusetts Department of Public Works (MDPW), this segment potential as a recreation corridor. Beginning with the MDPW rebuilt portion of the canal is recommended: 1) that the rip-rap effect of stone lining the Canal bed be removed, 2) that a program of maintenance be instituted so that the vegetation which fills the canal bed by midsummer be kept down, 3) that interpretive signs be erected, perhaps utilizing the Canal underpass for elaborate text and graphics. This is another location where a replica of a canal boat might be placed to advantage. Imaginative landscaping would also make a significant impact on the public's awareness of this resource.

The towpath of the canal should be used as either a hiking or jogging trail. Possible reconstruction of the Sinking Meadow Aquaduct at Lubber's Brook would allow a continuation of the linear recreation corridor.

Segment WIL-7. Lake Street to Shawsheen River

Though somewhat deteriorated and overgrown with vegetation, this segment of the canal still retains water as it meanders through the adjacent residential development. Several streets cross the canal, offering locations for signage. Private ownership precludes any reuse at the route.

WILMINGTON

Inventory of Historic Buildings and Sites in the Middlesex Canal
Corridor.

A. Ox Bow

B. Maple Meadow Brook Aquaduct

WILMINGTON

Public and Semi-Public Land in the Middlesex Canal Corridor.

- 1. Proposed Landfill Site
- 2. Redevelopment Authority Property
 - . Town Forest
- 4. Town Wellfields
 - . Walker School
- 6. West Intermediate and Bucknell Schools
- 7. Shawsheen Avenue Wellfield
 - . Mildred Rogers School
- 9. Shawsheen School

BILLERICA

The Town of Billerica was particularly significant in the early history of the Middlesex Canal. It marked the high point in elevation (107 feet above sea level) between Boston and Lowell; the Concord River, primary source of water for the canal was tapped at the Concord Mill Pond in North Billerica; in 1794 the first ground was broken for the canal on the western shore of that same Mill Pond. One of the more ingenious technical solutions--the floating towpath--was constructed across the Mill Pond allowing canal barges to be towed from the southern section of the canal to the final six-mile section north to Lowell. The Shawsheen Aqueduct located on the Billerica/Wilmington border is recognized as a single achievement in American engineering; the extant remains are designated as a National Historic Civil Engineering Landmark.

It is fortunate that Billerica has a number of canal related features and buildings as well as long stretches of the canal trench itself in existence. These should be preserved insofar as possible. Their potential as recreational and educational resources is outstanding and recognized in the Billerica Open Space Plan:

Begin acquiring or otherwise securing for public use the remaining sections of the Old Middlesex Canal. This would provide a green belt through northern and northeastern Billerica and preserve this resource of great historic significance to the Billerica area. The future possibility for hiking and bicycle trails is there also. This project can best be implemented by the Conservation Commission assisting the various public and private historical groups in their efforts to preserve the Canal.

Developing the canal route as a public recreational area is a feasible and attractive possibility in many parts of town. The trench is visible for approximately 70 percent of the five-mile route in Billerica. Many stretches are watered, having become part of the local drainage system. These watered stretches generally have an existing trail of some sort on one or both sides of them. Therefore, although the canal does run through wetlands, in most cases, there is sufficient existing high ground with a trail or path already on it so that modification and improvement could be undertaken within carefully defined limits to prevent environmental degradation. The bedrock conditions, the soils, and the slopes present no apparent limitations to recreation in this initial survey. No slope in this part of Billerica exceeds 15 percent, as classified by the Soil Conservation Service, slopes in the canal area are level, gentle, or moderate, therefore suitable for a variety of building and recreational uses.

Several environmental features are distinct assets to recreational development of the canal corridor. It crosses both the Concord and the Shawsheen Rivers. Both are scenic at the crossing point; their floodplains are protected by a Town zoning by-law and are suitable for passive recreation. The scenic quality of the canal route, in general, varies

from moderately attractive to quite exceptional. The accessible portions of the canal run through land that is largely wooded; the landscape is therefore intimate, offering the varied pleasures of a New England woodland: small mammals and birds, wildflowers and ferns, some venerable trees. The scenic quality varies directly with the age of the woodland. Older stands, with a distinct high canopy, and a clearly discernible shrub and ground cover level, tend to be more visually appealing than the younger, more scrubby stands. In several places, the water filled canal is wide enough to cause an allee effect--providing an arched vista down the canal into the depths of the woods. It should be noted that these woodlands are growing and changing and that these observations are of the moment.

A striking contrast to the largely closed in corridor through the woods occurs at the Concord Mill Pond. Here a panorama opens with views down river and into Timber Cove, once used for temporary log storage. The gently rolling wooded pond edges soften and partially screen the massive mill buildings--one is aware of, but not oppressed by their presence. The pond is a wonderful place; an oasis in the busy Mill Village section. Although there is a fair amount of parking on the Mill Pond shores, someone can usually be seen fishing or leaning on the bridge gazing across the pond--the area has great charm and real potential as a recreational asset.

The Mill Pond area is further distinguished by a large number of historical sites and buildings relating to the Canal and to the later period of mill development. Other historical assets occur along the Billerica route, but singly and sporadically. (See Map 2, p.87 and Appendix.)

The major constraints to recreational development are existing land uses. A large industrial park/railroad yard complex--Iron Horse Park--located in the central canal route area presents an obstacle to developing a continuous trail or path along the canal. The canal itself is not visible in this segment. A different sort of obstacle occurs in East Billerica. There, the canal, in some cases well preserved and waterfilled, passes through the backyards of many residences. The trench and the bank slopes are designated as a recreational area, the land deeded to the Town by the developer. It is not suitable for recreational use by the general public although it is, and will continue to be, a fine neighborhood recreational resource. (See Map 3, p. 88)

Specific recommendations for preservation of the canal follow; they are discussed by segment and illustrated in Map 4.

Segment BIL-1. Billerica/Wilmington border to Gray Street

Large portions of this segment run through dense residential areas. Houses frequently back right up to the canal making it unsuitable for public recreational development. Some sections of the route have been filled, others are well preserved and waterfilled. (See Map 1, p.86).

Billerica

TOTAL CANAL LENGTH IN TOWN APPROX.

SES. NO.	CANAL SEGMENT	Physical Shape		Park Potential		
		APPROX. LENGTH	CONDITION	PRIORITY	RECOMMENDATIONS	NOTES
BIL-1	Billerica/Wilmington border to Gray Street.	7,500'	trench partly watered, partly filled	--	Neighborhood resource. Signs at road crossings and features.	Runs through backyards.
BIL-2	Gray Street to Pond Street	5,000'	excellent from Pond Street to Content Brook; filled from Content Brook to Gray Street.	develop in future	Stabilization and maintenance on local basis. Trail. Develop with landfill as Town recreation.	Ex. trail. Very scenic. Potential for Town recreation.
BIL-3	Iron Horse Park and R.R. yards.	1,700'	filled	--	Signs: along route.	Route should be designated although unsuitable for public recreation.
BIL-4	Iron Horse Park to Rogers Street. (Crosses High Street.)	4,500'	mostly visible, trench water-filled	high	Stabilization and maintenance. Bikeway/walkway. Picnic area. Historical interpretation.	Excellent trail and dirt road part way. Scenic.

Public Ownership

ACCESS	CANAL FEATURES <i>*Extant</i>	SIGNIFICANT ENVIRONMENTAL FEATURES	NEARBY HISTORICAL FEATURES	APPROX. LENGTH IN P.O.	PUBLIC PROPERTY ON ROUTE	NEARBY SCHOOLS & OTHER LAND	NAT. REC. SEC.
Route crosses roads, but land use largely residential.	*Allen's Tavern; *Shawsheen Aqueduct stop gates; Kendall's Bridge; Manning's Bridge; wooden culvert; pipe culvert #1; pipe culvert #2; Brown's Footbridge; Allen's Bridge; brick culvert; Richardson Bridge	wetlands; Black Brook	2-18c. houses; late 18c. tavern; 3-19c. houses	2,200'	Between Dignon Road and Brown Street, the Canal Corridor is a Town owned recreation area.	Kennedy School	III
Excellent. Pond St. Gray St. In future from landfill.	**S" curve; Content Brook Sluiceway; Mill Pond Sluiceway; stop gates; wooden culvert; Davis Bridge; sluiceway; culvert;	wetlands; Richardson Pond; Content Brook	1-18c. house	--	--	--	III
No access to public.	--	--	--	--	--	--	III
Rogers St. High St.	**"Deep Cut"; Tufts Bridge; basin; Lincoln Lock (lower); Lincoln Lock; Rogers Bridge	--	"smallpox grave"	--	--	--	III

Billerica

TOTAL CANAL LENGTH IN TOWN APPROX.

SEG. NO.	CANAL SEGMENT	Physical Shape		Park Potential		
		APPROX. LENGTH	CONDITION	PRIORITY	RECOMMENDATIONS	NOTES
BIL-5	Concord Mill Pond/Talbot Mills area. Rogers Street to Colson Street across Concord River.	2,300'	mostly filled in	high	Develop as major State recreation area.	Area contains historical mill buildings and canal remnants. National Register potential.
BIL-6	Colson Street to Route 3A, along Lowell Street.	2,000'	partly filled, visible trench, water-filled but deteriorated	medium	Minimal stabilization. Good maintenance. Bikeway/walkway to Talbot Mills.	Partial existing trail.
BIL-7	Route 3A to Brick Kiln Road.	2,500'	partly filled, visible trench, water-filled but deteriorated	medium	Minimal stabilization. Good maintenance program. Signs. Bikeway/walkway. Connecting trail to Manning State Forest. Plant row trees along Canal.	Existing trail.

Public Ownership

ACCESS	CANAL FEATURES <i>*Estart</i>	SIGNIFICANT ENVIRONMENTAL FEATURES	NEARBY HISTORICAL FEATURES	APPROX. LENGTH IN P.O.	PUBLIC PROPERTY ON ROUTE	NEARBY SCHOOLS & OTHER LAND	NAT. REG. SEC.
Excellent by car, railroad, or boat.	*2 taverns; floating towpath drawbridge; floating towpath; Mill Pond Gate; *Mill Pond towpath West Bank anchor; *Mill Pond Timber Basin (Timber Cove); *Mill Pond Towpath Spit; Mill Pond Industrial Complex (Canal owned); Landing 7; *West Bank Lock West Raft Lock Gate; Red Lock	Concord River; wetlands	2-19c. mills; 1-19c. school; much 19c. housing	250'	Billerica Historical Society	2 schools; Town recreation land 29A.	III
At 3A and firehouse on Lowell Street.	Farmers Bridge #43; Livingston Bridge #44; Brick culvert	wetlands; unnamed stream	See Section B-3	1,100'	Old Filter Bed Land 29A.	See B-3.	III
At Brick Kiln Road and Route 3A.	None	wetlands; unnamed stream; Black Brook; State Forest	1-17c. house	--	--	Yanning State Forest 174A.	III

A strip varying in width (40 to 90 feet) including the canal trench and its steep banks running from Brown Street to a little past Dignon Road was deeded to the Town by the developer as a local recreation area.

It is recommended that efforts be made to stabilize and publicize the canal where it is now visible. The locations of canal features no longer in existence should be marked by identification signs as should all intersections of the canal route with local roads.

The Shawsheen Aqueduct lies on the Billerica/Wilmington border. Industrial Archeology Associates, consultants to the canal project, call this the 'most dramatic single surviving feature of the Canal'. It was remarkable in its day--visitors went out of their way to view it, largest of the eight aqueducts required by the Canal, when it was in operation. No trace of any of the others has survived. Here, ruins of the 30 to 35-foot high stone piers that carried the 188-foot wooden trough across the Shawsheen River still tower over the bridge; one can make out the supporting cradle in the stonework.

As has been mentioned, the aqueduct is recognized as a National Historic Civil Engineering Landmark and is listed as part of the Middlesex Canal National Register District. The Billerica Historical Commission has fenced the remains to prevent further vandalism to the pier stonework.

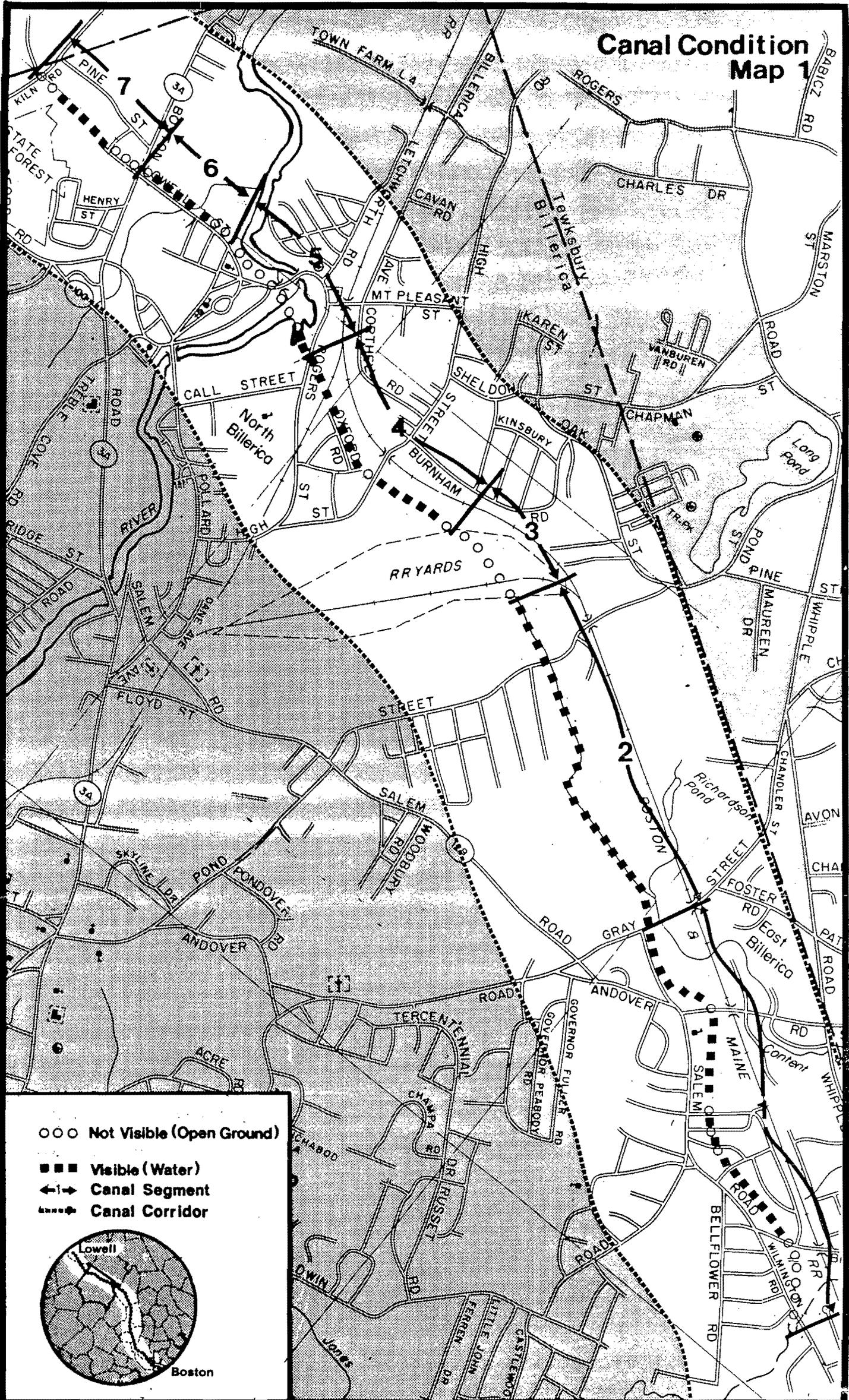
The area is used as a put-in for boats and canoes in the spring when the Shawsheen River is high. There is some fishing. Parking is informal; roadside pull-offs accommodate two or three cars. Unless more parking could be provided nearby, there would be little point in developing the recreational potential of this attractive and historical area. The canal trench is obliterated on both sides of the aqueduct; there is no trail access.

If no more parking can be secured, legible signs identifying the site and diagramming clearly the workings of the aqueduct should be erected on the bridge just before the aqueduct. If parking for at least five cars can be developed, a small picnic area and more extensive exhibits should be added.

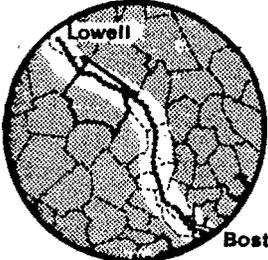
Segment BIL-2. Gray Street to Pond Street

This segment has good long range recreational possibilities. The woodlands through which the canal runs are scenic, possibly the most scenic in the northern towns. The trench is wide and well watered with a current strong enough to provide some cleansing action. Ducks were evident on one visit. The Town landfill abuts the eastern edge of the canal. When capped, some years hence, the landfill will be a prime site for recreation. The canal should be developed in conjunction with it.

Canal Condition Map 1



- ○ ○ Not Visible (Open Ground)
- ■ ■ Visible (Water)
- ← → Canal Segment
- Canal Corridor

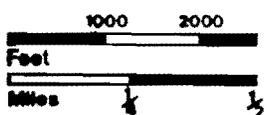


MIDDLESEX CANAL • BILLERICA

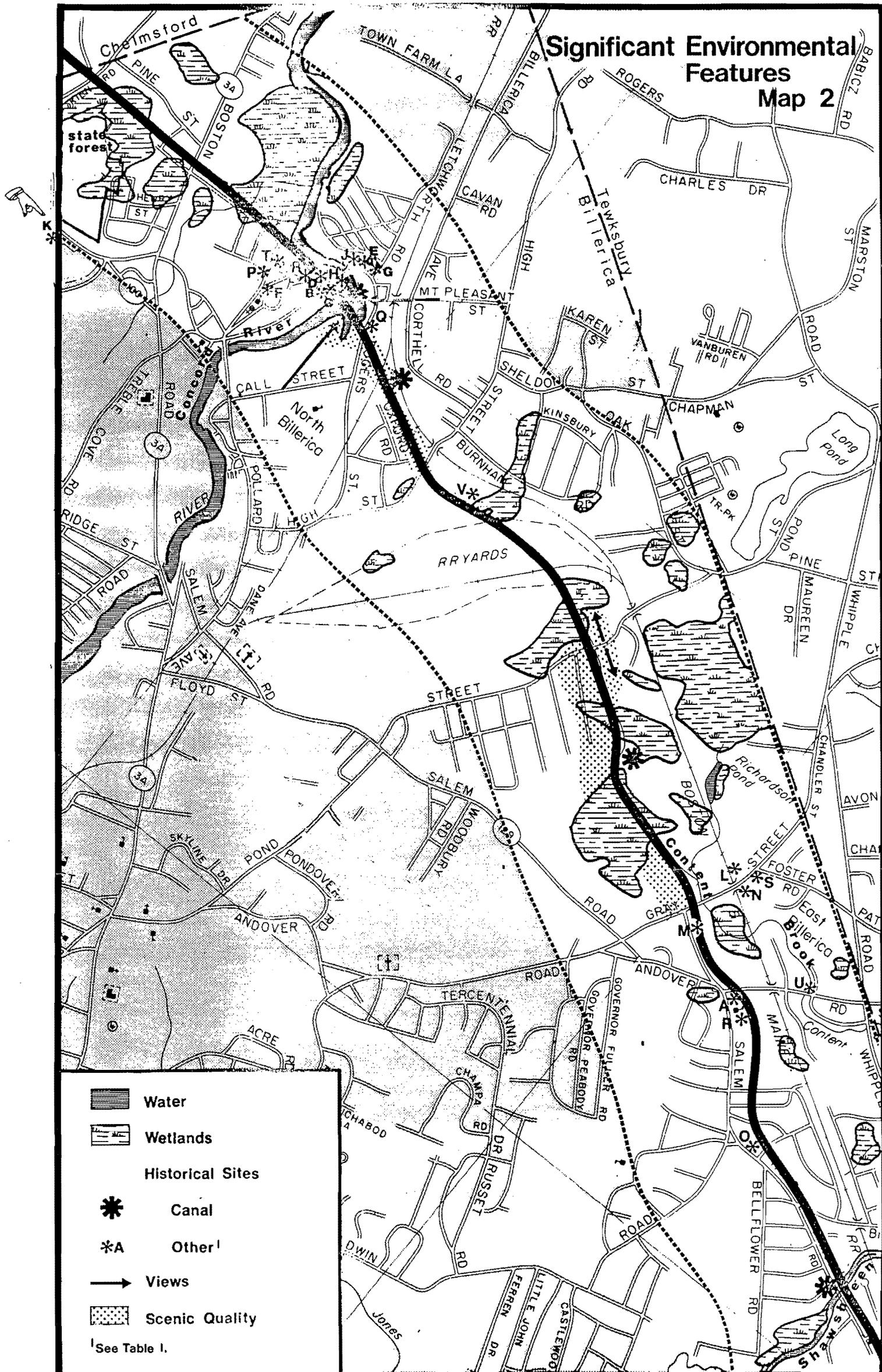
Source: General Highway Map. Mass. Dept. of Public Works.

867

Prepared by:
Metropolitan Area Planning Council & Northern Middlesex Area Commission, 1980.



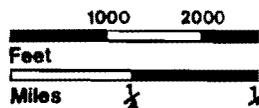
Significant Environmental Features Map 2



MIDDLESEX CANAL • BILLERICA

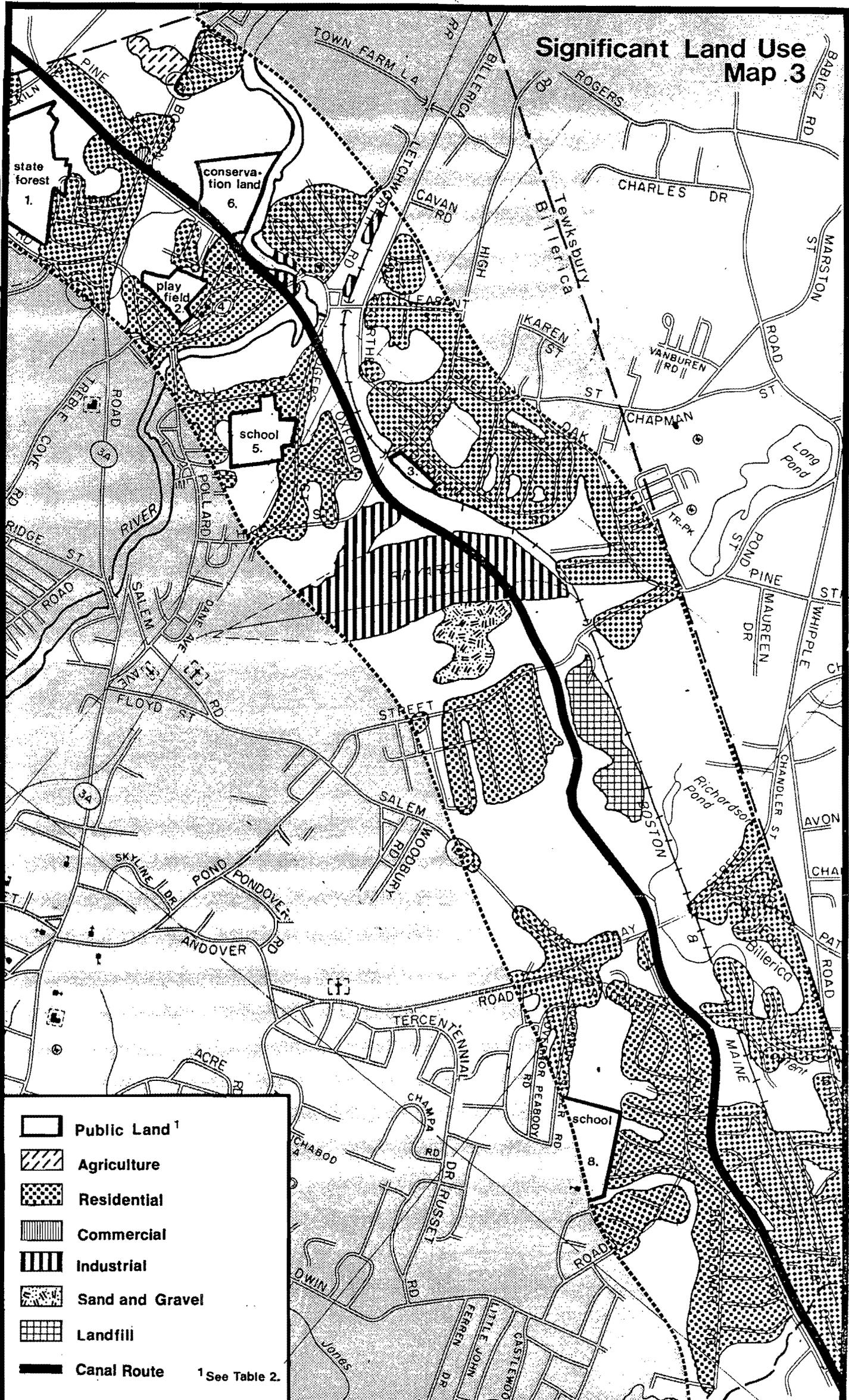
Source: General Highway Map, Mass. Dept. of Public Works.

Prepared by:
Metropolitan Area Planning Council & Northern Middlesex Area Commission, 1980.



(87)

Significant Land Use Map 3



	Public Land ¹
	Agriculture
	Residential
	Commercial
	Industrial
	Sand and Gravel
	Landfill
	Canal Route

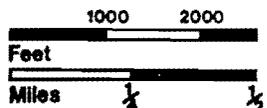
¹ See Table 2.

MIDDLESEX CANAL • BILLERICA

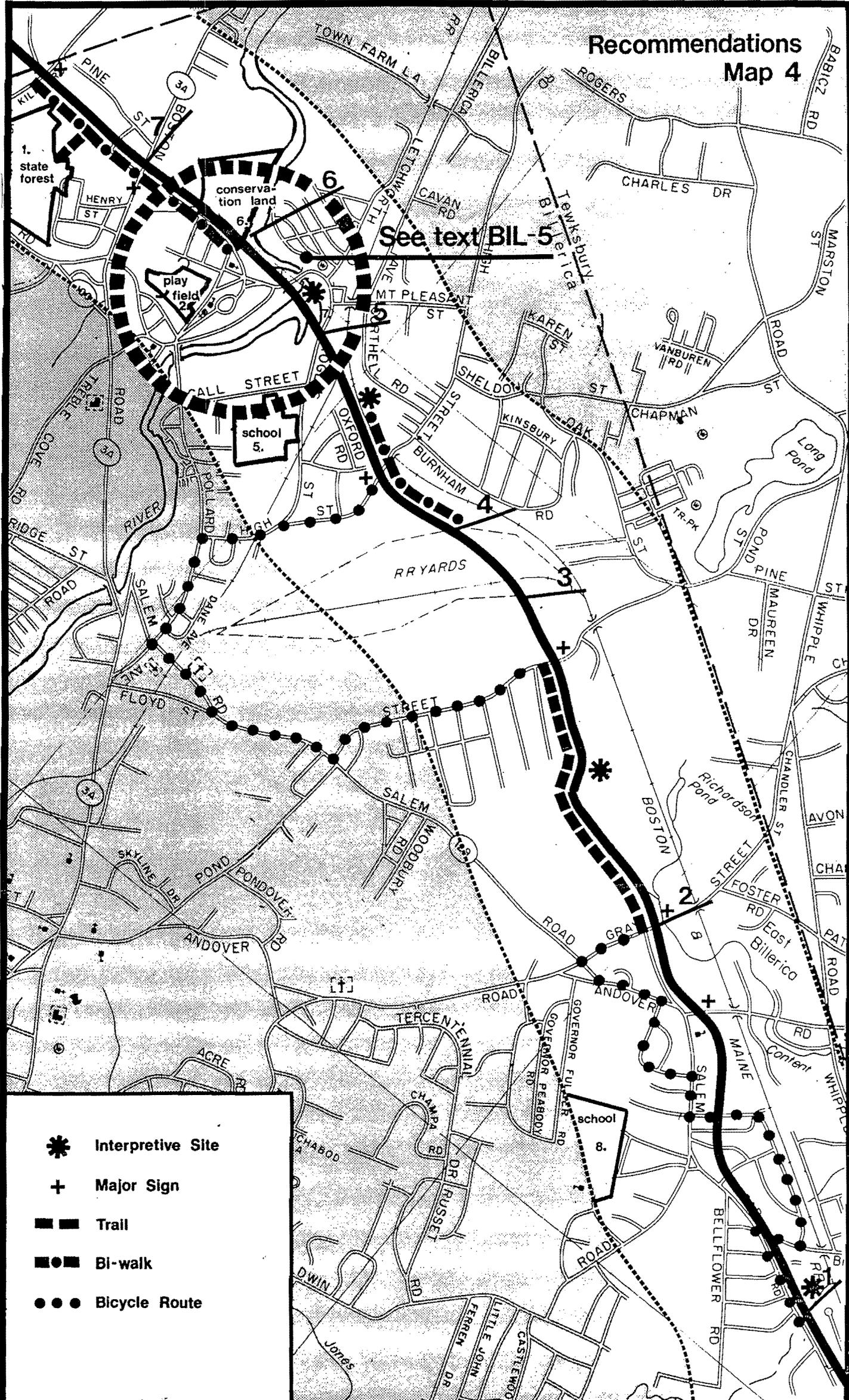
Source: General Highway Map, Mass. Dept. of Public Works.

(88)

Prepared by:
Metropolitan Area Planning Council & Northern Middlesex Area Commission, 1980.



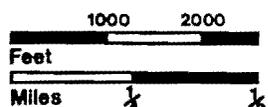
Recommendations Map 4



MIDDLESEX CANAL • BILLERICA

Source: General Highway Map, Mass, Dept. of Public Works.

Prepared by:
Metropolitan Area Planning Council & Northern Middlesex Area Commission, 1980.



(89)

Several canal features occur along this segment of the route, among them the 'S' curve. Recommendations for the present time include identification signs at each demolished canal feature, a larger interpretive sign at the 'S' curve, and a standard identification sign at each road crossing. The present trail is adequate; the trench should be maintained in its present state. Further consideration should be given to canal development when the landfill is capped. At that time, a walkway or bi-walk along the route could be provided in addition to the present trail. Interpretive exhibits could be developed, a section of the canal could be landscaped as it would have been in the early nineteenth century.

Segment BIL-3. Iron Horse Park

Entirely obliterated by the railroad and industrial activities the canal is not visible at all here. Nonetheless, although it is unsuitable for recreation, the route should be marked with signs both for the benefit of those who use the industrial park and for the sake of continuity in marking the route.

Segment BIL -4. Iron Horse Park to Rogers Street

More intensive development is suitable for this segment. It connects to the Mill Pond area and runs through relatively undeveloped land. The canal trench is in fairly good condition, much of it is watered. It runs through pleasant woodlands before crossing Rogers Street and reaching the open vistas of the Concord Mill Pond. The 'Deep Cut' is a visible feature. A trail traces both sides of the canal and a road, the old Toothaker Lane, runs parallel for approximately 1,000 feet off Rogers Street.

The north side of this segment could be developed as a bi-walk. The high ground--the bluff-like 'Deep Cut' area would make a fine picnic spot. It is one of the few places where the canal can be viewed from a height. The trench here could be dredged and ultimately used for a canal boat ride continuing across the Mill Pond if the flowing towpath were reconstructed.

The dredging of the canal could be an educational exhibit in itself--the work being carried out (within certain hours) by workmen in period clothes using replicas of the original tools. Demonstrations of canal building techniques such as 'puddling' could occur on the site and be directed towards a real end--that of preparing the canal for present day use. Upon project completion, the canal could be filled and used for boat rides and ice skating in season. Demonstrations of techniques would be permanently located elsewhere.

The canal route here is scenic. Residences are visible from the route in some places. Care should be taken to buffer them with plantings and to develop most recreational activity on the side away from the houses. A footpath and possibly a bikeway would continue across High Street as far as Iron Horse Park where the Canal is filled and the land use is incompatible with recreation.

Segment BIL-5. Concord Mill Pond/Talbot Mill Area

The concentration of recreational potential and canal history here as well as its importance in Billerica history in general, makes this an outstanding area. It is treated separately at the end of the linear segment discussion. (See p. 93)

Segment BIL-6. Colson Street to 3A (Lowell Street)

Lowell Street was built in the canal trough so there is some question as to the authenticity of the trench that runs along it. It is popularly regarded as the canal. In any case, the route is certainly correct and is attractive for recreation, particularly if the segments on either side are developed in a compatible manner. There is water in the trench and a trail runs along the non-road side. The road is broad and its flat shoulder could be developed as a bicycle path with ease. The foot trail should be continued behind the fire house to the Old Filter Bed Land, a 29-acre Town owned tract on the banks of the Concord River. A section of the canal route runs along this land. Residential use is not restrictive. Canal signs should be placed at Route 3A and demolished features should be identified. This corner is still known as 'Sprague's Bridge' although that bridge over the Canal has been demolished for many years.

Segment BIL-7. Route 3A to Brick Kiln Road

Canal Street runs off of Route 3A towards Chelmsford. A very deteriorated canal trench follows along it starting behind the small commercial strip on 3A. The road dwindles to a trail about 500 feet down the road while the canal becomes larger and better preserved. At Brick Kiln Road, both canal and trail are lost under large piles of earth and debris left over from construction. The trail is informally used by walkers, dirt bicyclists, and bicyclists.

No canal features occurred along this segment. The scrub woodland is not outstandingly scenic. It is recommended that the trench be stabilized and maintained trash-free. A standard identification sign should be placed at Brick Kiln Road and a more detailed identification at Route 3A in the strip area. The trail could be developed for hiking and biking while the dirt-pile area on Brick Kiln Road

could support parking. An attractively laid out lot with a tree canopy would be an asset to this area as it is on the edges of a residential district. Parking for bicycles would be useful here to enable the bicycling visitor to walk the next stretch.

A possible special feature could be a link to the Manning State Forest, a 174 acre tract partially within the canal corridor. It is not developed with biking trails, so a simple foot trail would be the most suitable linkage.

The Canal route, especially the portion visible from Route 3A could be planted with a row of willow, red maple, tupelo or other wetland species. All grow quickly; their massed presence would signal an event as well as contributing to a pleasant walkway.



Walkway along the Middlesex Canal.

Segment BIL-5. The Concord Mill Pond/Talbot Mill Area

Overview

The Concord Mill Pond/Talbot Mill area has exceptional potential for historical recognition and recreation on a very broad scale. Because the locale has been prominent in industrial and transportation development since the early eighteenth century, there is a wealth of historical material for preservation. This same material could be the stimulus for a range of interpretive exhibits that enliven North Billerica's past and relate it to the larger New England scene.

The river is currently enjoyed for boating; swimming will once again be possible as the river is cleaned up. Some of the shoreline is devoted to parking, nonetheless, the pond edges of the lots and the bridge/dam area are well-used fishing spots. From any shore vantage point--looking down the river, across at the mills, or from the mills to the woods on the other side, the prospect is tranquil and rural. Neither too large, nor too small, the pond seems prototypical of the classical New England mill pond. The quality of this tranquil landscape has remarkable strength. It is enough to overcome the incongruously heavy traffic on the bridge, the bustle of the crammed parking lots, and the deterioration of large parts of the surrounding residential neighborhood.

The area offers the additional benefit and developmental challenge of the current enterprises at the Talbot and Faulkner Mills. Both support ongoing enterprises that continue the industrial heritage of the area. It is their presence that will bring the exhibits and demonstrations that could be established here to life: these industries provide a reference point that sets earlier operations in the same place into a framework of evolving reality: replacing the glamour of nostalgia for the more valuable truth of daily work.

Any recreational or educational activity that is conducted here must take these current businesses with the utmost seriousness. It is possible, with good will and clear goals on all sides, to create a situation in which a variety of desirable goals that will benefit all elements of the area can be achieved.

Study Focus

This study focusses in particular on clarifying the image of the Middlesex Canal in North Billerica. It will not attempt to lay a foundation for broadly based neighborhood revitalization nor will it seek to establish long range goals. It will recommend first, minimal steps that could be taken immediately to heighten the visibility of the Canal in the area. These actions will have very little impact on the community as it stands, requiring only the addition of signs and limited development of existing public or semi-public land.

This is a sober and realistic set of recommendations. Much more could be accomplished. An additional description, more for the sake of showing one alternative that could be developed around Mill Pond than to present a firm recommendation, is included. It is hoped that it will stimulate interest in carrying out a more extensive, more inclusive study of the Mill Village area to determine how land use around the pond might be reorganized to preserve its character, enhance the sense of the past, and provide amenity for those who live and work there.

The Mill Pond Area Today

The Mill Pond was formed, at least as long ago as 1807, by damming the Concord River flowing north to the Merrimack at a point just above the falls. The dam and falls can be seen today from the Faulkner Street bridge crossing the river just below them. The bridge is handsome, but narrow for the work day traffic that crowds it. On either side of the bridge stand the late nineteenth century brick mill buildings and their later additions, replacing earlier grist, saw, and fulling mills. The Talbot Mill houses the Cambridge Tool and Die Co. as well as several smaller ventures. The Faulkner Mill is still a textile concern. Parking spreads out from both mill complexes around the pond and back along the Concord River.

The predominantly residential surrounding neighborhood includes two churches, a school, and a fire house. There is a spa-type grocery store. Some of the housing on Wilson Street and Talbot Avenue was built by the Talbots in the late nineteenth century to house mill workers. Today it has deteriorated and, like much of the rest of the area, is rental housing owned by absentee landlords.

Behind the firehouse on the shores of the river is a 29 acre tract of town-owned land, known as the Old Filter Bed Land. The Kohlraush playing fields serve the Talbot School. Nearby is the Talbot Oval, a half-acre Town common area. The Billerica Historical Society owns a small (1 acre), but key tract off Rogers Street on the river near the old towpath spot.

The Boston/Lowell train stop is a five-minute walk from the Talbot Mill building. Another bridge crosses the Concord half a mile to the south of Pollard Avenue.

The Canal and the Mill Pond

The Canal came in from the east, under Rogers Street near a house, still standing, that may have been used as a tavern. A spit of land built out into the Mill Pond led to the floating towpath --a bridge

enabling a draft animal to pull its canal boat to the other side, just south of where the Talbot Mill now stands. The canal went through what is now the mill yard, running east towards the fire house and down Lowell Street.

There were several locks along this section to control the water from the Concord and to permit rafts of timber to bypass the dam and falls on their Concord River route to the saw mill. Some of the guard lock in the mill yard is visible, an anchor bolt for the floating towpath can also be seen. The canal trench in the mill area is filled.

Two canal related structures still stand on the west side of the river. The Mears Tavern, at the corner of Elm and Wilson and the 'Canal Block' of housing across the street, by all accounts a particularly outstanding example of its type, are worth preservation effort.

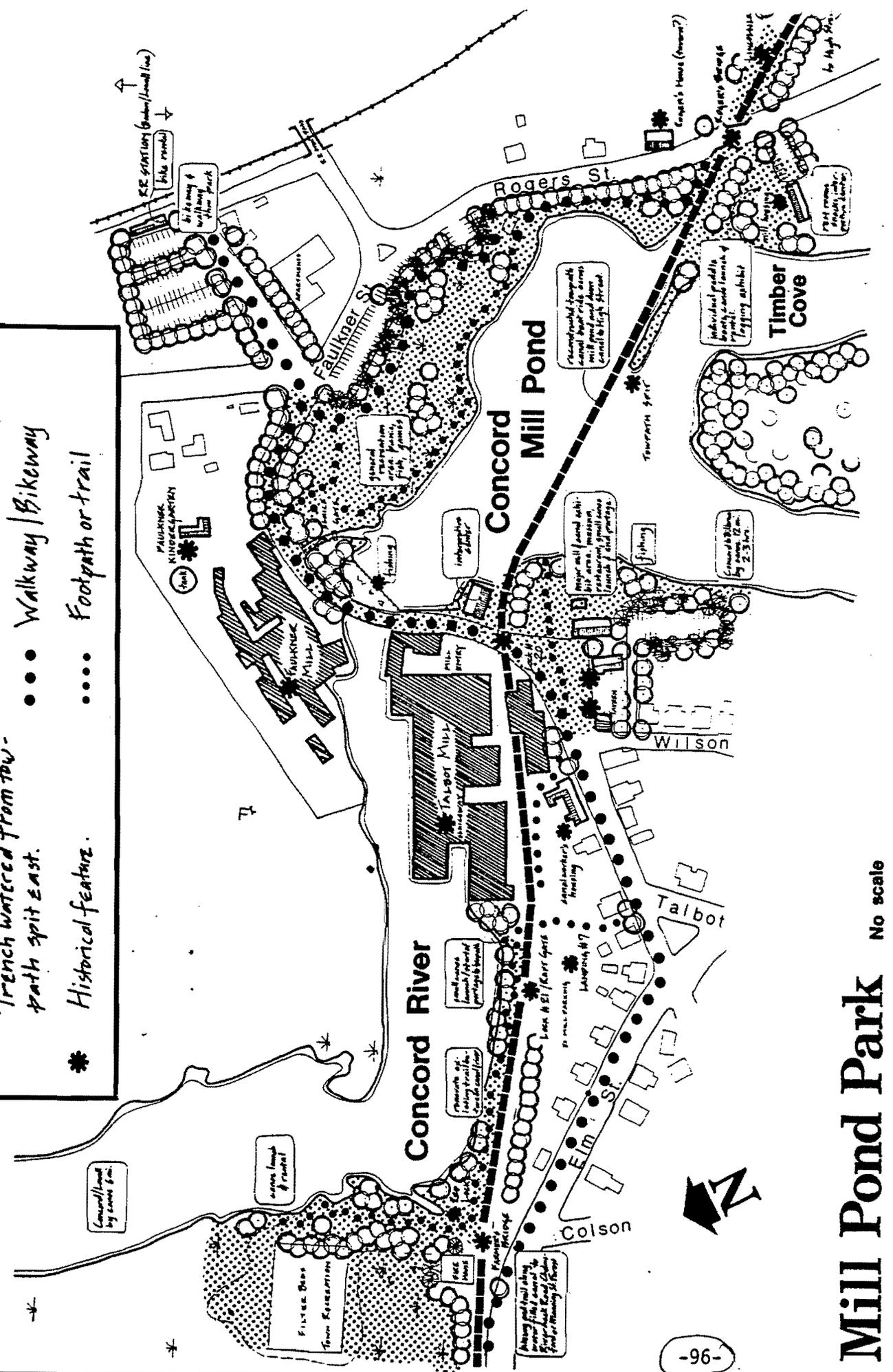
Basic Recommendations

A first step in raising consciousness concerning the Canal will be to locate signs and interpretive material in key locations.

1. Rogers Street crossing.
Standard Canal identification sign.
Additional information regarding Rogers House, Rogers Bridge, and the nearby Lincoln Lock.
2. Faulkner Street crossing.
Standard Canal identification sign.
Plaque on mill wall referencing guard lock.
3. Bridge area.
Weatherproof diagrams explaining canal route and technology in as much detail as possible. Could be placed on shore below parking lot with path leading by the sluice gate.
4. Land owned by Historical Society.
The land could be developed by volunteer labor with path and cleared picnic area on river's edge. Signs and weather proof drawings to explain the towpath arrangement could be installed. Possibly a simple one street guide to the area could be placed in a weather proof dispenser. The guide would include a map showing the trails along the extant canal trench both east and west.

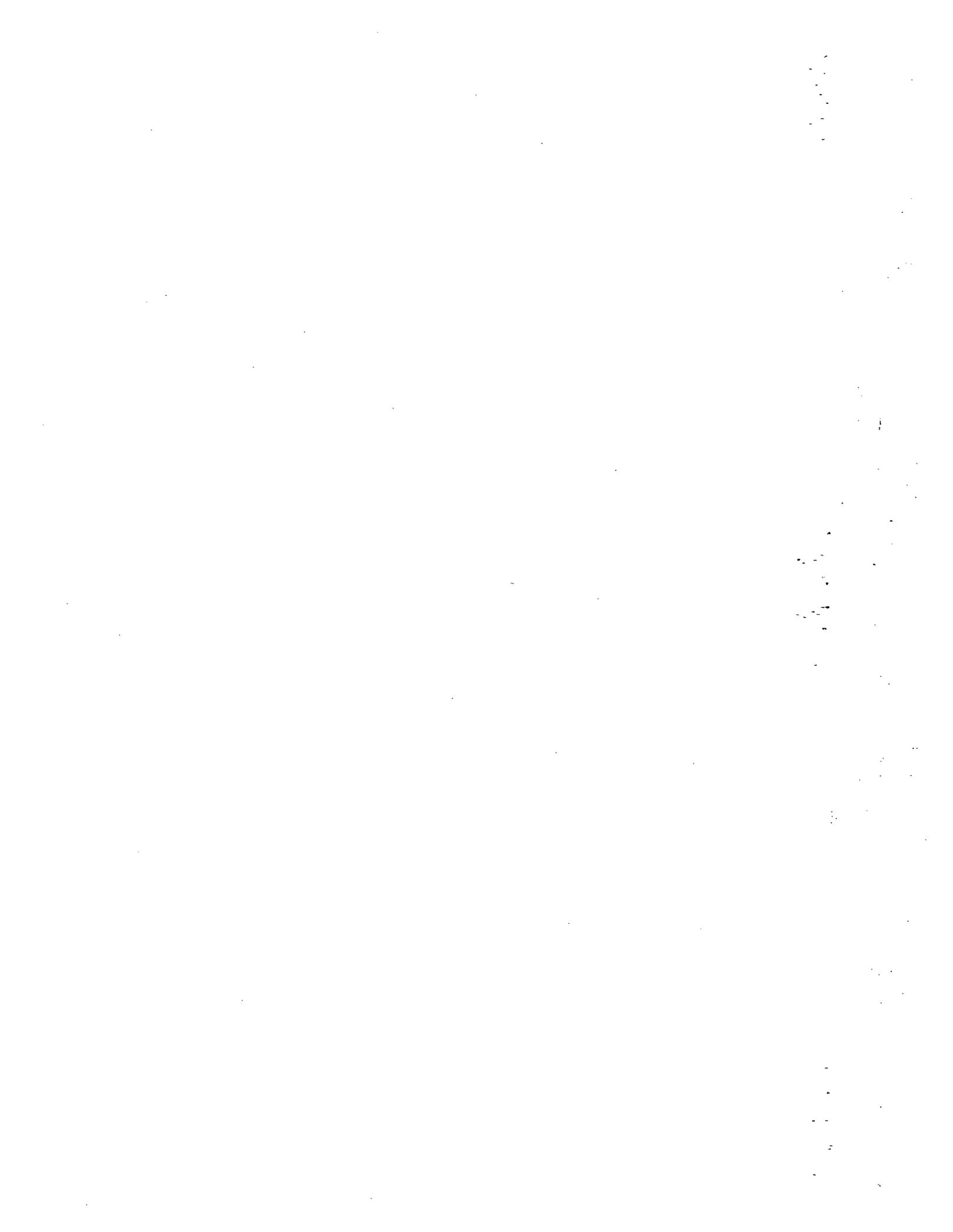
In addition, small signs should identify the location of the Raft Gate, the Red Lock, the Farmer's Bridge, and the Landing. Extant buildings with canal history: The Mears Tavern and the 'Canal Block' housing should be marked.

■■■ Route of Middlesex Canal. Pedestrians. Street only weekends.
 ■■■ Trench watered from tow-path spit east. Walkway/Bikeway
 * Historical feature. Footpath or trail



Mill Pond Park

No scale



These measures would complement a walkway/bikeway developed along the eastern and western spurs of the canal. Some of the suggestions described below could be added: the reconstructed floating towpath would be especially interesting. Bike rental could be available at the railroad station, a canoe launch could be easily constructed on the Historical Society land.

Mill Pond Park

The above are minimal measures. The importance of the entire area in terms of Massachusetts history is great--it has been suggested for, and should be nominated to the National Register of Historic Places. It has good potential for development as a State Heritage Park. The following description offers one complete alternative for increasing public awareness of the historical assets of the Mill Pond area and for permitting increased public use of the land around the pond. Sub-parts of this plan can be developed independently.

The plan assumes that two major changes in the use of land will be possible. Both of these have been successfully adopted elsewhere. The first change dedicates the edges of the Mill Pond and a buffer strip to natural scenery and public use; the second, that Faulkner Street between Wilson Street and Carleton Street be closed to traffic at certain times.

The Mill Pond is the focus of activity. Two centers for interpretive exhibits, recreational facilities, and food services are connected by paths around and across the pond. These in turn connect to paths along the linear segments of the canal linking the park to more distant facilities.

It is possible to approach the park in several ways. The rail traveler heading for Lowell might stop here on the way, rent a bicycle and, after spending some time in the park, bicycle the six miles to Lowell, returning by train, or by bike and train. The canoeist from up the Concord or from Lowell will find canoe launches available. Visitors coming by car, or workers in the mill buildings will find parking along the edge of Faulkner Street, near the railroad station off Wilson Street, and in other small lots throughout the area. Bicycle and canoe rental are provided for those who wish to change their mode of transportation on arrival.

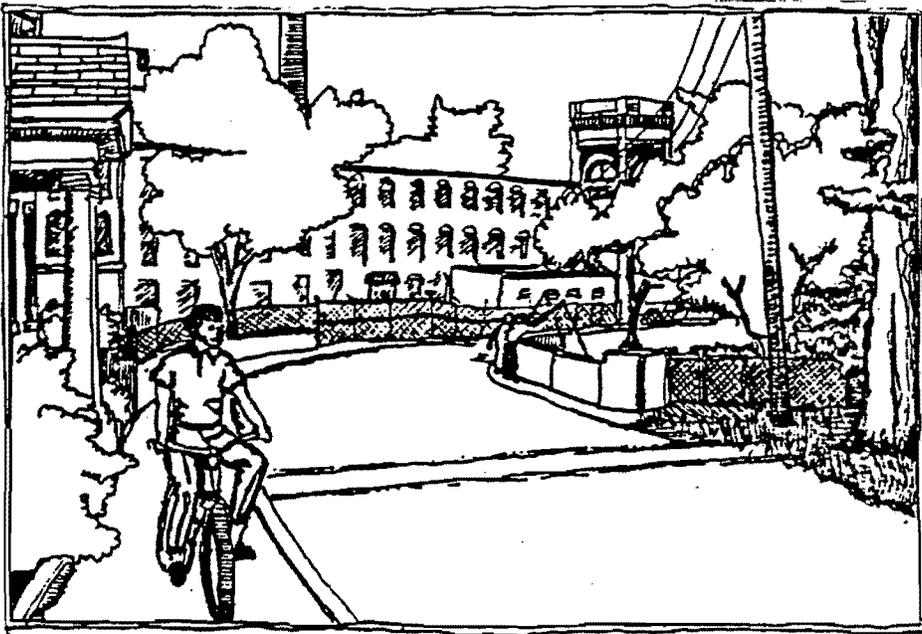
Foot paths lace the natural area round the pond. A traffic-free zone in front of the mill buildings and across the bridge is established on weekends. Traffic is routed over the Pollard Avenue bridge half a mile south.

The towpath exhibit area includes picnic tables, a snack-type restaurant, rest rooms, a logging exhibit, and individual paddle boats to be rented by the hour for exploring Timber Cove, as well as canoe rental for the more serious boater. The focus in this area is on the Canal and its towpath. Canal boat replicas could travel the reconstructed Canal section east to High Street and back, crossing the Mill Pond to the larger interpretive center.

Here is a larger, more formal restaurant and an indoor museum devoted to both mill and canal, emphasizing their relationship to similar developments in other parts of New England, especially Lowell.

The foot path system surrounds the Mill Pond and follows the old canal route to the Filter Bed recreational land with its canoe launch and rental. There is a portage around Talbot Mill starting near the site of the Raft Gate, ending at the mouth of the canal. The foot path rejoins the canal on Lowell Street. The bikeway follows Faulkner Street to Lowell Street beyond the firehouse and continues westward towards Chelmsford.

This low-key park would be a distinct recreational asset in North Billerica. It would best be carried out as part of a comprehensive neighborhood plan.



The bridge at Talbot Mill.



The reconstructed towpath.

BILLERICA

Table 1.

INVENTORY OF HISTORICAL BUILDINGS AND SITES IN THE MIDDLESEX
CANAL CORRIDOR

CANAL RELATED

Allen's Tavern. Corner of Salem and Andover Streets.

18th century farmstead remodeled in the late 18th century as a tavern.

Mears Tavern. c.1815. 12 Elm Street

The tavern served travelers on the Canal. Its annex, the Middlesex Hall, was the center of community life for several generations.

Captain Dix House. 1815. Federal. 2 Elm Street.

A Federal style structure purchased from the canal proprietors in 1822. It stands next to the Mears Tavern.

The Canal Block. 1835. 1,3,5,7 Elm Street.

Also known as the 'Long Block', this frame structure housed boatmen, teamsters, and mill operatives.

BILLERICA

MILL RELATED

E. Faulkner Kindergarten, 1826. Faulkner Street

This home was built for James Robbins Faulkner, son of Francis, founder of the Faulkner Mills. The Faulkner family started a kindergarten in 1897 for children of their employees. An endowment fund provides for maintenance of the home and operation of the school.

F. Daniel Wilson House, 1848. Greek Revival. Elm Street

Daniel Wilson bought the land on which the house sits from the proprietors of the Middlesex Canal, October 24, 1831. Little is known about Daniel Wilson. The Kahlousch reminiscences refer to him as "Boss" Wilson, and he was clearly an important man in early "Billerica Mills".

G. Faulkner House, c. 1852. Next to Faulkner Kindergarten

Residence.

H. Talbot Mill Building, 1857. Faulkner Street

The mill was built on land purchased from the Middlesex Canal Corporation. The Canal was used as a source of waterpower. A stone lock of the Middlesex Canal is still visible in the mill yard.

I. Mill Workers Housing, 1850-90.

Many units are still standing. The south end of Wilson Street, Lowell Street between Colson Street and Talbot Avenue, and the church end of Elm Street have concentrations of this housing.

J. Faulkner Mill Building, 1880.

TOWN OF BILLERICA

GENERAL

Manning Manse. 1696. Salt Box, Chelmsford Road

As one of the first homesteads west of the river, it became a haven for travellers on the old road to Chelmsford and Amherst, N.H. It was acquired and restored in the early twentieth century by Warren H. Manning, a noted landscape architect.

John Richardson Homestead. 1764. Expanded 1798 & 1836. 78 Gray Street

The Richardson family dominated this area from 1770 when they purchased the homestead and nearby sawmill to approximately 1900 by which time all of the family had died or moved away.

Patten Family Homestead. 18th century. 306 Salem Road

Multi-Family Residence. c. 1800? 7 Gray Street.

Brown Family Homestead. C. 1800. 248 Salem Road

Oliver Farmer II House. 1803. Federal. 24 Colson Street

An example of the Federal period--this style was called the brick-ender.

William Rogers House. 1807. Federal. 23 Rogers Street

John Mixer House. 1827. Elm Street

William Gray House. 1845. Greek Revival. 79 Gray Street

Example of prosperous merchant's house.

North Billerica Baptist Church. 1869.

Watts House. 1878. Victorian Gothic. Andover Road

Smallpox Cemetery.

PUBLIC AND SEMI-PUBLIC LAND IN CANAL CORRIDOR

1. Manning State Forest and Park. Chelmsford Road. 174 acres. Commonwealth of Massachusetts .
Actively managed state forest. Ten acre day use recreation area with wading pool and picnic facilities. Hiking trails (fire roads) on rest of property.
2. Kohlraush Playground. Off Colson Street. 6.2 acres. Town of Billerica.
Active recreation. Playground for Talbot Elementary School. One baseball diamond, one softball diamond, grass field, one tennis court.
3. Potter's Playground. Off High Street. 3+ acres. Town of Billerica.
Active and passive recreation. Two tennis courts, one baseball diamond.
4. Talbot Mills Oval: Talbot Avenue. 0.5 acre. Town of Billerica.
Public common area.
5. Hajjar School Property: Rogers Street. 15 acres. Town of Billerica.
Active and passive recreation. One baseball diamond, informal grassed and paved activity areas.
6. Old Filter Bed Land. Off Lowell Street. 28.9 acres. Town of Billerica.
Passive recreation, including fishing.
7. Billerica Historical Society Land. Off Rogers Street. One acre.
Billerica Historical Society
Near towpath spit.
8. Kennedy School Property. Off Carline Drive. 23 acres. Town of Billerica.
Three softball diamonds and grassed field.

CHELMSFORD

Approximately one and three-quarter miles of the Canal route runs through Chelmsford; nearly half of the canal trench is obliterated by the interchanges of Routes 3 and 495 which cross each other here. The southern portion of its length (west of Route 3) is, however, both visible and well suited to limited recreational development. The Canal is given highest priority for acquisition by the Town Open Space Plan, as noted below.

Middlesex Canal

Westerly side of Route 3

Priority A

High recreational benefits
Water supply protection
Historic interest
Can be expected to come
under severe development
pressure

The immediate area that this portion of the Canal passes through is relatively undeveloped at present. The badly deteriorated trench parallels Canal Street, once the Canal towpath. Canal Street is paved for only a short length near Riverneck Road; the rest of it, as far as its junction with Brick Kiln Road just over the border in Billerica, is dirt.

The most striking nearby environmental features are the wetlands that are prevalent along the southern part of the route (see Map 2, p. 110). Black Brook threads through them and an area roughly corresponding to, and somewhat greater than the wetlands, is flood prone. Some of the canal route is included. The terrain through which the Canal flows is nearly level and low--quite typical of the whole route.

There are no outstanding views; this is a very typical wetland landscape. Some historical buildings are scattered through the mile-wide corridor. They are not related to the Canal and do not have a strong influence on recommendations for development at present.

Land use and ownership in the area is reasonably protective of canal interests although not conducive to intense recreational development. About one third of the route runs through Chelmsford Water District land and is therefore protected from development. It is also closed to public recreation. If the Canal route is to become a throughway, easements will have to be acquired from these private companies. About nine (9) acres of land at the junction of Riverneck Road and Canal Street is owned by the Chelmsford Conservation Commission. It includes the Canal.

While the area is isolated by the two major highways and therefore not as desirable for recreational development as other areas in Town, some of the soils in the upland areas east of the Canal have reasonable septic suitability (good percolation, Class B or Class C renovation capability) for residential development. If easements are secured for the Canal before the land is developed, this should be no serious threat to Canal interests.

An important Canal remainder--the small toll house that originally stood in Middlesex Village, has been moved and stands on the Chelmsford Center Common. It is preserved, protected, and maintained here. Because the Canal length in Chelmsford is isolated from the main streams of traffic in the Town, it is very useful to have this as an outpost to remind the community that the Canal does exist in their Town. Literature about the Canal, its preservation and recreational developments, could be made available here.

Segment CHE-1. Brick Kiln Road to Riverneck Road

As has been mentioned, the canal trench, mostly visible and water filled, runs beside Canal Street, a country road, through Water District land. The immediate terrain is flat with wetland vegetation; there is a gentle slope to higher ground to the east. The area is quietly pleasant and very typical of rural New England. The power line and Route 3 are evident but not disturbing.

While some of the high land to the east is physically suitable for development as a picnic area or as an interpretive center there is no compelling reason to do so. There was no Canal element of special interest warranting interpretive comment along this segment.; there is no trace of bridges that once spanned the Canal. The segment is near the Concord Mill Pond in Billerica. If the interpretive exhibits that are suggested for that area are carried out, there would be little point in developing others so nearby.

The canal trench here should be stabilized just enough to keep it from disappearing. The little used road can be used by bicyclists and hikers just as it is. There are those who enjoy the sense of discovery, the adventure of finding the Canal as though it had not been seen by anyone since its last use some 150 years earlier. Some sections of the Canal are well suited to preservation, even to reconstruction. There is value in letting other sections remain more or less as they are--as they have survived to this day--demonstrating the effects of the passage of time.

It is remarkable that we have anything left of the Canal at all after so many years and so much change in land use. The staying power of this narrow three foot deep ditch in the landscape is a quiet reminder that, even in New England where woods return quickly, modification of the earth's surface is not a matter to be taken lightly.

CANAL SEGMENT	Physical Shape		Park Potential		
	APPROX. LENGTH	CONDITION	PRIORITY	RECOMMENDATIONS	NOTES
Wick Kiln Road Riverneck road along Inal Street	4,900'	Trench deteriorated; watered; some trench filled.	high	Signs at road crossings and feature sites. Maintenance of trench. Local resource unless becomes part of Concord Mill Pond development. Bikeway, walkway.	Canal next to trench was towpath.
Riverneck Road last well order	4,370'	Mostly filled.	medium	Signs at road crossings and to mark route from highway.	Largely on interchange area.
d Toll use		Restored.	--	Continue to maintain. Use as distribution center for canal literature.	Currently stands on Town Common.

FREE QUARTER MILES OR 7% OF TOTAL LENGTH

Chelmsford

Public Ownership

ACCESS	CANAL FEATURES <i>*Extent</i>	SIGNIFICANT ENVIRONMENTAL FEATURES	NEARBY HISTORICAL FEATURES	APPROX. LENGTH IN P.O.	PUBLIC PROPERTY ON ROUTE	NEARBY SCHOOLS & OTHER LAND	NAT. REG. SEC.
Good. At Brick Kiln and River- eck Roads.	sluiceway; brick culvert; wooden culvert; Manning's Bridge	Black Brook Wetlands High land may be esker.	4-18c. houses; 1-18c. brick-yard 1-19c. school	1,100'	Chelmsford Conservation Land	None	II
Poor	River Meadow Aqueduct; Sullivan's Harbor; Long Causeway Bridge	Wetlands Black Brook	--	--	--	None	II
Good							

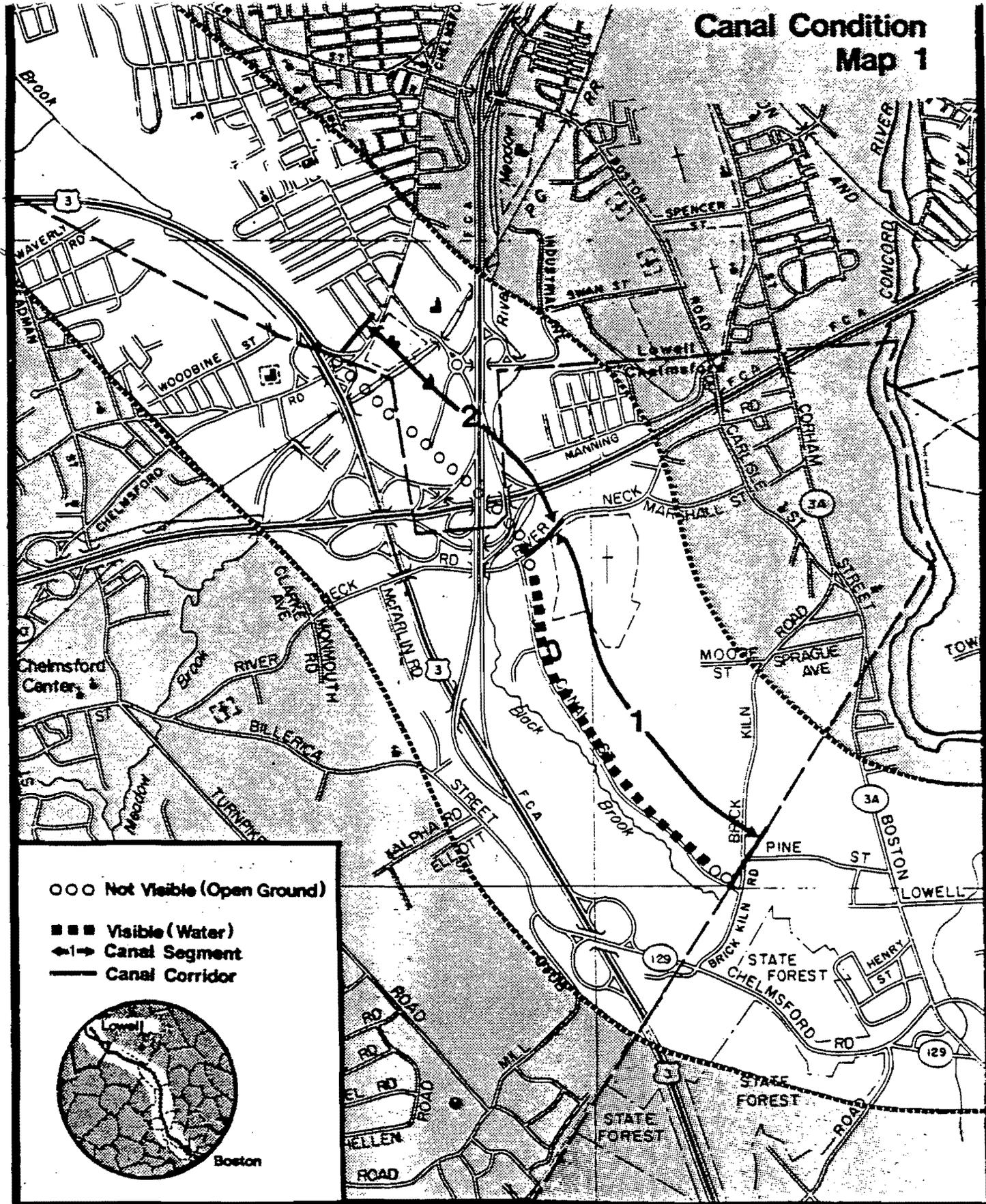
Signs should be placed at road crossings and the demolished canal features noted.

This segment connects across Brick Kiln Road to Canal Street in Billerica and would be a logical extension of the footpath and bikeway recommended for BIL-7.

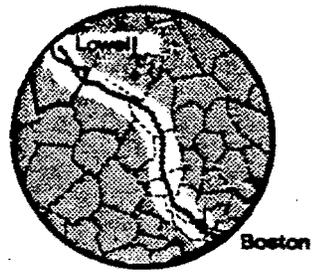
Segment CHE-2. Riveredge Road to Lowell/Chemsford border

No development is recommended for this segment. The interchanges would require expensive overpasses or tunnels that seem unjustified at this time. The route should be signed for the sake of continuity and because it is visible from the highways. These are high speed roads. A preparatory sign before the route crossing on the side of the road in both directions to prepare the driver for the actual canal route sign should be installed. These may have to be very large to be clearly distinguished.

Canal Condition Map 1



- Not Visible (Open Ground)
- Visible (Water)
- ←|→ Canal Segment
- Canal Corridor

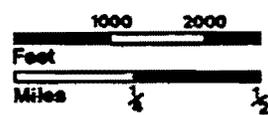


MIDDLESEX CANAL • CHELMSFORD

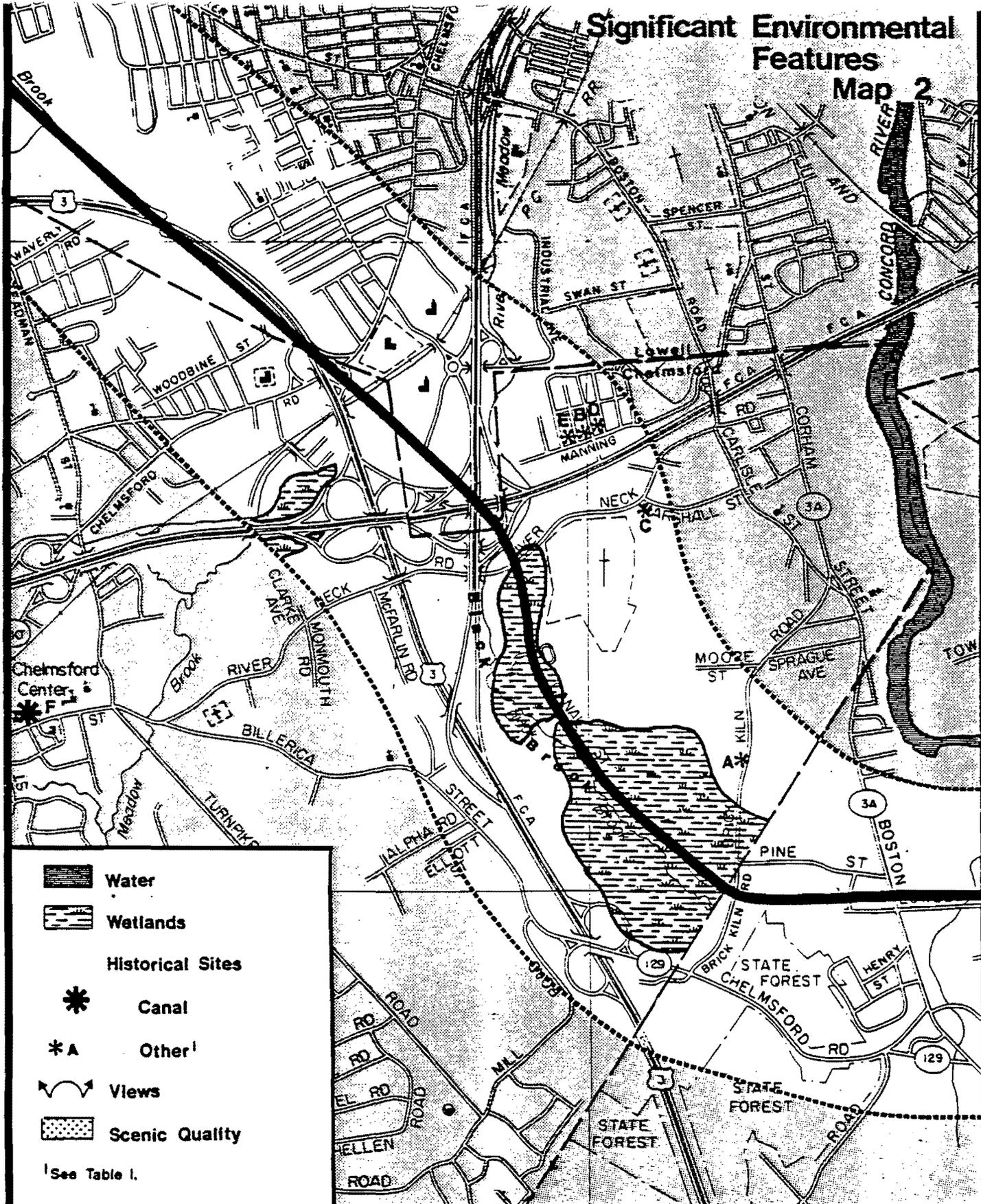
Source: General Highway Map, Mass. Dept. of Public Works

Prepared by:
Metropolitan Area Planning Council & Northern Middlesex Area Commission, 1980

-109-



Significant Environmental Features Map 2



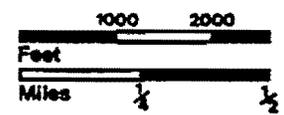
	Water
	Wetlands
	Historical Sites
	Canal
	Other ¹
	Views
	Scenic Quality

¹See Table I.

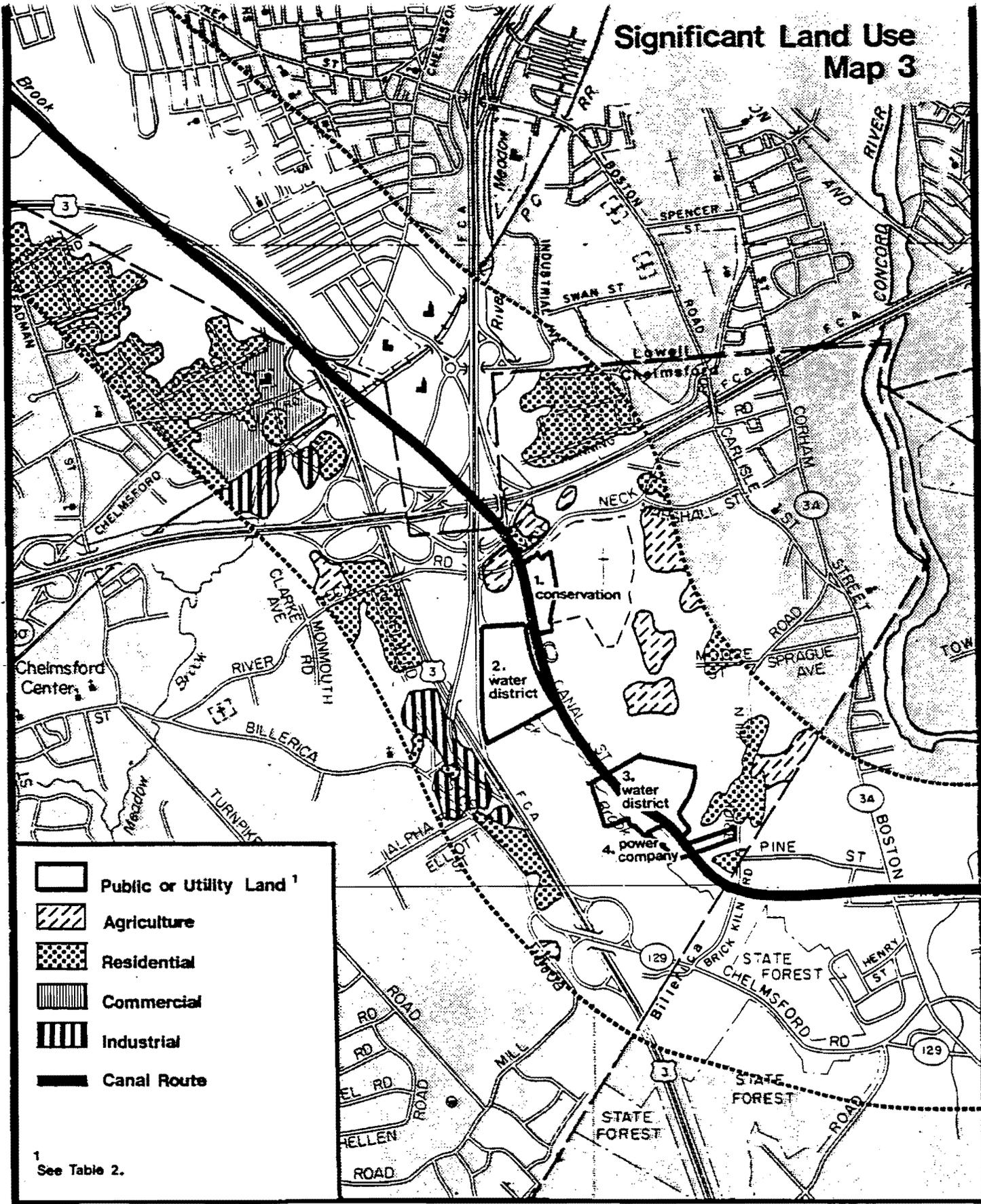
MIDDLESEX CANAL • CHELMSFORD

Source: General Highway Map, Mass. Dept. of Public Works
 Prepared by:
 Metropolitan Area Planning Council & Northern Middlesex Area Commission, 1980

(-110-)



Significant Land Use Map 3



	Public or Utility Land ¹
	Agriculture
	Residential
	Commercial
	Industrial
	Canal Route

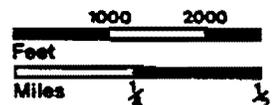
¹ See Table 2.

MIDDLESEX CANAL • CHELMSFORD

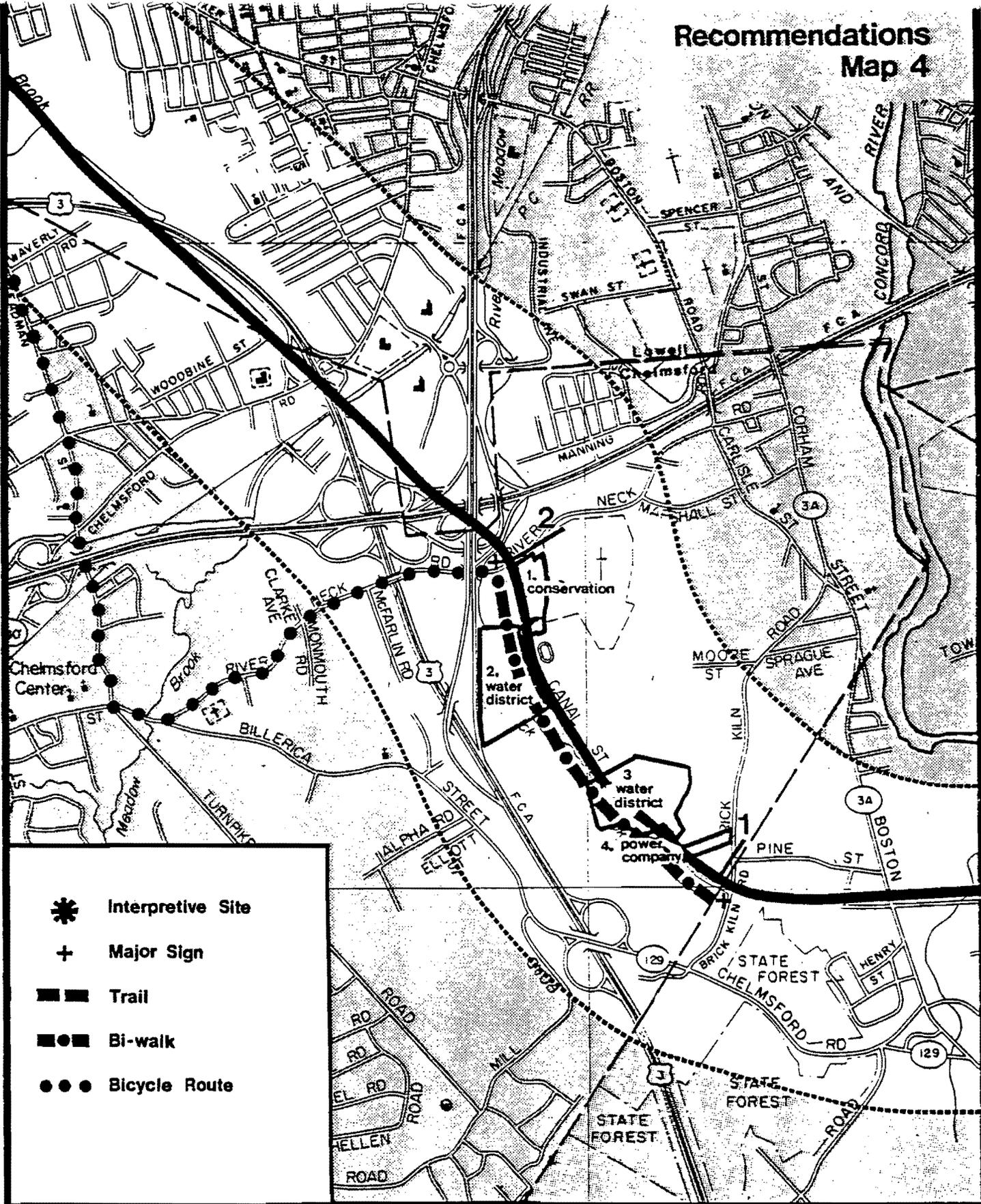
Source: General Highway Map, Mass. Dept. of Public Works

Prepared by:
Metropolitan Area Planning Council & Northern Middlesex Area Commission, 1980

-111-



Recommendations Map 4



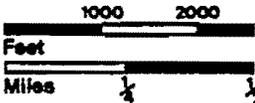
MIDDLESEX CANAL • CHELMSFORD

Source: General Highway Map. Mass. Dept. of Public Works

Prepared by:

Metropolitan Area Planning Council & Northern Middlesex Area Commission. 1980

(112)



CHELMSFORD

Table 2.

PUBLIC AND SEMI-PUBLIC LAND IN THE MIDDLESEX CANAL CORRIDOR

1. Conservation Land. Riverneck Road and Canal Street. 9.25A.
Town of Chelmsford
2. Chelmsford Water District. Off Canal Street. Private water company.
Several lots total 21.3 acres.
3. East Chelmsford Water District. Canal Street. 75.8A.
Private water company.
4. New England Power Company. Canal Street. 5.34A.

INVENTORY OF HISTORICAL BUILDINGS AND SITES IN THE MIDDLESEX CANAL
CORRIDOR

No evidence of a relationship between the following properties and the Middlesex Canal is known at the present time.

A. Brick Factory. 1700's to 1800's.

Bricks made from beds of clay on Brick Kiln Road. The clay was not the purest and best kind; but manufactured to good advantage.

B. The Manning House . 1752. 9 Manning Road

This was the home of William Manning, inventor of the original corn cake square that he made on the premises. He became rich because of this invention.

C. Edmond's House. 1756. 22 Marshall Street

The Edmond brothers were the original owners of this farm. They were the developers of the first sugar beet.

D. Robert Pierce House. 1758. 21 Manning Road

This was, at one time, one of the largest dairy farms in Chelmsford.

E. First School in East Chelmsford. Early 1800's. 5 Manning Road

Property for the first school house in East Chelmsford was left by the Manning estate to be used for school purposes. The building was originally located on Riverneck Road and later moved to the present location.

NOT IN CANAL CORRIDOR

F. Middlesex Canal Toll House. 1832. Chelmsford Center Common

This is the oldest canal toll house in America. Judge Samuel Hadley's father was a locktender and toll collector in this toll house. It is mentioned by Thoreau in his Week on the Concord and Merrimack Rivers.

LOWELL

Lowell, like Charlestown, has a special place in Canal history. It was the northern terminus of the Canal route; the connection here with the Merrimack made possible the shipping of goods from much farther inland. A flight of three locks brought the Canal level from the elevation it had maintained since departing Billerica down to the level of the Merrimack. No visible trace of these locks remains. In fact, little of the Canal is left in Lowell.

The railroad line, instrumental in causing the Canal to be economically ineffective as a mode of transport, has buried it physically on the Merrimack shore. Residential development has swallowed, obscured, or rendered private other stretches of the trench. The construction of large highways--our contemporary means of transport--so altered the Canal route that very little of the original remains.

Yet, there are still some visible sections, happily in places that lend themselves to public ownership and recreational use, if not now, at some time in the future. Looking at the situation from another perspective, it is remarkable that so much of the Canal does remain and remains in Lowell, a city dedicated to canal preservation.

The nineteenth century mill industry that flourished in Lowell was possible because of water power transferred to the mills by canals. The nation's first urban National Park, located in Lowell, is charged with explaining and preserving this industrial heritage. Preservation of the Middlesex Canal remnants should be regarded as a complementary activity.

The Lowell Open Space Plan supports local preservation of this kind.

- Develop the Middlesex Canal corridor as an integral part of the Recreation Corridor from the Lowell-Dracut State Forest to the Manning State Forest.

There are certain environmental constraints affecting Canal development in Lowell. (See Map 2. p.120) A large part of the area is in the floodplain. There is some wet land. One of the positive side, the site of the Canal terminus has a wonderful view of the Merrimack and the Heritage State Park, a two mile strip of developed park land, on the opposite shore. The land containing well fields on Princeton Boulevard is a scenic oasis that has been suggested for various forms of recreational development.

all

TOTAL CANAL LENGTH IN CITY APPROX. TWO AND THREE

CANAL SEGMENT	Physical Shape		Park Potential		
	APPROX. LENGTH	CONDITION	PRIORITY	RECOMMENDATIONS	NOTES
Riverneck Road to north side Rte.3.	8,000'	altered or obscured by interchange	high	Signs at crossings, large signs, visible from highway on Canal itself. Sign at demolished bridge site. Sign at rest area.	Segment may be most often seen on entire route.
North side Rte.3 to Mt. Pleasant Golf Course.	1,800'	visible, watered	high	Footpath to Daley School field. Maintain Canal as school project.	Near Jr. High School. Educational potential.
Mt. Pleasant Golf Course	1,200'	partly visible and watered	low	Signs to mark route.	Private land, not suitable for park development.
Mt. Pleasant Golf Course to Westford Street.	1,100'	partly visible and watered	low	Signs to mark route and demolished Canal feature.	Near private houses.
Westford Street to Middlesex Street.	2,200'	deteriorated; filled Princeton to Middlesex St.	medium	Develop with bikeway and footpath. Signs to mark Black Brook aqueduct. Interpretation at Hadley Field.	Near Hadley Field, a well used recreation area. Educational potential.
Middlesex Street to Merrimack River.	900'	filled	--	Develop as river edge is developed. Signs. Interpretation and restoration of lock if feasible.	Highly important area now built over or infilled. Restoration high priority to be scheduled with other river activity.

Public Ownership

ACCESS	CANAL FEATURES <i>*Existant</i>	SIGNIFICANT ENVIRONMENTAL FEATURES	NEARBY HISTORICAL FEATURES	APPROX. LENGTH IN P.O.	PUBLIC PROPERTY ON ROUTE	NEARBY SCHOOLS & OTHER LAND	NAT. REG. SEC.
Good	Long Causeway Bridge	Black Brook	none	none			I & II
none at present. Assessments must be acquired to Daley School area.	none		none	1,800	Canal trench owned by City in this segment.	Daley School. City of Lowell land.	I
Poor	none	Black Brook	none			See LOW-2.	I
Good	Sluiceway	Black Brook	none	none		dump; Black Brook well field.	I
Good. Westford St. at Middlesex St.	wood culvert; Glass House bridge; pipe culvert; Glass Co. foot-bridge; Black Brook Aqueduct; bridge	Black Brook	1 - 17c.house; 1 - 18c.school-house; 1 - 19c.workers house; 5 - 19c.houses	1,000	Hadley Field Well Field	Middlesex Village School	I
Good	Landing 8 various structures; Middlesex Tavern; *Toll House (in Chelms.); Merrimack Locks		1 - 17c.house; 4 - 19c.houses				I

There are historical buildings in the Middlesex Village area. These reflect an earlier time--Middlesex Village was settled around 1656--as well as the Canal period. Schools, residences, and industry are represented. Particularly interesting from the Canal point of view is the Glass Works Long House, originally worker's housing for the local glass making industry that was dependent on the Canal for raw materials and distribution.

Land use, as previously mentioned, has contributed to obscuring the Canal; it will also be instrumental in its preservation. (See Map 3, p. 121) The narrow strip between the railroad and the river could, although it is unlikely, be picked up by the Heritage State Park. It is still uncertain as to whether or not the river route or the parallel Middlesex Street will be chosen for that leg of a planned sewer interceptor. If the river route is chosen, a bike path, similar to others in Lowell could be constructed and could include Canal interpretation as part of a rest stop.

Commercial and industrial enterprises near the railroad are not conducive to recreational development; the Canal trench is, in any case, buried.

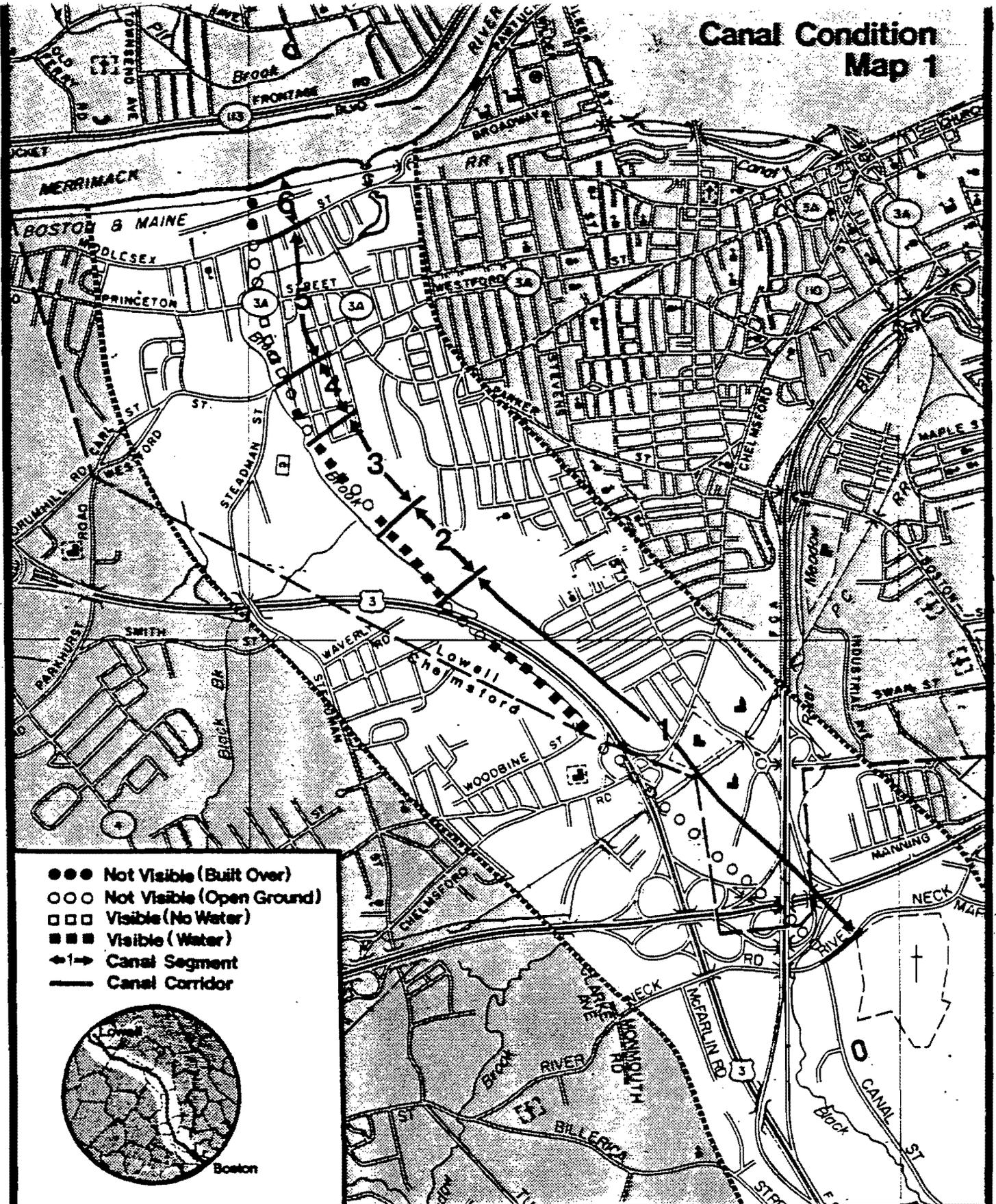
Some of the open space in the corridor could be turned to the Canal's advantage now, or in the future. The well field, the school grounds, the City owned land by Route 3 and the landfill are promising in this regard. The Mt. Pleasant Golf Course prevents the sections of the Canal within it from being filled or built over. It is, however, a private club, hence no Canal related recreation open to the public is likely, at this time, to be developed.

Taking all together the prospect for a throughway for recreation along the Canal in Lowell is not good because of alterations to the original route; infill of Canal sections; and major obstructions, the highways, wetlands, etc. to a continuous corridor. Segments of the Canal, however, offer attractive recreational possibilities that are enhanced further by the state and federal park presence in the City. Every effort should be made to develop pedestrian and bicycle connections between developed sections of the Canal and other parks.

Segment-LOW-1. Riverneck Road to north side Route 3

The Canal in this area is entangled with the Route 3 and 495 interchanges and is not suitable for park development. The Canal is visible as marked (See Map 1, p. 119) from Route 3. A rest area on Route 3 heading south that is in the Canal vicinity could have a weatherproof interpretive exhibit explaining the Canal's route and history. It should highlight convenient accesses from Route 3 to any Canal development that is carried out. The highway should have signs in strategic locations indicating Canal crossings. The Canal route itself should be marked with signs large enough for a driver to see easily.

Canal Condition Map 1

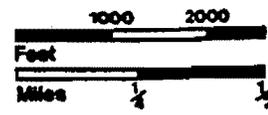


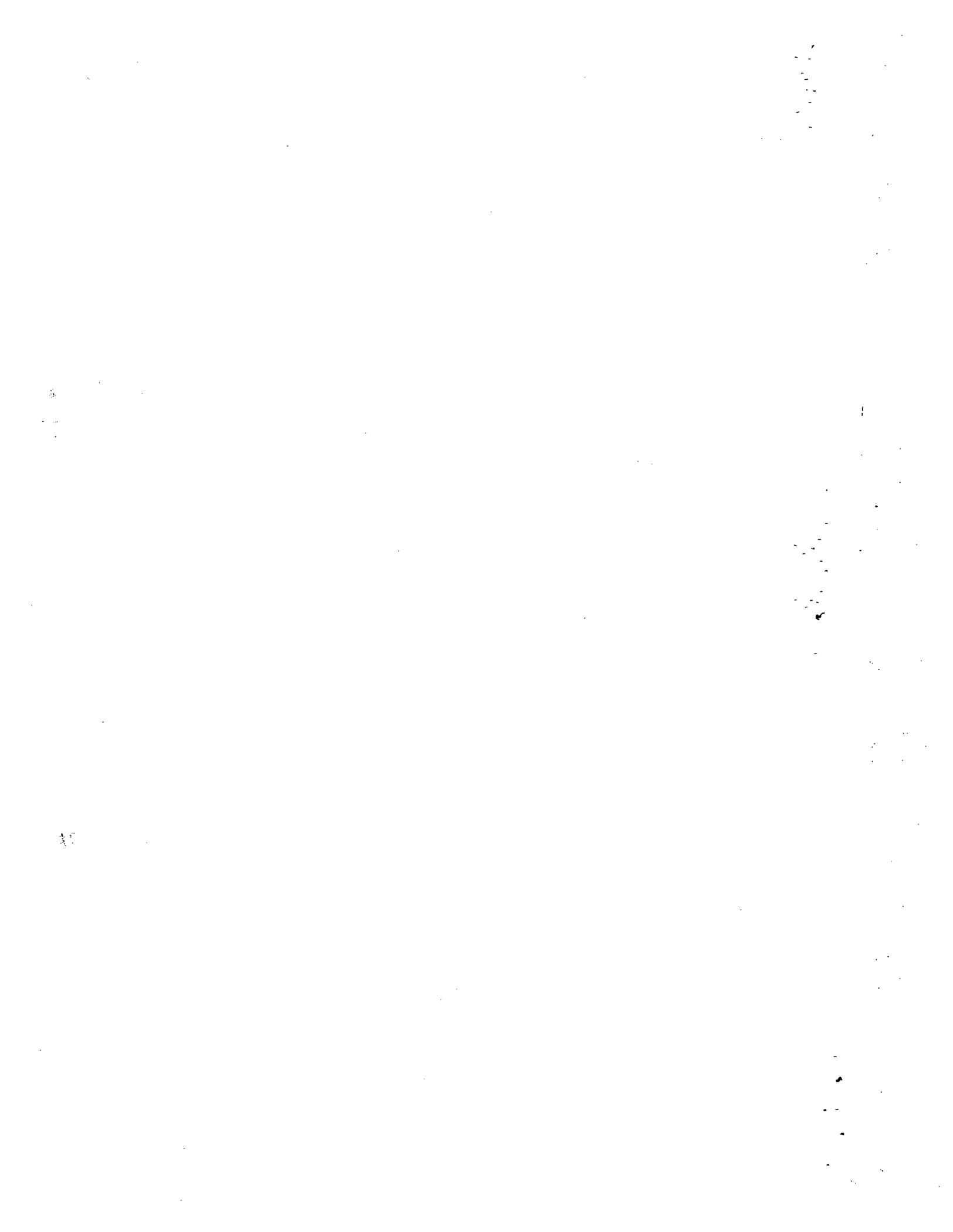
MIDDLESEX CANAL • LOWELL

Source: General Highway Map. Mass, Dept. of Public Works.

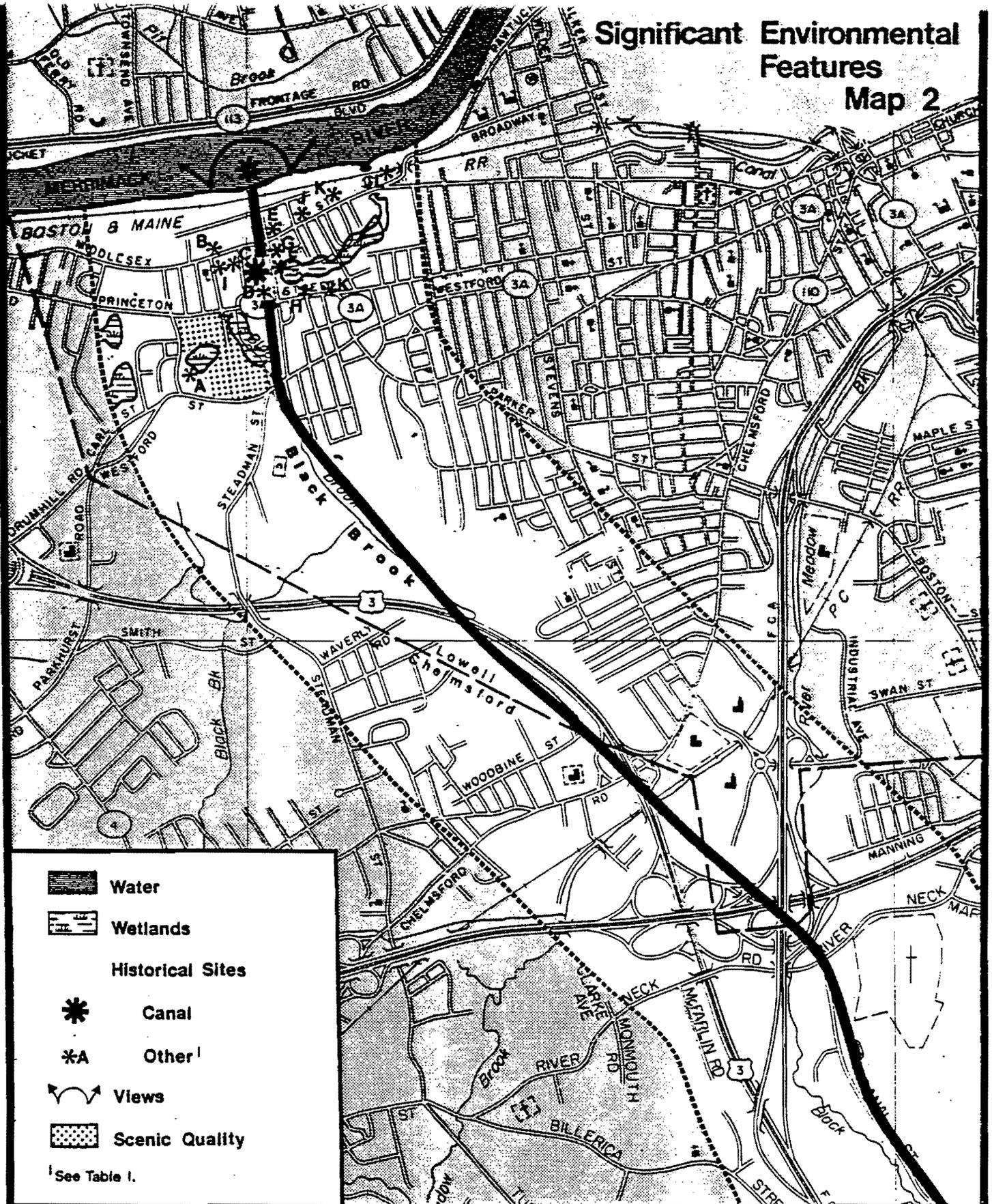
Prepared by:
Metropolitan Area Planning Council & Northern Middlesex Area Commission, 1980.

(-119-)





Significant Environmental Features Map 2

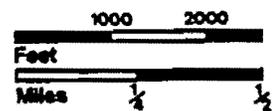


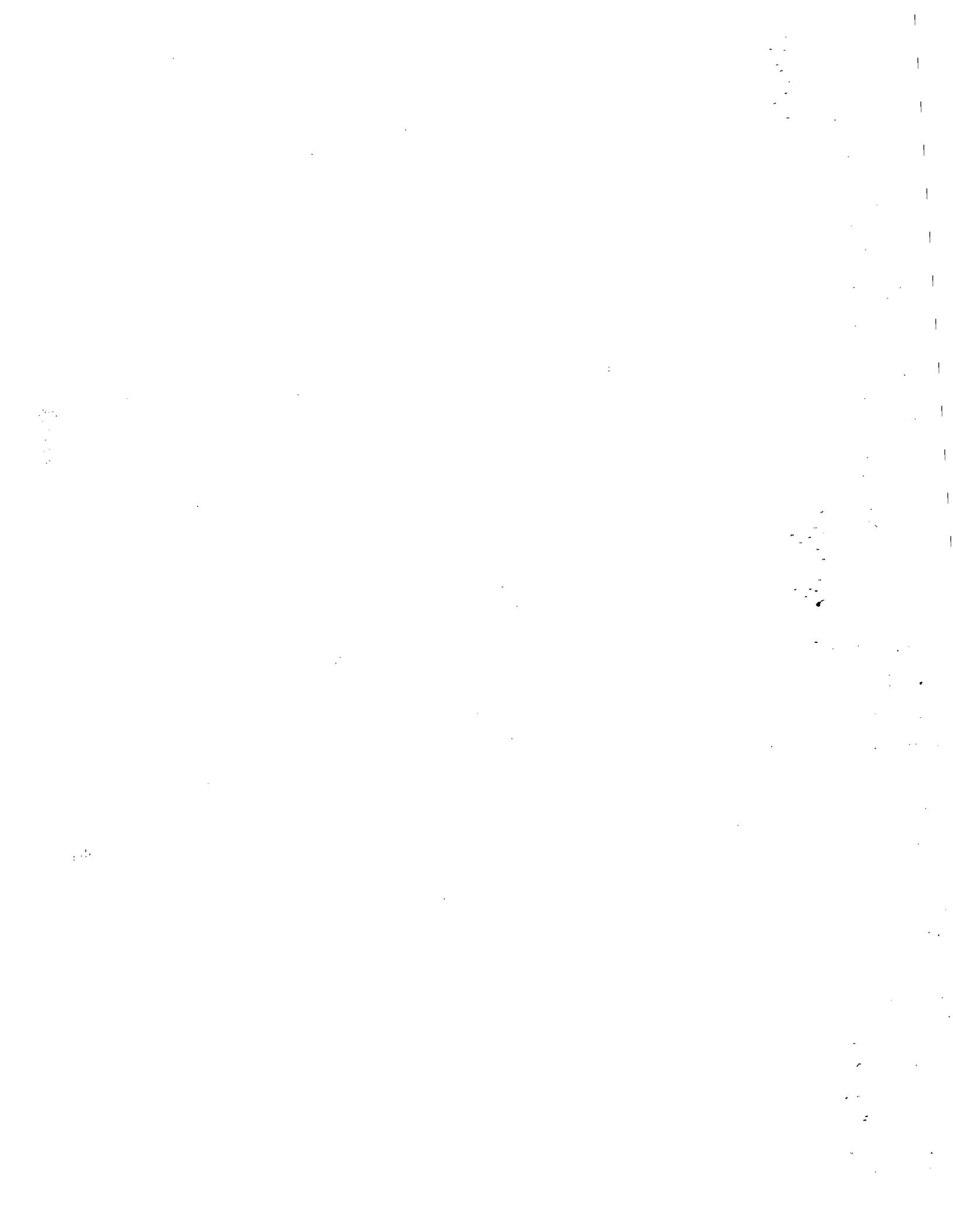
MIDDLESEX CANAL • LOWELL

Source: General Highway Map, Mass. Dept. of Public Works.

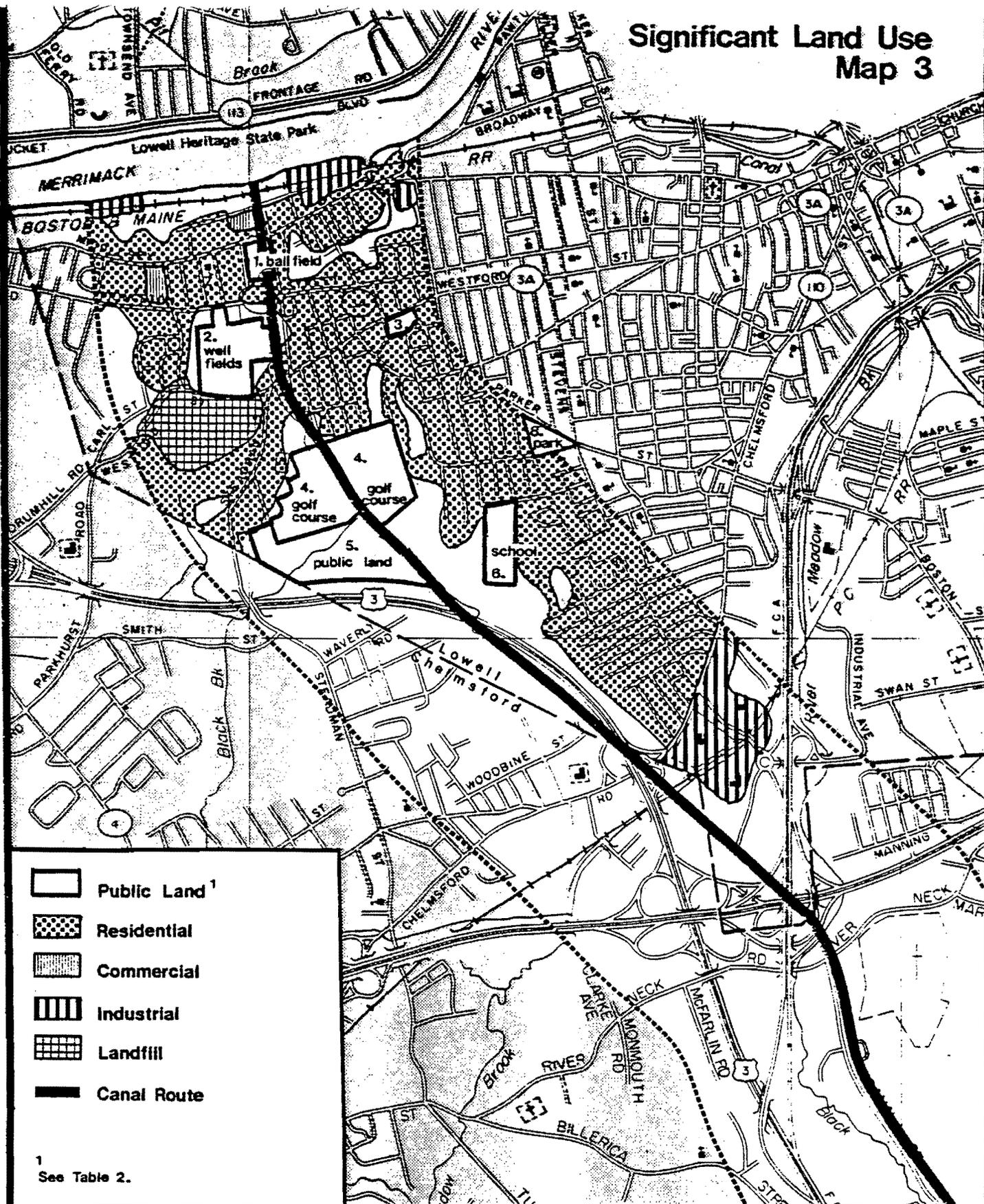
Prepared by:
Metropolitan Area Planning Council & Northern Middlesex Area Commission, 1980.

-120-





Significant Land Use Map 3



-  Public Land¹
-  Residential
-  Commercial
-  Industrial
-  Landfill
-  Canal Route

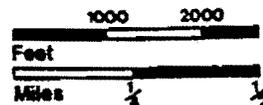
¹ See Table 2.

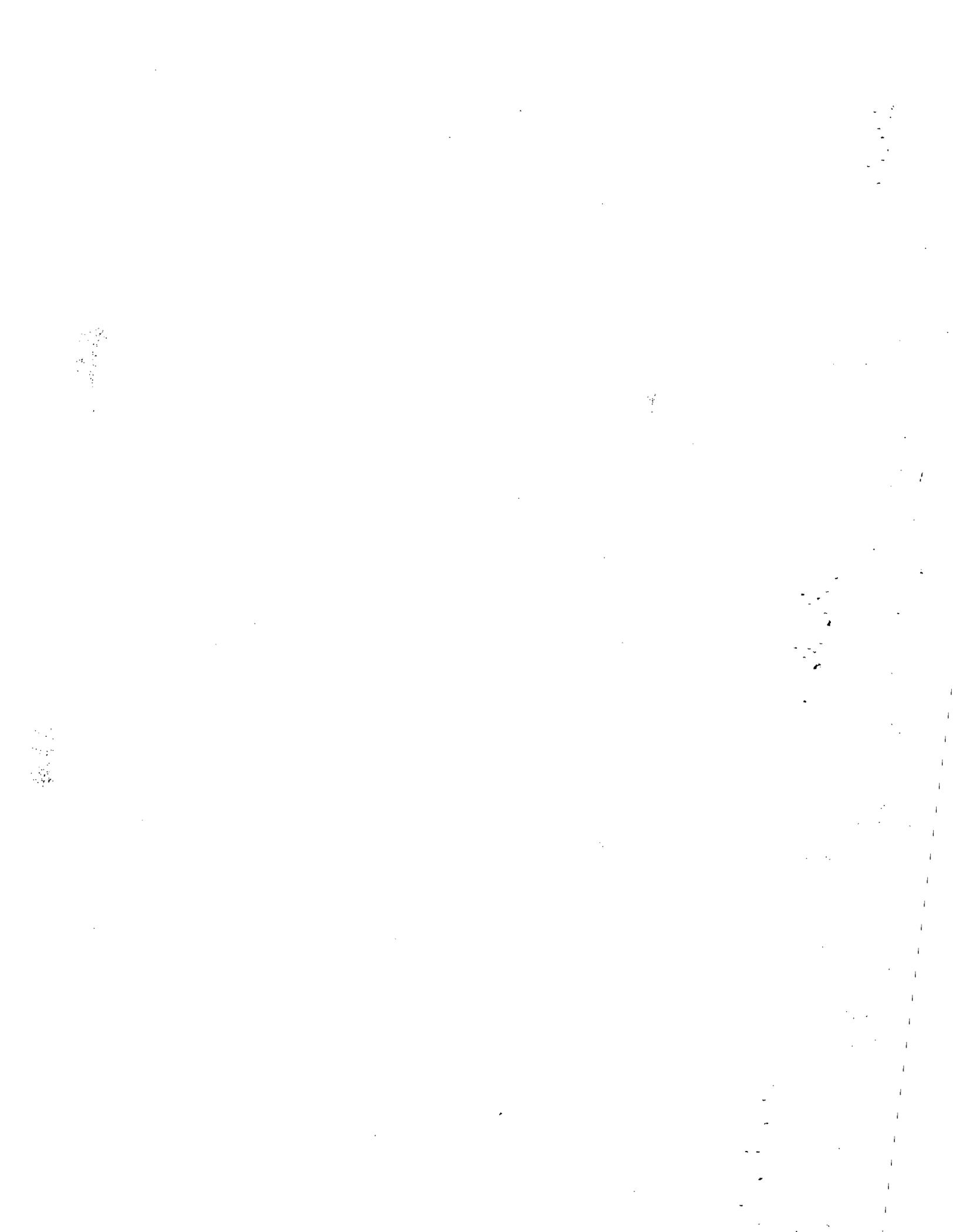
MIDDLESEX CANAL • LOWELL

Source: General Highway Map, Mass. Dept. of Public Works.

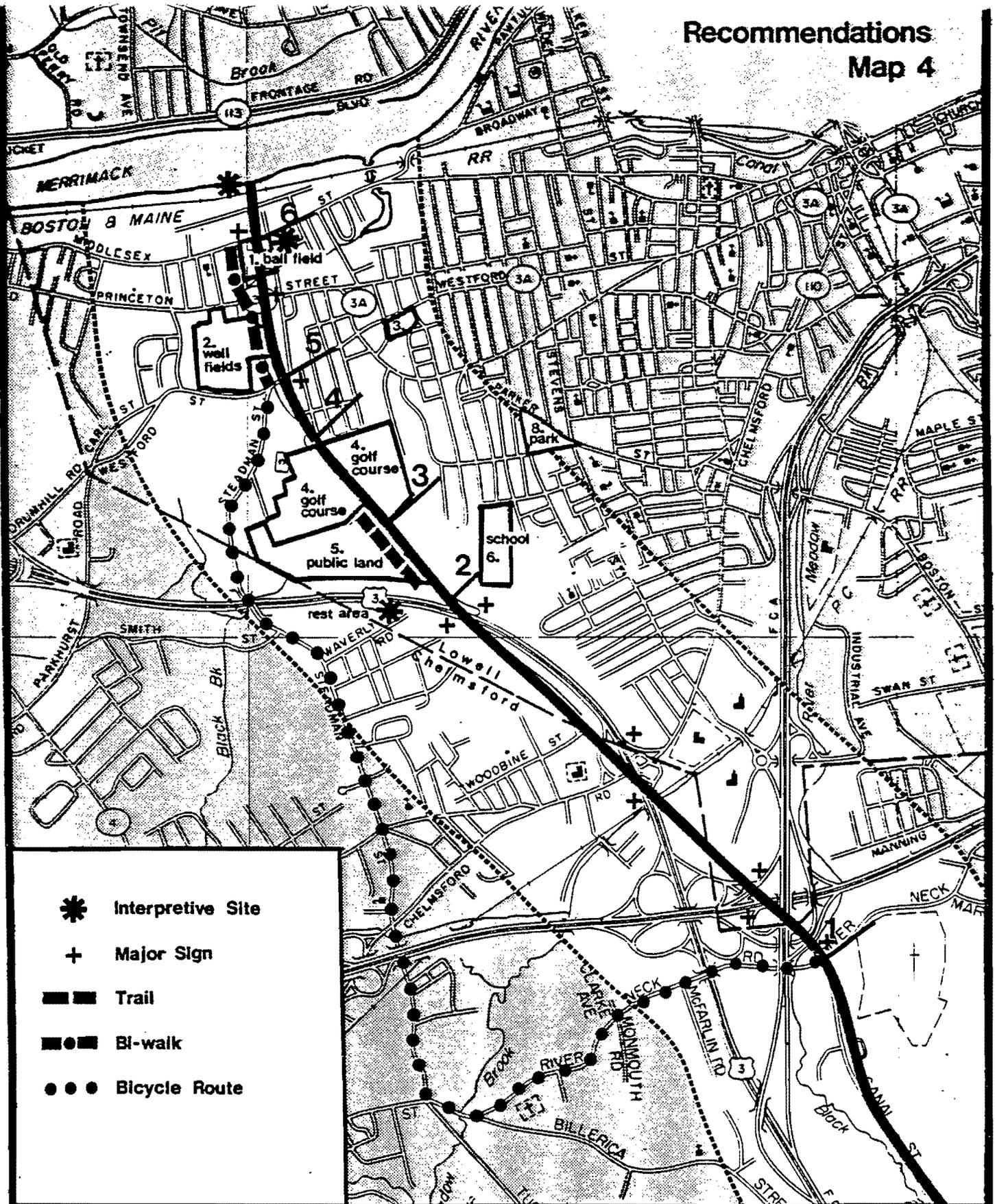
Prepared by:
Metropolitan Area Planning Council & Northern Middlesex Area Commission, 1980.

(-121-)





Recommendations Map 4



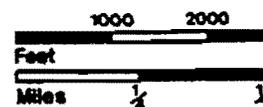
- * Interpretive Site
- + Major Sign
- ▬ Trail
- ▬●▬ BI-walk
- Bicycle Route

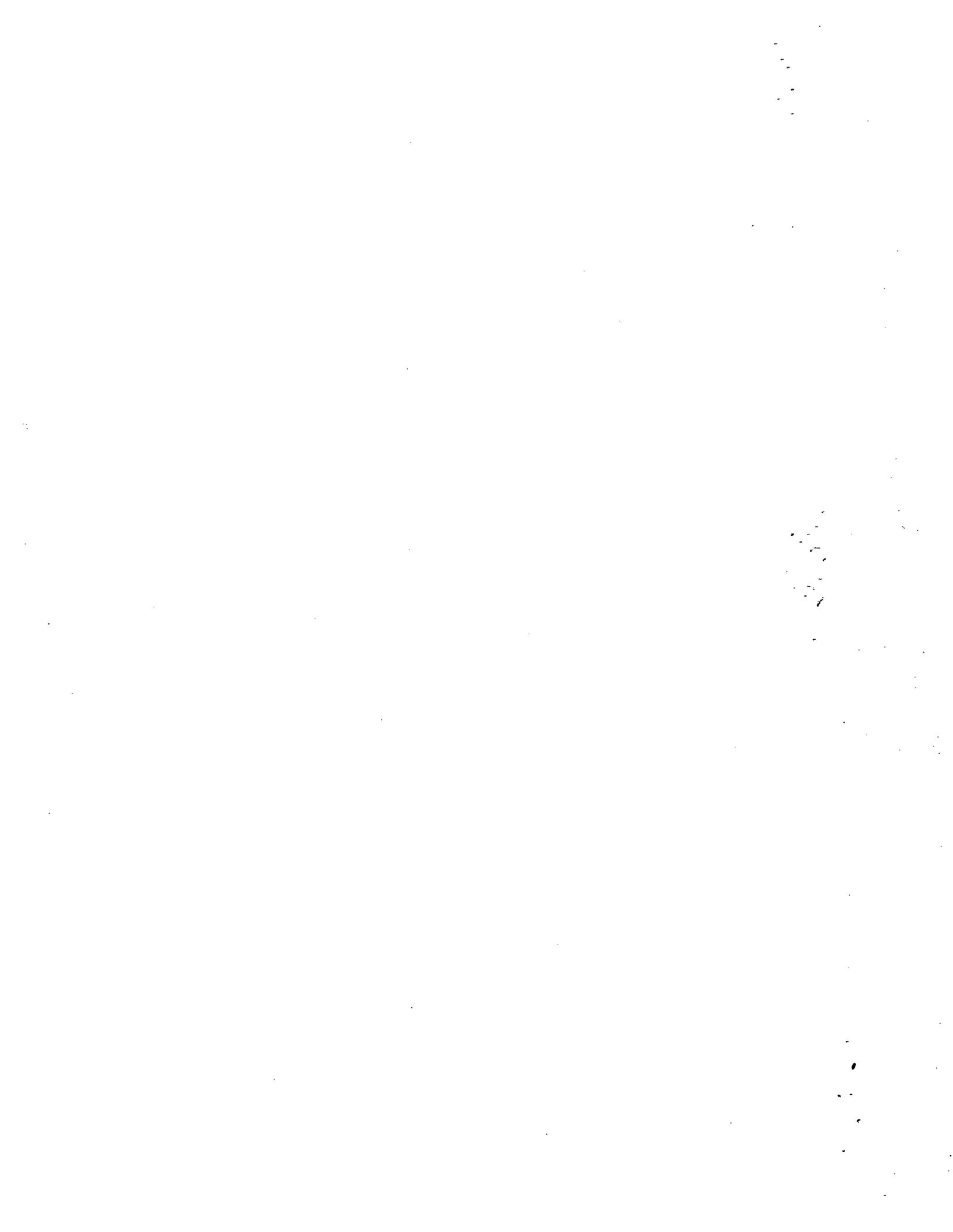
MIDDLESEX CANAL • LOWELL

Source: General Highway Map, Mass. Dept. of Public Works.

-122-

Prepared by:
Metropolitan Area Planning Council & Northern Middlesex Area Commission, 1980.





Segment-LOW-2. North side Route 3 to Mt. Pleasant Golf Course

This short Canal segment is visible from the Daley School field and is watered. The trench should be stabilized and a pedestrian connection secured between the Canal and the school field. Restoration of the Canal area could be carried out by the Junior High School students at the Daley School.

Segment-LOW-3. Mt. Pleasant Golf Course

The Canal is visible in part as it traverses this private golf course. It is not suitable for development as a public way, but should be signed for the benefit of those using the course and to preserve the continuity of the old Canal route.

Segment-LOW-4. Mt. Pleasant Golf Course to Westford Street

The Canal here passes very close to private houses and is not suitable for further development. In the future, when the sanitary landfill area reaches its designed capacity, it could be used for recreation and for Canal related exhibits.

Segment-LOW-5. Westford Street to Middlesex Street

This segment runs through two public properties: the well field land and Hadley Field. A bi-walk could run from Westford Street along the Canal through the well field land. It could continue tracing the Canal route to Hadley Field along easements, or it could follow Hadley Street to Middlesex Street. The field is laid out in ball fields thus precluding reconstruction of the Canal trench and the Black Brook aqueduct. Signs should be located so as not to interfere with ball playing. A small interpretive center could be established at the Middlesex Street end of the field.

Segment-LOW-6. Middlesex Street to the Merrimack River

The Canal is obscured here. Any interpretive activity should be carried out in conjunction with recreational development of the river bank. It is an important Canal location. Searching for the buried remains of the flight of locks has been considered from time to time. It is strongly recommended that this search be carried out and that any lock remains be excavated and restored as an outdoor exhibit. Such an exhibit would dovetail nicely with the interpretation of other locks in Lowell. At present, only signs are recommended. A special sign explaining the connection between the Merrimack and the Canal should be prominently located.

INVENTORY OF HISTORICAL BUILDINGS AND SITES IN THE MIDDLESEX CANAL
CORRIDOR

- A. Bowers House. 1667. 150 Wood Street.

Believed to be the oldest house in Lowell.

- B. Jacob Howard House. Georgian. 1893 Middlesex Street.

One of the oldest in Middlesex Village. Jacob Howard was the innkeeper of the Middlesex Tavern.

- C. School House. 1794-1800. Hadley Street.

Believed to be the oldest schoolhouse in Lowell. It is presently used as a private residence.

- D. Chelmsford Glass Works' Long House. c. 1802. Baldwin Street.

The Chelmsford Glass Works was contemporary with the canal, depending on it for transport of raw materials and finished goods. Adjacent to the glass factory were tenement houses for employees. While two of the three structures no longer exist, the remaining Long House is presently a three-family structure. One of the units is occupied by the owner who is aware of its historical significance. Located adjacent to Hadley Field on Baldwin Street, the Long House was placed on the National Register of Historic Places in March of 1973, as the sole survivor of the earliest American industrial housing development.

- E. Nathan Tyler House. c. 1810. Federal. 1613 Middlesex Street.

Located at the village center, this house was at one time built by Captain John Tyler's son. It is now a real estate office.

- F. Charles Bent House. 1815. Federal. 112 Baldwin Street

The home of the proprietor of the Village Hat Factory.

LOWELL

INVENTORY OF HISTORICAL BUILDINGS AND SITES IN THE MIDDLESEX CANAL
CORRIDOR (Continued)

G. Eben Adams House. c. 1815. 68 Baldwin Street.

H. Remme House. 1820. 447 Princeton Boulevard.

I. Hadley House. 1822. 1700 Middlesex Street

The Hadley House is a classic example of the Provincial Federal style and is in excellent condition. It was the residence of Judge Hadley, prominent Lowellian whose father was the lock tender for the Middlesex Canal.

J. Jessie Smith House. 1822. 1553-1555 Middlesex Street

K. "Ten Footers". c.1820. 391-407 Princeton Boulevard

These are two examples of the 10-foot modular houses that were built for workers of the Chelmsford Glass Works.

L. Samuel Burbank House. c.1850. Greek Revival. Middlesex Street

M. Josiah Whitney House. c.1800. Middlesex Street

Home of one of the earlier settlers of Middlesex Village.

PUBLIC AND SEMI-PUBLIC LAND IN THE MIDDLESEX CANAL CORRIDOR

1. Hadley Field. Middlesex and Pratt Streets. 7.5A
A 7.5 acre neighborhood park. Facilities include a baseball diamond, 2 tennis courts, 1 basketball court and open fields.
2. Black Brook Well Fields. Off Princeton Boulevard & Wood Street. 46.65A
Possibility of being partially developed as a recreation/conservation area.
3. Tyler Park. Westford Street and Gertrude Avenue. Approximately 1.5A
Neighborhood open space.
4. Mt. Pleasant Golf Course. Clarendon Avenue
Nine hole private golf course.
5. Land Owned by City of Lowell. Off Route 3.
Undeveloped.
6. Daley School Field. Fleming Street. 12A
2 ballfields, 3 tennis courts, basketball, volleyball and playfield.
7. Middlesex Village School. Middlesex Street
No open space.
8. Callery Park. Parker Street. 5.5A
2 Little League diamonds, 3 tennis courts, tot lot.

IMPLEMENTATION STRATEGIES

The legal, financial, and institutional approaches for implementing the recommendations contained in this study are as important as the recommendations themselves. This is particularly true in light of the multijurisdictional nature of the 27-mile Canal which traverses nine cities and towns, two regional planning agencies, and various state agencies.

It is felt that any new institution created to implement these recommendations would further complicate issues. Instead, NMAC and MAPC recommend that the existing governmental framework be utilized for implementation.

The major governmental bodies are: local government, the Middlesex Canal Commission, and state agencies, the Metropolitan District Commission, the Massachusetts Department of Public Works, the Department of Environmental Management, and the Massachusetts Historical Commission. A discussion of each and their proposed roles will illustrate their specific function.

Local Government

The nine cities and towns along the route of the Middlesex Canal possess the greatest potential for implementing many of the report recommendations. Local communities are vested with the police power of zoning and are empowered to regulate development in the interest of the public safety, health, and welfare. Since cultural, historical, recreation, and conservation values are legitimate concerns when evaluating development, communities should adopt legislation for special review of proposed development on or near the Canal route. This review would facilitate possible alternate designs to protect the Canal or to realize opportunities for detailed archaeological investigation of a specific site for Canal remnants. Local governments are also major land owners along the Canal route and are empowered to acquire land for the public interest. Local governments are in a position as property owners to develop recreation and interpretive sites along the Canal route. For those portions of the Canal route where the Canal condition, the presence of extant features, or the presence of Canal-related structures warrant special attention and protection, local historic districts may be created. Such districting will require the full cooperation of the property owners, the historic commission, and the planning board.

Local boards and departments who are logical participants in the above described actions are planning boards, conservation commissions, historic commissions, parks and recreation commissions, and public works departments.

Middlesex Canal Commission

Comprised of representatives from communities, regional planning agencies, state agencies, and state legislators, the Middlesex Canal Commission is ideally suited for serving as a coordinator and clearinghouse for canal-related endeavors.

Currently, the Commission, through its membership, serves as an unofficial monitoring agency for development and is sometimes able to effectuate design modifications to preserve the canal. This role could be enhanced through a memo of understanding between local building officials and the Canal Commission. Such a memo would require building officials to notify the Commission of proposed development on the Canal route. The delineation of the canal route on assessor maps prepared by Industrial Archaeology Associates, under this contract, should be distributed and serve as the basis for such determination. Such a process would greatly assist the monitoring efforts of the Canal Commission.

Final design and implementation of the recommendations proposed in this report should be reviewed and approved by the Canal Commission for consistency and to insure a perspective of regionality for the development of the Canal.

At present, the review of environmental documentation and funding applications for projects is performed by the regional planning agencies and the Massachusetts Historic Commission. These agencies should adopt and continue administrative policies to provide the Canal Commission an opportunity to comment as part of the agencies review for those projects occurring within 50 feet of the Canal route.

Regional Planning Agencies

The Canal route is located in areas served by two regional planning agencies--The Northern Middlesex Area Commission (NMAC) and Metropolitan Area Planning Council (MAPC). As regional planning agencies, they are clearinghouses for reviewing federal applications.

The review of federal funding applications is one way to assist in the stabilization of the Middlesex Canal. In reviewing federal funding applications, the regional planning agencies are charged with evaluating the consistency of the application with regionally adopted plans. Both MAPC and NMAC have language in their recreation and open space plans recognizing the Canal as a resource of regional recreation significance. Therefore, MAPC and NMAC are able to respond to federally funded projects which may impact the Canal.

In addition, MAPC and NMAC are chartered through their enabling legislation to provide planning assistance for projects which are regional in nature. These agencies can provide assistance to communities and the Commission undertaking preservation work related to the Canal.

Metropolitan District Commission

The Metropolitan District Commission (MDC), a special purpose commission which provides sewerage, water, highways, and recreation for the Boston Metropolitan region, is a major property owner along the Canal route. Starting at the Charles River to the Mystic River, Foss Park in Somerville, and the Mystic Lakes in Winchester, the MDC's property holdings provide the greatest potential for linear recreation within Route 128. It is recommended that the MDC become a voting member of the Middlesex Canal Commission as well as become involved in implementing report recommendations. Sandy Beach in Winchester represents a prime opportunity. Already an existing recreation area, many of the proposals for Sandy Beach could be incorporated with on-going maintenance and replacement of facilities at little expense. The existing road and path system along the Mystic River and Lake can be upgraded through signage and painting of lanes to become a bikeway or bi-way. The inclusion of the Canal in these areas would only serve to enhance these existing recreation areas.

Massachusetts Department of Public Works

Charged with the planning and maintenance of the states highway system, the Massachusetts Department of Public Works (MDPW) should be involved in installing signage at every point where the canal route crosses. The MDPW should be receptive to this involvement since in the early 1970's, it was involved in restoring a 1,400-foot length of the Canal which was threatened by the relocation of Route 129 in Wilmington.

The MDPW also offers funding assistance for the development of bikeways through the MDPW Bikeway Bonding Issue. This program offers a 75 percent grant for bikeways. In some instances the department may at its discretion fund 100 percent of the cost for a regional bikeway. This program should be included in the development of the bikeways proposed in this report.

Department of Environmental Management

Through its Urban Heritage Park Program, the Department of Environmental Management should take an active role in the development of the proposed Heritage State Park at Talbot Mill in Billerica.

Massachusetts Historical Commission

The Massachusetts Historical Commission should continue its involvement with the Meddlesex Canal. The Commission will assist in the formulation of historic districts along the Canal route. If any modification of the Canal's National Register of Historic Places Designation is undertaken, the Commission will be an active participant. Additionally, the Commission represents a valuable resource for assistance in planning and implementing historic preservation and reuse projects.

FUNDING SOURCES

Funding sources for the implementation of the report recommendations are as varied as the governmental participants. Possible funding sources and the types of projects they may fund are described below.

Local Funds

Increasing local expenses render local funding as a highly improbable source of funding for any major canal-related project. However, some canal improvements can be made under the auspices of ongoing local expenditures such as maintenance, capital improvements, and park improvements, and are viable approaches for local implementation. Another consideration is the use of local monies to leverage matching funds from other public funding sources.

Massachusetts Department of Public Works

As previously mentioned, the MDPW offers funding assistance for bikeways under its Bikeway Bond Issue Program.

Metropolitan District Commission

Being a property owner on portions of the Canal route, the MDC represents a possible in-kind source of funds for implementing some of the recommendations proposed. Through its ongoing maintenance and replacement of facilities, thematic recreation apparatus could be installed over time. Ongoing maintenance could be used to perform landscaping and the installation of benches over the former route of the Canal. The MDC could also install signs along its roadways and paths which are recommended for bikeways. Much of this can be accomplished with minimal costs since labor to perform these tasks already exists within the MDC workforce. Any substantive costs required could be made part of special budget request by the MDC to the state legislature.

Department of Environmental Management (DEM)

The Department of Environmental Management, through its Heritage State Park Program, assists the development of interpretive sites in conjunction with urban or center revitalization. The recommendations for the Talbort Mills area of Billerica represents an ideal opportunity for a Heritage State Park.

The Department of Environmental Management's Division of Conservation Services administers the Massachusetts Self Help Grant Program which will provide a community with the local match for the U.S. Department of Interiors Heritage Conservation and Recreation Services (HCRS), Land and Water Conservation Grant Program (which will be further discussed). In order to become eligible for funding for Self Help or HCRS funding, a community must submit a five year Recreation/Conservation Plan to the Division of Conservation Services for approval.

The Urban Park and Recreation Recovery Program offers grants ranging from 50 to 70 percent of a project's cost through three programs.

1) Recovery Action Program Grants will provide 50 percent funding for projects which are part of an overall program to improve the local recreation system. 2) Innovative Grants will provide up to 70 percent of the costs for projects which "demonstrate cost-effective ways of translating physical recreation resources, such as land and buildings into actual recreation opportunities." 3) Rehabilitation Grants will cover 70 percent of the costs for projects which rebuild, remodel, expand, or develop indoor and outdoor recreation opportunities.

In order to qualify, communities must meet urban and distress criteria and prepare a five-year Action Program. Eligible communities on the Middlesex Canal route are Boston, Somerville, Medford, Lowell, and Middlesex County (which qualifies as an urban county). This program is administered directly by the Heritage Conservation and Recreation Services in Washington.

U.S. Department of Housing and Urban Development (HUD)

Historic preservation and recreation acquisition and development are eligible activities under the HUD Community Development Block Grant (CDBG) Entitlement and Small Cities programs. It is important that the objectives of programs be kept in mind, to benefit low and moderate income persons. Four cities along the canal route (Boston, Somerville, Medford, and Lowell) annually receive CDBG funds under the entitlement program. The others are eligible, however, to apply for Small Cities funding. CDBG funds are eligible for serving as the local match or share for other federal funds, such as HCRS. Therefore, whenever possible, it is recommended that these funds be piggybacked.

Federal Highway Administration (FHWA)

The Federal Highway Administration offers funding assistance for the construction of bikeways under the Federal-Aid Highway Program. This program will fund bikeways as part of highway construction projects or to eliminate bicycle traffic from existing major highways.

Private Funding Sources

Private funding sources have been used to preserve the Middlesex Canal's heritage in the past. H.P. Hood and Sons sponsored the publication of a Guide to the Middlesex Canal for the Middlesex Canal Association.

U.S. Department of Interior Heritage Conservation Recreation Service (HCRS)

The Department of Interior's Heritage Conservation Recreation Service offers a variety of funding programs for historic preservation and recreation, and conservation acquisition and development.

The Historic Preservation Grants-in-Aid program is administered by the Massachusetts Historical Commission and provides up to 50 percent the costs for surveys, planning, acquisition, and development.

The Land and Water Conservation Fund also provides up to 50 percent the costs for planning, acquisition, and development of recreation and conservation areas. These funds are administered by the Department of Environmental Management's Division of Conservation Services.

Private firms and companies along the canal route should be viewed as possible benefactors. For example, if a company is developing new facilities along the Canal route, it may only be too eager to assist in development of an interpretive site. Such actions by the private sector are good public relations.

OTHER RESOURCES

In conclusion, one additional resource should not be overlooked in the implementation of the report recommendations. This resource is the men and women of the Middlesex Canal Commission and Middlesex Canal Association. For over 15 years, these individuals have represented the backbone of all efforts aimed at preserving and enhancing the canal. While the canal has become an area of interest among a number of agencies, it is one of many areas of interest. However, the Middlesex Canal is and will remain the single item of concern for the Canal Commission and Association. It is through this single purposeness that the Commission and Association carry the ultimate responsibility of promoting and safeguarding the canal.

BIBLIOGRAPHY

Canal Histories

Clarke, Mary Stetson. The Old Middlesex Canal.
Melrose, Mass.: The Hilltop, Press, 1974.

Hazen, The Rev. Henry A. History of Billerica.
Boston, Mass.: A. Williams & Co., 1883.

Canal Reports

Industrial Archeology Associates. Survey Report. Nov. 1979.

NMAC. Inventory of Historical, Open Space and Recreational Assets of the Northern Middlesex Portion of the Middlesex Canal. October, 1977.

Regional Plans

Commonwealth of Massachusetts and Department of Army Corps of Engineers. Merrimack Wastewater Management - Key to a Clean River. November 1974.

Johnson, George B. NMAC Open Space and Recreation Plan.
September, 1970.

The 1976 Regional Open Space Plan, MAPC July 1976

Town Plans

Billerica Open Space Plan. Billerica Conservation Commission. 1978.

Chelmsford Open Space Plan. Chelmsford Conservation Commission. 1975
Updated yearly.

Comprehensive General Plan, Charles W. Eliot, Wilmington Planning Board, May 1970

An Inventory of Historical and Architectural Assets in Medford, MA.,
John Hergan and Brian R. Pfeiffer, Medford Office of Community Development, September 1974

Natural Resources Technical Team of Middlesex County. Natural Resources Study of the Town of Billerica. Middlesex Conservation District. April, 1969.

Open Space and Recreation Study. Prepared by: City Development Authority. Lowell, Mass., 1975.

Open Space Plan, City of Somerville, December 1978

