CHARLES RIVER PATHWAY PLAN

COVER: Artist's view of the Charles River c. 1900

TELEPHONE
244-4700

City of Newton, Massachusetts
Founded 1630 *Incorporated a City 1873*
City Hall
1000 Commonwealth Avenue, Newton Centre 02159

NEWTON CONSERVATION COMMISSION

August 29, 1975

Mayor Theodore D. Mann
City Hall
Newton, Massachusetts

Dear Mayor Mann:

We, the Chairman of the Newton Conservation Commission and the City of Newton Planning Director, submit herewith the "CHARLES RIVER PATHWAY PLAN" as prepared by Planning Consultant, William D. Giezentanner.

We are most grateful to you and James M. Salter, Chief Administrative Officer, for the interest you have shown in the project's funding, and we value your assistance with the plan's presentation to Newton residents.

We are indebted to the following agencies and groups for their contributions to and interest in the completed planning study: the Ford Foundation, the Newton Planning Department staff, members of the Conservation Commission, the Metropolitan District Commission, Aldermanic City Planning Committee, the Aldermanic Finance Committee and the entire membership of the Board of Aldermen; Charles River Watershed Association, Inc., Newton Conservators, Inc., Newton Historic District Study Committee, Newton Upper Falls Improvement Association, American Legion Nonantum Post 440, Chestnut Hill Garden Club, Woman's Club of Newton Highlands, Upper Falls Senior Citizens Group; the News-Tribune, Newton Graphic, Newton Times, Newton Villager and Transcript.

We believe that with the substantial citizen interest and participation in this planning venture, in terms of both time and money, the forecast is excellent that the CHARLES RIVER PATHWAY PLAN RECOMMENDATIONS will be accomplished.

Respectfully submitted,

Dennis L. Ditelberg
Chairman, Conservation Commission

Charles J. Thomas
Planning Director

dld:cjt:g
attachment

CHARLES RIVER PATHWAY PLAN

Prepared for:
NEWTON CONSERVATION COMMISSION
By
William D. Giezentanner
with a
Grant from the Ford Foundation

July 1975

The studies for this project were carried out under the general supervision of the Newton Conservation Commission and the Newton Planning Department and were financed by a grant from the Ford Foundation matched with an appropriation by the City of Newton Board of Aldermen.

TABLE OF CONTENTS

[Note: page numbers are not identical to those in original printed report due to format differences]

[Note: page numbers are not identical to those in original printed report due to format differences]

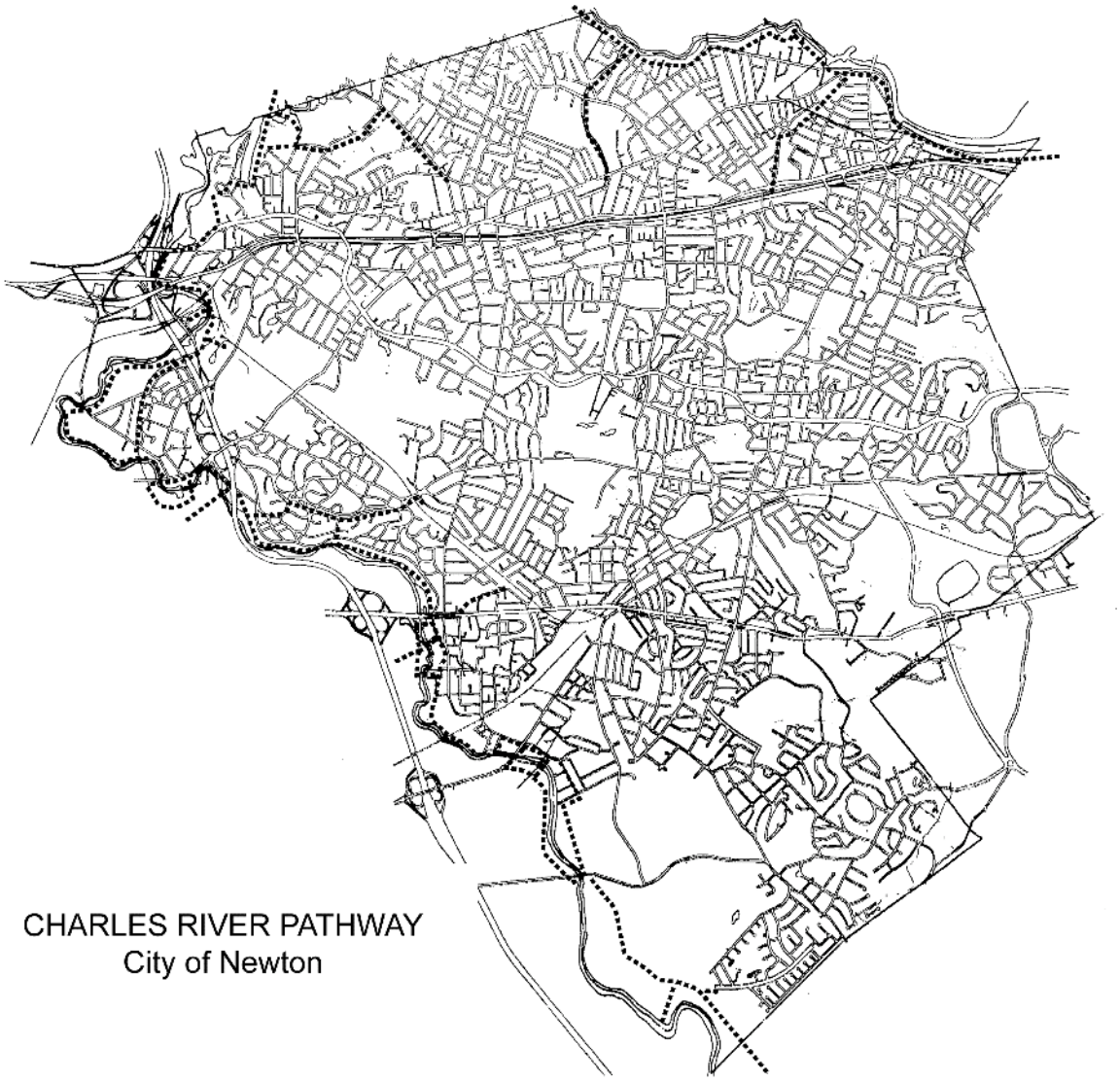
LIST OF ILLUSTRATIONS

PHOTOGRAPHIC CREDITS

4 William D. Giezentanner
6 Metropolitan Area Planning Council
8 William D. Giezentanner
20,21 Whitehill. Boston: A Topographical History
22 William D. Giezentanner
26 Massachusetts Audubon Society, Bruce Lund
30 Massachusetts Audubon Society, Bruce Lund
33 Massachusetts Audubon Society, Bruce Lund
35 Metropolitan Area Planning Council
50 The Boston Manufacturing Company, Waltham c 1820-1830. From the Old Sturbridge Village Collection, on long-term loan from the Lowell Historical Society

(some photographs unavailable for this document)

Note: page numbers are not identical to those in original printed report due to format differences



CHARLES RIVER PATHWAY
City of Newton

INTRODUCTION

In 1969 a comprehensive Recreation/Open Space Plan by the Newton Planning Department called for development of a Charles River Pathway. But the idea of an open space preserve along the banks of the Charles River has a much longer history. In fact, much of the current public ownership along the River is due to farsighted open space conservation proposals made during the last decade of the nineteenth century.

By the turn of the century, Newton and other communities along the Charles River had changed from rural villages to suburban extensions of Boston. Our fathers and grandfathers envisioned the future transformation of the farms and open lands along the banks of the River into houselots. Many felt that there could come a time when their children and grandchildren would not be able to walk the banks of the River as they had done in quest of sport and enjoyment of nature.

In 1892 the Metropolitan Park Commission [1] hired Charles W. Eliot, a wellknown Boston landscape architect, to prepare A Report Upon the Opportunities for Public Open Space in the Metropolitan District of Boston. This report recommended a metropolitan park system consisting of the banks of the Charles, Neponset and Mystic Rivers, the Blue Hills, the Middlesex Fells, and Lynn, Nahant, Winthrop, Quincy, and Nantasket beaches. The natural river patterns provided a system of interconnected open spaces, accessible to even the most densely populated areas. During the decade after the publication of the report in 1893, eighty percent of the current metropolitan park system was set aside as permanent public open space.

While most of the land was acquired by public purchase, some was given by public spirited citizens who saw the proposed open space system as a most enduring and meaningful gift to their descendents. Nowhere is the success of this open space movement more in evidence than along the banks of the Charles River in Newton.

PURPOSE

The Conservation Commission became the agent to implement Newton's 1969 proposal for a Charles River Pathway. The Commission and the Planning Department sought planning funds from the Ford Foundation to explore the feasibility of the

[1] Metropolitan Park Commission is currently part of the Metropolitan District Commission (M.D.C.)

pathway and to propose a route for it. In December of 1972, the Ford Foundation notified the Newton Conservation Commission of its funding award. The $5,000 from the Ford Foundation was matched with a $4,250 appropriation by the City of Newton Board of Aldermen.

The 1969 proposal had inventoried ownership along the River and presented an acquisition program for implementing the pathway. It had not produced detailed maps identifying significant man-made and natural features which would influence the choice of route and the use of the pathway.

The purpose of the present report is to review the 1969 proposals and to prepare such maps. The proposals for the location of the pathway have been developed and reviewed at public meetings and on walks along the River. The recommended route included in this report synthesizes a variety of viewpoints. An estimate of costs and an implementation schedule has also been prepared.

GOAL

The conservation Commission's primary goal is to explore the desirability and feasibility of developing a footpath along the bank of the Charles River in Newton. Such a pathway would be developed in conjunction with similar projects by neighboring communities and is based on earlier recommendations made by a variety of state, regional, and City groups, both public and private. The objectives which follow from the above goal are:

- To have a continuous footpath along the Charles River.
- To conserve the banks of the Charles in as natural a setting as possible.
- To add to outdoor recreational and educational opportunities available to the City.

SUMMARY OF IMPORTANT FINDINGS

It is possible to have a continuous footpath along the Charles River, mostly in Newton. In fact, such a pathway exists and is in current use along 11.5 miles of the 13.4 miles of the proposed route.

For the most part, private property owners and public agencies have conserved the banks of the Charles in Newton. The gaps in public ownership occur in Newton Highlands, Upper Falls, Lower Falls, Auburndale, and Newtonville.

The River is perhaps the most important natural recreational and educational resource in the City. Since the l600s the Charles has been the center of industry and recreation for the citizens of the area. Since the turn of the century the results of the River's mistreatment and neglect of the River and its tributaries have become more apparent. Today the River is still a resource rich in history, natural habitats, and visual appeal.

NEWTON CHARLES RIVER PATHWAY HISTORY AND PRESENT CONDITIONS

NATURAL HISTORY OF THE CHARLES RIVER

The New England landscape owes much of its appearance to two geological factors - the underlying bedrock and the action of a series of ice ages.

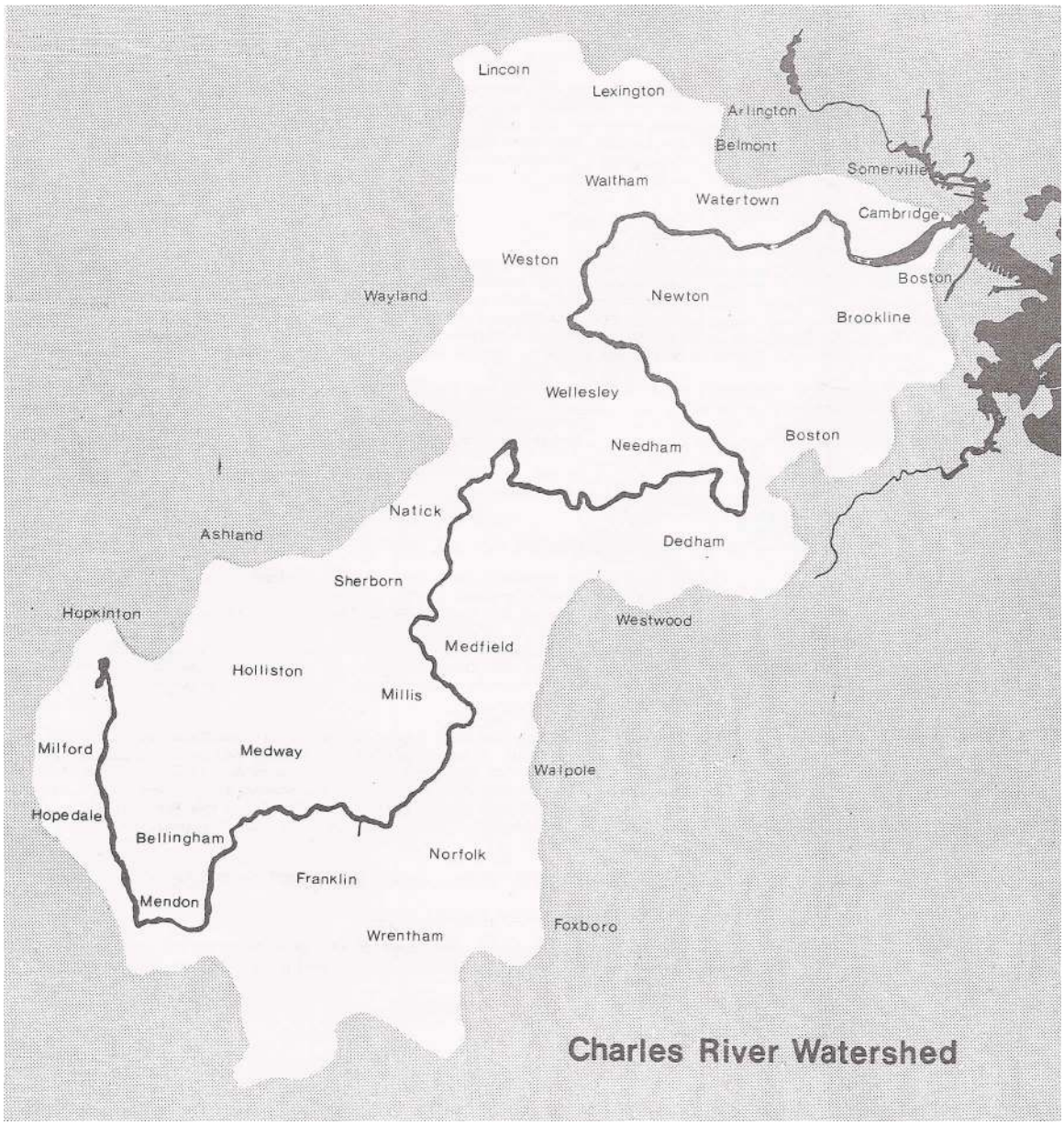
A solid layer of bedrock forms the crust of the earth. Geologists estimate that in the Boston area this bedrock foundation stabilized after a series of violent disruptions more than 300 million years ago. These disruptions resulted in the formation of mountains, depressions, and huge fractures in the earth's crust. One such fracture, or fault, forms the Boston Basin, a lowland plain surrounded by a ridge of bedrock. The Charles River flows into this Basin which has been modified by millions of years of erosion.

More than 14,000 years ago, Massachusetts lay buried beneath thick glacial ice. As the ice sheet melted from the Boston area about 14,000 years ago, it left behind many of the elements that presently constitute the New England landscape, including drumlins, eskers, glacial boulders and moraines. Water moving to the sea is another force contributing to the form of the landscape. While this physical agent is less dramatic than ice ages or disruptions of the earth's crust, it is a major sculptor of the surface features of our environment.

The Charles River has its source at a spring on Honey Hill near Echo Lake in Hopkinton. It flows through some 80 miles of meanders and narrow cuts to its mouth in Boston Harbor. The River changed its course as a result of several periods of glaciation. Each change has left its mark on the landscape. There is evidence of a possible former course which ran more to the west of Newton in the area of Upper Falls.

One of the most interesting geological features on the Charles River in Newton is Hemlock Gorge at Upper Falls. It is an example of a young valley, or "v-shaped" gorge. The River has cut through a strata of bedrock called "Roxbury Conglomerate" or

"puddingstone", The downcutting by the River has left a natural cave in the stone just east of New Pond in Wellesley.



WILDLIFE AND VEGETATION

The variety of vegetation types found in the water, wetlands, forests, and open areas along the River provide habitat for a wide variety of birds, mammals, reptiles, amphibians, insects, and fish.

Birds are perhaps the most visible form of wildlife to the casual observer along the River. Songbirds and waterfowl are

abundant. Songbirds are found in both wetland and upland habitats while resident and migratory ducks and geese are more common in the wetlands and on the open water.

OPEN WATER

DEEP MARSH

MEADOWS

OPEN LAND

WOODED SWAMP

CONIFEROUS WOODS

HARDWOODS

Open water provides loafing and feeding areas for flocks of northern dabbling and diving ducks and geese during the spring and fall migration periods. Water lilies and submerged plants provide some food for waterfowl and muskrats. Fish such as bluegills, pickerel, large mouth bass, carp, yellow perch, and alewives are found in the River.

Deep marsh is often considered the most valuable waterfowl habitat. It provides cover for mating, nesting, and brood-rearing during the breeding season and for resting and feeding during migration. Species of wading birds, including herons and egrets, depend upon the deep marsh habitat and are seen primarily in the more remote deep marshes along the River.

Meadows along the River are covered with grasses, rushes, and sedges. These areas provide food for migratory shore birds, herons, rails, redwinged blackbirds and song sparrows. Pheasants, cottontail rabbits and muskrats find both food and cover in these areas.

Wooded swamps are valuable habitats for a great diversity of wildlife. Wood ducks, ruffed grouse, raccoons, squirrels, cottontail rabbits, warblers, flycatchers, woodpeckers, vireos, hawks, owls, grosbeaks, and thrushes may all be found breeding and feeding in wooded swamps along the Charles.

Hardwood forests are populated with a wide variety of wildlife including opossum, foxes, skunks, raccoons, grouse, cottontail rabbits, squirrels, woodchucks, chipmunks, songbirds, and a diverse array of reptiles and amphibians.

Coniferous forests provide rich habitat for most of the same species found in hardwood forests. In addition, woodcock, grouse, and doves seek cover in the EVErgreens during months when other trees are leafless. Mixed brush of young hardwoods and coniferous trees provide food and cover for most, if not all, of these wildlife species.

Open land, particularly fields which are mowed only once or twice a year, provide important food sources for pheasants, rabbits, woodchucks, songbirds, amphibians, reptiles, and butterflies.

The summary of habitat types and common wildlife species associated with each type provide evidence of the variety and richness of natural experience available to the riverside explorer. Throughout the field work for this project many species of birds, mammals, reptiles and amphibians were seen,

Such encounters contribute greatly to the value of the River pathway.

CULTURAL HISTORY

The Charles River and its natural resources have played a continuously important role in the region's history. Before the coming of the first settlers, a variety of Indian bands, whose lives centered around fishing, hunting small animals, and cultivating some crops, used the River as a highway for their seasonal comings and goings.

Archeological studies indicate that the Indians established camps at a variety of points along the River. The most important camp locations were at the upstream limit of the tidal flow. Before the construction of the Charles River Dam in 1903, the estuary reached upstream to just below Watertown Square. Here, near the junction of the Charles River and Hyde Brook (formerly Lemon Brook and presently culverted under Nonantum Road) camps were established on both sides of the River. Nonantum, the Indian name for the campsite on the Newton bank, means "the place of our gladness".

The Indians took advantage of the abundant finfish and shellfish found in the rich estuarine habitat. The known prehistoric campsites were all located on relatively high ground near the mouth of a tributary brook. These sites include:

1. The deeply buried Boylston Street Fishweir in Boston
2. Magazine Beach (known as Captain's Island in Colonial times)
3. Longfellow Park in Cambridge
4. Simon's Hill (present site of Mount Auburn Hospital)
5. Watertown Arsenal
6. Perkins School for the Blind
7. Newton Yacht Club

One of the primary reasons for these campsite locations was fishing. The most common method of harvest appears to have been the operation of fishweirs. The weirs consisted of sharpened stakes driven into the River bottom with branches horizontally piled between the stakes to form wattling. The weirs were submerged at high tides and would strand fish in the shallows at low tides. Many of these weirs have been dated and were in operation as long as 4,500 years ago.

Anadromous fish,*[2] alewives, atlantic salmon, and shad were known to have spawned in the River during that period. Cod also followed the alewives upriver; eels hid in the marshes, and clams and mussels were plentiful on the rocky or muddy shores. The anadromous fish schooled in great numbers as they came in from the sea during May and June and circled for hours as they became accustomed to the new environment of the River mouth before they began their upstream pilgrimage. Thus this method of fishing could be counted on for a plentiful food supply.

Perhaps one of the most interesting tales of the early European exploration of the Charles River credits Leif Erikson and a band of Norsemen with establishing a settlement near Watertown Square. According to this widely disputed theory, the Norse conducted a lively trade and built a village during the eleventh century. The word "Norumbega", which was the name for the village, is an Indian corruption of "Norway" - according to this theory. The Tower on the Charles in Weston, on the supposed site of a fortified outpost of Norumbega, commemorates the legend of the Norsemen.

Scholars generally credit the French explorer, Samuel de Champlain, with the River's discovery. However, it was Captain John Smith who named the River in 1614 for Prince Charles, son of King James I of England. For the early Newton settlers the River provided food and power. Like the Indians, the settlers built and operated fishweirs. Records indicate that weirs were built near Watertown Square as early as 1632 and were rented every year to the highest bidder. As many as 100,000 fish (mostly shad and alewives) were caught in a single day in 1633. Such heavy fishing stopped the upstream migration of fish, resulting in complaints from upstream towns and ultimately contributing to the decline of the fish populations.

However, fishing remained an important economic activity at Watertown Square for 200 years, from 1633 to l835. In fact, protection of fishing rights was the reason for Watertown's claim to the "Wearlands" on the south side of the River.

The tidal portion of the River served as an important transportation route for the early settlers. Later, ships were built at Hunt's Wharf and Coolidge's Wharf below Watertown Dam. Agricultural products were floated down the River with the outgoing tide and goods imported to Boston were floated upstream with the incoming tide to be distributed in the inland settlements. Of course, the River was an obstacle to movement as

[2] Fish which ascend rivers from the sea at certain seasons for breeding

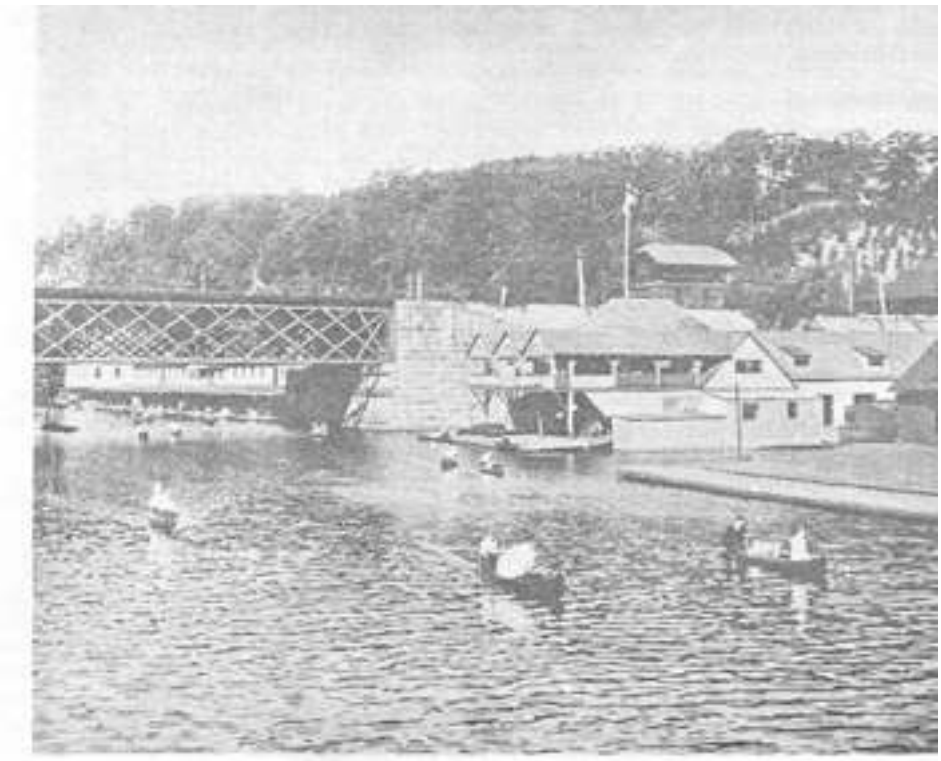
well and Colonial records mention river crossings including fords, ferrys, and bridges. Such crossings provided connections to mills which often became the centers of villages. Fishing and the grist mill at Watertown made this an important site on the River upstream from Boston and Cambridge during the earliest days of the Colony.

As trade and industry grew, the River became important as a source of power. Mill dams and ponds were constructed on many tributaries and on the main stem of the Charles. A grist mill was built on Hyde Brook as early as 1634 and by the early 1800s goods as varied as saw blades and chocolate were being produced along the River. Some of the industries on the Charles and its tributaries in Newton Were:

Hyde Brook	Grist Mill	cl631
	Brewery	cl747
Bemis Dam	Paper Mill	cl778
	Sailcloth	c1800
	Textiles (Aetna Mills)	c1860
Lower Falls	Ironworks	1704
	First Paper Mill	1790
Upper Falls	Saw Mill	1688
	Snuff Mill	c1778
	Silk Mill	1886
South Meadow Brook	Machine Shop	cl832

In more recent times the importance of the River for transportation, food, and power has declined. Other considerations have become paramount - in part due to the influence of landscape architects such as Charles W. Eliot and Frederick Law Olmsted. In the late 1800s and early 1900s the River became increasingly important as a resource for recreation. Canoeing, boating, swimming, walking, and fishing were river-related leisure pursuits which had large followings. In addition, at this time the Charles was recognized as a scenic resource that compared favorably with the famous rivers of Europe, as Oliver Wendell Holmes observed:

> "You need not go to the Rhine nor the Bay of Naples for scenery; you have it in perfection on the Charles River."



RIVERSIDE RECREATION AREA c. 1920

In his 1892 report, Eliot gave particular attention to the splendid naturaL resource offered by the Charles River. As a response to this report, the Metropolitan Park Commission began to acquire and develop land along the banks of the Charles River. Largely due to this effort we owe our present opportunity to complete the Charles River Pathway.

One indication of the public demand for river-related recreational facilities was the tremendous popularity of the Lakes District and the two parks, one private and one public, established there in the 1890s. Riverside and Norumbega Park were known far beyond Newton.

Further upstream the Metropolitan Park Commission Reservation had opened Hemlock Gorge in 1893. This park featured a superb natural setting and a variety of facilities including a merry-go-round, swings, bandstand, and a small dancing pavilion.

By the 1890s the question of the pollution of the River by sewage and industrial wastes began to receive attention. The Metropolitan Sewage Commission began planning the marginal conduits, but the problem of overflows and stormwater runoff remained. With increased urban development, the water quality of the River deteriorated and its recreational appeal waned.

As people ceased to be attracted to the River's edge, Riverside and Norumbega fell into disrepair and were eventually closed. The closing of Riverside occurred with the widening of Route 128 and the construction of the Massachusetts Turnpike. Norumbega Park closed in 1964 after part of it was rezoned for the Marriott Motor Hotel in 1963.

In the 1790s General William Hull had established a brewery at Nonantum and used water from springs of superior quality. In the middle 1800s one observer could write: "There are many waterways in Newton .... They could easily be converted into charming features of the municipal landscape." By the l890s, however, these waterways were being declared menaces to public health.

The causes of malaria were beginning to be understood and a period of draining ponds and culverting brooks began. However, flooding problems persisted. In 1902 the City Engineer reported that: "Each year brings new complaints ... because of the changes which take place in the natural watercourses." He listed two major causes: the rapid discharge of roof water and the grading of lawns to increase runoff; and the "owners of land are constantly grading up and encroaching upon the natural watercourses."

By today many of the potentially charming River tributaries in the City have been partially covered and some are entirely covered:

Hyde Brook	Covered
Laundry Brook	Partially Covered
Derby Brook	Covered
Cheese Cake Brook	Partially Covered
Cranberry Brook	Partially Covered
Brunnen Brook	Partially Covered
Runaway Brook	Partially Covered
Dresser Brook	Covered
South Meadow Brook	Partially Covered
Saw Mill Brook	Partially Covered

PRESENT CONDITIONS

The Charles River in Newton has several distinct sections: the Great Plain marshes above Kendrick Street bridge; Upper Falls; the Quinobequin Reservation; Lower Falls, Riverside; the Lakes District; and the lower portions from Moody Street Dam in Waltham to the Charles River basin. In the vicinity of the M. D. C. Cutler Park on the Great Plain, the valley broadens and

includes extensive floodplains and wetlands on both the Needham and Newton banks. This area, adjacent to Newton-at-128 Industrial Park, is one of the most diverse wildlife habitats on the River. It consists of deep marshes, shallow meadows, wooded marshes, and wooded uplands assuring a wide variety of plant and animal life.

The Newton Highlands and Upper Falls reaches of the River are more developed, especially on the Needham bank from Highland Avenue bridge to Central Avenue bridge. The bank in Newton is largely privately owned, but many of the parcels are undeveloped and are important for the continuity of the River pathway. The developed residential parcels are well cared for and enhance the River bank.

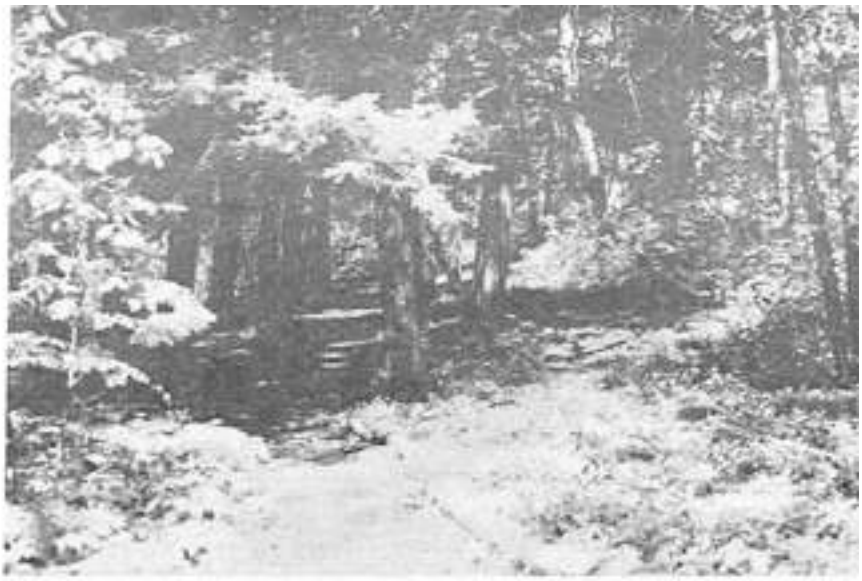
On the other hand, the limited number of industrial buildings on the bank at Christina, Needham, and Oak Streets detract from the River by the insensitive location of parking and storage areas. Newton Upper Falls is one of the City's most important historic and outdoor recreation resources. The Silk Mill Dam, Hemlock Gorge, Echo Bridge, and the Circular Dam form a unique setting romantically reminiscent of a small mill town in the 18705, a time when many of the works of man were more closely in balance with nature.

Quinobequin M. D. C. Park Road in Waban and Newton Lower Falls are examples of the benefits of proper river planning and use. A natural bank has been preserved along the one and one-half mile length of the M. D. C. Road. This area currently provides walking and bicycle paths and enhances the adjacent residential property along Quinobequin Road. Just above Newton Lower Falls the River parallels and passes under Route 128 with its attendant noise. Lower Falls provides an additional example of man's historic dependence upon the Charles River.

Cordingly Dam, the spectacular natural cascades, and a few historic mill buildings contribute to the unique visual appeal of Lower Falls. Easements (M. D. C.) and ownership at Lower Falls have protected the riverbank in both Newton and Wellesley from pressures for more intense development and preserved much of the vegetation and natural setting which contrasts with and enhances the historic buildings and their newer companions.

Below Lower Falls the River winds through the Leo J. Martin Memorial Golf Course (M. D. C.) on its way to Riverside. Here, adjacent to the Riverside Metropolitan Bay Transit Authority Terminal, the natural banks are steep and contrast dramatically with the nearby structures of the highways. Certainly, the

Turnpike interchange is a striking example of the environmental cost of insensitive highway planning. The River's natural setting has been sacrificed to a ribbon of concrete and steel. Passing under the Turnpike, the River flows on to Commonwealth Avenue (Route 30) bridge and the Lakes District.



EXISTING PATHWAY - QUINEBEQUIN ROAD

LITTER

CANOEING AT RIVERSIDE

AUBURNDALE PARK

The area of the Charles River known as the Lakes District is blessed with beauty. Wide expanses of slow-moving water narrow into picturesque coves dotted with wooded islands. Steep wooded banks enclose the open water and heighten the visual impact of this peaceful stretch of the River. This is the only area upstream of the Charles River Basin suitable for sailing. Overlooking part of the Lakes District is the remainder of

Norumbega Park. Twelve acres of the former Park are now occupied by a Marriott Motor Hotel. The future of the approximately 15-acre undeveloped portion is unsettled at this time. However, it does appear certain that the River edge and the steep wooded slope leading down to it will be preserved.

The downstream section of the Lakes District is in Waltham. For a stretch of approximately three miles the Charles is wholly contained in Newton's neighbor until the municipal boundaries again meet at the River near Farwell Street bridge. From Farwell Street to Watertown Dam the Charles flows between more intensively developed properties bordering the M. D. C. Reservation along much of the north bank in Watertown and most of the south bank in Newton. Industrial uses predominate, especially on the Waltham and Watertown sides.

Many natural features remain along the banks and enhance the appearance of the adjacent development. Perhaps the most attractive area is just upstream from Bridge Street. The partially wooded meadow which formerly held the water impounded by Bemis Dam now provides a rich wildlife habitat. The breached Dam and the old mills on each side of the River form one of the most historically interesting points along the Charles River.

WATER QUALITY

It is not the purpose of this project to do an extensive analysis of the quality of the water in the Charles River. However, a riverside Pathway Plan must consider the effect of water quality on the potential use of the trail and on the trail user. Water quality has significance for several activities, including fishing, swimming, canoeing, and the overall aesthetics of riverside use.

The quality of water is measured by a variety of indicators such as chemical and bacterial content, aquatic plants, temperature, color and turbidity. Federal and state agencies have set standards for these quality indicators and have established the following water quality designations:

Class A - Waters designated for use as public water supplies.

Class B - Suitable for swimming, water contact sports, and other recreational purposes. Needs appropriate treatment for use as public water supply. Excellent aesthetic value. Good fish and wildlife habitat.

Class C - Suitable for recreational boating; for food and sport fishing. May be acceptable for public water supply with appropriate treatment. Good aesthetic value.

Class D - Not suitable for fishing or water contact sports.

The classification for the Charles River in Newton is Class B from West Roxbury to Watertown Dam. From Watertown Dam to the Charles River Dam in Boston, the classification is C. The water in the Newton section of the River does not consistently reach the B goal.

To attain the Class B goal, pollution sources must be eliminated. Such sources are generally divided into two groups - point sources and nonpoint sources. Point sources have been inventoried by the Environmental Protection Agency and the Massachusetts Division of Water Pollution Control, the agencies responsible for programs of enforcement and abatement. While these programs have had significant results, much remains to be accomplished.

Nonpoint sources are even more difficult to control. Storm drains may spill accumulations of street litter, dirt, oils, salt, pesticides, fertilizers, and other pollutants into the River and its tributaries in time of heavy rainfall. Phased-out solid waste disposal facilities, located too close to the River in Newton and Waltham, have contributed to the Biological Oxygen Demand (BOD) load in Purgatory and Crams Coves. These Coves are relatively self-contained, with little outward circulation to the main stem of the Charles River.

Solution to the problem of nonpoint sources is much more complex than the elimination of point sources. Every activity which affects the movement of water and the above-mentioned pollutants needs careful attention. Street cleaning, parking lot drainage, the use of chemicals such as road salt, pesticides, and fertilizers are especially critical.

The outlook for improved water quality is positive, but such improvement will require continued efforts of enormous proportions from citizens and public agencies alike. With adequate funding and public support, it is generally thought that Class B water will predominate in the Newton section of the Charles River by sometime in the 1980s.

Sport fishing in the Charles is generally considered marginal, although the Massachusetts Division of Fisheries and Game

considers the River to be under-harvested, resulting in stunted fish because of extreme competition for food. While poor water quality has reduced the species available, a more important factor has been the elimination of anadromous species as a result of building of dams.

Currently, the Metropolitan District Commission is pursuing a program of fishway construction which will help the restoration of anadromous species. Much of the River in Newton is suitable for fishing. Bass, pumpkinseed, trout, carp, and hornpout are frequently caught. It is surprising to note that the biggest trout taken in the state during 1970 was hooked in the Charles by a boy in Needham. As quality improves, increased fishing may be expected - as may the increase in desirable species.

Swimming is presently prohibited in the Newton section of the Charles. Two major indicators of water quality prevent swimming - bacteria and color. Bacteria which may pose a threat to health are frequently found in this portion of the Charles.

In addition, the State Sanitary Code states that "... swimming shall not be permitted in water areas when ... a black disk, six inches in diameter, on a white field placed at a depth of at least four feet of water is not readily visible from the surface..." In tests conducted in 1970 such a disk became invisible at depths that ranges from 1.25 to 2.00 feet. Rivers such as the Charles that drain through extensive marshes are noted for their natural brown, "tea-like" color. However, part of the color intensity in the Newton section of the Charles is due to increased quantities of aquatic algae which flourish on the organic pollutants in the River. Many Newton residents remember swimming in the Charles River, and if Class B water is attained by the 1980s, swimming may once again be an important recreational use of the River.

Canoeing and boating in the Charles River have been extremely popular activities in the past. Active canoe rental facilities existed at Norumbega and Riverside. A canoe rental operation has been initiated by the M. D. C. and the Lincoln Guide Service at Commonwealth Avenue near the Marriott Hotel and former Norumbega Park. Private canoe launching has also been on the increase. The result of this private and rental activity has been a significant renaissance of recreation interest on the Charles River. Poor water quality contributed to the decline in canoeing during the 1950s and during the 1960s. Many people who are discovering the joy of canoeing on the Charles for the first time remark about the surprisingly natural and historic setting which contributes to their pleasure. Some have been known to ask

themselves why they have been driving to distant rivers which offer little that cannot be found on the Charles.

RECREATION DEMAND

Nationwide, interest in pathways has burgeoned. Hiking has been one of the fastest-growing outdoor activities in the last decade. Water-related activities are also growing at a surprising rate. Canoeing, fishing, swimming and enjoyment of natural areas are increasingly popular.

Therefore, a riverside pathway which combines walking and water-related recreation may be expected to fill the demand. There is evidence of current riverside use. One finding during field work for this plan was that an informal pathway exists along many areas of the River in Newton. Each section of the River bank is known and used by some people regardless of the fact that presently there are no pathway markers, maps, or guidebooks.

DESIGN CONSIDERATIONS AND STANDARDS

Pathway design may vary with the intended use. The proposed pathway along the Charles is intended to be a walking footpath which takes advantage of the natural features and the existing topography.

The trail should not only follow the bank of the River, but also wind inland and connect other parks or sites of interest. The pleasure of using the trail system will be heightened by the variety of natural, historic, industrial, and residential areas which border the River or may be connected to it.

Vistas from the trail can further enhance its enjoyment. Selective cutting of brush, saplings, and some limbs can open up such vistas.

The surface treatment of the trail should depend upon the intensity of use and the underlying soils. Sections which receive heavy use or are on soils subject to rapid erosion should be covered with woodchips, which may also be useful to protect roots of trees adjacent to the pathway.*[3]

USE CONSIDERATIONS AND STANDARDS

The "use standard" of the trail is determined by its ability to absorb visitors without incurring damage to the adjacent natural

[3] See Appendix for soil features chart.

features. In general, this standard has been stated to be between 80 and 100 persons per day per mile of trail in rural settings. However, this figure may vary with slope and soil conditions and the trail surface material. More intensive use will require additional maintenance, surface materials, widening, or other measures if the quality of the experience and natural features are to be preserved.

Soil Conservation Service figures indicate that the annual use of a rural trail system 13.4 miles long would be approximately 7,000 people (stated in hiking days) considering a limited summer season of use, with low use during the week and other seasons. All-season use might double this figure to 14,000 path users. Again it should be stressed that these are maximum figures for the proposed pathway as designed. Pathway recreation areas, such as Massachusetts Audubon Sanctuaries in the Boston area, frequently experience 6,000 hikers per mile per year or more.

Use experience will be most important in a management program for the proposed pathway. More use issues will be raised in the sections on management and costs.

DESIGN POLICIES

The purpose of design policies for the Charles River Pathway is to prevent potential conflicts which may arise between the development and use of a footpath and the preservation of a predominantly natural area.

Essential to the enjoyment of a trail in a natural area are the views, trees, and other environmental features along its route. These should be saved to enhance such enjoyment.

One concept intended to describe the balance between the use of a facility such as a trail or picnic site and the conservation of the natural features is "carrying capacity". The concept is a useful, if limited, planning tool. Before this concept can provide firm guidelines for the design and use of facilities suited to the landscape, we need to know much more about the interrelation between natural and human processes. Carrying capacity has been divided into three categories:

> Physical Carrying Capacity: This relates to the effect of use on the nonliving features of the environment. Soil erosion, topographic slope, and area requirements for a given activity may all be included.

Ecological Carrying Capacity: This relates to the effect of use on the living features of the environment. When the existing plant and animal habitats are substantially altered, ecological carrying capacity is exceeded and the habitat preservation function aborted. An extreme case is when the presence of visitors causes a particular bird or animal to vacate its normal habitat.

Psychological Carrying Capacity: The most difficult to assess, but in many ways the most important component of carrying capacity concerns the effect of other visitors on the experience of the individual visitor. One problem is that individuals' levels of tolerance for other people vary. At one extreme is the person for whom the sight of one other hiker or one building detracts from the quality of the experience. At the other extreme are those whose chief enjoyment of an outdoor experience comes from association with fellow hikers.

Design Standards - can be developed from many of the elements of physical carrying capacity. The number of picnic tables per acre, the width and route of a trail, and the area of a ball field can all be derived from physical carrying capacity or some combination of physical and ecological considerations.

Use Standards - are more closely related to aspects of ecological and psychological carrying capacity. A use standard may be the maximum number of hikers per mile of trail in a single day. Management of a pathway, which may include provision of parking spaces, maintenance, and control of usage can be determined by physical, ecological, and psychological considerations, but also by the experience of use over time.

General Policies

The policies stated in this section served as guidelines during the preparation of the mapped pathway plan. They are derived in part from the carrying capacity concepts discussed above.

- Conserve and enhance the natural setting along the banks of the Charles River.

- Protect fragile wildlife habitats from excessive visitor use.

- Provide a walking trail for the following purposes:
  Outdoor recreation
  Environmental education
  Cultural heritage appreciation

- Minimize the conflicts among different users of the pathway by separating conflicting uses and by providing natural landscape barriers or "buffers".

- Use the Charles River Pathway as a means of tying together existing and proposed recreation areas.

- Use other pathways, existing and proposed, to link the Charles River to adjacent neighborhoods.

- Provide a trail system which can be used in short segments as well as a continuous route.

Policies for the Preservation of River Ecosystem

The policies stated in this section served as environmental guidelines during the preparation of the Pathway proposal. In part they are derived from the concepts of physical and ecological carrying capacity discussed above.

- Minimize trail intrusion into wetland areas except for special provisions for wildlife observation and biological studies.

- Minimize impact on natural drainage through details of trail location and surface materials.

- Concentrate intensive use in areas which can support more visitation.

- control erosion by planting where possible and by placement of stone or wood retainers where necessary.

- Develop the trail in phases so that the experience of use and management of early sections may benefit later developments.

- Prohibit the use of motorized vehicles on the River Pathway. Opportunities for the use of such vehicles can be provided elsewhere.

. Management and maintenance practices should be devised to protect the natural features of the River.

Policies for Land Acquisition

Land acquisition is always a particularly sensitive and costly issue for the realization of most new recreation development. In the case of the Charles River Pathway, the City of Newton is fortunate in benefiting from the legacy of the 1893 program to develop a Metropolitan Park System. Public ownership currently exists along approximately 85 percent of the River in Newton.

Private ownership along the River banks may enhance or detract from the character of the River. Industrial land uses along the Charles were once an integral part of the life of the River. Industrial and commercial uses have often abused or ignored their riverside location. Parking lots and storage yards from which litter blows and stormwater runs, are riverside abuses observed in Newton.

Much of the residential use along the River enhances, or at least does not detract from, the character of the banks. Many homeowners have improved the banks by sensitive planting and maintenance. Public access to the River's edge is a major objective in preparation of the Pathway Plan. As noted above, public ownership or easements exist along 85 percent of the River bank in Newton. Private ownership along the remaining 15 percent, while limiting public access, is not seen as a significant liability for the continuity of the Pathway. In every case it is possible to provide a by-pass of the private land and to rejoin the River with no significant interruption in path continuity. In fact, some of the by-passes become interesting side trips through attractive or historic areas of the City.

Several private holdings are currently undeveloped and offer important opportunities to provide additional public access to the River's edge. The following policies relating to land acquisition were developed during the preparation of the Pathway Plan and represent general guidelines. For more specific recommendations, see the Plan description for each section of the River.

. Acquire a public access right-of-way, either in fee ownership or by easement, along the major privately-owned, undeveloped portions of the River.

- Convert existing visual easements to public access easements where appropriate.

- On a parcel-by-parcel basis, establish the policy that the City is a willing buyer from any willing seller of privately-owned residentially developed land adjacent to the River.

- Acquire visual easements and/or public access easements on commercial and industrial properties along the River.

Overview of the Pathway Plan

The proposed Charles River Pathway will be a major outdoor recreation resource for the people of the City of Newton and surrounding communities. Many people still view the River as grossly polluted and unfit for recreation interests. In preceding sections we have seen that this is no longer so and that the future will bring increasing pressure to proceed with the River Pathway, for each year its recreation value will increase as environmental improvements are made by local, state, and federal governments.

While the portion of the Charles River in Newton may be termed an urban river, it is most important to acknowledge and be sensitive to its value as a natural element in a predominantly urban environment. For this reason the Pathway is planned to emphasize and conserve existing natural and historical characteristics.

The Pathway in Newton offers the possibility of connecting with other pathways in Boston, Watertown, Waltham, Weston, Wellesley, Needham and Brookline. This total network of pathways would provide more than forty miles of recreational walking.

Charles-to-Charles - In 1972 the Conservation Commissions of Boston and Brookline published a proposal for a "Conservation and Recreation Corridor". It would run from the Charles River Basin in the Back Bay, along the existing Boston Olmsted Park network to the Arnold Arboretum and along existing private open space in Boston and Brookline to the M. D. C. Saw Mill Brook Reservation on the Charles River at the boundary of Boston and Newton. This 6.5-mile corridor would be the most significant addition to the Olmsted Park System since the turn of the century. Steps have been taken by both Boston and Brookline to secure necessary public ownership and easements along the proposed route.

Charles River Pathway - Waltham - Waltham has had an Open Space and Pathway proposal prepared by a landscape architect under a Ford Foundation grant to the Waltham Conservation Commission. This proposal, if implemented, would provide improved open space and some pathways along both banks of the approximately 3.5 miles of the Charles River in Waltham.

Charles River Pathway - Watertown - The Watertown Conservation Commission has engaged the same firm to prepare a Pathway Proposal along the River frontage in Watertown.

The proposed 13.4-mile pathway in Newton will go far toward connecting the recreation circuit through communities bordering the Charles River. The Pathway will have the following specific elements:

Nature Interpretive Areas - Four locations have been designated as special "Nature Interpretive Areas": the Great Plain Marshes, Newton Upper Falls Tree Walk, Flowed Meadow, and the Bemis Dam Meadow.

Historical Areas - Three locations have been designated as especially rich "Historical Areas": Newton Upper Falls, Newton Lower Falls, and the Bemis Dam area.

Exercise/Jogging Courses - Three locations have been designated for exercise/jogging courses: at the Newton-at-128 Industrial Park, along Quinobequin Road, at Auburndale Park.

Canoe Launching Sites - Several access points have been designated for canoe launching sites: Kendrick Street Bridge (both banks), Newton Upper Falls (Needham bank), Quinobequin Road, M. D. C. Golf Course, Riverside Recreation Area (both banks).

Canoe Rental Facilities - Presently, canoe rentals are provided at the old M. D. C. Police Station at Commonwealth Avenue (Route 30) near the Marriott Hotel. Additional facilities are recommended at Riverside and off Quinobequin Road at Newton Lower Falls.

Transit/Walking/Canoeing Loops - Several loops involving a combination of M. B. T. A. Riverside line access, walking, and/or canoeing are also possible. The Riverside line, Eliot, Waban, Woodland, and Riverside stops all provide beginning points for these loops.

From Eliot Station it is a short walk on the M. D. C. Sudbury Aqueduct Trail to historic Newton Upper Falls. Waban Station is near a pleasant walk along the City of Newton Cochituate Aqueduct right-of-way along Waban Avenue to Quinobequin Road. Woodland Station is a short distance from Newton Lower Falls and the proposed canoe rental facility there. Riverside Station is a very short walk from the Riverside Recreation Area and not too distant from the existing canoe rental facility at Commonwealth Avenue (Route 30).

A wide range of loop combinations would be possible including various distances with or without canoe use along the River. If the additional canoe rental facilities are realized, one could arrive by transit, walk along a trail to a canoe livery, paddle along the River to the next livery, turn in the canoe, and walk along the trail to another transit stop for a return trip.

Picnic Sites - Places to picnic along the River are very limited. Only Auburndale Park provides sites with tables and charcoal fireplaces. New tables have been placed at Watertown Dam in Watertown and the Nonantum Road M. D. C. Reservation has a few tables. Other picnic sites are recommended at Saw Mill Brook Reservation, the Novitiate property, Hemlock Gorge, Riverside Recreation Area, Norumbega Park, and Bemis Dam Meadow.

Rest Rooms - Currently, public rest rooms along the River exist at Auburndale Park, M. D. C. Police Station at Commonwealth Avenue, and the M. D. C. Golf Course. Additional rest rooms can be provided at the Riverside Recreation Area, canoe livery at Newton Lower Falls, Norumbega Park, and at Newton Upper Falls.

Parking - Ample parking spaces exist on streets or in parking areas along most of the River. However, additional parking can be provided in areas of more intense use. The most critical issue for the provision of parking is to protect the existing natural features along the River. This can be done by restricting existing and new parking to clearly designated areas and by selecting such areas so as to preserve the natural features which enhance the riverside

experience. More specific discussion of parking may be found in the sections dealing with the details of the Pathway Plan.

THE PATHWAY PLAN

Saw Mill Brook Reservation to Needham Street

Saw Mill Brook Reservation to Needham Street

Natural Features - The single most significant natural feature of this portion of the River is the Great Plain Marsh. This extensive wetland exists on both sides of the Charles River in Newton, Boston, Dedham, and Needham (Cutler Park). It is one of the richest freshwater wildlife habitats in the metropolitan area. The area in Newton includes deep marsh, meadows, wooded swamps, hardwood and coniferous forests, and open land in addition to extensive areas of open River.

These marshes are also an important floodplain and help protect downstream areas from flood damage. For this reason the U. S. Army Corps of Engineers has designated the Great Plain as Natural Valley Storage Area "B" and has recommended its protection by the Department of the Interior either through acquisition in fee or by acquisition of permanent flowage easements.

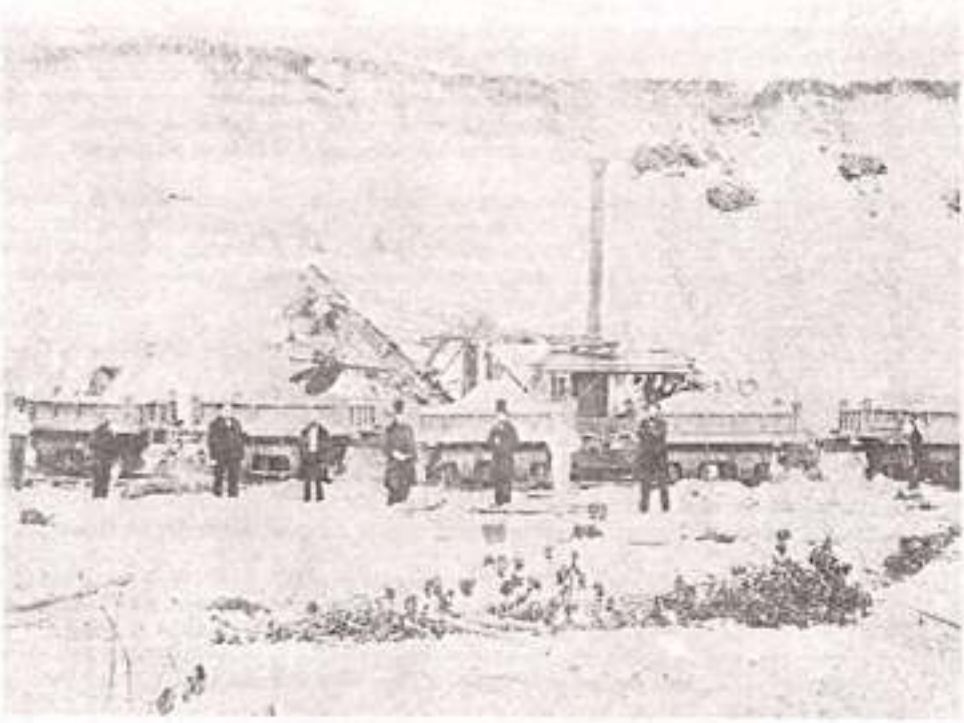
Other significant natural features include: the pond, field, and wooded wetlands and uplands of the St. Joseph's Novitiate land (formerly the Working Boys Home); the marsh on the City-owned Winchester Street Recreation Area (former City Infirmary land); the Charles River Country Club marsh.

A particularly attractive peninsula, owned by the M. D. C., juts out into the Great Plain marsh adjacent to the Newton-at-128 Industrial Park.

Man-made Features - The Newton-at-128 Industrial Park is by far the single largest man-made feature in this section. The buildings and parking lots of this complex occupy part of the former Shaw estate and are adjacent to the M. D. C. Charles River Reservation directly bordering the River. Development at the Needham Industrial Park is screened from the River by M. D. C. land which was formerly part of the Newton Waterworks Reservation.

Other significant man-made features include the old Working Boys Home buildings. The tower is an especially important landmark. Also included are the Charles River Country Club (golf course), a railroad bridge, thirteen private residences along Bernard Street, and industrial buildings and parking lots at the intersection of Needham Street with Christina and Oak Streets.

History - The Kendrick Street bridge takes its name from John Kenrick who, in 1658, built his house nearby. The Kenricks farmed in the area until the nineteenth century. In 1890 the City took from the then owner, William S. Appleton (Longfellow's brother-in-law), ninety acres along the Newton bank of the River to supplement its waterlands (the present Cutler Park along the Needham bank). Since Newton joined the Metropolitan Water District, all the water lands in the Great Plain have come under the jurisdiction of the Metropolitan District Commission.



STEAM SHOVEL LOADING GRAVEL FOR THE BACK BAY

The rest of the Appleton estate was bought by Robert Gould Shaw III in 1909. In the 1940s part of the estate went to Mount Ida Junior College. Most of the remainder of the Shaw estate was rezoned for limited manufacturing in 1960. In 1967 Newton-at-128 Realty Trust purchased it for development as an industrial park. As part of the option agreement which regulates the Newton-at-128 development, the City acquired 30.2 acres of flood plain land which has never been assigned to a specific City agency. It is recommended that jurisdiction over this parcel be assigned to the Conservation Commission.

Both the Novitiate and the Infirmary properties were utilized for welfare purposes. The former Working Boys Home (Novitiate) was a private home and school for boys without families and the Infirmary was used as a home for the poor until 1964. Before the 1880s both sites were parts of farms. The Ranney Farm was composed in part of Novitiate land and the Goddard Farm included the Infirmary land, the golf course, and the residential neighborhood on both sides of Bernard Street. Currently, the Novitiate is used as a retirement home for Catholic priests.

The Infirmary land was transferred from the jurisdiction of the City's Welfare Department to the Recreation Commission by the Board of Aldermen in 1968. It is used for the "Garden City Vegetable Kingdom" where citizens of Newton may have garden plots. On Saturdays for a designated period of time the Recreation Commission permits children to ride their minibikes with adult supervision - on this land.

During the mid-nineteenth century the Back Bay in Boston was filled. Much of the gravel fill came from the section of Needham near the Route 128/Highland Avenue interchange. More than 100 acres of gravel next to the River were leveled in a little more than four years.

The industrial buildings between Christina Street and the Charles River are built on the site of the former City of Newton pumping station land which was zoned to Manufacturing District in 1959.

Pathway Location Saw Mill Brook Reservation to Needham Street (2.5 miles)

The Newton Pathway begins at the Saw Mill Brook M. D. C. Reservation at the boundary of Newton and Boston (0.0 mile). This will be the southern end of the Charles-to-Charles corridor and will one day provide a trail linkage to the edge of the extensive M. D. C. wetlands and across the base of the M. D. C. peninsula south of the Newton-at-128 Industrial Park (0.5 mile). It proceeds along the back of the businesses in the Industrial Park overlooking the floodplain.

At Kendrick Street bridge (Nahanton Street) (1.5 miles) the pathway splits and goes along each side of the River until it rejoins at Needham Street (2.5 miles). The trail along the Needham side currently exists on M. D. C. land. The proposed path On the Newton side would traverse the privately-owned Novitiate land, the edge of the wetland at the Winchester Street

Recreation Area, the Charles River Country Club, Bernard Street and Christina Street to Needham Street.

Pathway Location Saw Mill Brook Reservation to Needham Street

Nature Interpretive Area - The marshes of the Great Plain from the Saw Mill Brook Reservation to the Newton-at-128 Industrial Park are the largest and highest quality wildlife habitat in Newton. Self-guiding markers along the pathway could supplement formal nature study and serve as information sources.

Another area suited to wetland habitat interpretation is the marsh and riverbank along the Newton side of the River from Nahanton Street to the Charles River Country Club. This area, though much smaller than the marshes of the Great Plain and extensively altered by the M. D. C. channelization project of the 1950s, still offers many opportunities for nature observation and study.

Historical Areas - Several features of interest to those concerned with local history are worthy of special markers. Such markers could be placed at "Kenrick's Bridge", at the old Newton Waterlands, and in Needham to indicate the general location of the vanished gravel esker which went to fill the Back Bay in Boston.

Exercise/Jogging Course - The concentration of people at the Newton-at-128 Industrial Park is but one reason for the provision of an exercise/jogging course along this section of the pathway. Such a course consists of a series of exercise stations about 100 yards apart. Each station provides a different exercise and the jogger runs from station to station. The exercise apparatus is simple and built of natural materials so as to maintain the character of the pathway. The proposed course at the Industrial Park could consist of twelve stations and cover a total distance of approximately 3,400 feet. More detailed design studies would have to be conducted to determine the course's exact location.

Canoe Launching Sites - The M. D. C. is currently developing a canoe launch site at the Charles River Reservation downstream of Kendrick Street bridge. The City of Newton has the opportunity to provide a launch site with parking for four or five cars directly opposite the M. D. C. site.

A Canoe Landing - A landing can be located on the peninsula jutting out into the River south of the Industrial Park. This

would provide a delightful destination for the canoeist. It would have a pleasant view and paths for that much-needed leg stretch.

Picnic Sites

1. Tables could be provided by several of the businesses having wetland frontage in the Industrial Park.

2. On the Novitiate property.

Parking

1. At the Winchester Street Recreation Area.

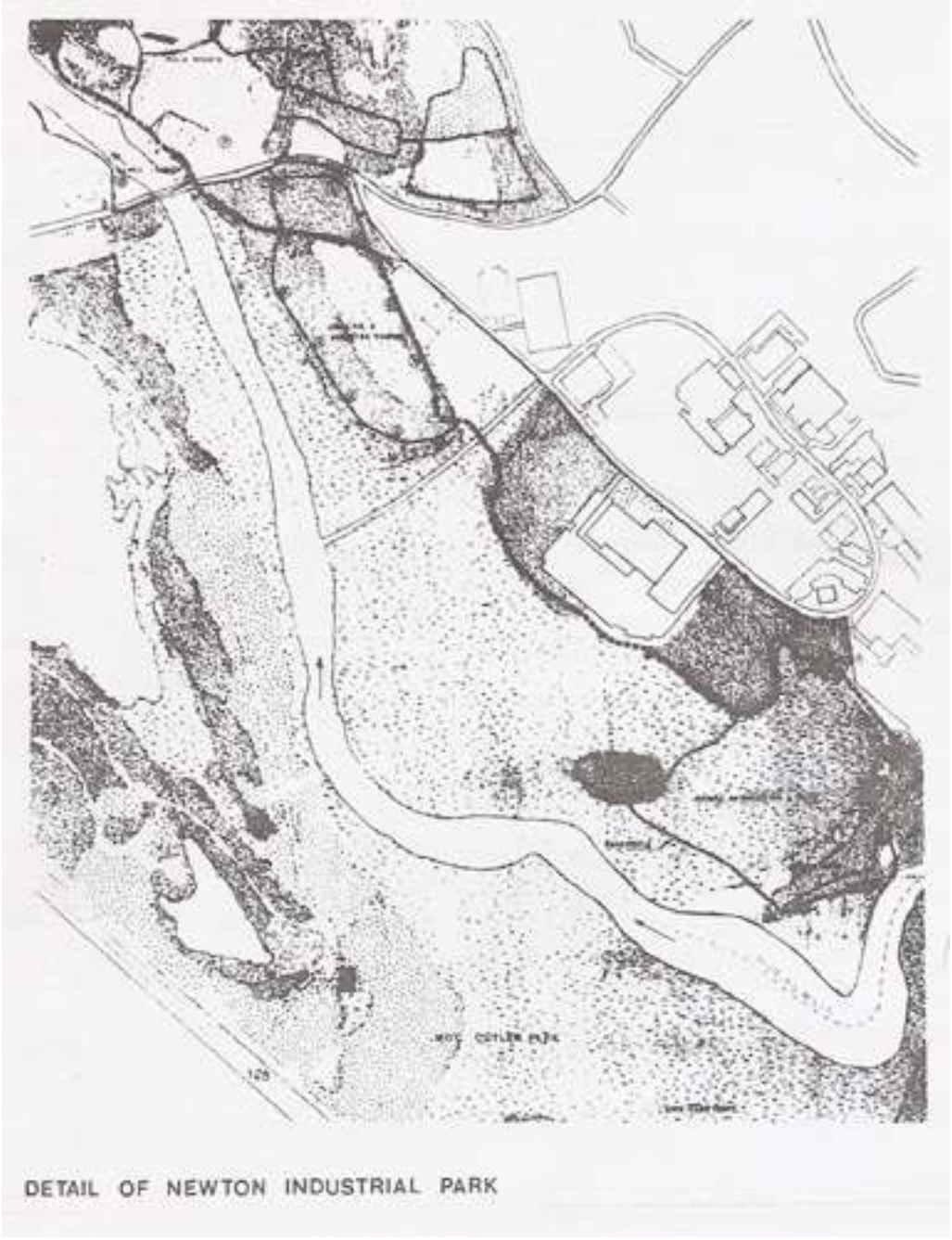
2. At the Newton-at-128 Industrial Park. Permission to use these parking lots would have to be sought by the City. During times of most intense pathway use (Saturday/Sunday), the lots would be almost empty.

3. Off Nahanton Street.

Acquisitions

The Novitiate property is the largest undeveloped site along the Charles River in Newton. Serious thought should be given to its acquisition, at least in part, before there are development proposals. The 59.5-acre site includes two main buildings and a collection of outbuildings and out-door facilities including a swimming pool, a baseball diamond, two football fields, and tennis courts. The main residence hall is currently used as a retirement home for Catholic priests. The old gymnasium is being used by the local community for athletics, with the generous cooperation of the Xaverian Brothers Provincialate.

The 1969 Recreation/Open Space Plan for Newton recommended that an easement for the Charles River Pathway be acquired along the Novitiate's River frontage. The M. D. C. has also expressed interest in the acquisition of the Novitiate's River frontage and the Newton Conservation Commission has suggested that the M. D. C. acquire an easement extending to approximately the 120-foot contour line on the Novitiate property. Such an acquisition would include the River frontage, adjacent wetland, the pond and the level site of the two football fields up to the wooded slope - for a total of approximately fifteen acres.



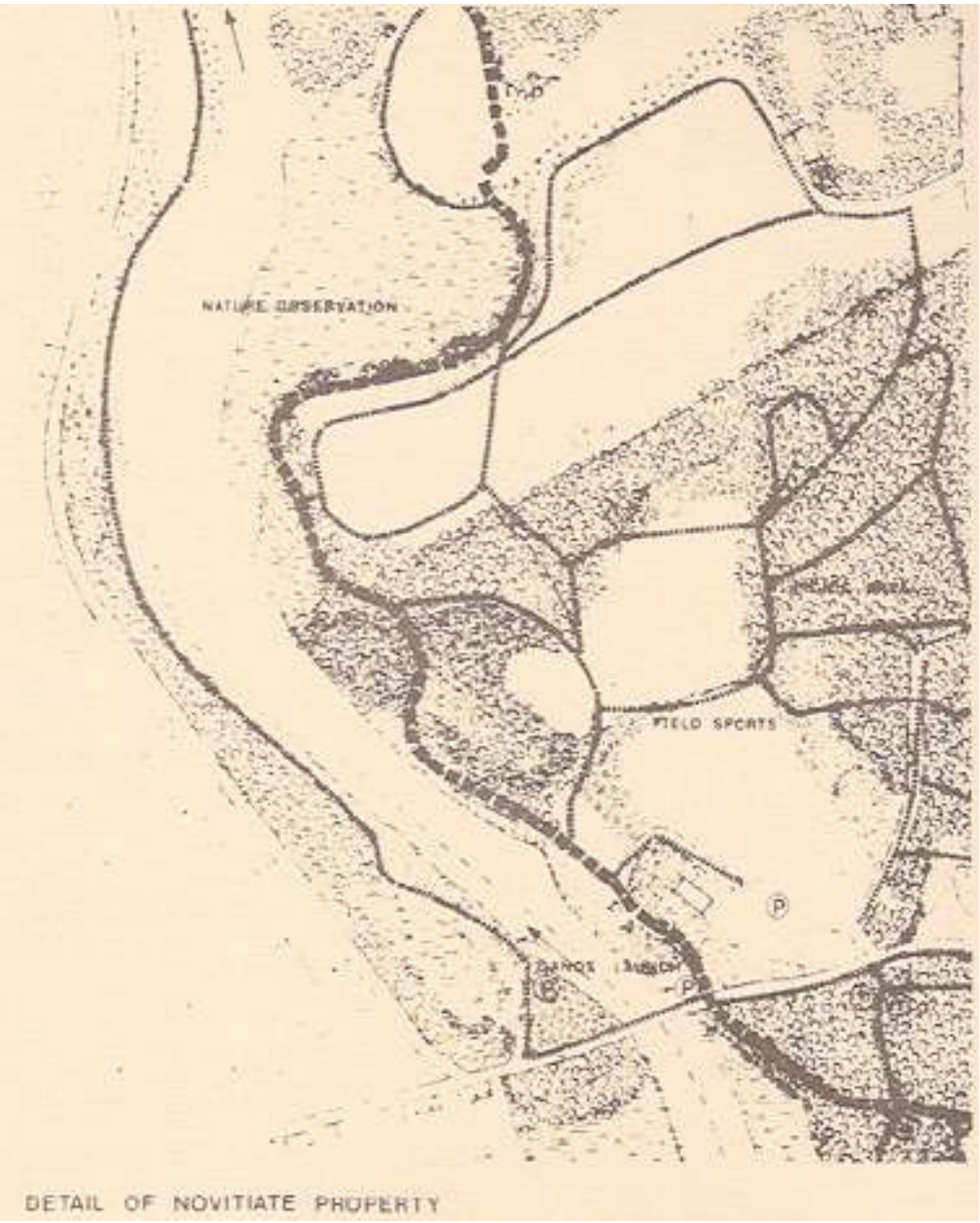
DETAIL OF NEWTON INDUSTRIAL PARK

This plan recommends the acquisition outlined above as a necessary link in the Charles River Pathway. It is also noted that the entire Novitiate site (excluding the building complex) would make an outstanding riverfront open space and recreation resource. The Charles River Pathway can be greatly enriched by the provision of opportunities for more diverse, but complementary activities, along its route. The Novitiate land offers an excellent location to provide such activities.

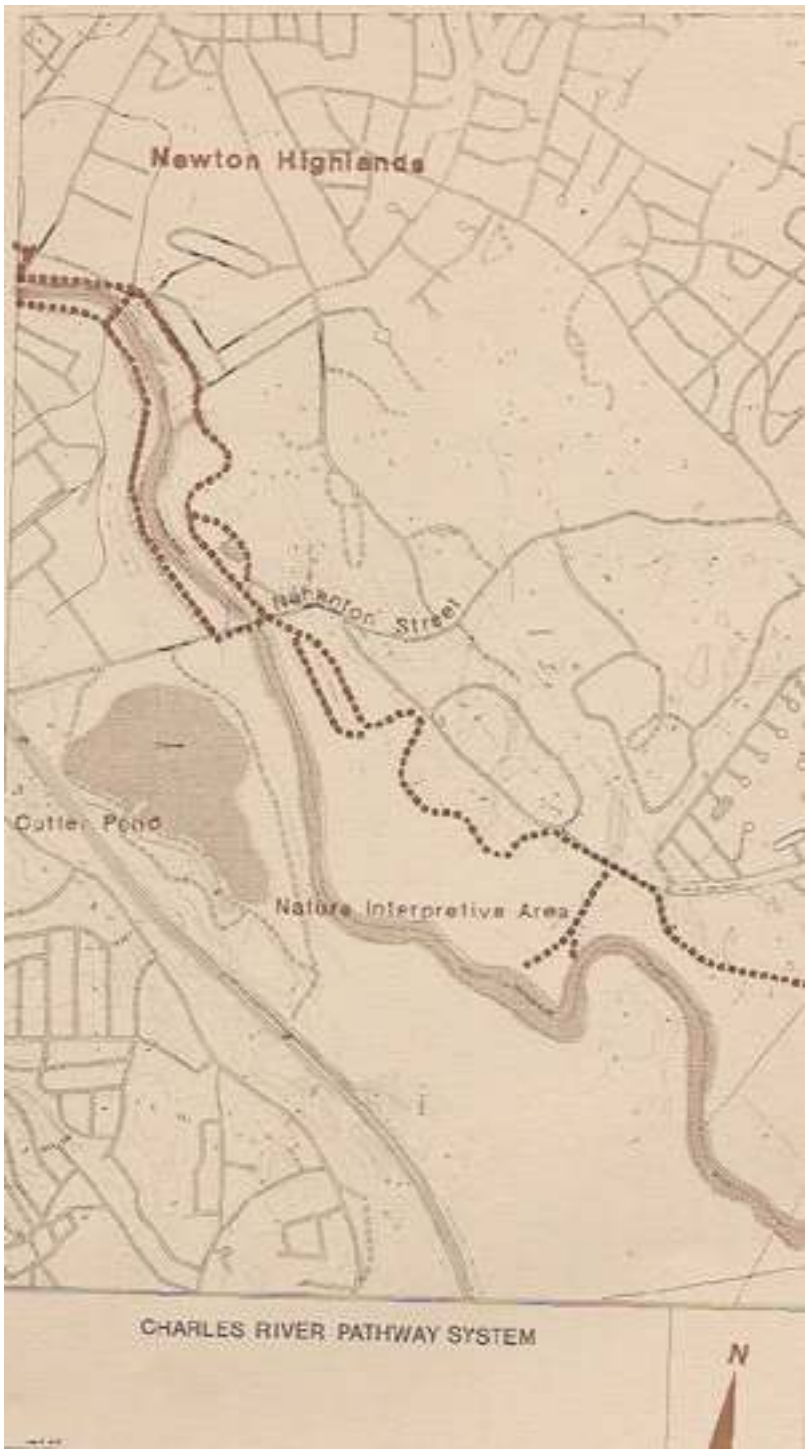
2. The Charles River Country Club land is another private holding where acquisition of a public access easement is

desirable. In this case the pathway could be accommodated on an easement of minimal extent. A location has been suggested on the accompanying plan, but is subject to negotiation between the City and the Country Club.

3. At Christina Street near Needham Street, access and visual easements are recommended along the parking lots which front on the River. The provision of a planting buffer between the River and these parking lots is a high priority recommendation. These lots detract from the River scenery and are among the few examples of riverside abuse existing in Newton.



DETAIL OF NOVITIATE PROPERTY


Newton Highlands
Nahanton Street
Cutler Pond
Nature Interpretive Area
CHARLES RIVER PATHWAY SYSTEM
N

Needham Street to Newton Lower Falls

Needham Street to Newton Lower Falls

Natural Features - Hemlock Gorge at Newton Upper Falls is the most impressive feature of the entire length of the Charles River in Newton. A site of natural waterfalls on the Charles, this area is still rich in natural splendor. Hemlock Gorge is an example of what geologists call a "V-shaped" watercut. It is considered to be a very young valley, probably dating back not more than 10,000 years. The moving water has cut its course through a strata of "Roxbury Conglomerate" or "puddingstone" which underlies a substantial part of the southern half of the Boston Basin. The action of the water has also left an interesting natural cave in the stone just east of New Pond in Wellesley. The hemlocks on the Needham bank and a lesser number on the Newton bank represent the largest stand of coniferous trees along the Charles River in Newton.

South Meadow Brook, whose source is Lost Pond in Brookline, flows into the Charles immediately downstream from Needham Street.

The pleasantly wooded River banks along Quinobequin Road provide a rich wildlife habitat.

Man-Made Features - The dams, the mill buildings, and Echo Bridge at Newton Upper Falls are the most significant collection of man-made features along this section of the River. Others of importance include the Upper Falls Playground, the railroad bridge, radio tower, industrial developments in Newton and Needham, and the office park in Wellesley.

It is noteworthy that the area between Needham Street and Elliot Street has fewer than a dozen industrial sites, one in Newton and the others in Needham. The result of these sites is that the River has a much less desirable image here than either upstream or downstream of this three-quarter-mile stretch. This area also has fourteen private residences which abut the River in Newton and are attractively maintained.

The Wellesley Office Park is bordered by a Metropolitan District Commission Reservation along the River.

As the River nears Lower Falls, the noise from Route 128 becomes an increasingly disturbing man-made feature.

History - There were Indians in the Upper Falls area when the Colonists arrived. William Nahanton (or Nehoiden or Nahaton) was granted land on the west bank of the River by the Dedham

Proprietors. The grant included the rock the Indians used for drying the fish and eels they caught at the weir just above the falls. This quarter-of-an-acre was reserved by Nahanton for this purpose when he sold the land and his title to it is not extinguished to this day!

ECHO BRIDGE

SILK MILL DAM

In 1688 John Clark purchased this land and built the original dam and the first mill, a sawmill, at Upper Falls. Over the next 100 years more mills were added, including mills for snuff, fulling, and the manufacture of scythes. In 1778 Simon Elliot of Boston invested in Upper Falls.

By 1782 he had bought all the water rights and the old saw and grist mills. He replaced the old enterprises with four large snuff mills, a wire mill, a screw factory, and a blacksmith shop.

On Elliot's death, these businesses went to his son and his daughter who had married Thomas Handasyd Perkins. It was Perkins who in 1821 financed a large cotton mill and built the first of the "silk mill" buildings still standing today. Otis Pettee, who managed the mill, owned it in the 1830s.

The cotton mill was later adapted and enlarged for the production of silk. For eighty years many people found their livelihood in the spinning of silk, silk yarns, and embroidery silks. In 1964 the buildings were adapted to house a restaurant, various offices, and small industries. It is the only mill complex in Newton which still has water flowing through the old sluiceway which channeled the River to run the water wheels.

At the Metropolitan Circular Dam at the Worcester Turnpike (Route 9) bridge, there was a progression of mills beginning with Jonathan Bixby's sawmill in 1782. In 1799 Rufus and David Ellis began manufacturing iron under the name of the Newton Ironworks Company. A nail factory followed in 1809, and a cotton mill in 1813. The buildings were used for a variety of purposes, including paper-making, until destroyed by fire in 1907, after which the land was acquired and cleared by the Metropolitan Park Commission.

Downriver from the "silk mill" complex is Echo Bridge, a series of solid granite arches supporting the Sudbury Aqueduct, built in 1876. The main arch of the bridge can cause an echo which will repeat itself up to eighteen times. The bridge provides a commanding view of the Hemlock Gorge and the waterfall from more than seventy feet above the River.

The general layout of Upper Falls is an example of a typical nineteenth century New England mill village. The workers' houses were placed conveniently near the mills while the larger, more ornate homes of the owners and managers were farther away, mainly on the hills with a view over the Charles River. In addition to the mill buildings and the residences, there are two

nineteenth century churches and some of the early store buildings. The old firehouse and a school building are still standing, albeit much altered.

From Route 9 to Newton Lower Falls, Quinobequin Road meanders its way along a 1.5-mile stretch of the River. This attractive park road was built by the Metropolitan Park Commission at the turn of the century in conjunction with the M. P. C. acquisition and development of Hemlock Gorge and other parts of the Charles River Reservation.

Pathway Location - Needham Street to Newton Lower Falls (3.2 miles)

From Needham Street (0.0 mile) the pathway follows Oak Street past the Stowe-Woodward plant up to Williams Street where it will go left down to rejoin the River. At the foot of Williams Street there are four privately-owned undeveloped lots, two of which have been offered to the City for purchase. The City should acquire all four lots and a strip 200 feet deep on the River frontage of the WHDH-owned parcel adjacent to the railroad track. Additional frontage will have to be obtained from the railroad bridge to the Upper Falls Playground across the old Marcy Farm, before this section of the trail can be finalized.

Once these acquisitions are completed, the trail can be located adjacent to the River from Williams Street to Keefe Avenue, a distance of approximately 0.6 mile without any acquisition of buildings or problems of relocation. The railroad bridge (0.5 mile) and embankment present a physical obstacle for the pathway. A scramble up the steep embankment could easily be avoided. At the base of the rai1road bridge there is a footing which can be made into a convenient walk by the addition of handrails and improved access at both ends.

Until the above-mentioned acquisitions are completed, the pathway is located on Oak Street to its intersection with Chestnut Street (0.3 mile) It then turns left at Chestnut Street and proceeds to the Upper Falls Playground (0.5 mile). From the playground the pathway user can walk along Keefe Avenue and River Avenue, or proceed on Chestnut Street to Elliot Street (0.7 mile).

At Elliot Street the pathway user may choose from a variety of routes through Hemlock Gorge, the historic Upper Falls village, or the mill complex. One suggested route is to cross the Central Avenue bridge into Needham and continue through the Hemlock Grove to Echo Bridge (1.0 mile). From the top of the bridge

there is a view of breathtaking beauty of the mill complex, the dam, and the gorge below. The route then proceeds across the bridge, descends to Ellis Street, and continues along the River on the Newton bank. Under the bridge one can pause and listen for the echo.

A side trail follows the route of the Sudbury Aqueduct to the M. B. T. A. Eliot Station. The main pathway crosses under Route 9(1.3 miles), and continues between the River and Quinobequin Road. It passes over Dresser Brook flowing out of Dresser Pond at 1.5 miles.

Side trails join at 1.9 miles and 2.1 miles. Both trails provide routes to the Waban village center and the M. B. T. A. stop there. It should be noted that the second path crosses private land. The owner has enjoyed people using his land in the past and will continue to do so as long as the privilege is not abused.

The main path continues along Quinobequin Road and is joined by another side trail at 2.8 miles. This side trail will follow the City of Newton Cochituate Aqueduct (now used as a sanitary sewer) right-of-way to Waban. These side trails are the basis for several "loop" trips discussed below.

DETAIL OF NEEDHAM ST. TO NEWTON UPPER FALLS

AERIAL VIEW OF NEWTON UPPER FALLS

Quinobequin Road and the pathway join to cross under Route 128 (2.9 miles) and the pathway is joined by still another side trail (3.0 miles) before it reaches Newton Lower Falls (3.2 miles). The last side trail crosses the River on the Cochituate Aqueduct and proceeds into Wellesley.

Nature Interpretive Area - A Newton Upper Falls Tree Walk is currently in detailed planning stages under the direction of the Newton Planning Department. This walk, utilizing a portion of the Charles River Pathway, will show examples of trees, shrubs, and herbaceous plants growing wild along the River. Displays, labels, and a guide book will provide a rich resource for botanical study and for a fuller understanding of the natural history of the riverside habitat. A marker explaining the geological origin of Hemlock Gorge will also help interpret the area's significance.

Historical Area - In Newton Upper Falls over one hundred nineteenth century structures remain. Though many have been altered, the area as a whole retains enough of the atmosphere of an old New England mill village to warrant preservation. The Newton Historic District Study Committee has recommended that a considerable portion of the village be designated as an Historic District under the provisions of Massachusetts General Laws Chapter 40C. Such designation will recognize the unique character of Upper Falls and provide a measure of protection by

insuring that new buildings are designed to be compatible with the existing buildings in the District. Markers and brochures will help interpret the special significance of Newton's most important collection of nineteenth century buildings.

Canoe Launching/Landing Sites - One canoe landing site has been suggested on land to be acquired in Newton Upper Falls, near the railroad bridge. This site is adjacent to an existing parking lot off Sweet Street and thus it could later be developed as a more formal canoe launch.

Canoe Rental - A site for the rental of canoes has been suggested just above Newton Lower Falls on the M. D. C.-owned Quinobequin Reservation.

Side Trails and Loops - Several side trails and the possibility of making loops were mentioned in the above description of the pathway location.

1. A side trail joins the main pathway at Echo Bridge. The Sudbury Aqueduct right-of-way provides a path to the M. B. T. A. Eliot Station. The easiest route is to proceed under Route 9 and turn right on the first street. Continue parallel to Route 9 until the street is intersected once again by the Aqueduct right-of-way where the side trail turns left to Eliot Station (distance from main pathway, 0.5 mile).

2. At 1.9 miles along the main pathway, Gould Road leads to Waban Avenue where it joins the Cochituate Aqueduct right-of-way and proceeds to the M. B. T. A. Waban Station (distance from main pathway, 0,5 mile).

3. At 2.8 miles at Varick Road, a side trail follows the Cochituate Aqueduct down Waban Avenue to Waban Station (distance, 0.1 mile).

4. The same Cochituate Aqueduct provides a crossing of the River into Wellesley.

These side trails can be used to bring the local neighborhood down to the River and they can be used in combination with the main pathway and the M. B. T. A. Riverside line to make large or small loops or circuits.

Picnic Sites - Informal picnicking can occur at a variety of locations along this stretch of the River. Formal sites are

recommended on M. D. C. land at Hemlock Gorge and along Quinobequin Road.

Rest Rooms - The convenience of public rest rooms must be combined with intense use facilities to provide the necessary supervision. Therefore, rest rooms are suggested in conjunction with the proposed canoe rental facility. Additional public rest rooms are suggested for the mill complex at Newton Upper Falls.

Parking - Very carefully designed small parking areas can be provided.

1. Proposed
   a. At canoe livery at Quinobequin Road
   b. At two additional locations along Quinobequin Road

2. Existing

   a. At Newton Upper Falls - private lots off Elliot Street
   b. Upper Falls Playground parking lot
   c. The WHDH parking lot off Sweet Street, by agreement or acquisition

Acquisitions - Several undeveloped sites exist along the River between Needham Street and Newton upper Falls Playground, totaling more than sixteen acres. A portion of this land is recommended for high priority acquisition in order to protect the River frontage and provide a location for the pathway.

1. Four lots, two of which are currently being appraised by the City, are recommended: for total acquisition. This area of approximately 1.6 acres will provide a riverside location for the pathway and a future canoe landing.

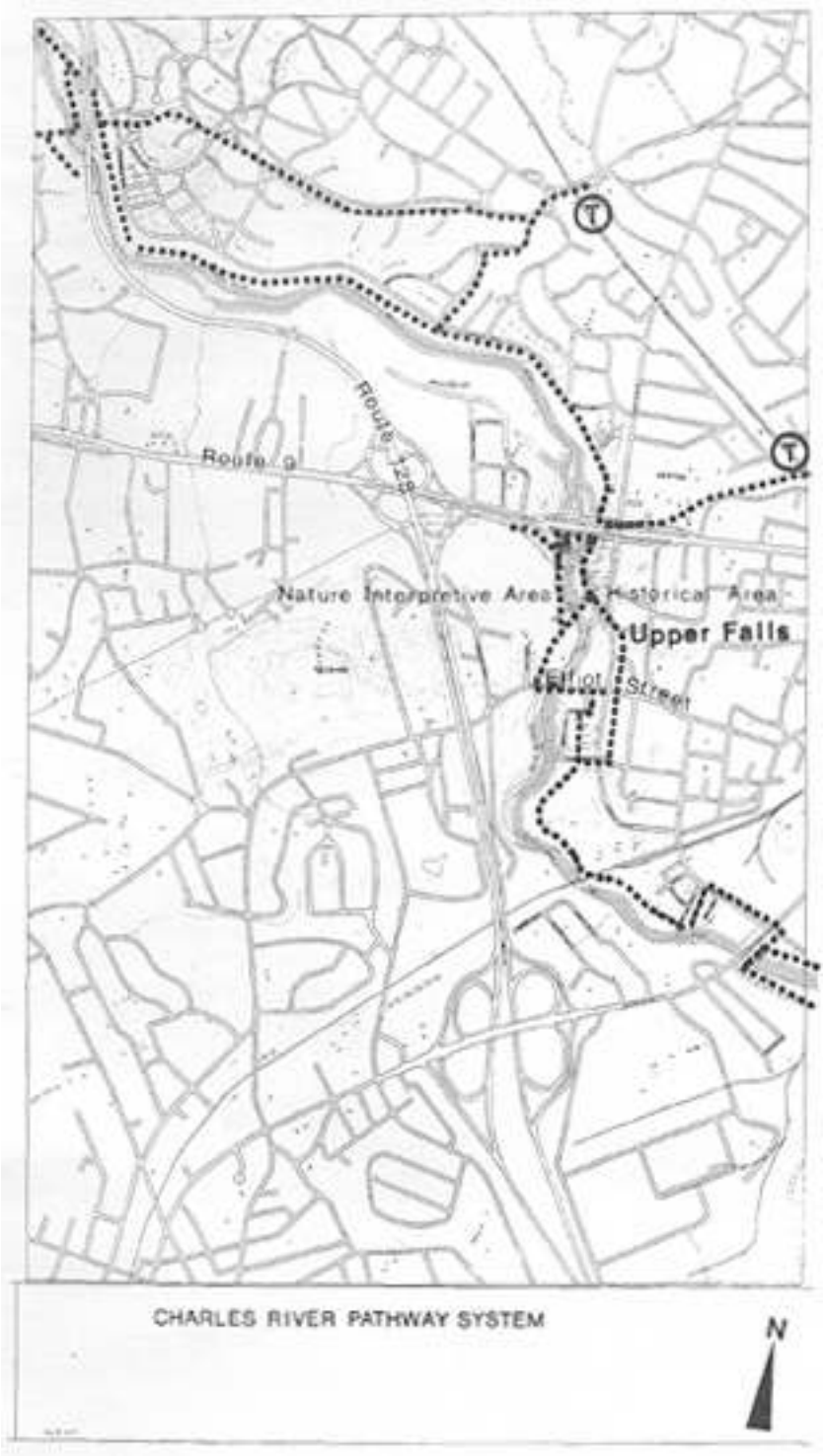
2. The five-acre WHDE parcel off Sweet Street includes an old parking area that would provide convenient access to the pathway. Acquisition of the fee or of a public access easement along the River frontage and use of part of the parking area is recommended. While the boundaries of such an acquisition are subject to negotiation, a strip about 200 feet back from the River's edge would be adequate for the pathway and a planting buffer. This would total less than two acres of the five-acre site.

3. Part of the old 10.3-acre Marcy Farm is now leased to WHDH for a radio tower and office space. The attractive 1869 Marcy residence still stands. The acquisition of

the fee or of an easement on a 200-foot strip of this property along the River would be adequate for the pathway (3+- acres). However, this undeveloped site offers the opportunity to enlarge the Upper Falls Playground. If this is desired, an additional four acres could be added to the playground.

4. Overlooking Hemlock Gorge, between the mill complex and the Second Baptist Church on Ellis Street, a one-acre portion of a larger parcel is recommended for acquisition by the M. D. C. to complete and protect its reservation at Upper Falls. It is a pleasantly wooded "puddingstone" outcrop and contributes greatly to the Hemlock Gorge setting.

At Needham Street and Oak Street there is a complex of industrial buildings belonging to Stowe-Woodward, Inc. The buildings have some architectural appeal from the street, but both the Charles River and its tributary, South Meadow Brook, have suffered from neglect and abuse. Access along South Meadow Brook and a visual easement for a planting buffer along the River are recommended as high priority steps for improving the conditions that have resulted from misuse of the River's edge on the Stowe-Woodward property.


Route 9
Route 128
Nature Interpretive Area
Historical Area
Upper Falls
Elliot Street
CHARLES RIVER PATHWAY SYSTEM
N

Newton Lower Falls to Waltham

AERIAL VIEW OF NEWTON LOWER FALLS

Newton Lower Falls to Waltham

Natural Features - The series of natural and man-made cascades at Newton Lower Falls, and the open water, wetlands, and surrounding uplands of the Lakes District in Auburndale are the most dramatic natural features of this stretch of the Charles River. Like Upper Falls, the cascade at Lower Falls was once surrounded by forest. Today the predominant features are man-made. Still, the sights and sounds of the falls themselves do much to enhance the surroundings.

On the Wellesley side of the River there is a steep, wooded hillside owned by the M. D. C. that contributes much to the visual appeal as the trees change with the seasons. The hillside is a small but rich wildlife habitat. On the Newton side there is a visual easement controlled by the M. D. C. which has preserved a buffer of vegetation along the riverbank.

The eighteen-hole Leo J. Martin Memorial Golf Course, downstream of Route 16, is operated by the M. D. C. and is located in both Newton and Weston. The golf course, plus other M. D. C. and City ownerships along the River, occupy most of the four-mile reach from Newton Lower Falls to Waltham. The golf course lies along the fault line forming the western edge of the Boston Basin. The River is edged by a stand of trees and shrubs which is wide enough to accommodate a pathway and is separated by a steep slope along most of its route through the golf course.

The so-called Lakes District of the Charles River has long been a famous area of natural beauty. The Moody Street Dam flooded the upstream area, slowed the flow of the River, and created a series of lakes and coves with a few islands. The flooded area also includes Flowed Meadow, once farmland. That portion of Flowed Meadow which has not been used for the City's landfill area is a rich wetland habitat for plants and animals. The combination of open water, deep marsh, meadow, wooded swamp, and mixed upland forests provides an area with a variety of plant and animal species.

Man-Made Features - Transportation structures are by far the most dramatic man-made features along this stretch of the River. Railroads, the M. B. T. A. Riverside Terminal, Route 128, the Massachusetts Turnpike, and Route 30, all converge in the area between Lower Falls and Auburndale. Transportation planners have said that this concentration of facilities makes this area second only to downtown Boston in its degree of accessibility. Hence, there is great pressure for additional development in the neighborhood of this interchange. However, many of the

undeveloped sites abut the River and have a tradition of, and special suitability for, recreation use. Other sites are steeply sloped or broken up by the transportation lines that provide the access.

Still, some land is not heavily developed and the pressure can be expected to continue for additional development density in the area sometime in the future. It is important that any new developments be planned so as to minimize adverse effects on the River, and the valuable areas of natural beauty that remain.

Other important man-made features near the River include the Marriott Hotel, Auburndale Park, the remainder of the site of the old Norumbega Park, the M. D. C. Police Station, the canoe livery, the duck feeding area, the site of the abandoned Riverside Recreation Area, two golf courses, and the old mills and newer commercial and industrial buildings at Newton Lower Falls.

History - George Washington, Benjamin Franklin, Samuel Adams, and other patriots crossed the Charles River on their trips between Boston and Philadelphia near the site of the existing Route 16 (Washington Street) bridge at Newton Lower Falls.

The first dam was built by Caleb Church and John Hubbard in 1704 to power a forge shop. By the latter half of the 1800s, three dams and a variety of mill buildings were clustered on both sides of the River. They formed the nucleus for the village of Lower Falls which had become famous for papermaking.

In 1873 the City of Newton, with the assistance of the Town of Needham, undertook the construction of a new bridge at Lower Falls. Not only did the bridge have to cross over the top of the dam on the Charles, it had to provide for the continuation of raceways to the mills which lined both banks of the River. Although most of the mill buildings have been replaced, the vestiges of the raceways remain under the existing bridge.

Some of the Lower Falls mill buildings and associated nineteenth century structures still exist and have been adapted to modern uses. These buildings and newer additions contribute to the historic and architectural interest of the Lower Falls.

Farther downstream the River flows past Riverside and Auburndale. Riverside was a popular area, especially for canoeists, in the late 1800s. Several canoeing and boating associations had built boat houses along the River's edge.

Charles Hubbard, a Riverside landowner, added other athletic facilities which were available on a membership basis. By 1898, facilities included an outdoor swimming pool, two large dormitory buildings, dressing rooms, a restaurant, six double tennis courts, racks for 150 canoes, ball fields, picnic areas, and a quarter-mile cinder running track.

In 1920 the 40-acre site was turned over to the Metropolitan District Commission. It continued to be heavily used until the 1950s. Revenues began to fall below expenses and no maintenance funds were provided by the Commonwealth of Massachusetts. The construction of Route 128 and the Massachusetts Turnpike took more than four acres of Riverside's land, the tennis courts, the cinder track, and destroyed much of the natural setting. The end of the site's recreational use cane in 1959 when the buildings were destroyed by fire. Plans are in process to restore tennis, picnicking, and to add skating and other recreation facilities to the site.

AERIAL VIEW OF LAKES DISTRICT

AERIAL VIEW OF 128 AND MASS PIKE INTERSECTION

Originally developed by a street railway company to encourage weekend use of its services, Norumbega Park was once the most popular day resort on the Charles River. The private amusement park included a deep park, an amphitheatre for 1,200 people, a merry-go-round, an electrified fountain, a daily band concert, 150 canoes, launches and paddle boats, rustic paths, and the memorable Totem Pole Ballroom. It opened on the seventh of June in 1897 and was an immediate success. A twenty-five-cent fare from Boston included admission to the Park. Its location on the banks of the River added immeasurab1y to its popularity. As occurred with other recreation sites along the River, the Park's appeal was diminished as water quality deteriorated and as people had increasing opportunities to travel to more remote weekend destinations. After sixty-six summer seasons, Norumbega was closed in 1964. A portion of the site was used for the Marriott Hotel which opened in 1969.

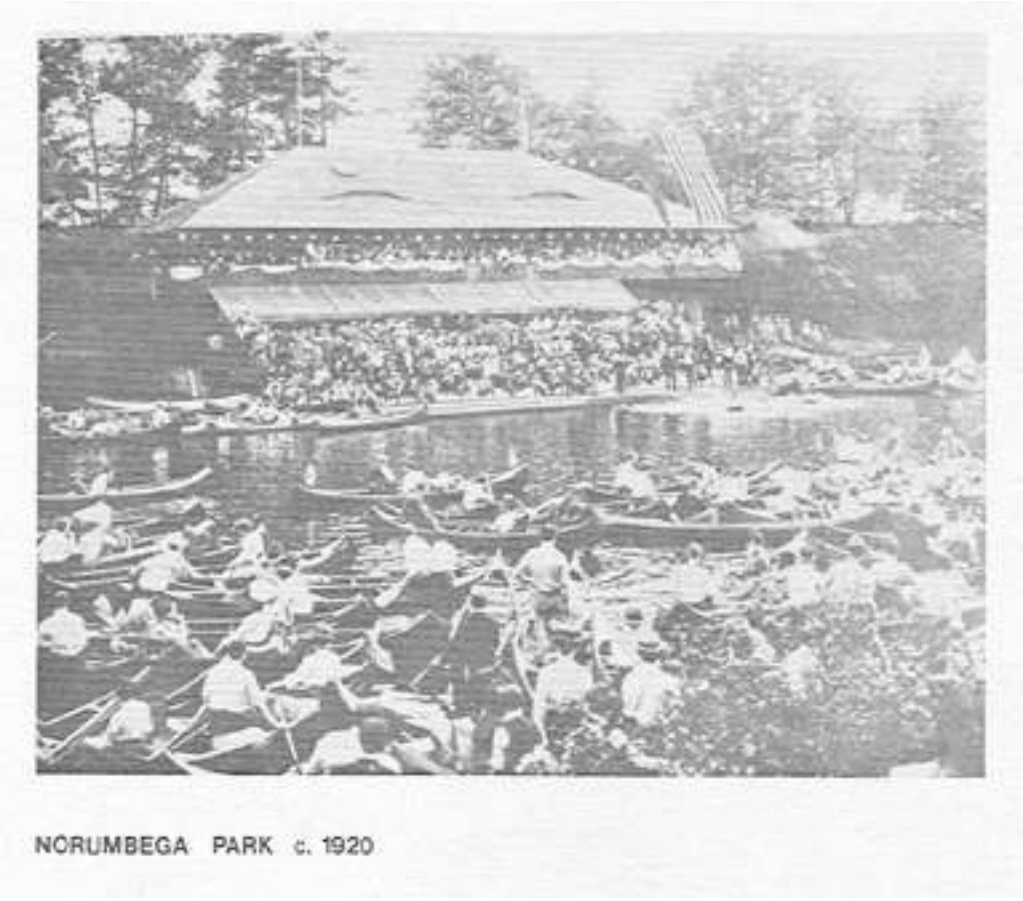
Auburndale is one of the villages which comprises the City of Newton. Prior to 1800 most of the area called Auburndale was divided into four large farms belonging to the Robinson, Greenwood, Child, and Williams families. After 1800 the sons of the original farmers and others began to subdivide the land into smaller and smaller parcels as the village became populated. For well over 150 years the section of the Charles River flowing past Auburndale has been called the "Lakes District".

This area and its adjacent wooded hillsides has been acclaimed by generations as one of the most scenic areas along the River. The following undated quote conveys some of the attractive activities which have occurred on the Lakes District,

> “. . .This lovely spot has scarcely been known beyond the limit of the inhabitants who have quietly taken possession of the elegant site on either bank, and beautified and adorned them for their own pleasure. But the enterprise of man has invaded it, not to destroy, but to allow the public to partake of the enjoyment. The well-appointed steamer, White Swan, owned and commanded by Captain Gibbs, now plies regularly between Waltham and Auburndale Bridge, carrying picnic parties, etc. . .
> Along the banks of the River are located the summer residences of Messrs. Cutler and Merrill, the residence of R. M. Pulsifer, Mayor of Newton, the splendid mansion of ex-Mayor Fowle, the Benyon Mansion and another opposite to the

> residence of Mr. Pulsifer is Lily Pond Grove, one of the most beautiful summer resorts in New England. . . At sunset the River is alive with canoes, rowboats, and gentlemen, adding. . . greatly to the natural charms of the scenery. . we commend a trip on the White Swan, and a few hours stroll on the banks of the Charles. . ."

Beyond Auburndale the Charles River flows into Waltham. The 600 acres of Waltham south of the Charles River was the subject of considerable dispute. Prior to 1849 the area was part of Newton, but it had been settled by and was more closely aligned with the residents of Waltham, especially since the establishment of the Newton Chymical Works (a Waltham company) south of the River in 1825. The completion of the Moody Street bridge in 1846 finally prompted Waltham to petition the General Court and the area was annexed to Waltham in 1849.



NORUMBEGA PARK c. 1920

Pathway Location - Newton Lower Falls to Waltham - (4.7 miles)

From Quinobequin Road the pathway proceeds along the edge of the River to Washington Street (0.0 mile) which it follows to the

passageway to the footbridge over Cordingly Dam (0.1 mile). This footbridge is scheduled for rebuilding as part of the Lower Falls renewal program. While it is currently impassable, the bridge is in one of the most picturesque locations along the pathway. It affords magnificent views of the old and new buildings of Lower Falls and has the benefits of the sight and sound of the cascading water over Cordingly Dam and the natural falls. When completed, this footbridge will take the path to the Wellesley side of the River, past some commercial and industrial buildings to the wooded hillside owned by the Metropolitan District Commission.

The pathway will proceed along the hillside until it rejoins Washington Street (0.6 mile). Until the footbridge is rebuilt, the pathway will proceed along Washington Street to its intersection with Concord Street. From the Washington Street bridge the pathway continued on M. D. C. land between Concord Street and the River. At 0.7 mile the M. D. C. ownership ends and a scenic easement begins. The easement will have to be modified to permit public access behind four houses. Until the easement is changed to permit access, the pathway will utilize Concord Street until it meets with the abandoned railroad (0.8 mile), which leads left, back to the River.

From the railroad embankment the pathway continues along the M. D. C. Reservation to the Leo J. Martin Memorial Golf Course (0.1 mile). A fence currently separates this M. D. C. holding from the golf course and would require an opening to accommodate the pathway.

The pathway follows the River through the golf course. For most of this distance the pathway can be located along the edge of the River and conveniently separated from the fairways and greens by the existing riverside planting buffer. The eleventh hole is one exception. Here (1.5 miles) the tee has been extended into a riverside marsh and the pathway would have to cross the fairway or the fairway would have to be shortened so that the pathway could pass behind the tee.

The pathway crosses Concord Street (1.6 miles) and proceeds along the River on the edge of the golf course well separated by both planting buffer and topography. At 2.2 miles the pathway comes to Route 128 after passing through a wooded area and utilizes the abandoned railroad bridge to cross the highway. Following the railroad right-of-way, the main trail crosses Recreation road and joins part of the old trail system that was once part of the Riverside Recreation Area (2.4 miles}. This Newton bank of the Riverside Recreation Area has recently been

reacquired and added to by the Metropolitan District Commission. Here the trail is conveniently accessible from the Riverside M. B. T. A. terminal.

DETAIL OF LAKES DISTRICT

The pathway follows the River's edge on the old path system of Riverside to the Penn Central Railroad bridge (2.8 miles). Here a pedestrian underpass provides safe access to the other side of the railroad. The pathway proceeds along the River. It passes

under the Massachusetts Turnpike (3.0 miles) on a steep bank between Oakland Avenue and the River to Commonwealth Avenue (3.2 miles). The crossing of Commonwealth Avenue is aided by the traffic signal near the M. D. C. Police Station. From the offices of the Charles River Watershed Association, housed next to the Police Station, the pathway parallels Commonwealth Avenue past the Marriott Hotel (3.4 miles) until it reaches the former Norumbega Park property (3.6 miles).

While the Norumbega property's future is not settled at this time, one aspect seems certain. The Charles River Pathway will pass through the former amusement park and continue part of its tradition as a recreation facility. This entire site is recommended for acquisition by this plan as it is one of the few remaining open areas along the River and will significantly expand the recreation opportunities of the pathway user. (See section on acquisition to follow.)

After passing through Norumbega Park and the River Path (City-owned), the pathway will cross Islington Park (City-owned) (3.8 miles) and ideally would go down Islington Road to a path designated On City maps as Causeway (3.9 miles). This City-owned right-of-way would provide access to an improved crossing of Wares Cove to Auburndale Park (4.0 miles). However, until these improvements can be made and the question of Norumbega Park is resolved, the Charles River Pathway will follow Commonwealth Avenue to Auburndale Park where it will follow existing trails to the boundary between Newton and Waltham (4.7 miles) where it would join the Waltham Path System.

Nature Interpretive Area - Flowed Meadow is a rich and varied wildlife habitat. Consisting of deep marsh, shallow marsh, meadow, and wooded swamp, it is surrounded by a wide variety of upland types adding to the diversity of wildlife and plant species. A specially designed side trial can be provided on currently used informal trails to give access to the wide variety of habitats. A guidebook, labels, and interpretive signs would make this area a valuable resource for nature study.

Historical Area - Newton Lower Falls is an important historic and visual resource for the City and the pathway user. Its architecture is an interesting chronicle of the changes that have shaped the village. The old mill buildings and associated structures have been adapted to modern uses. Historic markers and brochures could explain the history of the village, the individual buildings, the dam, and the falls.

Exercise/Jogging Course - A course consisting of exercise stations connected by a jogging course has been completed at Auburndale Park. The course is an excellent supplement to the Charles River Pathway and to other facilities in the Park.

Canoe Launching Sites - Access for the launching of private canoes is currently limited to the Riverside Recreation Area and the M. D. C. duck feeding area off Route 30 in Weston. Improvements to both these areas are recommended to improve accommodations for canoeing.

Canoe Landing Sites - Places for landing a canoe and exploring the shore are possible upstream of Route 128 (Newton side), at Newton Lower Falls (Wellesley side downstream of Route 16 bridge), at the M. D. C. Golf Course (Weston side near clubhouse), Riverside (both banks of the River), Norumbega Park, and Auburndale Park.

Canoe Rental - As mentioned above, the Lincoln Guide Service is currently operating a canoe rental concession at the M. D. C. Police Station on Commonwealth Avenue (Route 30). Similar rental facilities are proposed at Riverside and Lower Falls. These canoe liveries offer an opportunity to combine canoeing and walking along the River.

Side Trails and Loops - Several side trails and loops are possible along this section of the pathway:

1. The first side trail joins-the main pathway at the abandoned bridge (0.8 mile) and utilizes the railroad right-of-way between Wellesley/Newton Lower Falls and the bridge across Route 128, cutting off the walk through the golf course. This trail is 0.7 of a mile in length and can be used in conjunction with the pathway to make a 2.2-mile loop from Riverside to Newton Lower Falls or to Wellesley.

2. An additional set of side trails is located in the vicinity of the Riverside M. B. T. A. Terminal and the Riverside Recreation Area. These informal paths are more or less parallel to the main pathway and are a means to explore adjacent areas.

3. An attractive iron footbridge crosses the River from Newton to Weston at Riverside.

4. An alternative route from Riverside to Commonwealth Avenue is possible using Oakland Avenue and an underpass

beneath the Massachusetts Turnpike. These trails in the vicinity of Riverside offer several opportunities for loops as can be seen from the map.

5. Additional side trails meet with the main pathway at Auburndale Park. Most important of these is the nature trail loop in the Flowed Meadow Interpretive area. This 0.6-mile proposed nature trail joins the pathway at 4.3 miles, just beyond the baseball diamond and proceeds along the edge of the wetland to an old City right-of-way and rejoins the pathway at 4.5 miles. It is also accessible from the Auburndale Park parking lot on West Pine Street and from Staniford Street. The recommended side trail crosses the back of the proposed housing site on Staniford Street.

Picnic Sites — Picnic sites are recommended for:

1. Riverside Recreation

2. Norumbega Park

3. One of the most popular picnicking sites in the City is Auburndale Park. Its full schedule of group reservations attests to the need for additional picnic sites and adds weight to the recommendation to acquire the remainder of Norumbega Park.

Rest Rooms - Public rest rooms are presently provided at Auburndale Park, the golf course, and at the M. D. C. police station/boat livery at Commonwealth Avenue. Additional facilities for public convenience are recommended at the proposed canoe liveries at Riverside, at Lower Falls, and at the proposed Norumbega Park.

Parking

1. Small parking areas can be provided at each of the proposed canoe liveries. The liveries are also located to be accessible by mass transit.

2. Parking for approximately 75 cars is recommended at Norumbega Park.

3. Parking areas exist at Auburndale Park and at Riverside.

4. Some of the commercial building parking lots can provide additional riverside parking. These private lots are

often empty during weekends. Agreements for their use can be negotiated as the need arises.

Acquisitions - A few privately-owned undeveloped sites still exist along the River between Lower Falls and the Waltham line. The acquisition of public access to these last remaining private parcels will complete a continuous public right-of-way along the entire stretch of River from Lower Falls to Waltham.

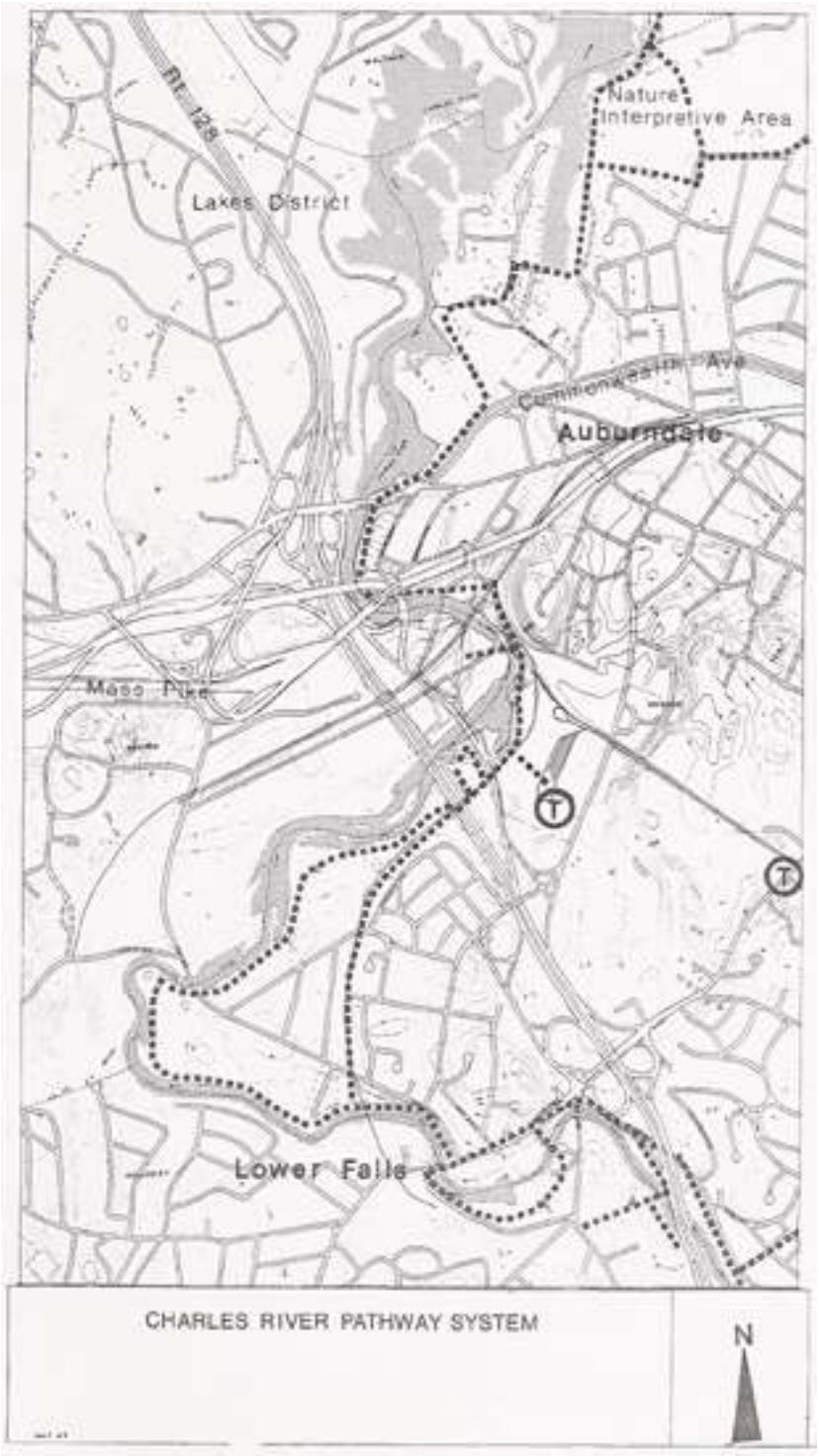
1. The existing M. D. C. visual easement on the River side of the four houses along Concord Street downstream from Washington Street bridge should be revised to permit public access so that the pathway may proceed along the River.

2. The right of public access to the Lasell Junior College boathouse [0.4 acre) is also necessary for the pathway to pass under the Massachusetts Turnpike and on to Commonwealth Avenue.

3. The remainder of the former Norumbega Park has been recommended for acquisition by a variety of citizen groups and by the Conservation Commission. This plan recommends the acquisition of the entire site as a desirable addition to the City's open space system. This site is one of two large, undeveloped, privately owned open areas along the River in Newton. It is a unique recreation resource. The riverbank, the knolls, and the open field command unsurpassed views of the Lakes District and provide space for a wide variety of activities and events.

4. The acquisition of the Staniford Street site is recommended. On it would be the nature interpretive trail which would lead into the Flowed Meadow.

5. This plan recommends that jurisdiction over the remainder of the Flowed Meadow, which is already City-owned, be transferred to the Conservation Commission.


Rt. 128
Nature Interpretive Area
Lakes District
Commonwealth Ave
Auburndale
Mass Pike
Lower Falls
CHARLES RIVER PATHWAY SYSTEM
N

Farwell Street Bridge to Boston Boundary

Farwell Street Bridge to Boston Boundary

Natural Features - As the Charles River leaves Waltham and once again forms the boundary of Newton, it is much more constricted by development along both its banks. Still, a number of features merit discussion.

This pleasant section of the River is bordered with lush vegetation and is frequented by a variety of wildlife including songbirds, pheasants, and waterfowl. Occasional raccoon and rabbit tracks are seen in the mud of summer or Snow of winter.

Perhaps the most important area is just upstream from Bridge Street and the Bemis Rolling Stone Dam. Here a steep embankment separates the River and its narrow valley from the residential neighborhood along California Street. Before the dam was creached, a portion of this valley was covered by the mill pond. Today part of this area is a wet meadow supporting cattails, sedges, and a variety of other interesting vegetation.

The M. D. C. Reservation which extends upstream to Cheesecake Brook also provides one of the more extensive and diverse wildlife habitats along the lower section of the River. Other areas of important natural features include the small, wooded M. D. C.-owned peninsula near Allison Park and the wooded banks downstream from Watertown Square.

Man-made Features - The predominant features of this section of River are man-made. Here, more than any other section of the Charles in Newton, we find examples of both good and bad riverside use. Old landfill and dump areas are no longer operating. Commercial and industrial establishments sometimes abuse their riverside locations by expanding their operations onto the banks. Nevertheless, it is here that the M. D. C. has a continuous stretch of ownership, running from Cheesecake Brook to the Charles River Basin, with but one slight interruption at Bridge Street. But for this and another interruption upstream of Cheesecake Brook, the continuous M. D. C. ownership of the riverbank would stretch the entire 3.1 miles from Farwell Street to the Boston boundary.

The old Bemis mills at Bridge Street form one of the most interesting mill complexes on the River. Allison Park can add interest to the pathway. Continuing downstream, Watertown Dam is in that part of Watertown known as "the Wearlands" and at the Newton/Boston line are the Newton Yacht Club and the M. D. C. sports facilities.

History - Cheesecake Brook, one of the important tributaries on the Charles River, reportedly owes its name to the picnic lunch of some early settlers who, while on a hunting expedition, sat down on the brook's bank to eat their lunch of cheesecake and quenched their thirst from its refreshing waters. The brook has been much altered since those times, but it remains to enhance its neighborhood, unlike so many other waterways that have been culverted and covered over as roadways. Its present condition is due to considerable effort on the part of local residents in the 1800s. It was once proposed that the brook be deepened and widened to make Newton a port of entry with a custom house and other appropriate accompaniments.

In the 1870s, Cheesecake Brook was enlarged to make a pond where James F. Allen provided swimming, baths, and gave swimming lessons to women and children. It was curbed and confined within its present stone walls just prior to 1890 and was noted as an example of the kind of public reservation that contributes to the River and to the public enjoyment of its setting.

David Bemis first built a dam and paper mill at Bridge Street in 1760. The Bemis family operated mills on this site for 100 years.

In the early 1820s the Boston Manufacturing Company, which owned the cotton mills at Moody Street in Waltham, found that water which was backed up by the Bemis dam hampered the rotation of their waterwheels.

The company offered Seth Bemis, son of David Bemis, one thousand dollars per inch for every inch he would consent to lower his dam. Bemis lowered the crest of his dam twelve inches and in 1822 installed the only rolling stone dam ever built in North America. This unique type of dam consisted of an inclined plane and a cylinder which went across the River. The cylinder could be moved up and down the stone incline to vary the crest of the dam so that Bemis could lower the level of his millpond when necessary.

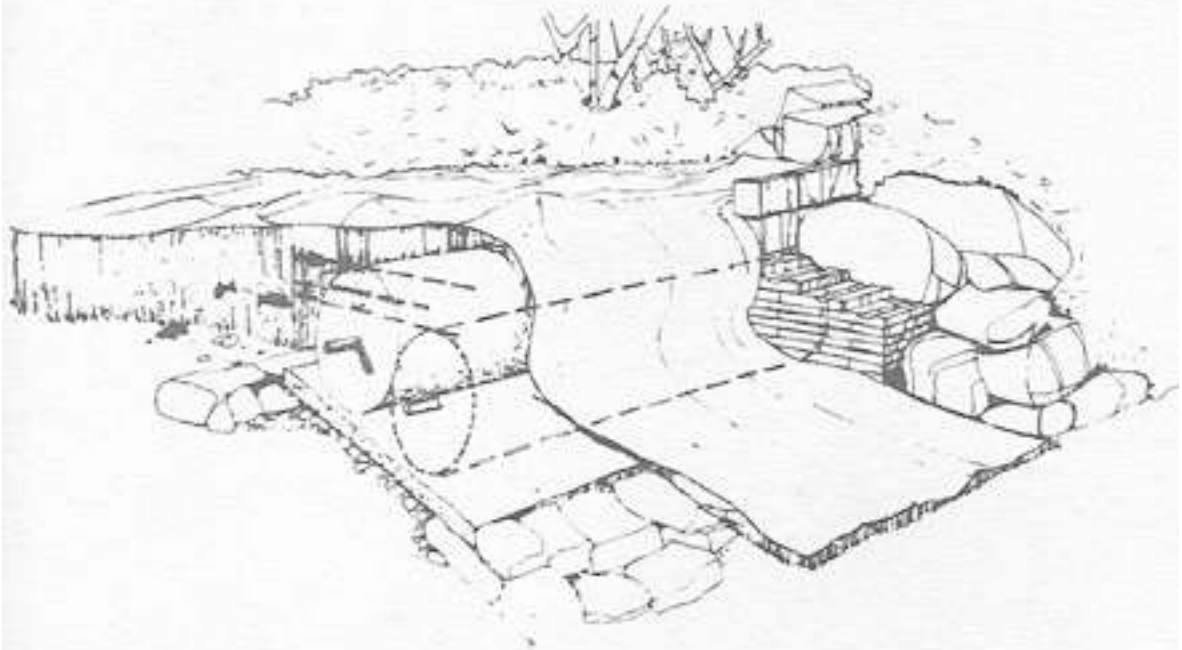
In the 1860s the Aetna Company utilized the mill buildings at Bridge Street for the manufacture of textiles. The Aetna Mills had one more interesting modification in the 1880s. Power was transferred from one side of the River to the other by an endless cable which spanned the 125 feet and passed over waterwheels in both buildings. Thus the power from both waterwheels could be directed to the machinery in either mill, or they could be used independently, depending upon the requirements for power.

Nonantum's history is closely tied to the Indians and John Eliot, the preacher to the Indians. High on the banks overlooking the Charles River was a favorite campsite for the Indians fishing at the Weirs below. The name for the campsite, Nonantum, has been translated as "the place of our gladness". As more and more settlers came, the Indians were more confined and restricted by the farms and homesteads.

Nonantum was the local Indian settlement and John Eliot would travel from settlement to settlement preaching to the Indians and teaching them how to live among the settlers. The Nonantum site was small and increasing demand for its use by the colonists resulted in the establishment of more remote towns reserved for the Indians. The Town of Natick, further up the Charles River, was one of these.

General Hull's brewery, described by the Reverend Jonathan Homer in his History of Newton in 1798, is believed to have been somewhere near the present Hyde Brook outlet along Nonantum Road.

BOSTON MANUFACTURING CO. MILL MOODY STREET WALTHAM c. 1920



ROLLING STONE DAM

Pathway Location - Farwell Street Bridge to Boston Boundary (3.0 miles)

The Charles River Pathway proceeds from Waltham into Newton at the Farwell Street Bridge (0.0). After some improvement to the M. D. C. right-of-way at the riverbank and the acquisition of the parcel adjacent to the River between Farwell Street and Cheesecake Brook, the pathway will be located along the edge of the Charles River from Farwell Street to Cheesecake Brook.

Presently the pathway user must take Farwell Street and Anthony Circle to arrive at the M. D. C. Reservation stretching from Cheesecake Brook on downstream. The brook (0.3 mile) has a pedestrian crossing just upstream from its mouth, but a more convenient crossing for the pathway user is proposed where the brook joins the River.

The pathway crosses Bridge Street and continues along California Street past a small store and four houses after which it turns left to rejoin the M. D. C. Reservation (0.9 mile). The pathway passes Allison Park (1.25 miles) and goes through a wooded peninsula at a bend in the River. It then passes behind a group of commercial and industrial buildings (1.4 miles) to the boundary of the Watertown "Wear Lands" (1. 5 miles).

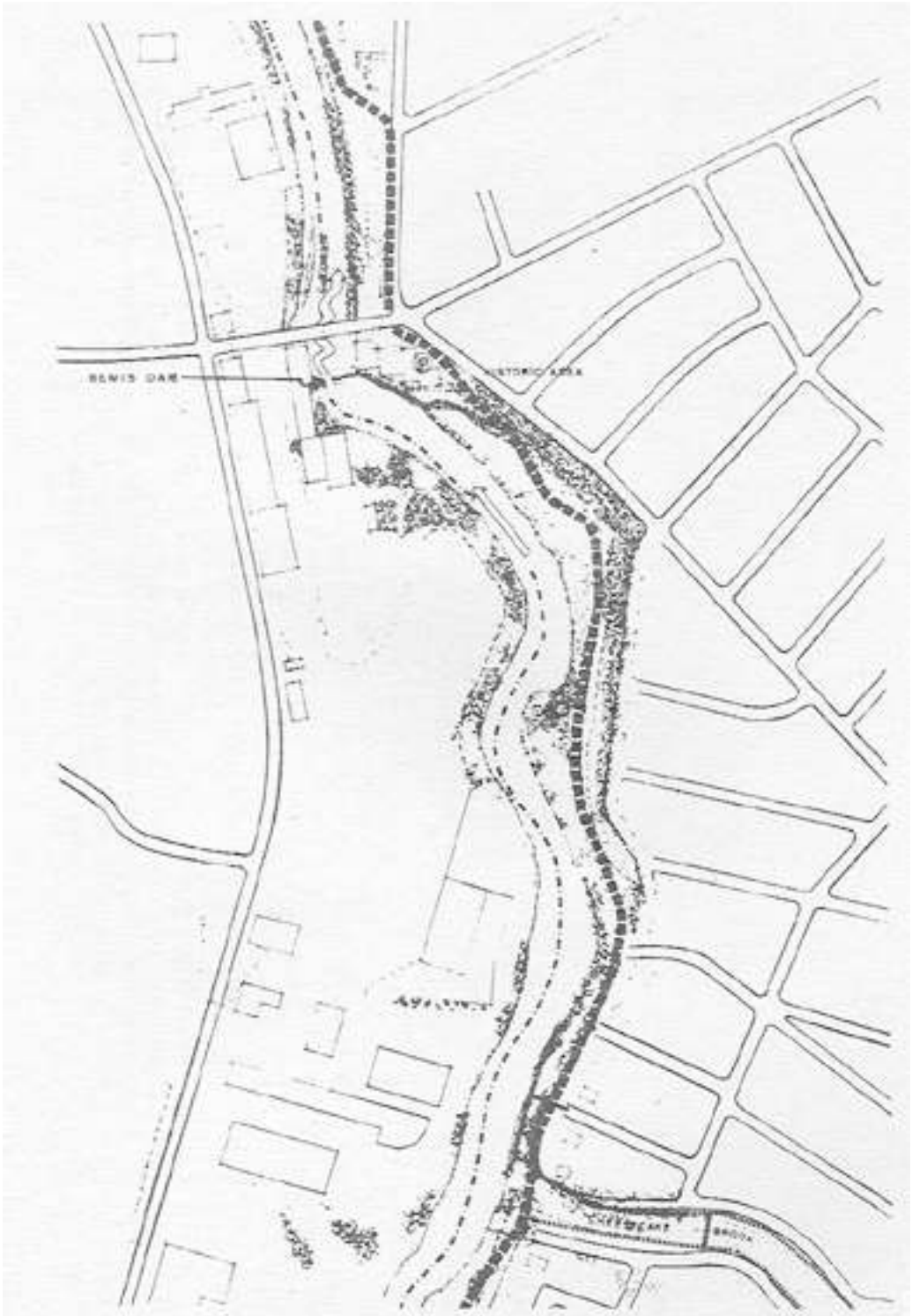
A footbridge (1.6 miles) leading to the M. D. C. Dealtry swimming pool on the north bank, a small group of picnic tables and benches are passed before coming to Watertown Dam and its fishway. The pathway continues past Laundry Brook outlet and the Galen Street Bridge at Watertown Square (1~9 miles) and reenters Newton along Nonantum Road, a Metropolitan District Commission parkway.

The pathway user may cross Galen Street Bridge and use the M. D. C. Reservation on the north bank of the Charles. The Newton Yacht Club (2.7 miles) is passed on the south bank just before the M. D. C. Reservation broadens. The pathway continues along the edge of the River behind the M. D. C. skating rink (2.9 miles) and ends at the Newton boundary with Boston (3.0 miles).

Pathway Features - Farwell Street Bridge to Boston Boundary

Historical Area - The Bemis mill complex and rolling stone dam site at Bridge Street.

Canoe Launching/Landing Site - Watertown Dam is the only one mentioned by the Charles River Canoe Guide.



DETAIL OF BEMIS DAM AREA

Side Trails and Loops

1. Cheesecake Brook to Albemarle Playground - provides access from the River to the playground and its many facilities, including a swimming pool, or from the surrounding neighborhood to the Charles River Pathway. Beyond Albemarle Playground, the side trail loop would continue across Watertown Street along Cheesecake Brook to West Newton Square. The path would continue to West Newton Playground, through the Dolan Brook wetland open space, the Burr School Playground, to the Flowed Meadow/Staniford Street open space, thus cutting off the Waltham section of the River Pathway.

2. The old course of Laundry Brook through Boyd Park and along Jackson Road to Washington Street - this side trail provides important access to the pathway through a pleasant area with considerable historic interest.

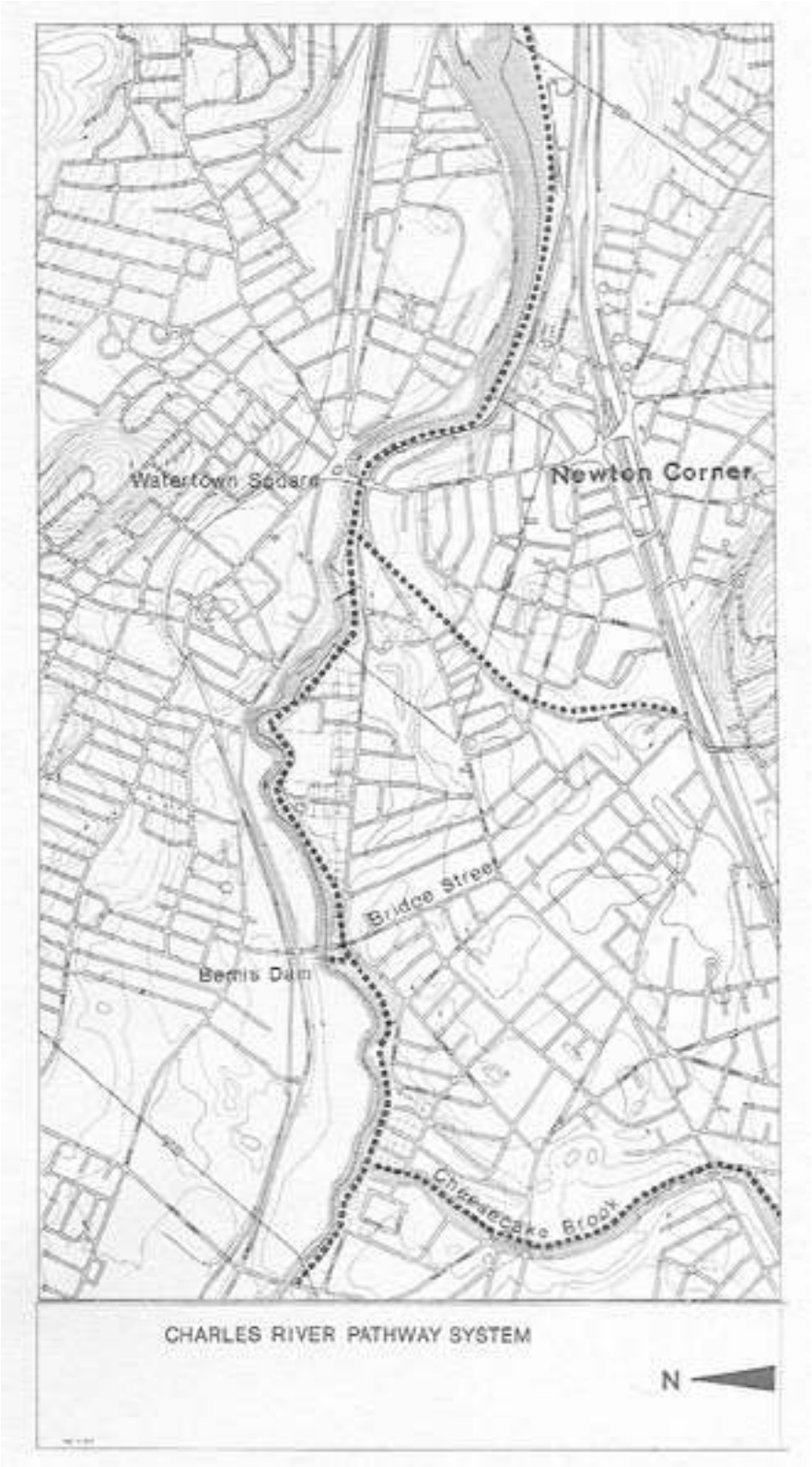
Picnic Sites - Existing picnic tables are located near Watertown Dam at California Street and near the M. D. C. skating rink On Nonantum Road. A few carefully located tables are recommended upstream of Bridge Street near the Bemis mill complex. Informal picnicking is possible at a variety of other locations along this section of the River.

Parking - Street parking exists along much of this Farwell Street to Boston section of the River. Parking areas currently exist at Allison Park off California Street and at the M. D. C. skating rink on Nonantum Road.

Acquisitions

1. One serious interruption in the continuous public ownership exists along this section of the pathway. This 2.8 acre parcel, recommended for reacquisition, was part of the M. D. C. Reservation, but was sold in 1960 along with adjacent land which was eventually developed with houses on Anthony Circle. It abuts the River for 600 feet and has one house which could remain on the property since it would not obstruct the pathway.

2. The acquisition of a facade easement to protect the Bemis mill is recommended because the future use of this site is subject to speculation. A facade easement would protect the public interest in the historic resource and would allow the owner to utilize the interior for its highest use.


Watertown Square
Newton Corner
Bridge Street
Bemis Dam
Cheesecake Brook
CHARLES RIVER PATHWAY SYSTEM
N

APPENDIX

SOIL FEATURES AND DEGREE OF LIMITATIONS AFFECTING USE

GENERALIZED SOIL TYPE AND SLOPE	PICNIC AREA	TRAIL	INTENSIVE PLAY AREA
Muck and Peat 0-5% Slope	Moderate/Severe (W D)	Moderate (W D)	Severe (W D)
Clays 0-5% Slope 6-12% Slope 13-18% Slope Over 19% Slope	 Moderate (D T) Moderate (E T) Moderate (E T S) Severe (E T S)	 Slight (D T) Slight (E T) Moderate (E T S) Severe (E T S)	 Slight/Mod.(D T) Moderate (E T) Severe (E T S) Severe (E T S)
Silt 0-5% Slope 6-12% Slope 13-18% Slope Over 19% Slope	 Slight Moderate (S) Moderate (S) Severe (S)	 Slight Slight Moderate (S) Severe (S)	 Slight Moderate (S) Severe (S) Severe (S)
Sand and Gravel 0-5% Slope 6-12% Slope 13-18% Slope Over 19% Slope	 Slight Slight Moderate (S) Severe (S)	 Slight Slight Moderate (S) Severe (S)	 Slight Moderate (S) Severe (S) Severe (S)
Loam 0-5% Slope 6-12% Slope 13-18% Slope Over 19% Slope	 Slight Slight Moderate (S) Severe (S)	 Slight Slight Moderate (S) Severe (S)	 Slight Moderate (S) Severe (S) Severe (S)
D — Drainage E — Erosion T — Texture S — Slope W — Wet			

SUMMARY TABLE OF ACQUISITIONS

	Lot Number	Area Sq. Ft.	Acres	Assessed Land Value x 3[4]	Recommended Action
Saw Mill Brook Reservation to Needham Street 1. Novitiate Property 601 Winchester Street	83-35-4	2,590,505	59.5	$270,000	Partial Acquisition
2. Charles River Country Club Golf Course Winchester Street Section	83-35-1	997,610	22.9	$59,850	Public Access Easement
3. Industrial Land at Christina & Needham Streets	83-31-25, 83-31-26	111,700 97,600	2.6 2.2	$157,200	Public Access and Visual Easements
4. Wetlands at Industrial Park	84-34-2	1,315,512	30.2	City Owned	Assign Control to Conservation Commission
Needham Street to Newton Lower Falls					
1. Four Vacant Lots off Williams Street	51-46-13 51-46-14 51-46-15 51-46-16	17,100 17,200 17,150 17,100	.4 .4 .4 .4	$6,900	Acquisition
2. WHDH Parcel off Sweet Street	51-46-5	216,220	5.0	$103,800	Partial Acquisition or Public Access Easement
3. Marcy Farm 1173 Chestnut Street	51-45-7	264,020	6.1	$44,700	Partial Acquisition or Public Access Easement
4. Upper Falls Vacant Lot Ellis Street	Part of 51-1-6	43,560+-	1.0	$20,000 (estimate)	Acquisition
5. Industrial Land at Needham & Oak Streets	Part of 51-49-6 51-59-7	108,137 20,136	2.5 .5	$74,600	Visual Easement Public Access Easement
Newton Lower Falls to Waltham					
1. MDC Easement at rear of 165-199 Concord Street	42-28-2 42-28-3 42-28-4 42-28-5 42-28-6 42-28-7	1,190 23,000 5,470 9,960 3,950 10,750	.03 .5 .1 .2 .1 .3	MDC Visual Easement $12,000	Change Visual Easement to easement permitting public access
2. Lasell Jr. college Boathouse	41-1-1	6,280	.1	$3,000	Public Access Easement
3. Norumbega Park	41-23-1&2 41-23-14 41-23-17	562,920 101,542 15,400	12.9 2.33 .3	$101,100	Acquisition
4. Staniford Street	41-31-38	425,552	9.77	$10,950	Partial Acquisition

[4] NOTE: Assessed Land Value x 3 is an approximation of full valuation.

SUMMARY TABLE OF ACQUISITIONS, CONTINUED					
	Lot Number	Area Sq. Ft.	Acres	Assessed Land Value x 3[5]	Recommended Action
5. Flowed Meadow	41-31-43	228,000	5.0+-	City Owned	Transfer Control of Undistributed Portion to Conservation Commission
Farwell Street Bridge to Boylston Boundary 1. 56 Farwell Street River Frontage	21-1-12	121,480	2.8	$12,000	Acquisition
2. Bemis Mill	21-2-1 21-2-2	4,375 41,215	.1 .9	$33,000	Facade Easement

[5] NOTE: Assessed Land Value x 3 is an approximation of full valuation.

CHARLES RIVER PATHWAY
ESTIMATED CONSTRUCTION COSTS

Item	Cost/Unit	Saw Mill Brook to Needham Street 2.4 mi. -12,680 ft.	Needham Street to Lower Falls 3.2 mi.-16,680 ft.	Lower Falls to Waltham Line 4.7mi.-24,820 ft.	Farwell Bridge to Boston Line 3.1 mi-16,360 ft.	Total
Clear and Grub	$.30/sq. yd.	$2,540	$3,375	$4,965	$3,270	$14,150
Bridges*	$10/sq. ft.	($6,000)-2 bridges	--	($10,000)-Causeway	--	($16,000)
Cut and Fill	$30/cu.yd.	--	--	$15,000	--	$15,000
Handrail	$12/ft.	--	$720	--	--	$720
Guardrail	$3/ft.	--	--	--	$3,000	$3,000
Woodchipping* 4 in. deep	$1.50/sq.yd.	($12,680)	($16,880)	$24,820)	($16,360)	($70,740)

TOTAL		$2,540	$4,095	$19,965	$6,250	$32,870

Cost estimates are based on information from Building Construction Cost Data - 1975. These estimates are general and subject upon more detailed design. They are based on construction contracts but do not include overhead, profit or contingencies.

Clear and Grub - Removal of brush, small trees, and stumps to a width of six feet by hand. Estimate based on 260 square yards per man per day.

Bridges* - An estimate for bridges is included as an optional item. Bridge costs may vary greatly depending on materials and design. Estimate is based on six feet wide wooden bridge.

Cut and Fill - Some earth work is required under the Turnpike near Commonwealth Avenue on the slope down to the River. Estimate is based on 500 cubic yards of cut and fill.

Handrail - Approximately sixty feet of steel handrail is needed for the passage under the railroad bridge. Industrial, welded pipe railings are the basis for the estimate.

Guardrail - Parking barriers are suggested along the M. D. C. right-of-way bordering the commercial/industrial area between the River and California Street. Estimate is based on 6 x 6 wooden barriers.

Woodchipping* - An estimate for woodchipping is included as an optional item. A major reduction in the cost of woodchip may be provided if the cleared brush is chipped and applied to the trail surface. Additional woodchips may be supplied to heavily used portions of the trail.

* optional

BIBLIOGRAPHY

Boston and Brookline Conservation Commissions, Charles-To-Charles, Boston, Massachusetts 1973.

Charles River Study Committee, "Report to the Metropolitan District Commission Concerning the Charles River Basin", Boston, Massachusetts 1964.

Charles River Watershed Association, Inc., Charles River Canoe Guide, Boston, Massachusetts 1973.

Charles River Watershed Association, Inc., Collected materials and unpublished historical notes.

Department of the Army, Corps of Engineers, New England Division, Charles River, Massachusetts, Main Report and Attachments, Waltham, Massachusetts, September 1972.

Dincauze, Dena F., "Prehistoric Occupation of the Charles River Estuary", Bulletin of the Archeological Society of Connecticut, No.~ 38, August 1973.

Eliot, Charles W., A Report Upon the Opportunities For Public Open Space In The Metropolitan District of Boston, to the Metropolitan Park Commission, Wright and Potter Printing Company, Boston, Massachusetts 1892.

Eliot, Charles W. II, "The Banks of the Charles River", A Preliminary Planning Study Prepared for the Metropolitan District Commission 1961. Reprinted with permission - by the Wellesley Conservation Council, Inc. 1963.

Eliot, Charles W. II, "Report on Norumbega Park", Newton, Massachusetts 1966.

Giezentanner, W. D. and Pradip Kharidia, "The Proposed Reincarnation of Norumbega Park", Newton Conservators, Inc., Newton, Massachusetts 1975.

Historic District Study Committee, Preliminary Report On A Proposed Historic District in Newton upper Falls, Massachusetts, Newton Massachusetts 1975.

Jackson, Francis, A History of the Early Settlement of Newton, County of Middlesex, Massachusetts, From 1639 to 1800, Stacy and Richardson, Boston, Massachusetts 1854.

Metropolitan Area Planning Council, Volume 3, The Mystic, Charles and Neponset Rivers: Space and Recreation Program for Metropolitan Boston, Boston, Massachusetts 1969.

Planning Department, Recreation/Open Space Plan for Newton, Massachusetts, City of Newton, Massachusetts 1969.

Rowe, Henry K., Tercentenary History of Newton 1630 to 1930, City of Newton, Massachusetts 1930.

Smith, Samuel Francis, History of Newton, Massachusetts, Town and City, from its Earliest Settlement to the Present Time, 1630 -1880, The American Logotype Company, Boston, Massachusetts, 1880.

Sweetser, M. F., King's Handbook of Newton, Massachusetts, Moses King Corporation, Boston, Massachusetts 1889.

Whitehill, Walter Muir, Boston: A Topographical History, Second Edition, Harvard University Press, Cambridge, Massachusetts 1968.