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Lowell

Massachusetts

Report of the
Lowell Historic
Canal District
Commission
to the Ninety Fifth
Congress
of the United States
of America



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The Lowell Historic Canal District Commission



TO
Talk with Roger



The Lowell Historic Canal District Commission was established by Congress in January, 1975 (Public Law 93-645) and charged to prepare a plan for the "preservation, interpretation, development and use of the historic, cultural and architectural resources of the Lowell Historic Canal District, in the City of Lowell, Massachusetts."

Thomas P. O'Neill, III
Chairman of the Commission;
Lt. Governor of the Commonwealth of Massachusetts

* **Robert F. Crecco**
Executive Subcommittee Chairman;
Environmental Affairs Specialist;
U.S. Department of Transportation

* **Dr. Patrick Mogan**
Administrative Officer and Project Director;
Long Range Planner, City of Lowell

Roger S. Babb
U.S. Department of the Interior

Carl J. Byers
Community Planning and Development Office
Boston Regional Office, U.S. Department of
Housing and Urban Development

Leo J. Farley
Mayor of Lowell

* **F. Ross Holland**
Associate Regional Director for
Planning and Resource Preservation,
North Atlantic Region, National Park Service
(since July 1, 1976)

* **Frank Keefe**
Director; Massachusetts Office of State
Planning

Clarence C. Pusey
Expositions Officer for the U.S. Travel Service,
U.S. Department of Commerce

Antonina Uccello
Director of Consumer Affairs,
U.S. Department of Transportation

* **Jerry D. Wagers**
Director, North Atlantic Region,
National Park Service (to July 1, 1976)

Cover: Albert Biro, a loom fixer, employed at one of the last operating textile mills in Lowell.

Photograph by Steve Dunwell

*Members of the Subcommittee

Report of the Lowell Historic Canal District Commission

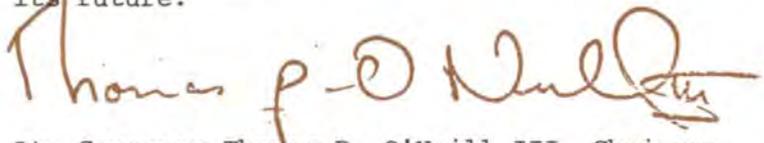
The Lowell Historic Canal District Commission is pleased to transmit to Congress the attached report, which represents almost two years of intensive effort by the Commission and its consultants, The Lowell Team.

The Commission has concluded that the creation of a Lowell National Cultural Park by Congress is the appropriate action for the federal government to take in order to preserve Lowell's historical and cultural resources and to interpret the city's special role in the American Industrial Revolution.

Lowell's importance has already been recognized by state and local governments. The Commonwealth of Massachusetts has committed over \$9 million towards preservation of Lowell's canal system and has directed significant state funds to support public and private projects which encourage preservation and adaptive reuse of the city's 19th Century environment. The City of Lowell has adopted the Park concept as their basis for all local planning and development efforts, and has committed substantial resources to that end over a number of years.

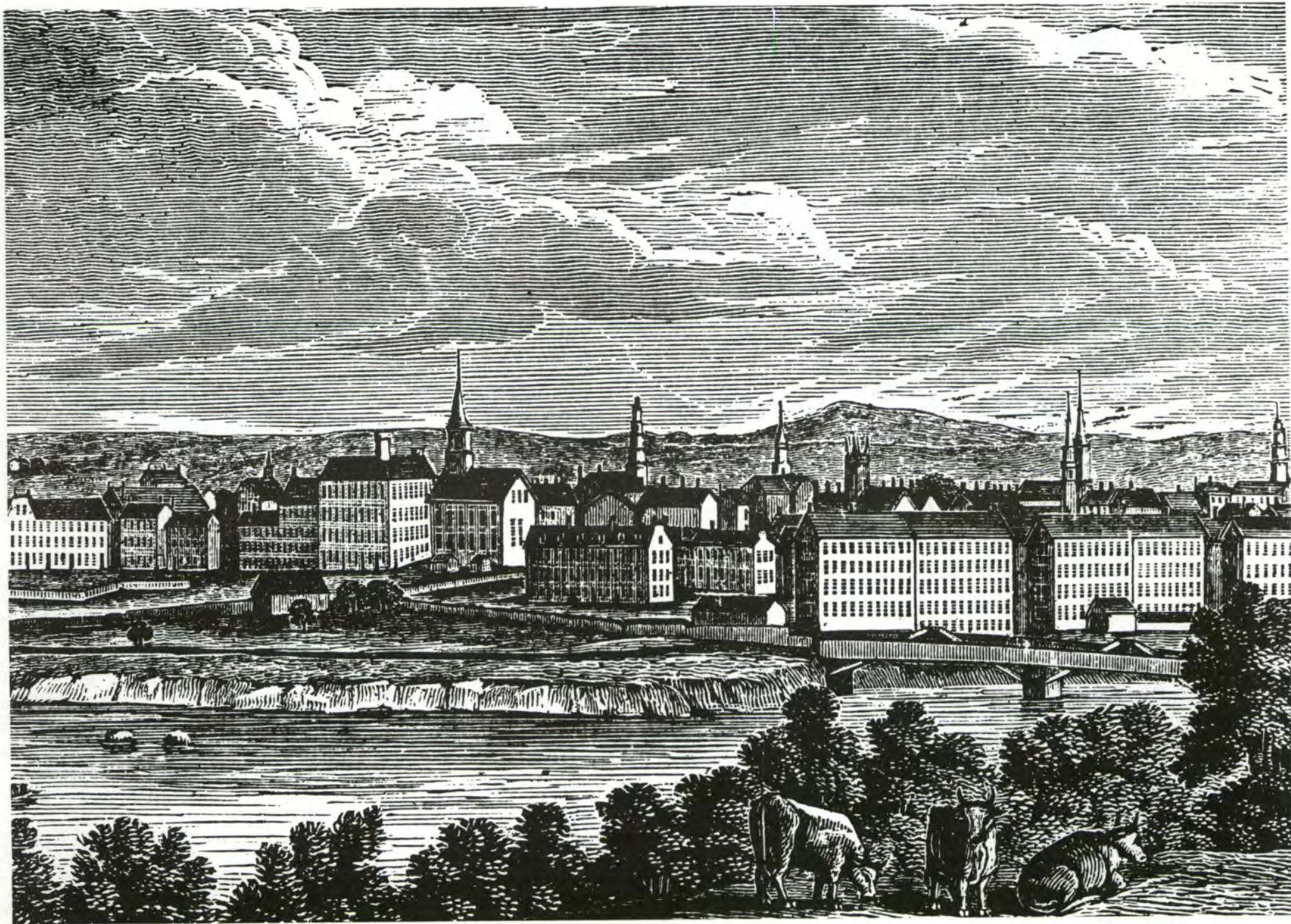
But these efforts are not adequate to the task. The Commission's plan represents an unique invitation to the federal government to join in a creative partnership which would go beyond the reach of any single agency or level of government. This effort would protect significant resources for the benefit of the nation, while helping to revitalize Lowell's economy and environment.

We look forward to a favorable Congressional consideration of the plan, which will bring to fruition the many efforts already made by federal, state and local agencies; private groups; and individual citizens who share a common appreciation for Lowell's past and a vital concern for its future.



Lt. Governor Thomas P. O'Neill III, Chairman
Lowell Historic Canal District Commission
J.F.K. Civic Center, Lowell Massachusetts 01852

January 3, 1977



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Cost Data



Randolph Langenbach

Figure 3 The majority of Lowell's early mill workers were women.

Executive Summary

Introduction

Growth and change have long been dominant in the American system of values. Things which have outlived their usefulness are removed and replaced. As they go, so do our opportunities to learn from them. As a people, we rush forward, urged by a vague and anxious need to keep moving.

Perhaps because the nation is 200 years old, perhaps out of exhaustion, the realization is growing that we have lost touch with what America means. What **does** it mean? How **did** we get here? Who are we? What values reside within our actions? What possibilities lie before us?

Lowell, Massachusetts, provides an extraordinary opportunity for Americans to find answers to these questions, while exploring the roots of their culture and their way of life.

Lowell dramatically illustrates the transition from an agrarian to an industrial society which occurred early in the history of this county. The unprecedented scale of Lowell's industrial development fostered a new life style that changed the vision and self image of Americans. The physical artifacts of this period—the mills, the locks and canals, the machinery—can be converted to living and dynamic monuments to the epoch they represent. The city's multi-ethnic composition and rich collection of traditions and lifestyles is a microcosm of our modern society. Together these resources can be a case study for



Figure 4 Employees of the weaving room in the Wannalancit Mill, one of Lowell's last remaining textile companies.

Sieve Dunwell

Americans to learn about America—how it is and how it was.

This report proposes the creation, by Congress, of a Lowell National Cultural Park to preserve, interpret, develop and use, for the benefit of the nation, Lowell's historic, cultural and architectural resources. However, the park will not simply be a place of pilgrimage for the visitor. It will be a vital and contributing part of its community. The park will offer the chance to do creative preservation in a learning environment; to provide a vehicle for economic progress and a source of local pride. It will restore historical artifacts and capture the spirit of the industrialization period; and it will demonstrate how national parks can help to create learning, living, and working environments that imbue their communities with quality and character.

Importance to the Nation



Figure 5 Lowell in the United States.



Figure 6 Lowell in its region.

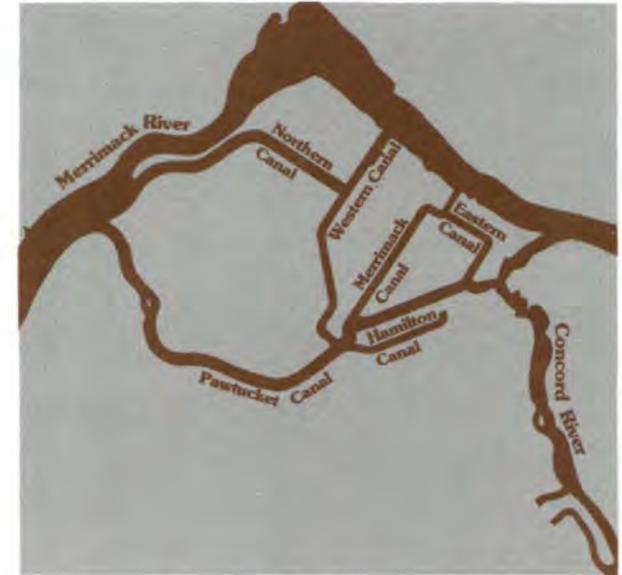


Figure 7 Lowell's canal and river network.

The character and physical roots of Lowell lie in the Industrial Revolution. Indeed, Lowell symbolizes the Industrial Revolution in America. It sums up and expresses in physical form the revolutionary impact of industrialization, the enormous change from a basically agricultural world of farms, crops, animal husbandry and small towns to an urban industrial world of mills, factories and cities. Founded in 1822, Lowell was the first attempt on this continent to wed the utopian ideal of a humane, planned community with the harsh realities of the industrial world which were already so unpleasantly vivid in the slums of industrial England.

Sited at the Pawtucket Falls of the Merrimack River 30 miles north of Boston, Lowell became America's first great industrial city, largely because of its proximity to water power and waterways. The marshalling of cheap labor and the large markets and distribution capacity of

Boston were essential factors in Lowell's growth. As the textile industry grew, Lowell developed into a major population center, drawing immigrants from many origins. The movement of the textile industry to southern states in the early part of the 20th century left many abandoned or marginally used manufacturing buildings, as well as high unemployment.

Unlike other industrial cities of the same era, a very large proportion of early buildings, structures, and districts have survived in Lowell and are now recognized as important historical artifacts. These include the entire 5.6 mile power canal system with its sophisticated dams, locks, and hydro controls; seven of the original ten mill complexes including their elegant clock towers; and significant examples of early housing types, institutions, and transportation facilities.

Also, Lowell's people have retained many of the ethnic neighborhoods, folkways and lifestyles which characterized the city's 19th century development.

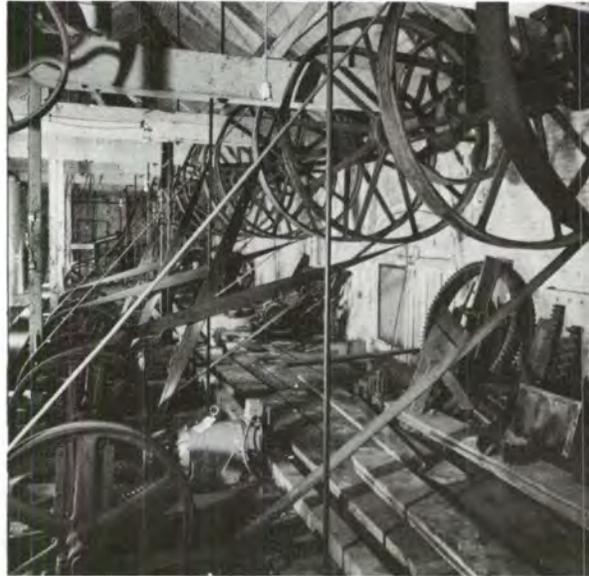
Lowell's creation, development, and eventual decline is a uniquely American story that needs telling in a form that will be understandable and compelling for people of all ages, and especially, perhaps, for young people who may have little sense of where their present world came from. However, the story of the Industrial Revolution has been largely overlooked by the federal government in its efforts to establish the National Park System, which aims to interpret and preserve our heritage. The National Park Service has recognized this deficiency and has identified most of the themes and facets of American History that Lowell represents as being some of the prime areas for future expansion of the Park System.

Figure 8 The Appleton Mills and the Hamilton Canal which once powered them.



Steve Dunwell

Figure 9 Early hydraulic controls still operate in the Northern Canal Gatehouse.



Jack Boucher, Historic American Engineering Record

Figure 10 Ted Larter, owner of Lowell's last surviving textile mill, working on a loom.



Lowell Museum Corporation

Local and State Commitments

Local efforts to preserve and interpret these historical and cultural resources have been underway for some years. The idea of developing an urban cultural park originally grew out of the Model Cities program, where local groups produced a set of objectives and projects aimed at revitalizing the city through a rediscovery of its heritage. From the outset the idea of using the city as a learning laboratory was integral to the proposal.

In recent years, private groups have developed the concept further with the aid of grants from the National Endowment for the Arts and other sources. The City of Lowell has officially endorsed the creation of the park and has underwritten substantial community improvements that support its objectives.

Public agencies and private groups have coalesced behind the park concept as a vehicle for revitalization of the city. Local educational and cultural institutions are investing considerable effort in generating support for the park. Finally, Massachusetts committed \$9 million to develop the Lowell Heritage State Park during one of the most difficult financial years in the state's history. The Heritage Park is aimed at protecting the canal system and developing its recreational potentials.

In spite of these efforts, it is beyond the means of state and local government to secure and interpret many of Lowell's historical and cultural resources. An overriding problem is that currently over 1,500,000 square feet of space remains vacant in historic buildings throughout the city. The future of these buildings is threatened unless they can be recycled for preservation and economic growth. The state and city also do not have the resources to develop either large scale interpretive programs or visitor facilities to serve a national audience.

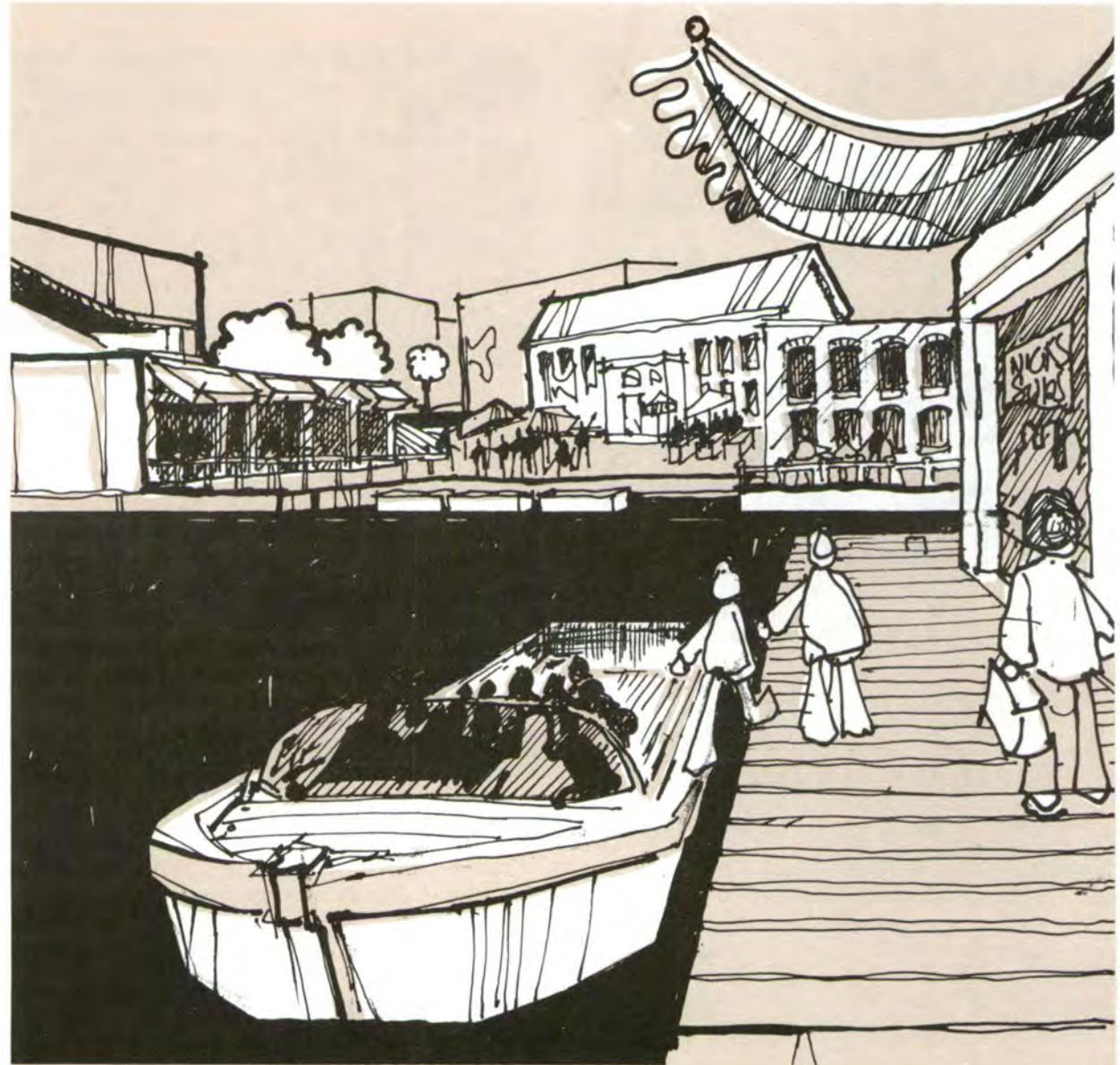
The Plan

The plan proposes the creation of the **Lowell National Cultural Park (LNCP)**. The Park would preserve Lowell's major historical and cultural assets, and use them to interpret Lowell's significant role in the development of our modern way of life. If implemented, the project would help to revitalize Lowell's depressed economy, improve the quality of its environment, and encourage local residents to appreciate the values which exist in their city and their culture.

In response to Lowell's unique problems and opportunities, the plan represents an unusual approach to national park development which has no direct precedent in the National Park System. The Park would be established by Congress under the Secretary of the Interior as a cooperative undertaking of the National Park Service and the Massachusetts Department of Environmental Management. This partnership would share state and federal resources, maximizing the effectiveness and abilities of each. An important aspect of the plan is the supportive involvement of local government, whose current efforts in preservation in the downtown and elsewhere will dovetail in the park. The plan also calls for local educational and cultural institutions to share in creating interpretive programs for both residents and visitors. Finally, the plan is designed to encourage substantial private redevelopment of vacant mill space in conjunction with the public construction of park facilities. In this way, the park will contribute to economic revitalization of the City as well as help to preserve many threatened historic buildings.

The National Park would be focused in the downtown area but would also encompass the entire canal system and some riverbanks. An important feature of the plan is the creation of a "Cross-Section of 19th Century Lowell." In this area, restored settings will afford the visitor a strong sense of what the early city must have been like. A major visitor center will serve as the

Figure 11 Visitors begin an interpretive barge ride on the canal system.



centerpiece and catalyst for an extensive commercial development within a recycled mill complex. Shops, restaurants and a moderately sized hotel will be privately developed within a strict set of guidelines to insure compatibility with the park. Train and barge rides will carry people from the visitor center to other parts of the park, connecting various interpretive areas. Exhibits, employing a wide range of media, will deal with four main themes: (1) Technology and Hydropower, (2) Free Enterprise and Capitalism, (3) Working and Living in an Industrial City, and (4) Immigration and the Settling of a City. The basic aim of the interpretive program will be to show how industrialization influenced people's lives, and how it helped to create our modern society. Visitors will be engaged by relating the Lowell story to important aspects of their own lives. For example, in one exhibit, visitors will be able to compare their own attitudes about work with the feelings and values which motivated young women to leave their farm families and come to work in the mills. Visitors will be encouraged to assume duties of early workers to gain an insight into the skills, satisfactions and frustrations that attended early industrial life.

For management purposes, the park area is divided into two zones: a relatively broad preservation zone and a smaller intensive use zone. Most of the physical improvements would occur within the intensive use zone, where the National Park Service and the Massachusetts Department of Environmental

Management would acquire and improve property and plan, develop, and operate the major interpretive experiences in the park. The Park Service would develop an overall interpretive program and restore certain buildings and settings. The State would preserve the canal system and develop its recreational potentials. Almost all of the property within the intensive use zone would remain in private ownership, regulated through cooperative agreements to be negotiated with the National Park Service or the Massachusetts Department of Environmental Management.

Outside the intensive use zone, but still within the Lowell National Cultural Park boundary, a preservation zone would be designated. Within this area, a new management entity will be established with local, state and federal representation. This entity will supervise a broader-gauged preservation and revitalization effort than would be feasible or desirable for any individual agency. This effort would include: coordinating various public actions and agencies related to the park; establishing standards and procedures for managing public and private development in the park; administering a preservation program of facade easement purchases, grants, and loans; developing and assisting educational and cultural activities; and executing a renewal program to catalyze the private redevelopment of historic structures.

The Impact of the Project

The estimated capital cost of the proposed project is \$40 million in 1976 dollars. This federal expenditure would supplement substantial state and local expenditures already made in support of the Park concept. The National Cultural Park is expected to attract from 650-750,000 visitors a year to Lowell, resulting in economic benefits such as job creation, greater tax revenues, and increased regional spending.

These visitors could be handled with little disruption to the city because of the efficient configuration of access, parking and circulation. The plan reinforces the existing locus of activities in downtown Lowell, yet minimizes the displacement of structures, individuals, and firms. In addition, the park will result in substantial improvement to the natural and man-made environment in Lowell.

In summary, the park will secure for the future one of this nation's great historic and cultural resources. It will make real the meanings of those resources to both residents and visitors, and it will provide a missing time and place link in a series of historical cities along the eastern seaboard. Finally, the park will provide a vehicle for the environmental and cultural enhancement of Lowell which will become a key element in the future development of the city as a viable place in which to live, work, and visit.



Jack Boucher, Historic American Engineering Record

Background

National Significance of Lowell

Lowell was founded in 1822 at a site on the Merrimack River about 30 miles north of Boston. The city's developers brought together for the first time some of the most advanced ideas of the day in the areas of power generation, industrial and transportation technology, production control, capital formation, scientific research, and social organization. Because Lowell was a new city, it could be planned for mass production, unencumbered by an existing urban fabric or an entrenched lifestyle. As a result, Lowell became this nation's first great industrial city, and the way of life that evolved there contained the germ of our modern industrial society.

Figure 12 The Pawtucket Dam and Falls on the Merrimack River.

The Industrial Revolution

Taken as a group, the themes and facets of American history that Lowell embodies present a unique picture of social and industrial revolution in the 19th century. *"What was the industrial revolution and what kinds of changes did it entail? It was a series of interrelated developments which transformed the nature of production and the lives of Americans in the 19th century. It involved the application of external power to drive machinery, the use of machinery to perform operations normally done by hand, the aggregation of successive steps in the production process to increase output, the large scale application of science to solve practical problems, the recruitment and training of a new source of labor, and the mass production of standardized goods for an enlarged domestic market. Together, these developments created the factory system of production which we recognize as the dominant mode of production today."*

The industrial revolution also created a new social order, lifestyle, and urban environment. The self-sufficient cottage craftsman was replaced by a working class which produced and consumed goods. Life for working people became regulated by time and a

*Lowell Museum Corporation. *Development and Evolution of an Urban Industrial Community* (1974), p. 1.

Figure 13 "Bell Time." Workers leaving the mills, by Winslow Homer.



National Significance of Lowell

moral tone conducive to the discipline required for factory employment. New forms of industrial finance and management—like the corporation—were developed, and a class of capitalists replaced the landed aristocracy. Lastly, the production process was facilitated by the development of the industrial city with its segregation of manufacturing, commercial, and residential activities.

Despite the central importance of industry in shaping our values, it is often overlooked as a part of our culture. High school text books and museums often deal with the industrial revolution as a background to political events rather than as a fundamental contributor to the American experience. We view the Industrial Revolution coldly, as a series of inventions rather than in human terms as a social struggle.

Industrial historians like Paul Rivard recognize this gap in our social consciousness. *"There is today a great reservoir of misunderstanding about the American Industrial Revolution and a general lack of knowledge of the role of manufacturing in American development...Countless Americans have worked as weavers, mechanics, and any of a multitude of other skills here in Lowell and in all of this country; but what remains today of their work in the public consciousness? Where is the history of this segment of the American public? I believe that we could ask almost any fourth grade child in America what his great-grandfather did as a blacksmith, a shipbuilder, a carpenter, lawyer, or tinsmith and he could begin to give a reasonable answer. This is true of a vast number of traditional occupations. But what if the great-grandfather was a card tender, or a jack spinner, or a warp tender, or a drawing-in hand? Who today can describe these skills?"*

"Lack of attention to industrial history has led to a homogenized view of the industrial laborer: he is seen to exist totally without job differentiation. The results are skills which are demeaned in their worth, and workers whose pride is eroded by public disinterest and lack of historical perspective."

*Paul Rivard, **The Significance of Lowell in Interpreting America's Industrial Heritage** (1974), p. 3 — see Appendix 3.

Industrial history has also been largely overlooked by the federal government in its efforts to encourage preservation and to establish the National Park System. In evaluating the effectiveness of the National Park System in preserving and interpreting our heritage, the Park Service has concluded that *"...there are serious gaps and inadequacies which must be remedied while opportunities still exist."* These inadequacies are especially critical in the aspects of American history which Lowell represents. For example, Park Service studies have shown that the American experience related to commerce and industry, manufacturing, science and invention, urban design, and engineering is the most poorly represented of any thematic area in the National Park System. Another weak area of the System relates to the development of American society and culture including the roles of ethnic minorities, occupational groups, economic classes as well as social and humanitarian movements such as utopianism, women's rights and labor organizations. These are all areas well represented in Lowell; where a preservation and interpretation effort can close many of these gaps in the National Park System.

Lowell's History and Significance

Historical Periods

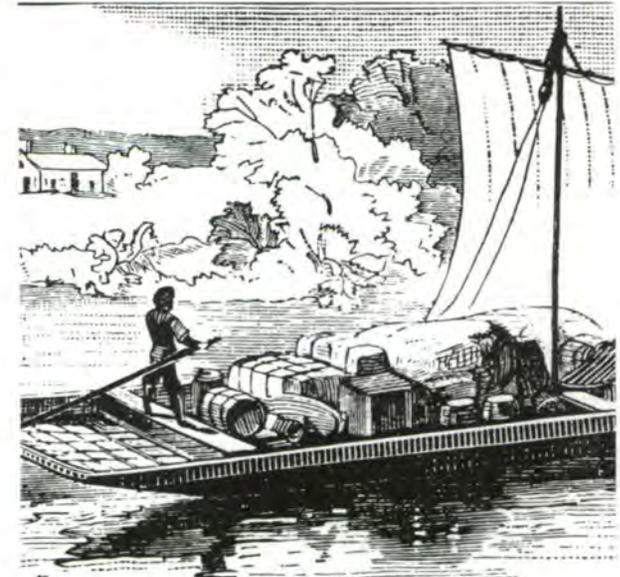
Lowell's history can be described in four periods, each with characteristic physical, social, and economic features.

*National Park Service, **Part One of the National Park System: History** (U.S. Department of the Interior: 1972).



Figure 14

Figure 15 Freight traffic on an early Lowell Canal.



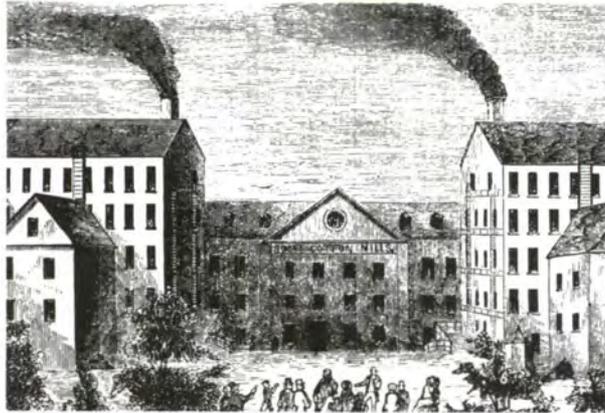
Lowell Historical Society

1. Early Rural America,

up to 1822—The site which would become Lowell was characterized by Indian settlements, numerous family-owned farms, and small scale manufacturing along the waterways. Several early canals were built in this area to facilitate the flow of raw materials down the Merrimack River from New Hampshire. The Pawtucket Canal (1796) provided a bypass around the Pawtucket Falls and the Middlesex Canal (1803), and connected the Merrimack River with the Port of Boston.



Figure 16
Figure 17 Boott Mill yard (c. 1845).



2. Transformation from an Agrarian to an Industrial Society,

from 1822 to 1850—The Pawtucket Canal was converted from a transportation canal to become the backbone of an extensive system of power canals. Research and development activities resulted in major technological innovations. Corporations constructed mill complexes with related housing, social institutions, and urban amenities. A factory workforce was recruited largely from among the single daughters of New England farmers, the famous “mill girls.” Corporate regulations enforced a lifestyle of discipline, morality, and education among female employees. Early strikes foreshadowed the future development of unions. Lowell grew dramatically, and by 1850, it was the second largest city in Massachusetts and the largest cotton textile center in the nation.

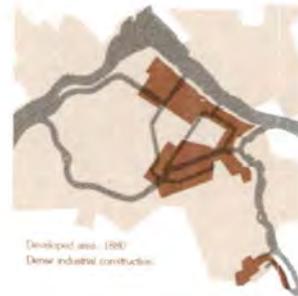


Figure 18
Figure 19 “Mile of mills.”



3. Development of an Immigrant City,

from 1850 to 1920—Major waves of immigrants from many origins were attracted to Lowell during this period, and a matrix of strong ethnic neighborhoods developed. Tenement housing was constructed by private entrepreneurs, and the system of corporate paternalism gradually disappeared as immigrants replaced the “mill girls” as the major source of labor. Many planned urban amenities gave way to denser manufacturing construction which resulted in the famous “mile of mills” along the Merrimack.

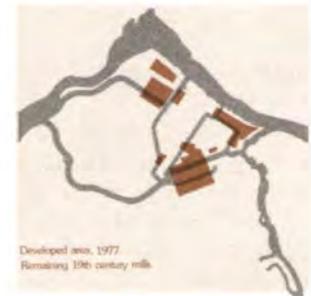


Figure 20
Figure 21 Vacant mill space.



4. Decline of the Textile Industry,

1920 to present — the collapse of the New England textile industry resulted in unemployment and economic stagnation. Abandoned industrial buildings came to symbolize the city’s decline and some large complexes were demolished. In recent years, the historical value of Lowell’s many surviving industrial structures has been recognized, and the potential is seen for conversion of industrial space to other uses. These structures are now considered to be major artifacts of the industrialization and urbanization of America. Throughout this period, Lowell’s ethnic groups have remained strong and cohesive, although the original forces which drew these people to Lowell are no longer present.

Elements of Lowell's History and Culture

The integration of separate ideas and forces to form a social and industrial system, the physical embodiment of that system in a new city, and the way the two evolved over time to influence people's lives are the heart of the Lowell story. The basic elements of Lowell's social and industrial system are described below.

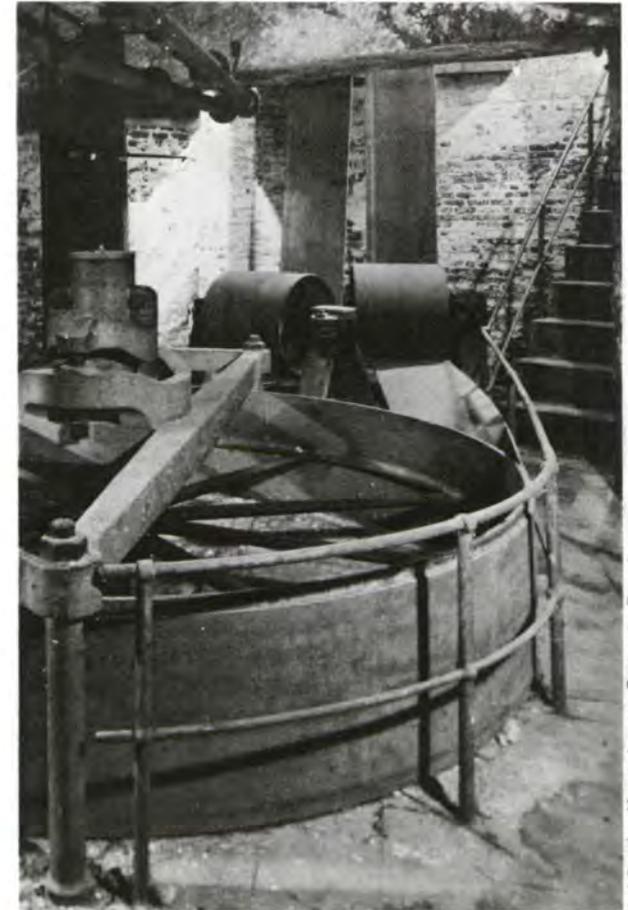
"The Lowell Canal System was one of the most impressive engineering achievements of 19th century America. Today, almost 125 years since its completion, the canal system is practically unchanged, a remarkably well preserved monument of our industrial heritage . . . The power canals which carried water to each major mill complex in the city were the product of engineering expertise and years of difficult labor. Water power was the source of Lowell's prosperity and Lowell was the pacesetter for a young industrial nation. The canal system of Lowell is unique because of its historical importance, its grand scale, and its technological complexity."

*"Engineers in Lowell studied the works of European and American hydraulic experts; they also conducted their own scientific experiments and applied their theoretical and empirical findings to improve the operations of the canals and hydraulic machinery. James Francis, Chief Engineer, made the Lowell canals his own laboratory and published an internationally respected volume, **Lowell Hydraulic Experiments**, in 1855. The machine shop created by the Proprietors of Locks and Canals produced some of the finest hydraulic equipment of the age. At Lowell, perhaps for the first time in history, science exerted a regular and profound influence on technology."*

*Dr. Patrick Malone
Canal Development
and Hydraulic
Engineering: The
Unique Role of the
Lowell System,
Brown University, 1974.*

Figure 22 River and canal network.

Figure 23 The first Francis turbine, forerunner of modern hydroelectric turbines, is still in place in the Northern Canal Gatehouse.



Jack Boucher, Historic American Engineering Record

Hydro-Power

The location for the new city of Lowell was chosen largely because of the potential to harness an enormous concentration of power created by a drop of more than 30 feet in the Merrimack River over the Pawtucket Falls. An extensive system of dams and canals was developed to distribute potential power to downtown sites where it could be efficiently utilized. Far upriver, lakes and streams that fed the Merrimack were dammed and controlled to ensure a reliable flow of water to the city. Lowell differed from most previous manufacturing situations in that each mill company did not develop and control its own source

of power, but rather, purchased it from a central source, not unlike our present public utility system.

Lowell's efficient utilization of natural sources of power is an especially appropriate lesson for today. The city's hydropower system illustrates more than 150 years of technological development, and it is still being used to generate electricity. The system includes the Pawtucket Dam on the Merrimack River, smaller dams on the Concord River, the canal network with its locks and gatehouses, and power generating equipment of many eras.

Figure 24 The corporate/industrial spine.

Figure 25 Boott Cotton Mill workers assemble in the yard for a group photo.



John Rogers Flather

Production

The location of the canals strictly defined where factories could be built. Given Lowell's topography, a continuous spine of mills developed that almost completely encircled the center of the city and formed the famous "mile of mills" view along the Merrimack.

In the early Lowell mills, power was generated by water falling through wheels or turbines in the lower level and distributed to machinery by shafts and leather belts. To minimize the distribution distance, production was integrated vertically and one or more separate processes were performed on each floor. Mills were grouped along with printworks, storehouses and counting houses to form a mill yard, the basic unit of Lowell's industrial matrix. Not only did the mill yard

increase production efficiency, but also, its fences, gatehouses, and enclosed spaces helped to exert social control over the workforce.

Lowell transformed the textile industry by perfecting the system of creating finished products from raw materials at one location. Before the development of the Lowell System, only a small part of the production process was carried out within a given factory.

Manufacturing processes continued to evolve in Lowell throughout the 19th century. As new technologies were developed and applied, building forms changed to accommodate them, and elements from each stage of this evolution are visible throughout the city.

"The Lowell mills were far larger than any of the early spinning mills which had preceded them . . . by 1836 there were eight major textile firms, and almost 7,000 operatives employed in the mills. Lowell had the largest cotton mill, the largest woolen mill, and the largest carpet factory in the United States at this time. . . ."

"Lowell in the years before 1860 was synonymous with innovation. The practices adopted by the Lowell mills came to be followed by virtually all of the other textile mills in northern New England. Manufacturers looked to Lowell for new machinery, new styles of cloth, and even for new policies concerning the work force. What was adopted in Lowell was practiced throughout New England and came to be called the LOWELL SYSTEM."

Thomas Dublin
Historical Significance of the Lowell System,
 Columbia University,
 1974.

Figure 26 Nathan Appleton, a prominent Boston banker, was one of the corporation founders.



Lowell

Figure 27 "Mill girls" holding shuttles.



Memrick Valley Textile Museum

Figure 28 Lowell became a destination for immigrants of many cultures.



Figure 29 Major corporate housing areas and "The Acre," Lowell's first immigrant neighborhood.



People

Ultimately, Lowell's story is the story of people, their working and living conditions, their origins, their motivations and desires, and their lifestyles as embodied in their homes and neighborhoods. Lowell was founded by tough yet visionary entrepreneurs who became the leading industrialists of their era. They were motivated not only by profit, but also by the utopian ideas of James Cabot Lowell, who believed that an industrial community could be both healthful and moral.

The majority of Lowell's early work force was made up of young, single women who came from all over New England. They were attracted to Lowell by the good wages, its religious tone, and its educational opportunities. In the first half of the 19th century, Lowell offered a unique opportunity for young women to experience an urban environment and to support themselves in a society which encouraged self realization and expression. Mill girls read widely, attended concerts and lectures, and published their own literary magazines, such as *The Lowell Offering*, which received much attention both in this country and in England.

“There are enough representatives of the English-speaking peoples of England, Scotland, Ireland, Wales and Canada, to make, perhaps, forty per cent of its population. Of the non-English speaking peoples, there are 20,000 French and French-Canadians, 2000 Swedes, 300 Norwegians, 2500 Portuguese, 8000 Greeks, 2000 Poles, 2500 Jews, 200 Armenians, 500 Germans, 200 Belgians, 200 Syrians, and a great mixture of Russians, Lithuanians, Austrians, Chinese and others, aggregating forty per cent at least of the population, and increasing so rapidly by immigration that this foreign-born population will soon be fifty per cent, if it is not so already.”

George F. Kengott,
The Record of a City,
New York, 1912.

I listen, awake, for the city's hum,
A faint little threadlet of far-off sound,
Growing ever confused, like a skein unwound
By headless fingers, wherein I hear
The voices of myriad work-folk dear,
Who make earth the sheltering home that it is,
With their beautiful manifold industries.”

Lucy Larcom
The Lowell Offering,
February 1841.

The “mill girls” lived in rows of corporately-managed boarding houses directly adjacent to the mills. Overseers and agents lived in attached or single family houses designed so that size and style reflected the status of the occupant. Top management lived in stately mansions—at first also near the mills, but later, in exclusive residential areas away from the city's industrial core.

After 1850, immigrants of many nationalities began flooding into the city. Many were forced from their homes by economic disasters. Irish, British, French-Canadians, and later, Greeks, Poles and Portuguese replaced Yankee mill girls as the chief source of labor.

By 1900, only 20% of the city's 100,000 inhabitants were native born of native parents. Different groups resided in segregated areas and developed distinct cultures that enabled them to adjust to urban, industrial life. These working class, ethnic neighborhoods still evolve and flourish in Lowell and their traditions are an important historical and cultural resource.

Figure 30 The institutional core.



“The Lowell textile mills were models of a humane industrialism which served to erase from the New Englander’s mind the image of oppressive factories which “enslaved” a permanent proletariat. This negative image had largely been fostered by conditions in British factories — conditions which New Englanders described as “sordid,” “vicious,” and

“degraded.” The founders of Lowell . . . actively cultivated public support for their mills by demonstrating concern over their employees’ moral, social, and intellectual well-being. Although this early paternalism eventually disappeared, the initial success of this endeavor created an atmosphere in this country more favorably inclined towards subsequent industrial development.”

*Douglas Griffin
Chief, Historic American
Engineering Record,
1976.*

Institutions

The industrial revolution would not have been possible without the development of certain financial and social institutions. The corporation, for example, allowed entrepreneurs to aggregate large amounts of capital with limited liability. Lowell’s founders pioneered the use of the corporation and developed some of the largest and most complex business organizations in their day. For example, the Proprietors of Locks and Canals developed and operated Lowell’s hydropower system, provided power and land for the city’s mills, and owned one of the country’s largest machine shops which designed and manufactured textile machinery, hydraulic equipment, and railroad locomotives. The Proprietors of Locks and Canals still operates in Lowell, and it is the oldest continually functioning corporation in the United States.

An important social component of the industrial revolution was the growth of institutions which performed functions formerly the duty of the family. The evolution of such institutions was a reflection of the social and economic fragmentation necessary for large scale industrial production to occur. This process was accelerated in Lowell because the early textile work force consisted largely of young people split from their families and dependent on the paternal care of the corporations. This relationship allowed the corporations to exercise a great deal of control over their employees. Schools, for example, were consciously programmed to encourage the discipline

needed for factory employment. From the corporation’s viewpoint, support of these institutions was evidence of their enlightened concern for the work force, and they saw to it that institutional buildings occupied prominent places in the community.

Early Lowell had a fine hospital, library, New England’s first boarding school for women, and an excellent high school. Other institutions also included the corporation boarding houses, which closely supervised the lives of female operatives; St. Anne’s Church, the first church in Lowell and known as the “Corporation Church”; the Lowell Institution for Savings, where women workers were encouraged to deposit their wages; and the city government, itself, which depended heavily on the corporations for money and sanction. Many of the structures that first housed these institutions remain in Lowell today. Almost all of the institutions, as organizational entities, continue to operate.

Later in Lowell’s history, as immigrants were adjusting to a strange society, they established their own set of institutions including schools which taught in the native language, and a wide variety of churches and clubs. These, too, continue to flourish. A noteworthy historical resource from this period is Holy Trinity Church, the first Greek Orthodox church built in this country.

Figure 31 A number of the original corporate boarding houses still exist in Lowell.

Figure 32 Coffee houses were a center of social life for the large Greek population.



Lowell Historical Society

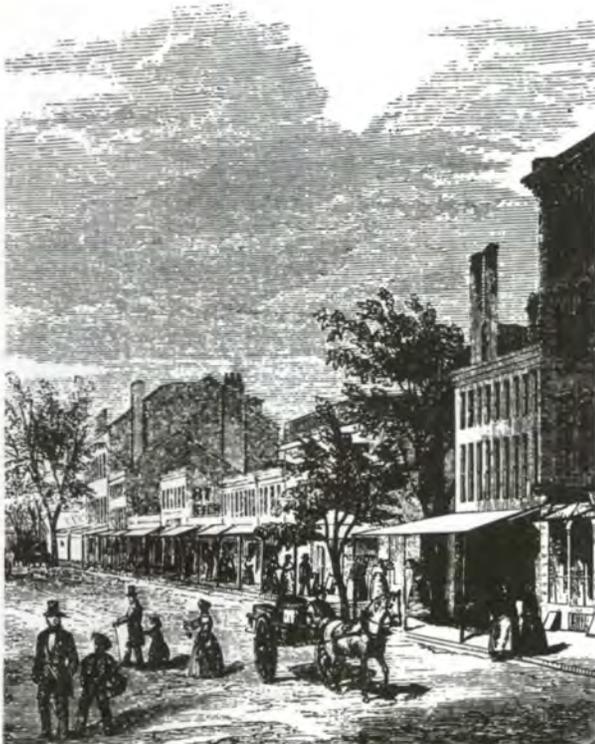


Mr. and Mrs. C. Kourmoutseas

“One would swear that every ‘Bakery’, ‘Grocery’, and ‘Book-binding’, and other kind of store, took its shutters down for the first time, and started in business yesterday. The golden pestles and mortars fixed as signs upon the sun-blind frames outside the Druggists’, appear to have been just turned out of the United States’ Mint; and when I saw a baby of some week or ten days old in a woman’s arms at a street corner, I found myself unconsciously wondering where it came from: never supposing for an instant that it could have been born in such a young town as that.”

Charles Dickens
American Notes,
 London, 1842

Figure 33 Merrimack Street (1856)



Lowell Historical Society

Figure 34 Merrimack & Central Streets.



Commerce

Lowell was one of the most remarkable examples of urbanization in the early 19th century. Within 20 years, it grew from a rural area to a city of over 30,000. To support this population, a large commercial district developed almost at once along Merrimack and Central Streets in a central area not required for industrial construction. With excellent connections to Boston, stores and shops carried a large variety of clothing, hardware, and other types of goods. Today, this area remains the heart of Lowell’s central business district. Many of the original buildings are intact, and later additions illustrate the continuing history of retail commercial development in the 19th century— from small shops to major department stores.

“After the charter was granted, construction of the railroad began. Irish laborers did the heavy work and the track was laid on ties of split granite. The “cut” through the ledge at Lowell and the building of the Chelmsford Street bridge in 1834 were considered wonderful feats of engineering. The old Boston-Lowell railroad was originally so well located that there was no grade over 10 feet to the mile.”

Michael Southworth
The River and Its City, 1971.

Figure 35 Principal transportation routes.



Transportation

The location of Lowell afforded a large quantity of water power, but mass production depended on the easy flow of raw materials and finished products to and from the Port of Boston. Boston was the gateway to world wide and domestic markets. At first, the corporations relied on a combination of horse drawn wagons and the Middlesex Canal, but travel was slow and adversely affected by the winter weather. To change this situation, the Boston and Lowell Railroad was chartered in 1830 and opened within five years, making it one of the earliest American railroads.

In time, the Boston and Lowell Railroad became the first leg of the “Great Northern Route” between Boston and Canada. Because Lowell existed at the closest point between the Merrimack Valley and Boston, it emerged as the leading rail center of the textile producing region. Tracks extended to Manchester and Nashua in New Hampshire and Lawrence and Haverhill in Massachusetts.

Within Lowell, the railroad occupied a prominent location. Its main line followed the Merrimack Canal to an imposing terminal located across from St. Anne’s church at the major crossroads in the city.

The Historical and Cultural Scene

Taken together the preceding elements describe an area of Lowell which can be termed Lowell's "historical and cultural scene." Within this area are the most significant resources which embody key aspects of the Lowell story. This area also provides a rationale for defining the extent of the proposed Lowell National Cultural Park. While the Park will intensively use only a modest portion of this "historical and cultural scene," programs will be established to preserve and enhance resources in the entire area.

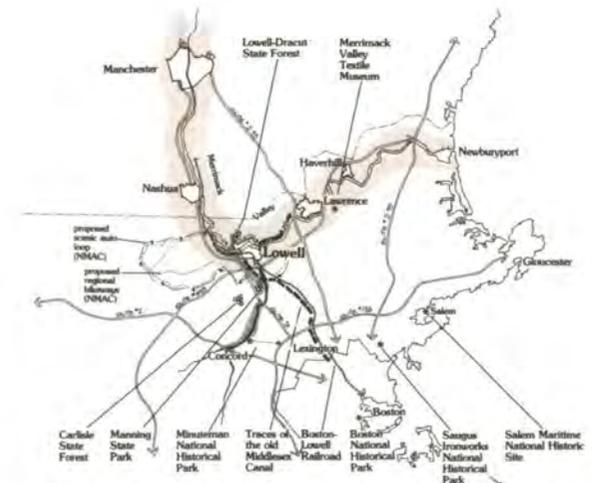
There are many other historical resources in the Lowell region which could relate in significant ways to the Lowell National Cultural Park. The region includes the entire Merrimack River Valley with its numerous mill towns and related canals. Of special importance are elements of the National Park System in the region which are strongly linked to Lowell on an interpretive level.

These include Saugus Ironworks National Historic Site, which illustrates the infancy of American industrial development; Springfield Armory National Historic Site, where early gun manufacture is explained; and Salem Maritime National Historic site which depicts 18th and 19th century merchant activities. The Minuteman National Historical Park (Concord and Lexington) and the Boston National Historical Park deal with the American political and military revolution, which was rooted in an agrarian and mercantile tradition. Lowell can add another chapter to these stories by depicting the subsequent social and industrial revolution which transformed the whole of American society.

Figure 36 Lowell's historical and cultural scene.



Figure 37 Historical resources in the Lowell region.



Implementation Activities to Date

Genesis of the Idea

Over the past decade many people have recognized the potential in Lowell to recreate and redevelop the industrial era. An early impetus for a National Cultural Park came from the Model Cities Program in Lowell where interaction with local groups produced a set of objectives for the revitalization of the downtown area and individual neighborhoods:

- use of the city as a learning laboratory;
- improvement of the environment so as to reinforce its unique historical aspects;
- increased respect for the cultural heritage of Lowell's people.
- preservation and enhancement of historic resources as a strategy for economic revitalization.



More recently, the Human Services Corporation was established in 1971 to develop programs in support of these objectives. Support has been given by the Educational Facilities Laboratory, the New England Regional Commission, and the National Endowment for the Arts.

Also, business and civic leaders have recognized the importance of historic preservation to Lowell's future and formed the Lowell Center City Committee to advocate the concept. The Committee was instrumental in attaining wide public consensus for the Park as a revitalization strategy for the city.

Figure 38 Governor Michael Dukakis inspects work at the Pilling Mill. This building lies adjacent to the state park's Francis Gate site and, with state aid, is being recycled for elderly housing.

Public Commitments to the Project

Substantial commitments and expenditures have been made on the local, state and federal levels for projects which support the cultural park theme. A summary of public monies already expended or committed appears at the end of this section.

Local Support

In October, 1972, the Lowell City Council adopted a resolution designating the cultural park concept as the focal point for local planning efforts. The City Development Authority took the lead with other local agencies in ensuring that every major community improvement project was not only consistent with but supportive of the urban park concept, including the downtown revitalization program, the High School expansion project, and all transportation improvements.

To date, the city has invested over \$1,600,000 in **downtown pedestrian improvements** aimed at reinforcing the area's 19th century flavor. In another project over \$350,000 was spent to **redevelop the Western Canal**, providing significant neighborhood recreation and pedestrian improvements. The city planning agency has instituted a program of providing **free design services** to building owners wishing to restore, or renovate their facades. Two **local historic districts**—one for the canal system and another for the downtown area—have been established and several others are awaiting approval.

Figure 39 Students examine an operating loom in the Lowell Museum.



Lowell Museum Corporation

The city and local banks are actively encouraging the private **redevelopment of historic structures**. Among other reuse projects, two small mills are being renovated for elderly housing by the Lowell Housing Authority. Private efforts include several old structures which have been recycled for new uses, including restaurants, offices, and shops. More importantly, in 1975 The **Lowell Development and Financial Corporation** was chartered. This is a consortium of local banks who have established a fund of almost \$350,000 to provide low interest loans for downtown revitalization and restoration consistent with the park program. Additional monies have been committed to the fund by federal agencies such as the Small Business Administration.

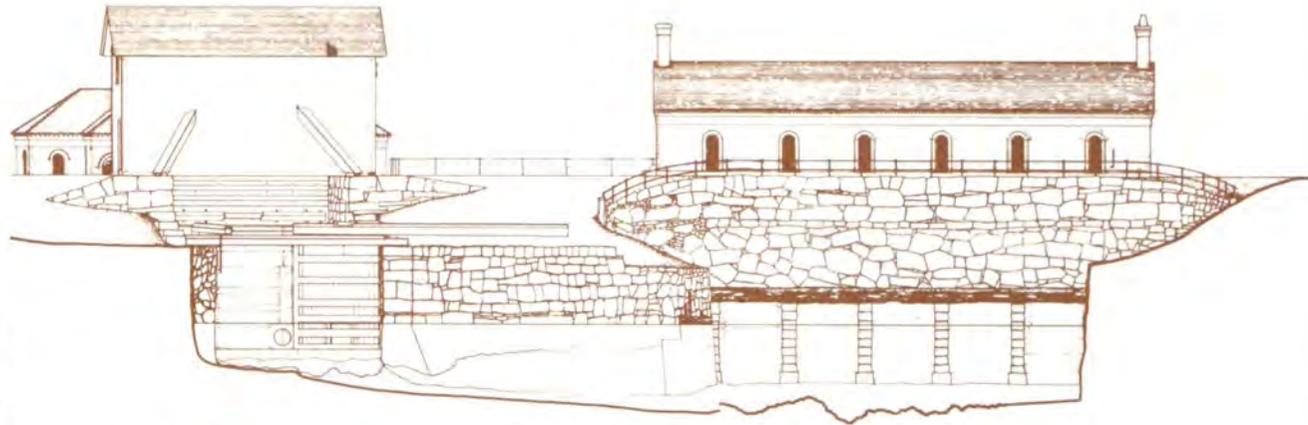
The **Lowell Museum** has recently opened in a small, renovated portion of the Wannalancit Mill. Much of the museum's energies to date have been devoted to exhibits and educational programs which have generated substantial local interest in the city's historic and cultural resources. Taken together, these locally supported projects have given life and substance to the urban park concept.



David Raphael

Figure 40 Buildings in the Francis Gate area were recently restored as part of the Lowell Heritage State Park.

Figure 41 Elevation of Francis Gate prepared by the Historic American Engineering Record.



State Efforts

Massachusetts Governor Michael S. Dukakis has expressed a strong, continuing commitment for the goals of the cultural park. In support of this commitment the State has pledged \$9.1 million towards the development of the **Lowell Heritage State Park**. This project is aimed at preserving and developing the recreational potential of Lowell's canal system and riverbanks. The State Department of Environmental Management plans to acquire substantial rights of way and to develop five key sites as park nodes. As part of the plan, several locks and gatehouses will be restored, and a network of bikeways, barge rides, and interpretive trails will be developed.

In addition to these activities, the State is ensuring that projects under its jurisdiction are planned to be compatible with the Park objectives. Also, The Department of Public Works is currently implementing a program of over \$10 million in transportation improvements throughout the city. A special feature of this program is **landscaping and pedestrian improvements adjacent to canals and historic districts**. A transportation terminal is in final design and the regional bus and commuter rail system sponsored by the Lowell Regional Transportation Authority will all combine to provide maximum access to Lowell Urban Park sites.

*see Appendix 4

Federal Support

The National Park Service has granted \$30,000 in **aid for the renovation of several historic structures**. Early in 1977, the Historic American Engineering Record of the National Park Service will publish its **in-depth study of the Lowell canal system**. The Historic American Engineering Record documents the nation's historical engineering landmarks.

Both of the local historic districts in Lowell have been placed on the National Register of Historic Places. **The City Hall Historic District** includes civic, commercial, and institutional buildings and the **Locks and Canals Historic District** includes the canal system, remaining boarding houses, and major mill complexes. Together, these two districts comprise much of the proposed Lowell National Cultural Park. Actions are being taken to incorporate remaining areas of the proposed Park in the National Register by the local Historical Commission. Recently, the American Association for State and Local History recommended that the Locks and Canals Historic District be designated as a National Historic Landmark. The Association is under contract to the National Park Service to study and advise on which places in the nation are most worthy for inclusion on the National Register of Historic Landmarks.

**Committed Resources,
1976 Dollars (000)**

Figure 42

	Local	State	Federal	Total
Integral				
Expended	592	56	913	1,561
Committed	1,405	9,736	1,749	12,890
Supportive				
Expended		168	394	562
Committed		2,210	9,157	11,367
Totals	1,997	12,170	12,213	26,380

**Summary of Resources
Already Committed**

Over \$26 million in local, state and federal monies is already expended or committed in projects either integral to or supportive of the Cultural Park.

Over \$14 million is expended or committed for activities integrally related to the park development and within the proposed park boundary. These expenditures have been made or are planned for canal bank improvements, historical markers, preservation projects, downtown pedestrian improvements, and the Lowell Heritage State Park complex of recreational facilities along the canal system and river banks. Over \$11.9 million is expended or committed for expenditures which generally reinforce the Cultural Park plan. This primarily includes city-wide transportation and parking improvements.

The individual project expenditures and commitments are tabulated in Appendix to this report. Clearly, a significant share of the proposed work is already in progress.

Figure 43 Whipple Power Mill, the oldest industrial building in Lowell, (c. 1800). Private owners are unable to maintain this historic structure.

The Need for Federal Action

Although all of the above activities are noteworthy they are not sufficient to protect Lowell's historical and cultural resources. Efforts to preserve pieces of Lowell's heritage are neither at a sufficient scale nor sufficiently well coordinated to portray and preserve the interrelated portions of the Lowell system. One pressing problem is that over 1,500,000 square feet of space remains vacant in historic structures throughout the city. These buildings are threatened unless they can be productively reused or otherwise preserved. The State is attempting to secure the canal system but neither it nor the City has the resources to preserve the mills and other significant structures. The State and

City are also not in the position to develop an interpretive program and visitor facilities to serve a national audience. Because important resources are located at all corners of the 5.6 mile canal system, park transportation facilities will have to be developed. Also, there is a significant coordinating function to be fulfilled. An entity is needed with sufficient respect, experience, and resources to pull together the various ad hoc efforts now underway to create a unified program. Finally, there is the issue of image. If Lowell's mills are to be redeveloped, the city's image of decline must be reversed. A federal commitment to Lowell would improve the city's status as a locus for private investment and visitor expenditures would add directly to the local economy. More important, a federal commitment would provide tremendous impetus for the people of Lowell to rediscover and reinforce their heritage, providing, perhaps, the best protection for the city's nationally significant historic resources.



Implementation Activities to Date

Lt. Gov. Thomas P. O'Neill, III

“What has been most encouraging is to see Federal, State and Local efforts pull together towards a unified goal.”

Carl J. Byers

“The only way the inner city is going to work in the decades ahead is to create opportunities for jobs and the kind of housing that will be attractive to the workers in those jobs. Lowell offers that prospect.”

Mayor Leo J. Farley

“What makes this plan salable is the fact that it incorporates the thinking of the various members of this community. We have the local support.”

Frank Keefe

“... it is an integrative plan. It describes roles which are consistent with the responsibilities of the agencies who will carry it out.”

Dr. Patrick Mogan

“... as proposed this is more than a park. It is a chance to create a network of educational and cultural experiences for visitors and residents alike. **An educative city.**”

Clarence C. Pusey

“One basis for the revitalization of a city is its ability to draw people to that city. This plan provides such a magnet.”

Robert F. Crecco

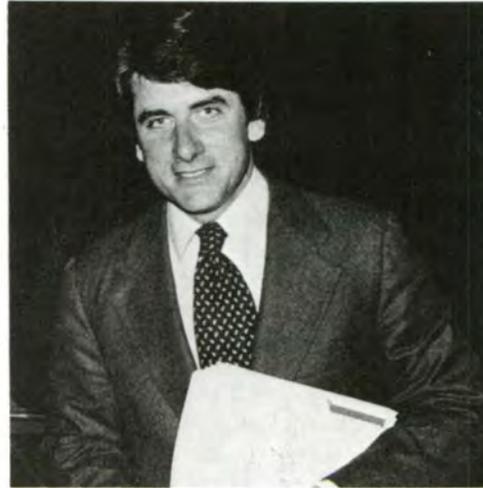
“This plan is first and foremost a method for preserving Lowell’s resources — the canals, in particular, are a significant aspect of our national heritage.”

Antonina Uccello

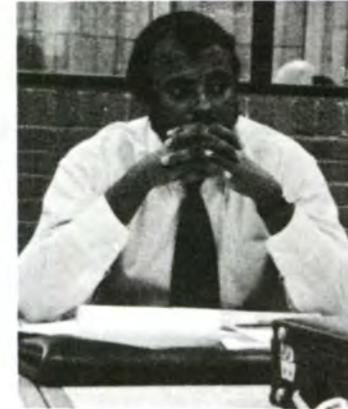
“It is essential to undertake planning efforts that build bridges between past and future generations of Americans.”

F. Ross Holland

“When implemented, this imaginative plan will provide through the medium of historic preservation for the retention and use of historically important resources so that the Nation will be able to learn-through-viewing the fascinating story of this country’s early industrial development.”



O'Neill



Byers



Farley



Keefe



Mogan



Uccello



Pusey



Crecco



Holland

Figure 44 Lowell Historic Canal District Commission members.

Work of the Lowell Historic Canal District Commission

Purpose and Organization

The Lowell Historic Canal District Commission was established by Congress in January, 1975 (Public Law 93-645) and charged to prepare a plan for the "preservation, interpretation, development and use of the historic, cultural and architectural resources of the Lowell Historic Canal District." The legislation creating the Commission was sponsored by Congressmen Thomas P. O'Neill, Jr. and Paul Cronin, and by Senators Edward Kennedy and Edward Brooke. With the assistance of Congressman

Paul Tsongas, \$150,000 was appropriated for the Commission's work which is to be completed by January, 1977.

The legislation specified a broadly representative body, reflecting the goal of intergovernmental cooperation which has always characterized the cultural park concept. Chaired by Massachusetts Lt. Governor Thomas P. O'Neill, III, the Commission is composed of representatives from Lowell, the State, the National Park Service, and the United States Departments of Housing and Urban Development, Transportation, Commerce, and Interior. This multi-agency composition has proven to be an asset to the Commission by insuring the preparation of a balanced plan which is workable from many viewpoints.

Conduct of the Study

Choosing Consultants

After several organizational and orientation meetings, in August, 1975 the Commission issued a request for proposals covering planning and design services. Over 75 consultants expressed interest in the project, including many nationally recognized firms. Following several review sessions, the Commission selected **The Lowell Team**, a joint venture of David A. Crane and Partners/DACP, Inc., Gelardin/Bruner/Cott, Inc., and Michael Sand and Associates, Inc. Throughout the selection process, the Commission cooperated extensively with, and received substantial support from the Lowell City Development Authority, the Lowell Human Services Corporation, and the Office of Congressman Paul Tsongas.

Operations

To monitor the course of the work and to carry on the day to day operations of the Commission, a Subcommittee was established. The subcommittee met with The Lowell Team on a regular basis to give direction and to review the work being generated. Subcommittee members also served an important liaison function by representing the Commission at various meetings and activities (Subcommittee members and their affiliations are indicated on the inside front cover). The full Commission was convened following each phase of the study and at key points in the process where decisions or technical guidance was needed. Since the beginning of its work in 1975, the Commission has met seven times.

Figure 47 At a public meeting, participants indicate where they live and work on a map of Lowell.



Figure 48 Commission planners meet with the public at the Lowell Room.



Figure 49 What do You Think? Public opinions about project goals were solicited on this rating form.



Here's your chance to tell us what you think about some of the goals and objectives that have been suggested for the Lowell National Cultural Park--

Figure 50 The Commission's Lowell buttons have become a familiar symbol of local pride.



Public Involvement

The Commission employed a number of approaches to actively involve the general public in the development of its plan. To keep residents and businessmen informed of its activities, the Commission published **The Canal Packet**, which was widely distributed through community organizations and the Chamber of Commerce. The Human Services Corporation will continue to publish the Canal Packet once the Commission's work is completed. As part of a public awareness effort, the Commission distributed over 10,000 **Lowell Buttons**. The buttons contained a stylized representation of the Lowell canal system. To provide an on-going presence in the downtown, the Commission partially renovated the Merrimack Canal gatehouse to create the **Lowell Room**. This information center contained a changing sequence of displays on the current status of the study. Finally, to gain more thoughtful reactions to its work, the Commission sponsored a series of seven **public meetings** during the course of the study. These meetings brought together representatives of Lowell's neighborhoods, businesses, and institutions, and encouraged participation in the development of the Commission's plan.

Phase III, Detailed Master Plan and Program

Based on the results of Phase II, the preferred plan was further detailed during this stage. This included a complete description of proposed physical improvements and interpretive activities; and refinement of the management strategy to indicate the exact roles and responsibilities of participating agencies. Also, a detailed cost program was developed and potential impacts of the project were evaluated.

To air evolving plans for the park, Congressman Paul Tsongas sponsored two sets of meetings held in Washington during September and October. Significant inputs were gained from Congressmen, committee staff, and representatives of federal agencies such as the National Park Service and the Office of Management and Budget. Also during this period, a number of meetings were held in Lowell to gain inputs from the City Council, the Chamber of Commerce, and others. The **Phase III Report** presented the Commission's plan to achieve the legislative mandate to preserve, interpret, develop, and use Lowell's resources.

Figure 51 The Canal Packet, Issue Number 3,



What the Canal Packet is About

About an exciting and continuing adventure from people in Lowell, the Commission of the Historical System in January 1974 established the Lowell Historic Canal District Commission, charging the body to prepare a plan for the preservation, interpretation, development and use of the park and urban setting, of the historic, cultural and recreational resources of the Lowell Historic Canal District.

The Canal Packet will provide you with a summary of the present and the work done to date.

Federal/State Commission Proposed to Manage Park

The Lowell Historic Canal District Commission has achieved the establishment of a joint federal and state commission to develop and operate the proposed Lowell National Cultural Park. This agreement was a major first step in the development of the park. The Commission will be responsible for the development of the park, including the design and construction of the park, the management of the park, and the operation of the park. The Commission will also be responsible for the development of the park, including the design and construction of the park, the management of the park, and the operation of the park.

Consensus Favors Downtown Focused Park Plan

The Lowell Historic Canal District Commission has achieved a significant milestone in the development of the park. The Commission has reached a consensus on a downtown focused park plan. This plan will focus on the development of the park in the downtown area, including the design and construction of the park, the management of the park, and the operation of the park. The Commission will also be responsible for the development of the park, including the design and construction of the park, the management of the park, and the operation of the park.

Plan Requires Strong Preservation Policy

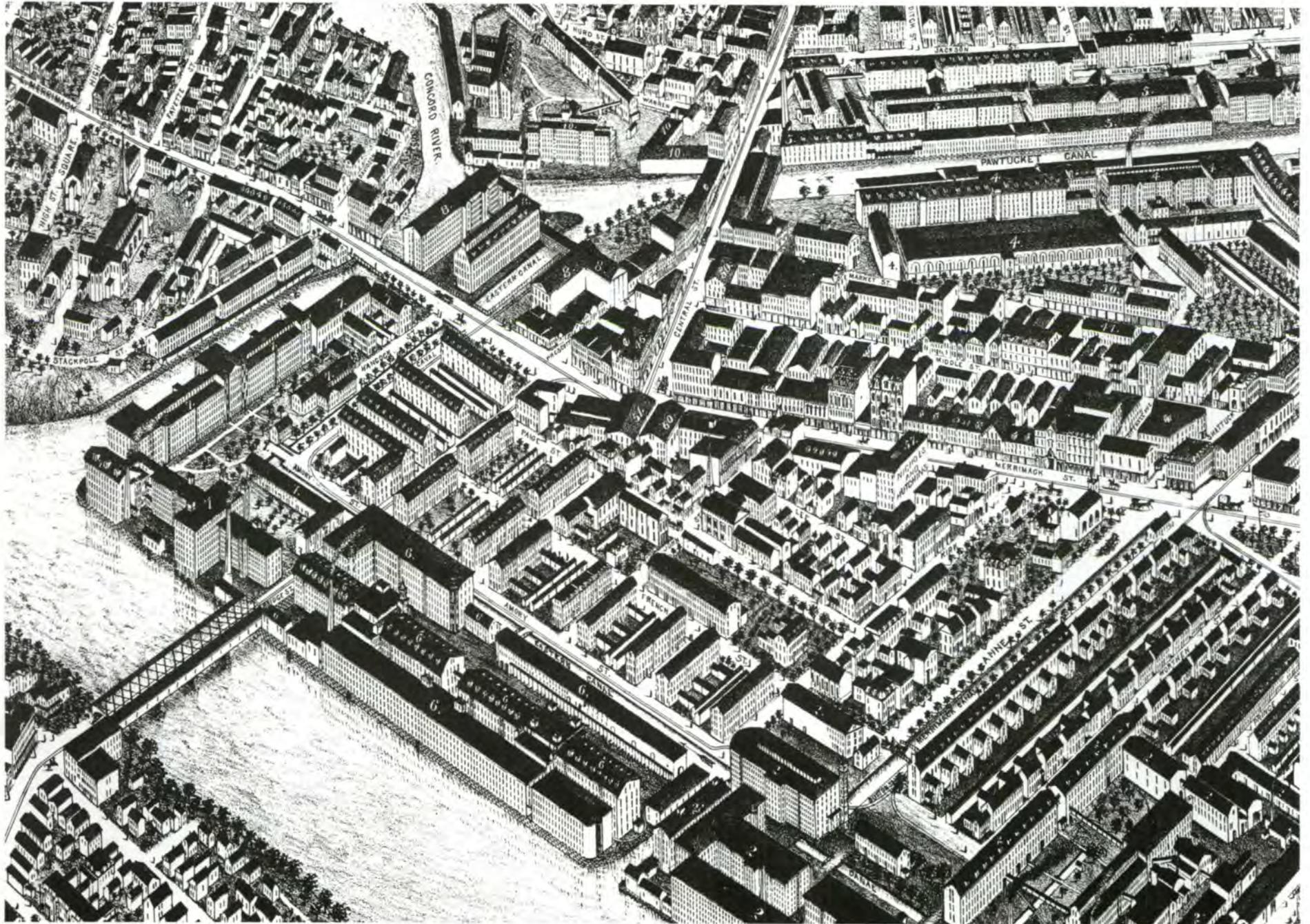
A Lowell Historic Canal District Commission report has called for a strong preservation policy for the park. The report states that the park should be developed in a way that preserves the historic character of the park, including the design and construction of the park, the management of the park, and the operation of the park. The Commission will also be responsible for the development of the park, including the design and construction of the park, the management of the park, and the operation of the park.



At left, Thomas F. O. Arch (right), chairman of the Lowell Historic Canal District Commission, meets with the commission's board of directors.

At right, Thomas F. O. Arch (right), chairman of the Lowell Historic Canal District Commission, meets with the commission's board of directors.

At right, Thomas F. O. Arch (right), chairman of the Lowell Historic Canal District Commission, meets with the commission's board of directors.



The Proposal

Goals

The mandate of the Lowell Historic Canal District Commission was to “...prepare a plan for the **preservation, interpretation, development, and use** by public and private entities, of the historic, cultural and architectural resources of the Lowell Historic Canal District...” (P.L. 93-645, January 4, 1975). This mandate has been used as the major guideline for the development of this proposal. Major goals of the effort include:

- **preservation**—to preserve physical elements of Lowell’s environment which embody various aspects of the social and industrial revolution of the nineteenth century.
- **interpretation**—to explain to visitors and residents the significance of social, economic and cultural forces which interacted to create an industrial community in 19th century Lowell; how those forces evolved in Lowell and elsewhere; and how they continue to shape our daily lives.
- **development and use**—to enhance the cultural, economic and physical environment of Lowell, using most efficiently the resources of all levels of government and the private sector; and to adapt historic buildings to modern use while retaining their architectural character.

These general goals have been embodied to the maximum in the proposed plan for a Lowell National Cultural Park; and have been made operational through specific design features of the plan, program proposals, and management mechanisms.

What Would the Park be Like?

The purpose of this section is to portray the park as a visitor might see it, explaining the activities which would be available and the historical and cultural importance of each. The explanations emphasize the intensive **use zone** of the park since this would be the locus of most visitor exhibits and activities. The intensive use zone is divided into two major areas:

A "Cross-Section" of 19th Century Lowell

This section of downtown Lowell parallels the Merrimack Canal between the Lowell and Boott Mills and contains a collection of historic buildings and structures that illustrate every major element of Lowell's social and industrial system. Within this area, recreated settings of the 19th century period and exhibits will be used to interpret these elements to the visitor. Within the downtown area of the park, three sub-areas have been defined:

The Intensive Use Zone

Figure 53.



Canals and Rivers

Lowell's extensive system of waterways comprises the city's greatest historical and recreational resource. A system of tours and bankside exhibits will interpret the operation and importance of the canals and make them accessible to the public. Canal and riverbank development will include:

Entry and Orientation Area.

In this area, the visitor will park and enter a visitor center, where a major orientation exhibit will provide an overview of the Lowell story. A park transportation center will be the embarkation point for tours by barge and trolley.

Downtown Crossroads Area.

The area in the vicinity of the intersection of Merrimack Street and the Merrimack Canal has traditionally been the center of Lowell and includes many of Lowell's early institutions. In this area, a series of indoor and outdoor exhibits will be developed to interpret the significance of community institutions and commercial activities of the 19th century.

Living and Working Area.

This section, containing the Boott Mill complex and corporate housing, illustrates the interrelationships of working and living environments in early Lowell. Two major exhibits will be developed: a restored boarding house to illustrate the life and times of the mill girls, and an exhibit in the Boott Mill to focus on industrial production and the meaning of work. The highly regulated life styles and living environments of the mill girls will be contrasted with those of other groups in Lowell, including later immigrants to the city and present residents.

Recreational Areas.

The park will include a network of canal and riverbank recreational areas. Facilities will be developed to serve both neighborhood and regional needs, and to preserve important historic vistas.

Outlying Canal Loop.

This part of the park illustrates how water power was harnessed and diverted to mill sites in downtown Lowell. It includes the Pawtucket, Northern, and Western Canals, the Pawtucket Falls and Dam on the Merrimack River, and numerous gatehouses and control mechanisms. A barge tour will carry visitors to various sites along this route.

Downtown Canal Loop.

This area includes three canals which encircle downtown Lowell. A combination barge and train tour will pass through the cross-section of 19th century Lowell and around the historic spine of mills.

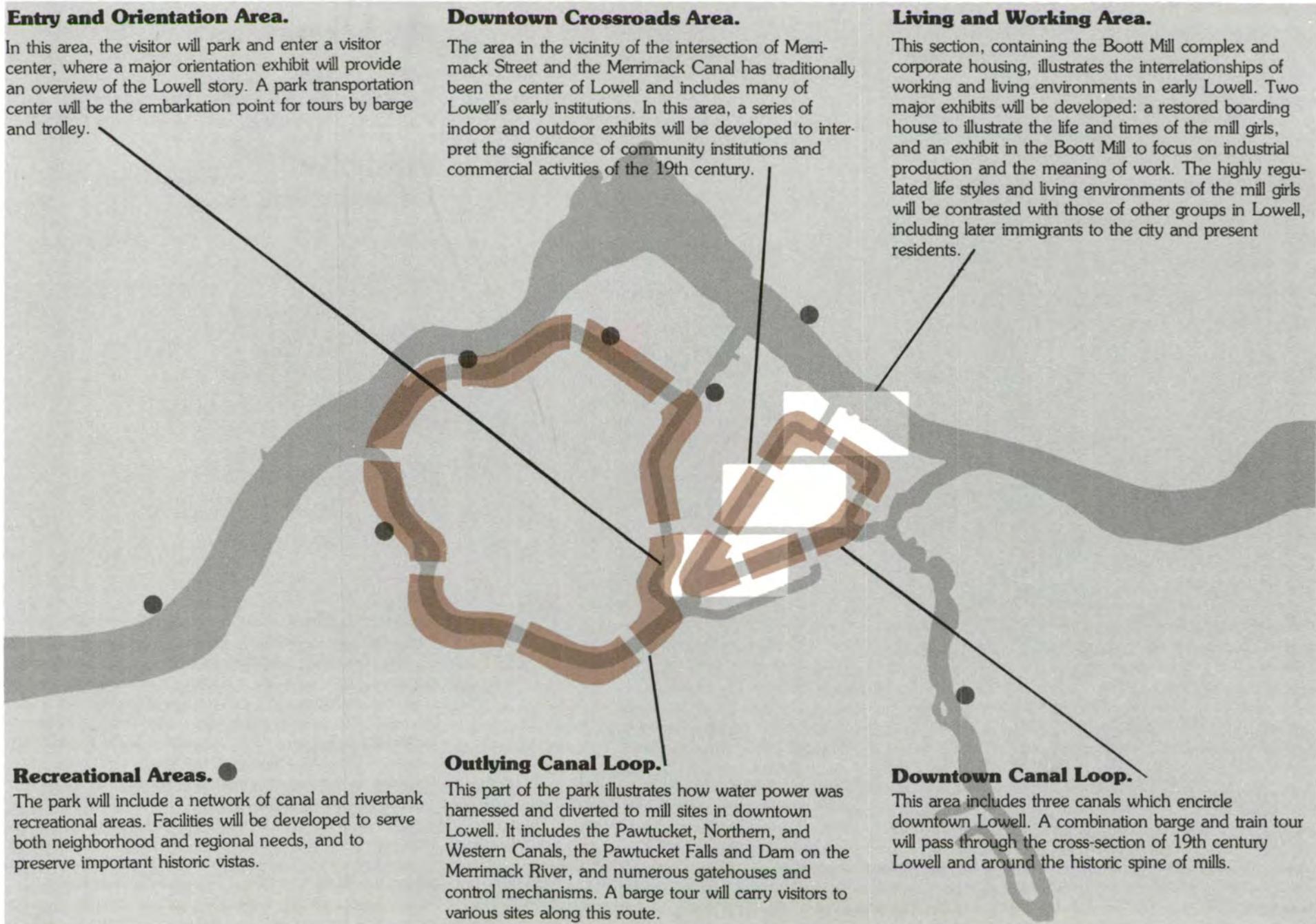
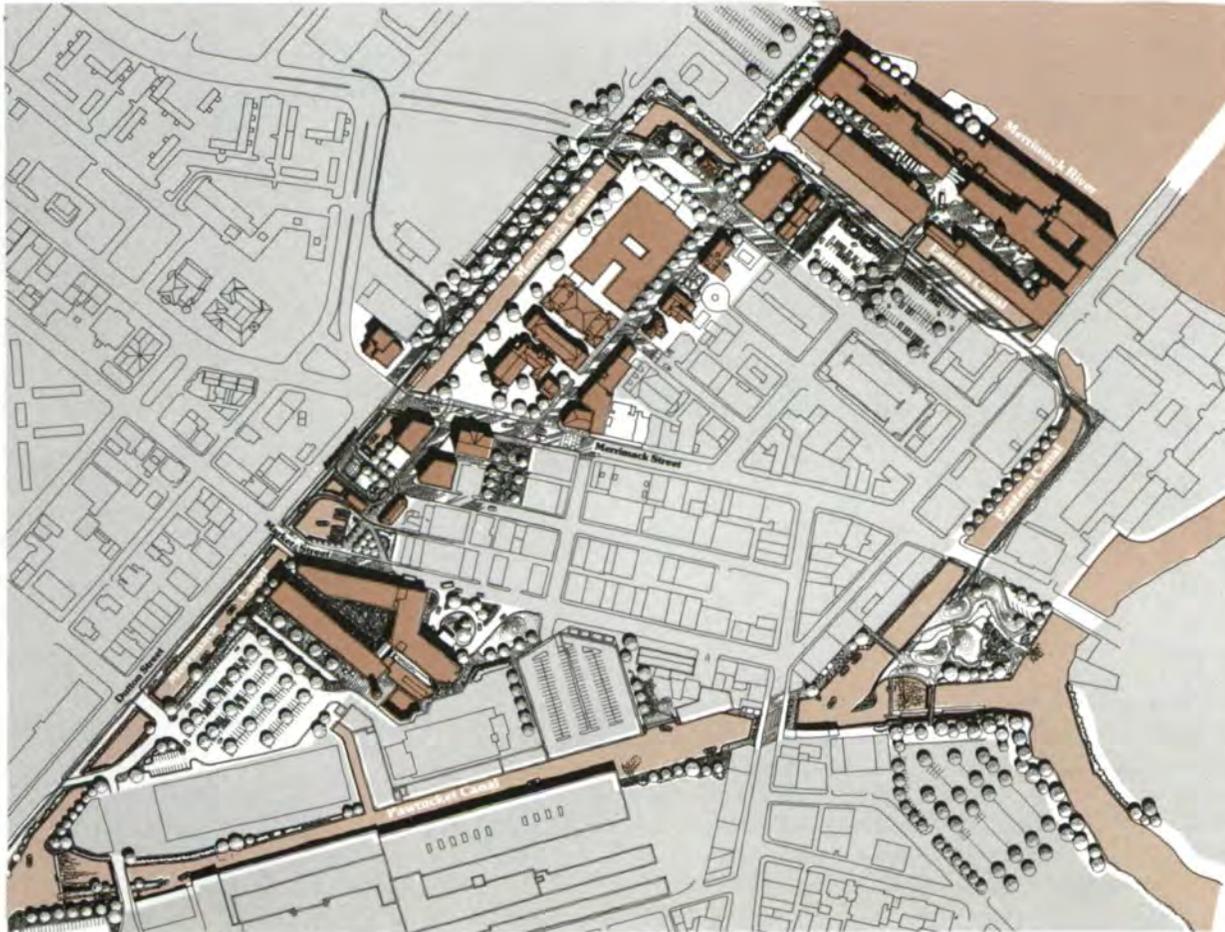


Figure 54.

Figure 55 Downtown site plan showing the Cross Section of 19th Century Lowell.



A Visit to the Park

Entry and Orientation Area

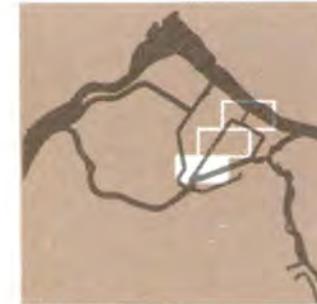


Figure 56.

Visitors to the Lowell National Cultural Park will be directed into Lowell along Thorndike and Dutton Streets, the historic gateway to the City. Dutton Street was laid out in the 1820's, paralleling the Merrimack Canal. This was the first power canal in the corporate system, built by a predominantly Irish immigrant work force to supply power to the Merrimack Manufacturing Company. With the Merrimack mills at the river end of Dutton Street and the Lowell machine shops at the other end, this road was the most prominent in the City. In the 1830's, the main tracks of the Boston and Lowell Railroad were routed between Dutton

Street and the Merrimack Canal to carry passengers and freight to the heart of Lowell. Thus it was along this corridor that power, people, and raw materials entered Lowell. Within this area are the remaining buildings of the Lowell Manufacturing Company, which originally derived its power via raceways still generating electricity today. This complex formed one end of the industrial mill wall which once encircled downtown Lowell.

Visitors will leave their cars in a central parking facility located on the former site of the Lowell Machine Shop. Crossing an exposed raceway, the visitor will enter the Lowell Manufacturing Company. This recycled complex will contain the National Park Visitor Center. Additionally it will be the site of educational facilities and privately-developed commercial uses, including shops, restaurants, and a moderate size hotel. At various locations in this complex visitor services will be available. The major interpretive exhibit will focus on the industrial revolution and present an

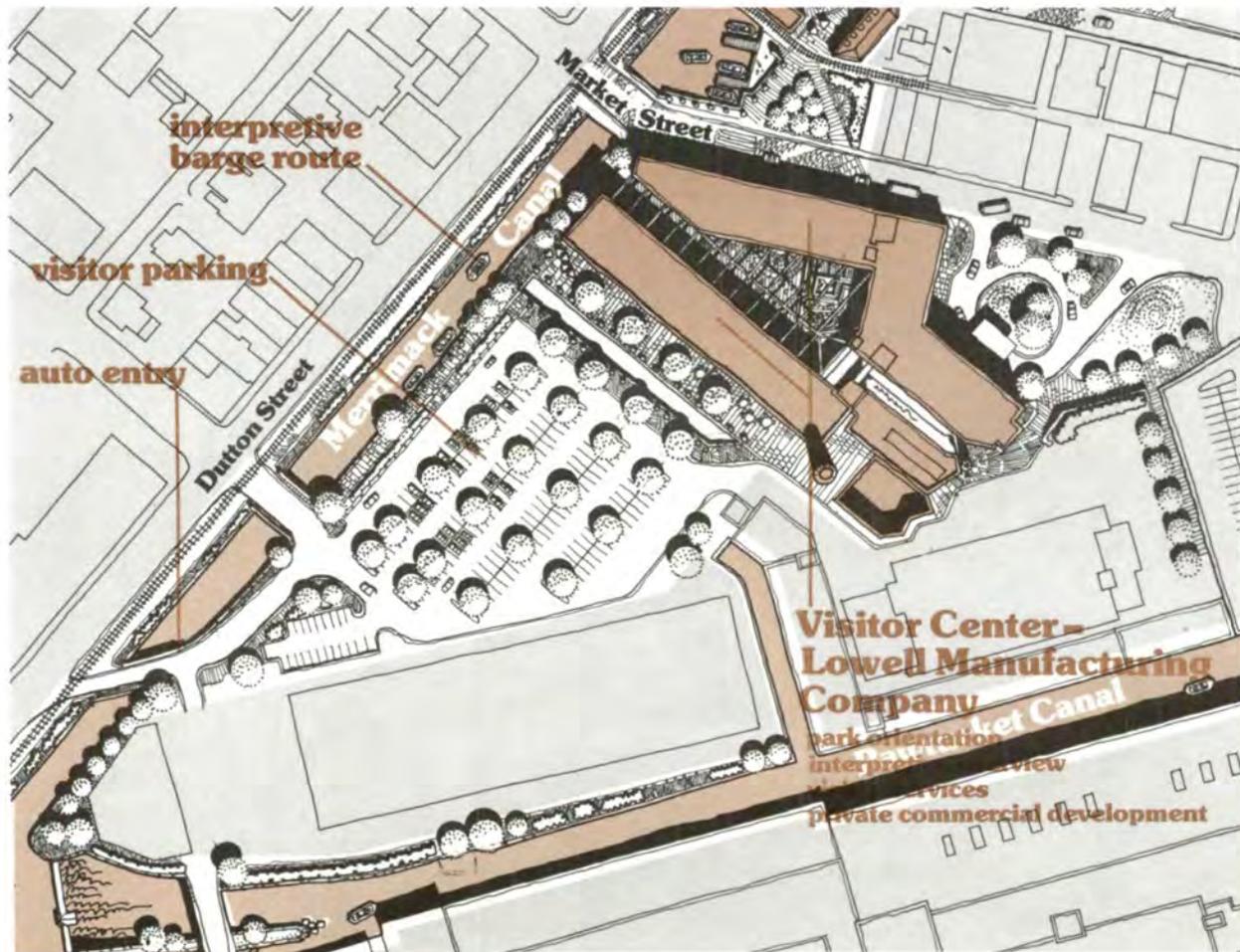


Figure 57 Entry Area site plan.

Figure 58 The Lowell Manufacturing Company (c. 1880).

Figure 59 A Unified graphics system will integrate all visitor services (federal, state and local), and provide guidance to both vehicular and pedestrian traffic.

Figure 60 The interpretive program extends to the arrival areas where visitors will encounter artifacts and tool fragments from the original Lowell Machine Shop. The parking areas will provide a park-like setting for groups arriving by bus or automobile.

Figure 61 The courtyard of the Lowell Manufacturing Company will house a series of informal exhibits focused on the theme **Lowell pride**. The changing exhibits will include displays of products manufactured in Lowell, artwork and even some scheduled performances such as lunch-hour concerts and recitals. The small walk-in theatre might display a succession of events which portray the diversity of celebrations of Lowell's citizens . . . such as weddings, regattas and school athletic events.

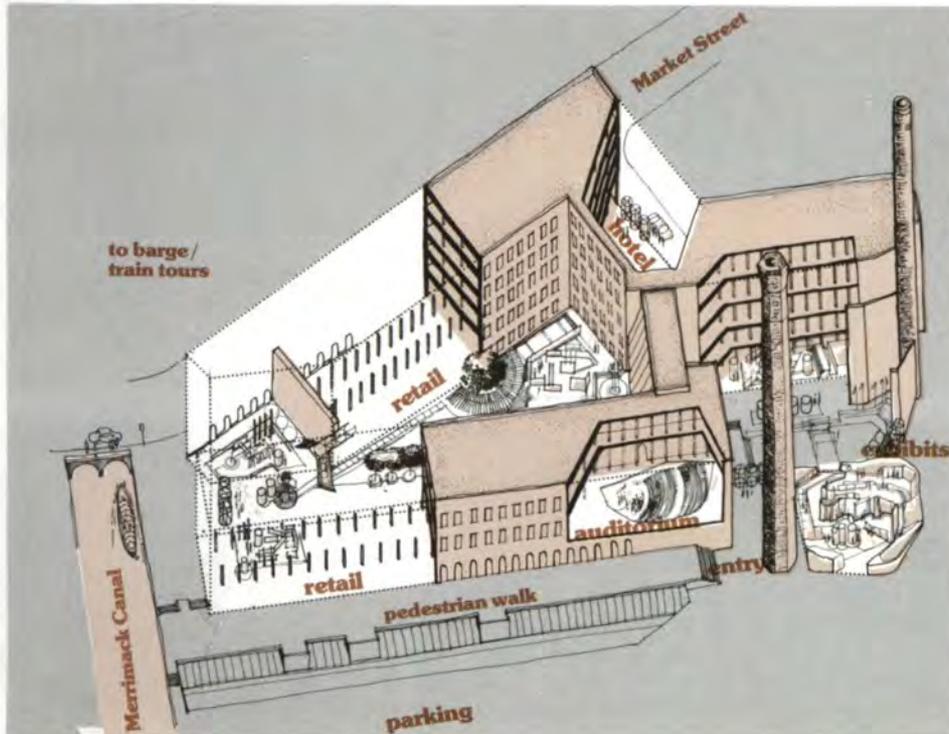


What Would the Park Be Like?

overview of the Lowell story. In the courtyard, amid commercial activities, the visitor will be able to view changing displays on current life, events, and happenings in Lowell.

Just beyond the visitor center will be an area which contains a collection of buildings and structures associated with most major aspects of life in early Lowell. Here, restored settings will portray the broad range of life styles and economic development—ranging from mill girls' housing to mercantile architecture—and will interpret the significance of each to Lowell's history. The design will give the visitor a strong sense of what the city must

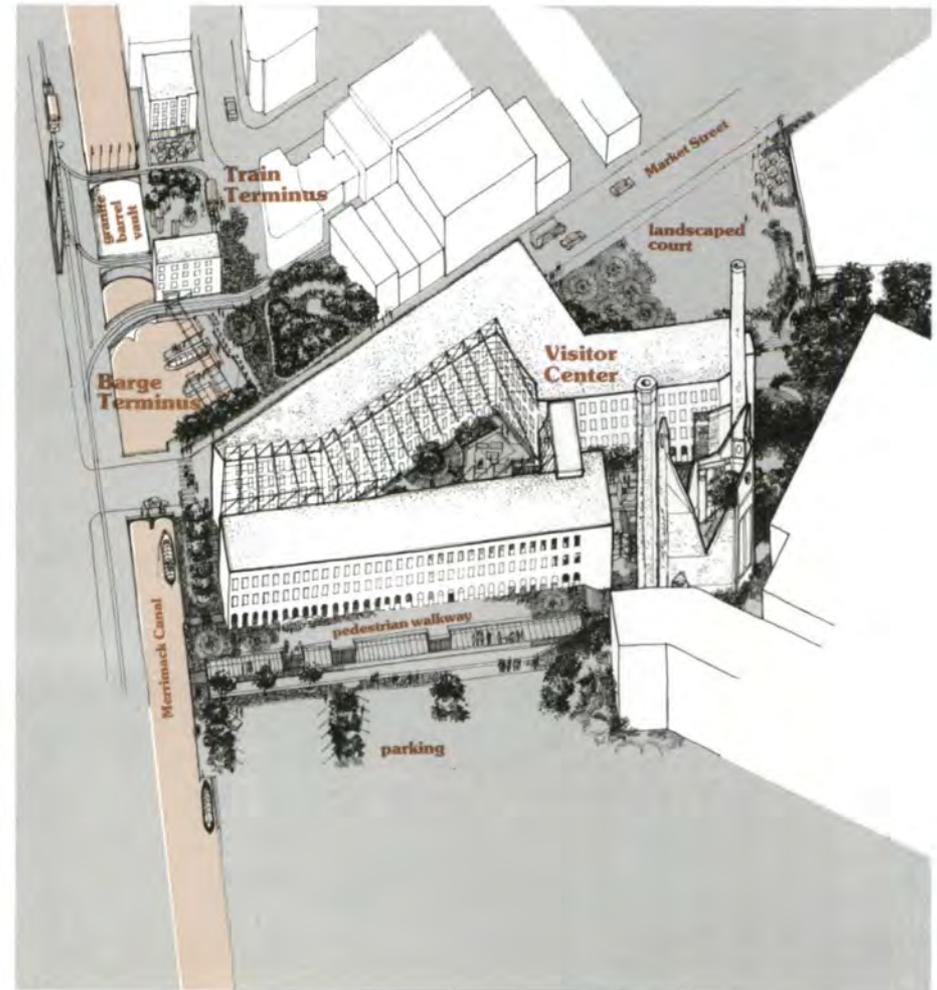
Figure 62 The Lowell Manufacturing Company complex will be the park's Visitor Center.



have been like, while recognizing the 20th century needs and uses of this downtown hub.

Across from the Lowell Manufacturing Company and straddling the Merrimack Canal was the site of Lowell's first railroad station. At this location, the visitor will select one of two interpretive tours: either a short barge/train loop around the downtown or a longer barge tour of the outlying sites. A spur of the train loop will connect this area with Lowell Museum exhibits in the Wannalancit Mill and the state park's

Figure 63 Cutaway view showing possible reuse of the Lowell Manufacturing Company complex. All non-interpretive uses would be privately developed.



Tremont Yard node. A small outdoor exhibit in this area will explain the importance of transportation to Lowell's growth and development. The exhibit will show how people and goods moved to and from Lowell, and will compare various modes of travel throughout Lowell's history. Part of the original structure of the former station will be exposed. Shattuck Street will be partially closed to auto traffic and developed to evoke its 19th century pedestrian character. This will include restoration of the Old Gas Company and other buildings in the area.

Figure 64 Visitors may choose from several tour options shown in a three-dimensional schematic model of the park. The model will show all of the park attractions and will indicate the time required to complete each tour.

Figure 65 The orientation exhibits provide an explanation of the reasons people have been attracted to Lowell, from the original Indian settlers to today. Separate sections dealing with the major episodes of Lowell's history will present visitors with a walk-through-time-line.

Figure 66 A central event in the park visit will be **Why Lowell?**, a multi-screen production which describes the concept of a planned city, urbanization, utopianism and other key ideas behind Lowell's founding. The show will explain how the Urban Cultural Park has been structured to preserve a cross-section of 19th Century life.

Figure 67 An automated puppet show with tap-recorded narration and sound track is one way to explain the sequential development of the city. The script might be derived from accounts transcribed from the early settlers and visitors to Lowell.

Figure 68 Which do you prefer? Visitors will be invited to consider the differ-

ence in the goods made by hand and those produced by mass-production methods in Lowell's factories.

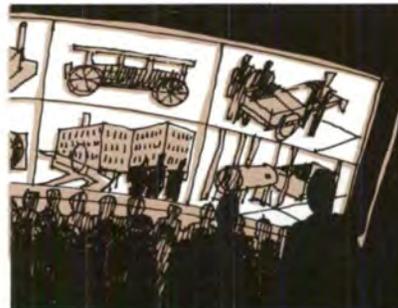
Figure 69 Lowell's technological accomplishments were a part of a much broader wave of invention, and represented the latest steps of an evolving industrial era. To show what else was being developed, visitors will have a chance to operate a collection of artifacts, some serious, some amusing.

Figure 70 At the embarkation depot, visitors taking the trolley will learn that Lowell was once a regional transportation center, served by every type of conveyance. Riding the rails or canals, visitors get a first-hand sense of the ways their forebears might have experienced Lowell.

Figure 71 How to get goods to and from Lowell? Creating a network of mills gave rise to a host of logistics and transportation problems. Would-be merchants will have a chance to devise a shipping plan, modeled after the constraints imposed on shippers 120 years ago.

Figure 72 One device might allow visitors to compare the costs and travel times of each means of transportation. Some visitors may be surprised to learn that some early means of transit were more efficient than those of today.

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The Crossroads Area

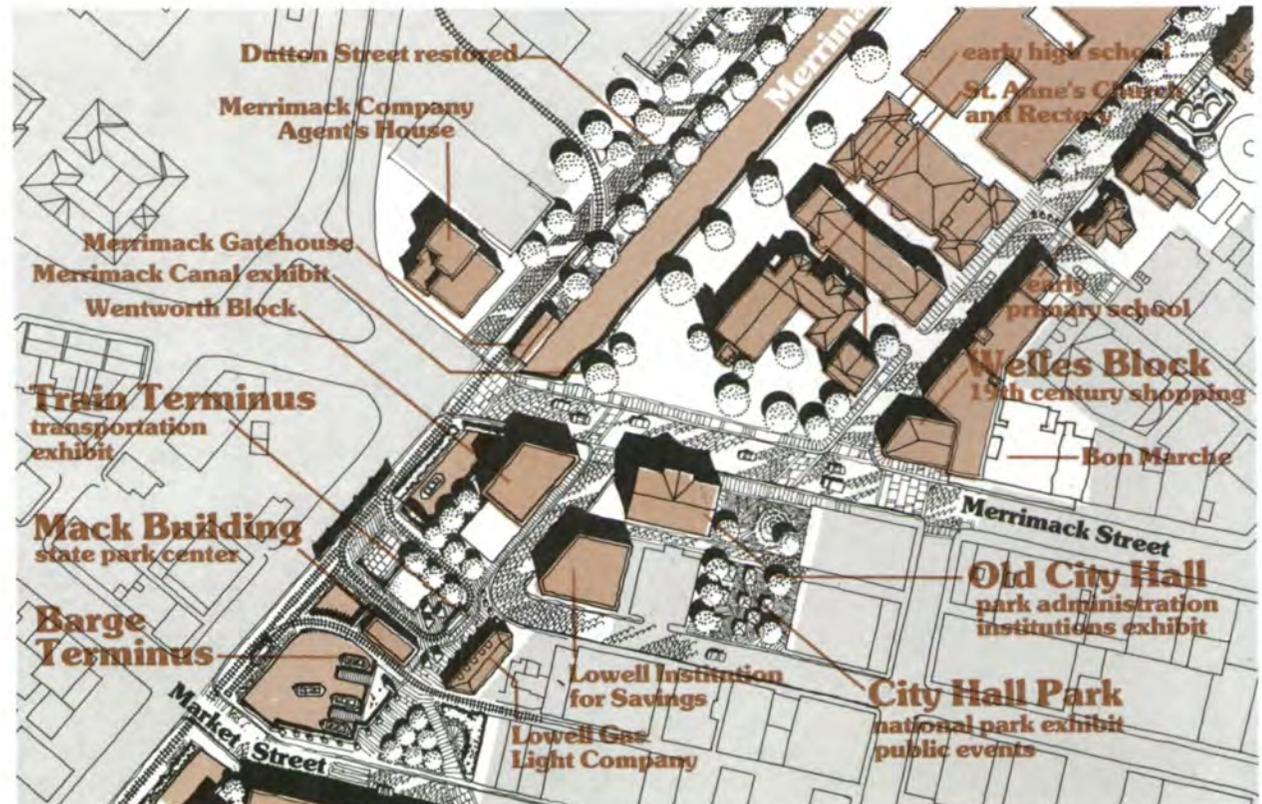
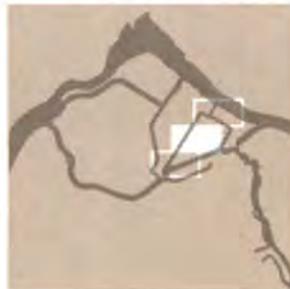
The "crossroads area" is located at the intersection of Merrimack Street and the Merrimack Canal, and has been the major public space in Lowell since the City's founding. This area remains one of the few in the City where the potential exists to develop a graceful relationship between a power canal and the urban fabric. This part of the park will afford views of the well-preserved 19th century architecture of Merrimack Street, the heart of Lowell's commercial district.

In close proximity are the original structures which housed several prominent institutions and many early commercial structures. St. Anne's Church and rectory (1825), designed by Kirk Boott, were among the first buildings to be constructed in the new industrial city. These buildings were built by the Merrimack Manufacturing Corporation with stone taken from the adjacent Merrimack Canal. St. Anne's symbolized the attitude of Lowell's founders that an industrial community could be both healthful and moral. The concept of an orderly life style with regular wages and an opportunity to save encouraged single New England girls to leave their farm families to take up a new life in Lowell. The original

Lowell High School (1840) is located adjacent to St. Anne's. Other institutional structures in this area include Lowell's first city hall (1830) and the Lowell Institution for Savings (1845) where women workers were encouraged to deposit their wages. The Welles Block (1840) and Bon Marche building are early commercial structures, and the Wentworth Block (1860) combined shopping on the first floor with public meeting halls upstairs. Completing the ensemble, the Agent's house of the Merrimack Manufacturing Company (1850's) and the Merrimack Gatehouse (1848) demonstrate the close relationship between Lowell's first corporation and the daily life of the city.

Figure 73.

Figure 74
Crossroads Area site plan.



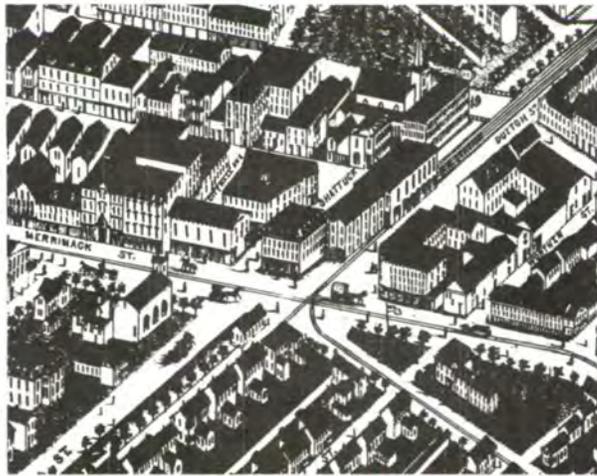


Figure 75 Merrimack Street — shown in the 1880 engraving above — retains many historical links to the 19th century.



Lowell University

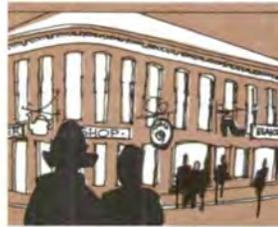


Figure 76 The Merrimack Canal was a principal public gathering space for 19th Century Lowellians. (photo c. 1890)

Figure 77 One of the fine examples of 19th Century mercantile architecture is the Welles Block, proposed to be developed into shops which would serve residents and visitors alike, shown restored to its original character.



Figure 78 The Merrimack Canal.

Figure 79 How to keep alive some of the stories, events and even the songs of an earlier era? One way might be to involve senior citizens in the operations of the park. Another might be to employ the use of programmed audio-visual devices, including "talking-faces", which are manekins on whose faces are projected motion pictures with synchronized sound.



Figure 80 Saint Anne's Church (1825) on Merrimack Street, beside the Merrimack Canal, remains as an outstanding example of religious architecture of the period. To the left is Lowell's first high school.

Figure 81 A small scale node will be developed in the Old City Hall to serve as a visitor interpretive center focusing on Lowell's social history and ethnic heritage.



Figure 82 The Merrimack Gatehouse, (1848), and the Yorick Club, a former agent's house (c. 1860)

Figure 83 A landscaped plaza will be developed adjacent to Old City Hall to enhance the historic setting and open views to Middle Street and the Mills beyond.

In this area, the old city hall will be restored to its original appearance and two incompatible adjacent buildings will be removed, opening views to early commercial structures on Middle Street. This area will be integrated with the proposed Middle Street pedestrian mall to be constructed by the city. The space will be landscaped and programmed for special events and activities related to the themes of the park. These could include weekend markets, space for vendors of ethnic foods, fairs, and outdoor public information. An outdoor display, explaining why and

how the Lowell National Cultural Park is being developed, will be aimed at keeping people up to date on what will happen next.

The first floor of the old city hall will have shops with a 19th century character. In the building there will be an exhibit on the people and institutions of Lowell. This structure will also house administrative offices for the park, and a restored council chamber will serve as a setting for public hearings and other civic events. Outside the Lowell Institution for Savings, an exhibit will

describe the concepts of speculation, profit and free enterprise. At the Welles Block, visitors will shop for merchandise of the 1840's in a store typical of that era. St. Anne's Church will be open to visitors. An outdoor display in Lucy Larcom Park will depict how the use and appearance of the Merrimack Canal has evolved since the city's founding. The Wentworth Block will be restored on the exterior, and the interior privately developed for appropriate uses. The Merrimack Gatehouse will be open to visitors.

The Living and Working Area

Since this area contains the Boott Mill complex and corporate housing, it will illustrate the interrelationships of working and living situations in early Lowell. The Boott Mill is probably the single most important historic structure remaining in the City. The original buildings (1835) and all subsequent additions remain intact and clearly show how the mill form evolved. The mill's placement between the Eastern Canal and the Merrimack River dramatically illustrates how power was produced. The mill's symbolic details, such as clock tower and firehouses, remain intact.

The juxtaposition of the Boott Mill and its adjacent boarding house (1836) dramatically

illustrates both the close proximity of the mill girls' working and living environments and the degree of control which the original textile corporations exercised over the lives of their employees. Relative social status is apparent in the characteristics of the other corporate housing of the same era in the area, including an overseer's house and agent's house (c.1840). The area is bordered by the sites of the Merrimack mills and the "Long Block" boarding house, both razed by urban renewal. Since this was the first and the largest of Lowell's manufacturing corporations, its absence illustrates the decline of Lowell as an industrial city and the changing values of its people.

Figure 84.

Figure 85

Living and Working Area site plan.

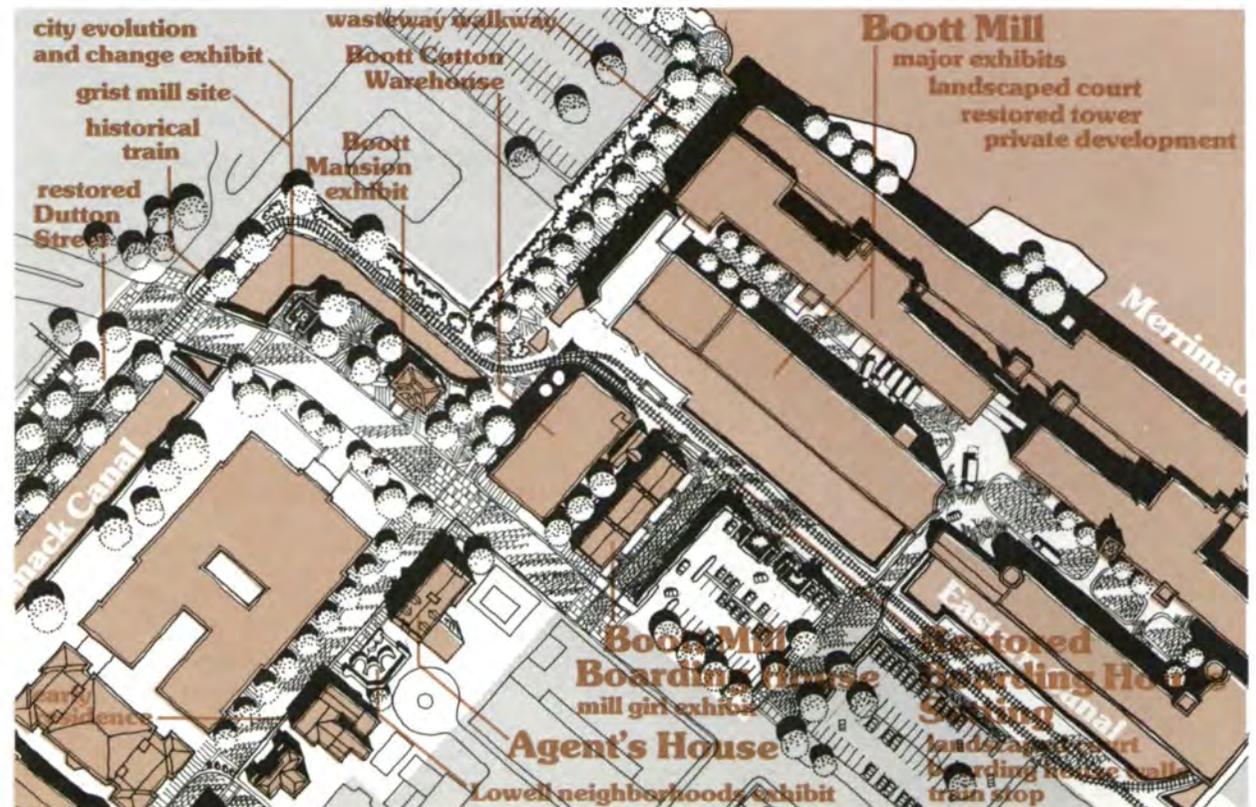




Figure 86 A portion of Kirk Street will be closed to traffic and developed to reinforce its 19th Century residential character.



Figure 87 The Linus Childs house (1840) with its brick facade, granite lintels, dormers, and double chimneys, is a former agents house.



Figure 89 The Eastern Canal running parallel to the Merrimack River adjacent to the Boott and Massachusetts Mills, will be a focus of tourist activity.



Figure 88 Boott Mill yard and clock-tower.

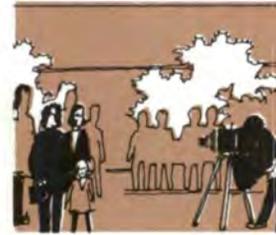


Figure 90 In an outdoor exhibit designed to describe the life style of different ethnic groups, visitors will find many opportunities for picture taking in front of exhibits of "my people".

Jack Boucher, Historic American Engineering Record

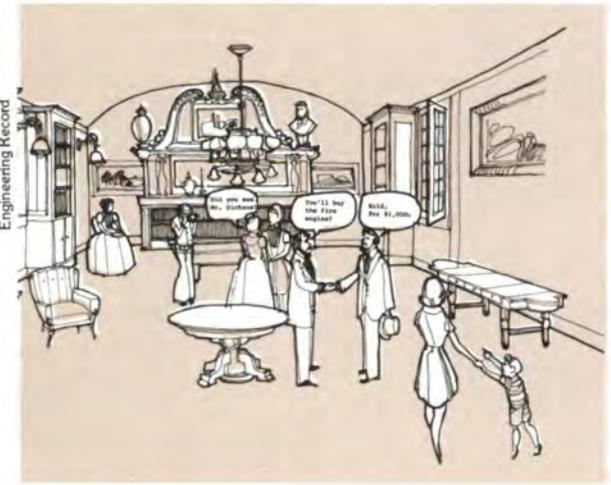
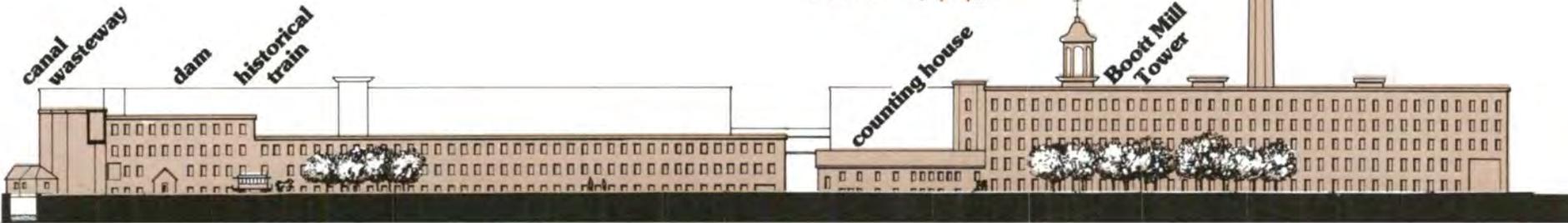


Figure 91 Portions of the Linus Child's House interior will be restored. "Overhead" conversations" will contrast lifestyles across the City.

Figure 92 The Boott Mill, south facade.



A visitor to this area will be in a typical setting of the working/living environment of 19th century Lowell. The northern end of Kirk Street will be closed to auto traffic, landscaped, and developed with outdoor exhibits. The exteriors of an early school, the overseer's house, and the agent's house, along with their yards and gardens, will be restored. The visitor will enter the agent's house and see a restored and furnished interior where this level of management once lived. A small exhibit will show how people's housing

type and life styles differed according to an individual's level in the corporate hierarchy. The visitor will assess what his level in the hierarchy would have been and to compare it with his own life style of today. Outdoor exhibits in this area will focus on Lowell's houses and neighborhoods—from Yankee to immigrant to the present day.

Pieces of Kirk Boott's original mansion (1824) would be re-assembled here on a site close to its original

location. Pieces of this home, such as the main stairs and portico, have been preserved, and are now being stored at several locations throughout the area. Boott was an engineer who served as major shareholder in the Boott Mills, Agent of the Merrimack Manufacturing Company, and Agent of the Proprietors of the Locks and Canals. He was the most powerful individual in Lowell during the early stages of the city's development.

What Would the Park Be Like?

The area in front of the Boott Mill would be developed to show the visual character of the rows of boarding houses which once stood in the area. The Boott Mill boarding house would be restored, including its adjacent gardens. The end walls of other, missing boarding houses will be recreated to separate visitor and industrial circulation, to screen required parking, and to recall the tight urban scale and type of activities which once characterized the area. Within the restored boarding house the visitor will find a major exhibit on the life and times of Lowell's "mill girls." This will include vignettes of everyday life within a restored interior setting.

A visit to the immense Boott Mill complex will provide one of the most dramatic experiences in the park. The mill facade, clock tower, and portions of the mill yard will be preserved, and important details restored. In the mill an exhibit area will illustrate the theme of industrial production, explaining the operation of the mill, the generation of water power and the changing nature and meaning of work. Tours of the building will be available. It is anticipated that the Mill will remain in private ownership. But, if and when portions of the Mill are redeveloped to housing or other uses, the changing role of the mill would be explained to visitors as part of its overall story.

The evolution of the entire city will be illustrated in a small outdoor exhibit adjacent to the Boott Mill on the former site of the Merrimack Manufacturing Company. Here a series of displays will depict the appearance of the site at various stages in Lowell's history and explain the changes which have taken place. Visitors will be encouraged to walk the area, to peek at remaining raceways, and to stroll along the river's edge where the famed "mile of mills" once stood.

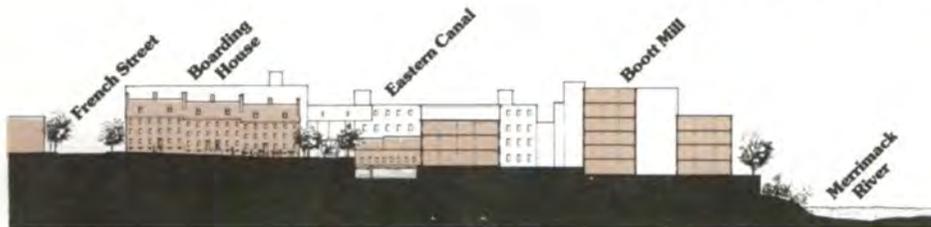


Figure 93a Boott Boarding House elevation and section through the Boott Mill complex

Figure 93 Cutaway view of restored Boott Boarding House.

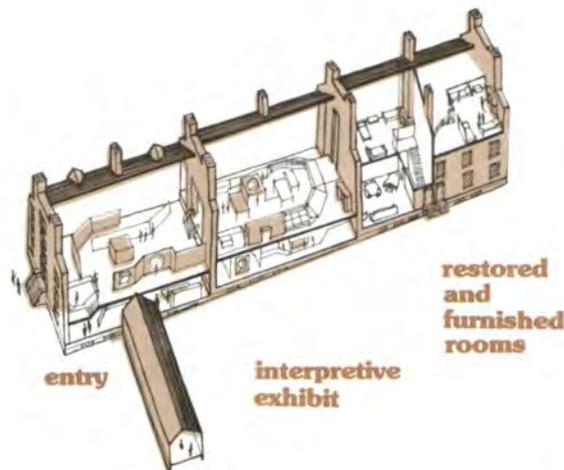


Figure 94 Today's visitors will be able to walk the same path from boarding house to work that the mill operatives once walked. One obvious question arises. . . How long does it take to get from home to job?

Figure 95 A major presentation at the boarding house will be a theatre-in-the-round slide presentation of the lifestyle of the farmgirls who were enticed to come to work in the mills, and the feelings and values that motivated them.

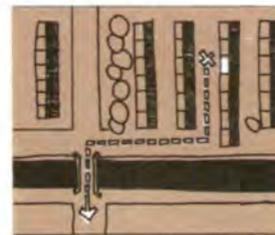


Figure 96 Interactive devices will ask visitors how they would have found life in 1845? 1855? 1865? and so on.

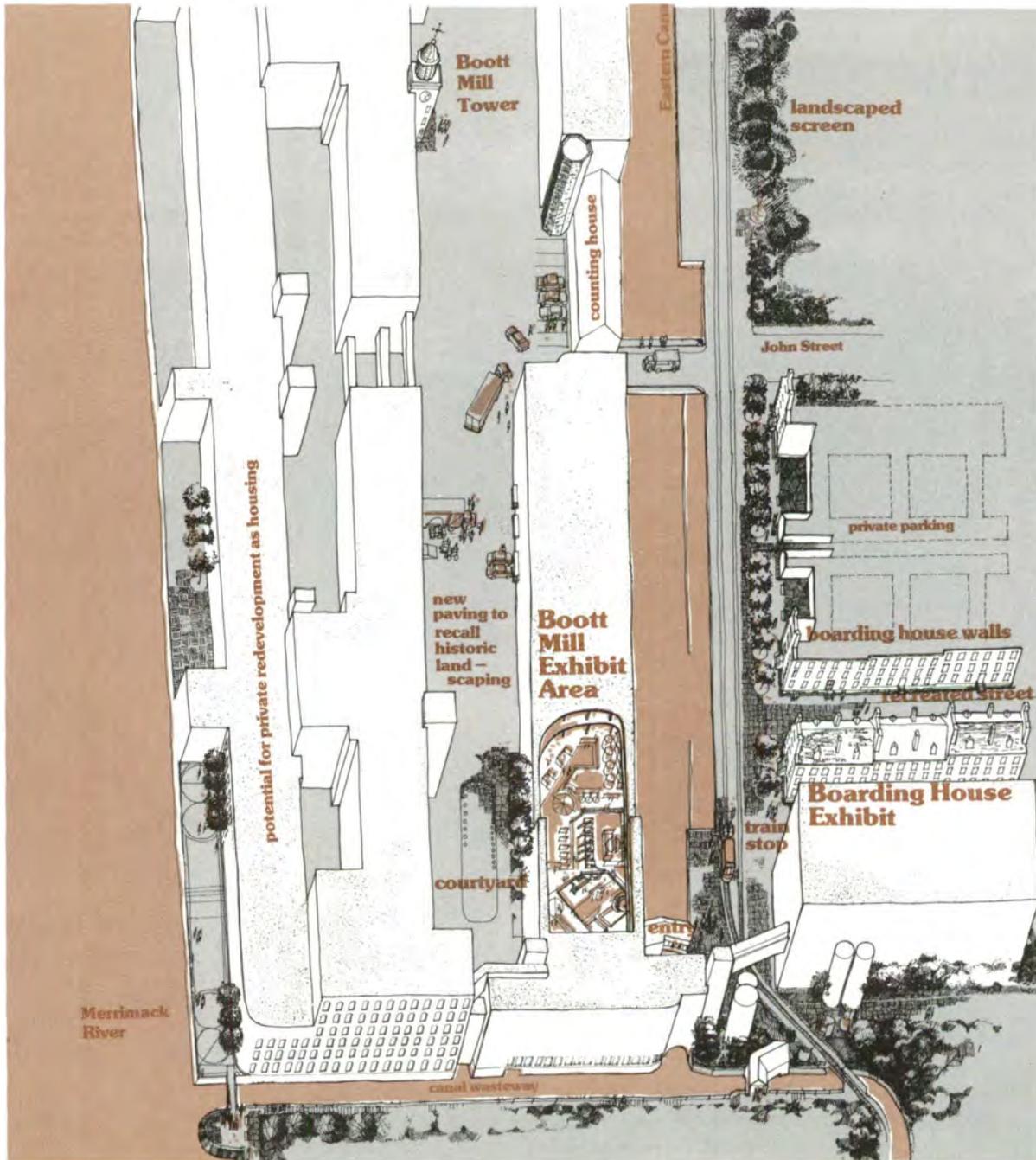
Figure 97 A small souvenir shop will offer an outstanding collection of reproductions of early Lowell scenes, facsimiles, letters, broadsides and other artifacts, as well as a collection of fabrics and products made by workers operating weaving machinery right across the street.



Figure 98 Walking through the restored section of the boarding house, visitors will find themselves at a door held ajar, but open enough to hear the conversations (tape recorded) of a group of mill girls talking among themselves, lying in bed, just after curfew and "lights out".

Figure 99 Another bedroom, this one dimly lit by the (artificial) early-morning sun invites visitors to overhear the plaints of girls describing the tedious hours and cold New England weather, while shadow-pictures of the girls getting dressed (in silhouette) are projected onto the walls.





The Children's Museum, Boston

Figure 100 Boot Mill complex and boarding house area with proposed park improvements. *Far left.*

Figure 101 Models of textile machinery help children to understand what life in the mills was like.



Figure 102 The Boot Mill exhibits explore a range of questions about **working**. Some of the exhibits will be designed to allow visitors to assume duties of early workers, performing certain tasks and gaining some insight into the skills, satisfactions and frustrations that attended mill life.



Figure 103 How is power generated? Water-powered mills will be much more understandable to visitors who are given a chance to operate and control models and devices which describe hydro-power.

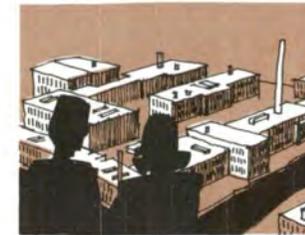


Figure 104 A complete miniature mill will detail the process of textile manufacture as it was conducted more than 100 years ago.



Figure 105 "Why do bosses act that way?" A section of the exhibit will present the ideas of the men who established Lowell, and some of the decisions they faced. Visitors will be given the chance to see how the results of **their** decisions might have turned out, compared to those made 150 years ago.

Downtown Canal Loop

Of all of Lowell's historic resources, its canal system is perhaps the most significant. *"The Lowell canal system was one of the most impressive engineering achievements of 19th century America. Today, almost 125 years since its completion, the canal system is practically unchanged, a remarkably well preserved monument of our industrial heritage..."*

*Dr. Patrick M. Malone, Canal Development and Hydraulic Engineering: The Unique Role of the Lowell System (1974).

The downtown canal loop includes the Merrimack, Lower Pawtucket, and Eastern Canals, and parallels the industrial mill wall, which, at one time, almost completely encircled downtown Lowell. This wall was formed by textile mills which utilized the fall of water through wheels and turbines to drive machinery. Therefore, it is here where conversion of the river's potential energy to industrial power can best be interpreted.

Figure 106.

Figure 107 The Downtown Canal Loop.

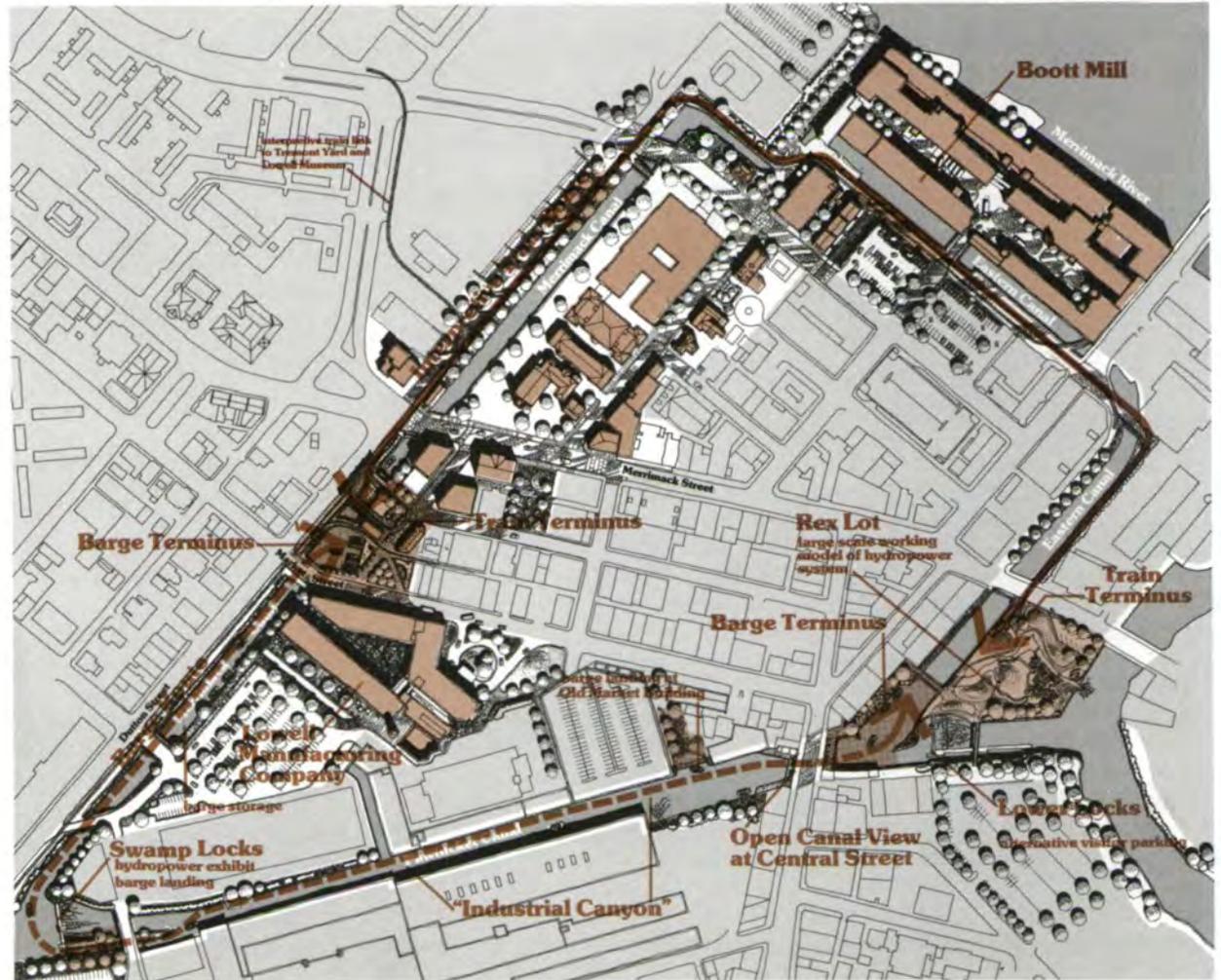


Figure 108 A major reason for the re-birth of downtown San Antonio, Texas, has been the revitalization of its 1/2 mile waterway. Much greater potential exists in Lowell.



Figure 109 Canal barge and trolley trips will start from the corner of Dutton and Merrimack Streets, on the site of Lowell's first railroad station.



The downtown loop is divided into two segments: a barge to the south and a train to the north. The tour begins at the site of the old train station where exhibits will explain the various interpretive tours that are available, as well as the importance of transportation to Lowell's growth and development. The barge itself will be one of the most important interpretive devices in the park. A narrative description of the passing scene will be supplemented by bankside displays.

In the barge, the visitor will move up the Merrimack Canal, passing the Lowell Manufacturing Company and the site of the machine shops. The first stop along the route will be the Swamp Locks, the central control point for the entire canal system.

Figure 110 The boating potential of the canal system has been clearly demonstrated.



Figure 111 A canal barge landing will serve the Old Market Building and the Central Street Area.

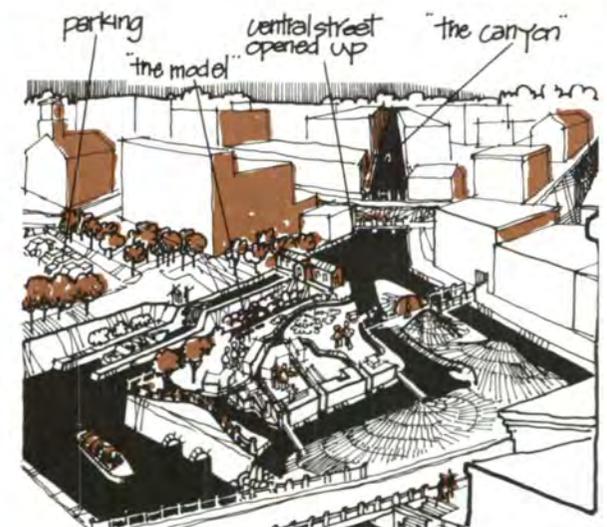


Visitors may choose to disembark for a closer look at this complex, or to descend through the restored locks into the lower Pawtucket Canal. This portion of the ride includes an area where the mill wall foundations are the canal walls, producing a manmade canyon. After stopping at the Old Market building, the barge will continue under Central Street. Two buildings now flanking Central Street and crossing the canal will be removed to allow views to the water. At the end of the canal ride, the Rex Lot site, a working model of Lowell's power canal system will be developed. Within this exhibit visitors will walk among scale models of the mills and will operate control devices on the canals. Close by, the lower lock from the Pawtucket into the Concord River will be restored and interpreted.

Figure 112 Lower Pawtucket Canal today.



Figure 113 The plan proposes joint development of the State Park's Rex Lot, into a working model of the "industrial city".



Leaving the Rex Lot site, the visitor will continue by train along the industrial wall, parallel to the Eastern Canal and next to the Massachusetts and Boott Mills. The train engines and cars will be designed to resemble as closely as possible the appearance of equipment used on Lowell's first railroad. At the Boott Mills, visitors will have the option of either continuing on the train or returning to the main visitor center on foot. Those continuing on the train will move past the former site of the Merrimack Manufacturing Company and up the eastern end of the Merrimack Canal past the high school to return to the visitor center.

Steve Dunwell

Outlying Canal Loop

The Merrimack River was crucial to the success of Lowell. The potential of its 30 foot drop, harnessed by the Pawtucket Dam, provided for the first time sufficient power to build and operate a great industrial city. This part of the park will illustrate how this power was harnessed and diverted to distant mill sites in downtown Lowell. Included are the Upper Pawtucket Canal, the Western Canal, the Northern Canal with its dramatic river wall, and the Merrimack River, as well as numerous dams, gatehouses, and other devices that controlled the flow of power into Lowell.



Figure 114.

Figure 116 The Francis Gate will be an important stop on the Outlying Canal Loop.

Figure 115 Outlying Canal Loop.



A guided barge tour departing from the site of the old railroad station will convey visitors through this part of the park. Proceeding up the Merrimack Canal, the barge will pass by the Swamp Locks into the broad upper Pawtucket Canal. The visitor will learn that this canal was originally constructed as a transportation bypass around the Pawtucket Falls and was later converted to become Lowell's principal power canal. Sites along the way include some of Lowell's original rail yards and one of the nation's oldest public gas works. At the Francis Gate, which served to protect the city from flooding, visitors will disembark to view the mechanisms within the cluster of restored buildings before continuing on through a set of operable locks.

The tour will pass through a wooded area to the mouth of the canal and out onto the Merrimack River. Here the relationship between the Pawtucket Dam and

the canal system will be dramatically evident. As the barge passes through the tunnel of the Northern Canal Gate, the construction of this upper level canal will be explained, including the Great River Wall which retains the water level 30 feet above the Merrimack River, below. Visitors will view the interior of the gatehouse with its sophisticated machinery for regulating water flow. The first Francis Turbine, "the ancestor of modern hydro-electric turbines", is located in this gatehouse. Proceeding down the canal, the visitor will pass by the Northern Canal wastegate and the Northern Canal walk. This walkway, once a major public promenade, will be restored as a part of the park program. At the Wannalancit Mill, at the end of the Northern Canal, visitors will have the opportunity to tour the exhibits of the Lowell Museum which is located in the last active textile mill in Lowell. A walk through the weaving room will offer the most dramatic

Recreation Area

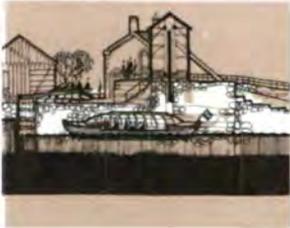


Figure 117 Riders on the Outlying barge loop will pass through a working system of locks at the Francis Gate as part of their trip along a completely restored canal system.



Figure 118 The interior of the Northern Canal Gatehouse will be refurbished to allow pedestrians to view working machinery and the canal lock system.



Figure 119 A stop at the Ecumenical Plaza would focus on the role immigrants played in the development of the city and highlight the ethnic diversity of Lowell society.

Figure 120.



Figure 121 The 19th Century promenade which once paralleled the Northern Canal will be restored.



Figure 122 Interpretive signs developed as part of the Lowell Heritage State Park.



Figure 123 Whipple Powder Mill will be stabilized as an historic "ruin", with covered sections to be used as a picnic pavilion.

Figure 124 A series of self-guided tours will enable all National Park visitors to explore Lowell's neighborhoods, historic sites and canal banks.



medium imaginable for understanding the rigors of the working environment in a textile mill. Every effort will be made to encourage the continuance of this operation and to fully document this last vestige of the original textile manufacturing process.

Several auto bridges in this area will be raised to allow barges to move onto the Western Canal for a return trip to the visitor center. An important stop along this canal will be the site of the original "Acre" where the first immigrants to come to Lowell were settled. The original corporations donated an acre of land to the Irish immigrants to build their church. The area became a focus for immigrant housing, and center of life for many ethnic groups. In this area are St. Patrick's Church, built by early Irish immigrants, and Holy Trinity Church, the first Greek Orthodox Church to be built in this country.

Within the proposed park boundary there are more than five miles of river and canal banks. These areas represent a unique recreational resource, not only for the local neighborhoods, but also for the region as a whole. Improvements within the National Park will include networks of bikeways, footpaths, and recreational areas oriented to the canals and rivers. The National Park boundary will include sufficient additional areas to ensure full protection of Lowell's historic canals and riverbanks, and to encourage maximum utilization of these areas for recreational purposes. Recreational facilities will include public docking areas, picnic facilities, and other activities on the Merrimack and Concord Rivers.



Details of the Plan

Summary of Major Concepts

Scope of the Park

The Lowell National Cultural Park (LNCP) would be established by Congress, under the direction of the Secretary of the Interior. The objectives of the park would be to preserve and interpret, in a coordinated and coherent fashion, the key physical elements—and the way of life associated with each— which together illustrate the development and evolution of Lowell's historic industrial system. These elements include:

- **the canals, riverbanks, and related artifacts** which were part of the power generation system, developed under single corporate auspices;
- **representative mills** which illustrate early and later stages of textile manufacture in the 19th century; these mills were powered by energy provided by the canals and were the economic basis for Lowell's settlement;
- **typical housing** of industrial workers, including corporate-developed and controlled housing (boarding houses, agent's housing, overseers' housing) and privately developed housing which sheltered generations of immigrants who were attracted by the economic opportunities in the mills;



Figure 125
Park management zones.

- **community institutions** developed by the manufacturing concerns to provide needed services for their employees, including church, school, government, and privately developed mercantile structures.

Since the park is in a dense urban setting, almost all of the structures within it would remain in private ownership. The development and management would be cooperatively undertaken by the National Park Service (NPS) and the Massachusetts Department of Environmental Management (DEM). This cooperation would share State and Federal resources, maximizing the effectiveness and abilities of each. Important

contributions to the park have already been made through local initiatives, and maximum local participation in the park will continue to be encouraged.

The park would include two zones: an **intensive use zone** which would be preserved and developed as the focus of the park; and a **preservation zone** including other buildings and/or areas of significance where a more incremental preservation strategy would be pursued. The two zones together comprise the historic scene, as defined previously. Figure 125 indicates the boundaries of the Lowell National Cultural Park, as proposed. The intensive use zone, managed by NPS and DEM, is indicated.

Park Management and Development

Within the **intensive use zone**, both NPS and DEM would acquire and improve property and develop and operate the major visitor attractions in the park. The responsibilities of each agency are outlined below.

National Park Service

interpretation, park wide downtown "cross-section" of 19th Century Lowell (including preservation, building and open space improvements, transportation and visitor services

Massachusetts Dept. of Environmental Management

canals, riverbanks, and related recreational areas gatehouses, locks and dams barge system

Figure 126.

The proposed State involvement is based on a current commitment to execute these types of improvements as part of a proposed \$9.1 million state Lowell Heritage Park. This State effort would be slightly modified to reinforce to the maximum the proposed national park. The National Park Service responsibilities are proposed in recognition of the agency's superior capabilities in development of interpretive programs and in preservation and restoration activities as would be required in the downtown area. Within the intensive use zone, park development and management would be shared on a pro rata basis between NPS and DEM. The intensive use zone will not be a static preservation area; it will remain an important and dynamic functional part of the city in close proximity to other areas of downtown Lowell where efforts are currently underway by the City to recreate a 19th century atmosphere through pedestrian improvements, building improvements, and lighting.

The management challenge for the entire park, including the **preservation zone**, will be to protect major public capital investments, and to permit a broad preservation and revitalization effort. A new type

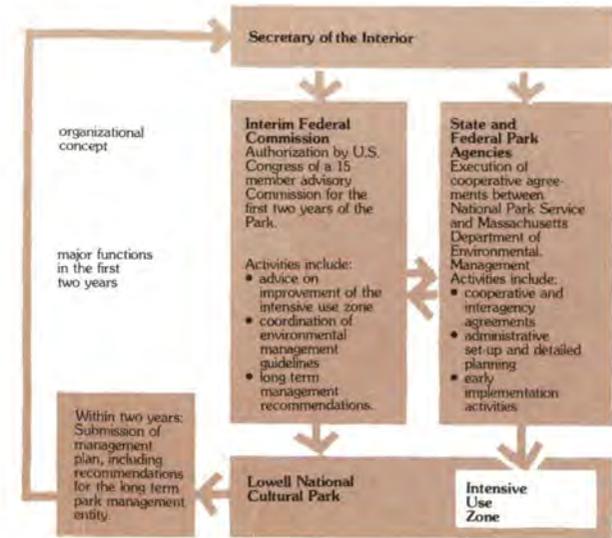
of park management entity will be created to enable the development of projects and activities integral to the total development, but requiring substantially broader input than can be provided by the NPS and DEM alone, including:

- **environmental management** throughout the park to encourage preservation and to protect the integrity of the park,
- administration of a **preservation assistance program** outside the intensive use zone,
- **coordination** of state, local, and federal actions within the boundaries of the park,
- encouragement, through public and private sources, of **educational / cultural programs** and **private sector development** which use the historic, cultural, and physical resources within the park.

The proposed management structure for park development is shown in Figure 127: The Secretary of the Interior would initially supervise the entire effort, including the park agencies and an interim Federal Commission. As described above, the intensive use zone would be improved and administered through a joint effort of NPS and DEM. Within this zone, each property would be either owned by one of the above agencies, or subject to a cooperative agreement between the owner and NPS to insure preservation. The normal park-related activities of planning, program development, administration, interpretation, protection, and maintenance would be carried out cooperatively by the two agencies within this area.

The form of the new long term management entity would be subject to negotiation among the local, state, and federal jurisdictions involved, under the supervision of the Secretary of the Interior. An Interim Federal Commission, to include representatives from all levels of government, would be created to advise the Secretary on the development and management of the park, including the form and composition of the new management entity. Based on input from the Commission, the Secretary would take appropriate steps within two years of creation of the park to form the entity, in consultation with other government levels.

Park Management — First Two Years



Long-Term Park Management Structure

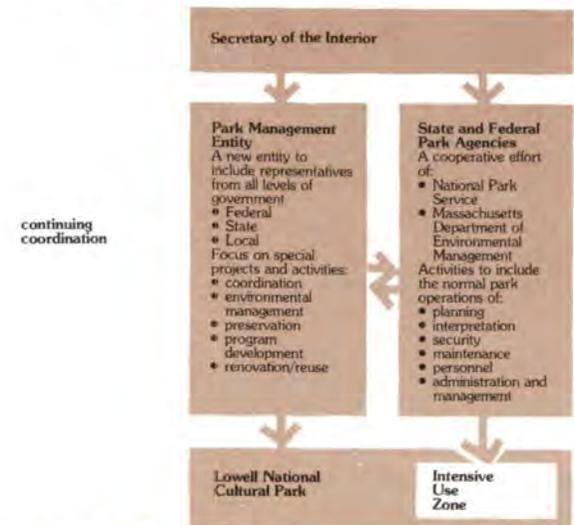


Figure 127 Organization chart.

Responsibilities for Major Management Development Functions

Park management functions are rather traditionally defined for the intensive use zone, and more broadly defined for the entire park. These functions are described below.

The Intensive Use Zone

General Administration

Not all property in the intensive use zone would be owned by NPS or DEM. The park would include property in the following categories:

- NPS-owned, to be purchased by fee acquisition;
- NPS partially-owned; for example, where facades or other easements are purchased;

- property where a cooperative agreement is negotiated between the owner and NPS regarding use, materials, maintenance, or access;
- property owned and acquired by the Massachusetts Department of Environmental Management (DEM);
- property owned by the City of Lowell and retained or donated to NPS or DEM;
- other public or private property.

Final decisions regarding type of ownership and acquisition procedures would be made in the early stages of the project implementation process.

The National Park Service would share administrative and management functions with the state DEM; however, NPS would have the lead role in such efforts, and would bear the major financial responsibility. This is recommended because NPS has expertise in

the areas required and will manage most of the high visitor-volume sites. Major administrative functions within the Lowell National Cultural Park include:

- central administration and management
- personnel
- security
- interpretive programs
- property management and maintenance

Maintenance costs would be divided on a pro rata basis between NPS and DEM.

The Secretary of the Interior would have, through a cooperative agreement with the Commonwealth of Massachusetts and the City of Lowell, right of final review and approval over the actions of other public agencies within the intensive use zone of the park.

Federal Responsibility of the National Park Service

NPS would be principally responsible for:

- **interpretive programs and exhibits**
- **the “cross-section” of 19th century Lowell**

Figure 129 Intensive use zone, National Park Service involvement: **Interpretive Exhibits.**



Figure 128.



Interpretive Programs and Exhibits

The NPS would take responsibility for the interpretive program, including involvement in both the downtown-oriented historic preservation zone and the canal and riverbank areas. The potential contributions of the Department of Environmental Management, the Lowell Museum Corporation, and others should be recognized in developing and operating the interpretive programs. In addition to an advisory role in guiding the overall program, each might take a role in operating certain specific exhibits. In addition, the museum or others might be assigned a principal role in certain aspects of interpretation development, such as historical research. Within the downtown, the NPS would develop the following types of interpretive areas:

- in the Lowell Manufacturing Company—the NPS would develop the main visitor center at the first point of public access to the LNCP. Exhibits would focus on the forces which made Lowell: the

industrial revolution, its growth pattern, and its significance to life today.

- in the Boott Mill area—a restored boarding house would focus on the people who made Lowell: their life styles and working conditions. Within the Boott Mill, exhibits would focus on the operation of a mill, the generation of water power, and the changing nature and meaning of work. Development of this exhibit is clearly an area for the cooperative involvement of local groups.
- in individual buildings and spaces within the intensive use zone there would be exhibits, signage, and selective interior restorations to explain stories of relevance to the industrial system: education, city government, financial institutions, the church. The aim of these interrelated exhibits, both small scale and large, would be to show the role of individual institutions and spaces in contributing to a social and economic order which was needed to support large scale industrial production.

Outside the central zone, NPS would develop exhibits at key sites, locks, and gatehouses to explain the operation and significance of the hydro-power system. Figure 129 locates interpretive sites.

NPS would supply interpretive staff, both permanent and seasonal, to assist the visitor in comprehending the wide range of spaces, artifacts, and exhibits. Maximum cooperation would be required between the Lowell National Cultural Park and local institutions and groups with resources critical to interpretation.

Involvement of these groups is crucial to developing an interpretive program which is meaningful and useful to local residents as well as visitors. For example, the Lowell Museum might develop outreach programs to the local community including loanable bits of classroom materials, traveling exhibits, and demonstration programs. Grants would be available to aid in developing such activities as part of the cultural park program.

Cross-Section of 19th Century Lowell

NPS would take a lead role in the recreation of a "cross-section" of 19th century Lowell in the heart of the downtown. The NPS would be allocated funds to: preserve buildings through the acquisition or purchase of easements; restore and renovate historic structures and spaces; develop interpretive exhibits (as detailed above); develop transportation and visitor service facilities. The NPS would also be authorized to negotiate and enter into cooperative agreements with owners of property in this area. **Major buildings** which would be preserved in this fashion are indicated and listed on Figure 130, although the means of appropriate preservation would be negotiated on an individual basis. This Figure also indicates the type of NPS involvement which appears most appropriate to each structure.

As part of the plan, certain streets would be closed to automobile traffic. The City could donate easements to these spaces to the National Park Service, who would restore their pedestrian character, and insure that appropriate materials are reinstalled. These streets could be maintained either by the NPS or by the city.

Additional easements would be purchased for the proposed train loop. These **public space improvements** are shown in Figure 131, and include:

- Shattuck Street—where easements would be obtained in front of restored buildings, the street would be closed to traffic and landscaping would be provided;
- Kirk Street—where easements would be obtained over portions of the street which would be closed to traffic and restored, as above;
- Railroad right of way—where an easement would be obtained, tracks would be refurbished, and adjacent pedestrian and landscaped areas would be developed. Rights would also be acquired for train operations.

Several small open spaces have been identified as part of the plan which could become extensions of the

public open space and pedestrian system, and could be the locus for small interpretive exhibits or activities.

Within some of these areas, land or easements would be purchased, and existing buildings would be removed, with relocation of existing occupants. The buildings to be removed are small, one story structures which are architecturally incompatible with adjacent historical resources. The relocation program would be staged in such a way that any owner displaced would be offered an opportunity to move to equivalent space within the park area. Areas for acquisition include:

- Old City Hall area—two adjacent 20th century buildings to the east of the old City Hall would be purchased and removed to enhance the historic structure, to provide views and access to Middle Street, and to provide a small public space for certain interpretive activities.
- Lowell Medical Supply Building—this building, on Market Street, would be purchased and demolished to eliminate its incompatible architecture and to allow development of the primary barge landing near the Lowell Manufacturing Company.
- John Street Boarding House area—a one story structure to the rear of the boarding house would be purchased and removed; and land to the east of the boarding house would be purchased and improved to enhance the boarding house.

The NPS involvement would also include provision of several **transportation services** which are integral to the LNCP, including:

- primary visitor parking to the south of the Lowell Manufacturing Company. This area, adjacent to Dutton Street, would either be purchased by NPS or would be donated to the NPS by the city; initially, this space would be improved for surface parking, but over time would be developed for a 650 space garage. Major bus and auto access to this area would be via Routes 3, 495, and the Lowell Connector, which would be signed.
- secondary parking, for long range overflow visitor use. This area, near the swamp locks, would be purchased by NPS.
- interpretive train route within the LNCP, to provide vehicular connections between the two major interpretive sites; the Boott Mill and the Lowell Manufacturing Company. This would be developed on existing rail rights of way currently owned by the Boston and Maine Railroad. This train service could, in the long run, be extended at either end, to service overflow parking and to complete the downtown barge and train loop. A spur to the Wannalancit Mill, site of the Lowell Museum, would also be provided.

These services are shown in Figure 132.

Figure 130 Intensive use zone, National Park Service Involvement: **Buildings.**

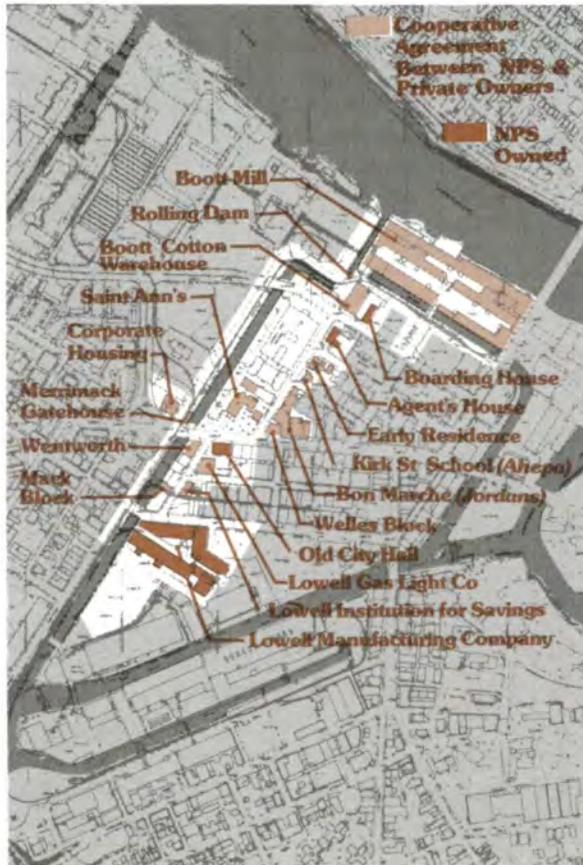


Figure 131 Intensive use zone, National Park Service Involvement: **Public Spaces.**

- (R) Incompatible structures removed to create public space
- (E) Easement donated or acquired by NPS
- (P) Property purchase by NPS

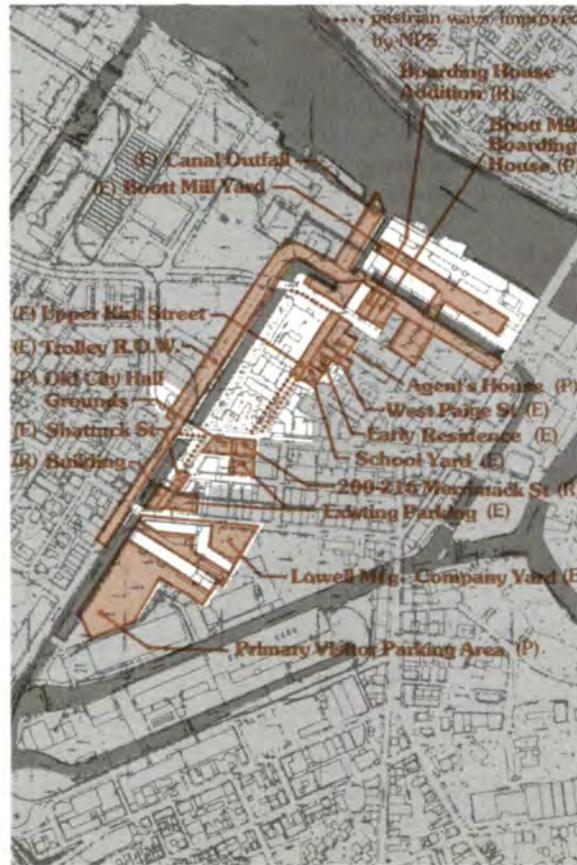
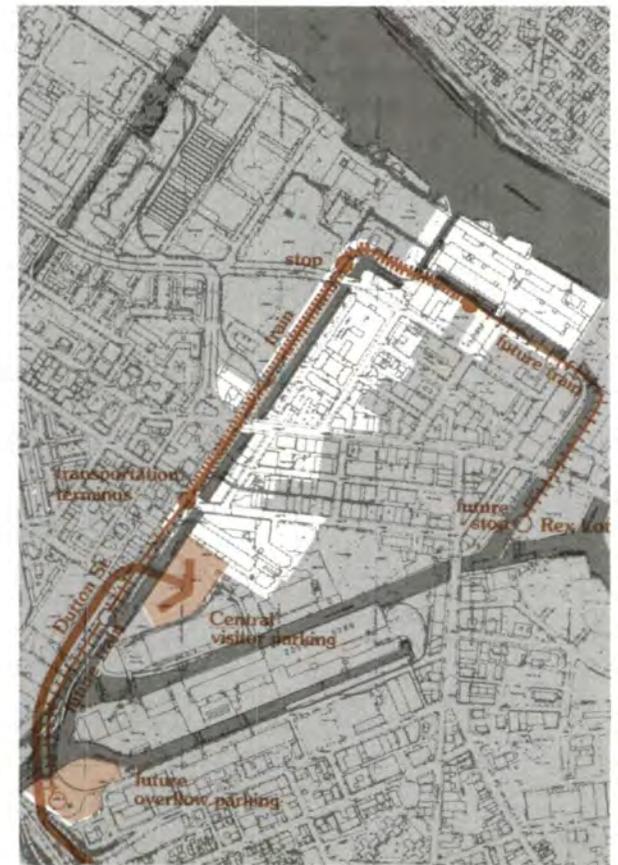


Figure 132 Intensive use zone, National Park Service Involvement: **Transportation Services.**



State Department of Environmental Management Responsibilities

The plan is facilitated greatly by the current plans of the DEM to acquire and improve major areas of the Lowell canal banks, and structures related to operations of the canals. Within the Lowell National Cultural Park, the Department of Environmental Management would exercise major responsibilities in those areas where it is currently involved:

- canals, riverbanks and related recreational areas;
- gatehouses, locks, and dams;
- operation of the proposed barge system.

The DEM would be assisted, as necessary, by NPS in order to enable compatibility with NPS preservation standards and to enhance, to the maximum extent, the proposed interpretive program.

Figure 133.



Jack Boucher, Historic American Engineering Record

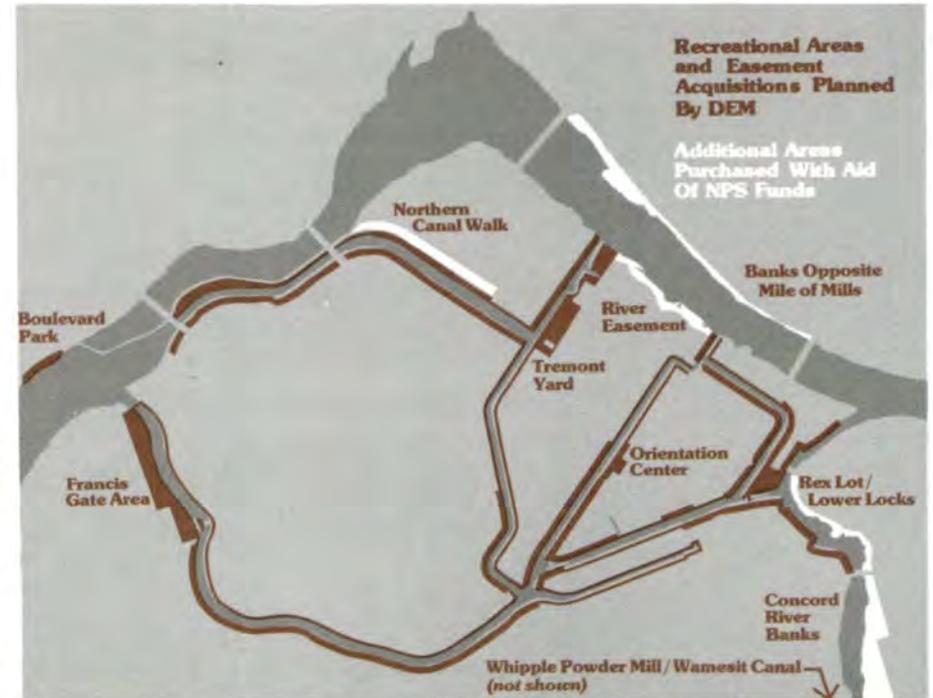


Figure 134 Intensive use zone, Department of Environmental Management Involvement: **Canals and Riverbanks.**

Canals and Riverbanks

The improvements on the canals and riverbanks would follow the broad outlines of the plan already prepared by the State, with several key modifications. Major areas of DEM involvement include: purchase of canal banks and easements; installation of bicycle and pedestrian trails, where feasible; restoration of canal edges and reinstallation of suitable materials; purchase of five major recreation and interpretive sites already in the DEM plan; and, purchase of additional sites, with fiscal aid provided by NPS, to complete the LNCP plan. These areas are shown in Figure 134.

Major recreational and interpretive areas planned to be purchased by the state DEM include:

- the Francis Gate Park;
- Pawtucket Boulevard Park;
- Tremont Yard Park;
- the barge landing at the current site of the YMCA, and open space along the Merrimack Canal and Dutton Street;
- the Rex Lot Park;
- the Northern Canal Walk.

At some of these areas, funds would be made available through NPS in order to expand the area or to enable more vivid interpretation. These include an

expansion of the Northern Canal walk, construction of an operating scale model of the city on the Rex Lot, and general assistance in the interpretive areas.

Recreational areas to be included in the DEM-acquired portions of the park, with the assistance of NPS grants, are:

- portions of the Merrimack river banks adjacent to and across the river from the Boott Mill;
- major areas on the east side of the Concord Riverbanks;
- the Whipple Powder Mill, which would be stabilized and turned into a park, and the Wamesit Canal area.

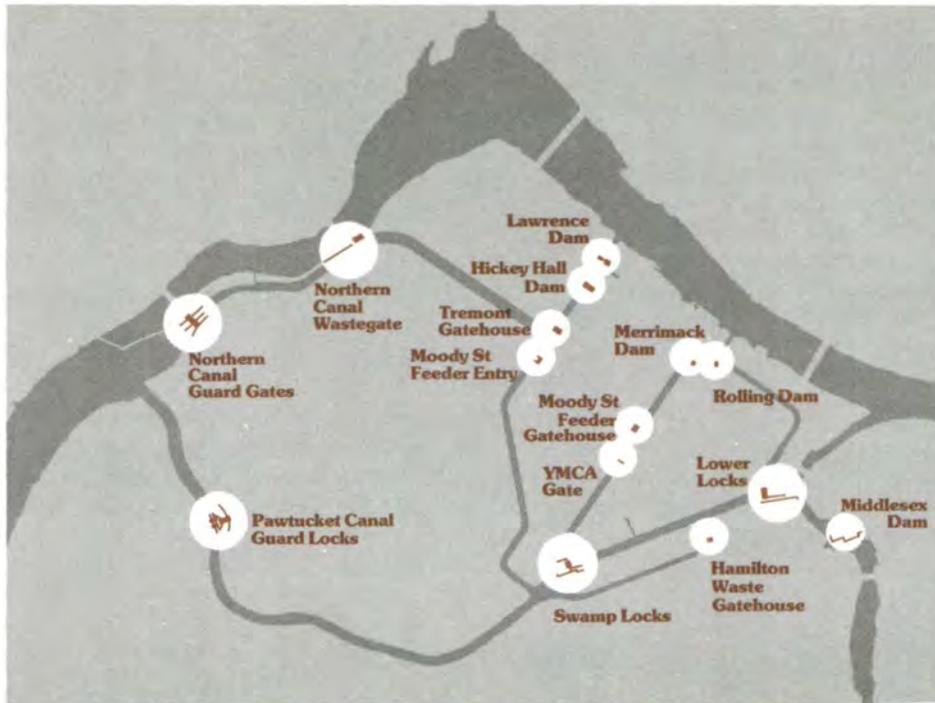


Figure 135 Intensive use zone, Department of Environmental Management Involvement: **Gatehouses, Locks, and Dams.**

Gatehouses, Locks and Dams

DEM would improve and restore the key areas and equipment necessary to the operation and understanding of the canal system. These include the areas shown and listed on Figure 135. Their historic importance has been documented by the Historic American Engineering Record of the National Park Service in 1976.

The Barge System

DEM would take principal responsibility for execution of the required improvements to insure that the canals are navigable for park-related barge traffic. The barge system would consist of two loops, both originating at the current site of the YMCA close to the Lowell Manufacturing Company. The **outer loop** would include a segment of the Merrimack Canal, to the Western Canal, the Northern Canal, and around to the Pawtucket Canal. Improvements here would include raising four bridges to allow for barge clearances and the establishment of several barge landings. The **inner loop** would originate in the same place, but would include a segment of the Merrimack Canal, to the Pawtucket Canal, with a terminus at the DEM's Rex Lot park. This loop

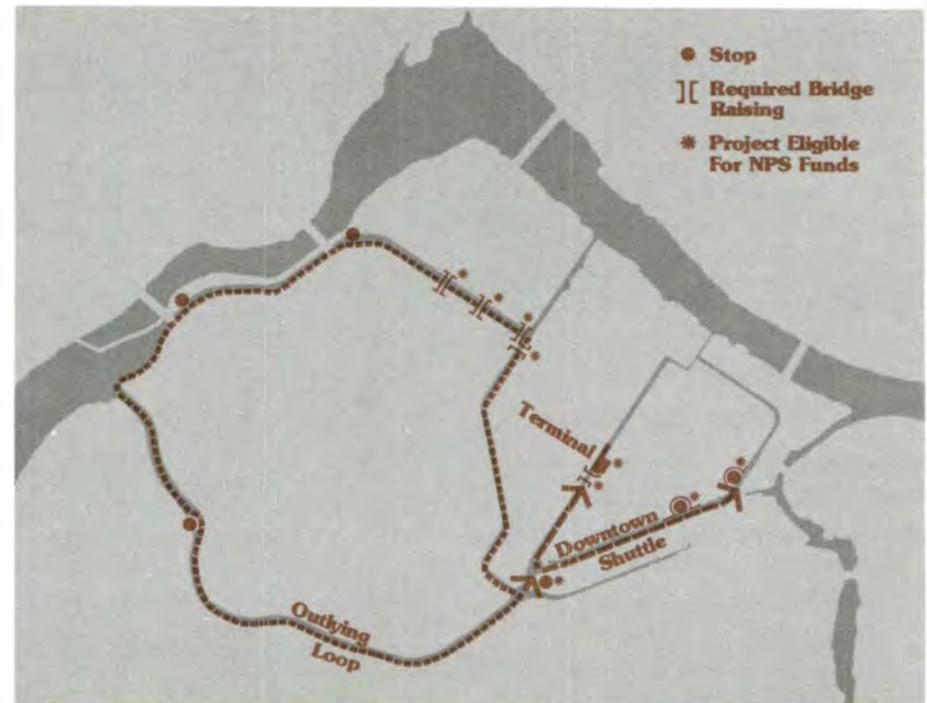


Figure 136 Intensive use zone, Department of Environmental Management Involvement: **Barge system.**

requires development of several major barge landings and barge storage areas and raising of one bridge.

Major expenditures for development of landings and bridge raisings would be financed through assistance from NPS. Location of the two loops and related development areas is indicated in Figure 136. When the above improvements have been completed, the barge services would be run, most probably by concessionaires, with on-board interpretation provided by NPS.

Park-wide Management and Development

Definition of Major Functions

As stated above, a new management entity will be required to perform those management functions which either are outside the intensive use zone or are beyond the capability of the two principal agencies involved, NPS and DEM. There are five principal functions which fall into these categories:

- **coordination** of public agency activities;
- **environmental management** of the entire park;
- **preservation assistance** outside the intensive use zone;
- **educational and cultural program development** to use the park resources;
- **rehabilitation and reuse of historic structures** throughout the park.

The first two of these functions are of immediate importance in order to achieve effective interagency cooperation and to protect Lowell's resources. Therefore, an interim management organization, an **interim Federal Commission**, will be created by the same legislation which creates the park. The latter three functions are important, but are of a lower priority until major interagency agreements are executed and the implementation of the intensive use zone is underway. The interim Federal Commission would therefore discharge the coordination and environmental management functions for the first two years of the park and would develop management approaches to accomplish the other functions. At the end of this period, the interim Commission would submit to the Secretary of the Interior a management plan for the long term, specifying how to accomplish all of the above management functions. This management plan might either recommend continuation of the Commission with an expanded mandate, or creation of another type of management mechanism. Each of the five management functions is amplified below.

Coordination

The interim Commission and any succeeding management entity would be responsible for the coordination of all public development and public actions within the boundaries of the park. It would play a role in reviewing public projects for their appropriateness to the overall objectives of the plan and would assist in achieving interagency coordination. Since NPS and DEM will be directly involved in the intensive use zone, this level of coordination applies largely to the **preservation zone** of the park, where no federal agency will have direct ownership of property.

Environmental Management

The interim Commission would be responsible for the development of standards and procedures for managing the environment within the park during the initial two year period. Activities which would be necessary to this would include establishment of standards, criteria and policies for public and private development in the park. The interim Commission would have the capability to fully develop and execute policies with the voluntary agreement of the local jurisdiction, and to adopt them after public hearings.

Once policies are adopted, either the interim Commission or a successor entity would review and approve public actions which affect the park. These might include both direct agency expenditure of funds and indirect agency review of private development through the exercise of permit powers and zoning.

Preservation

A preservation program would stabilize selected buildings of significance and encourage private sector preservation. This program would largely take place outside the intensive use zone, after an environmental management and review process is established for the entire park. Activities of the preservation program would include:

- purchase of structures or easements. Easements might be held for portions of buildings (such as facades) and open spaces. Easements would both mandate certain standards of preservation and

forbid demolition or other structural or visual changes.

- administration of a loan and grant program for historic preservation to buildings meeting certain design and significance standards in the park.
- provision of technical assistance to both the city and individual property owners regarding appropriate techniques, methods, and materials to achieve preservation objectives.

Educational and Cultural Program Development

The long term management entity would be responsible for development and encouragement of educational and cultural programs which occur within historic spaces or buildings, or which use the historic resources of the park. Such programs will most likely occur in the intensive use zone of the park. An initial allocation of funds would be made for education and cultural program grants, designed to both involve the local community, and to develop types of programs and activities which have national significance and transferability. Such programs would most likely involve local institutions such as the Lowell University, Lowell Public School System, Lowell Museum, and others. The general mandate of the entity vis-a-vis program development would be to:

- establish cooperative relationships with local institutions to use effectively the resources of Lowell;
- to disburse educational and cultural program grants;
- to make Lowell's resources available and usable on a regional, state and national level;
- to encourage research activities which will preserve or interpret aspects of Lowell's history.

Renovation and Reuse of Historic Structures

When a long term management entity is selected, it would be responsible for a renewal and reuse program involving selected historic structures within the park. The entity could undertake a wide variety of development activities: acquire and maintain property;

resell with either development/ use restrictions or preservation easements; prepare developer's kits; contribute to restoration involved in redevelopment and; negotiate lease restrictions on property so acquired and disposed. Examples of the entity's activities in this area might include:

- development of the Lowell Manufacturing Company for adaptive reuse. In this case, the structure might be originally acquired by NPS and transferred to the management entity. The entity could negotiate a long term lease to NPS for the visitor center, and then prepare a developer's kit for private resale. Such arrangements might either incorporate preservation funds into the developer's kit, or might make certain facade and exterior restorations before a developer if involved. This type of development mechanism might be used for other key buildings within the intensive use zone.
- purchase of important historic structures within the park that are threatened with demolition and are integrally important to the park;
- provision of technical assistance in adaptive reuse to private developers, in order to encourage preservation.

Characteristics of the Park Management Entity

The Interim Federal Commission

A Federal Commission will be created by the Congress in the same legislation which establishes the park. The Commission will have three major purposes:

- to advise the Secretary on early actions which affect the development of the intensive use zone;
- to deal with the priority park-wide management functions of coordination and environmental management defined above, for a limited period of time;
- to advise the NPS and DEM in the planning of interpretive programs, visitor services and related activities to be developed by these agencies in the intensive use zone.

- to recommend an appropriate long term management entity for functions which involve unusual local coordination and are beyond the normal scope of NPS.

The Commission may evolve into such a long term entity. However, the Secretary will be vested with the responsibility to decide whether the Commission or some other entity is best suited for this management role.

Members of the interim Commission would represent federal, state and local levels of government, but might also include private individuals with special knowledge or expertise. The Commission would consist of fifteen members, as follows:

- seven representatives of the City of Lowell of whom three are to be elected officials selected by the mayor; three are to be broadly representative of the business community, local neighborhoods, and educational-cultural institutions, to be selected by the mayor; and one is to be the Congressman representing the City of Lowell.
- five representatives of the Federal government, to include two representatives of the Secretary of the Interior, and one representative each of the Secretary of Transportation, the Secretary of Housing and Urban Development, and the Secretary of Commerce, or their designated representatives, with full voting privileges.
- three representatives to be appointed by the Governor of the Commonwealth of Massachusetts.

The intent of this composition would be to give a significant voice in the Commission's decisionmaking to representatives of the City of Lowell, but to permit the potential for majority decisionmaking where the overall interests of the park are in conflict with local concerns.

The Commission would receive technical support funded through NPS during the first two years of the park. During this period it would be authorized to do the following:

- to enter into contracts, leases, cooperative agreements and other transactions with public agencies and private entities as necessary to safeguard the plan;
- to develop policies, standards, and criteria for development within the park; to adopt these after a public hearing; and to negotiate agreements with local and state agencies regarding procedures for the systematic application of such policies, standards, and criteria to public actions which may affect the environment in the park;
- to expend Federal funds on staff and necessary support services and facilities, consistent with the broad purposes of the Commission.

Long Term Park Management

Based on inputs from the Commission, the Secretary would recommend creation of a long-term park management entity (PME) for those projects and activities in the park program which are beyond the scope or capabilities of any individual agency; or which involve unusual local cooperation. The PME, whether a modified version of the Commission, or a corporation or authority, would have a similar composition for decisionmaking to the Commission, above. The PME would have a professional staff, and would remain active until the park is substantially complete. The need for the PME, and its appropriate scope of activities would be reviewed periodically by the Secretary of the Interior. The PME could be phased out of an active role when the following conditions are met:

- when the program development function is self-sufficient;
- when the preservation program is substantially complete;
- when the local and state agencies are completely capable of insuring that the integrity of the park will be preserved;
- when the major redevelopment and reuse of structures integral to the park is substantially underway.

Release of funds for improvements outside the intensive use area and for program development would be contingent on creation of a long-term park management entity which had concurrence of all levels of government, which was acceptable to the Secretary, and which could effectively discharge the functions outlined above. The entity would most likely be created by federal legislation, but could also be state or city created. In any case, staff funds and capital improvement expenses for the PME would be through the same Congressional appropriations which would fund the LNCP. The PME would have the capability to serve as a conduit, or applicant, for additional sources of funds from both public and private sectors.

Typical sources of funds which would be compatible and supportive of the park program would include, for example:

- Open Space and Historic Preservation funds from the Land and Water Conservation Fund.
- Transportation improvements funded by the Department of Transportation through the Federal Highway Administration and Urban Mass Transit Administration.
- Many potential programs of the Department of Health, Education and Welfare (HEW), in the educational and cultural areas;
- National Endowment of the Arts and Humanities
- Miscellaneous sponsored research
- Small Business Administration assistance funds
- Economic Development Administration.

The necessary powers and responsibilities of the PME will be negotiated during the first two years of the park. Several important activities for which the PME would need authorization include:

- to acquire lands and interests where necessary to complete the plan;
- to improve properties to which the PME holds title;
- to sell, lease, or otherwise dispose of real and personal property as necessary to carry out the plan;

- to enter into contracts, leases, cooperative agreements and other transactions with public agencies and private entities as necessary; such agreements could include, for example, concurrence of the City and/or State to place in the PME the power to establish restrictions, standards, and review mechanisms to safeguard the integrity of the area within the park in accordance with an overall plan;
- to receive funds from public agencies and private sources as necessary to execute the plan;
- to disburse funds to public agencies and private entities as necessary to achieve the preservation, interpretation, development and use objectives of the plan.

Other activities, depending on the form of the PME and the level of government at which it is created, might include the ability to borrow money from the Treasury of the United States (if the PME is federally created), the ability to control land use (if the PME is state or locally created), and the ability to issue bonds.

Costs and Staging

Five major elements of a capital improvement program are defined, and capital cost estimates for each are presented, with detailed estimates available in Appendix 8. The total required Federal capital costs above existing commitments are estimated at \$40 million, 1976 dollars, with operating cost estimates for the Park included as a separate item. Finally, a two stage development strategy is presented, which will involve approximately sixty percent (60%) of total capital funds expended in the first stage.

Capital Costs

To build upon those activities already underway to establish the National Cultural Park, a capital improvements program has been detailed to include the following five cost elements:

- A substantial **Preservation Program** will stabilize and restore selected buildings and sites including the canals.
- **Building Renovation for Park Facilities** will provide space for visitor interpretive exhibits and other educational and cultural programs.
- **Transportation** will provide a barge system, a nineteenth century train, and visitor parking.
- **Landscaping and Pedestrian Areas** improvements will establish the 19th century character of the downtown intensive use zone, and will continue parklands development associated with the waterways.
- **Exhibits** will include development of major interpretive experiences in two locations and many supportive exhibits, displays and informational devices. In addition, there will be a number of special installations, such as the large working scale model of the canal system.

The estimated capital costs are approximately \$40 million, in 1976 dollars. This \$40 million cost is the required Federal contribution, which would be authorized when the park is approved by Congress. This would supplement the \$27 million of existing or committed improvements by other public agencies which directly or indirectly contribute to the park. Additionally, it should be recognized that the City of Lowell will continue to commit local funds to support historic preservation objectives within portions of the city in and adjacent to the park.

Preservation

This activity would require \$9,733,000, in five cost categories:

- Building and land acquisition
- Easements
- Exterior restoration / stabilization
- Interior restoration
- Preservation grants and loans
- Relocation

Money would be specifically assigned to:

- Purchase identified structures to house various park-related activities.
- Purchase preservation easements over selected facades of each of the major mill complexes and from 10-15 smaller buildings along Merrimack Street and elsewhere in the downtown area.
- Make major exterior restoration of substantial portions of two major mill complexes and all of eight smaller buildings. Interior restoration of limited portions of each of these buildings. Clean-up, moderate restoration of all facade easements.
- Acquire selected tracts of land associated with canal and riverbanks.

A pool of funds would be available through the permanent management entity for:

- Grants to aid in the purchase (total or easement), preservation or restoration of a selected group of historic structures, within the park.
- Low interest loan fund available to improve or restore structures within the park.

Figure 137 Pollards Restaurant on Middle Street reuses a 19th Century warehouse structure.



Building Renovation for Park Facilities

This cost element is estimated at \$5,566,000 and would include involvement in five types of activities:

- Visitor interpretive space
- Educational / Cultural Program space
- Administrative Offices, Maintenance and Support
- Relocation
- Other

This category covers funds over and above restoration costs to create integral park facilities in existing buildings. This would include the development of two major visitor / interpretive centers; central administrative offices; required maintenance and other support facilities; and 6-8 small interpretive spaces developed in restored downtown buildings. This category also includes all necessary relocation expenses and assistance.

Transportation

This cost element is estimated at \$9,031,000 and includes capital improvements and purchase of vehicles for major visitor transportation facilities within the park, including:

- Barge System
- Train System
- Parking Facilities

For the barge system, this category covers additional costs necessary to expand the proposed State Heritage Park barge ride to meet the requirements of the National Cultural Park plan. For the downtown shuttle, these costs would include 10 barges, reconstruction of one bridge, development of major docking facilities at the YMCA area, and the creation of barge stops with minor docking facilities at two other locations. For the outlying barge route, costs cover only the reconstruction of four bridges required for the barge to make a complete loop encompassing the Pawtucket, Northern and Western Canals. It is anticipated that lock reconstruction on the entire system and barges for the outlying loop would be paid for as part of the State Heritage Park Program.

Costs associated with the train system include the vehicles, installation of two tracks along existing rights of way, and related support facilities.

Parking costs cover the development of a 600-car parking structure and surface parking for an additional 250 vehicles.

Figure 138

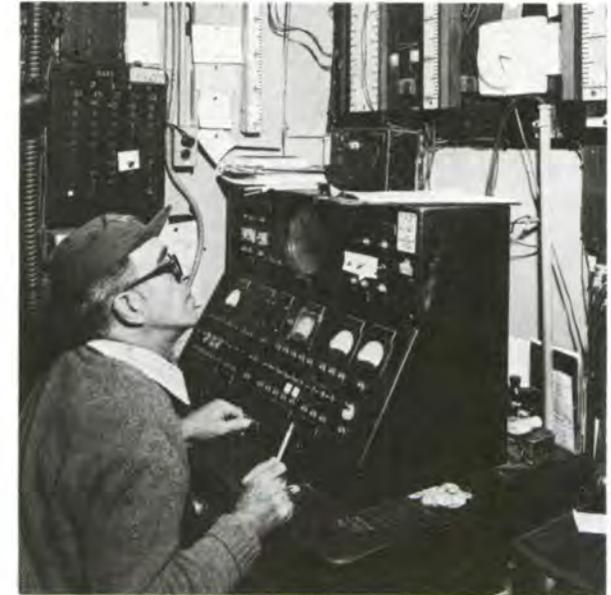
Hydropower control room and similar functioning sites might be included in visitor "exploration trails".

Landscaping and Pedestrian Areas

This cost element is estimated at \$5,564,000 and includes three types of improvements:

- Improvement of urban public spaces to restore historic character
- Pedestrian ways
- Parkland development

Within these categories are included all improvements to re-establish the 19th Century character of certain downtown areas. This includes street furniture, paving, lighting, and tree planting, as well as the removal of a few selected buildings to enhance the historic setting or to open up important views. Also covered are the costs of pedestrian walkways and access routes which will need to be developed along certain canals and between certain park attractions. Parkland development refers to those improvements associated with lands acquired under the preservation program. While certain of these areas would be left in their natural state, the majority would be developed to include pedestrian and bicycle paths, sitting areas, and picnic groves typical of an urban park.



Jack Boucher, Historic American Engineering Record

Exhibits

This cost element is estimated at \$7,644,000 and includes three items:

- Interpretive experiences (major and minor)
- Informational devices
- Special installations

Within these categories are included the development of major interpretive experiences at two locations, minor experiences in 7-9 buildings, and various informational devices scattered throughout the downtown area. Examples of items under this category range from sophisticated items and multi-media presentations to simple kiosks, signs, and displays. A number of special interpretive installations are included. These include a large working scale model of the canal system (proposed to be developed in conjunction with the State Heritage Park Rex Lot site); and several structures designed to indicate the former location, shape, and workings of several important historic buildings.

Operating Costs

Program Capital Costs 1976 Dollars (000)

Figure 139.

	NPS	Park Entity	Total
1. Preservation	5,641	4,092	9,733
2. Renovation	1,941	2,512	4,453
3. Transportation	7,225		7,225
4. Landscaping	4,128	323	4,451
5. Exhibits	6,115		6,115
25% Fees and Contingency	6,262	1,731	7,994
Total	31,313	8,658	39,971

Summary of Capital Costs

The capital cost estimates were developed for the above five major cost categories, including 20 sub-categories. All costs were estimated in 1976 dollars, by site and building based upon the best information available and the specific requirements of the plan. Costs were allocated either to the NPS or the proposed management entity. Funds allocated to the park entity in the first two years would be directed to the interim Commission, defined above. In general, costs incurred within the intensive use zone were allocated to NPS; and costs within the larger preservation area were allocated to the management entity. Detailed cost breakouts by site and cost category and a summary of the cost estimating assumptions are included in Appendix 8. A summary of the capital costs is presented below.

This category deals with the funds necessary to establish and operate programs associated with the initial interim Commission, the long term management entity and the National Cultural Park. Average per year costs are estimated for the following periods: years 1-5, years 5-10, years 10 plus.

Yearly Operating Costs, 1976 Dollars (000)

Figure 140.

	NPS	Park Entity	Total
Year 1-5	718	400	1,118
Year 6-10	854	600	1,454
Year 10+	803	150	953

For the Commission and long term Park Management Entity (PME), planning and program development

would involve such things as reaching agreement on boundaries, setting standards and criteria for development, negotiating to purchase preservation easements, and establishing grant programs to aid preservation and educational/cultural activities. Educational/Cultural grants would aid institutions and groups in Lowell to develop programs aimed at broadening the scope of the park and integrating it with the life of the community. It is assumed that a number of the PME's purposes will have been fulfilled by year 10 plus and that only a small staff will be required beyond that period.

For the National Park Service, operating costs will include planning, development, interpretation, protection, maintenance, and administration.

Summary estimates are provided below with a further breakdown in Appendix .

Staging

Implementation of the proposed plan has been divided into two stages:

- **stage 1**—years 1 through 5, including startup, securing of all critical buildings and land, and implementation of key improvements to the downtown area. The intent of this stage would be to complete enough of the plan to have an operable and attractive facility, open to the public.
- **stage 2**—years 6 through 10, including completion of the entire park; enhancement of outdoor recreation areas; addition of visitor services to accommodate higher levels of visitation.

Figures 141 and 142 indicate the areas which would be improved in each stage. The major characteristics of each stage are summarized below.

Stage 1 (Years 1 through 5)

During Stage 1, all buildings and land within the **intensive use area** of the park would be secured by purchase or cooperative agreement. This would insure that resources are protected, even if they are not scheduled to be improved until Stage 2. The objective of Stage 1 activities would be to have, in place and operating, the major attraction areas and exhibits within the downtown area of the plan; and to have all work under way on remaining portions of the plan. There is a need within this first stage to have a functioning park as early as possible to maintain the sense of momentum and progress which will be required in order to induce private sector response to the program. Improvements which would be scheduled during this first stage include:

- exterior restoration of buildings and spaces—to include work at key areas across the park. These would include the Lowell Manufacturing Company



Figure 141 Stage one.

area, the “Y” block and Mack building area, along Shattuck Street; the Old City Hall area; the Childs House; and the Boott Mill area including the courtyard, clock tower, building exterior, and entry.

- completion and opening of major exhibit spaces and visitor facilities—including the main visitor center at the Lowell Manufacturing Company and the exhibit within the Boott Mill.
- improvement of key sites along the outer canal loop—including Boulevard Park, the Francis Gate area, the Tremont Yard (Lowell Museum) area, and the Whipple Powder Mill/ Wamesit Canal area, and modest landscaping of the Rex Lot.
- improvement of early parking facilities (Dutton Street lot) and installation of the first portion of the train system— from the “Y” block area to the Boott Mill.
- completion of canal bank, boat storage, and related landscaping along the downtown canal loop—so as to permit operation of the downtown barge shuttle as soon as possible.

The cost for this stage is estimated to be approximately 60% of the total project estimate.



Figure 142 Stage two.

Stage 2 (Years 6 through 10)

During this stage the plan would be substantially complete, and opened for visitors. Improvements during this period would include completion of all portions of the downtown plan (such as the Boott boarding house and Kirk Street) and related interpretation, completion of the Rex Lot model, completion of the Northern Canal walk, completion of canal and riverbank improvements, and completion of all improvements necessary to operate the outer barge loop. During this stage, an important priority would be to achieve a stabilization of conditions and the planning process for the areas outside the intensive use area, and to complete the major joint development projects within the plan. This would allow substantial reduction of the level of activities of the long term park management entity, since the major special projects and activities will have been completed. Other major improvements beyond this point will fall into the category of park revisions, based on operating experience, or addition of facilities (such as the proposed garage) and services to cope with increased visitor levels.

Impacts

This evaluation takes account, at a broad level of detail, of several major factors:

- **capital costs**
- **operating costs**
- **economic impacts**
- **environmental impacts**
- **social impacts**

It should be noted that the project will ultimately require an environmental impact review to conform to requirements of the National Environmental Protection Act of 1970 (NEPA). Such an environmental review would be the responsibility of the federal agency.



Figure 143.

Capital Costs

The estimated cost of the proposed plan to be authorized by Congress is \$40 million, in 1976 dollars. This is projected to include direct capital expenditures by NPS, and funds appropriated to be channeled to the interim and long term management entities. This does not include the \$26.4 million already identified as expended or committed by other agencies.

Operating Costs

The projected operating costs of the plan vary, depending on the year of operation. In the early years (0-5) the cost would be \$1,118,000/year. In the later years (6-10) the cost would be \$1,454,000/year. These costs would be split between NPS and the proposed new management entity, discussed above.

Economic Impacts

Tourism

The plan is expected to attract 650,000 to 750,000 visitors/year to Lowell when completed. A large proportion of these people are now visiting other areas in New England and Massachusetts. If they were attracted to Lowell from a half to a full day, they would probably increase their stay in Massachusetts, thereby increasing total tourist-related expenditures in the region. Of course, any major amount of tourism in Lowell would have a significant impact on Lowell and its region.

Job Creation

The proposed project would create an estimated 57 new jobs for park operations and management; and an estimated 122 annual construction jobs to implement the plan. The total construction program would create 1220 person-years of construction work. In addition to these jobs, a substantial impetus would be given to creation of jobs related to expansion of Lowell's downtown core; through new construction and through permanent retail and service jobs.

Regional Spending

The construction-related spending would infuse dollars into the regional economy, by filtering through the economy and undergoing a "multiplier" effect. For example, each dollar spent in construction generates 2.5 dollars in related regional spending. The annual regional spending generated by the proposed project is estimated as follows:

• construction / operation	\$ 4,591,000
• visitor spending	\$ 7,800,000
• total annual spending	\$12,391,000

The total estimated spending generated over a ten year period of park life is, therefore, in excess of \$120,000,000.

Such regional spending, particularly insofar as it occurs by tourists in downtown Lowell, will have an indirect impact by increasing the demand for goods and services. Examples include new demands for retail and tourist-related goods. This demand and related development (see below) will result in an indirect tax benefit to the City of Lowell.

Figure 144 Boott Mill stairwell.



Adaptive Reuse and Development

There is more than 1.5 million square feet of vacant mill space in Lowell. The park plan proposes ancillary uses which will absorb a small proportion of the vast floor area in two of the larger mills (Boott and Lowell) specifically related to the historic park. The full utilization of these buildings by private development will require the packaging of institutional, light industrial, commercial and/or housing reuse combinations.

In the Lowell Manufacturing Co., visitor center facilities will occupy about 10% of the mill complex. The rest of the building will be reserved for privately developed commercial reuse including retail stores, perhaps a moderate size hotel, and learning facilities. The Lowell Manufacturing Co., with its large central courtyard, is ideally suited to support such a series of activities. The building interior is in excellent structural condition, the column spacing, window modules, building depth, and ceiling heights are all sufficient to allow for different activities with different spatial needs.

At the northern end of the park is the Boott Mill, where portions of the building will be renovated to accommodate exhibits that will detail the growth, development, and intricacies of textile manufacture. In addition to the museum use, the analysis suggests that there are major sections of the complex which are not desirable for industrial space and are now underutilized. These areas are well suited to reuse for housing. With the restoration of the mill yards and the exterior facades of the buildings, private development may be attracted to the river side wings of the complex.

Both the Boott Mill and Lowell Manufacturing Co. structures will be economically enhanced by the park. When private development at those locations proves feasible, developers will also turn to additional mill space in the downtown for recycling of work and living spaces; thereby both revitalizing the downtown and creating substantial local economic benefit. An additional positive development feature of the plan will be to make significant areas of Lowell eligible for preferential tax treatment due to recent revisions of the tax structure which convey write-offs to developers of property in historic districts.

Relocation

The displacement of structures, individuals, and firms is minimized by the proposed plan. Six buildings are proposed to be removed; and businesses in several additional structures would be displaced (e.g., Lowell Manufacturing Company and Boott boarding house). However, the proposed areas to be redeveloped include ample space to relocate retail uses, and the vacant industrial space in Lowell will allow for easy relocation. Additionally it would be a policy of the park development program that existing uses would not be displaced until suitable relocation space could be provided, so that no net loss of business occurred to Lowell.

Environmental Impacts



Jack Boucher, Historic American Engineering Record

Figure 145.

The plan will result in a substantial improvement to the natural and man-made environment in Lowell. Canal and river banks will be preserved and improved; and the downtown will be preserved.

Social Impacts



Steve Dunwell

Figure 146.

The provision of substantial resources for interpretation and the development of program space and program grants for educational and cultural development will insure that Lowell's resources are used for local and national benefit. This would be a substantial educational resource.

Summary of Proposed Congressional Action

The following Congressional actions are proposed to create the Lowell National Cultural Park as detailed in the Commission's plan:

1. Establish Lowell National Cultural Park under the Secretary of the Interior. This would include establishing the boundaries of two park zones within which specified federal actions could take place: a preservation zone and an intensive use zone. Together these zones comprise the area of the National Cultural Park.

2. Authorize the Secretary of the Interior through the National Park Service to:

- Purchase and restore designated properties within the intensive use zone;
- Purchase conservation and facade easements within the intensive use zone;
- Enter into cooperative agreements with the owners of private property within the intensive use zone to preserve and enhance designated historic structures through loans, grants, and technical assistance;
- Enter into cooperative agreements with state and local agencies to create a comprehensive management and development program for the Park;
- Accept donations of land, buildings, historical artifacts or other resources.

3. Require the Secretary of the Interior through the National Park Service to:

- Develop a comprehensive interpretive program and visitor services;
- Provide funds and technical assistance to the Commonwealth of Massachusetts to expand the State Heritage State program to meet the objectives of the National Park plan;
- Establish the administrative apparatus needed to plan and operate the Park.

4. Establish an interim Lowell National Cultural Park Advisory Commission under the Secretary of the Interior with representation from the City of Lowell, the State of Massachusetts, and several federal departments as indicated in the plan. Authorize the Commission to:

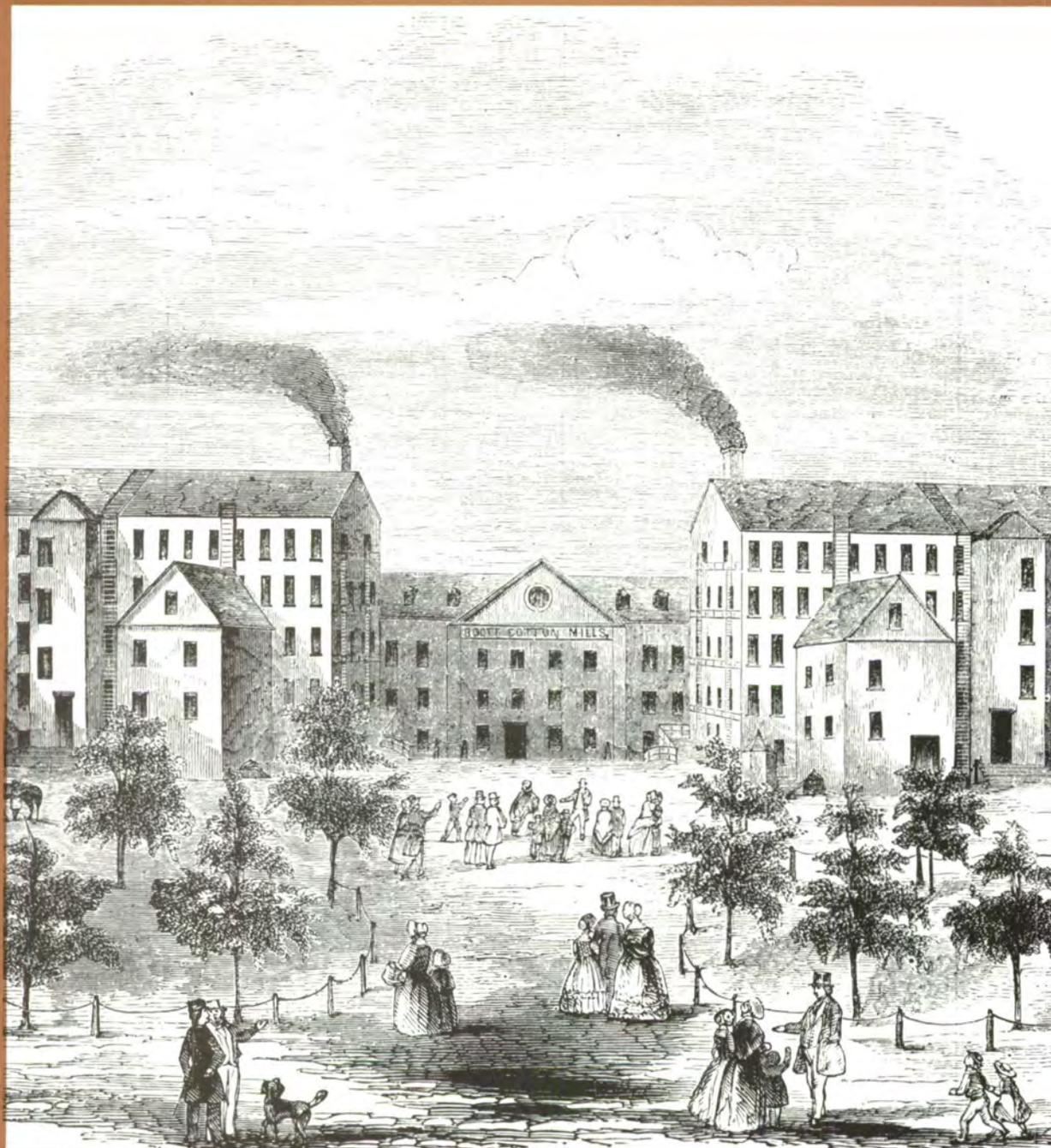
- Enter into agreements with public agencies and private entities as necessary to safeguard the plan;
- Develop standards and criteria for development within the Park boundaries, and negotiate agreements with local and state agencies regarding the procedures for the application of such standards and criteria to public actions which may affect the environment of the Park;
- Expend federal funds on staff and necessary support services and facilities;

- Conduct further planning studies and recommend within two years the appropriate form for a long term park management entity.

5. Require the Secretary of the Interior to recommend the form and scope of operations of a long term park management entity which is acceptable to all three levels of government. Release of funds for improvements outside of the intensive use zone and for educational and cultural program development would be contingent on the creation of such a management entity. In the event that a federal entity is created it should have the authority to:

- Acquire, improve, sell, or lease property;
- Enter into contracts and cooperative agreements with public and private entities;
- Receive funds from state and local agencies and private sources as well as federal appropriations;
- Disburse funds to public agencies and private entities as necessary to achieve the preservation, interpretation, development and use objectives of the plan.

6. Authorize appropriations for capital expenditures not to exceed \$40 million, 1976 dollars. **Authorize appropriations for operating expenditures** not to exceed a total of \$1.12 million/-year for fiscal years 1-5 and \$1.46 million /year for years 6-10, 1976 dollars.



Appendices

Appendix One:

**Act Establishing the
Lowell Historic Canal
District Commission**

Appendix Two:

Endorsements

Appendix Three:

**The Historic Significance
of Lowell**

Appendix Four:

**Lowell Heritage State
Park**

Appendix Five:

**Inventory of Lowell's
Resources**

Appendix Six:

**Master Plan and
Management Alternatives**

Appendix Seven:

Community Participation

Appendix Eight:

Cost Data



Appendix One

An Act

To provide for a plan for the preservation, interpretation, development, and use of the historic, cultural, and architectural resources of the Lowell Historic Canal District in Lowell, Massachusetts, and for other purposes.

Public Law 93-645
93rd Congress, H.R. 14689
January 4, 1975

Lowell Historic
Canal District
Commission.
Establishment.
16 USC 461
note.

Membership.
16 USC 461
note.

88 STAT. 2330
88 STAT. 2331

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That for the purpose of preserving and interpreting for the educational and inspirational benefit of present and future generations the unique and significant contribution to our national heritage of certain historic and cultural lands, waterways, and edifices in the city of Lowell, Massachusetts (the cradle of the industrial revolution in America as well as America's first planned industrial city) with emphasis on harnessing this unique urban environment for its educational value as well as for recreation, there is hereby established the Lowell Historic Canal District Commission (hereinafter referred to as the "Commission"), the purpose of which shall be to prepare a plan for the preservation, interpretation, development, and use, by public and private entities, of the historic, cultural, and architectural resources of the Lowell Historic Canal District in the city of Lowell, Massachusetts.

SEC. 2. (a) The Commission shall consist of nine members, as follows:

(1) the Secretary of the Interior, the Secretary of Housing and Urban Development, the Secretary of Transportation, and the Secretary of Commerce, all ex officio; and

(2) five members appointed by the Secretary of the Interior, one of whom shall be the Director of the National Park Service, two of whom shall be appointed from recommendations submitted by the manager of the city of Lowell, and two of whom shall be appointed from recommendations submitted by the Governor of the Commonwealth of Massachusetts. The members appointed pursuant to this paragraph shall have knowledge and experience in one or more of the fields of history, architecture, the arts, recreation planning, city planning, or government.

(b) Each member of the Commission specified in paragraph (1) of subsection (a) and the Director of the National Park Service may designate an alternate official to serve in his stead. Members appointed pursuant to paragraph (2) of subsection (a) who are officers or employees of the Federal Government, the city of Lowell, or the Commonwealth of Massachusetts, shall serve without compensation as such. Other members, when engaged in activities of the Commission, shall be entitled to compensation at the rate of not to exceed \$100 per diem. All members of the Commission shall receive reimbursement for necessary travel and subsistence expenses incurred by them in the performance of the duties of the Commission.

SEC. 3. (a) The Commission shall elect a Chairman from among its members. Financial and administrative services (including those relating to budgeting, accounting, financial reporting, personnel, and procurement) shall be provided for the Commission by the General Services Administration, for which payments shall be made in advance, or by reimbursement, from funds of the Commission in such amounts as may be agreed upon by the Chairman of the Commission and the Administrator, General Services Administration: *Provided*, That the regulations of the Department of the Interior for the collection of indebtedness of personnel resulting from erroneous payments shall apply to the collection of erroneous payments made to or on behalf of a Commission employee, and regulations of said Secretary for the administrative control of funds shall apply to appropriations of the Commission: *And provided further*, That the Commission shall not be required to prescribe such regulations.

16 USC 461
note.

Regulations.

(b) The Commission shall have power to appoint and fix the compensation of such additional personnel as may be necessary to carry out its duties, without regard to the provisions of the civil service laws and the Classification Act of 1949.

63 Stat. 954.

(c) The Commission may also procure, without regard to the civil service laws and the Classification Act of 1949, temporary and intermittent services to the same extent as is authorized for the executive departments by section 15 of the Administrative Expenses Act of 1946, but at rates not to exceed \$100 per diem for individuals.

5 USC 3109b.

(d) The members of the Commission specified in paragraph (1) of section 2(a) shall provide the Commission, on a reimbursable basis, with such facilities and services under their jurisdiction and control as may be needed by the Commission to carry out its duties, to the extent that such facilities and services are requested by the Commission and are otherwise available for that purpose. To the extent of available appropriations, the Commission may obtain, by purchase, rental, donation, or otherwise, such additional property, facilities, and services as may be needed to carry out its duties. Upon the termination of the Commission all property, personal and real, and unexpended funds shall be transferred to the Department of the Interior.

88 STAT. 2331
88 STAT. 2332

SEC. 4. It shall be the duty of the Commission to prepare the plan referred to in the first section of this Act, and to submit the plan together with any recommendations for additional legislation, to the Congress not later than two years from the effective date of this Act. The plan for the Lowell Historic Canal District shall include

Plan, sub-
mittal to
Congress.
16 USC 461
note.

considerations and recommendations, without limitation, regarding (1) the objectives to be achieved by the establishment, development, and operation of the area; (2) the types of use, both public and private, to be accommodated; (3) criteria for the design and appearance of buildings, facilities, open spaces, and other improvements; (4) a program for the staging of development; (5) the anticipated interpretive, cultural, and recreational programs and uses for the area; (6) the proposed ownership and operation of all structures, facilities, and lands; (7) areas where cooperative agreements may be anticipated; (8) estimates of costs, both public and private, of implementing the plan; and (9) procedures to be used in implementing and insuring continuing conformance to the plan.

Termination.

SEC. 5. The Commission shall be dissolved (1) upon the termination, as determined by its members, of need for its continued existence for the implementation of the plan and the operation or coordination of the entity established by the plan, or (2) upon expiration of a two-year period commencing on the effective date of this Act, whereupon the completed plan has not been submitted to the Congress, whichever occurs first.

16 USC 461
note.

SEC. 6. It is contemplated that the plan to be developed may propose that the Commission may be authorized to—

(1) acquire lands and interests therein within the Lowell Historic Canal District by purchase, lease, donation, or exchange;

(2) hold, maintain, use, develop, or operate buildings, facilities, and any other properties;

(3) sell, lease, or otherwise dispose of real or personal property as necessary to carry out the plan;

(4) enter into and perform such contracts, leases, cooperative agreements, or other transactions with any agency or instrumentality of the United States, the Commonwealth of Massachusetts, and any governmental unit within its boundaries, or any person, firm, association, or corporation as may be necessary;

88 STAT. 2332

(5) establish (through covenants, regulations, agreements, or otherwise) such restrictions, standards, and requirements as are necessary to assure development, maintenance, use, and protection of the Lowell Historic Canal District in accordance with the plan; and

(6) borrow money from the Treasury of the United States in such amounts as may be authorized in appropriation Acts on the basis of obligations issued by the Commission in accordance with

terms and conditions approved by the Secretary of the Treasury.
The Secretary of the Treasury is authorized and directed to purchase any such obligations of the Commission.

SEC. 7. Title to property of the Commission shall be in the name of the Commission, but it shall not be subject to any Federal, State, or municipal taxes. 16 USC 461 note.

SEC. 8. There are authorized to be appropriated not to exceed \$150,000 for the preparation of the plan authorized by this Act. 16 USC 461 note.

Approved January 4, 1975.

LEGISLATIVE HISTORY:

HOUSE REPORT No. 93-1430 (Comm. on Interior and Insular Affairs).

CONGRESSIONAL RECORD, Vol. 120 (1974):

Oct. 7, considered and passed House.

Dec. 17, considered and passed Senate.

WEEKLY COMPILATION OF PRESIDENTIAL DOCUMENTS, Vol. 11, No. 2:

Jan. 4, Presidential statement.



Appendix Two

Endorsements



MICHAEL S. DUARAKIS
GOVERNOR

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE DEPARTMENT
STATE HOUSE - BOSTON 02133

December 21, 1976

Mayor Leo Farley
City Hall
Lowell, Massachusetts

Dear Mayor Farley:

Lt. Governor O'Neill and State Planning Director Keefe have reviewed with me the Lowell National Historic Canal District proposal which is being prepared for submission to Congress in the near future.

Just as so many of our older urban centers, especially the mill towns of the Northeast, have been ignored for too long, the importance of the industrial revolution in American history has been ignored and is in danger of being forgotten.

The Lowell Urban Park Program not only will preserve and enhance the full array of manmade and natural resources - including the city's splendid canal system and many fine examples of nineteenth century architecture - for future generations to enjoy and to learn from, but also provide an urgently needed stimulus to the economy of this distressed City. It is estimated that by 1985 more than \$120 million in new annual expenditures will be generated by the proposed park program. In this day of constrained budgets and sagging economies at all levels of government, state and federal officials must begin to spend public funds as resourcefully as possible, such that two or more public policy objectives can be achieved simultaneously with one grant program. The Lowell National Historic Canal District proposal offers the federal government an unequalled opportunity first, to demonstrate that the National Park Program can be brought to an urban center where people live and work and that our industrial heritage is worthy of national preservation, second, to stabilize urban neighborhoods and revitalize a downtown shopping district and, third, to bolster the economic climate of an entire region and state.

As you know, the Commonwealth has already established a partnership with Lowell in fostering the over-all revitalization of the City. Through my Development Cabinet I have committed state government to continued support for the \$9 million Lowell Heritage State Park, the Lower Highlands Neighborhood Improvement Program, the conversion of the Stackpole Mill into Elderly Housing, the operation of the Lowell Regional Transportation Authority, the rehabilitation and expansion of the High School in the downtown, and several significant downtown access highway improvements.

Our joint record of achievement should make federal participation in our partnership through the National Park Service that much easier and enticing.

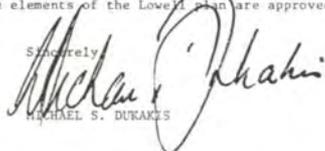
Mayor Leo Farley

-2-

December 21, 1976

No other city can tell the story of urban, industrial America as well as Lowell. No other city can demonstrate as well the nature and consequences of major industrialization, rapid urbanization, and large-scale immigration on American life. Our inter-governmental co-operation in Lowell will leave a legacy of greater understanding and appreciation for urban, industrial America as well as new hope for and commitment to the revitalization of all our nation's older urban communities so that they may continue to play a constructive role in America's third century.

I assure you that I and other members of my administration, including Lt. Governor O'Neill, will continue to work closely with Congress and the new administration to see that all of the elements of the Lowell plan are approved as expeditiously as possible.

Sincerely,

MICHAEL S. DUKAKIS



WILLIAM S. TAUPIER
City Manager
ROBERT R. GILMAN
Asst. to City Manager



OFFICE OF THE CITY MANAGER
CITY HALL
LOWELL, MASSACHUSETTS
01852

December 29, 1976

Honorable Thomas P. O'Neill III
Chairman, Lowell Historic Canal District Commission
State House
Boston, Massachusetts

Dear Lt. Governor O'Neill:

I am pleased with the Lowell National Cultural Park plan which you will present to Congress in its next session. As you know through this entire planning process the city staff have played an active role in the development of the plan. Also, on October 9, 1973, by an unanimous vote of the Lowell City Council a resolution was adopted requesting the elected representatives and the Governor of Massachusetts to plan and implement the Lowell National Cultural Park as part of the revitalization of Lowell.

Since that time many of the projects of the City of Lowell were designed to enhance the park theme. Additionally, many private sector improvements have been made to enhance this theme. Some of the private sector improvements have been made entirely with private funds and some have been cooperative arrangements with the City of Lowell.

Accordingly, as Chief Executive Officer of the City of Lowell I wish to congratulate your Commission for the development of the plan. I assure you that I am ready to testify at the Washington Hearing and appraise the Federal Officials of the work already done in the public and private sectors to make this plan workable.

Sincerely,

William S. Taupier
City Manager

WST/dlh

Commonwealth of Massachusetts
City of Lowell

Resolution

Whereas: The City of Lowell is a living exhibit of the process and the consequences of the American Industrial Revolution;

Whereas: The population of the City of Lowell is made up of an impressive range of ethnic groups that have contributed in great measure to the rich cultural background of the city as well as to our American heritage;

Whereas: Over the years the Acre Model Neighborhood Organization, Model Cities, political leaders, civic leaders and other organizations have supported elements of what has become the Lowell National Cultural Park;

Whereas: Over the past scholars from all over the Nation have joined with local residents in identifying those unique aspects of the process of industrialization, urbanization, and of the labor movement which should be preserved and interpreted for present and future generations;

Whereas: Lowell was the first attempt on this continent to wed the utopian ideal of a humane, planned community with the harsh realities of the industrial world which were already so unpleasantly vivid in the slums of England;

Whereas: The Lowell National Cultural Park transforms what remains of a once great industrial city into highly productive residential, recreational, and aesthetic resources;

Whereas: Exhibits, employing a wide range of media, will deal with four main themes to show the influence of industrialization in creating our modern society: (1) Technology and Hydropower, (2) Free Enterprise and Capitalism, (3) Working and Living in an Industrial City, and (4) Immigration and the Settling of a City;

Whereas: The Commonwealth of Massachusetts has joined forces with the citizens of Lowell and has committed over \$10,000,000.00 to effect the Lowell Heritage State Park, a major component of the Lowell National Cultural Park;

Whereas: The Governor of Massachusetts and other political and professional leaders in the United States have been impressed by the ingenuity of the people of Lowell in translating the basic fabric of a depressed mill city into an outline for a creative, prosperous and most promising future;

Whereas: The City of Lowell has contributed \$5,000,000.00 and the Commonwealth of Massachusetts has contributed \$10,000,000.00;

Whereas: The Lowell City Council believes that the Lowell National Cultural Park addresses itself in a most ingenious manner to the preservation, interpretation, development and use, and the management of the historic, cultural and architectural resources of the Lowell Historic Canal District in the City of Lowell, Massachusetts;

Whereas: The Lowell City Council believes that the Lowell National Cultural Park Plan provides a richly abundant base to effect the economic and cultural revitalization of the City;

Whereas: Lt. Governor Thomas P. O'Neill, III has requested that Members of the Lowell City Council serve on an Ad Hoc Committee to help in the drafting of the legislation and the planning for the presentation of the park plan to Congress;

NOW THEREFORE BE IT RESOLVED: That the City Council of the City of Lowell, as elected representatives of the people, is proud to join with Governor Michael Dukakis, Lt. Governor Thomas P. O'Neill, III and Mayor Leo J. Farley in asking the Congress of the United States to preserve, interpret and develop for present and future generations the Lowell National Cultural Park;

BE IT FURTHER RESOLVED: That members of the Lowell City Council are proud and eager to serve on an Ad Hoc Committee with Congressman Paul E. Tsongas, Lt. Governor Thomas P. O'Neill, III and Mayor Leo J. Farley to help draft the necessary legislation;

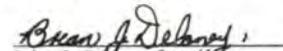
BE IT FURTHER RESOLVED: That members of the Lowell City Council join in requesting the support of the entire Massachusetts Congressional Delegation in sponsoring the Lowell National Cultural Park;

BE IT FINALLY RESOLVED: That the Lowell City Council transmit this resolution to the Congressman from the Fifth District of Massachusetts, Paul E. Tsongas, and request that he transmit this resolution to the entire Massachusetts Delegation.

THE LOWELL CITY COUNCIL


George W. Anthes, Councillor

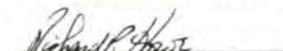

Armand W. LeMay, Councillor

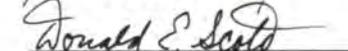

Brian J. DeLaney, Councillor


Wayne Peters, Councillor


M. Brendan Fleming, Councillor

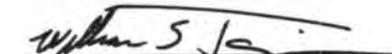

Samuel S. Pollard, Councillor


Richard P. Howe, Councillor


Donald E. Scott, Councillor

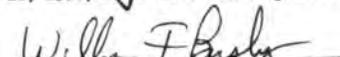

Leo J. Farley, Jr., Mayor

APPROVED BY:


William S. Taupier, City Manager

In City Council December 28, 1976, read twice and adopted on Roll Call Vote. 9 Yeas.

A True Copy
Attest:


William F. Busby, City Clerk



**GREATER
Lowell
CHAMBER
OF COMMERCE**

178 CHURCH STREET, LOWELL, MASS. 01852. TEL. (617) 453-9331

December 20, 1976

Lt. Governor Thomas P. O'Neill, III
Chairman, Lowell Historic Canal
District Commission
State House
Boston, Massachusetts

Dear Lt. Governor O'Neill:

On behalf of the Greater Lowell Chamber of Commerce, we offer our strong endorsement and support of the Lowell National Cultural Park Plan, developed by your Commission. The business community has become very excited over the theme that has developed as a part of the Urban National Park concept, that of historic preservation and adoptive re-use of the many industrial and commercial buildings that are an important part of Lowell's heritage.

The Chamber has been pleased to work with your Commission and the Lowell Team and participate in the planning process. The final plan will have a major impact on the revitalization of Lowell's downtown core, which is still the base of Lowell's economy. The prospects of adding a tourism and visitors segment to our economy, will add a new dimension to the area's economic base.

We look forward to working with the City of Lowell, the Commonwealth of Massachusetts, and eventually the Federal Government, to develop private sector involvement and participation in the economic cultural and historical re-development of our city.

We compliment your Commission for the hard work and dedication put into the planning process, and the Chamber of Commerce pledges to continue our efforts to see the Lowell Urban National Cultural Park become a reality.

Sincerely,

Roger R. Trottier
1976 President

Sherman S. Stoloff
1977 President

RRT/SSS:dct

Support the Greater Lowell Community of BILLERICA • CHELMSFORD • DRACUT • DUNSTABLE • LOWELL • TOWNSBURY • TYNGSBOROUGH • WESTFORD

Center City Committee, Inc.
J.F.K. Civic Center
50 Arcand Drive
Lowell, Massachusetts 01852

December 20, 1976

Lt. Governor Thomas P. O'Neill III
Chairman, Lowell Historic Canal District Commission
State House
Boston, Mass.

Dear Lt. Governor O'Neill,

The Lowell Center City Committee, which was appointed by the Governor in 1972 to plan and oversee the use of New England Regional Commission money for the economic redevelopment of the City of Lowell, chose as its first priority the Lowell Urban Cultural Park and approximately \$130,000 was allocated to park planning that year.

The Committee, which is made up of agency heads, both public and private, as well as business, labor and educational representatives has followed the development of the National Park plans with great interest and enthusiasm. Because of our commitment to the park, we were able to channel approximately \$400,000 more from NERCOM into downtown improvements and other projects which physically showed the citizens that change was possible and that a National Park would be a great benefit. We believe that this was in large measure responsible for the dramatic change in attitude that has been seen in this city in the last four years.

We strongly support the proposed plan and offer our services in any way that might be helpful to the effort to make the park a reality.

Sincerely,

William F. Lipchitz
Chairman
Center City Committee, Inc.

WFL:fc



NORTHERN MIDDLESEX AREA COMMISSION

144 Merrimack St. Lowell, Mass. 01852, (617)454-8821, Joseph P. Hannon, Director

Members: Billerica, Chelmsford, Haverhill, Dunstable, Lowell, Peabody, Tewksbury, Tyngsborough, Westford

201/HUD

December 30, 1976

His Honor Thomas P. O'Neill, III
Lieutenant Governor
State House
Boston, Massachusetts 02153

Dear Lieutenant Governor O'Neill:

The Northern Middlesex Area Commission congratulates the Lowell Historic Canal District Commission and the Lowell Team on the completion of the Phase III Lowell Urban Cultural National Park plan. The plan is most supportive of the Urban Park Concept and we strongly endorse this plan as it has been developed.

NMAC has long supported the preservation of the area's cultural heritage and important historical resources through the development of the cultural park. The preservation of Lowell's historical assets and interpretation of the industrial and cultural development of the City will ensure that a most significant element of our country's industrial revolution - Lowell - is not lost.

Besides NMAC's interest in and support of the development of the park, both presently and in the recent past, the Commission has developed plans and made recommendations concerning economic development, open space and recreation, historic preservation and water resources. In each of these plans, the Urban Park Concept is an integral component.

There is little doubt that the park plan will greatly enhance the economic revitalization prospects of the downtown area. NMAC, in its 1975-76 Overall Economic Development Plan, has recommended development strategies that complement the park and further create positive economic benefits throughout the region.

The Northern Middlesex Area Commission, in its 1974 report to Governor Sargeant's Urban Cultural Park Task Force entitled Regional Recreation and Open Space and the Urban Cultural Park, noted in regard to the Urban Cultural Park proposal and its integration into the regional open space system a desire to protect and enhance historic features and promote recreational exploration between various sections of the region. Essentially, a four-park regional system was planned having as its focal point the Urban Cultural Park. This system was directly linked to the Urban Park via a series of recreational corridors. In general, it was planned that there be a mutually supportive set of recreational experiences that will interrelate the

Urban Cultural Park with the surrounding four-park system.

NMAC has also developed transportation plans and programs of great significance to the function of the Urban Park.

Our Transit Development Plan should ease the movement of visitors to the City and to key park sites. New buses, improved routing and scheduling, and the provision of terminal and parking improvements are among those anticipated in the near future.

Further this Commission has been actively pursuing major improvements to both intra-regional and inter-regional highways, and has set a high priority on important City improvements.

In sum, the transportation improvements we have recommended for the area will provide much improved mobility to both City residents and visitors. With timely implementation of these improvements, we anticipate no difficulty in accommodating the added trips that the Park will generate.

Currently, NMAC is preparing an areawide wastewater management plan designed to ensure that the waters are "fishable, swimmable" by 1983. NMAC, in realizing the major focus that the Heritage State Park has on the city's surficial water resources, is striving to develop a wastewater management plan that ensures the waters of the Merrimack River and canals are clean and are an asset in the park system.

Finally, the Commission is developing a regional historical preservation plan that draws upon and expands to give a regional focus to several of the Urban Park themes. This preservation plan will enable local, regional, and state agencies to develop policies that are supportive of and reinforce the park concepts throughout the region.

There is no doubt that the park will have a major effect upon the City of Lowell. The federal, state, and local partnership established in this city has an opportunity to enhance not only Lowell's and the area's historic and cultural environment but its economy as well. As the legislative process moves forward, we stand ready to offer our support and the service of NMAC in any way that will be most helpful.

Very truly yours,

Joseph P. Hannon
Executive Director

Human Services Corporation
national urban cultural park center for human development

December 21, 1976

The Honorable Thomas P. O'Neill, III
Chairman, Lowell Historic Canal
District Commission

Dear Sir:

We of the Human Services Corporation wish to extend our congratulations to the Lowell Historic Canal District Commission for an outstanding job in bringing the Lowell National Cultural Park plan to a format ready for introduction and, we hope, for successful legislative action in the United States Congress.

As you know, the seed for the Lowell Plan was planted and nurtured starting some years ago, both in Model Cities' activities, and then in the Human Services Corporation's activities, whose original charter states that (we) "shall strive to build concrete economic and social programs that seem to offer the greatest promise for improving the conditions of life and to foster a sense of hope and determination in all of the residents of the area".

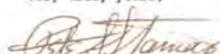
Much has been done by many citizens and agencies in the City. Many of our original Board members are representative of the various groups whose ancestors came to work in Lowell and to develop it into a unique environment. Convinced that this heritage could also be the stepping stone for Lowell's redevelopment, we were pleased to solicit and to receive grants, for the express purpose of developing components of the Cultural Park, grants from the National Endowment for the Arts, the National Endowment for the Humanities, the New England Regional Commission, the Massachusetts Bicentennial Commission, the Educational Facilities Laboratory of the Ford Foundation, the City of Lowell Community Development Block Grant Program, ACTION-VISTA volunteer program, and from private citizens: all activities were directed toward the goal of the National Cultural Park plan.

The Commonwealth of Massachusetts has already joined in this endeavor with a firm philosophical and financial commitment with its Lowell Heritage State Park Program. Heartened by this, we eagerly await positive action at the Federal level so that the Lowell National Cultural Park will become a reality.

Therefore, we of the Human Services Corporation strongly endorse the work of the Lowell Historic Canal District Commission and its proposal for the Lowell National Cultural Park.

Again, our sincere appreciation for your very active leadership role and for the work of the other Commission members. We look forward to working together in the local-state-federal partnership that will truly reflect the symbiosis necessary for the effective development of both human and physical resources.

Very truly yours,


Peter S. Stamas
President

psm
222 Worthen Street, Lowell Massachusetts 01854/617-459-2139 454-0460



The Historical Commission of the City of Lowell

JOHN F. KENNEDY CIVIC CENTER
LOWELL MASSACHUSETTS 01853
(617) 459-6138

Established
1973

December 17, 1976

Honorable Thomas P. O'Neill, III
Lt. Governor, Commonwealth of Massachusetts
State House
Boston, Massachusetts

Your Honor:

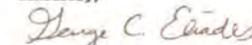
Through you as Chairman of the Lowell Historic Canal District Commission, the Historical Commission of the City of Lowell wishes to thank you and the Members of your Commission for preparing such an outstanding plan for the Lowell National Cultural Park. Our Commission has always believed that not only does Lowell have a most remarkable heritage but we also believe that this heritage should be shared with all other Americans and visitors to the United States. From our interactions with Members of your Commission and your consultants we see that our input has been recognized.

The major part of the Lowell National Cultural Park is represented by the two historic districts which our Commission initially recommended and are now on the National Register. We are now taking steps to nominate the remaining portion of the proposed park to be placed on the National Register of Historic Places.

This nomination will be submitted prior to your presentation of the Lowell National Cultural Park to Congress. This new nomination will be called the Lowell Industrial Heritage Historical District and will approximate the boundaries proposed in your plan. To date we have received valuable technical assistance from your Commission in the preparation of this nomination and for that help we are most grateful.

Best wishes in your congressional presentation and be assured that the Historical Commission of the City of Lowell is ready to submit any testimony that is necessary at any future hearings before Congress.

Sincerely,


George C. Eliades
Chairman

GCE/ns



The Commonwealth of Massachusetts
University of Lowell
One University Avenue
Lowell, Massachusetts 01854

OFFICE OF THE PRESIDENT

December 28, 1976

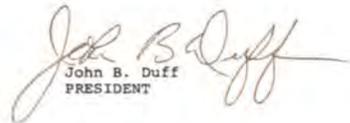
Lt. Governor Thomas P. O'Neill, III
 Chairman, Lowell Historic Canal District Commission
 State House
 Beacon Street
 Boston, Massachusetts

Dear Lt. Governor O'Neill:

The University of Lowell has long been an active and enthusiastic supporter of the Lowell National Cultural Park. A number of faculty members have served on various committees involved with the development of the Park.

The newly formed University has become an important force in the redevelopment of the City of Lowell, and I believe that the creation of the Cultural Park also would greatly assist in the revival of the City. As President, I pledge the total cooperation of the University community (the City's second largest employer) in this exciting venture.

Sincerely,


 John B. Duff
 PRESIDENT

JBD/sr

JOSEPH OZICZEK, President JAMES LOREY, Vice President MELVIN REOUGL, Treasurer JOSEPH C. MELLO, JR., Recording Secretary

LOWELL CENTRAL LABOR COUNCIL

Affiliated with American Federation of Labor and Congress of Industrial Organizations

Regular Meetings First Wednesday

148 MARKET ST. TELEPHONE 432-1771
 LOWELL, MASSACHUSETTS 01852

December 22, 1976

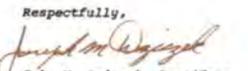
Lt. Governor Thomas P. O'Neill, III
 Chairman, Lowell Historic Canal District Commission
 State House
 Beacon Street
 Boston, Massachusetts

Dear Lt. Governor O'Neill:

The Lowell Central Labor Council has been, and still is, an advocate of the Lowell National Cultural Park since the idea was first proposed many years ago. Our Council has long believed that national recognition should be given to the workers who make up this great country of ours. Such recognition will be accorded by designating Lowell as the first National Cultural Park in the United States. Also, at this time, when the unemployment rate for union members in the Merrimack Valley is devastating (Carpenters 98%, Bricklayers 75%, Laborers 70% and Electricians 40%), what would be more fitting than putting these men back to work in the building of this memorial to the working man by portraying Lowell as a living exhibit of the process and the consequences of the American Industrial Revolution?

Also, the Lowell National Cultural Park gives recognition to the various ethnic groups that contributed to the development of America. This park plan gives recognition to the fact that America is more a nation of groups of people than individuals and the sooner our country gives proper recognition to the various groups which make up the mosaic of America, a healthier and more productive climate for growth can occur.

So, congratulations for your outstanding park plan and rest assured that we stand ready to help you make this park a reality.

Respectfully,

 John M. Dziezek, President
 Lowell Central Labor Council

AREA

ACTON, BEDFORD, BILLERICA, BONDOROUGH, BURLINGTON, CARLISLE, CHELSEA, CONCORD, DRACUT, DUNSTABLE, GROTON, LITTLETON, LOWELL, PEPPERELL, TOWNSBURY, TYNGSBORO, WESTFORD, WILMINGTON

Lowell Museum Corp.

401 MERRIMACK ST.
LOWELL, MASSACHUSETTS 01852
Telephone: 459-6782

December 23, 1976

Thomas P. O'Neill III, Chairman
Lowell Historic Canal District Commission
J.F.K. Civic Center
Lowell, Massachusetts 01852

Dear Lieutenant Governor O'Neill:

The Lowell Museum opened its doors to the public in September of 1976, culminating over two years of careful planning and hard work on the part of many groups and individuals. Since its opening, approximately 5,000 persons have viewed the initial exhibit, entitled "Spindle City, 1820-1940." This exhibit was funded by a grant to the Museum from the National Endowment for the Humanities. The Museum has been especially attractive to schools; the entire 4th grade of the Lowell School System has just completed touring the exhibits.

The Museum project began with a grant from NEH which was administered by the Lowell Historical Society. This was to plan the Spindle City exhibit. By the time the grant was completed, the Lowell Museum Corporation had been founded (in January of 1975) "for educational and benevolent purposes, chiefly in interpreting and communicating the development of the nation's first planned industrial city, Lowell, Massachusetts..." The Museum is a private, non-profit organization.

We are located in an operating textile mill (the Wannalancit Textile Co.) which gives us a unique opportunity to tell the story of the mills and the people who worked in them. At present, the Museum occupies an area of approximately 12,000 square feet, most of which is taken up by exhibits. We have a small, but growing collection of artifacts and graphic materials related to the city's history. In addition, several organizations have helped create the Museum and provided exhibits from their extensive collections; the major ones being the Lowell Historical Society, Merrimack Valley Textile Museum, and the University of Lowell.

We have watched with great interest, the developing plans and proposals of the Lowell Historic Canal District Commission for a National Cultural Park in Lowell and we would like to express our strong support for the concept. The Museum considers itself the first physical realization of the ideals of the Park. It came into existence because of a concerted effort on the part of local people and groups who believe in the Park concept. The Museum is important because it is tangible evidence for people to see and participate in. Lowellians associate the Museum with the coming Park and are therefore able to relate to the Park more easily.

To: Lieutenant Governor O'Neill Page II December 23, 1976

As plans for the Park materialize, we would like to participate, as fully as possible, in the conceptualization and development of the Park's interpretive program, both from our present location and from other locations within the Park. Although we realize that many details remain to be worked out after the legislation is written and passed, we stand ready to assist in the development of the Park and in the work of the proposed Advisory Commission. We wish to help in the preparation of an implementation plan which represents a partnership of the federal government with local talents and resources.

We look forward to cooperatively developing the plan, and to the many benefits which the Park would bring to the educational and cultural life of Lowell and the nation.

Sincerely,

John A. Goodwin
John A. Goodwin,
President

John Bowditch
John Bowditch,
Director



LOWELL HOUSING AUTHORITY

350 MOODY STREET
LOWELL, MASS 01854

IRVING R. BERGER
Executive Director

PETER R. GOLDEN
Chairman
AGNES D. DAVIS
Vice Chairman
GAIL GUNNEY
ARTHUR G. MARSH
BRENDA W. SOUBA

December 27, 1976

Lt. Governor Thomas P. O'Neill, III
Chairman, Lowell Historic Canal District Commission
State House
Beacon Street
Boston, Massachusetts

Dear Lt. Governor O'Neill:

In reference to the Lowell National Cultural Park plan which is to be presented to Congress in the next session, the Lowell Housing Authority wishes to extend to you and the Historic Canal District Commission our congratulations for developing such a unique plan.

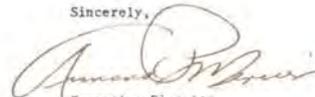
The involvement of the private sector, the public sector and the community at large in the Cultural Park theme is documented evidence of support and excitement that surely will be transmitted throughout the development of this park.

The Lowell Housing Authority's role in accepting and supporting this theme is very evident in the development of an elderly housing known as the Francis Gate House Mill, utilizing federal funds to rehabilitate an old mill structure adjacent to one of our Lowell canal systems.

This development will be in occupancy in March of 1977 and will provide ninety (90) units of elderly housing, maintaining the architectural design of the past and yet providing all of the modern conveniences of the present, thereby enhancing the Lowell National Cultural Park theme. We will continue to plan and design our activities along this theme.

If the Lowell Housing Authority can be of any service to you and the Commission to make this plan a reality, please feel free to call on me.

Sincerely,


Executive Director
For the Authority.

APM/amv

**Acre Model Neighborhood Organization
Lowell, Massachusetts**

December 17, 1976

Lt. Governor Thomas P. O'Neill III
Chairman, Lowell Historic Canal District Commission
State House
Boston, Massachusetts

Dear Lt. Governor O'Neill:

The Acre Model Neighborhood Organization, an elected body of 25 residents representing the various groups who live or do business in the Acre section of Lowell, wishes to congratulate you and your Commission for the Lowell National Cultural Park.

Originally, the concept of the park, and a great many of the treatments suggested in the park plan, grew from the aspirations of our diverse groups to give expression to the most positive roles that our people played in the development of the United States. The park plan became a stated goal of our Model Cities plan, and our various projects were designed to become components of that park plan. The park plan was our vision of the future and it gave purpose and expectation to our various projects as we worked toward that goal.

Accordingly, we wish to thank you and the Commission for finalizing the plan which our organization believes will not only portray the important story that Lowell has to tell but will also serve as the instrument for the economic, cultural and educational renewal of Lowell.

Thank you for giving recognition and purpose to our way-of-life.

Respectfully,


Chairman, ANNO


Vice-Chairman, ANNO
Director, Cultural Heritage Project

TP:sll

Widespread support for the revitalization of Lowell through a National Cultural Park is evident in the numerous parallel efforts that have been undertaken in recent years.

The following headlines are excerpted from articles which first appeared in The Lowell Sun:

***Heritage State Park
is already underway***

**Work begins on
state Heritage Park**

Urban conference set for ULowell

CD forging ahead on
\$3.5 million block grant

Lowell financial aid
bill okayed in House

**Developers eye
urban park sites**

Welcome, Jordan's

***City officials encouraged by new
interest in downtown buildings***

**Ted sees "confidence,
hope" in Lowell's future**

***Pat Mogan made the scoffers
into believers — with time***

The proposed plan is based on sound principles and has been developed along lines that have received praise from the private and public sectors.

Lowell's future bound up in its past

For Northern Canal project

**10 years after row housing razed,
mill buildings are being preserved**

**Tsongas pushes for historical
renovation for downtown Lowell**

***City tries to balance historical
aims, costs in building projects***

**LHS architects attempt to give
addition the flavor of row houses**

Urban conference

**Lowell "could be shining exception"
to pattern of declining old cities**

Consultants' task

**Finding the right pieces
to make Lowell plan fit**

Recycling mills profitable

**Park planners put
beliefs in practice**

***Urban park proposal needs "magnet"
to mesh heritage and historical mills***

The cooperative efforts that this project requires, have been established, and they work.

Lead editorial, Saturday, December 18, 1976

Council enthusiastic about plans for national urban park

Federal, state management for park

Three levels of government cooperate

O'Neill sees no roadblock for park plan

THE SUN

Our park plans -

The Great American Dream was a synthesis of the hopes and aspirations of the pioneers of the 19th century who built this country but it is not remiss to employ the term to describe the wonderful plans that have emerged from the work of those who have been engaged in developing the concept of a state and national heritage park to be created in Lowell. The plan must now be sold to Congress by our municipal and state authorities as well as our Massachusetts congressmen. The Lowell Dream, as it might be called, has been years in the making. It is a mammoth project designed to preserve for future generations the remnants of the Industrial Revolution that had its most striking expression right here in Lowell. That revolution lay in the conversion from the made-by-hand methods of the 18th century to the made-by-machinery systems of the 19th century.

The revolution was world-wide but nowhere was seen more clearly than in Lowell where our complex of canals, cotton mills, and row houses were all built with the sole purpose of utilizing the marvels of the machine age to weave cloth to be sold throughout the United States. All this is in the past now but what can be preserved of that era will be incorporated into the Lowell Urban Cultural Park if the dreams of our modern planners come true. The final meeting on those plans took place on Wednesday night; the next step will be the presentation of the finished proposal to the federal government. The plans will be submitted by the federal commission charged with their development.

The proposal has the endorsement of Governor Michael Dukakis and Lieutenant Governor, Thomas P. O'Neill, and will receive the support of our state congressional delegation when presented next year to the federal authorities. Whether the latter will buy it or not, only time will tell. The national competition for such projects is intense but the plans are good, the concept all but unique and the hopes of the men in city and state government as well as those from the private sector who have worked on the development are high.

With a little bit of luck, the Lowell Dream will come true.





Jack Boucher, Historic American Engineering Record

Appendix Three

The Historic Significance of Lowell

The significance of Lowell has long been acknowledged by historians, sociologists, engineers, architects, environmentalists.

The statements which follow testify to the significance of Lowell's unique place in our nation's history.

Some of these materials are excerpted from testimony offered to the 93rd Congress in support of the act establishing the Lowell Historic Canal District Commission (Public Law 93-645, H.R. 14689).



United States Department of the Interior

NATIONAL PARK SERVICE
WASHINGTON, D.C. 20240

IN REPLY REFER TO:

H30-774

December 7, 1976

Lowell Historic Canal District Commission
JFK Civic Center
Lowell, Massachusetts 01852

Gentlemen:

As you know, the Historic American Engineering Record (HAER) officially recognized the historical significance of the power canals of Lowell, Massachusetts, when it decided to record them in the summers of 1974 and 1975. During these seasons, HAER architects, historians, and photographers worked in Lowell to produce measured drawings and photographs of the canals, and a monograph documenting their development. These summer projects were cosponsored by the City of Lowell and several other agencies.

Although HAER's recording projects in Lowell were focused on the canals which powered the textile mills, our office nevertheless recognizes that in many other regards the Lowell mills significantly influenced the course of the Industrial Revolution in America on both a regional and national basis. Some of the major Lowell influences are enumerated below.

1. The Lowell textile mills were models of a humane industrialism which served to erase from the New Englander's mind the image of oppressive factories which "enslaved" a permanent proletariat. This negative image had largely been fostered by conditions in British factories -- conditions which New Englanders described as "sordid," "vicious," and "degraded." The founders of Lowell recognized the agrarian, anti-industrial and anti-urban biases which operated in their culture, and they therefore took paternalistic measures to assure that their new factories did not raise the hackles of their countrymen. In short, they actively cultivated public support for their mills by demonstrating concern over their employees' moral, social, and intellectual well-being. Although this early paternalism eventually disappeared, the initial success of this endeavor created an atmosphere in this country more favorably inclined towards subsequent industrial development.

2. The productivity of the Lowell mills encouraged others to vertically integrate their industries and to rely upon mechanized production methods and a specialized labor force. These were to become the hallmarks of American industrialism.

3. The Lowell mills provided an encouraging profit margin, which stimulated other capitalists to launch similar projects elsewhere. Indeed, it was often the case that investors in the Lowell mills used profits gained there to capitalize other factories in New England.

4. The Lowell canals, mills, and machine shops served as a training ground for mechanics and engineers who later dispersed throughout the country and who took their expertise with them. This was particularly important in the first half of the 19th century, when the skilled, mobile man was an essential agent in the diffusion of new and developing technologies. The knowledge and experience gained in Lowell was carried to other industrial communities when Lowell's hydraulic engineers, machinists, chemists, mill-wrights, and locomotive builders moved to new positions.

It would not be an exaggeration to state that Lowell was the premier industrial city in the United States during the first half of the 19th century. Indeed it lost its pre-eminent position in the second half of the century, but that in no way detracts from Lowell's importance in the development of the Industrial Revolution in America. And, the history of later Lowell is significant in its own right, particularly if one wants to study such topics as the urban problems faced by a mature city, or the influx of immigrants and the effect they had on labor and social conditions.

Lowell is a particularly valuable historical document because of the quality and breadth of its early structures which still survive. While it is regrettable that the Merrimack Manufacturing Company's mills and boarding houses are gone, it is nevertheless true that other fine mill complexes survive (such as those built by the Boott, Massachusetts, and Lawrence Companies) and a number of early rows of boarding houses are extant. Also, the Lowell canals -- the most important arteries in the city -- exist in what must be called remarkably good condition. It is our hope that these industrial structures -- and the attendant domestic, municipal, commercial, and religious structures in Lowell -- will not only be preserved, but that they will be put to use in a strong interpretive program concerning the growth of American industry.

Sincerely yours,

Douglas L. Griffin
Chief, Historic American
Engineering Record



Testimony offered in support of H.R. 14689, August 1974.

Despite the enormous role played by manufacturers in the growth of America to the status of superpower, pathetically little attention has been paid to the role of industry in the American experience. Our schools, our libraries and our museums have so far done very little to develop knowledge and appreciation of business and manufacturing history. High school textbooks generally, and even college textbooks to a large extent, continue to deal with the rise of American manufacturers in a brief, selective and subjective way. The result has been a history which is symbolic rather than factual: often little more than a civics lesson in social history — a story told in general rather than human terms. As we approach our bicentennial it is clear that during the past two hundred years we have created an American future in the pattern of Alexander Hamilton's vision; but it is still Thomas Jefferson's dream of a rural agrarian America that we carry in our hearts and write about in our histories.

For a museum like the Slater Mill which must deal with a broad general public, the perception of industrial history by visitors before they arrive at the museum has become a major factor — or should I say obstacle — in our work. For decades we in the museum business have led the way in extolling the virtues of non-industrial life. At many of our larger history museums, such as Colonial Williamsburg, Old Sturbridge Village, Shelburne, etc., we have done our job well. Today in viewing a spinning wheel one imagines that its user was happy and prosperous in the pursuit of industry at the hearth. Viewing the machine spinning counterpart one imagines that its user was miserable and exploited. For a generation, American "preservationists" (and I use the term with some sarcasm) have led the way in the demolition of industrial sites that obscured the view of charming "colonial" houses. Historians, writers, exhibit designers and anti-

quarians have, indeed, molded the image of what the American past should have been like. Today museums like the Slater Mill are victims of these reordered perceptions which museums have themselves helped to shape.

There is today a great reservoir of misunderstanding about the American "Industrial Revolution" and a general lack of knowledge of the role of manufacturing in American development: this is why I have wanted to speak to you today. I am not presenting this statement to urge that development of the Lowell Park project on the basis of architectural or engineering preservation, although this is certainly a worthy objective. I am not here either to illustrate the potential uses of Lowell as a scholarly document, although it is perhaps America's finest such document. Instead, I would suggest that the Lowell project be considered as a testimony to the millions of workers, entrepreneurs, engineers and businessmen who built American industry through their work in this city and in the countless smaller "Lowells" throughout America. Countless Americans have worked as weavers, mechanics or any of a multitude of other skills here in Lowell and in all of this country; but what remains today of their work in the public consciousness? Where is the history of this segment of the American public? I believe that we could ask almost any fourth grade child in America what his great-grandfather did as a blacksmith, a shipbuilder, a carpenter, lawyer, or tinsmith and he could begin to give a reasonable answer. This is true of a vast number of traditional occupations. But what if the great-grandfather was a card tender, or a jack spinner, or a warp tender, or a drawing-in hand? Who today can describe these skills?

Lack of attention to industrial history has led to a homogenized view of the industrial laborer; he is seen

to exist totally without job differentiation. The results are skills which are demeaned in their worth, and workers whose pride is eroded by public disinterest and lack of historical perspective. It is therefore as a testimony to the worth — the value — of these many occupations that the Lowell project should be considered. Unlike many intimidating museums, the Lowell scene with its working canals can be a living exhibit as well as an inspiring monument to which a broad base of the American public can relate.

What I wish to emphasize is simply this: not only will the Lowell Urban National Park Project be an important tool for educators, historians and casual visitors, but it will have an even more striking and personal meaning for Americans who work in similar occupations today — people whose story has thus far been largely cut out of our national history and consciousness.

In a time when most social legislation is laced with terms such as "relevance" "sense of community" and "involvement," I hesitate to employ these overused terms in this statement; but the Lowell project could be just such a tonic to many Americans. I believe, as do my colleagues and trustees at the Slater Mill, and as does, I am sure, the membership of the Society for Industrial Archeology, that we have a debt to the forgotten generations who toiled in these many brick structures to resurrect the image of their past and to give them a chapter of American history — a place in the consciousness of the nation.

Paul E. Rivard, Director, Rockwell-Corning Museum, and former President of the Society for Industrial Archeology

The Significance of Lowell In Interpreting America's Industrial Heritage

As a former Secretary of the Interior during the period of the initial efforts to redirect National Park Service attention toward urban areas, it is particularly significant that the proposed legislation emphasizes a central aspect of our industrial heritage. Too little effort has been given to National Parks in urban areas; almost none to our rich industrial background. Lowell is an important step forward in both of these dimensions. As an urban park, its canal system can serve the major metropolitan areas of the northeast. As the location of the most sophisticated and productive technology of its time, it will serve as an example of the industrial heritage that is nowhere adequately displayed in the country. In addition, Lowell still represents the cultural diversity in the country that attended American urbanization and industrialization.

During my recent visit to the City of Lowell, under the auspices of the John F. Kennedy Presidential Library, I was greatly impressed by the mill structures and the canal system. They merit inclusion in an urban national cultural park so that they may be preserved as part of the national heritage.

Lowell is important in another dimension. First, they have a preservation and development program, consistent with their industrial heritage, already in motion. Historic districts have been established and a national cultural park has been adopted by the city government. Secondly, active support has been sought and received from the business community and is apparent in the conversions of warehouses into commercial and retail space.

In my judgement, the groundwork which has been laid in Lowell provides an opportunity for the National Park Service to develop new partnerships with state and local governments, working with private owners, for the preservation of our heritage for the appreciation of future generations of Americans.

Stewart L. Udall, Former Secretary of the Interior under Presidents John F. Kennedy and Lydon B. Johnson

The economy of the United States underwent profound transformation in the years between 1820 and 1860. At the start of this period, the economy was based on two main sectors: agriculture and foreign trade. In 1820, almost three-fourths of the labor force held jobs in agriculture. Manufacturing at this date was concentrated in the home and in small establishments serving the immediate, local market. But this pattern was altered by the growth of large-scale manufacturers during these decades. Between 1810 and 1860 the population of the nation increased four times, while the value of manufactured goods increased tenfold. The proportion of the workforce employed outside of agriculture increased to 45% by 1850. At the start of the Civil War, the United States had made significant strides toward industrialization.

The most industrialized region of the nation during the years 1820-1860 was New England. Earlier the New England economy relied predominantly on agriculture, shipbuilding, and carrying trade and some small-scale manufacturing. The growth of significant manufacturing outside of the home can be dated with the establishment of a small spinning mill in Pawtucket, Rhode Island in 1790, under the direction of an English mechanic, Samuel Slater. And, by 1820, a large number of cotton spinning mills had grown up along the swift-flowing streams of southern New England. These small mills, patterned after Slater's first venture, carded and spun cotton into yarn, sold it directly or gave it out on consignment to women who wove it into cloth on handlooms in their own homes. While these early mills made important contributions to the economy of the communities in which they were established, they remained subordinate elements in a predominantly agricultural and rural landscape.

In northern New England, however, industrial development progressed at a much more rapid rate, and the transformation of the social and economic structure of the region was much more profound. Beginning in Waltham in 1813, a series of new mill towns sprang up along the undeveloped banks of major rivers. Between 1820 and 1860 Lowell, Chicopee, Law-

rence, and Holyoke in Massachusetts, Manchester, Nashua, and Dover in New Hampshire, and Saco and Biddeford in Maine all became major cities in textile centers. The largest and most important of the new mill towns of northern New England was Lowell.

In 1820 there had been no Lowell, only about a dozen family farms and a grist mill and a woolen mill in the area along the Merrimack and Concord Rivers known as East Chelmsford. From 200 people in 1820, however, the population rose to more than 6,000 in 1830 and 33,000 in 1850. Large five- and six-story mills rose along the river and canal banks and rows of boarding houses were erected for the large female workforce which came to Lowell in these years. By 1850 Lowell was the second largest city in Massachusetts and the largest cotton textile center in the nation.

Lowell was a major cultural and economic attraction of the nation in these years. President Jackson visited the City in 1833 and was entertained by a massive parade of female operatives. Charles Dickens, Harriet Martineau, Michel Chevalier, and numerous other important foreign visitors included Lowell on their brief itineraries. Visitors marvelled at the complexity of the textile machinery, and at the high level of education and culture of the women who worked in the mills in these years. To the foreign observer Lowell was peculiarly "modern" and "American". Lowell helped foreigners understand what was so "new" about the New World.

Lowell in the years before 1860 was synonymous with innovation. The practices adopted by the Lowell mills came to be followed by virtually all of the other textile firms in northern New England. Manufacturers looked to Lowell for new machinery, new styles of cloth, and even for new policies concerning the workforce. What was adopted in Lowell was practiced throughout New England and came to be called the Lowell System. What was the Lowell System? Why did it make such a profound impression on contemporaries? And why should it be of such historical importance to us today?

These are the questions I intend to focus on in the remainder of this presentation.

First, the Lowell mills were far larger than any of the early spinning mills which had preceded them. Within a decade of its founding, the Merrimack Manufacturing Company in Lowell employed a workforce of over a thousand operatives in its three large mills and Print Works. The largest of the Rhode Island spinning mills at this time had only a few hundred operatives. And in Lowell by 1836 there were eight major textile firms, and almost 7,000 operatives employed in the mills. Lowell had the largest cotton mill, the largest woolen mill, and the largest carpet factory in the United States at this time.

In order to implement production on such a large scale, the Lowell firms relied on the corporate form of organization. They brought together numerous investors who purchased shares in the enterprise and then delegated supervision of day-to-day operations to management. These practices contrasted sharply with those of the Rhode Island mills. The smaller spinning mills were usually singly-owned or partnerships, with owners taking an active part in the daily operations of sales and production. The Lowell firms were pioneers in the use of the corporate form of organization which has come to dominate the American economy in the twentieth century.

The Lowell system also transformed the process of production in the textile industry. Prior to the founding of Lowell, most textile mills carried out only a small part of the production process within the factory. Usually raw cotton was first given out to families who cleaned it in their own homes. The cleaned cotton was returned to the mill where it was then carded and spun into yarn. Then, the yarn was once again sent into private homes where it was woven by hand into finished cloth. This process involved a great deal of transportation and resulted in a considerable loss of time. The Lowell System changed all this. Machines were invented to clean the raw cotton, draw it out into roving, spin the roving into yarn, and finally to weave

the yarn into finished cloth. The Lowell firms even set up Print and Dye Works to carry the production process still further. These steps were housed within a single large building and elevators were used within the mill to move materials on from one step in the process to the next. Everywhere they could, Lowell managers attempted to replace hand labor with more efficient machine processes. Through their efforts, the productivity of workers greatly increased and the cost of finished cloth to the consumer declined drastically.

In addition to the innovations in the methods and organization of production, the Lowell System created a new social system about its mills. From the start, the Lowell mills recruited a factory workforce from among the single daughters of New England farmers. The firms built rows of company boarding houses where the young women lived while they were working in the mills. Furthermore, the companies donated land and money for the establishment of schools and churches. The corporations and their agents were frequent contributors to voluntary associations which were organized by men and women working in the mills. The firms also took an interest in the social and educational lives of their operatives.

The companies also established paternal regulations intended to safeguard the moral standards of their female operatives. In an era when many feared that mill employment would degrade the virtuous daughters of New England, the mill owners did all they could to reassure parents and operatives alike that this would never happen. Women were placed under the supervision of overseers during the day and boarding house matrons during the evenings. They were required to be in their houses by ten o'clock each evening. In the early years, regular church attendance was also required. Boarding house keepers were required to report any infractions of the regulations to the company agents. All in all the system was intended to attract women to work in the mills and to ensure that a degraded workforce did not develop here in the United States.

The development of mills in the first half of the nineteenth century offered young women a unique opportunity. In an era in which there were few jobs open to women, the mills allowed young women from the surrounding hill country an opportunity to support themselves for a few years and to experience urban, industrial life without becoming committed to it. Women could work in the mills and then return home, or move out west, as many did in these years. Women were able to live independently of their families and enjoy the friendship of other young women. Within the community of female operatives in Lowell, numerous religious, social, and educational organizations were established. Women joined benevolent associations, improvement circles, and even published a number of literary magazines. Even though young women only spent a few years working in the mills, the experience made a real difference in their lives.

The Lowell System thus made a very important contribution to both the economic and social development of the nation in the first half of the nineteenth century. The corporate form of organization and the methods of mass production which were pioneered in Lowell have become standard features of our industrial society in this century. While the culture and values of women operatives in early Lowell have been modified with the passage of time, they remain an important part of our national heritage. Lowell has much to offer us still.

Thomas Dublin, Columbia University

Historical Significance of the Lowell System

On the basis of my research and my academic experience, I offer the following personal assessment of the significance of the Lowell Canal System.

The Lowell Canal System was one of the most impressive engineering achievements of nineteenth-century America. Today, almost one hundred and twenty five years since its completion, the canal system is practically unchanged, a remarkably well-preserved monument of our industrial heritage. With proper interpretation, restoration and maintenance, Lowell's power canals can become a great educational and recreational asset for our nation. We need a new type of national park which will demonstrate the importance of urban and industrial development in America. Lowell, with its still-functioning canals and proud history as a manufacturing center, is the perfect location for such a park.

Most historians agree that the textile industry provided the major impetus for the dramatic economic, technological, and social changes of early industrialization. Lowell, established for the large-scale manufacture of cotton textiles in 1821, soon became America's first great industrial city. Its rapid growth was due primarily to the tremendous power available from the Pawtucket Falls of the Merrimack River. By harnessing the available resources of water power, the founders of Lowell provided relatively inexpensive and reliable energy to drive the machinery of huge textile mills. The power canals which carried water to each major mill complex in the city were the product of engineering expertise and years of difficult labor. Water power was the source of Lowell's prosperity, and Lowell was the pacesetter for a young industrial nation.

The canal system in Lowell is unique because of its historical importance, its grand scale, and its technological complexity. Thousands of American and foreign visitors came to see "The Lowell System of Manufacture before the Civil War. They marveled at the utopian conception of a clean and orderly industrial city with attractive streets and glistening canals. The boarding houses near the canals housed the famous "Lowell Girls", well-dressed operatives who ran the textile machines in the tall, water-powered mills. Here there was little of the urban squalor so prevalent in English manufacturing centers. Lowell made the factory system acceptable to the American public and even won the enthusiastic praise of foreign social critics like Charles Dickens and Michel Chevalier.

The canals were a critical part of the city plan, for mill sites and canal routes had the highest priority in the design of this industrial community. An earlier transportation canal, completed around the falls in 1796, became an important part of the power system as the feeder for a group of canals running to the first mill yards. The complexity of the system is partially a result of the curving shape of the original canal and of the sharp bend in the river below the falls. Canals fan out across the landscape to reach the mills, and the entire system operates on two levels for maximum efficiency. The northern canal, a massive stone structure completed in 1847, channels additional water into the system and is an imposing sight rising above the rapids of the river.

Europeans pioneered in the development of power canals, and other American communities had operating canals and water wheels before Lowell; but no

one had envisioned a power system like the one built on the Merrimack between 1822 and 1850. Engineers in Lowell studied the work of European and American hydraulic experts; they also conducted their own scientific experiments and applied their theoretical and empirical findings to improve the operation of the canals and hydraulic machinery. James Francis, Chief Engineer, made the Lowell Canals his own laboratory and published an internationally-respected volume, *Lowell Hydraulic Experiments*, in 1855. The machine shop created by the proprietors of locks and canals produced some of the finest hydraulic equipment of the age. At Lowell, science, perhaps for the first time in history, exerted a regular and profound influence on technology.

The dam, gate houses, stone-walled canals, transportation locks, and other main features of the early system can still be found in Lowell. This canal system must be preserved for future generations to study and enjoy. America must learn to protect the great works of man as well as the wonders of nature. Our industrial relics are valuable links with the past, direct records of American achievement and growth. Here in the City of Lowell we have a chance to save a major work of engineering. Create a national park here and let people travel through the canals again by boat or walk along their walls in the footsteps of earlier generations of industrious Americans.

Dr. Patrick Malone, Director, Slater Mill Historic Site and Lecturer, Brown University

Canal Development and Hydraulic Engineering: The Unique Role of the Lowell System



LEGEND



LEGEND

SELECTIONS FROM
THE LOWELL CANAL SURVEY
BY THE
HISTORIC AMERICAN ENGINEERING RECORD

1976

THE LOWELL CANAL SYSTEM

The Merrimack River flows down from the highlands of New Hampshire past the industrial cities of Manchester, Lowell, and Lawrence and into the sea at Newburyport. In its journey to the Massachusetts coast, the Merrimack does not give up its altitude in a smooth, uniform descent, but instead drops forcefully over a number of falls, rapids, and man-made dams. One of the greatest changes in the level of the river occurs at Pawtucket Falls, just south of the New Hampshire line in Lowell. Here, in the early nineteenth century, a natural drop of thirty feet through jagged rocks and rapids produced an excellent site for industrial development based on water power.

Lowell became America's first great industrial city because of the power of the Pawtucket Falls and the talents of an amazing group of engineers and businessmen. Although a transportation canal around the falls had been completed in 1796, the manufacturing potential of the site was not fully appreciated until 1821. Nathan Appleton writes of the day he inspected the falls, the Pawtucket Canal, and the surrounding area:

Our first visit to the spot was in the month of November, 1821, and a slight snow covered the ground. The party consisted of Patrick T. Jackson, Kirk Boott, Warren Dutton, Paul Moody, John W. Boott and myself. We perambulated the grounds, and scanned the capabilities of the place, and the remark was made that some of us might live to see the place contain twenty thousand inhabitants. At that time there were, I think, less than a dozen houses on what now constitutes the city of Lowell, or rather the thickly settled parts of it...

The nine-thousand foot Pawtucket Canal had been built by the Proprietors of Locks and Canals on Merrimack River, a company chartered in 1792 to

provide a route around the Pawtucket Falls for rafts carrying timber and other northern products to Newburyport. By 1821, the transportation canal was in bad shape, both structurally and financially. Its four wooden locks, which carried rafts from one level to another, were rotting, and toll revenues were declining. The competing Middlesex Canal, finished in 1803, offered a twenty-seven mile route from the Merrimack to Boston Harbor, avoiding not only the Pawtucket Falls but also the hazardous smaller falls downstream. Boston was a better market than Newburyport, and the well-constructed Middlesex Canal had become far more popular than the Pawtucket.

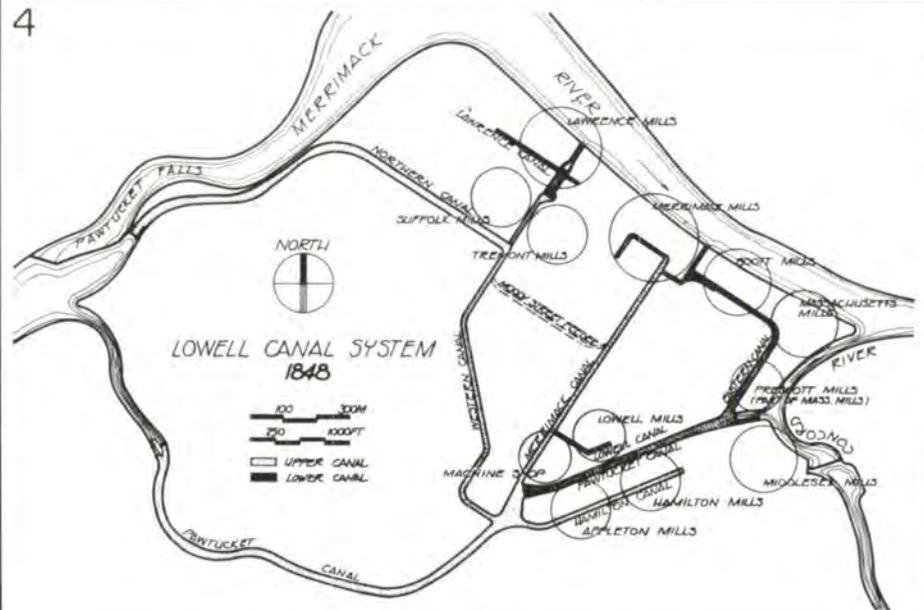
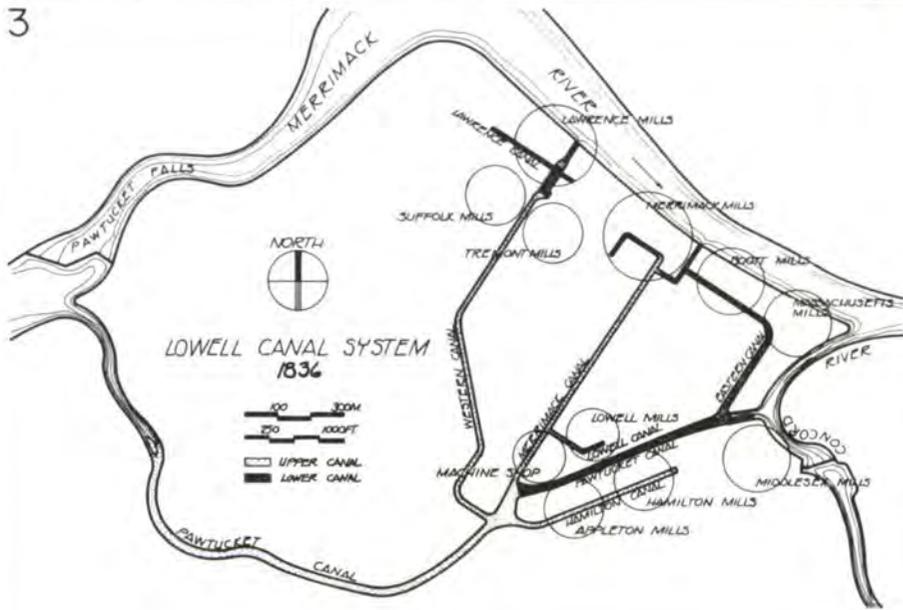
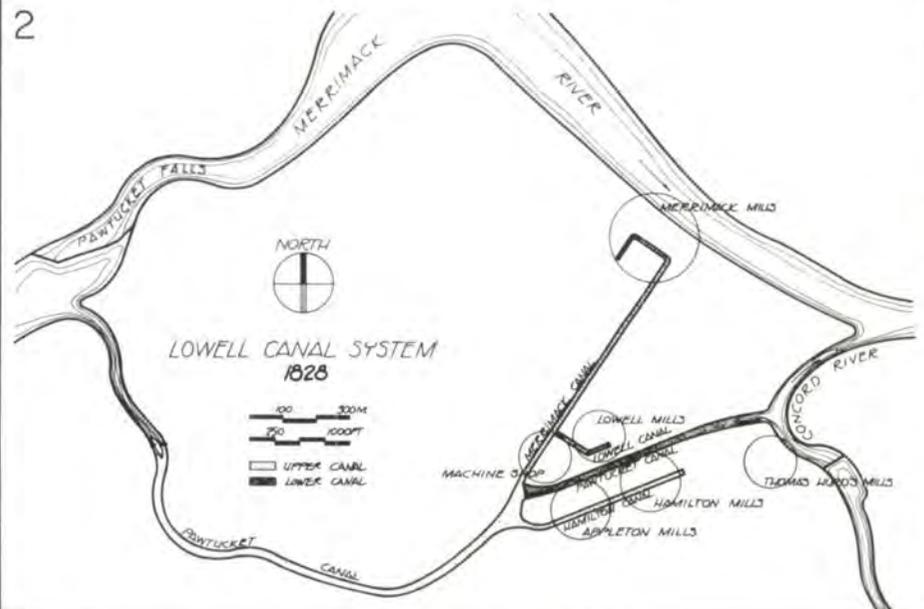
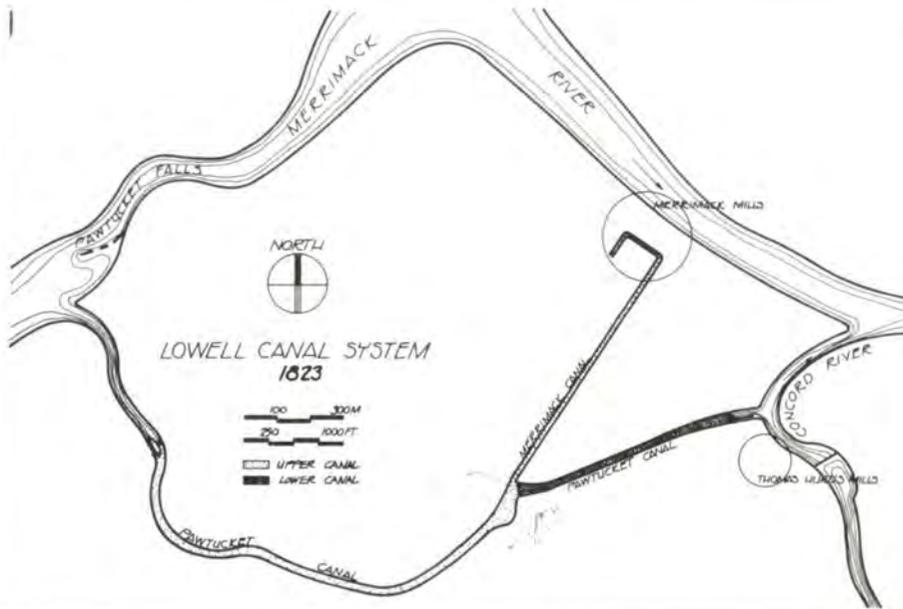
Appleton, Jackson, and their associates easily acquired control of the Proprietors of Locks and Canals through large purchases of stock. At the same time, they bought up land and water rights in the immediate area of the falls and the canal. They intended to develop an industrial community based on the paternalistic "Waltham System," which Francis Cabot Lowell had originated. Further expansion of their highly-successful Boston Manufacturing Company at Waltham was limited by the inadequate water power of the sluggish Charles River; the potential of the Pawtucket Falls opened up new possibilities for mass production of textiles. In 1822, the industrialists founded the Merrimack Manufacturing Company and began to plan for power canals, textile mills, and boarding houses in their new community, soon to be known as Lowell.

Kirk Boott, a former British Army officer with some engineering training, became the first Agent of the Merrimack Manufacturing Company, and thus the resident supervisor of its construction program. Paul Moody and Patrick Tracy Jackson, Directors of the company and experienced technical specialists from Waltham, joined him to plan the best utilization of water power and the placement of the first mills. All realized that

they would have to enlarge the old Pawtucket Canal and make it the main artery of a new canal system.

The ideal way to supply a number of mills with water power is to use a single canal running parallel to a river with a falls. If the canal leaves the river above the falls and reenters at some distance downstream, then the land between the canal and the river becomes an extended island on which mills can be placed in a line. By keeping the level of water in the canal close to that of the river above the falls, there will be a major difference in water level between the canal and the river at every point below the falls. Water from the canal can enter the mills on the island to drop through power-producing machinery, such as water wheels, and back into the lower river. In this way, the potential energy of the water due to its elevation, or "head", can power manufacturing processes in each mill.

Unfortunately for the planners of Lowell, the topography of their site and the route of the existing canal were not suitable for implementation of the ideal scheme. The land on the south side of Pawtucket Falls was rocky and rose steeply from the river's edge. The builders of the Pawtucket Canal had avoided high ground by running their channel in a wide arc around the bend in the Merrimack and ending it at the Concord River, close to the junction with the larger stream. Since Boott could not place mills on land higher than the level of the upper river, he had to plan mill sites away from the falls and new canals to reach them. The Pawtucket would have to be reconstructed to feed smaller power canals, but the resulting system would obviously be a complex one, creating far more engineering problems than a single canal. An additional



HISTORIC AMERICAN ENGINEERING RECORD
 SHEET 2 OF 2 (1911)
 MA 11
 MASSACHUSETTS
 SOUTH OF MERRIMACK RIVER
 MIDDLESEX COUNTY
 LOWELL CANAL SYSTEM
 (BY REPRESENTATIVE OF THE BOARD OF SUPERVISORS, STATE OF MASSACHUSETTS)
 LOWELL
 DRAWN BY: ARBEC M. LOWLAND, 1972
 OFFICE OF AMERICAN AND HISTORICAL PRESERVATION
 LOWELL CANAL SURVEY
 FINANCED BY THE STATE OF MASSACHUSETTS

difficulty was the necessity of retaining the original function of the old transportation waterway. Construction supplies, raw materials, and manufactured products would be carried in the Pawtucket Canal for years.

In 1822, hundreds of laborers began work on the enlargement of the Pawtucket Canal and the construction of the new Merrimack Canal. This power canal running over three thousand feet to the first mill of the Merrimack Manufacturing Company was completed the following year. By removing the old Minx Locks of the Pawtucket Canal, Boott kept the water at approximately the level of the upper river all the way to the Swamp Locks Basin. From there, the Merrimack Canal led directly to the mill site, on the bank of the Merrimack but downstream of the bend. Water entering the mill was thirty feet above the level of the river at that point.

Nathan Appleton said that Paul Moody had "a fancy for large wheels" and that "it was decided to place the mills of the Merrimack Company where they would use the whole fall of thirty feet." On September 4, 1823, two days after letting water into the new power canal, Kirk Boott made the following notation in his diary:

Thursday, September 4, 1823. After breakfast, went to factory and found the great wheel moving round his course, majestically and with comparative silence. Moody declared that it was "the best wheel in the world." N. Appleton became quite enthusiastic.

Moody estimated that the Pawtucket Canal could supply power for sixty mills the size of the second one built at Waltham. In time, his

analysis would prove too conservative, but first the system of branch canals had to be completed. By 1825, the planners had laid out routes for four more power canals. Three were to branch from the Pawtucket Canal; two at the Swamp Locks Basin and one near the Concord River. The fourth canal would be an offshot of the Merrimack Canal. The system would have two levels, with only the Merrimack Mills using the full thirty-foot head of the falls.

The Pawtucket Canal was back in operation as a transportation channel in 1824. Boott had rebuilt its Guard Locks with a lock chamber for transport and a set of sluice gates to control the flow into the system (and thus the elevation of water in the upper level). The Guard Locks held back high water in floods and formed the entrance to the controlled canal system. A dam and two lock chambers at the Swamp Locks dropped the water level thirteen feet into the lower Pawtucket Canal; a similar arrangement at the Lower Locks created the final seventeen-foot drop to the Concord River. Boott had reconstructed all the lock chambers with stone retaining walls and wooden linings. Although the Pawtucket Canal still had an irregular shape in many places, Boott had tried to create a sixty-by-eight foot rectangular cross-section above the Swamp Locks Basin.

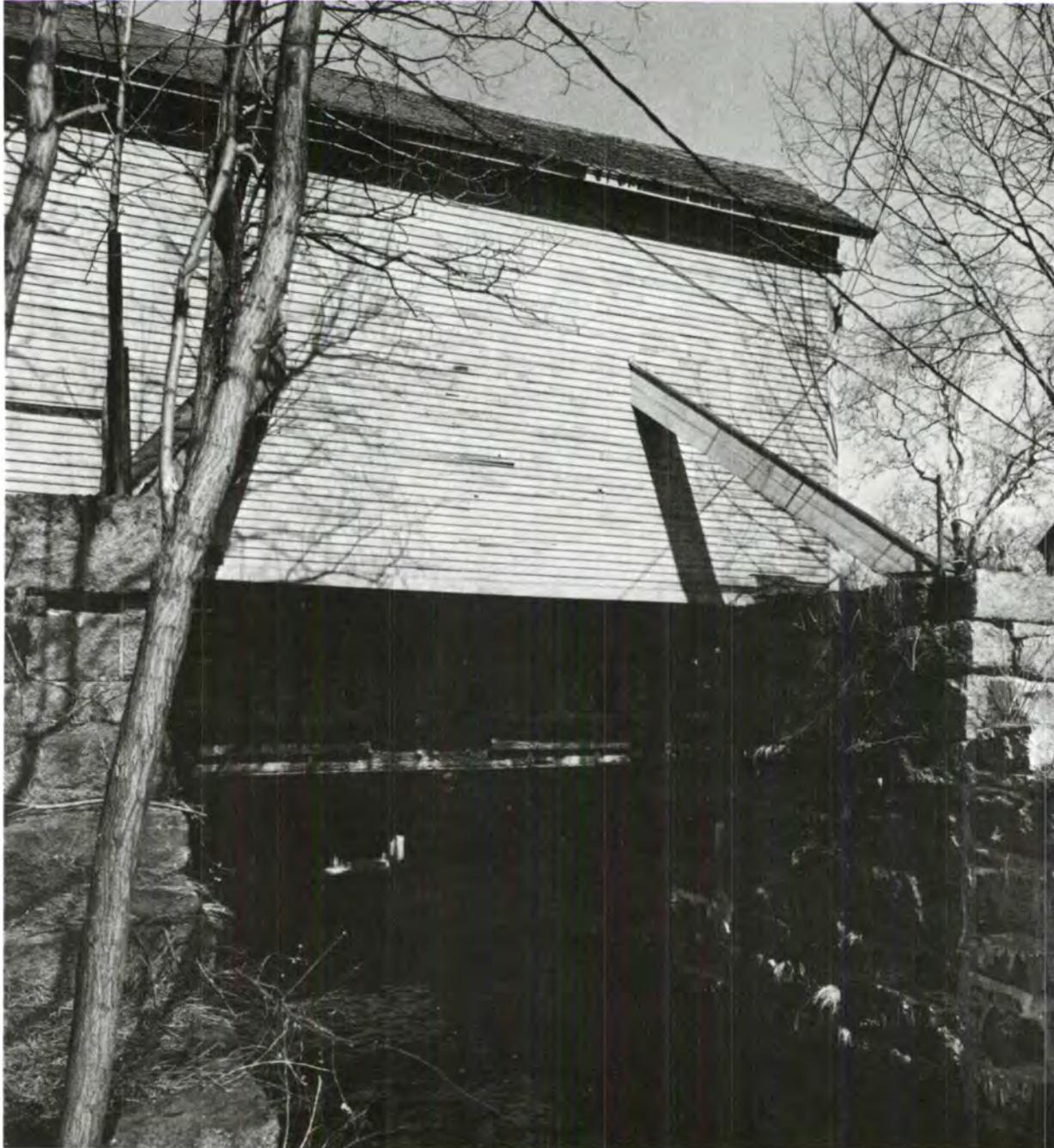
The canal system was not yet very large or complex, but already the problems of managing construction projects, textile mills, and a new machine shop were becoming troublesome for the directors of the Merrimack Manufacturing Company. By 1825, they had begun arrangements to transfer the machine shop, most of their land, and the control of the canal system to the Proprietors of Locks and Canals, the same corporation they had taken over in 1822. Now there would be one company which would sell land and rent water power

to new corporations. The Merrimack Manufacturing Company would be just one of many mill complexes on the canal system, all dependent on the power supplied by Locks and Canals. Of course, stock subscriptions gave the owners of the original manufacturing company a chance to share in the profits of the canal company. Boott served as the agent of both companies, despite the obvious conflict of interest.

From 1825 to 1836, the engineers and construction crews of Locks and Canals worked to complete the planned canal system. They dug an upper level canal leaving the Swamp Locks Basin and running parallel to the lower Pawtucket. The Hamilton Manufacturing Company built their mills on the strip of land between these canals, in a miniature version of the ideal power plan described above. Water from the Hamilton Canal dropped into the breast wheels in each mill and discharged thirteen feet below into the lower level canal.

The Hamilton Manufacturing Company was the first to lease water power in units called "mill powers," a practice used ever since in Lowell. A mill power represents the amount of power that was necessary to drive the 3584 spindles and other machinery in the second mill at Waltham, about sixty net horsepower. The flow rate of water which will produce a mill power varies with the height of the fall. With a thirty foot fall, one mill power requires a flow rate of twenty-five cubic feet per second. With a thirteen foot fall (between upper and lower levels on the Locks and Canals system) this becomes 60.5 cubic feet per second; and with a seventeen foot fall (from the lower level back to the river) the quantity is 45.5 cubic feet per second.

When the carefully-planned canal system was completed in 1836, twenty-six textile mills, two



print works and the machine shops of Locks and Canals were operating with power supplied by the Merrimack River. The nine mill complexes on the system produced 49,413,000 yards of cloth that year and employed almost 8000 workers out of a total population of 17,600. Within the city, canals and the mills they powered were the dominant features of the urban landscape. Corporate housing, small businesses, and private homes were built only where they did not interfere with the routing of power canals and the production of textiles. The first priority in the development of Lowell was to bring water power to the best mill sites.

The Lowell Canal, built in 1828 for the carpet mills of the Lowell Manufacturing Company, was little more than an extended headrace off the Merrimack Canal. The carpet mills and the machine shop were on land between the upper-level Merrimack Canal and the lower Pawtucket. Both corporations used this thirteen-foot difference in water level to power their mills. They took only a small part of the water moving in the Merrimack Canal; the rest continued down that channel to the extensive complex of the original manufacturing corporation.

The Western canal, like the Pawtucket, had both an upper and a lower level. Opened in 1831, it soon provided power for three corporations. First, the flow was split to supply the Tremont and Suffolk Mills on either side of the upper level. Tailraces from these mills then emptied into the lower level leading to the Lawrence Mills. Thus, the water was already used once for power generation before it reached the seventeen-foot wheels of the mills along the river.

The lower level of the Pawtucket Canal carried water discharged by the machine shop and the Hamilton, Appleton, and Lowell Mills. A

Jack Boucher, Historic American Engineering Record

small part of this flow entered the Middlesex Mills, the only corporation to use water from both the Merrimack and Concord rivers. The main flow went into the Eastern Canal, which was opened in 1836 to supply the Boott Mills. In 1839, the Massachusetts Mills also bought land on the Eastern and began to build the last of the great mill complexes in Lowell.

Since 1826, the engineers of Locks and Canals had been able to increase the flow into the canal system by constructing dams at Pawtucket Falls. The first was a crude wooden structure, but by 1830, a masonry dam seated on heavy wooden cribbing was helping to maintain a "pond" behind the falls. Three years later, workmen added two more courses of granite headers and raised wooden flashboards above them. This not only raised the level of the upper river but also stilled its current for over eighteen miles. The new dam, however, could not satisfy the water needs of the growing industrial city for long.

The demand for water power increased each year in Lowell as corporations expanded their manufacturing operations. Power was always scarce in the dry summer months, but by the 1840's, shortages were common throughout the year. One problem was the severe friction losses in the canals created by greater flow rates. When mills needed more water, the current had to increase to supply this demand. Increased current produced friction which actually dropped the level of water in the canals, reducing its potential to generate power. Thus, the mills could only get a greater flow of water by giving up some of the "head" they also needed. In times of freshet, river water rose into the tailraces of mills on the lower level of the canal system, impeding their wheels. Such "backwater" conditions placed excessive demands on the canal system, for only a tremendous

flow of water could keep wheels turning in flooded wheel pits.

James B. Francis, the British-born chief engineer of Locks and Canals in this period, wanted to build a second feeder canal to bring additional water into the system and to allow a reduction of current in most of the canals. In order to make such a plan effective, however, two conditions had to be met. First, Locks and Canals would have to prohibit the use of water for manufacturing at night, so that the river's flow could be "ponded" until the morning. Second, the power company would have to control the outlets of the major lakes which fed the Merrimack River. Using the lakes as reservoirs, Lowell would then have a source of extra water in dry seasons.

Before this new canal plan was approved, the ownership of Locks and Canals changed, and the chief engineer also became the agent. In 1845, the directors of the corporation sold the machine shop and a large amount of land. Next, they drew in all the stock, paying a fair price to each shareholder. New stock was issued to corporations on the canal system in direct proportion to the amount of water power each leased. The users became the owners, and Locks and Canals became a service company for ten textile corporations and an independent machine shop.

The treasurers of these manufacturing companies gave their assent to the larger of two canal plans in 1846. Francis had prepared both after gaining an agreement on nightly ponding and on the purchase of reservoirs. In combination with the Essex Company of Lawrence, Locks and Canals had acquired control of over one hundred square miles of lake surface in New Hampshire. Now, Francis could begin work on the greatest engineering challenge of his career, the Northern Canal.

Between 1846 and 1848, Francis supervised the construction of the Northern Canal, the Pawtucket Gatehouse at its entrance, and two underground waterways tying together parts of the canal system. He also directed the rebuilding of a section of the Pawtucket Dam in order to channel water into the gatehouse of the new canal. Over a thousand men were on the payroll at one time, and hundreds of others worked for firms providing contracted services and materials.

The completed Northern Canal ran for 4,400 feet from the head of the Pawtucket Falls to the Western Canal. The first 1000 feet cut across an outcropping of land, but the next 1000 feet of the canal was built beside the river, some of it on ledges that had been underwater when the project began. The final section turned inland to complete the linkup with the existing canal system. With at least fifteen feet of water in its one-hundred-foot-wide rectangular channel, the Northern Canal could carry a greater flow than the Pawtucket while keeping friction losses to a minimum.

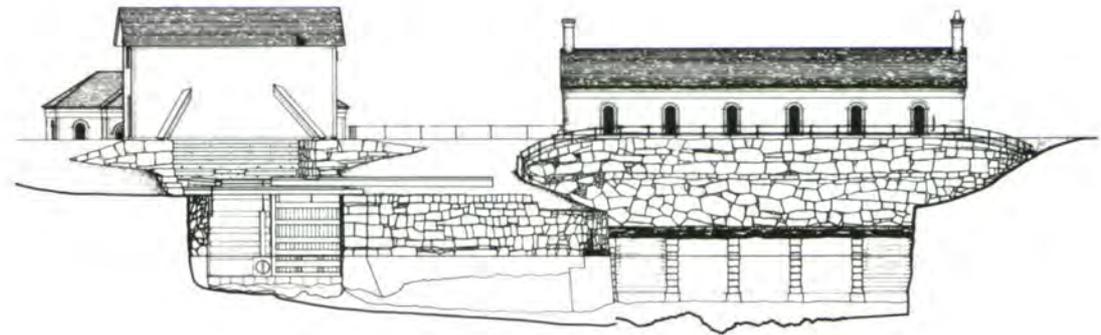
The part of this grand canal which extended into the natural bed of the river was the most impressive sight on the canal system. Here, the "Great River Wall" held the water of the canal above the lower rapids of Pawtucket Falls and formed an elevated walk for the enjoyment of the public. The massive wall of coursed granite was lined with rubble laid in cement and was founded upon rock ledge. In some places its vertical height above the ledge reached thirty-six feet. Near the downstream end of the exposed wall, the chief engineer installed four manually-operated waste gates, two scouring gates, and an overflow weir.

Ten sluice gates at the entrance to the canal controlled the water admitted from the upper river.

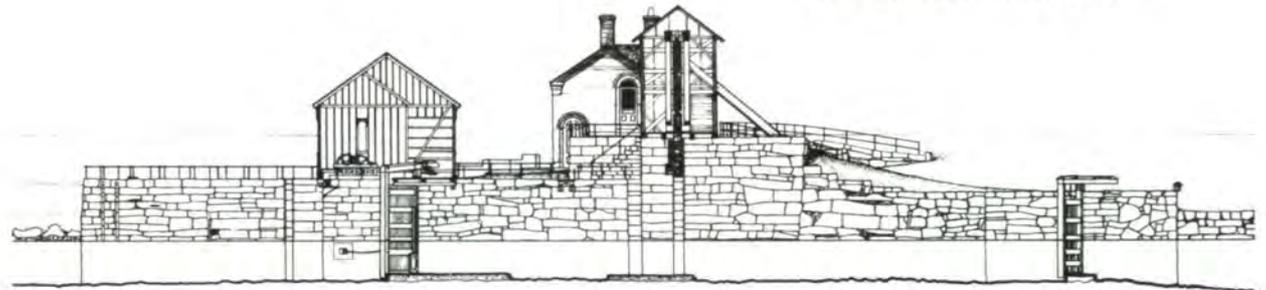
Housed in a brick gatehouse with a foundation of granite masonry, these gates were operated with water power. Francis used his own version of the Howd inward-flow turbine to drive a line shaft in the gatehouse. Belts and pulleys connected this shaft to the gate-hoisting machinery. Also housed in the building were large testing chambers and other apparatus used by Francis in a series of scientific experiments which became part of his famous work, Lowell Hydraulic Experiments.

The Northern Canal brought water into the system with a higher head than had been previously possible, and it reversed the current in the Western Canal from the junction to the Swamp Locks Basin. Water from the Northern supplied the demands of the Tremont, Suffolk, and Lawrence Mills. Once Francis had completed the Moody Street Feeder in 1848, the Northern also fed the Merrimack Canal through three brick-vaulted tunnels. A smaller underground passage, known as the Boott Penstock, transferred some of this flow from the Merrimack Canal to the end of Eastern Canal, where an adequate water level had always been hard to maintain.

Locks and Canals had spent \$551,585 on the Northern Canal and \$86,132 on the Moody Street Feeder. The Boott Penstock and the necessary widening of the Western Canal had added another \$15,000 of expenses. Yet, the power gained by the various Lowell corporations was easily worth the cost. After testing the results of his physical improvements to the system, Francis arranged for a redistribution of power and an increase in the number of mill powers leased to each company. Because of the limitations of the old Pawtucket Canal as the sole feeder, only ninety-one mill powers had been leased up to that time. The Northern Canal enabled the chief engineer to lease 139 mill powers. These were so-called "permanent" mill powers to be supplied



SITE SECTION LOOKING NORTH



SITE SECTION LOOKING EAST

SCALE: 1/4" = 1'-0"

in all seasons; for most of the year, the corporations could also purchase "surplus" mill powers at an inexpensive rate. The mill complexes were assured of almost twelve thousand gross horsepower, even in summer.

Francis, acting as "The Chief of Police of Water," tried to prevent waste on the system and developed techniques to monitor the water used by individual corporations. When the flow in the river was low, he even closed the gates of the Northern Canal during the noon break. His tests of Uriah Boyden's outward-flow turbine in 1846, convinced him that the corporations should switch from breast wheels to more efficient hydraulic turbines. In this way, they could produce more net horsepower from each mill power delivered to their sites. Also, turbines, which ran well underwater, could generate during "back-water" conditions that ruined the efficiency of breast wheels. The widespread conversion to turbines in Lowell took place during and immediately following the construction of the Northern Canal.

Francis' experimental work resulted in an improved inward-flow turbine and in effective methods for measuring the flow in open channels and over weirs of various shapes. As the agent of Locks and Canals, he could use the canal system as a laboratory for hydraulic experiments. Here at Lowell, perhaps for the first time in America, science exerted a regular and profound influence on technology. Other talented men who worked for Locks and Canals or for the Lowell Machine Shop also made major contributions to our knowledge of hydraulic engineering. Uriah Boyden, Asa Swain, Joseph Frizell, Clemens Herschel, Hiram Mills, and Arthur Safford became major figures in the profession.

The most famous of the structures built by Francis is not a sophisticated work of engineering,

but it has saved the city of Lowell in two floods. In 1850, the chief engineer erected a huge wooden portcullis gate over the single lock chamber at the Guard Locks of the Pawtucket Canal. He feared that the recently modified dam at the falls would cause the river to rise to unprecedented heights if another flood as serious as the Great Freshet of 1785 should occur. In two years, his prediction proved correct; the river rose to a height of fourteen feet over the dam and washed out the forward lock gates at the Guard Locks. Only the timely dropping of Francis' gate prevented a disaster. The derision which had been directed at the gate in 1850 turned quickly to acclaim.

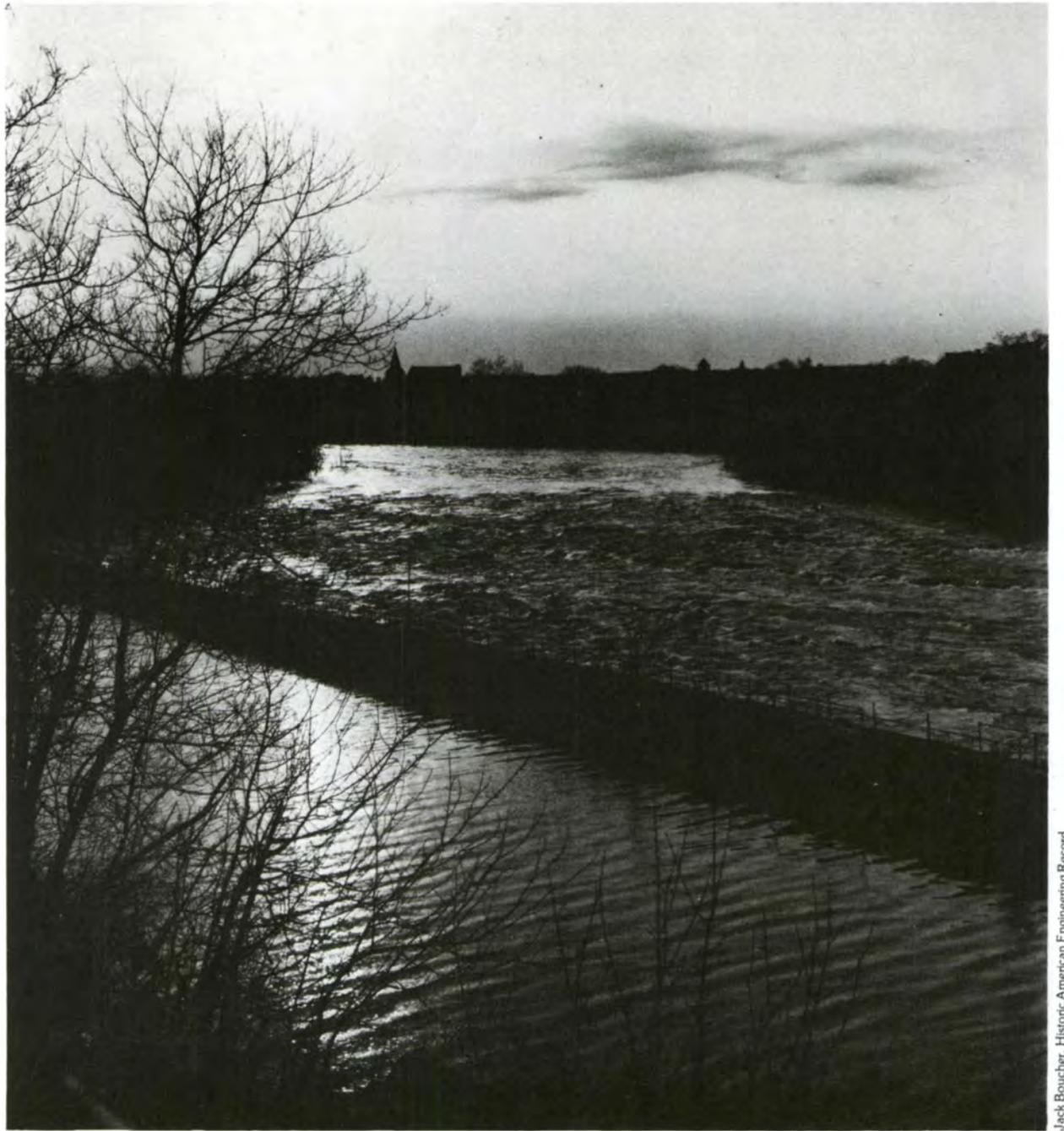
After the flood of 1852, the Boston Daily Advertiser ran an article praising Francis' decision "to take measures to guard against what every one considered, a very remote contingency, by what many considered a useless expenditure of money." Without the Francis Gate, "every vestige of the old guard gates would have been carried away, and a mighty and uncontrollable river would have swept through the heart of Lowell, destroying everything in its course." Similar newspaper articles followed the flood of 1936, in which "Francis' Folly" again played an heroic role.

By the time of his retirement in 1885, Francis had installed hydraulic rams to operate the sluice gates at the Guard Locks and a turbine to power the waste gates in the Great River Wall. His successors continued to refine the canal system with the addition of electric gate controls and programs for dredging and widening certain channels. The last major change in the system took place between 1946 and 1958, when three concrete siphon spillways were built over the dam at the Lower Locks.

Today, all of the canals and underground feeders which formed the nineteenth-century canal

system are intact. Most of the early buildings, locks, and machinery on the system are also in a remarkable state of preservation. Although the original textile corporations are gone, the Proprietors of Locks and Canals still deliver water to generating stations in four of the seven remaining mill complexes. The old power company and its five miles of man-made waterways form a unique link with the golden age of water power and canal transportation.

Patrick M. Malone, Ph.D.



Jack Boucher, Historic American Engineering Record

Appendix Four

Lowell Heritage State Park

This material has been excerpted from **A Proposal For an Urban State Park In Lowell, Massachusetts** August, 1974, as prepared by the Massachusetts Department of Natural Resources. As the state has proceeded with implementation of the park the ideas proposed here have evolved and been refined (in part reflecting cooperative planning efforts between the State Department of Environmental Management and the Commission).

Appendix Four: Summary, Lowell Heritage State Park Plan

The Honorable Francis W. Sargent
Governor of Massachusetts
State House
Boston, MA 02133

Dear Governor Sargent:

We are pleased to submit this proposal entitled Lowell Heritage State Park, which recommends the creation of a state park in the City of Lowell by the Department of Natural Resources. The park would focus on the backbone of the City's cultural heritage--the canal system and the Merrimack and Concord Rivers.

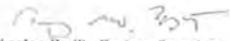
The Commonwealth has long been actively involved in urban recreation within the Boston metropolitan area. The creation of a Lowell Heritage State Park represents a major step in the expansion of the state's urban recreation role in other areas of the Commonwealth.

The Department has been assisted in this effort by many agencies and individuals in Lowell. Particular notice is made of the contribution of the Local Advisory Committee chaired by Lowell Mayor Armand LeMay, which ably assisted and guided us in this period.

This is an exciting proposal--one which if implemented will greatly benefit the city, the state, and the nation. We urge that it be given your immediate consideration, to enable the Department to initiate action during fiscal year 1975, as outlined in the proposed park development schedule.

Sincerely,


Arthur W. Brownell, Commissioner
Department of Natural Resources


Charles H. W. Foster, Secretary
Executive Office of Environmental Affairs

Acknowledgements

This report was prepared by the Massachusetts Department of Natural Resources, Arthur W. Brownell, Commissioner.

The Department is very grateful for the assistance and guidance it received from the Local Advisory Committee in Lowell. A note of thanks is extended to all Committee members:

Chairman: Armand LeMay	Mayor of Lowell
Members: Dennis Coffey	Center Cities Program Director
Joseph Kopyciński	Chairman, Lowell Historical Commission
Michael Desmarais	Vice President, Middlesex Bank of Lowell
Frank Keefe	Planning Director, City Development Authority
Sister Lillian Lamoureux	Education Director, Sisters of Charity of Ottawa
Edward Lomieux	President, Greater Lowell Chamber of Commerce
Vatrick Mogan	Executive Director, Human Services Corporation
Kurt Schork	Assistant Director, Northern Middlesex Area Commission
John Tavaras	Model Cities Program Director

In addition to the above committee, three agencies in particular -- the Lowell City Development Authority, the Human Services Corporation, and the Northern Middlesex Area Commission -- deserve special recognition for their efforts in assisting the Department. By collecting and analyzing data, providing graphic materials, and especially because of their general attitude of cooperation, these agencies greatly facilitated the task undertaken by the Department.

In its preparation of this report the Department enlisted the aid of a special-purpose Task Force, consisting of individuals both within and outside of the Department. The overall contribution of the Task Force was considerable; the following members are to be commended for a job well done:

Chairman: Joseph H. Brown, Jr., Deputy Commissioner, Department of Natural Resources

Department of Natural Resources Members:

Howard Bacon, Associate Civil Engineer, Division of Acquisition and Construction
Gilbert Bliss, Chief, Bureau of Recreation, Division of Forests and Parks
Everson Chandler, Chief Planner, Division of Water Resources
Robert Greenleaf, Chief, Bureau of Statewide Planning, Office of Planning
Joel Lerner, Director, Division of Conservation Services
Peter Oatis, Chief Aquatic Biologist, Division of Fish and Game
Carol Rolf, Acting Chief, Bureau of Project Planning, Office of Planning
Richard Young, Associate Planner, Division of Water Pollution Control

Other Members:

Michael Padina, Assistant Secretary, Executive Office of Transportation and Construction
Robert Rettig, Executive Director, State Historical Commission

Introduction

Lowell Through Time

Although Lowell will soon be celebrating its 150th anniversary as a city, its recorded history begins earlier than the nineteenth century. For on Lowell's site, at the confluence of the Concord and Merrimack Rivers, there was several hundred years before an encampment of Pawtucket Indians. In 1629 the area hosted a new group: recent immigrants from Europe who settled in what was to become Lowell, farming and fishing the area and gradually establishing lumber and grist mills along its riverbanks.

The beginning of Lowell as it is known today, however, may be identified as 1793, when a corporation entitled Proprietors of The Locks and Canals on Merrimack River was chartered, and construction of the Pawtucket Canal, one of the earliest of its kind in the United States, was begun. Shortly thereafter, the much longer Middlesex Canal was constructed, which connected the Merrimack River to Boston Harbor. These canals were used for transportation, but in the 1820's a group of visionary entrepreneurs saw that a canal system in Lowell might be put to another use: that of providing water power for a major industrial complex.

Thus began Lowell's elaborate system of watercourses and mills and thus began the creation of the United States' first planned industrial city, which came to be known as "the Venice of America." Central to the founding concept of Lowell was the ideal of a humanized cityscape, one which tempered the goal of economic efficiency with attention to the workers' need for a measure of environmental amenities and open space. They were remarkably successful in achieving this ideal, particularly in comparison with other New England mill communities. However, time and a changing economic picture has taken its toll on Lowell; so that today the city is in need of a major revitalization to both restore its proud heritage and redefine its image, making it again a model for what other cities might be.

A New Beginning

The need for this revitalization process has already been planted, and, if properly nurtured, promises to bear fruit. During the past decade, the people of Lowell gradually began to see with new appreciation the technological, architectural, and cultural resources which are woven into the fabric of their city, but which have been in many instances either neglected or misused. In 1970, Secretary Walter Hickel of the U. S. Department of the Interior responded to this vision with the introduction of the idea of a Lowell Urban Cultural Park, a new kind of park which would help to make Lowell a showcase of America's industrial history. Although Secretary Hickel subsequently left Interior, his idea took hold: led by the Lowell City Development Authority, the Northern Middlesex Area Commission, and the Human Services Corporation, Lowell citizens in 1973 prepared a tangible outline for an urban cultural park which was submitted to the Commonwealth in October 1973 in a document entitled Urban Cultural Park Component. In it was outlined a proposal for the development of a multifaceted cultural park in Lowell which would be undertaken as one part of the overall Lowell Development program. In consequence, the Department of Natural Resources has assessed the City's proposal and here recommends the inclusion of some of its elements in the creation of a Lowell Heritage State Park.

The Concept of a Lowell Heritage State Park

As presently conceived, the Lowell Heritage State Park would be dedicated to two equally important purposes:

- (1) The preservation of the cultural heritage of Lowell and the surrounding region--a heritage which has its roots in the past but which is continually growing and diversifying.
- (2) The development of the resources that comprise the area's heritage to increase public appreciation and enjoyment of these cultural assets.

Furthermore, the Heritage Park concept is based on the premise that water resources, specifically the Lowell canal system and the Merrimack and Concord Rivers, have been through history the backbone of the region's culture, enabling it to grow from an Indian encampment to a major industrial center. As such, and as one of the principal sources of recreational and open space opportunity in the area, these resources merit primary attention and should be developed in a manner complementary to the region's heritage.

The objectives of the Heritage Park are therefore as follows:

- To develop interpretive sites, facilities, and services at appropriate locations in the Heritage Park which will enable the public to better understand the region's culture.
- To insure that water related open space, now an important asset of the region, is both protected and improved.
- To provide land-based public recreational opportunity along the river banks and canal banks - in a manner sensitive to the traditional character of these resources - and to provide water-based public recreational opportunity on their watercourses.
- To restore, maintain, and utilize sites and buildings of historical and architectural interest that are related to the canal system and the rivers.
- To restore and maintain the system of locks and canals so that they may once again be used for boat traffic.

With these objectives as its focus, the Heritage Park would accomplish the dual purposes to which it is dedicated.

Benefits to be Derived from the Heritage Park

The returns to be derived from state investment in the Heritage Park are varied and substantial, conferring benefits on the Commonwealth and the nation, as well as Lowell and its surrounding region. In particular, this park development would result in:

- Preservation of historic and cultural resources which are of recognized state and national significance.
- Provision of recreational opportunities for the residents of the Commonwealth and for tourists from other parts of the nation.
- Restoration of technological resources spanning 182 years and facilitation of their use for educational purposes.
- Protection of a valuable and scenic resource of the Commonwealth: the banks of the Merrimack and Concord Rivers.

In addition, there are numerous benefits to be derived from the Heritage Park which, while important to the larger populace, would have their most immediate impact on Lowell's citizens. Some of these are:

- Expansion and diversification of the Lowell region's economy through (1) the primary and secondary economic impact of tourism* and direct state investment, and (2) the creation of a climate of confidence about the city's business future.
- An opportunity for Lowell's citizens to integrate recreation into the daily pattern of their lives, thereby responding to the call in the 1971 Massachusetts Statewide Comprehensive Outdoor Recreation Plan and the Department of the Interior's 1973 Nationwide Recreation Plan for more attention to urban recreation needs.
- The beautification of Lowell's industrial/commercial cityscape through imaginative utilization of its unique natural and manmade resources.

A decision by the Commonwealth to invest in the future of the Lowell area through the development of the Heritage Park recommended here may lead to other investments by private concerns as well as city and federal agencies. Working together, a renaissance of this outstanding example of America's industrial past may be achieved, and the utopian dream of its founders for a humanized cityscape realized.

* It is estimated that by 1985, the Heritage Park could attract 700,000 to 1,000,000 visitors per year.

The Park Proposal

The Department of Natural Resources strongly recommends to Governor Sargent that it undertake the development of a new park in the state park system, and that this park be designated the Lowell Heritage State Park. The primary components of the Heritage Park would be (1) major park sites, including Pawtucket Boulevard Park, the Northern Canal Walk, Francis Gate Park, Tremont Yard Park, and Rex Lot Park; (2) canal and river banks and watercourses; and (3) historically and architecturally significant buildings.

The Design of the Heritage Park

Being located in an urban area, and oriented to the Lowell canal system and the Merrimack and Concord rivers, the proposed park would have a substantially different physical configuration from that of a traditional state park. Unlike most parks, the Heritage Park would not involve the aggregation of a large unit of land; it would be a dispersed park system, with sites and facilities interspersed throughout the urban area. These sites would be connected by land and water circulation systems, with the canals and the rivers serving as the unifying feature tying together the several scattered land parcels (Fig. 1, 2).

The Heritage Park would be designed to provide the user with an experience that exposes him to a variety of urban environments. The user would be aware of his location within the park system, but he would not be bound to that system. Maximum interaction between the city and the park would be desired, with the objectives being:

- To turn the attention of the city towards its waterways so that their potential as cultural, open space, and recreational resources may be fully realized.
- To turn the attention of park users towards the city so that they may become aware of the diverse historical, architectural, contemporary, and cultural resources that Lowell has to offer.

The Heritage Park user would travel through the park on foot, bicycle, boat, or mass transit. (Fig. 3) Use of these modes of transportation would help insure a pleasurable urban experience, plus would avoid the adverse impact that large numbers of automobiles would have on pedestrian safety, air quality, traffic circulation, and noise levels. Parking would generally not be provided at park sites, except to accommodate handicapped persons. However, until mass transit began operating, there would be temporary parking provided at appropriate locations in the park.

To accommodate people visiting the Heritage Park by automobile, it is recommended that the City pursue its intention of using the Lowell Railroad Station site as the location for a major urban parking facility. This facility, if of sufficient capacity, could act as a collection/orientation point from which visitors would embark for the park.

Description of Park Components

1. Park Sites

Pawtucket Boulevard Park (Fig. 4)

Presently under City ownership, this approximately 1.4 mile stretch of Merrimack river bank (18.3 acres) would be developed as a linear park. Bordering an outstanding section of the river, this park would be used for both open space and recreational purposes. In addition to landscaping the area, bicycle and foot trails, boat launching areas, barge tour landings, and picnicking facilities would be developed. As a place to view river boating activities -- regattas, crewing, sailing, etc. --, this river bank is unsurpassed.

The Northern Canal Walk (Fig. 5)

Presently under ownership of the Proprietors of Locks and Canals, this walkway (8.3 acres) affords a spectacular view of the Merrimack River rapids below Pawtucket Falls, as well as a view of the Northern Canal and the locks at the canal's upper end. The unique feature of this site, however, is the gatehouse at Pawtucket Falls. To be used as an interpretive resource, this gatehouse would provide the public with a chance to view three generations (spanning 125 years) of mechanical technology in their historical setting.

Francis Gate Park (Fig. 6)

Presently under ownership divided mainly between the Proprietors of the Locks and Canals and the City, this wooded canal bank (12.2 acres) would perform both open space and recreation functions. Facilities constructed at this site would include bicycle and foot trails, boat dockage, and a tourist barge landing. The most interesting feature of this site is the Guard Locks complex, consisting

of a gatehouse, a lock house, a unique flood prevention gate (which has twice in the past 125 years been relied upon to protect Lowell from Merrimack River floodwaters), and the locks themselves. Interpretive services would be developed here to explain lock operations and the remarkable history of the site.

Tremont Yard Park (Fig. 7)

Presently under private ownership, this L-shaped parcel of land (13.5 acres) borders both an interesting section of the Western Canal and the Merrimack River. Significantly, this site includes the only portion of the Merrimack River in Lowell's urban core which is potentially available for public use and enjoyment. Developed to be a major open space resource in close proximity to downtown Lowell, this site would be the focal point for two important park functions: (1) the terminus of two potential tourist barge loop tours, and (2) the site of a visitors center and interpretive exhibit (possibly located in one part of the adjacent Wannalancit Mill).

Rex Lot Park (Fig. 8)

Presently under City ownership, this site (2.8 acres) would be a major park attraction, as it affords the best vantage points of any site in the system to observe the operation of locks. In addition to providing respite for shoppers and workers, development of this site would help to make nearby Merrimack and Central Streets more attractive commercial areas.

The use of a portion of the Central Street bridge over the Pawtucket Canal as a viewing platform would provide an opportunity to increase the accessibility of the Rex Lot site, and it would afford a vista of the Pawtucket Canal west to Swamp Locks and east to the Concord River. (Relocation of the commercial enterprises and removal of structures over the canal would necessarily precede this development.) A tourist barge landing and public boat dockage at the park would serve to augment the attractiveness of this site. In addition, the potential exists at Rex Lot to develop a portion of the site for a compatible use, which would enhance the park visually as well as contribute to Rex Lot's singular appeal.

2. Canal and River Banks and Watercourses

Banks

The banks of the entire Lowell canal system (10 miles) which are not built upon, and all of the undeveloped banks of the Merrimack and Concord rivers in Lowell (12 miles) would be considered part of the Heritage Park (Fig. 10). All canal and river banks in the park would be protected by acquisition or easement where feasible, and otherwise by application of the Scenic Rivers Act. Protection of these resources would be facilitated by the fact that almost all of these canal and river banks are presently owned by either the City, the Proprietors of the Locks and Canals, or Lowell educational institutions.

The purpose for protecting canal and river banks would be threefold: (1) they would provide access facilities for water-based recreation, such as barge landings, public boat launch and dockage areas, canoe rental sites, etc.; (2) they would provide areas for land-based recreation, such as walking and bicycling, fishing, picnicking, sunbathing, etc.; and (3) they would provide a buffer between the water and adjacent developed land. Undeveloped and protected canal and river banks insure that visual and physical access to the water will not be obstructed in the future.

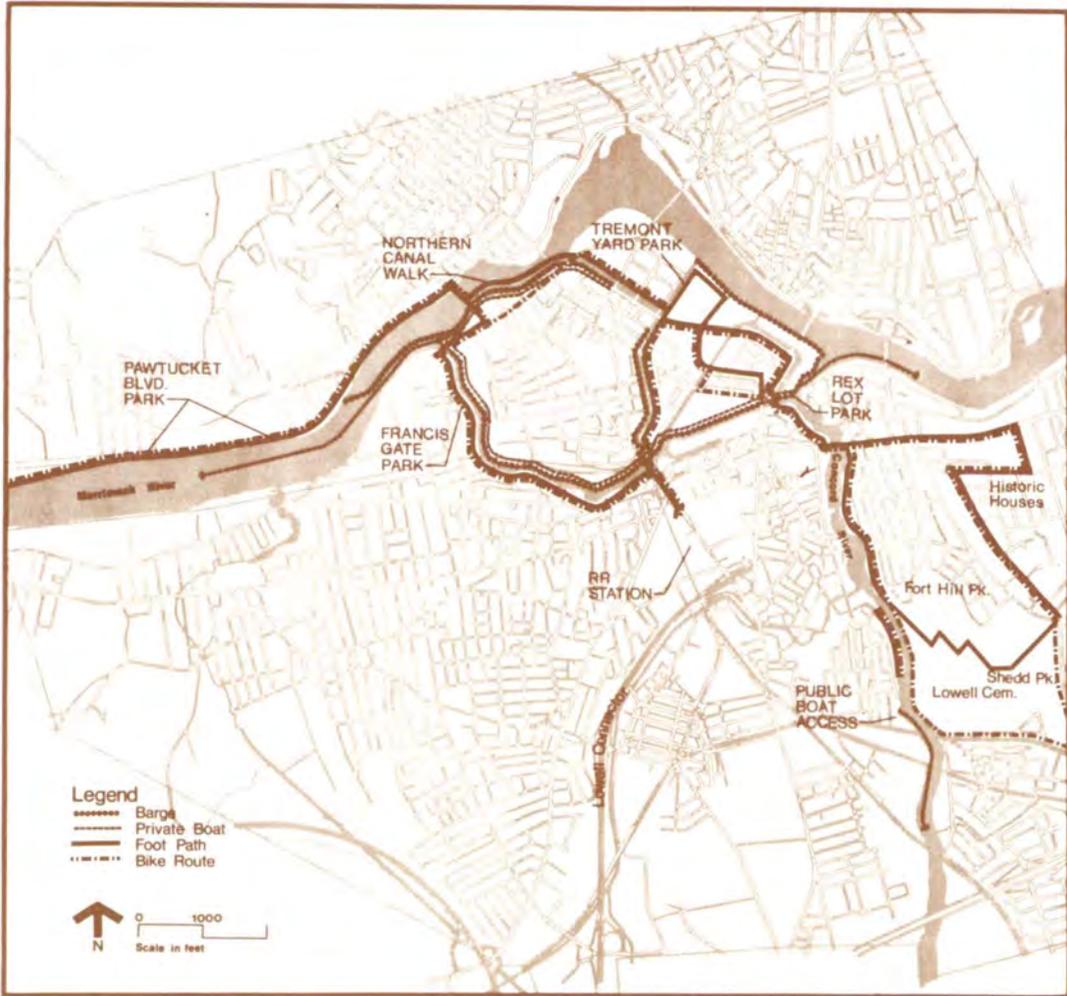
Watercourses

Canal watercourses would be developed to accommodate various types of small boat and barge traffic. Bridge clearances on the primary boating canal, the Pawtucket, are presently adequate. However, bridge clearances would have to be improved at several locations in the system in order to accommodate boating on the Western, Merrimack, and Eastern Canals. Restoration of the four sets of locks in the system, dredging, and minor alteration of the canal system for safety purposes (safety booms, etc.) must precede any recreational boating activity on the canals.

River watercourses (the Merrimack and Concord Rivers) would be used for power boating, sculling, canoeing, etc. Dams and river shallows would restrict the type and range of boating traffic on these watercourses at least for the short-run future, as these impediments require special attention by governmental agencies concerned with river navigability. However, the Merrimack River upstream of the Pawtucket Falls dam is currently a fine boating resource with no restraints on navigability between Lowell and Nashua, New Hampshire.

3. Historically and Architecturally Significant Buildings

As mentioned previously, the Pawtucket Dam Gatehouse, Guard Lock House, Upper Lock House, and Wannalancit Mill are all historically significant structures which could be utilized for interpretive purposes. Added to this list is the Thorndike Mill, a portion of which could also be used for a visitor orientation center (in conjunction with the railroad station parking facility). It is anticipated that other gatehouses and structures which are historically related to the canal system (mills, corporation housing, workshops, architecturally significant homes, etc.) would be developed for interpretive purposes as the opportunity arose.



park conceptual plan
city wide



Estimated Cost

The various land parcels which constitute the Heritage Park are for the most part owned by either the Proprietors of the Locks and Canals, the City of Lowell, or Lowell educational institutions. Due to the fact that there are several potential alternative park ownership arrangements--including use of such techniques as direct transfer of property to the Commonwealth, fee simple acquisition, and purchase of easement rights--no detailed estimate of property acquisition costs has been attempted. A lump sum estimate for these costs has been projected, as indicated below in (1).

Also outlined below are projections of estimated park development costs, by site (2), and lock restoration costs (3). These figures are based on 1974 costs and include the cost of design as well as a 25% contingency allowance for inflation and unforeseen expenses.

(1) Projected property acquisition/protection costs total: \$2,900,000

(2) Projected Heritage Park development costs

. Pawtucket Boulevard Park \$1,200,000

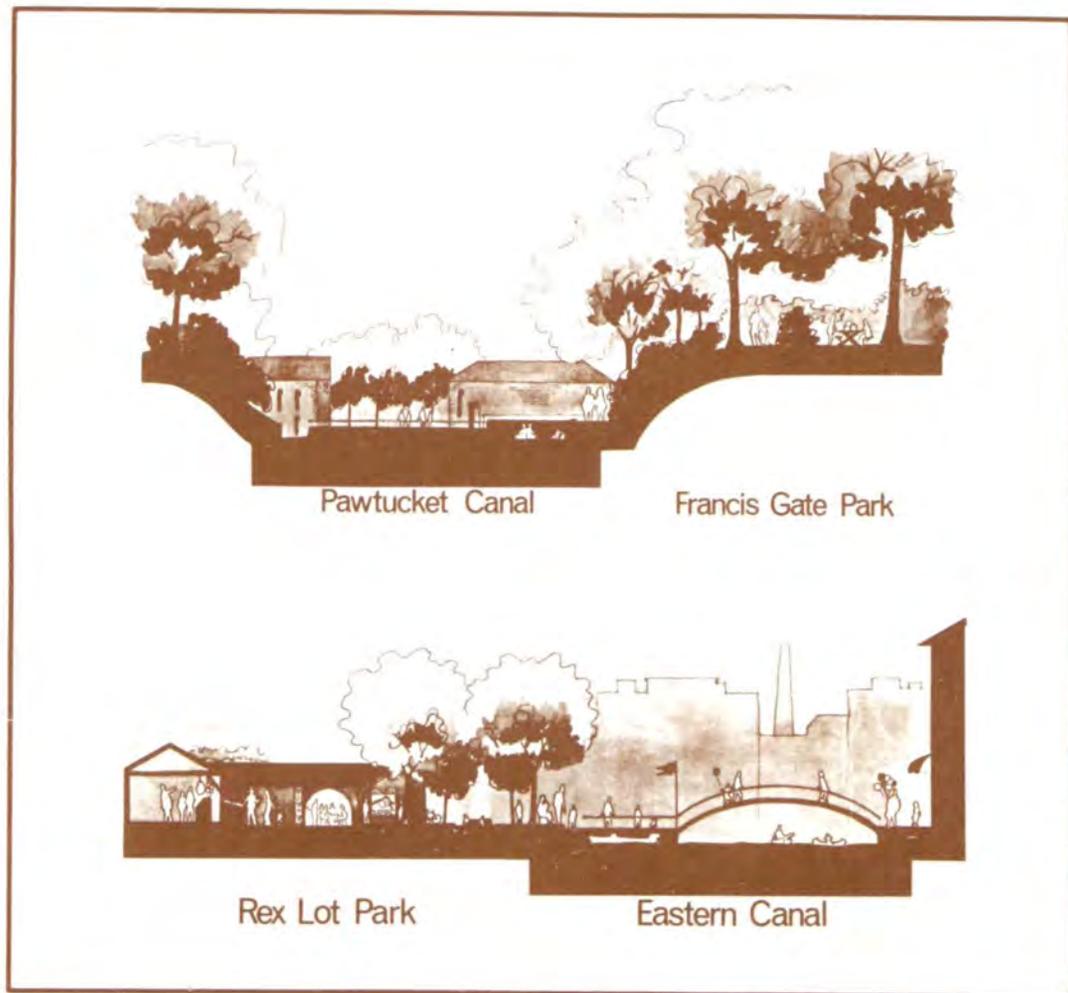
- Parking
- Boat access
- Barge landing
- Seating
- Landscaping
- Comfort station/Orientation center
- Foot and bike trails

. Northern Canal Walk \$ 144,000

- Landscaping
- Stairs
- Seating
- Lighting
- Staff parking
- Interpretive center - gatehouse

Appendix Four: Summary, Lowell Heritage State Park Plan

Francis Gate Park	\$ 512,000
Landscaping	Information/comfort station
Barge landing	Foot and bike trails
Safety boom	Temporary parking
Lighting	Building restoration
Boat slips	Refuse boom
Tremont Yard Park	\$ 930,000
Landscaping	Visitors center/Interpretive exhibits
Barge landings	Temporary parking
Excavation	Picnic tables
Foot trails	Fountain/
Lighting	
Rex Lot Park	\$1,285,000
Fountain	Pavement removal
Landscaping	Boat slips
Barge landing	Information/comfort station
Lighting	Central Street viewing area
Footbridges	
Western Canal	\$ 86,000
Landscaping	Walks
Barge landing	
Pawtucket Canal	\$ 196,000
Landscaping	Foot and bicycle trails
Eastern Canal	\$ 96,000
Landscaping	Walks
Northern Canal (French Street section)	\$ 104,000
Landscaping	Walks
Barge landing	Boat slips
Concord Riverfront	\$ 161,000
Landscaping	Foot and bicycle
Concord Boat Access	\$ 240,000
Canoe rental	Parking/entrance
Boat ramp	
Heritage Park administrative/maintenance center	\$ 250,000
Thorndike Mill Visitor Orientation Center	\$ 500,000
TOTAL	\$5,684,000



cross sections



Park-Related Issues

Issues which affect the Heritage Park encompass both land and water resources in the Lowell area. They have been identified as including the following two broad subject areas, but it should be noted that this is not an exhaustive compendium; other issues may arise which will also merit the attention of those concerned with the park's development.

Park-Peripheral Land Use

Intrinsic to the concept of the Lowell Heritage State Park is the fact that the proposed park system will be not an isolated entity but an interrelated aspect of Lowell's total urban fabric. It is therefore essential that the nature of these interrelationships be understood and that precautions be taken to insure their harmony, for only with such measures can the park be of optimal benefit to its users and to the city as a whole. These measures can be grouped into two categories:

1. The guidance of neighboring land area

The following areas should be addressed to improve both the City's and the Commonwealth's ability to guide the use of land bordering on or related to the proposed park system:

The Lowell Zoning Ordinance:

- The City has taken the initiative to study possible revisions in its zoning ordinance. As part of this study, the City Council should consider enacting changes in the 112 districts on the north side of Pawtucket Boulevard and the 113 district on the eastern bank of the lower Concord River, to prevent the encroachment of incompatible business and industrial uses in these areas.
- The DNR should be given prior notification in writing of all public hearings required under the zoning ordinance that are held concerning property in the immediate vicinity of the Heritage Park.

The Lowell Historical Commission Ordinance

- Lowell took a farsighted move to preserve its historic resources by enacting this ordinance in 1973, and it is continuing its effort to increase the number of historic areas covered by the ordinance. As part of this effort, the City Council should consider expanding the present Locks and Canals Historic District to include all property lots any part of which is within 30 feet of the bank of any canal watercourse. Only such an expanded district can adequately protect this invaluable aspect of Lowell's heritage by insuring that proposed property changes are compatible with the canal area's aesthetic quality.
- The DNR should be notified in writing of any application to the Lowell Historical Commission for a certificate of appropriateness for any alteration of historic district property which is in the immediate vicinity of the Lowell Heritage State Park.

The Commonwealth's Scenic and Recreational Rivers Act

- In its implementation of the above statute, the DNR should consider the possibility of using the regulatory measures available under this act to protect the scenic and recreational resources of the Merrimack and Concord Rivers.

2. The selection of public projects

Direct actions which Lowell takes to execute or abet major projects in the city may also have a substantial impact on the Heritage Park--an impact which can be either beneficial or detrimental. Numerous opportunities exist to maximize the former and minimize the latter type of effect, for example:

- The City should consider expanding its new city park on the southern bank of the Merrimack River to extend westward and include land to be made available following the High 5 Bridge reconstruction. In addition, if the proposed Route 213 bridge over the Merrimack River is built, the city should use every available means to insure that the construction has a minimum impact on the northern bank's Pawtucket Boulevard Park, and it should also consider using the bridge and adjacent land on the southern bank to create a pedestrian link between the two parks.
- The City should continue to actively pursue a policy of encouraging and aiding the adaptive restoration of its historic mills and other fine examples of its architecture.
- To insure its compatibility with the Heritage Park's Pawtucket Boulevard Park site, the riverside portion of the city's industrial park on Pawtucket Boulevard should be retained for recreation-related uses, rather than being sold for industrial development.
- In order to prevent the destruction of a valuable natural resource which is recommended for passive recreational use in this report, the city should discourage the presently contemplated construction of a highway on the eastern bank of the Concord River. This highway proposal, which is one alternative being considered in the current Skidmore, Owens, Merrill (SOM) Lowell Transportation Study, would be in direct conflict with the purposes of the park. On this issue, as on other transportation proposals resulting from the SOM study, the City should take an active stance, insuring the compatibility of these proposals with the Heritage Park.

In addition to the above, a general agreement should be adopted between Lowell and the DNR to insure the compatibility of City actions with the Heritage Park. This agreement should provide that the City Council will obtain the DNR's advisory opinion on all prospective City-supported projects to be executed on land adjacent to the Heritage Park.

Water Resources

As water resources were identified in the Introduction as being the backbone of Lowell's cultural heritage and meriting the primary attention of the Commonwealth in the development of the Heritage Park, so issues which relate to these water resources are of predominant importance and merit the attention of numerous parties. Following are three such issues which need particular attention:

1. NEWS Water Supply Studies

The Corps of Engineers is presently studying the feasibility of diverting Merrimack River waters for public water supply purposes. The potential impact of a water diversion project on public boating and other water oriented recreational activity is significant. The 4500 c. f. s. flow requirement for power generation at Lowell may be adequate for multi-purpose use--both power generation and water-based recreation. However, prior to implementation of any diversion project on the river, a thorough study should be made of its impact on Heritage Park activities, for an adequate water supply is crucial to the success of the Park.

2. Anadromous Fish Restoration

Presently a consortium of state, federal and private agencies are working towards restoring the historic run of anadromous fish (primarily salmon and shad) on the Merrimack River from Newburyport to breeding waters in central New Hampshire. Two major obstacles stand in the way of this restoration, these being the dams in Lawrence and Lowell. The logistics of fish passage both downstream and upstream at these dams are complex and need not be outlined in this report. The expense of the restoration will be great (an estimated 5.2 million), and it is clear that Lowell and Lawrence should be considered in tandem, as passage at both dams must be provided before restoration can be accomplished.

At the present time there are unresolved issues (such as the prospective FPC licensing of the dam owners) which preclude a final determination of functional responsibilities in the restoration project. Coordination has been established between DNR and the aforementioned agencies, and an effort will be made to insure that the on-going fish restoration project will be synchronized with development of the Heritage Park.

3. Water Quality

Because rivers and canals play such a major role in the Heritage Park proposal, water quality will have an important bearing on many of the components in the proposal. This interrelationship between water quality and Park components is reflected in the proposed Park development schedule outlined in the final section of this report. The importance of coordinating water quality improvement efforts with the development of the Heritage Park cannot be overstressed; federal, state, and local agencies and individuals concerned with water quality should work together to ensure that Lowell's water resources are developed to the fullest extent possible for public recreational use and enjoyment.

Appendix Four: Summary, Lowell Heritage State Park Plan

Conclusions

Future Directions

It must be recognized that the Heritage Park recommended in this report does not purport to be a complete answer to the Lowell area's needs. Numerous possibilities exist for eventual expansion of both the Heritage Park and the state's overall role in the area; for example, the continuing desire for other recreational opportunities not provided by the Heritage Park should be addressed, as should be the continuing need to protect and restore other important aspects of Lowell's heritage, such as the Middlesex Canal (a need which was substantiated in a DNR report written in response to Chapter 54 of the resolves of 1971, in which the General Court directed the DNR to study this unique resource). In addition, the potential offered by resources located outside of the core city but within the surrounding region--at Lowell-Dracut and Warren Manning State Forests, and at Grant Meadows National Wildlife Refuge, to name only a few--should be explored, both for their separate assets and for the possibility they offer of a truly regional park system. Finally, it should be noted that the park recommended in this report is intended to be only a beginning effort: one which preaches the concept of a network of urban state parks throughout the Commonwealth but which does not dictate the nature of those parks. In this, as in all matters relating to the development of a state park in Lowell or in another urban area, the physical design of the park must remain flexible, responsive to the exigencies of the moment and to the currents of change.

The Need for a Cooperative Effort

A response to the immediate and future needs of the Lowell area can be made most effectively if it is a cooperative effort, for given that the immediate scope of the Heritage Park must necessarily be limited, only a joint venture involving private, city, regional, state, and federal participants could hope to fully take advantage of the area's outstanding resources. It is recommended that the prospective role of these participants be as follows:

1. The Private Sector

Private interests have begun to respond to the challenge of restoring old and developing new commercial structures which are architecturally in keeping with Lowell's heritage. Only if individual businessmen as well as large developers respond to this challenge en masse will Lowell gain the recognition it deserves as a cityscape of national significance.

2. The Quasi-Public Sector

Organizations such as the Massachusetts Audubon Society and the Trustees of Reservations could also play a major role in the preservation of the Lowell region's natural and cultural assets, acquiring in full or in part those resources which are of particular significance to the Commonwealth and which might otherwise go unprotected.

3. The City

The City should make a strong commitment to the Heritage Park, expressing this commitment in part by transferring to DNR the city-owned land which falls within the boundaries of Heritage Park sites. The city should also: make a strong commitment to the continued expansion and improvement of its own park system; address the need for the overall beautification of the city; and most importantly, wholly commit itself to the preservation of its heritage. Lowell might go the way numerous other cities have gone, sacrificing heritage to economic expediency. The City should instead guide and work in cooperation with developers to insure the evolution of a compatible urban form and function. In the final analysis it will be Lowell's citizens and not the DNR who, through these issues, determine the success or failure of the Heritage Park.

4. The Northern Middlesex Area Commission

The area's regional planning commission has several means available to it to enhance the Lowell Heritage State Park. Of particular importance is its A-95 review function and its relationship to the Regional Transit Authority, both of which afford it the opportunity to consider development and transportation plans and proposals that might affect the Heritage Park and discourage those that would have a negative impact.

5. The State

In addition to the proposed DNR effort in Lowell, other state agencies should determine their interest in contributing to Lowell's development. At the very least, every state agency should insure that no action it takes will have adverse impact on the Heritage Park or any of Lowell's historic resources.

6. The Federal Government

Other than the previously noted federal agencies concerned with water-related issues, the most important federal participant in this cooperative venture may be the National Park Service (NPS). This agency has expressed interest in the cultural/historical resources of Lowell. Legislation relevant to their participation is pending in Congress at this time.

The NPS is urged to play an active role in the preservation and development of Lowell's historic resources, for the prospect of a mutually supportive partnership dedicated to those purposes is welcomed by the DNR. Examples of areas in which the NPS could take the lead role are:

- Restoration and adaptive development of mill complexes
- Restoration of other historic and architecturally significant structures (such as the row housing, market houses, etc. noted in the 1970 Lowell Urban Design Study)
- Utilization of Lowell's multifaceted resources for educational purposes
- Establishment of cultural and interpretive programs in mills and other historic structures

Through the combined efforts of the above groups, and through a continuing recognition by all parties of as yet unexplored possibilities, the goal of a renaissance of the Lowell area may be achieved, making it a harbinger of comparable efforts in other urban areas of the Commonwealth and the nation.

A Proposed Action Program

By making a recommendation to Governor Sargent urging the creation of a Lowell Heritage State Park, the DNR is committing itself to a new and exciting endeavor. Upon receiving the Governor's approval, and upon agreement being reached between the various parties integral to the success of the Park--the DNR, the City of Lowell, and the Proprietors of the Locks and Canals--the DNR is prepared to immediately begin the task of making the Heritage Park a reality. A significant amount of time and effort has been spent putting together this viable park proposal; what remains is for ideas to be translated into action.

1. Proposed Heritage Park Development Schedule

As previously outlined in this report, the total cost of the Heritage Park has been estimated at \$9,150,000. It is recommended that the Governor submit to the legislature a capital outlay request for 3.9 million dollars for fiscal year 1976, 3.9 million dollars for fiscal year 1977, and 1.2 million dollars for fiscal year 1978. A development schedule and cost itemization is outlined below:

Fiscal Year 1975 (July 1974-June 1975)

In this time period the DNR would commit staff services plus \$150,000 from existing funds, to be used for the following purposes: (1) all agreements between the DNR, the City of Lowell, and the Proprietors of Locks and Canals would be finalized, (2) appraisals and property title examinations of land parcels to be incorporated in the Park would be made, and (3) initiation of the park design process would be undertaken.

appraisals and preliminary design TOTAL \$ 150,000

Fiscal Year 1976 (July 1975-June 1976)

In this time period (1) all Park components would be acquired to ensure that they would be protected in the interim period prior to site development, (2) final design of the Park would be undertaken, and (3) construction activities would begin on a limited basis, with restoration of the four sets of locks undertaken. Capital outlay funds requested for this fiscal year would be directed towards the following:

acquisition	\$2,800,000
design	820,000
construction:	
- Northern Canal Locks	111,000
- Francis Gate Locks	153,000
- Swamp Locks	114,000
- Lower Locks	131,000
	TOTAL \$3,928,000

* includes construction management and administration costs.

Lowell Heritage State Park



**Massachusetts
Department of
Environmental
Management**

Fiscal Year 1977 (July 1976-June 1977)

In this time period (1) the construction of major park sites would occur, and (2) operation of the Park could begin on a limited basis, depending on its stage of completion. Capital outlay funds requested for this fiscal year would be directed towards the following:

<u>construction*</u>	
- Pawtucket Boulevard Park	\$1,076,000
- Northern Canal Walk	125,000
- Francis Gate Park	456,000
- Tremont Yard Park	833,000
- Hex Lot Park	4,134,000
- Heritage Park Administrative/Maintenance Center	225,000
	<u>TOTAL \$3,849,000</u>

Fiscal Year 1978 (July 1977-June 1978)

In this time period construction of the remaining park components would be undertaken. Capital outlay funds requested for this fiscal year would be directed towards the following:

<u>construction*</u>	
- Western Canal	\$ 73,000
- Pawtucket Canal	72,000
- Eastern Canal	82,000
- Northern Canal	89,000
- Concord Riverfront	140,000
- Concord Boat Access	216,000
- Thorndike Mill Visitor Orientation Center	450,000
	<u>TOTAL \$1,222,000</u>

Fiscal Year 1979 (July 1978-June 1979)

In this time period the remainder of park construction would be completed. Full scale operation of the park is envisioned as beginning in the Spring of 1979.

2. Establishment of an On-going Park Advisory Committee

The interrelatedness of the Heritage Park and the City will require that in both the development and operations phase of the Park there be close cooperation among the various parties involved. Towards this end, the DNR recommends that a permanent local committee be established to advise the Department on a continuing basis. This committee's membership should include both public and private interests.

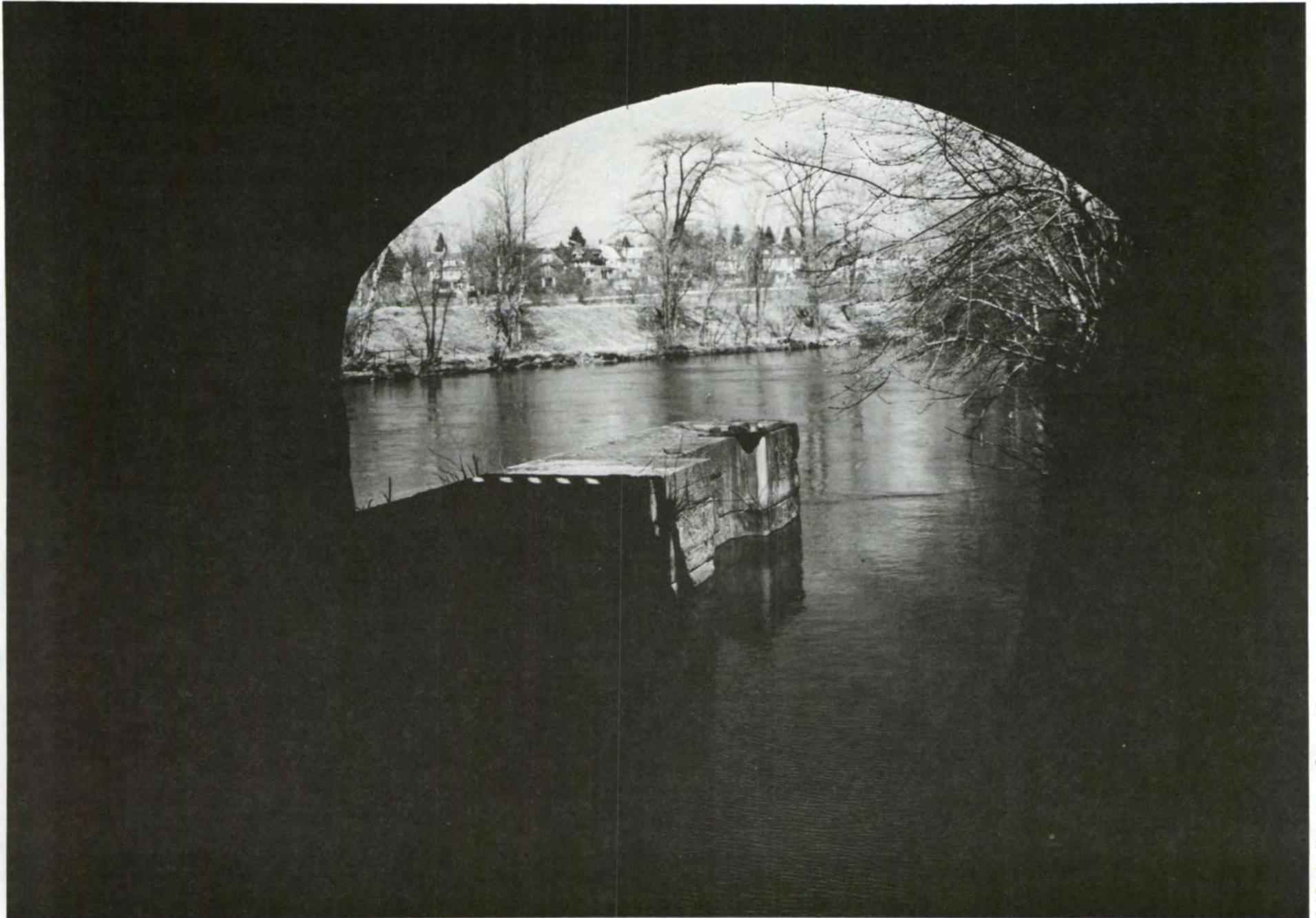
* includes construction management and administration costs.



Appendix Five

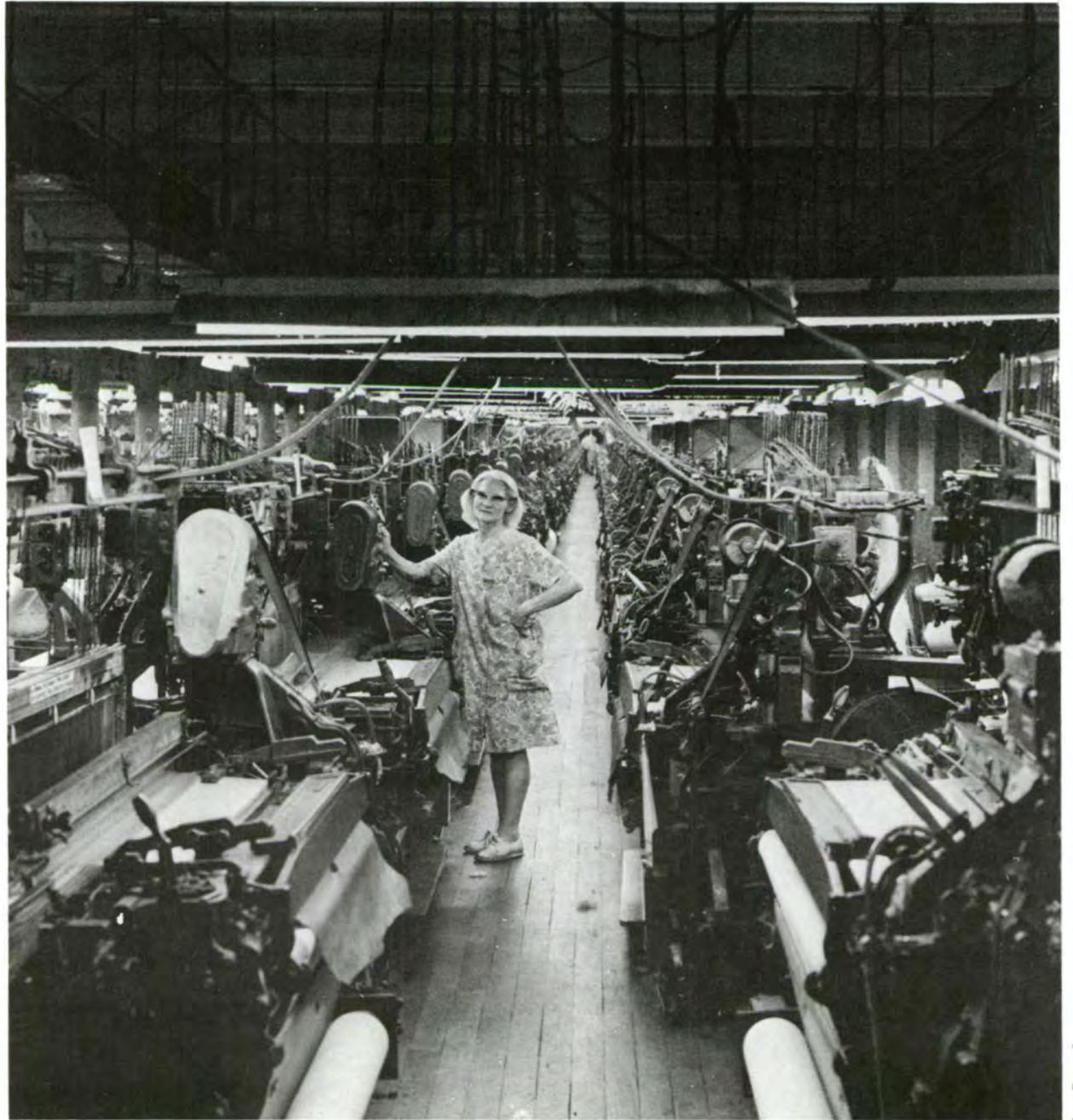
Inventory of Lowell's Resources

The materials which follow are excerpted from the **Phase I Report**, prepared by The Lowell Team and submitted to the Commission on March 29, 1976.

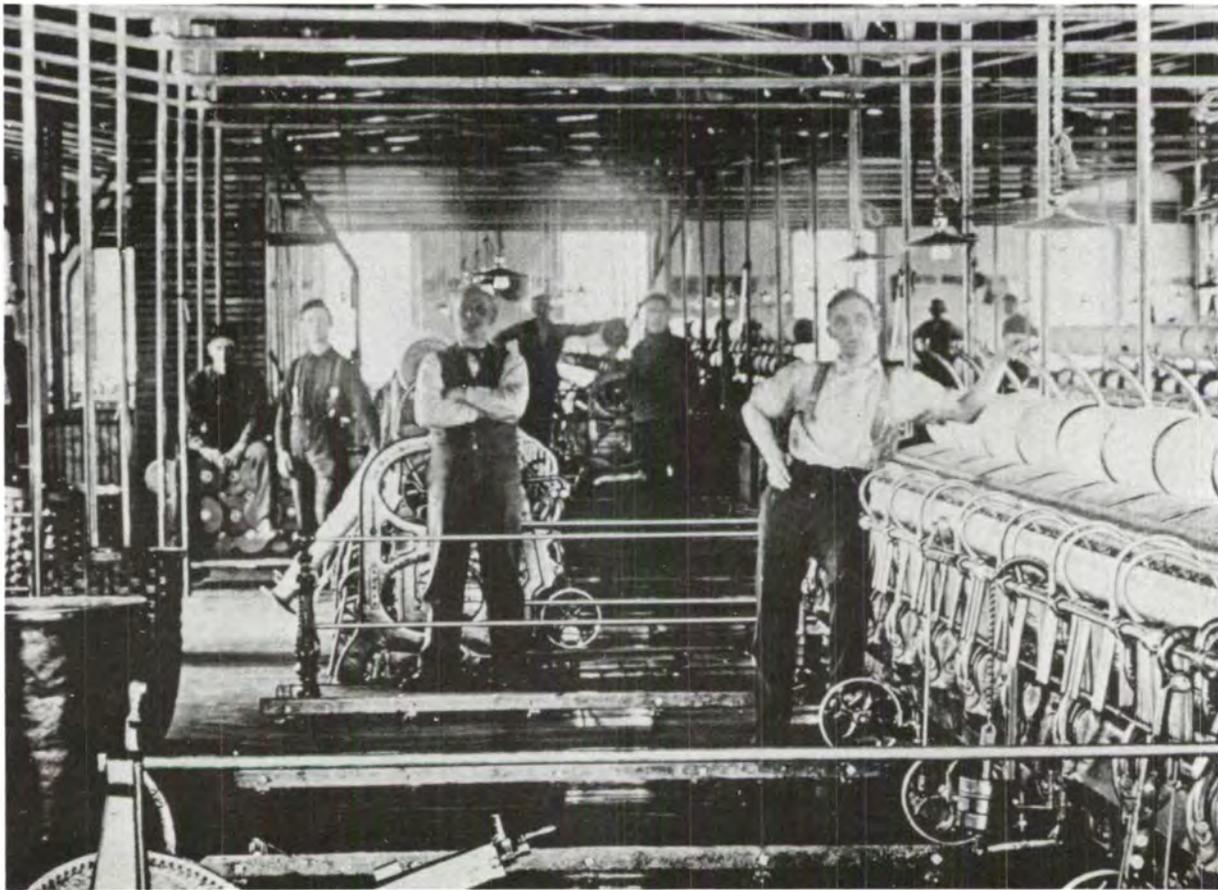




Jack Boucher, Historic American Engineering Record



Steve Dumwell



Randolph Langenbach





FROM E. H. PENHALLOW'S
PRINTING ESTABLISHMENT,

WYMAN'S EXCHANGE, CO.,
MERRIMACK & CENTRAL STS.

TIME TABLE

1868.

OF THE LOWELL MILLS,

Arranged to make the working time 66 hours per week. The STANDARD TIME will be marked at noon, by the BELL of the MERRIMACK MANUFACTURING COMPANY.

Breakfast,.....at..... 6. A. M.
Commence Work,.....“..... 6.30 A. M.
Dinner,..... 12 M.
Commence Work, after Dinner, at..... 12.45 P. M.
Stop Work, except on Saturday Evenings, at.... 6.30 P. M.

BELLS.

Morning Bells.	Dinner Bells.
First Bell,.....4.30 A. M.	Ring Out,.....12.00 M.
Second Bell,.....5.30 A. M.	Ring in,.....12.35 P. M.
Third Bell,.....6.20 A. M.	

Evening Bells.
Ring Out,....6.30 P. M.....Except on Saturday Evenings.

SATURDAY EVENING BELL, 5 P. M.

YARD GATES will be opened at the first stroke of the bells for entering or leaving the Mills.

Speed Gates commence hoisting three minutes before commencing work.





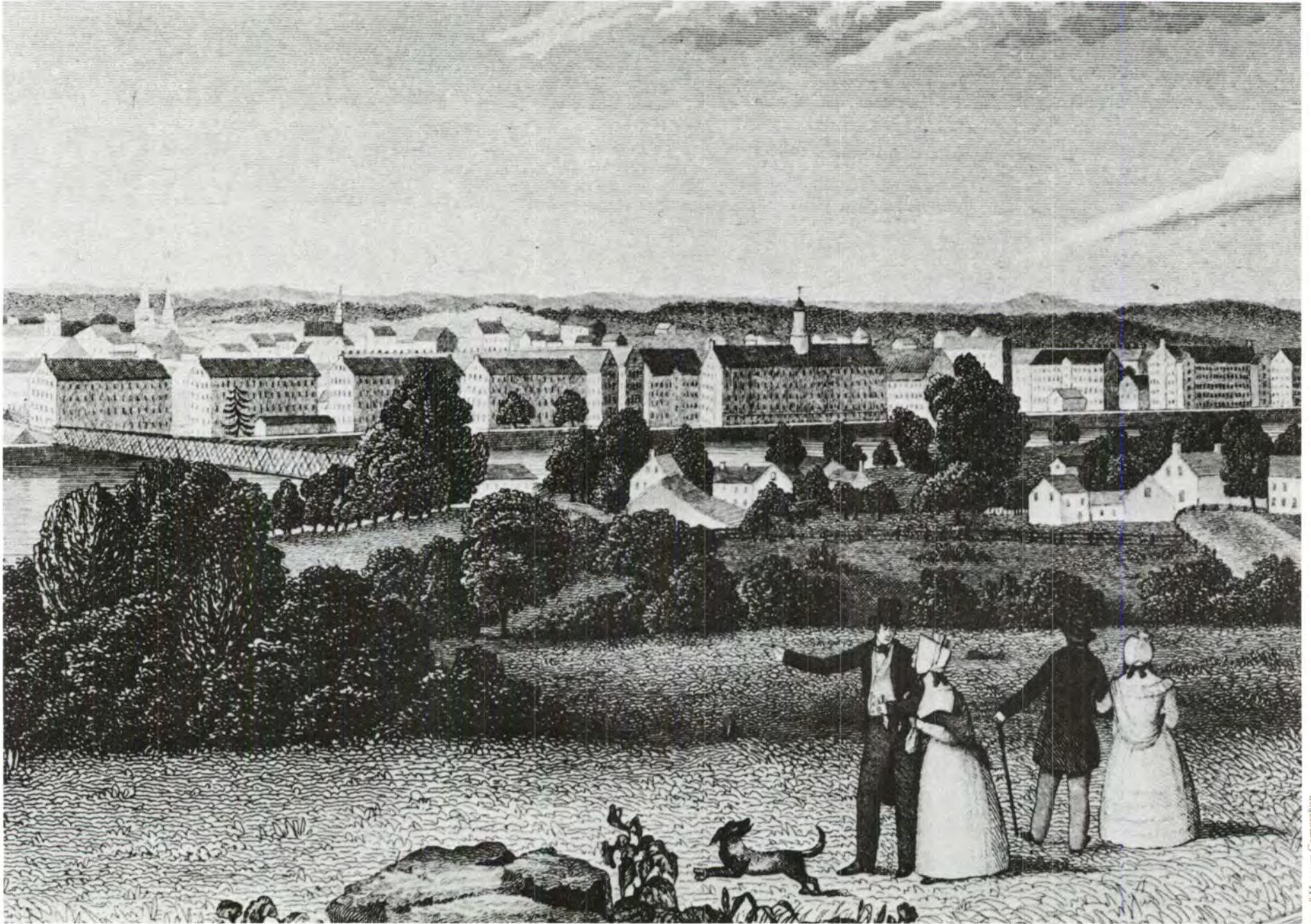
Lowell Museum Corporation



John A. Goodwin

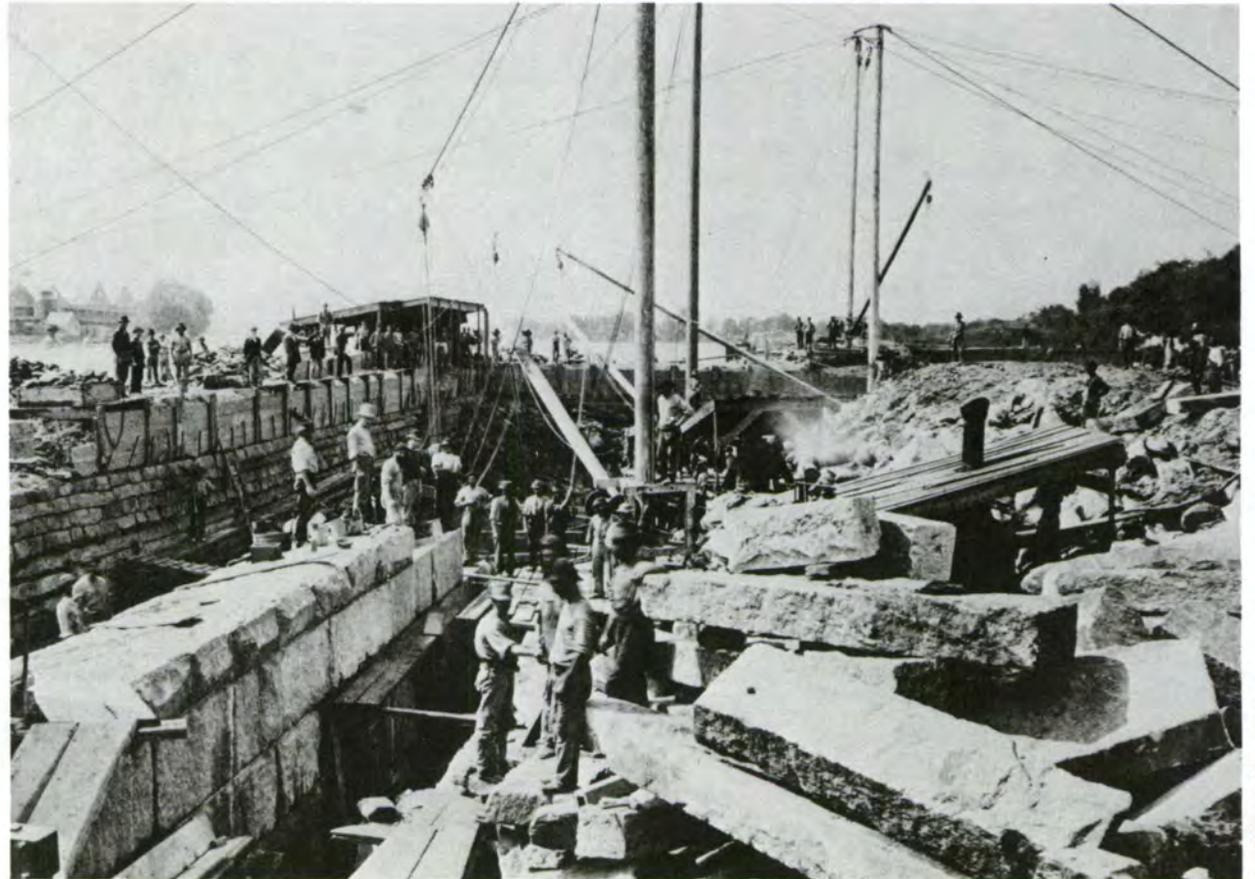


Lowell Museum Corporation

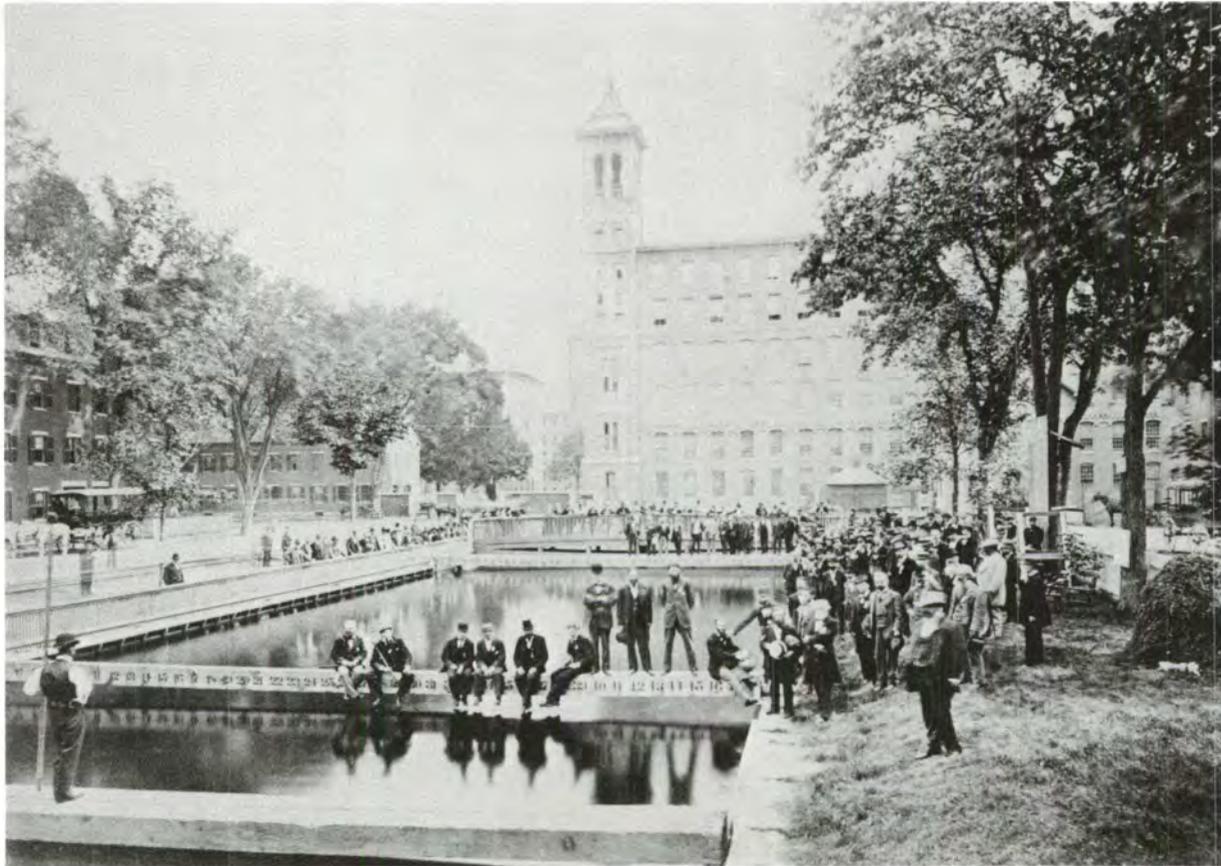




Jack Boucher, Historic American Engineering Record

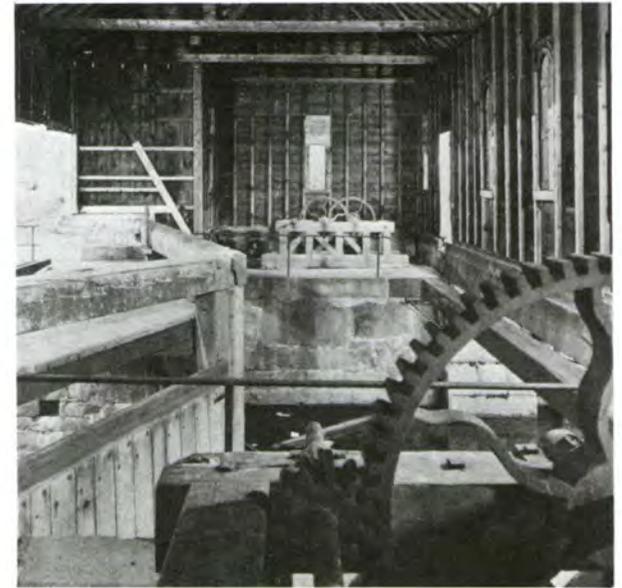
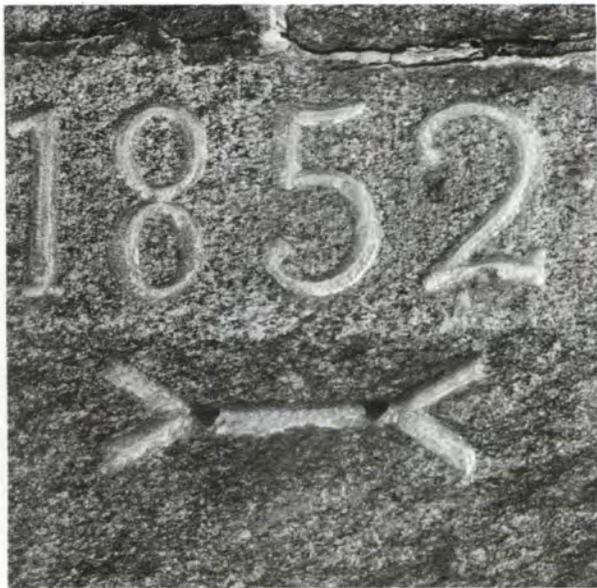


Lowell Museum Corporation

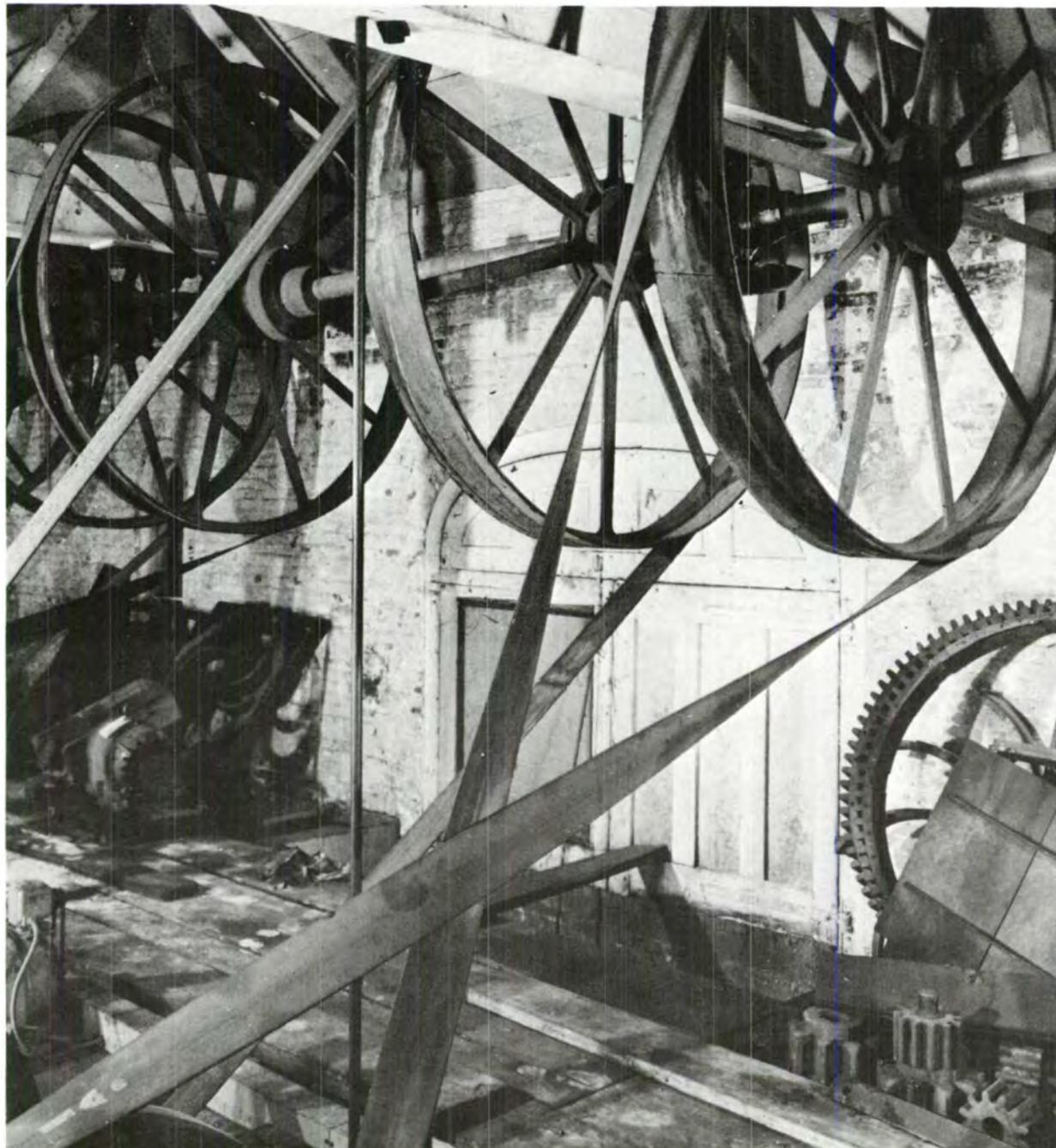
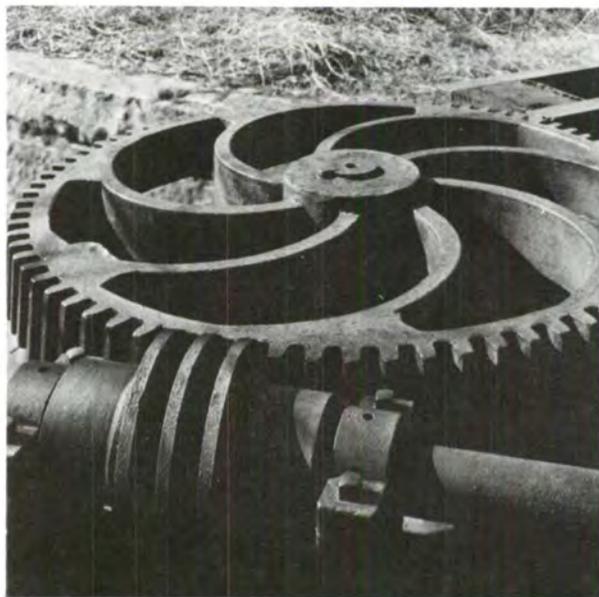


Lowell University





Jack Boucher, Historic American Engineering Record



Jack Boucher, Historic American Engineering Record

PHASE I INVENTORY REPORT

Submitted to the
Lowell Historic Canal District Commission
by The Lowell Team, a joint venture of

- o David A. Crane and Partners/DACP Inc.
- o Gelardin/Bruner/Cott, Inc.
- o Michael Sand + Associates, Inc.

March 29 , 1976

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- o Community Involvement Program

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CREDITS

Lowell Team Project Coordinator: Jonathan S. Lane.
 Technical work was performed by the following personnel.

	David A. Crane & Partners/DACP Inc. Planning and Urban Design	Gelardin/Bruner Cott, Inc. Architecture and Adaptive re-use	Michael Sand & Associates, Inc. Educational/Cultural Programming
Primary Staff	John Shields Dennis Frenchman	Robert Gelardin Simeon Bruner Leland Cott	Michael Sand
Support Staff	Richard Glaser Randolph Jones Janis Mones	Phil Hresko Tim Anderson	Alison Wampler

PURPOSE AND ORGANIZATION OF REPORT

The purpose of this report is to present Phase I inventory results for the Lowell Urban National Cultural Park Study. The Phase I work includes the first two months of an eight month study; and is designed to provide a data base for the development of alternatives in Phase II and the preparation of a plan for submission to Congress in Phase III. The report is divided into three sections:

- o The Summary section presents findings and interpretations from the data collection. In this section, the different functional data collection areas are synthesized in preliminary form.
- o The Report on Phase I Activities presents data gathered on physical, economic, and educational/cultural resources.
- o Appendix A presents Figures and Tables which are important; but supplementary to the preceding section.

The following section summarizes the major observations of the work to date.

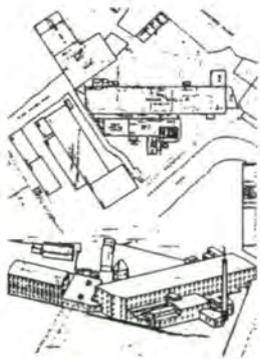
MAJOR OBSERVATIONS TO DATE

HISTORIC SIGNIFICANCE

Lowell's Development Stages

Lowell's history can usefully be described in four periods, each with characteristic physical, social and economic features. These are important to the interpretation of the major changes which have occurred in the City's evolution:

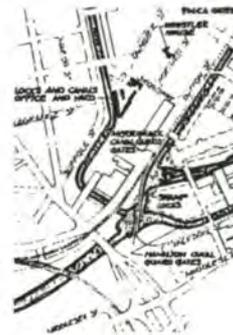
- o The pre-industrial period, up to 1822-- this was characterized by Indian settlement, rural settlement, light industry, and crossing of trade routes along the Merrimack, and the building of the Pawtucket Canal.
- o The period of industrial entrepreneurialism and social experimentation, from 1822 to 1850--this was characterized by development of the complete canal system, construction of the mill infrastructure with related housing and services, provision of a specialized social environment for the mill girls, major technological innovation, and establishment of the corporation as a new device for the aggregation and exploitation of capital. This period was marked by several major sub-phases, including: the early 1820's, when only one corporation owned and constructed the first industrial area, the formation of the Locks & Canals organization as a holding and development company, and the involvement of other corporations in construction of the various mills, boarding houses, and infrastructure.



Sterling Mills on the Wamesit Canal (c1850)

Architectural and Environmental Significance

The significance of Lowell for the nation is the rich opportunities for understanding the growth and development of manufacturing cities by studying the dynamic nature of both the built environment and the social fabric.



Swamp Locks Area
(Historic American Engineering Record)

The physical elements in Lowell do not typically illustrate the built environment of a given historic period. The canal system is, perhaps, the one physical element which retains its near-original configuration, although its use has changed and been rendered less essential. The mills and mill complexes show the effects of decades of modification associated with the initiation, growth, and the essential demise of the textile industries. The social composition of Lowellians, life styles, and opportunities for employment have directly evolved in response to industrial growth and decline. Due to this change, it is unreasonable to conceive of Lowell or any other city of its period as a "cameo" set-piece which completely preserves things as they were. In a city of the American Industrial Revolution, which is subject to economic transition and evolution, historic and environmental significance cannot be judged solely

- o A period of worker immigration, and environmental degradation, from 1850 to 1920-- this was characterized by major immigrant waves of workers, the demise and disappearance of the mill girls and "The Lowell System", the collapse of benevolent corporate paternalism, and the loss of planned urban amenities in the mill complexes which gave way to denser manufacturing construction and tenement developments. This was a key period for development of the ethnic communities which are still important in Lowell today.
- o A period of industrial decline and a search for new directions, from 1920 to the present--characterized by the collapse of the New England textile industries, major shifts in the economic base of Lowell, declining population and, most recently, by an awakened concern for the industrial heritage of the city and moves towards establishing a service oriented economic base which recognizes the historic values of the older buildings and artifacts of the industrial era.

by architectural completeness. What is more meaningful and significant in terms of the growth and development of manufacturing cities in this country is to find opportunities to interpret the significance and directions of this change to people and the built environment by using the ample physical and social resources which exist in Lowell today.

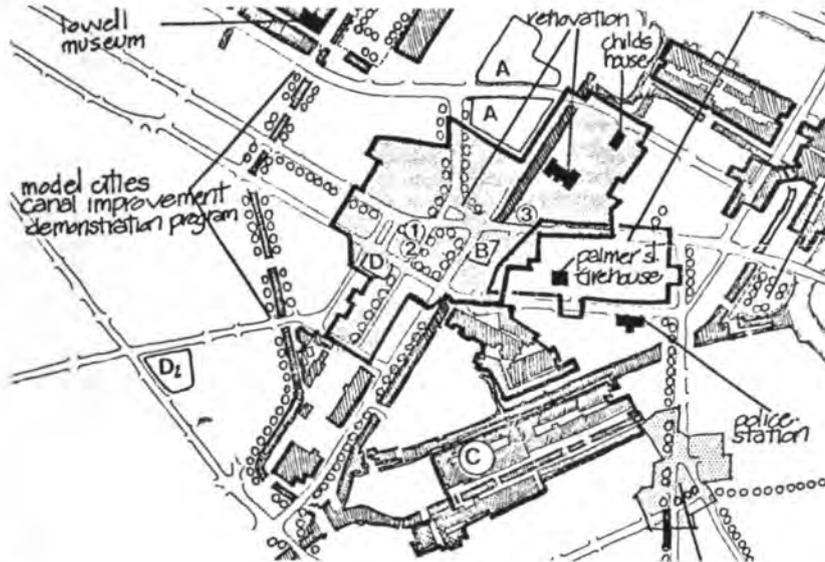
PHYSICAL ENVIRONMENT

Existing Resources

Although there has been considerable demolition of early mills and related buildings there are ample physical resources and artifacts in Lowell to portray the character of each of the city's major phases of development.

The canals are the most continuous and most well-preserved element which date back to the utopian industrialization period. However, there have been serious visual encroachments on the edges, and access to the banks is uneven and often unavailable. However, the canal system alone is not sufficient to tell or interpret the Lowell story.

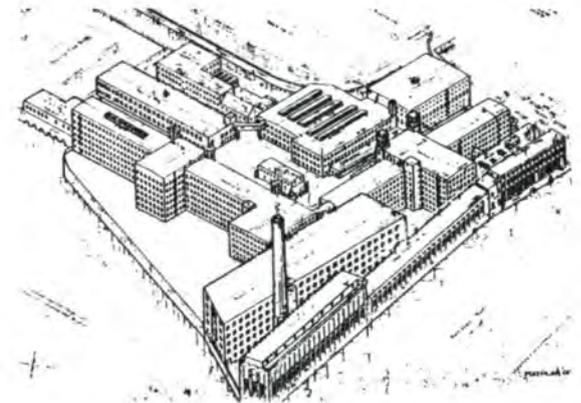
Excerpt from Inventory of Park Related Plans and Proposals



Constraints in Mill Re-Use

It must be related to the mills, housing, and other developments which comprised the urban environment during each major period of Lowell's development. Of the remaining building-types (mills, institutions, housing, commercial buildings), examples of each are available and in reasonably good condition. Many of these buildings, particularly housing of various types, are scattered around the city and access is inconvenient for the casual visitor. Although some boarding houses remain, there is no place in the city where the original scale and use relationships between the mills and the boarding houses is readily apparent.

The physical dimensions and architectural characteristics of individual mill buildings are well suited to a variety of uses. However, the location and character of the mill complexes will probably be the most important factor in determining re-use potential.



Massachusetts Mills; typical insurance company drawings collected as part of Architectural Re-use Study

The specific architectural and dimensional characteristics of the various mills do not vary greatly in terms of building size, floor to floor height, and other characteristics which might be important in determining feasible and practical re-uses. However, very major differences exist in the extent, size and suitability of the building complexes (e.g., the relationship of buildings to one another), and in terms of availability and orientation to visual amenities, neighborhood areas, services, and other factors which are important to re-use.

Linkage to other historic sites and areas in proximity to the canal system and the rivers are important factors in being able to create an overall ambience conducive to using mills for interpretive use or adaptive rehabilitation by private developers. Additionally, appropriate uses will have to be found in order to absorb the vast floor areas of the larger mills. These large mills may require packaging of institutional, industrial, commercial and/or housing re-use combinations. The smaller mills such as the Pilling and Stackpole, which are in locations with good views of the rivers, canals, and open space, may be more appropriate as housing.

Problems and Opportunities of Dispersion

Many historic houses and other structures are located across the Lowell area, beyond convenient walking distance of one another.

This scattering of historic resources provides an opportunity for historic preservation which can have an impact on many of Lowell's neighborhoods. Many of the housing areas provide opportunities to focus on issues of life style of the workers and management; and to focus on ethnic development. However, this dispersion will require special provisions for access; and raises questions regarding the potential length of stay and attention span of tourists.

Excerpt from Inventory of Historic Buildings, Sites, Facilities

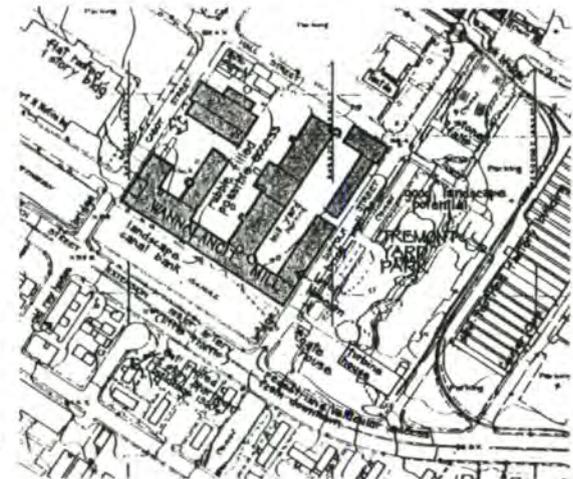


Major Node Opportunities

It is not yet decided what alternatives will be selected for the Congressional presentation. However, if a centralized approach is selected, with only one or two major interpretive nodes, only a few of the mills are sufficiently significant and well related to canals, the river, or the other historic areas to become a central focus for the Urban National Cultural Park.

These sites include:

- o the Wannalancit/Tremont Yard area -- including portions of the Northern and Western Canals and the Lawrence Mill complex.



Excerpt from Re-use Study, Area II Site and Neighborhood

- o the Boott and Massachusetts Mill area -- including the Kirk and Bridge Street boarding houses.
- o the Jackson/Hamilton/Appleton Mill areas -- because of proximity to the Lower Pawtucket Canal and the potential for strong relationship to the downtown business and historic areas.
- o the Wamesit Canal area -- because of proximity to open space and the Concord River banks.

A major question for any such interpretive development for mill complexes involves the extent of "park" use of the vast areas of building, and feasible mechanisms for protecting, enhancing, and preserving the exterior architecture and mill yards.

Many other small and large sites are highly suitable for preservation, interpretation, and re-use; but are probably not well suited to serve as a central locus and point of orientation for the preservation effort.

ECONOMIC POTENTIALS

Regional Market Base

Phase I work indicates modest rates of future private development in Lowell, if present trends are continued. Projected demand for net new space for the City of Lowell, derived from trends-extended employment projections, is estimated to be between 54 and 82 thousand square feet for all commercial uses. This is contrasted to over 1 million square feet of vacant mill space alone.

However, regional data suggest that there is an unrealized potential for substantial improvement of retail shopping facilities in the downtown and perhaps a modest demand for market rate housing as well.

It is possible that markets for retail development and perhaps other sectors could be strongly influenced by coordinated, aggressive, highly visible programs of private and public improvements. Attraction of a significant number of tourists to Lowell could be a major positive element in this strategy.

Mill Re-Use Potentials

The above projections, even if modified positively by major public investment, show a modest increase in employment for Lowell. This modest employment forecast, combined with the large inventory of mill space, leads to the interpretation that absorption of mill space by all forms of employment will be very slow. Barring substantial conversion to housing, there will likely be a considerable inventory of vacant mill space for years to come. The potential future value (economic and historic)

of this mill space warrants development of a program of mechanisms and finances for conservation of the mills and associated resources for future use.

EDUCATIONAL/CULTURAL

Ethnic Resources

One of Lowell's most prominent and pervasive characteristics is its multi-ethnic population.

This central fact of Lowell is reflected in its multi-ethnic organizations such as AMNO, in its multiplicity of neighborhoods and ethnic groups, in the variety of languages one hears, in the festivals both small and large such as the Regatta and Oktoberfest. Lowell's ethnicity is a living reminder of the city's history and at the same time a challenge to its educational system.

Lowell's multi-ethnicity has long existed, but now it is being recognized not merely as a fact that makes life difficult, but as a value that enriches the life of Lowell.

Planning and development of the Urban National Park must constantly be in touch with this key and fundamental organizing principal in the city's life and character. To ignore this principle would be to totally jeopardize the meaningfulness of the Park, to make it a burden to Lowell rather than a release.

Program Potentials

Lowell has a wide variety of cultural and educational institutions and programs. This means that there is a richness of potential in Lowell. There is a sense of newness at the same time. People are starting to do things: a new museum, the first major international nuclear conference, an invigorated university. The various programs have not congealed into a rigid pattern. Thus, the Park holds great promise for the creation of an innovative and creative educational and cultural program design.

Nearly all those interviewed in the educational/cultural survey were aware of the Park idea and eager to be a part of it. The picture that emerges consists of:

- o a variety of viable educational and cultural programs and institutions
- o an awareness of the Park concept and a willingness to participate
- o a condition of potential in which the Park design can creatively interact with, and facilitate the projects that people already envision.

The educational and cultural inventory provides a data core for the entire Park project which will be updated in subsequent phases.

GOALS AND OBJECTIVES

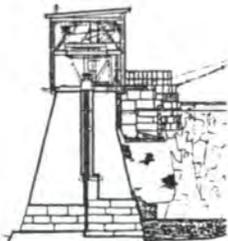
The preliminary reading at the conclusion of Phase I confirms that aspirations of Lowell citizens for the project are relatively evenly balanced among environmental, economic and educational/cultural goals. Within these broad goals the most important of many objectives appear to be:

- o restoration of the canal system
- o preservation of historic buildings
- o development of a tourist industry
- o economic revitalization of downtown and job creation
- o development of new educational and cultural activities and programs
- o recognition of and interpretation of the role that ethnic groups and ethnicity has played and will play in Lowell's growth

IMPLEMENTATION

National Park Service

The designation of a national park in Lowell is an element of primary importance to achieve the goals envisioned for the Lowell project because it would lend a positive image to the city and provide a magnet for tourists. However, the resources of the Park Service are highly strained. For this reason, it may be unrealistic to expect the Park Service to support the urban cultural park unless it can be shown that (1) Lowell's historic resources are significant as part of the National Park System, and; (2) that a federal contribution will encourage and reinforce substantial local, state, and private efforts; and (3) that the project will not overload the Park Service's capacity to manage and administer (where budgets are already tight).



Northern Canal Waste Gates (NAER)

Preservation Strategy

An overall preservation strategy for the city will require the integrated application of a number of mechanisms. No single approach can be expected to preserve enough aspects of the city to give an appreciation of its history. The effort should preserve not only individual buildings, but also certain inter-relationships which exist between those buildings, the city's overall structure and its regional context. This implies that preservation mechanisms which operate at a variety of scales will be necessary within the context of the Urban Cultural Park.

Goals and Objectives rating form used in Phase I task force meetings



Here's your chance to tell us what YOU think about some of the goals and objectives that have been suggested for the Lowell Urban National Cultural Park--

When you are done with this side, please turn the sheet over and... write down any goals or objectives you feel we have missed or any comments you may have, and... answer the questions.



the Lowell Team

Goals ... Three broad goals are listed below. Assign 100 points among them to represent the importance you attach to each goal. The most important goal should receive the most points.

1 Environmental Quality

(to improve the physical conditions, accessibility, and usability of Lowell's historic, natural, and man-made resources)

100%

2 Economic Development

(to strengthen and diversify Lowell's economic base)

100%

3 Educational/Cultural Growth

(to interact through educational and cultural activities, the organizations, citizens, parks, and groups to Lowell's heritage)

100%

TOTAL POINTS 300

Objectives ... Divide the points you allocated to each goal among the objectives for that goal which are listed below. The most important objectives for each goal should receive the most points.

- a restore the canal system
- b improve the riverbanks
- c preserve and protect historic buildings and spaces
- d improve neighborhood quality
- e improve downtown environmental quality

- a revitalize the downtown business climate
- b create tourist attractions and a tourist industry
- c expand Lowell's industrial base
- d increase population and housing
- e create local jobs

- a involve local citizens in planning and implementation
- b interpret the significance of Lowell to people
- c promote research into Lowell's history
- d develop educational and cultural activities and programs
- e create new institutions for education and culture

INVENTORY PROCEDURE

The purpose of the inventory phase was to provide a base of information from which realistic alternatives for the project can be generated. Information was collected in three broad areas:

1. physical environment
2. economic conditions
3. educational/cultural resources

Inventory activities for each of these areas were aimed at determining:

- o what resources exist and how they might relate to the urban national cultural park
- o the scope and status of related plans and proposals
- o actors, programs, or other mechanisms which could potentially play a role in the urban park program

As a basis for the inventory, the following collections of data were reviewed and pertinent documents were annotated or copied:

1. Lowell University Library - first person accounts, records, drawings, maps, photographs
2. Proprietors of Locks and Canals - records, measured drawings
3. Lowell City Library - city maps, measured drawings, demographic data

4. Lowell Historical Society - early maps, other data
5. Factory Mutual Insurance Company (Norwood, Mass.) - measured drawings of mills, construction data, construction dates
6. Factory Insurance Association (Hartford) - measured drawings, building data
7. U.S. Census - retail trade, population and housing, and wholesale trade statistics
8. Massachusetts Department of Employment Security - employment statistics
9. Massachusetts Cultural and Educational Collaborative - statewide cultural and educational programs
10. Human Services Corporation - citywide cultural and educational programs
11. Lowell Regional Transportation Authority - transportation data
12. City Development Authority - historic buildings survey; mill ownership, occupancy rates, tax status, program status
13. Northern Middlesex Area Commission - demographic and hydrologic statistics, ongoing program status
14. National Park Service - historical park precedents
15. Baker Library, Harvard Business School - largest collection on Lowell's business history.

The nucleus of an in-house library has been assembled consisting of nearly 200 books, reports, and other documents potentially relevant to the urban cultural park. Essential information about each item in the library is being recorded on a standard bibliographic form that was developed for the project. Library items are being catalogued under the following subject headings which indicate the scope of information currently being collected:

- o Comparable Urban Projects
- o Historic Preservation Tactics

- o Land Use Guidance Systems
- o Lowell Historical Data
- o Lowell Economic Data
- o Lowell Educational/Cultural Programs
- o Lowell Transportation Planning Study Reports
- o National Park Service - Planning Documents
- o National Park Service - General Data
- o Northern Middlesex Area - General Data
- o U.N.C.P. - Prior Studies
- o U.N.C.P. - Related Documents

To supplement written data, personal interviews were conducted with officials from pertinent federal, state, and local agencies; private developers, mill owners; local businessmen; institutional representatives; and others. Lastly, many field visits and surveys of buildings, sites, and areas were carried out to gain a first hand knowledge of various aspects of Lowell's physical environment.

Inventory activities will not stop with this report. As the project progresses, additional inventory of specific sites, programs, or historical resources will be required to support the development of specific proposals.

INVENTORY OF PHYSICAL RESOURCES

THE REGION

The area encompassed by Manchester, N.H.; Newburyport, Mass.; Concord, Mass., and Boston was considered as the regional context for the Lowell Urban National Cultural Park study because Lowell is historically and geographically inter-related with the cities and towns in that area. Inventory activities focused on:

1. Identifying historical and recreational resources which are physically or thematically connected to Lowell; and
2. Reviewing regional plans and proposals which could impact the above resources or otherwise relate to the development of the Lowell project.

Historical and Recreational Resources

The growth of Lowell depended on intimate connections with its region. The Pawtucket Canal was constructed by merchants from Newburyport. The original development of the city and its mills was financed by capitalists from Boston. Labor was recruited from the surrounding countryside. Power was provided by the Merrimack River. The port of Boston provided access to markets for finished products and received raw materials needed for production. The siting of Lowell at the Pawtucket Falls near the closest point between the Merrimack Valley and Boston insured that the city would not only become an industrial center, but that it would occupy a central position in the economy of the region. Virtually all the raw

materials and finished goods processed in the Valley passed through Lowell on their way to and from Boston either by rail or via the Middlesex Canal. Today, elements of these historical connections still exist. While it may not be possible or appropriate to include all these elements as parts of a National Cultural Park, their significance to Lowell must be made apparent. In addition, there is a potential for a vastly improved regional recreation network which includes sites of historic importance. The following historical and recreational resources are indicated in Figure 1 and were identified as being potentially significant to the Lowell project:

1. Merrimack River -- An early transportation route and source of industrial power for Lowell and other textile producing cities and a major linear open space which joins a number of state and local parks;
2. Concord River -- A power source for some of the earliest mills in the region; the primary water source for the Middlesex Canal; a major linear open space which passes through Minuteman National Historical Park;
3. Other Major Recreation Areas -- including Dracut State Forest, Manning State Park, and Carlisle State Forest.
4. Middlesex Canal -- A water link between Lowell and Boston which operated from 1793-1853; portions still exist in Lowell and Billerica which might be redeveloped for recreational uses and historic values.
5. Railroad Rights of Way -- The Boston and Lowell Railroad (1835) was the major transportation line carrying manufactured goods and raw materials between Lowell and Boston; B & M passengers still travel this route. The Nashua and Lowell Railroad (1839) extended rail service into New Hampshire; freight service is still in operation today. The Billerica and Bedford Railroad ran from Lowell to Concord and is proposed to be abandoned.
6. Sister Mill Cities in the Merrimack Valley-- Including Manchester, Nashua, Lawrence, Haverhill and North Andover.

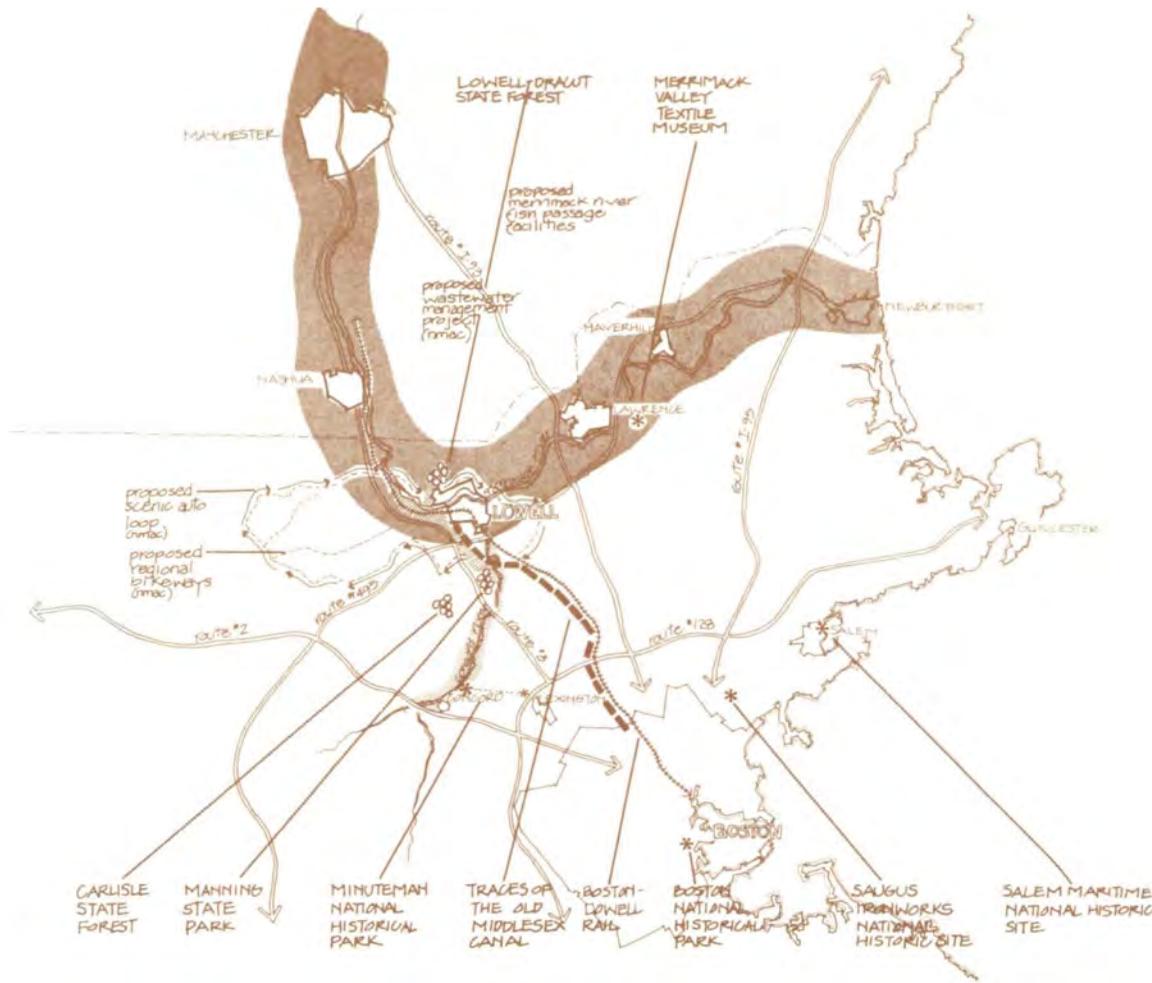
7. Other cities with potentially interrelated historical themes -- Include Boston (political revolution, financial power, world trade); Salem (maritime activities); Newburyport (maritime activities); Gloucester (whaling); Waltham (early textile manufacturing).
8. National Historical Parks and Sites -- Include Minuteman National Historical Park (Concord); Boston National Historical Park; Salem Maritime National Historical Site; and Saugus Iron Works National Historical Site.

Plans and Proposals

The following plans and proposals could impact the resources outlined above or in other ways relate to the development of the Lowell project:

1. Merrimack River Fish Passage Facilities (Technical Committee for Fisheries Management) -- Construction of fish ladders and other minor improvements at the Pawtucket Dam (Lowell) and the Essex Dam (Lawrence).
2. Regional Wastewater Management Program (Northern Middlesex Area Commission) -- Construction of a sewage treatment plant and interceptors serving Dracut and Tewksbury; proposed Chelmsford outfall into the Merrimack River could cause some pollution problems in the Lowell vicinity.
3. Comprehensive Transportation Plan (Northern Middlesex Area Commission) -- Currently underway and covering the northern Middlesex area with a focus on Lowell. The plan will make recommendations for transit improvements including commuter rail and bus service, and recommendations for roadway improvements aimed at automobile use. It will also review a proposed downtown monorail.
4. Scenic Auto Routes (Northern Middlesex Area Commission) -- Designation of a scenic loop through the Northern Middlesex area including Lowell; calls for acquisition of scenic easements where necessary, sign control, rest area improvements, and landscaping.

REGIONAL CONTEXT



- KEY:**
- Merrimack River Valley
 - Concord River Valley
 - Proposed Lowell Regional Recreational Corridor
 - Existing Historical Interpretive Programs and Exhibits
 - State Parks and Forests

Distance	0	30	7	100	miles
Time	0	1	7	100	minutes

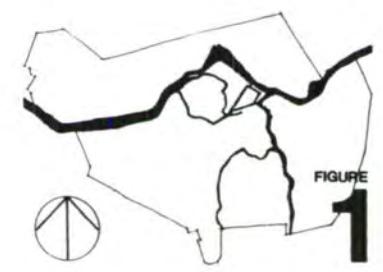


FIGURE 1

5. Regional Bike System (Northern Middlesex Area Commission) -- Development of bikeways parallel to scenic roads in the Northern Middlesex area; regional system to mesh with proposed bikeway system for the Lowell Heritage State Park.
6. Proposed Re-Use of Portions of Old Middlesex Canal (Middlesex Canal Association, Inc.) -- Preservation of as much as possible of the extant remains of the canal, and restoration of portions for historical and recreational areas for the general public.
7. Proposed Lowell Regional Recreation Corridor (Northern Middlesex Area Commission) -- Public acquisition of land to create an open space and recreation corridor by connecting existing recreational resources. To extend from Lowell-Dracut State Forest to Manning State Park following the former route of the Middlesex Canal.
8. Further Development of Minuteman National Park (National Park Service) -- Development of a new visitors center in Lexington, acquisition of additional lands along Route 2A and restoration activities.
9. Further Development of Boston National Historical Park -- To include seven historic sites related to the American Revolution and the early development of the United States Navy; creation of a tourist center and interpretive facilities. Most specifically, the Charlestown Navy Yard site will have thematic links to the Lowell project, e.g., it focuses on the construction of ships for the War of 1812 and the beginnings of an enterprising and industrial nation.

Almost all of the historic structures, facilities, and spaces identified were visited to judge their physical condition and their relationship to other historical resources and to their general surroundings. Photographs were taken and a collection of historical photographs and etchings is being assembled. A number of structures, facilities, and spaces were singled out for in depth studies to determine their architectural suitability for re-use. These studies are covered in a later section of the report.

Figure 2 indicates the location of historic structures in Lowell; and represents a preliminary judgment regarding historical or architectural significance. Selected characteristics of the above historic structures are summarized in Table 1.

It is clear from the inventory that there are a large number of fine old buildings in Lowell, many of historical significance, and most in reasonably good repair. It is important to understand that if taken individually, only a relatively modest number of buildings could be considered nationally significant. Unlike most other historic places that are accepted as being nationally significant, almost no buildings in Lowell are associated with famous people or patriotic events, and few could be considered as the epitome of any architectural style. However, in Lowell's case the ensemble of buildings in relation to social, cultural, and economic forces appears more significant than any individual structure. Lowell's significance lies in the fact that its developers brought together on a vacant site some of the most advanced ideas of the day in the areas of industrial and transportation technology, production control, capital formation and social organization. As a result, they produced the first industrial city: geared to production and unencumbered either by an existing urban fabric or an entrenched life style. At each stage of its further development Lowell's social structure and physical environment epitomized the state of the industrial revolution, for better or worse. It is significant that buildings, structures and spaces typical of each stage of Lowell's development (and, therefore, the industrial revolution in general) have survived.

Unfortunately, many of these historic elements are now either camouflaged or scattered across the cityscape in such a way that it is difficult to understand the interrelationships which once existed

THE CITY

Structures, Facilities, and Spaces

Historic

These were inventoried by reviewing primary sources of historical data such as early maps and photographs and secondary sources such as books and historical data on individual structures and districts compiled by the Lowell City Development Agency.



HISTORIC STRUCTURES

- KEY:**
- Preservation Category A: Buildings that should be considered for preservation:
 - Listed under "worthy of preservation" or other categories in the Lowell Historic Preservation Plan
 - Identified by others
 - Preservation Category B: Other buildings of some historic significance:
 - Structures listed in the Lowell Historic Preservation Plan that are not included in category A above
 - Early Park
 - Power Canal System
 - Course of old Middlesex Canal
 - Route of Early Ferris

NOTE:
Key numbers refer to Table 1, next page

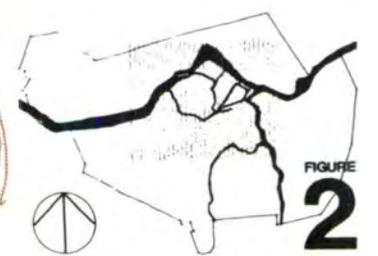


FIGURE
2

between them at certain stages of the city's history. A major challenge for the Urban National Cultural Park is to develop ways to once again make these relationships apparent and to show how they evolved through time.

Urban Structure

The evolution of Lowell's urban structure illustrates how the demands of industrial production can shape the development of a city. Since most cities in this country have an industrial base, Lowell's story is especially significant. Maps, photographs, and drawings of Lowell from various periods were reviewed during Phase I and several key elements of the city's urban structure were singled out for study:

- o the canal system (power distribution and generation)
- o mills and related buildings (industrial production)
- o rail lines and major roads (communication)
- o the downtown core (commercial activities and institutions)
- o boarding houses (under corporate control)
- o other development (not under direct corporate control)

Mapping of these structural elements (See Figure 3) indicates the broad development of the city, at four major stages:

- o 1822 -- The land as it was before major development by the corporations, but after construction of the Pawtucket Canal, a bypass to the falls.
- o 1850 -- Completion of the canal system and major mill infrastructure. By this time the emerging mill complexes were in place, predominantly lining the river and utilizing the canals for power generation. Within the mill sites, however, buildings were relatively generously spaced; and landscaped yards were still evident. This period was characterized by relatively compact settlement; with major boarding house complexes developed in close proximity to the mills. At this point in time, the

Table 1: HISTORIC BUILDINGS, SITES, AND FACILITIES (Page 1 of 3)

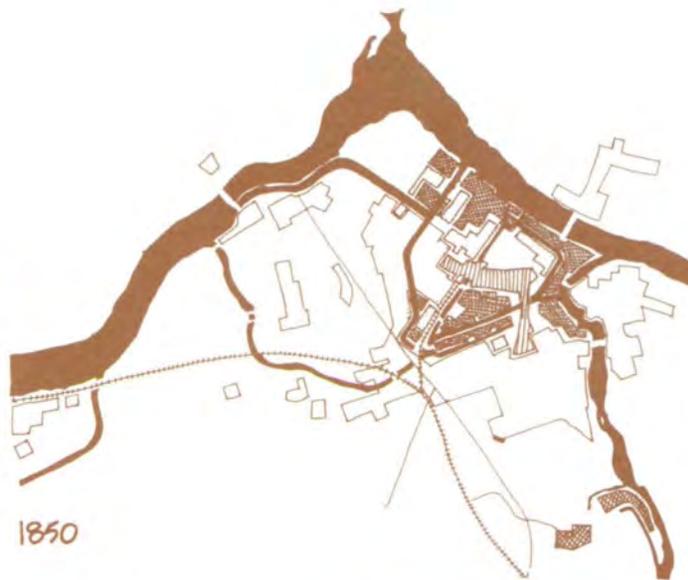
PRESERVATION CATEGORY KEY				
o BUILDINGS THAT SHOULD BE CONSIDERED FOR PRESERVATION:				
A		LISTED UNDER "WORTHY OF PRESERVATION" IN THE LOWELL HISTORIC PRESERVATION PLAN		
A*		ADDITIONAL STRUCTURES LISTED UNDER OTHER HEADINGS IN THE LOWELL HISTORIC PRESERVATION PLAN		
A**		IDENTIFIED BY OTHERS		
o OTHER BUILDINGS OF SOME HISTORICAL SIGNIFICANCE:				
B		STRUCTURES LISTED IN THE LOWELL HISTORIC PRESERVATION PLAN THAT ARE NOT INCLUDED IN CATEGORY "A" ABOVE		
NUMBER	CATEGORY	NAME	DATE	LOCATION
1	A	AGENT'S HOUSE, LAWRENCE MANUFACTURING COMPANY	1830's	HALL STREET
2	A	GOVERNOR ALLEN HOUSE	1850's	57 WOLFE STREET
3	A	RESIDENCE	1850	256 ANDOVER STREET
4	A	RESIDENCE	1850	578 ANDOVER STREET
5	A	AYRE HOUSE	1870's	PAWTUCKET STREET
8	A	BOOTT HILL YARD	1835, 1860's	JOHN STREET AT ARMORY STREET
9	A	BOMERS HOUSE	1671	WOOD STREET
10	A	BURBANK HOUSE	1820	1547 MIDDLESEX STREET
11	A	BRANCH STREET FIREHOUSE	1877	BRANCH STREET
12	A	RESIDENCE	1820	1 CENTER STREET
13	A	RESIDENCE	1830	11 CENTER STREET
14	A	DOUBLE HOUSE	1830	75-77CHAPL STREET
15	A	LINUS CHILD HOUSE	1840	63-69 EIRE STREET
16	A	LOWELL CITY HALL	1893	375 HERRINACK STREET
17	A	THOMAS CLARKE HOUSE	1750's	61 CLARK ROAD
18	A	RESIDENCE	1750's	107 CLARK ROAD
19	A	GLASSWORKERS LONG BLOCK, HOUSING	1802	139-143 BALDWIN STREET
20	A	GEORGE MCINTIRE HOUSE	1802	407 PRINCETON BOULEVARD
21	A	HADLEY HOUSE	1822	1708 MIDDLESEX STREET
22	A	HOLY TRINITY GREEK ORTHODOX CHURCH	1906	JEFFERSON STREET
23	A	HUNT HOMESTEAD	1700's	241 CLARK ROAD
24	A	CHURCH OF THE IMMACULATE CONCEPTION	1868	140 EAST HERRINACK STREET
25	A	INSTITUTION FOR SAVINGS	1840's	SHATTUCK STREET
26	A	JAIL (A.K.A.) KEITH ACADEMY	1856	THORNDIKE STREET
27	A	LAWRENCE-BUTLER HOUSE	1843	333 ANDOVER STREET
28	A	MAJOR'S CAFE/PAINTER'S HALL	1830's	32-34 JACKSON STREET
29	A	THE MANSIE	1845	282 ANDOVER STREET
30	A	MARKET HOUSE AKA POLICE STATION	1837	MARFET STREET
31	A	RESIDENCE	1900	124 MANSUR STREET
32	A	MEMORIAL HALL/CITY LIBRARY	1893	401 HERRINACK STREET
33	A	MIDDLESEX COUNTY COURT HOUSE	1850, 1894	CORNISH STREET
34	A	MOORE HOUSE	1832, 1859	104 MOORE STREET
35	A	RESIDENCE	1830's-'40's	17 HT. WASHINGTON STREET
36	A	RESIDENCE	1840's	MYRTLE STREET
37	A	JOHN MESWITH HOUSE	1841	229 ANDOVER STREET
38	A	OLD GAS LIGHT COMPANY	1848	SCHOOL STREET
39	A	OLD GAS LIGHT COMPANY	1860's	22 SHATTUCK STREET
40	A	OLD STONE HOUSE HOTEL	1825	PAWTUCKET STREET
41	A	OLD TOMM HALL	1830	228-36 HERRINACK STREET
42	A	ROUND HOUSE	1872	55 WANNACAMIT STREET
43	A	ST. PAUL'S METHODIST CHURCH	1839	HUND STREET
44	A	RESIDENCE	1820	49 SOUTH WHIFFLE STREET
45	A	ST. ANNE'S CHURCH	1825	237 HERRINACK STREET
46	A	ST. ANNE'S RECTORY	1826	HERRINACK STREET
47	A	THREKNOT GATEHOUSE	1853	SUFFOLK STREET
48	A	TURNER HOUSE	1810	375 FINE STREET
49	A	TYLER HARRISON HOUSE	1810	1399 MIDDLESEX STREET
50	A	VARNUM HOUSE	1700-22	55 VARNUM TERRACE
51	A	RESIDENCE	1870's	99,101,103 WESTFORD STREET
52	A	RESIDENCE	1835	WORTHEN STREET
53	A	YORICK CLUB	1860's	91 DUTTON STREET
54	A*	ROUCH HOSFORD BUILDING (AKA OLD MASERIC TEMPLE)	1871	129 HERRINACK STREET
55	A*	CENTRAL FIRE HOUSE	1889	PALMAY STREET
56	B	BON MARCHE-EAST BUILDING	1880's	141 HERRINACK STREET
57	B	BON MARCHE BUILDING	1880's	163 HERRINACK STREET
59	A*	EBEN ADAMS HOUSE	1815	66 BALDWIN STREET
60	B	RESIDENCE	1870's	142 ANDOVER STREET
61	A*	REGILLANCE	1890-1910	ANDOVER STREET

Table 1: (Page 2 of 3)

NUMBER	CATEGORY	NAME	DATE	LOCATION
62	B	J. C. HYER COMPANY BUILDING	1870's	176-190 MIDDLE STREET
63	A*	MESMITH BUILDING	1823	75-83 MERRIMACK; ALSO 11-19 JOHN STREET
64	A*	BANK BLOCK	1826	350-376 MERRIMACK STREET
65	B	BLOOD HOUSE	1810	25 BADLEY STREET
66	A*	CHARLES BENT HOUSE	1815	112-14 BALDWIN STREET
67	A*	MASS BOARDING HOUSES	1835	28-56 BRIDGE STREET
68	A*	RESIDENCE	1840's	101-105 CENTRAL STREET
69	B	RESIDENCE	1880's	231 CENTRAL STREET
70	B	UNION BUILDINGS	1860's	251-55 CENTRAL STREET
71	A*	RESIDENCE	1830's	503 CENTRAL STREET
72	B	RESIDENCE	1830's	524 CENTRAL STREET
73	B	RESIDENCE	1830's	561 CENTRAL STREET
74	B	RESIDENCE	1830's	571 CENTRAL STREET
75	A*	CHAPLIN BLOCK	1870's	56 FRESCOTT STREET
76	A*	RESIDENCE	1880's	106 CHESTNUT STREET
77	B	COBURN-COMANT HOUSE	1925	722 EAST MERRIMACK STREET
78	B	COMAN HOUSE/HOTEL MARLBOROUGH	1890's	85 MARLBOROUGH STREET
79	A*	RESIDENCE	1878	572A DUTTON STREET
80	A*	ELLIOT CHURCH	1870's	ZIMMER STREET
81	A*	FATIGLIEVE BUILDING	1840's	148 WARREN STREET
82	A*	RESIDENCE	1860's	30 FORT HILL AVENUE
83	B	GORHAM STREET FIREHOUSE	1870's	GORHAM STREET
84	A*	GREENWOOD BROTHERS BLOCK	1870's	576 LAWRENCE STREET
85	A*	HOESE HALL HOUSE	1807	800 GORHAM STREET
86	A*	NICOLAID STREET	1850-80	Nos. 14, 26, 44, 48, 52, 58 & 62
87	B	HILBIRTH BUILDING	1884	45 MERRIMACK STREET
88	B	JAMES NEWARD HOUSE	1798	1695 RIDGELISH STREET
89	A*	RESIDENCE	1850's	36 HOWARD STREET
90	A*	RESIDENCE	1886	45, 47, 49 FIRE STREET
91	B	HACK BUILDING	1886	25 SHATTUCK STREET
92	A*	LAWRENCE STREET FIREHOUSE	1891	LAWRENCE STREET
93	A*	MCINTIRE HOUSE	1820	458 PRINCETON BOULEVARD
94	A*	RESIDENCE	1870's	41-57 MARSHALL STREET
95	A*	MOTER BUILDER'S EXCHANGE	1880	313-317 CENTRAL STREET (CDR. APPLETON)
96	A*	45-57 MERRIMACK STREET	1850's	ALSO 25-37 PALMER STREET
97	B	RESIDENCE	1830's	682-84 MERRIMACK STREET (28-32 CANOPY)
98	A*	RESIDENCE	1870's	736-742 MERRIMACK STREET
99	A*	RESIDENCE	1870's	139 MERRIEN STREET
100	A*	RESIDENCE	1850's	24 MESMITH STREET
101	A*	RESIDENCE	1850's	28 MESMITH STREET
102	A*	NEW FINE BUILDING	1870's	223 CENTRAL STREET
103	A*	OLD BAK TERMINAL (RIALTO)	1870's	238 CENTRAL STREET
104	A*	OLD WORTHEN TAVEN	1841	141-147 WORTHEN STREET
105	A*	RENNE HOUSE	1920	447 PRINCETON BOULEVARD
106	A*	ZANCOE ROGERS HOUSE	1837	196 ROGERS STREET
107	A*	ST. ANNE'S SIXTON'S QUARTERS	1830's	ANNE STREET
108	A*	ST. JOHN'S EPISCOPAL CHURCH	1861	GORHAM STREET
109	A*	ST. PATRICK'S CHURCH	1854	282 SUFFOLK STREET
110	A*	PETER'S R. C. CHURCH		GORHAM STREET
111	A*	JESSE SMITH HOUSE	1820	1553-1555 MIDDLESEX STREET
112	A*	SOTWICK BLOCK	1870's	66-82 FRESCOTT STREET
113	A*	SPALDING HOUSE	1760	383 PAMPTUCKET STREET
114	A*	SUFFOLK MILL-YARD		SUFFOLK STREET
115	A*	RESIDENCE	1860's	157 SUMMER STREET
116	A*	RESIDENCE	1830's	52 TENTH STREET
117	A*	RESIDENCE	1860's	84 TENTH STREET
118	A*	RESIDENCE	1870's	204 TENTH STREET
119	A*	BATHAM TYLER HOUSE	1810	1613 MIDDLESEX STREET
120	A*	RESIDENCE	1850's	72 VANNY STREET
121	B	RESIDENCE	1850's	14 WAMBALANCIT STREET
122	B	RESIDENCE	1880's	19 WAMBALANCIT STREET
123	A*	RESIDENCE	1840's	22 WAMBALANCIT STREET
124	B	RESIDENCE	1880's	43 WAMBALANCIT STREET
125	A*	RESIDENCE	1880's	48 WAMBALANCIT STREET
126	A*	OLIVER WHIPPLE HOUSE	1820	218 MOORE STREET
127	A*	WELLS BLOCK	1840's	169-179 MERRIMACK STREET
128	A*	WENTWORTH BLOCK	1860's	258 MERRIMACK STREET
129	B	WILTNEY HOUSE	1820	913-915 PAMPTUCKET STREET
130	A*	RESIDENCE	1840's	222-224 WORTHEN STREET
131	A*	WORTHEN ST. METHODIST CHURCH (AKA JONELL)	1842	220 WORTHEN STREET
132	A*	ANDERSON HOUSE	1860, 1879	414 ANDOVER STREET
133	B	RESIDENCE	1830's	493 CENTRAL STREET
134	B	RESIDENCE	1830's	483 CENTRAL STREET
135	B	CHRIST CHURCH UNITED (AKA ALL SOULS CONG'L ST. LUKE'S EPISCOPAL)	1847	EAST MERRIMACK STREET
136	B	RESIDENCE	1834	263 EAST MERRIMACK STREET
137	B	PARADISE HOTEL (AKA UNION HOUSE, TURNER'S FURN)	1824	278 CENTRAL STREET
138	B	FIRST CONGREGATIONAL CHURCH	1884	400 MERRIMACK STREET
139	B	RESIDENCE	1840's	478 GORHAM STREET
140	B	RESIDENCE	1840's	492-94 GORHAM STREET
141	B	RESIDENCE	1880	4 HANKS STREET
142	B	RESIDENCE	1920's	115 HANCOX STREET
143	B	RESIDENCE	1890's	20-24 IRVING STREET
144	A*	LAWRENCE MILLYARD	1831	750 SUFFOLK STREET
145	B	LYON'S HOUSE	1980	86 BLANCKE AVENUE
146	B	RESIDENCE	1840's	118 MT. WASHINGTON

Table 1: (Page 3 of 3)

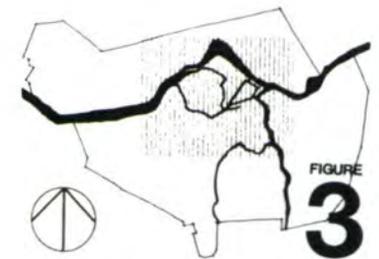
NUMBER	CATEGORY	NAME	DATE	LOCATION
147	B	RESIDENCE		176 MESMITH STREET
148	A*	OLD LOWELL NATIONAL BANK	1920's	88 FRESCOTT STREET
149	B	PARKER HOUSE	Pre-1700	137 FINE STREET
150	B	PIERCE HOUSE	1750	585 CHELSEAFORD STREET
151	B	RESIDENCE	1870's	86 WESTFORD STREET
152	B	WAMESIT CT. HOUSES	1850's	1-8 WAMESIT COURT
153	B	SHAW STOCKING COMPANY	1890	
154	B	JOAN FABRICS	1890	
155	B	GAS WORKS	1849	
156	B	LOWELL MACHINE SHOP		
157	A**	LOCKS AND CANALS YARD	1820	
158	A**	WHEELER HOUSE	1825	
159	B	HANDYER STREET DOUBLE BRICK	1840	
160	A**	CABOT STREET ROW	1845	
161	A**	TREMNUT YARD		
162	A**	POST OFFICE	1932	
163	B	W. 5th BAPTIST CHURCH		
164	B	HIGH SCHOOL	1893	
165	B	KIRK STREET SCHOOL	1880	
166	B	KIRK STREET FEDERAL HOUSE	1847	
167	B	SOUTH MEETINGHOUSE	1840	
168	B	KEARNEY SQUARE BUILDING	1840	
169	B	FAIRBURN	1880	
170	B	MIDDLESTREET-DERBY POLLARDS WAREHOUSE	1890	
		DERBY ELECTRIC		
171	A**	BIGELOW MILL	1828	
172	A**	HAMILTON MILL	1830, rebuilt 1870	
173	A**	APPLETON MILL	1890	
174	B	APPLETON BLOCK	1875	
175	A**	POST OFFICE	1932	
176	B	FEDERAL HOUSES (3)		TOWERS CORNER
177	B	HAMILTON BOARDING HOUSES	1845	
178	B	PEPPER WAREHOUSE		
179	A**	WHIPPLE POWDER MILL	1802	
180	B	WEL HOFFMAN MILL	1890	
181	B	BLEACHERY-WAMESIT MILLS	1880	
182	B	MERRIMACK PAPER TUBE	1890	
183	B	WOOLER CHITTING MILLS	1890	
184	A**	MASS MILLS	1839-50's	
185	B	LANSBET HOUSE	1905	
186	B	PILLING MILL (SHOE)	1890	
187	B	CREEK REVIVAL	1840	ON APPLETON
188	A**	AUDITORIUM	1921	
189	B	STRAND THEATER	1912	
190	B	STACIPOLE HILL (COTTON HILL)	1890	



LOWELL DEVELOPMENT PATTERNS 1822-1976

- KEY:
- Canals and Rivers
 - Mills and Related Buildings
 - Rail Lines and Major Roads
 - Downtown Core (commercial activities and institutional)
 - Boarding Houses
 - Other Development

Distance 0 1000 2000 3000 Feet
 Time 0 10 20 30 Minutes



influence of the canals on land development and transportation was apparent. The downtown area occupied residual land not well suited to industry but in close proximity to the center of the settled area.

- o 1906 -- By this time industrial production had reached its apex, and the mill yards of the 1850 era were substantially filled with additional buildings. Although the boarding houses remained, the high growth of the labor force resulted in additional residential construction; including many tenement areas. Population growth increased the demand for services, leading to expansion of the downtown shopping district.
- o 1976 -- Urban renewal and private market forces combined to bring about demolition of many of the mill complexes in the 1950's and 1960's due to the declining textile industry. These demolitions left large gaps in the previously continuous industrial fabric of the downtown core. Additionally, nearly all the boarding houses have been demolished, and residential settlement at lower densities has continued outward to the city boundaries and beyond.

The resulting gaps in the city's traditional structure make it difficult to appreciate the history of Lowell's development and the logic which underlies its current form. Ways of making Lowell's past and present physical and social structure more apparent should be an important aspect of the urban cultural park.

Natural Environment

There is a strong relationship between the history of Lowell and its natural setting. Most importantly, the city straddles a sharp bend in the Merrimack River where the water level drops more than 30 feet over a short distance. The combination of these two natural circumstances became significant in the early 1800's because it offered an ideal opportunity to harness the power of the Merrimack River for industrial purposes. Also, Lowell's location midway between Manchester and Newburyport was a natural focus for transportation routes between Boston and the Merrimack Valley. The Concord Valley provided a convenient path to the south which was followed by both the Middlesex Canal and the railroads which came after it.

The banks of the Concord and the Merrimack in Lowell, the Pawtucket Falls, the bend of the Merrimack, the intersection of the two rivers, and other natural features are as historically significant to the city as its mills and canals. Ways should be found for people to experience these natural features within the context of the park. For example, views to water might be opened up, walkways along riverbanks might be constructed, or boat trips up the Merrimack could be sponsored.

Environmental Problems and Opportunities

Major Zones of Historic and Visual Quality

A field survey was conducted to identify: (1) zones of historic and architectural significance; (2) streets with high visual quality; (3) outstanding views, and (4) water-related open spaces. This information is combined with historic structures of primary significance in Figure 4.

The illustration shows that there are many places in Lowell both within and outside of the mill yards which include groupings of historic buildings. One of the most important ensembles is the grouping of early institutional buildings which includes St. Anne's Church and Rectory (1825), The Welles commercial blocks (1840), the Old City Hall (1830), Lowell Institution for Savings (1845), the Merrimack Canal Gatehouse (1838), the Merrimack Company Agent's House (1835), the Merrimack Canal and Lucy Larcom Park. However, other areas with numerous historic buildings are portrayed, including:

- o residential buildings in Upper Belvidere,
- o Middlesex Village,
- o houses and institutions near the Northern Canal gate.

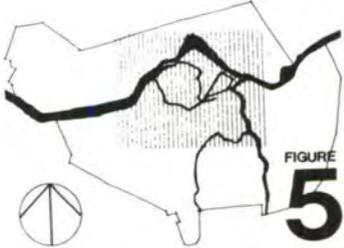
A number of areas and streets stand out as having visual quality, and outstanding views exist at



MAJOR VISUAL PROBLEMS

- KEY:
-  Major Parking Lots/Expanses of Asphalt
 -  Other Poorly Landscaped/Unattractive Areas
 -  Large Barren Expanses
 -  Recent Construction of Substantially Different Character or Scale than Nearby Historic Areas
 -  Public Access to Water Blocked
 -  Mill Building Abandoned or in Extremely Poor Repair

Distance 0 100 200 300 Feet
 Time 0 1 2 3 Minutes



many spots in the city. Some views of the Merrimack River are spectacular, as is the view of inner Lowell from the Centralville highlands. Especially important is the fact that many large tracts of open space currently exist along the Concord and Merrimack Rivers. As a result, in many places the natural appearance of the rivers has been preserved in spite of the dense development which surrounds them.

Perhaps the most significant aspect of the inventory is the portrayal of a network of historic areas and potential water-related open space, strongly-related to the canal system and the rivers. Although all the areas portrayed in Figure 4 are not of superior environmental quality today, the potential exists to create a network which would be both visible to the Lowell resident and intelligible to both resident and visitor alike.

Environmental Deficiencies

Major parking lots, poorly landscaped areas, and large barren expanses in the city were identified from aerial photographs and field reconnaissance. Mill buildings which have been abandoned or are in poor repair and places where public access to canals or rivers is blocked were also identified by field survey. These items are recorded in Figure 5 along with specific comments to give a general picture of the city's environmental deficiencies.

Public access to river banks is highly restricted in many areas, especially in central sections of the city. This is partially due to the fact that some mills still line the river banks. But even the recently constructed Merrimack Plaza apartment complex provides no way for people to come in contact with the river. Access to canals is also restricted in many areas.

One problem particularly relevant to the urban cultural park is the poor environmental quality of the most logical route for tourists to follow entering the city: via the Lowell connector, Thordike, and Dutton Streets. These roads are characterized by large expanses of unkept space dotted with dilapidated structures, old gas stations, and parking lots. Large vacant areas also surround the Wannalancit and Lawrence Mills, completely segregating these historic complexes from the rest of the city.

CURRENT PLANNING

Overview

Several agencies and organizations are currently active in developing plans for various types of improvements to the physical environment of the City of Lowell. All of the following agencies are involved with proposals which may either impact or enhance the potentials for the Urban National Cultural Park:

- o Office of Planning and Development -- This group, under the City Manager's office in Lowell, includes the City Development Agency and short and long term planning functions within the city. The office is responsible for supervising and carrying out planning and renewal activities, encouraging industrial development; coordination of other planning activities in Lowell, and supervising the disposition of funds available through the H.U.D. Community Block Grant Program.
- o Lowell Historical Commission -- Responsible for the administration of the local historic district zoning ordinances, including reviewing all new construction proposals within existing historic districts, and documenting and proposing new historic districts. All proposed historic districts must subsequently be approved by the State Historical Commission.
- o Human Services Corporation -- A non-profit foundation which plans and coordinates a series of educational, social, and cultural programs aimed at improving the quality of life in Lowell's neighborhoods. For some time, the Human Services Corporation has been extremely active in developing plans for the Urban National Cultural Park concept.
- o Lowell Regional Transit Authority -- Established in 1974 to coordinate, plan, and operate improved public transportation in the six communities which comprise the Lowell metropolitan area.

- o Northern Middlesex Area Commission -- Regional planning agency with jurisdiction over 10 communities. NMAC has undertaken studies concerning housing trends, land use, water management, open space and recreational needs, transportation, and other topics of regional concern. NMAC monitors and coordinates other planning activities of regional scope, serves as the A-95 review agency for the region, and organizes the "3-C" planning process for the transportation projects in the area.
- o Massachusetts Executive Office of Environmental Affairs -- Through its Department of Environmental Management, provides the leadership for the planning of the proposed Heritage State Park.
- o Massachusetts Department of Public Works -- Responsible for state level transportation planning, needs studies, preliminary engineering, environmental review documents, and project construction on the state-wide or "urban" road systems. Also provides supporting funds to certain projects which are partially financed by local governments.

These agencies, of course, also serve as conduits for a variety of sources of federal program funds which flow to Lowell through federal agencies such as the Department of Housing and Urban Development, Bureau of Outdoor Recreation, Department of Transportation, etc.

Proposed Projects

Plans and Proposals Related to the Urban National Cultural Park

Current activities of the above planning agencies were reviewed, and an inventory was made of ongoing plans in both the public and private sector. Figure 6 locates those proposed projects which appear to relate most strongly, either positively or negatively, to the proposed Urban National Cultural Park. Table 2 reviews major characteristics for the following types of projects:

- o Lowell Heritage State Park
- o Public Renewal Projects
- o Local Historic Districts

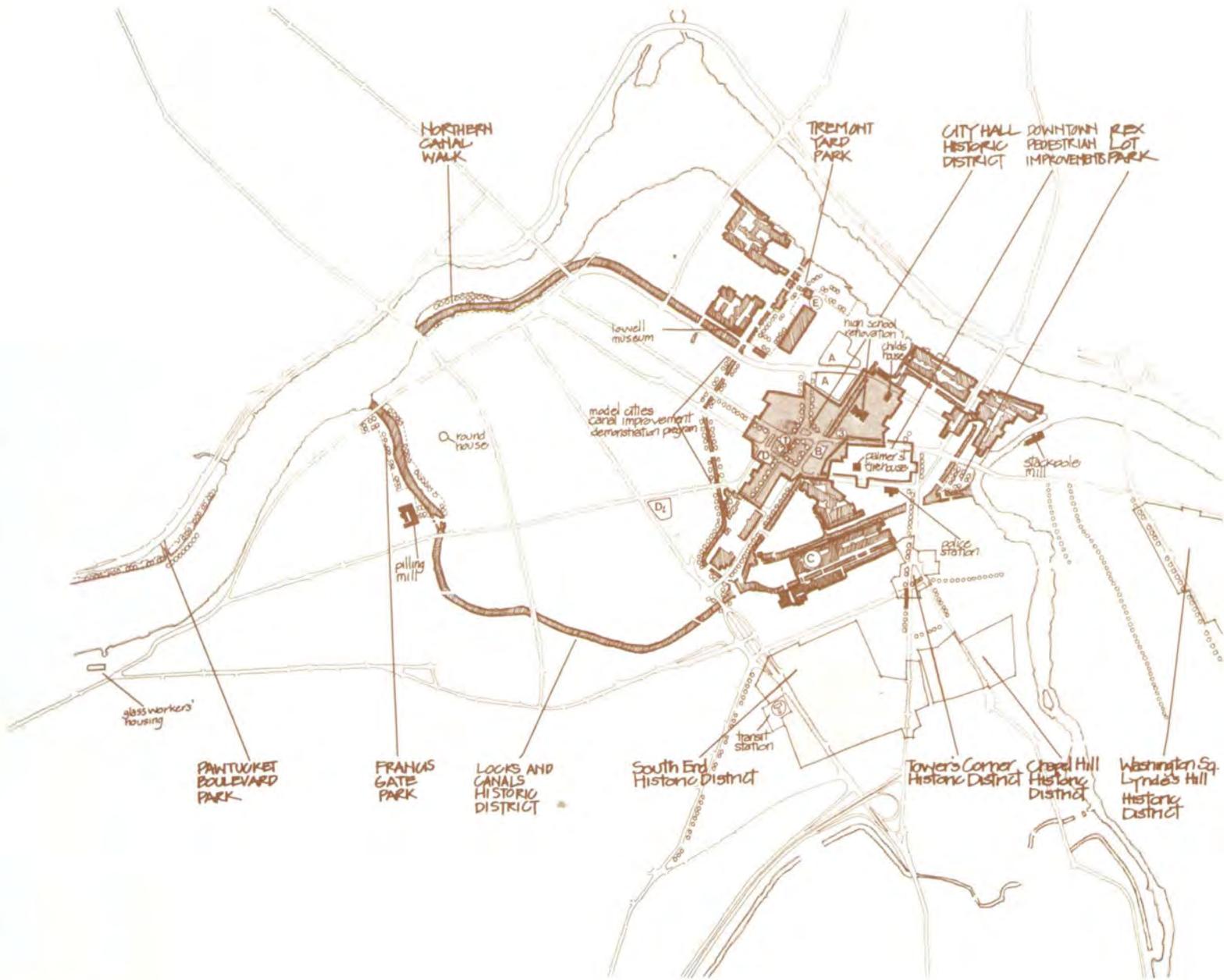
- o National Register of Historic Places
- o Preservation Grants
- o Building Re-use Plans
- o Private Development Projects or Plans

Other Local Plans and Proposals

Figure 7 locates current development plans and proposals in the Lowell area which appear to be marginally related to the proposed Urban National Cultural Park. Characteristics of the following types of projects are summarized in Table 3:

- o transportation projects
- o utility and service projects
- o neighborhood improvements
- o institutional projects
- o housing and commercial development
- o industrial development

The transportation needs of Lowell and the surrounding region have been recently studied, resulting in numerous local-, regional-, and state-initiated proposals. Since the transportation network within and outside Lowell may be critical to the success of the park project, Figure 8 has been included to set the context of existing transportation facilities and major transportation proposals.



PARK RELATED PLANS AND PROPOSALS

- KEY:**
- Lowell Heritage State Parks, Proposed Modes
 - Transportation Project Related Landscaping
 - Raise Proposal
 - Buildings currently on the National Register
 - Existing City Hall Historic District
 - Proposed Historic Districts
 - Existing Locks and Canals Historic District
 - Proposed Additions to Locks and Canals Historic District (included on National Register Application)
 - A** Proposed High School Expansion
 - B** Proposed THCA Demolition
 - C** Proposed Demolition/Renovation of Jackson Properties
 - D** Possible Sites for Demoulos Shopping Center
 - E** Proposed Courier-Citizen Expansion
 - National Park Service Historic Preservation Grants: Bank Block, Old Women Building, Jordan Marsh Building (Ben Marston)
- * NOTE: transportation planning context and proposed projects shown in Figure 7

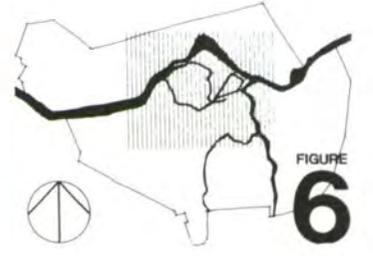
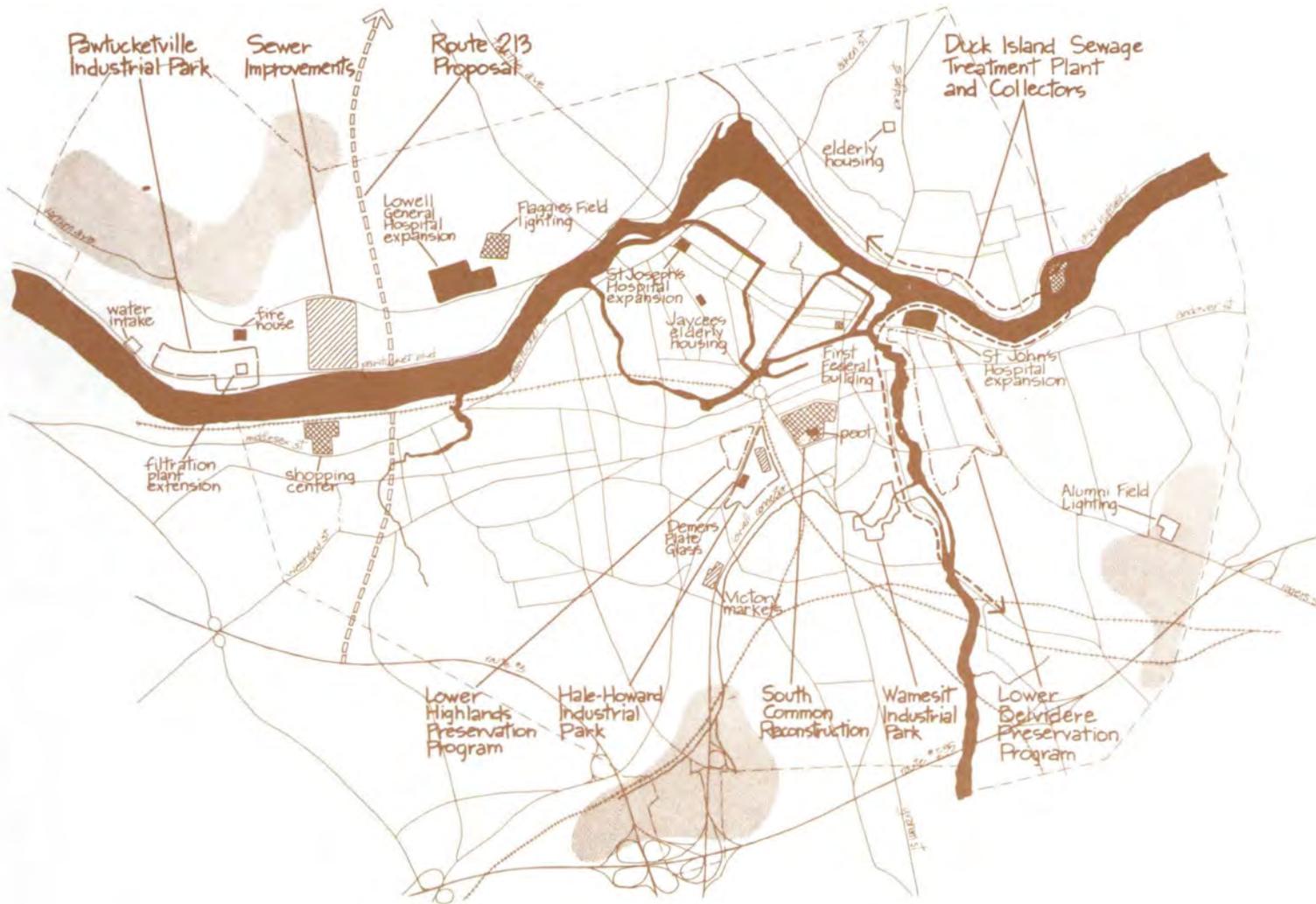


Table 2: PARK RELATED PROJECTS (Page 1 of 2)

PROJECT TITLE	SPONSORING AGENCY	STATUS AND ADDITIONAL COMMENTS
LOWELL HERITAGE STATE PARK		
PROJECT SUMMARY (FIVE NODES, SUMMARIZED BELOW)	MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL MANAGEMENT	ORIGINALLY PROPOSED IN AUGUST, 1974 FOR A \$9.1 MILLION CONSTRUCTION AND ACQUISITION PROGRAM. CURRENT PHASE I PLANNING IS BASED ON A \$4 MILLION BOND AUTHORIZATION. ONGOING ACTIVITIES INCLUDE SITE SURVEYS, APPRAISALS, AND AN EARLY ACTION PROGRAM FOR SUMMER OF 1976 AT TWO NODES.
FRANCIS GATE PARK	" "	EARLY ACTION PROGRAM TO INCLUDE, INTERPRETATION, SIGNING, AND LANDSCAPING IMPROVEMENTS. ULTIMATELY PLANNED TO INCLUDE BOAT SLIPS, PARK, PICNIC, AND BARGE LANDING.
FAWCKETT BOULEVARD PARK	" "	EARLY ACTION PROGRAM, POTENTIALLY INCLUDING A FLOATING STAGE, LANDSCAPING IMPROVEMENTS, SIGNING, AND INTERPRETIVE PROGRAM. LONG RANGE PLANS TO INCLUDE BOAT ACCESS, BARGE LANDING, ORIENTATION CENTER, AND PARK IMPROVEMENTS.
TRENCH YARD PARK	" "	CURRENT ACTIVITIES INCLUDE LAND APPRAISAL AND PRE-ACQUISITION SURVEYS, ETC. LONG RANGE PLAN INCLUDES LANDSCAPING, INTERPRETIVE CENTER, PLAYFIELDS, AMPHITHEATRE, BARGE LANDING, ETC. TO BE COORDINATED WITH LOWELL MUSEUM PLANS.
REEF LOT PARK	" "	CURRENT ACTIVITIES INCLUDE PRE-ACQUISITION APPRAISAL AND SURVEYS. LONG RANGE PLAN INCLUDES LANDSCAPING, ORIENTATION CENTER, BOAT FACILITIES, ETC.
CANAL-RELATED AREAS	" "	LONG RANGE PLAN ENVISIONS SOME ACQUISITION, EASEMENTS, AND OTHER FORMS OF PROTECTION FOR RIVER AND CANAL BANKS, GATEHOUSES, ETC.
PUBLIC RENOVATION PROJECT		
VALDES-MIDDLE STREET PEDESTRIAN IMPROVEMENTS	CITY DEVELOPMENT AGENCY	CURRENTLY BEING DESIGNED; \$700 THOUSAND ALLOCATED UNDER N.U.D. C.D.B.G. PROGRAM. CONSTRUCTION START EXPECTED LATE SPRING OR EARLY SUMMER.
HEARLIMACK STREET PEDESTRIAN IMPROVEMENTS	CITY DEVELOPMENT AGENCY	CONTINUING IMPROVEMENT OF DOWNTOWN SIDEWALKS WITH BRICK AND STREET FURNITURE.
TRANSPORTATION PROJECT RELATED LANDSCAPING	MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS/ FEDERAL HIGHWAY ADMINISTRATION	LANDSCAPING RELATED TO VARIOUS CORRIDOR IMPROVEMENTS NOW SCHEDULED FOR CONSTRUCTION AS A RESULT OF THE LOWELL TRANSPORTATION STUDY
WESTERN CANAL DEVELOPMENT DEMONSTRATION PROGRAM	CITY OF LOWELL	CANAL RESTORATION AND LANDSCAPING STARTED DURING THE MOORE CITIES PROGRAM. CAPITAL COST APPROXIMATELY \$180 THOUSAND.
HIGH SCHOOL EXPANSION AND RENOVATION	CITY OF LOWELL	INCLUDING INTERIOR RENOVATION OF THE EXISTING HIGH SCHOOL; AND EXPANSION OF PARKING/AUDITORIUM TO PARCEL 7; PLAYING FIELDS NORTH OF FRENCH STREET. CURRENTLY IN PRELIMINARY DESIGN STAGES.
LOCAL HISTORIC DISTRICTS		
CITY HALL HISTORIC DISTRICT	C.D.A. AND LOWELL HISTORICAL COMMISSION	ESTABLISHED IN 1974
LOCKS AND CANALS HISTORIC DISTRICT	" "	" "
SOUTH END HISTORIC DISTRICT	C.D.A.	PROPOSED, UNDER LOCAL REVIEW AND CONSIDERATION
TOMERS CORNER HISTORIC DISTRICT	C.D.A.	" "
CHAPEL HILL HISTORIC DISTRICT	C.D.A.	" "
WASHINGTON SQUARE/ LYNNE'S HALL HISTORIC DISTRICT	C.D.A.	" "
NATIONAL REGISTER OF HISTORIC PLACES		
CITY HALL HISTORIC DISTRICT	C.D.A. AND LOWELL HISTORICAL COMMISSION	INCLUDED ON NATIONAL REGISTER
ROUNDHOUSE	" "	" "
CLASWORKERS' HOUSING	" "	" "
KIDOLESEY CANAL	" "	" "
LOCKS AND CANALS HISTORIC DISTRICT	C.D.A.	PROPOSED FOR INCLUSION ON THE NATIONAL REGISTER. THE DISTRICT HAS BEEN DEFINED TO INCLUDE ALL AREAS IN THE LOCAL LOCKS AND CANALS HISTORIC DISTRICT PLUS ALL THE MAJOR MILLS AND MILLYARDS.

Table 2: (Page 2 of 2)

PROJECT TITLE	SPONSORING AGENCY	STATUS AND ADDITIONAL COMMENTS
PRESERVATION GRANTS		
BANK BLOCK	NATIONAL PARK SERVICE WITH LOCAL MATCH	N.P.S. GRANT OF \$8100 FOR THIS YEAR
OLD WORTHERN TAVERN	" "	" "
JORDAN MARSH BUILDING	" "	" "
BUILDING REUSE PLANS		
STACKPOLE HILL		PROPOSAL
FILLING SHOE ELDERLY HOUSING PROJECT	ENDAVOR, INC.	ESTIMATED COST OF \$2.9 MILLION; WAITING FOR FINANCING APPROVAL FROM MFA.
OLD MARKET BUILDING		
PALMER STREET FIREHOUSE	PRIVATE DEVELOPER	ATTEMPTING TO PREPARE FEASIBLE PLAN AFTER RECEIPT OF NECESSARY VARIANCES AND CODE WAIVERS.
CHILD'S HOUSE		
MAMMALANTIC MILL-LOWELL MUSEUM CORPORATION	LOWELL MUSEUM CORPORATION	PLAN TO LOCATE IMMEDIATE ACTION EXHIBIT IN MILL BY SUMMER. FUND-RAISING IN PROGRESS TO FINANCE LONG TERM; LARGER EXHIBIT AND RELATED ACTIVITIES.
PRIVATE DEVELOPMENT PROJECTS OR PLANS		
JACKSON PROPERTIES RENOVATION/DENILITION	J. LICHOUAS	NEW OWNER IS CONSIDERING DEMOLITION OF MAJOR MILL BUILDINGS
DEMOULAS SHOPPING CENTER	T. DEMOULAS	MAJOR \$3 MILLION SHOPPING CENTER ORIGINALLY PROPOSED FOR A SITE IN BE ACRE NEIGHBORHOOD, INVOLVING DEMOLITION OF THE CITY STABLES. PROJECT CURRENTLY TABLED AS ORIGINALLY PROPOSED; BUT ALTERNATIVES ARE BEING CONSIDERED.
COURIER-CITIZEN EXPANSION	COURIER-CITIZEN CORP.	MAJOR BUSINESS PLANS TO EXPAND INTO PORTIONS OF LAND POTENTIALLY INCLUDED IN THE TRENCH YARD PARK, AS DEFINED WITHIN THE HERITAGE STATE PARK PLAN.



OTHER PLANS AND PROPOSALS

- KEY:**
- Status
 - Idea
 - Planning Stage/Sponsor Identified
 - Design Stage
 - Under Construction
 - Industrial Park
 - Neighborhood Preservation Area
 - Sewage Collector, Approximate Right of Way
 - Proposed Route 213, Approximate Right of Way
 - High Growth Area

Distance 11 11 Feet
Time 11 11 Minutes

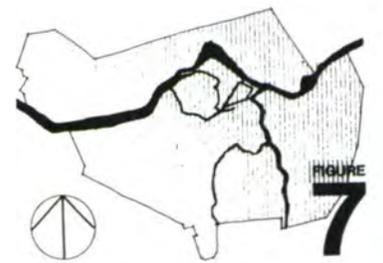
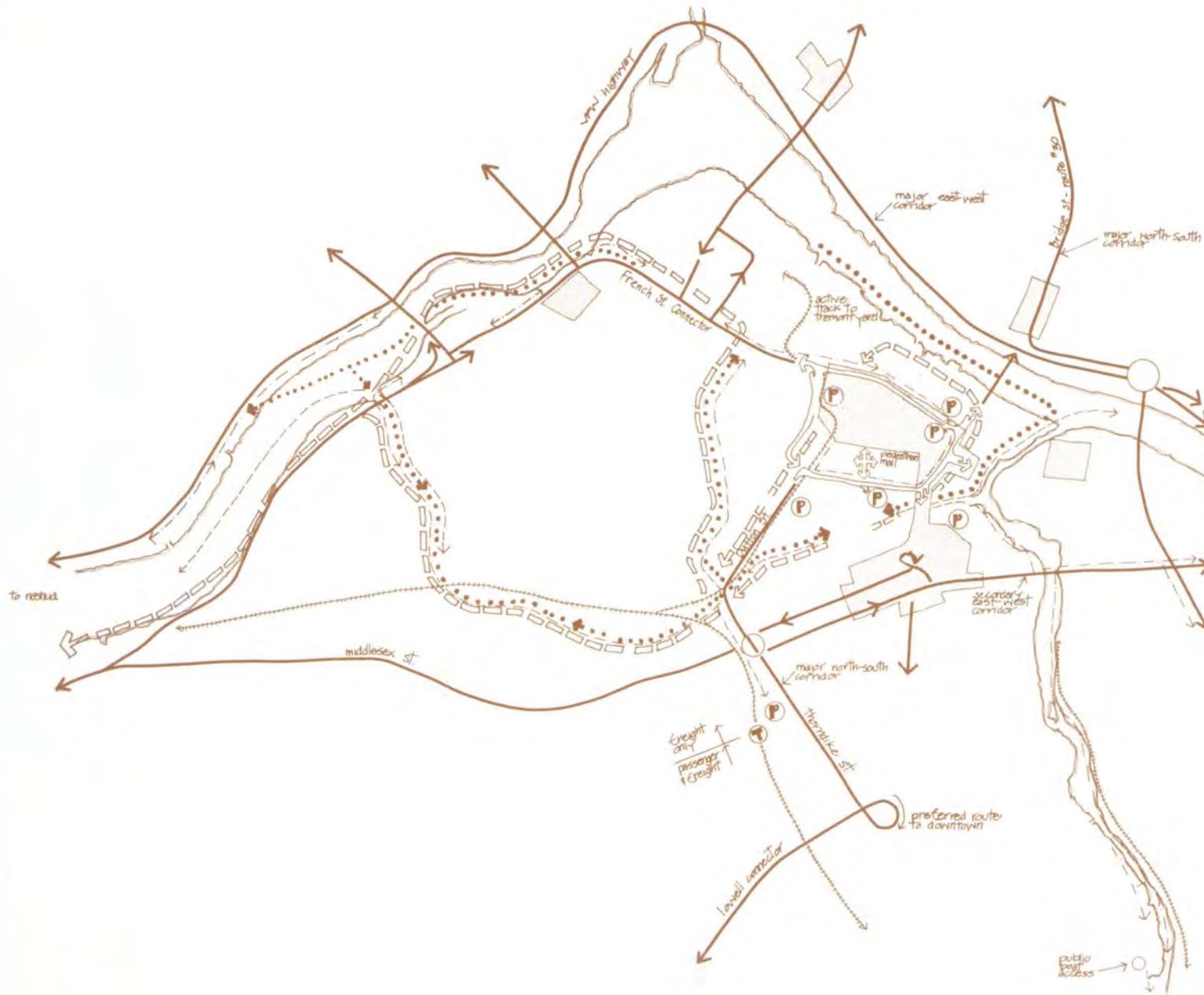


Table 3: OTHER DEVELOPMENT PROJECTS IN LOWELL (Page 1 of 2)

PROJECT TITLE	SPONSORING AGENCY	STATUS AND ADDITIONAL COMMENTS
TRANSPORTATION PROJECTS		
ROUTE 213	MASS DEPARTMENT OF PUBLIC WORKS AND FEDERAL HIGHWAY ADMINISTRATION	DRAFT ENVIRONMENTAL IMPACT STATEMENT PREPARED; HEARING SCHEDULED FOR APRIL, 1976. COST ESTIMATED AT FROM \$10 TO \$45 MILLION, DEPENDING ON THE ALTERNATIVE
SAMPSON CONNECTOR	MASS. DEPARTMENT OF PUBLIC WORKS AND FEDERAL HIGHWAY ADMINISTRATION	DESIGN REPORT AND PUBLIC HEARINGS COMPLETE; FINAL ENGINEERING ABOUT TO START. ESTIMATED COST OF \$2.8 MILLION
HIGH "B" BRIDGE	MASS. DEPARTMENT OF PUBLIC WORKS AND FEDERAL HIGHWAY ADMINISTRATION	FINAL ENGINEERING IN PROGRESS; ESTIMATED COST OF \$1.9 MILLION
TOWERS CORNER TRAFFIC IMPROVEMENTS	MASS. DEPARTMENT OF PUBLIC WORKS AND FEDERAL HIGHWAY ADMINISTRATION	FINAL ENGINEERING IN PROGRESS. ESTIMATED COST OF \$700 THOUSAND
TRANSPORTATION TERMINAL	MASS. DEPARTMENT OF PUBLIC WORKS AND FEDERAL HIGHWAY ADMINISTRATION	DESIGN REPORT NEAR APPROVAL; ESTIMATED COST OF \$3.7 MILLION
MONORAIL	RAYTHEON CORPORATION	PROPOSAL MADE IN JUNE, 1973. CURRENTLY BEING REVIEWED BY THE N.H.A.C. COMPREHENSIVE TRANSPORTATION PLAN FOR FEASIBILITY AND RESPONSIVENESS TO LOCAL NEEDS. ESTIMATED COST OF \$40 MILLION AS OF 1973.
NORTHERN MIDDLESEX AREA COMPREHENSIVE TRANSPORTATION PLAN	NORTHERN MIDDLESEX AREA COMMISSION	REGIONAL TRANSPORTATION PLANNING STUDY; COST OF \$108 THOUSAND. TO BE COMPLETED BY END OF 1976
DOWNTOWN BUS LOOP	VARIOUS	PROPOSED AS PART OF SEVERAL TRANSPORTATION STUDIES
OTHER TRANSPORTATION CORRIDOR IMPROVEMENTS RESULTING FROM THE LOWELL TRANSPORTATION PLANNING STUDY	MASS. DEPARTMENT OF PUBLIC WORKS AND FEDERAL HIGHWAY ADMINISTRATION	COMBINED LOCATION/DESIGN REPORTS IN PREPARATION; COST RANGES FROM \$3.6 TO \$5.3 MILLION
MARKET STREET PARKING GARAGE AND JOHN STREET GARAGE EXPANSION	CITY DEVELOPMENT AUTHORITY	ORIGINALLY PROPOSED AS PART OF LOWELL MAJOR STREETS PLAN, (1973), AND BEING CONSIDERED CURRENTLY IN CONJUNCTION WITH DOWNTOWN CIRCULATION IMPROVEMENTS
UTILITY AND SERVICE PROJECTS		
DUCK ISLAND SEWAGE TREATMENT PLANT AND COLLECTORS	CITY OF LOWELL, TOWNS OF TEMSBURY AND DRACUT	STAGED CONSTRUCTION WITH TREATMENT PLANT AND PHASE I INTERCEPTORS TO START IMMEDIATELY. FUNDING FROM BOTH STATE DIVISION OF WATER POLLUTION AND CONTROL AND ENVIRONMENTAL PROTECTION AGENCY (FEDERAL). ESTIMATED COST FOR ALL PHASES IS \$94.1 MILLION
PANTUCKETVILLE SEWERAGE SYSTEM	CITY OF LOWELL	FUNDING OF \$285 THOUSAND FROM FEDERAL DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT COMMUNITY BLOCK GRANT PROGRAM. CONSTRUCTION CONTRACT AWARDED.
SECTION 208 AREAWIDE WASTE-WATER MANAGEMENT STUDY	NORTHERN MIDDLESEX AREA COMMISSION	ESTIMATED STUDY COST OF \$456,000; FUNDED BY FEDERAL ENVIRONMENTAL PROTECTION AGENCY. INCLUDES PORTIONS OF CHELSEA/FORD
MUNICIPAL SOLID WASTE RESOURCE RECOVERY GRANTS	NORTHERN MIDDLESEX AREA COMMISSION AND CITY OF LOWELL	PROPOSAL FOR TWO \$50 THOUSAND STUDIES SUBMITTED FOR STATE AND E.P.A. REVIEW
HAVERHILL RESOURCE RECOVERY FACILITY	COMBINED PRIVATE, MASS. BUREAU OF SOLID WASTE, GREATER LAWRENCE SOLID WASTE COMMITTEE	FACILITY DESIGN COMPLETE AND CONTRACT DESIGN FOR OPERATION UNDER NEGOTIATION. TOTAL CONSTRUCTION COST ESTIMATED AT \$100 MILLION AND OPERATING COST AT \$6 MILLION / YEAR
PANTUCKETVILLE FILTRATION PLANT EXPANSION	CITY OF LOWELL	\$420 THOUSAND PROPOSAL USING H.U.D. COMMUNITY DEVELOPMENT BLOCK GRANTS; IN PLANNING STAGES
NEIGHBORHOOD IMPROVEMENTS		
NEIGHBORHOOD PRESERVATION FOR LOWER HIGHLANDS AND LOWER BELVIDERE	CITY OF LOWELL (CITY DEVELOPMENT AGENCY)	COA PLANNING STUDY WITH PROPOSED COST OF \$1.37 MILLION, USING FUNDS FROM SEVERAL POTENTIAL SOURCES: HUD BLOCK GRANTS, STATE 705/707 PROGRAMS
SOUTH COMMON RECONSTRUCTION	CITY OF LOWELL	CONSTRUCTION OF NEW POOL. COMPLETION SCHEDULED FOR SUMMER 1976; RECONSTRUCTION OF ENTIRE COMMON TO BE COMPLETED BY SUMMER 1977. ESTIMATED COST IS \$220 THOUSAND FROM H.U.D. C.D.B.G. AND BUREAU OF OUTDOOR RECREATION
NEW FIRE STATION/PANTUCKETVILLE	CITY OF LOWELL	H.U.D. CBFG FUNDING AT \$165 THOUSAND ABOUT TO GO INTO CONSTRUCTION
LIGHTING AT FLAGGIES FIELD (PANTUCKETVILLE) AND ALPHEA FIELD (BELVIDERE)	CITY OF LOWELL	FUNDS FROM H.U.D. CBFG; FLAGGIES FIELD TO BE COMPLETED SUMMER 1976; ALPHEA IN PLANNING STAGES
DEMOLITION OF DERELICT STRUCTURES (CITY-WIDE)	CITY OF LOWELL	FUNDED BY H.U.D. CBFG PROGRAM AT \$203 INCLUDING RELOCATION; PARTIALLY EXECUTED (20 OF 30 PLANNED DEMOLITIONS)

Table 3: (Page 2 of 2)

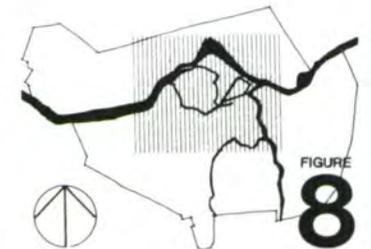
PROJECT TITLE	SPONSORING AGENCY	STATUS AND ADDITIONAL COMMENTS
INSTITUTIONAL PROJECTS		
ST. JOHN'S HOSPITAL EXPANSION	ST. JOHN'S HOSPITAL	EXPANSION COMPLETE
ST. JOSEPH'S HOSPITAL EXPANSION	ST. JOSEPH'S HOSPITAL	EXPANSION 90% COMPLETE
LOWELL GENERAL HOSPITAL EXPANSION	LOWELL GENERAL HOSPITAL	EXPANSION 90% COMPLETE
HOUSING AND COMMERCIAL DEVELOPMENT		
FIRST FEDERAL BUILDING-CENTRAL AND MARKET	FIRST FEDERAL	MIXED USE PROJECT SCHEDULED FOR CONSTRUCTION THIS FALL; PARTICIPATION BY N.H.F.A.
JAYCEES ELDERLY HOUSING (ACRE NEIGHBORHOOD)	LOWELL JAYCEES	CONSTRUCTION RECENTLY COMPLETED
HILLORETH STREET ELDERLY HOUSING (CENTRALVILLE)		UNDER CONSIDERATION BY THE CITY; PRELIMINARY DESIGN STAGES ONLY
MIDDLESEX STREET SHOPPING CENTER	ALEXANDER'S MARKET	SHOWING VARIANCY APPROVED; IN CONSTRUCTION DRAWING PHASE
VICTORY MARKETS - MANUFACTURERS STREET		UNDER CONSIDERATION BY CITY FOR INCLUSION OF ADDITIONAL SHOPS
INDUSTRIAL DEVELOPMENT		
BALE-NOWARD INDUSTRIAL PARK	CITY OF LOWELL (C.D.A.)	SITE IMPROVEMENTS COMPLETE AND BEING ACTIVELY MARKETED. TO DATE, DENER'S PLATE GLASS IS THE ONLY TENANT
PANTUCKET INDUSTRIAL PARK	CITY OF LOWELL (C.D.A.)	SITE IMPROVEMENTS AND INFRASTRUCTURE 95% COMPLETE. ACTIVE MARKETING NOT YET UNDERWAY
WAKESIT INDUSTRIAL PARK (WHIFFLE STREET)	WAKESIT POWER COMPANY	ACTIVELY SEARCHING FOR TENANTS



TRANSPORTATION CONTEXT

- KEY:**
- Major Auto Through Movement Corridors (JMS)
 - Proposed Downtown Loop with Peripheral Parking
 - Proposed Improved Off-Street Parking Sites
 - Potential Rail Lines
 - Proposed State Park Bike/Foot Paths
 - Proposed State Park Barge Routes
 - Proposed State Park Private Boat Routes
 - Transportation Terminal
 - Proposed Monorail System
 - Area with Major Parking Problems

Distance
 Feet
 0 500 1000 1500



ARCHITECTURAL RE-USE POTENTIALS

In Phase I, the architectural re-use effort has focused on the mill complexes, since they have potentially the greatest bearing on the future revitalization of Lowell. The analysis technique divided these mill complexes into five key areas:

- o Area I, the Hamilton-Jackson-Lowell mill complex, is a very dense configuration of buildings and will probably be of major importance in relation to the commercial revitalization of the downtown central business district.
- o Area II, the Tremont Yard Park, Wannalancit Mill and Lawrence Manufacturing Co., is a more open complex and is planned to include parts of the Heritage State Park and the Lowell Museum.
- o Area III, the Boott and Massachusetts Mills is close to the downtown and presently being used as reasonably viable and largely occupied industrial space.
- o Area IV, the Whipple Powder Mill and Wamesit (Sterling) Mill complex, exists in a more parklike setting among trees and usable waterfront, while the Wamesit industrial park is clearly industrial.
- o Area V, the C.I. Hood Co. Mill, the old jail, and South Common Park, is sited along Thorndike Street, and is directly adjacent to the transportation terminal and railroad lines, with no canal frontage.

Each of the five areas chosen for investigation is of different environmental quality, and will probably be suitable for different re-use patterns. A graphic neighborhood and site survey has been accomplished for each area to investigate exterior locational characteristics. In general, locational characteristics will be more critical than building-characteristics in determining re-use considerations.

Some information has been collected for individual buildings within the complex. Preliminary review indicates that virtually all buildings are physically sound, will require little interior demolition, and have appropriate natural light for commercial, institutional, or residential re-use. Further detailed building studies should wait until locational feedback is available.

The neighborhood and site survey has been completed for the five major mill areas in Lowell and involved on-site review plus review of documents and plans. A key map for these five areas is included as Figure 9. The most important physical characteristics necessary for re-use have been noted on inventory drawings, accompanied by photographic record of those buildings which has been keyed to the drawings.

Preliminary survey of the physical condition of these buildings has begun. Maps have been prepared to show the present physical condition of building exteriors. Basements and top floors are being studied for structure and weather problems. Virtually all of the buildings surveyed in Lowell are in good structural condition and have excellent dimensions to allow easy re-use. In general, the cost of required repairs will be well below the cost of new construction. In less advantageous locations, there are and will be marketing problems regardless of condition. A more extensive, detailed survey will be undertaken during Phase II, when the actual park plan alternatives are generated and preliminary sites are identified.

Area I: Hamilton-Jackson (Appleton) - Lowell (New Market) Mills

This area includes the following:

	<u>Date</u>	<u>Square Feet</u>	<u>Status</u>
Hamilton		567,000	For sale, rental space available
Jackson (Appleton)		1,065,000	Rental space available
Lowell (New Market)		558,000	For sale by city

The Hamilton-Jackson-Lowell Mill complex dominates the entire southern perimeter of the Lowell CBD; it contains in excess of 2,000,000 square feet and occupies more than 25 acres of land between the Merrimack Canal - Central Street, and from Middlesex Street-Market Street. The proximity of this complex to the major shopping streets and its relationship to current downtown planning efforts make this entire complex a very key piece of real estate. It is largely vacant.

The buildings are very dense physically and there is a potential for well landscaped open space convenient for pedestrian use. The area along the Pawtucket Canal can easily become an attractive

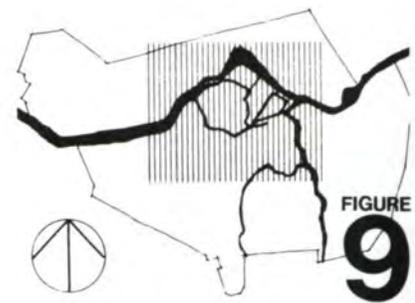


FIGURE 9

park area for commercial use, along with bike paths, walking areas, and boating facilities. At the confluence of the Pawtucket and Merrimack Canals is the Swamp Locks, constructed in 1792. This area, within an easy walk from the downtown, is currently not highly accessible to shoppers or pedestrians.

Substantial parking facilities already exist within the area, but they are inefficiently laid out. The city presently has plans to construct a parking garage on the south side of Market Street that would serve the CBD. This garage should also serve any re-use of the immediately adjacent mills.

The spaces created by these buildings are very different from the other mill complexes in Lowell. Walls plunge five stories to become canal walls, and tall narrow exterior spaces are in sharp contrast to the horizontality of individual building facades. Any re-use plan for this area must address the very high density that exists within the complex, the vast square footage of space, and the proximity of the complex to downtown.

Site and building studies for this area are illustrated in Figures 10 and 11, respectively.

Area II: Lawrence & Wannalancit (Suffolk Mills - Tremont Yard)

This area includes:

	<u>Date</u>	<u>Square Feet</u>	<u>Status</u>
Lawrence Mfg. Co.			largely occupied by Ames Textile
Wannalancit (Suffolk)		500,000	rental space available

The Lawrence and Wannalancit Mills contain in excess of 1,500,000 square feet of floor area within Tremont Yard and occupy land along the Western and Northern Canals. In contrast to the high density of Area I, this complex has open vistas and pedestrian approaches that are different from all other mills in Lowell. These buildings are perceived in a parklike setting. Proposals for a state park made plus the new Lowell Museum in the Wannalancit Mill will almost certainly revolve around the canals and available open space. The Wannalancit Mill itself provides an opportunity to create an exhibit of the ongoing textile

manufacturing process, and is one of the last vestiges of the industry that created Lowell.

The former Tremont Mill was a virtual mirror image of the Suffolk Mill. Remnants of the Tremont Mill are still intact and can be utilized in understanding the relationships of the mills to the canals.

Figures A-1 and A-2 summarize the site and building characteristics for this area.

Area III: Boott and Massachusetts Mills

This area includes two mills:

	<u>Date</u>	<u>Square Feet</u>	<u>Status</u>
Boott Mill	1835	465,000	rental space available
Massachusetts Mill		530,000	possible rental space

The Boott Mill presently houses the main office of the Proprietors of Locks & Canals. Its architectural quality is exemplary and it has been the subject of a number of re-use proposals over the past few years. Its interior courtyards, once fully landscaped, are now paved and used for parking. Access to the upper floors is somewhat of a problem, and will affect the ongoing uses of the structures. Boott is bounded on three sides by water; the Merrimack and Eastern Canals and the Merrimack River. The building lacks any substantial amount of open space and because of this, parking and access are problems.

There are two boarding houses remaining within close proximity to the Boott Mill and these are a good example of period architecture and usage. The boarding house on Bridge Street is now being used as commercial space and the Kirk Street Agent's; housing remains completely vacant.

In contrast to the tight, compact, nature of the Boott Mill, the Massachusetts Mill is open and rambling. The immediate area offers little in terms of major landscaped spaces, but access to the building is good. The Massachusetts Mill complex is almost completely occupied by industry. Access is better than at the Boott Mill for industrial purposes, and more parking space presently exists. It will probably remain industrial. Figures A-3 and A-4 summarize size and building characteristics in this area.

AREA I BUILDING STUDY



approach to Lowell Manufacturing building



Jackson Street



Old Market Building

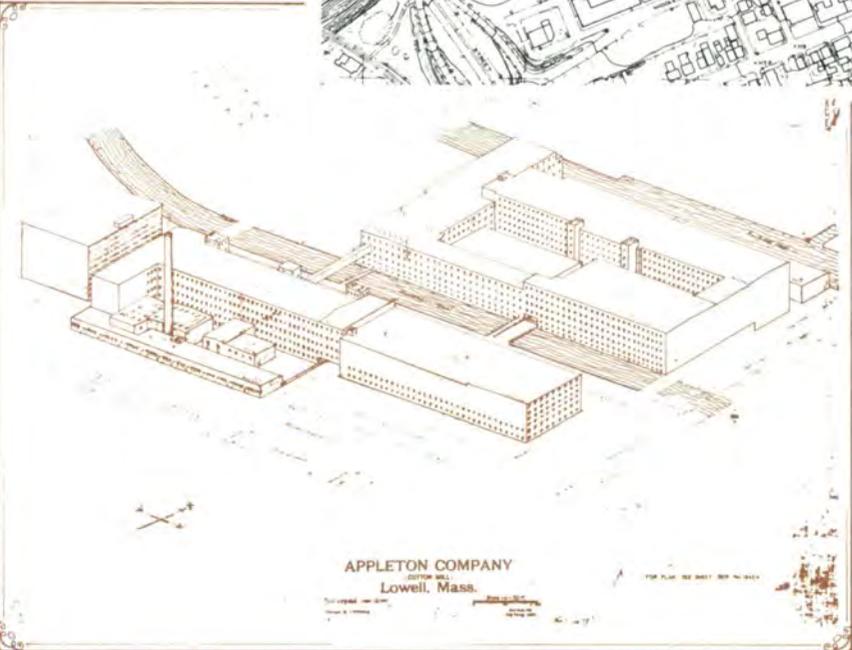


'26 Jackson Street' Hamilton Yard



Hamilton Canal running between the Courier buildings

- A HAMILTON YARD**
567,000 SF.
 - 1- EDUCATOR BISCUIT (27 Jackson Street)
 - 2- 26 JACKSON STREET
 - 3- COURIER CITIZEN
- B JACKSON PROPERTIES**
1,065,000
 - 1- JACKSON MILLS (27 Jackson Street)
 - 2- APPLETON MILLS
- C LOWELL MFG CO. (1830)**
 - 1- 246 MARKET STREET
 - 2- 256 MARKET STREET
- D NEW MARKET**
 - 1- 200 MARKET STREET
- E OLD MARKET (1837)**
 - 1- OLD MARKET (formerly Police Station)



Courier Building - gate & entry

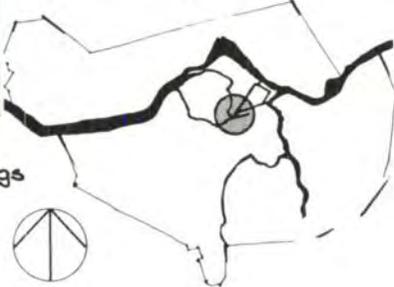


FIGURE
11

Area IV: Whipple Powder Mill, Wamesit Power Mill, Sterling Mill Mill

This area includes:

	<u>Date</u>	<u>Square Feet</u>	<u>Status</u>
Wamesit Power			for sale rental space available
Whipple Powder	1820	in ruins	for sale
Sterling Mill	c 1850	28,000	owner occupied

Area IV is dominated by industrial development in the Wamesit Power complex. Here, an attempt has been made to turn 19th century buildings to 20th century uses. Wamesit Industrial Park has torn down many of the old mill buildings to improve access to the industrial complex. These buildings will probably remain as they are for industrial use, although much of the old character of the mills is no longer there. On the other hand, the Sterling Mill not only retains its old mill character but can be seen in one of the most pleasant settings in all of Lowell. Situated on the bank of the Concord River it might be considered an ideal building for re-use, possibly as residential. This building, however, is owner occupied and will probably continue to be used as it is in the absence of public intervention. Another major asset of this area is the Wamesit Canal, which is on a separate level from the rest of the Canals in the Lowell system, with about a 30' head above the Concord River. This stretch of the Concord River, running from the Sterling Mill in the North to the Hurd-Fairgrieve Mills in the south, is potentially one of the major green belts of Lowell.

The Whipple Powder Mill, however, should be noted as an important historical landmark which is in very bad repair. The feasibility of re-use or preservation of this building should be studied in Phase II. Should any reconstruction of the Sterling Mill be desired, the Whipple Mill or its site will be an important landscaping element to consider.

Figures A-5 and A-6 summarize site and building characteristics in this area.

Area V: C. I. Hood, Old County Jail, and South Common

This area includes:

	<u>Date</u>	<u>Square Feet</u>	<u>Status</u>
C. I. Hood Building	1883		owner occupied
Old County Jail (Kieth Academy)	1856		occupational therapy for the blind and school use

Area V is isolated from adjacent areas by several major clear open spaces. The South Common, planned to be rehabilitated, is across Thorndike Street. The Hale-Howard urban renewal area to the west is nearly totally vacant. The Lowell connector to the south is also a discontinuous element with the mill fabric. The adjacent B. & M railroad station, which is scheduled to be the site of a major transportation terminal, is directly to the west. This project will provide increased parking, better access, and some better signage. These improvements, plus better train service, could have a favorable impact on re-use potentials for the Hood building for Boston-based commuters. However, this mill is owner-occupied, and includes several healthy businesses, which may mitigate against possible re-use.

Other Structures

In addition to areas one through five noted above, there are several other miscellaneous mill structures throughout the city. These have not been treated separately since there are either plans for their immediate re-use (e.g., Pilling and Stackpole mills) or site difficulties (e.g., mills along the Pawtucket Canal which are currently owner occupied and for which no future re-use is seen since they are boarded by the railroad yard on one side and the Pawtucket Canal on the other side). Phase II will seek to uncover smaller buildings whose re-use may not now be obvious, but whose location may in future make them important subjects for re-use and whose scale may well be better suited for such things as small offices, private houses, boutiques, or restaurants.

Obvious historical assets, noted in previous sections, are the gatehouses and locks on the canal system (see Figure 12). These have been documented by the Historic American Engineering Record in the Summer of 1975 (see Figures A-9, A-10, and A-11 for examples). These drawings will be useful in subsequent project phases for re-use planning.



D

C NORTHERN CANAL
WASTE GATES
see figure A-11



A

AREA KEY

GATEHOUSE LOCATIONS



D

- | AREA | GATEHOUSE |
|----------|----------------------------|
| A | MERRIMACK GATEHOUSE |
| B | TREMONT GATEHOUSE |
| C | NORTHERN CANAL WASTE GATES |
| D | NORTHERN CANAL GATEHOUSE |
| E | FRANCIS GATEHOUSE |
| F | SWAMP LOCKS |
| G | LOWER LOCKS |

E FRANCIS
GATEHOUSE
SEE figure A-9

B

G



F SWAMP LOCKS
see figure A-10



FIGURE
12

PRESERVATION MECHANISMS
AND STRATEGIES

The Phase I work involved an investigation of the various mechanisms available for historic presentation. Phases II and III will deal with the applicability of each of these mechanisms to Lowell and the recommended plan. Eleven generic preservation mechanisms were identified:

- o Fee Acquisition for Preservation Purposes
- o Preservation Easements, Covenants and Restrictions
- o Special Purpose State Land Use Commissions
- o Historic District Zoning
- o Floating Zones or Special "Mini-Districts"
- o National and State Registers of Historic Places
- o Transfer of Development Rights
- o Revolving Loan Programs
- o Tax Incentives
- o Preservation Grants
- o Public Awareness and Enlightened Private Ownership

The first six techniques are control mechanisms which involve either ownership or regulation of buildings, spaces, or land use; the last five techniques are incentive mechanisms which reward or encourage desired preservation activities. The techniques are arranged in a descending hierarchy roughly according to their probable degree of effectiveness as preservation tools. In the extreme case, properties which are acquired for preservation purposes will be effectively maintained for the foreseeable future in almost all circumstances. Properties subject to preservation easements, covenants, and restrictions are less secure because the owner does not have a direct interest or stake in preservation. At the other end of the scale, preservation strategies based solely on increasing public awareness and enlightening private owners are not likely to result in effective preservation in many instances. It should be emphasized that most preservation strate-

gies rely on a combination of several of the above tactics, and that under certain circumstances any of the above techniques might prove to be very effective.

The following sections discuss each technique briefly, and cite case examples where each has been used for potential further investigation in Phases II and III.

Fee Acquisition for
Preservation Purposes

Ever since the State of New York spent \$8,391 to purchase the Hasbrouk House in Newburgh (Washington's headquarters during the last two years of the Revolution), government agencies and private foundations have been buying and maintaining historic buildings for the purposes of preservation and visitation. Many of these structures are associated with patriotic characters or events, but some have been preserved for their architectural or aesthetic merit alone. Every town of modest size has its share of historic house museums--there are over 2,500 nationwide. Many museums such as these are managed by non-profit corporations set up solely for the purposes of generating an income or disbursing the income from an endowment in order to maintain a particular structure. Some non-profit Corporations manage the preservation of many properties. Local governments may also acquire historic structures solely for preservation purposes, but often such buildings are maintained in some continuing use. Many state preservation commissions and agencies own and maintain historic sites and structures which are opened to the public. An example of state action in Lowell is the proposed Heritage State Park, to preserve and improve the canals. Finally, the federal government owns and preserves hundreds of nationally significant historic places as units of the National Park System.

Examples of this technique include:

- o Federal ownership through the National Park System; with a variety of potential administrative and maintenance arrangements.
- o State ownership -- Such as the New Jersey Department of Environmental Protection (Historic Sites Section), which owns about 25 sites.

- o A regional, non-profit corporation -- Such as the Society for the Preservation of New England Antiquities, which manages over 60 houses across New England.
- o Private, single-purpose groups -- Such as the Old South Association which owns and manages the Old South Meeting House.

Preservation Easements, Covenants, and Restrictions

An easement is a legal restriction imposed on the use of a parcel for the benefit of someone other than its owner. Depending on the jurisdiction, easements for historic preservation may include any portion of the exterior or interior of a structure or its site. In most instances, preservation easements are acquired by state agencies or private foundations in the attempt to limit alterations, other actions or uses detrimental to the appropriate preservation of an historic resource. Easements may contain obligations as well as restrictions on either party. For example, an agency acquiring an easement over a building facade may obligate itself to maintain that facade in its historic appearance. The advantages of acquiring easements for preservation are (1) they are far less costly than fee purchase; (2) the cost of maintenance is normally left with the property owner; (3) the property can remain in productive use and therefore remains on the tax rolls, although usually at a lower assessment value. In most jurisdictions, preservation easements are binding on the land up to a specified period--30 years in Massachusetts, for example--unless other arrangements are made within the easement agreement. Normally, the entity holding an easement cannot transfer its rights to another party.

Facade easements may be an appropriate technique for mills or mill yards, but some form of compensation must probably be paid to the owners.

Examples of this technique include:

- o Preservation easements on facades held by Historic Annapolis, Inc. and the Maryland Historical Trust in Annapolis, Maryland.

- o Restrictive easements on historic properties in exchange for historic markers in Richmond, Virginia.
- o Purchase/buyback arrangements to permit the Salem Redevelopment Authority to upgrade historic buildings in exchange for long-range restrictive covenants.

Special Purpose State Land Use Commissions

Land use control in this country traditionally has been exercised through local zoning ordinances and subdivision regulations. However, there are obvious limitations to this system when dealing with developments of region-wide impact or with natural and historic resources of greater than local concern. In recent years, a number of states have moved to replace local government and private decision making on important land use questions with some degree of state control. Often, powers are vested in a body established by the state legislature to manage land use decision making either for a specific regional area--San Francisco Bay, for example--or on a state wide basis. The jurisdiction of a regional land use management agency could encompass parts of two or more states. Normally, land use management bodies are given the authority to prepare land use plans for their jurisdictions and the power to enforce compliance with planning decisions by requiring that certain developments receive commission approval prior to implementation. For preservation purposes, permits could also be required before structures are altered or demolished.

Examples of such agencies include:

- o San Francisco Bay Conservation and Development Commission, Calif.
- o Adirondack Park Agency, N.Y.
- o Lake Tahoe Regional Planning Commission, Calif./Nevada
- o Martha's Vineyard Land and Water Commission, Mass.

Historic District Zoning

An historic district zone may be established either directly by a state legislature to deal with the needs of a specific area, or via general enabling legislation authorizing all municipalities to enact historic zoning ordinances. Many statutes require that a local historical commission exist in order to administer activities relating to preservation within an historic district. When an historic district is established, all property within the district becomes subject to special regulations. Normally, these regulations bar property owners from construction, alteration or demolition activity within the district without prior approval by the commission, but the commission has no jurisdiction over the design or use of the interior of a building. Changes within historic districts are normally permitted only when they are planned to strengthen the character of the area. Controls over new buildings can be accomplished on a voluntary basis, but the best protection is provided by regulations written into the ordinance which set appropriate architectural standards. Examples of local districts in Lowell include the City Hall Historic District and the Locks and Canals Historic District.

Examples include:

- o Beacon Hill Historic District, Boston, Ma.
- o New York City Landmarks Preservation Law, 1965 (Landmarks Commission)

Floating Zones or Special "Mini-Districts"

Use of floating zones or special mini-districts may allow a municipality to lend protection to isolated landmarks within the context of the local zoning ordinance. The "floating zone" is a zoning category which has specified criteria for eligibility, rather than a fixed geographical location. By adopting criteria for qualification, the local government makes an advanced statement of the terms and conditions under which it will re-zone individual properties to the floating zone category. Properties are then re-zoned at the request of any owner who can demonstrate that his property meets the specified criteria, or at the designation of a technically qualified body. This arrangement allows a preservation commission, for example, to decide on a case by case basis

whether an individual property should be reclassified and regulated as a landmark. In the case of a floating preservation zone, the ordinance would normally impose design and demolition controls and possibly other restrictions on properties re-zoned to the preservation category. The "mini-district" approach establishes what are essentially one or two property special zoning districts encompassing one or more individually significant landmark structures. Precise controls with respect to lot size, design, demolition, and the permitted uses of the property are spelled out in detail in the district regulation. For all practical purposes, the mini-district is not unlike other zoning classifications.

Examples of such districts include:

- o N.Y.C. Landmarks Commission
- o Norfolk, Virginia

National Register of Historic Places and State Registers

Historic properties recognized as nationally significant may be placed on the National Register of Historic Places. Historic properties of state, local, as well as national importance may be nominated to the National Register by States and Territories and by federal agencies. Non-federal properties on the National Register may be considered for federal historic preservation grants-in-aid. Federally assisted or licensed undertakings that may affect National Register properties are subject to review and comment by the Advisory Council on Historic Preservation under Section 106 of the National Historic Preservation Act of 1966. Objects, structures, buildings, sites, and districts are all eligible for inclusion on the National Register without the consent of their owners. Several Lowell properties are on the National Register (e.g.-Glassworkers housing and "the Roundhouse"). The Locks and Canals Historic District is currently being proposed for inclusion on the National Register. Some states have enacted statutes which complement the National Register by protecting registered properties against encroachment by state, county, and municipally funded projects. New Jersey, for example, has established its own state Register of Historic Places which includes sites on the National Register and other sites.

Transfer of Development
Rights (TDR)

The potential to develop a piece of property is defined in local zoning ordinances in terms of allowable density, height, bulk and other requirements. Under certain circumstances, all or part of the development potential of one site can be transferred to other sites in the same municipality. Transfer of development rights can be used to preserve buildings and sites by making it possible to permanently remove the ability to develop a property for more intensive uses. The owner can be compensated for the resulting loss in the value of his property by being able to sell excess development rights either directly to the owner of another property in a designated area, or to a development rights bank. In the former instance, the rights purchaser may develop his site to a greater density than otherwise would be possible under the zoning ordinance. Under the latter scheme--which is yet to be implemented in any municipality--the bank would pool the rights it acquires and sell them in varying increments as demanded by qualifying site owners. Other schemes are also possible, but in all cases, the transfer of development rights from a property must be irrevocable if the procedure is to be effective for preservation purposes. Although a number of plans have been put forward, TDR schemes have been implemented in the following two localities:

- o New York City (Amster Yard example)
- o Sunderland, Mass.

The Chicago Plan has also proposed TDR for the Loop Preservation District, but has not yet been implemented.

Revolving Loan Programs

The basis for a revolving loan program is a fund of money normally established by one or more private donors, or lent or granted by a government agency. In most cases, revolving loan funds are administered by private, non-profit corporations. The Lowell Development and Finance Corporation is a potential example of such an entity. Money is drawn from the fund for the purpose of buying historic properties for re-sale to private individuals--normally under a covenant requiring preservation or restoration of the property. As a building is re-sold and permanent financing

obtained, money returns to the fund to be used in subsequent undertakings. Often the non-profit sponsor will rehabilitate homes to varying degrees before they are re-sold. A non-profit sponsor may work a deal with the Federal Housing Administration to purchase repossessed buildings at a discount; it may make arrangements with contractors to restore a number of structures at one time at a reduced per unit cost; it may recruit a state housing finance agency to provide permanent mortgages at its slightly lower interest rates; it may tap foundations and other sources for additional money to augment the fund. Usually, the loan fund principal (no or little interest) is returned to its source at the termination of the program.

Examples of successful programs include:

- o The Historic Charlestown Foundation, in Charlestown, South Carolina
- o The Camden Housing Improvement Program in Camden, N.J.
- o The Pittsburgh History and Landmarks Foundation in Pittsburgh, Pa.

Tax Incentives

State and local tax laws may be used to provide inducements for preserving existing structures as a form of indirect public subsidy. Most often, tax incentives are used in conjunction with other preservation mechanisms. For example, historic commissions and property under their control are usually declared tax exempt. Federal and state income tax laws encourage landowners to donate property to preservation societies by allowing deductions for the value of the property donated. A number of state legislatures have enacted tax policies which enable local municipalities to reduce property taxes on historic structures, thereby encouraging the owners of such properties to maintain, rather than alter or demolish, them. This may be a strategy which is applicable to many of the mills which are largely vacant, to save them from demolition.

Examples of tax relief provisions which provide tax exemption or abatement include:

- o The New Mexico Cultural Properties Act
- o Connecticut law

Preservation Grants

Specific preservation grants are available from several sources on the federal level. Other programs--like Community Development Block Grants--are not specifically aimed at preservation, but may be creatively used by local communities to achieve preservation aims. It is also possible for a municipality or state to initiate its own program of financial assistance through revenue bonds. Maryland has used this approach to finance the purchase of facade easements. A community might also arrange with a state housing finance agency to provide low interest loans in support of preservation or, perhaps, to guarantee commercial bank loans to landmark owners at low interest rates, similar to existing programs for low cost housing.

Examples of grant sources include:

- o Funds authorized under the National Historic Preservation Act of 1966; for historic planning and acquisition
- o Funds authorized under the Land and Water Conservation Fund

Public Awareness and Enlightened Private Ownership

Public education and friendly persuasion are a part of almost every preservation strategy. For example, many communities have published handbooks to aid building owners in restoring their property. Frequently, local historic associations will try to educate owners about the historic and architectural values of their structures through a marker program. The association places a distinctive marker on the structure if the owner agrees to a certain standard of maintenance. If the owner fails to meet this standard, the plaque is removed. Special events and activities revolving around historic themes in the community can also contribute substantially to an effective public education program. Volunteer improvement depends

on an adequate rental or sales market to warrant expenditures of funds for historic preservation on the grounds that property value will be increased by area-wide preservation. In the absence of such a market this technique is questionable. Examples of places where this approach has worked include:

- o Newport, R.I.
- o Portsmouth, N.H.
- o Newburyport, Mass.

Other areas where private investment in preservation has been spurred by public programs include:

- o Philadelphia, Pa.
- o Boston, Ma. (Charlestown and South End)
- o Baltimore, Md.

INVENTORY OF ECONOMIC POTENTIAL

INTRODUCTION

The Lowell Urban National Cultural Park (LUNCP) will affect and in turn be affected by major sectors of the regional economy. As a background against which to understand the potential of the LUNCP for stimulating (or perhaps retarding) economic growth, a review has been made of the major regional economic sectors. This work is essentially an updating of recent materials, particularly the economic component of a recent transportation study of the City of Lowell. It incorporates data and information from the following sources: Northern Middlesex Area Commission; Lowell City Development Authority; Economics Research Associates; U.S. Census; Massachusetts Department of Employment Security; and others, including the work of other consultants.

The projections reflect, for the most part, a continuation of current government and private policies and investments and show what the future would look like were current trends to continue. However, the projections are not meant to assert that the trends must continue. On the contrary, the LUNCP is an example of a public policy tool that can modify the future of Lowell. An inventory of economic potential must go beyond projecting the continuation of current trends. It must identify areas of economic opportunity which are responsive to public policy and public/private collaborative efforts.

The base data has been analyzed to afford a preliminary identification of these areas of economic opportunity. Discussions have been initiated with community residents and business people to under-

stand the potential and to identify mechanisms for implementation.

The subsequent economic review has been organized into four sections:

- o retail
- o office
- o housing
- o industry

The review of potential demand for various uses in the City is generally expressed as a "net" demand for floor area or dwelling units for various uses. As such the figures do not directly account for potential variations in the actual demand for new space represented by replacement of existing space users or the actual addition of new space based on higher levels of economic activity. They represent, therefore, a conservative, base line demand condition and should be considered as illustrative of ranges of demand for space in the City, given a continuation of existing trends.

RETAIL ECONOMIC POTENTIAL

Several approaches were used to understand Lowell's retail potential. Trends were examined for construction of retail space, employment in retail trade, and retail sales.

Construction of Retail Space in Lowell

In the twelve year period from 1960 to 1972, construction of retail space in Lowell averaged about 92 thousand feet per year. The annual average for the last five years of that period dropped to 72 thousand feet of retail construction. From 1972 to 1976 annual retail construction has averaged less than the prior 5 year period with only eleven building permits issued for retail construction. This is a very modest rate of construction of retail space given the population and retail sales of the region. (See Table 4)

Employment in Retail Trades

Thirty-one percent of the city's retail jobs were concentrated in central Lowell in 1972. Many of those retail jobs not in the center city were nearby, so that fifty percent of Lowell's retail employment was found within, or nearby, downtown (the area bounded by the Canal and Merrimack River on the north and Summer and Charles Streets on the south). Based on a continuation of current trends, the 1972 retail and office employment of 17,487 people would grow by 139 people per year through 1995. Assuming these people were employed in new or rehabilitated structures, the new space demand based on this employment increase would be between 21 and 38 thousand square feet per year. This is a very modest demand, less than 1% of existing floor area in such uses. (See Table 5). If current retail construction and employment trends were continued, there would be very modest demand for additional retail space. However, an analysis of regional retail sales reveals several opportunities to influence those trends.

Retail Sales

The amount of yearly CBD retail sales was about the same in 1972 as it was in 1967 about \$53 million. General merchandise stores (such as department-type stores), apparel, and furnishings and equipment stores registered a modest increase (10.2%) in sales during that period. All other types of stores (except convenience stores) in the CBD registered a substantial drop (35.6%) in sales: over 3.6 million dollars. However, these types of stores for the whole Lowell SMSA increased retail sales 60.3% (over \$59 million) despite the drop in CBD sales. The implication appears to be that people are still coming to CBD Lowell to purchase certain types of shoppers' goods, but appear to be shifting discretionary purchases elsewhere. (See Table 6)

A preliminary finding, which requires further study, is that an opportunity exists to aggressively promote specialty retail sales in the CBD. This perception of opportunity is further reinforced by comparing Lowell's performance in sales per capita with other Massachusetts communities lying within comparable regions. (See Table 7) First, the Lowell SMSA is below average in per capita retail sales. This is not a function of lower income, nor can it be considered strictly a shadow effect from

New Hampshire, or Boston, 128, since Lawrence/Haverhill, also subject to similar "shadow" effects, is performing above average in retail sales.

Table 4: RECORD OF "NEW" INDUSTRIAL AND COMMERCIAL CONSTRUCTION (SQUARE FEET OF FLOOR AREA)

Year	Industrial	Office	Retail
1960	69,980	5,860	60,118
1961	5,248	20,650	134,017
1962	167,795	280	39,119
1963	58,779	5,072	91,978
1964	126,203	32,706	181,644
1965	93,988	17,716	111,308
1966	317,248	18,538	128,722
1967	184,705	8,524	87,917
1968	56,604	16,962	40,639
1969	87,744	75,001	116,181
1970	33,881	6,504	84,505
1971	64,004	83,889	32,913
<u>(1960-1971)</u>			
12 yr. Total	1,266,172	291,702	1,109,061
12 yr. rate/yr.	105,515	24,308	92,422
<u>(1967-1971)</u>			
5 yr. Total	426,938	190,880	362,155
5 yr. rate/yr.	85,387	38,176	72,431

Source: Lowell City Development Authority

Over 70% of the Lowell region's below average retail sales compared to similar areas are accounted for by the City of Lowell's performance at only 83% of average. This occurred in the context of Lowell CBD performing somewhat above average, so that there is clearly some strength yet in the CBD. If the Lowell CBD were to recapture its 1967 proportion (20.2%) of SMSA sales from its 1972 slip to 12.5% of SMSA sales, that would produce about \$33 million in additional CBD sales. That would represent an increase of over 60% over 1972 CBD sales; a major effort would clearly be required to achieve this. If an increase of this magnitude can be achieved and if somewhat over half of this increase were to be in a new specialty center; then approximately 200,000 square feet of additional retail space could be supported. Such a center

Table 5: NET FLOOR AREA DEMAND FOR RETAIL, OFFICE SPACE FOR LOWELL CITY (BASED ON EMPLOYMENT PROJECTIONS)

1972	Retail, office workers (1)	17,487
1995	Projected retail office workers (trend)	20,684
Total net addition of workers		3,197
Average annual addition 1972-1995		139
Average annual net floor area demand		
	at 150 sq. ft. per worker	20,850 sq. ft.
	at 275 sq. ft. per worker	38,225 sq. ft.
(1) includes Standard Industrial Classification categories 50-59, 60-66, 70-89		
Source: Economics Research Associates		

Table 6: RETAIL SALES TRENDS

	Retail Sales Categories			
	General Apparel & Furniture (G.A.F.)	Convenience	All Other Sales	Total Retail Sales
<u>Lowell SMSA</u>				
1967	67,310	99,680	98,115	265,105
1972	N/A	N/A	157,244	421,868
% Change ('67-'72)	N/A	N/A	60.3%	59.1%
<u>Lowell CBD</u>				
1967	29,573	10,149	13,808	53,550
1972	32,589	9,995	10,185	52,769
% Change ('67-'72)	10.2%	(1.5%)	(35.6%)	(1.5%)
<u>Lowell CBD as % of SMSA</u>				
1967	44.0%	10.2%	14.0%	20.2%
1972	N/A	N/A	6.5%	12.5%

Source: U.S. Census of Business

would have the potential to strengthen and diversify the attractiveness of Lowell's downtown.

Table 7: RETAIL TRADE CHARACTERISTICS; SELECTED MASSACHUSETTS METROPOLITAN AREAS

	Per Capita Sales Figures by Area		
	SMSA Sales Per Person	Central City Sales Per Person	CBD Sales Sales Per Person
Brockton	\$2,023	\$1,486	\$ 153
Fall River	2,154	1,524	--
Fitchburg	2,306	1,290	342
Lawrence/Haverhill	2,569	1,280	214
Lowell	2,010	1,011	248
New Bedford	2,238	1,334	--
Pittsfield	2,836	2,114	--
Springfield	2,235	849	99
Worcester	2,484	1,334	307
Average SMSA	2,295	1,222	--

Source: U.S. Census of Business

Accomplishing this would require major investment and establishment of major attractions and amenities. This suggests linking LUNCP improvements and attractions with the development of such a specialty center. Were LUNCP to draw, for example, up to 750,000 day visitors per year (a considerable attendance figure), perhaps as much as an additional \$7.5 million would be spent in Lowell, further strengthening the viability of such a specialty center. Establishing a viable size for such a center requires examination of a proposed mix and attainable target figures, in the context of current proposals for the downtown. Also required are assessments of access and parking, public and private investments necessary to create the required level of amenity, and financial feasibility of alternative specialty development strategies. Such questions can be addressed in Phase II of this study.

At the conclusion of this preliminary reconnaissance, there do appear to be strong preliminary indications that there are potentials for increased retail sales and additional retail facilities in Lowell.

OFFICE SPACE POTENTIAL

Office Construction Trends

Preliminary investigation indicates very weak demand for speculative new office space and very modest demand for custom built offices. Records since 1960 show variable construction activity ranging from near zero to over 80,000 square feet per year. There is currently much available stock of older office space at low rents (below \$3/foot) and no indication yet that a market yet exists for new speculative office space at rents that would be required for financial feasibility. Data in Table 4 indicates the absorption of new office space from 1960 through 1971. In the period from 1972, only 3 building permits were issued for office construction in the city.

HOUSING ECONOMIC POTENTIAL

Construction of Housing in Lowell

The average annual construction of multifamily housing in Lowell from 1960 to 1975 has been over 350 units yearly. It has not yet been determined what the mix of subsidized, market and bedrooms counts has been. Data in Table 8 shows the yearly construction of housing types in the city.

Housing Demand

Historical and projected population trends are indicated by data in Tables A-1 and A-2 and indicate the average annual population change for the region. An analysis of the 1970 census confirms the tremendous need for standard, subsidized housing. Over 4,000 units renting at under \$100 per month are needed by conventional standards of ability to pay. More surprising though, is the potential latent demand for higher priced units.

Preliminary examination of census data shows that there are over 3,000 renter households of under four people with incomes of over \$10,000. There are almost 1,500 one and two person households earning over \$10,000. The data indicates that there are over 500 renter households with the capability of paying over \$300 per month for rent by conventional standards.

Table 8: HOUSING CONSTRUCTION RATE FOR CITY OF LOWELL (Dwelling Units)

Year	All Types	Annual Figures for the City of Lowell	
		Units in Three or More Unit Structures	
1960	236	13	6
1961	218	83	38
1962	370	188	51
1963	266	133	50
1964	289	140	48
1965	485	329	68
1966	565	319	57
1967	445	372	84
1968	705	206	29
1969	344	265	77
1970	1,135	1,072	94
1971	1,245	790	64
1972	794	765	96
1973	261	196	75
1974	259	235	91
1975	290	246	85
Total 1960-75	7,907	5,352	68
Average Annual	527	357	--

Source: Building Permit Data

Thus, the preliminary indication is that there might be demand for market rate new construction of rehabilitated rental housing. Detailed market research is necessary to determine under what conditions, if any, renter households with various income levels would be willing to rent units at higher market rate rent levels. If demand can be demonstrated, there may be more potential than heretofore understood for utilizing in-town locations, possibly involving conversions of mill space to luxury housing with modern amenities.

INDUSTRIAL ECONOMIC POTENTIAL

Construction of Industrial Space in Lowell

In the twelve year period from 1960 to 1972 construction of industrial space in Lowell annually averaged about 106,000 square feet. The annual average for the last five years of that period dropped to about 85,000 square feet (see Table 4). From 1972 to 1976 11 building permits were issued which included only 2 manufacturing facilities, with the remainder being warehouses, truck terminals, and associated uses.

Employment trends

In the same twelve year period (1960-1972) the strongest growth was in the service sector, with health, business services, membership organizations, and education being the major areas of growth. There were some growth areas in manufacturing including machinery (other than electrical), paper and allied products, rubber products, and chemicals. Banking and insurance have also been growth categories (see Table A-3).

The changes in employment have been complex rather than simple trends, and even within shrinking categories (for example, leather products), there have been examples of growing and viable firms. Generalizations can be made, however, and the implications for public policy drawn from projecting trends into the future.

In the period from 1960 to 1972 the City of Lowell increased employment by just under 300 jobs per year. This occurred despite an annual loss in the same period of over 250 manufacturing jobs. Lowell's suburban communities have been growing at a more rapid rate than the city itself. These rates of change should not obscure the fact that Lowell in 1972 provided about two thirds of the region's jobs; that almost half the jobs in Lowell then were manufacturing jobs; and that employment, particularly manufacturing, was heavily concentrated in the central part of the city (see Tables A-4 and A-5).

It is sobering to realize that if all the employment increase projected by the trends extended for the next 23 years in Lowell were to be housed in the mills, the existing vacancies would perhaps not

be totally absorbed (see Table 9). The period 1960 to 1972, with similar magnitude of employment growth produced an estimated net floor area demand of approximately 625 thousand square feet, substantially less than half the vacant existing mill space.

However, several factors create a potential which has not yet been clearly assessed or understood. The gap in cost of providing new as opposed to utilizing existing space continues to grow. Industries, particularly infant industries, still find inexpensive mill space attractive and may increasingly in the future. Operating costs of existing mills may prove lower than new construction, since multi-story buildings have lower heat loss and may prove less expensive to heat. Some mill owners are also able to provide electric power at rates below that charged by the utilities. Also it may turn out that mills have potential amenities which firms can rediscover.

Table 9: NET FLOOR AREA DEMAND FOR LOWELL SMSA
(BASED ON TRENDS EXTENDED EMPLOYMENT PROJECTIONS)

	<u>Employment Change</u> 1972-1995		<u>Range of NET</u> <u>Floor Area Demand</u>	
	<u>Total</u>	<u>Average Annual</u>	<u>Total</u> ^{/1}	<u>Average Annual</u>
Lowell SMSA	33,061	1,437	5,950,980 9,091,775	258,660 395,175
City of Lowell	6,907	300	1,243,260 1,899,425	54,000 82,500
Lowell Suburbs	26,154	1,137	4,707,720 7,192,350	204,660 312,675

^{/1} Based on a floor area ratio of 180 sq. ft. per worker to 275 per worker. 180 per worker represents net average in Lowell from 1960-72.

Source: Economics Research Associates

It is readily apparent that mill space is inexpensive, and plentiful, and that similar space would be considerably more expensive to produce now. It is not clear yet exactly what will be made of these advantages, nor what the timing of future mill utilization will be. For the near future the abundance of mill space will not be absorbed by the foreseeable market, and so it seems prudent to explore mechanisms and costs involved in conserving mill space as an existing man-made resource for future use.

INVENTORY OF EDUCATIONAL AND CULTURAL RESOURCES

OVERVIEW

An extensive data-gathering, culling and inventory has been initiated to provide a relevant background for the development of worthy program elements. This effort has produced four major "products" to date:

- o a "system" for encoding information about educational and cultural programs
- o a physical file of all contact records and back-up documentation
- o a summary listing of the file entries to date (see the Appendix of this report)
- o a review of national and state funding trends in education and cultural programs (see below).

METHOD

The inventorying project consisted of:

- o Identification of existing cultural institutions, events, organizations, activities, agencies and key supportive groups and funding sources. While still incomplete, the survey has inventoried the range of local and regional assets including performing arts organizations and companies, museums and collections, societies and cultural arts agencies.

- o Compilation of a contact file listing individuals and their affiliations, and where appropriate, program efforts which can or should be brought into coordination with the LUNCP.
- o Identification of direction and thrust of current and proposed educational planning efforts and funding allocations or patterns of support for educational programming at local, state and federal levels, and among institutions directed at a wide range of students...elementary through continuing education programs, special needs, bilingual, vocational training and arts education.

The above efforts have been undertaken through a number of means, including interviews; telephone and on site visits; surveys of current publications; participation in seminars and conferences; and community meetings. The Lowell Team has maintained records of all contacts which included scores of Lowell's educational and cultural leaders. In addition, various reports and documents were examined for additional listings of educational and cultural activities. The data has been organized into fifteen categories and is summarized in Table 10. Files have been set up for each category and will be maintained and supplemented as the project proceeds.

GENERAL CONCLUSIONS

The data and the collection process suggest the following conclusions could be drawn:

- o There are many on-going programs in Lowell which can be integrated into the Park.
- o There are programs in other places (see the Guild School in North Adams) which could be models for programs in Lowell, i.e., "imports".
- o There are quite numerous studies available pertaining to Lowell's history, the canals and the people.
- o The number and variety of ethnic groups might constitute a key factor in educational programs and plans.
- o The University of Lowell is an active, vital educational center and resource with great

potential for involvement in the community and the Park project.

- o Educational and cultural activities cover a very broad range from bicycle tours to an International Conference on Nuclear Effects.
- o There are many enthusiastic individuals who want to participate in the process of interpreting Lowell to itself and to others.
- o Lowell is particularly rich in musical resources and programs and to a lesser degree in artistic resources.
- o Lowell has the potential for becoming a major conference center.

FUNDING TRENDS

National and state trends in education (and therefore possible sources of funding) will affect the educational and cultural planning for Lowell's Urban National Cultural Park.

The most remarkable trends presently underway in American education, events that could and perhaps should shape the educational and cultural planning for the UNCP, are summarized below.

Expanding the Educational Options Available to Students, Parents and Adult Learners

After many years of offering a constrained and limited educational diet to all Americans, the educational system is beginning to open up, to expand its conception of who it serves and how. Institutions are finally acknowledging the well-known fact that individuals differ, that no single kind of school or school system can adequately serve every student or every age student, young and old.

There is an increasing number and the availability of options being offered; not just to school children but to adults as well. We are beginning, first, to offer parents a choice of the kind of school their children will attend, ranging from very traditional, highly structural schools to unconventional, more open types.

America in the 1970's is beginning to change its notions of who goes to school, when and why. It has been successfully demonstrated that twelve or sixteen years of connective lower schooling can be broken up with periods of non-school learning. We are beginning to see education as a lifelong process, with many of us changing careers and needing or wanting new knowledge and information as we continue to develop throughout our adult lives.

This means that a new educational/cultural institution such as UNCP must be designed in such a way that it becomes a major new option in the educational system now being constructed. Both children and adults need to see it and use it as a quite new, delightful and eminently useful way to "go to school", to continue their development and to expand their own educational horizons.

**Building Bridges between
Education and the Larger
Community**

One result of the movement towards expanding our educational world is the realization that the world of school and the larger world beyond school have too often been quite separated from each other, not only physically (incarcerating "school" and school children in schoolhouses) but intellectually as well (maintaining schools and all of the cultural riches of the outside world as disconnected institutions).

This new perception is leading to new institutions that attempt to re-connect schooling and the outside world: school/community centers in which educational, recreational and even commercial activities all go on under the same roof with space and facilities shared by school and non-school agencies and people; and the creation of new kinds of joint educational/cultural institutions out in the larger world, combinations of schools with large business enterprises and cultural institutions such as art and science museums, theatres, symphony orchestras, as well as public agencies such as libraries, parks and recreation departments and city halls.

These new kinds of joint educational, cultural and economic development institutions are clearly what the UNCP should be: the collaborative design of a new educational/cultural/economic animal that provides both Lowell and visitors to Lowell with a new way of experiencing what used to be merely "school".

**Joining Education and
the World of Work**

One particular aspect of bridging the gap between school and the "real" world out there is to develop ways in which older students can learn about the world and its range of profitable careers by actually "going" to school in the businesses and industries upon which the community depends for its economic survival. This works to the advantage of both the school and the business sector: business is able to have better trained and more capable employees because it has had a hand in their education; the schools benefit from being able to provide students with a hands-on, "real life" education that can be seen by students as "about" something, as having some relevance to their future lives as adults. Programs such as the Experience Based Career Education programs are being supported by the National Institute of Education.

Again, the LUNCP should be a natural arena for the development of these kinds of "real world" career education programs as a collaborative enterprise of the public schools, local businesses, and industries, and the planning, development and operation of the UNCP.

Table 10: INVENTORY OF EDUCATIONAL AND CULTURAL RESOURCES

TOPIC AREA	ORGANIZATION	DESCRIPTION
<u>UNIVERSITIES</u>	<u>University of Lowell</u>	The University is a merger of two institutions: Lowell State College and Lowell Technological Institute. Its resources include seven colleges, a graduate school and continuing education facilities on a 100-acre campus. - Great enthusiasm for cooperating with the PARK - Sponsors many educational and cultural programs and projects that could be integrated into the Park's program to mutual advantage
<u>SCHOOLS - PUBLIC</u>	<u>Human Services Corp/ Lowell Public Schools</u> <u>Ethnic Heritage Studies Program</u>	A proposed project to the Office of Education for a one year, alternative Ethnic Studies program for 60 high school juniors. An interdisciplinary curriculum centered on ethnic studies of six different ethnic groups. Students learn about various groups in-depth, then conduct ethnic heritage programs for elementary schools of Lowell. This project is central to the Lowell Park concept and the concept of Lowell as an educative city.
	<u>Lowell School Department</u> On-going Special Projects	Project Independence: specialized reading project for children with reading problems and their families. Adult Basic Education project; Drug and Alcohol program; Learning Disabilities program; Library Book Purchase project; and others.
	<u>Lowell School Department</u> Various Proposed Projects	Metric System proposal; Title VII Bilingual program; High School Alternative programs being planned.
<u>EDUCATIONAL PROGRAMS</u>	<u>Museum of Transportation</u> "The Moving Game"	Program teaches children skills in transportation (how to get from one place to another; how to use maps; how to figure cost) using the city of Boston as a laboratory. - Model of an educational program that could be designed for Lowell
	<u>University of Lowell</u> American Studies Major	Use Greater Lowell area as a laboratory in a five-year "American Studies" major. - Excellent educational programs for the Park to cooperate with and perhaps design special facilities and programs for
	<u>Cultural Educational Collaborative</u> Education Programs	Descriptions of 20 or so programs from museums, zoos, theater companies, etc. that are currently running in the Boston schools. All these programs use special strategies to integrate children and are funded under WJE. - Good models for integration programs in schools - Existing cultural programs that could be plugged into Lowell schools

Table 10:

TOPIC AREA	ORGANIZATION	DESCRIPTION
	<u>Little Brown & Company</u> <u>My Backyard History Book</u>	Delightful approach to history centering on YOU, the reader, and fanning out to explore your own family and town - its history, its traditions - using specific tools for getting information, making sense out of it and relating it to YOU. - Excellent model for activities, games, etc. for children and adults exploring their personal history and their ties to Lowell and Lowell's history - Ideas for exhibits - Use as is, too - terrific!
	<u>Educational Planning Associates, Inc. and Chicago 21 Association</u> Community School Downtown	A plan for a community education system for the downtown area of Chicago. - Model for community education
	<u>Hoosuck Community Resources Corp.</u> The Guild School	An alternative form of education associated with the Massachusetts state college system. Involves teaching arts and crafts in restored historical buildings; the teachers are affiliated with the state colleges. - Excellent model for alternative education - Lowell could develop a "Guild School" incorporated into the Hoosuck program
	<u>Victoria International Corporation</u>	Victoria has a staff with backgrounds in attitude training, race relations and community development. Aim to train people to perform more effectively through attitude and behavioral changes. Serves industry, management, schools, etc. - Possibility - source of people experienced in training community people to deal effectively with community problems
	<u>Human Services Corporation</u> Center for Human Development <u>i.e., Experimental School</u>	An experimental "school" incorporating and integrating educational, health care and other services. Extensive use of the city itself as learning environment is part of the methodology. - Enthusiastic about close coordination with Park in creating facilities and programs that could be used jointly
	<u>Lowell Chamber of Commerce and Lowell Gas Company</u> "Economics for Young People"	Course teaches how our economy works, how it benefits us, how it raises our standards of living. - Model for involvement of a business and the Chamber of Commerce as an education program
	<u>Lowell Public Schools</u> Occupational Competence Program at Lowell High School	One-year, state-funded project to provide career awareness, attitudinal development and job skills. \$78,000 earmarked for Lowell. - Joint activities with students developing Park elements (trails, publications, projects, exhibits) - Existing network of support for Park

Appendix Five: Inventory and Data Base

Table 10:

TOPIC AREA	ORGANIZATION	DESCRIPTION
	<u>Human Services Corporation</u> Environmental Education	Development of learning activities and learning packages enabling "local people and visitors to interact . . . physical developments . . . which tell the story of Lowell's role in the American Industrial Revolution. - Motivate Lowell residents to become involved in LUNCP - Learning kits could be used by visitors to the Cultural Park
	<u>Human Services Corporation</u> Lowell Exploratorium	Neutral resource center for cooperative development of community educative projects.
<u>PROJECTS & STUDIES</u>	<u>HEW and Lowell Historical Commission</u>	Detailed description of the entire Lowell canal system.
	HAER (Historic American Engineering Records)	- Source material on the canal
	<u>University of Lowell</u> Canal tour boat design project	Student project - to design a tour boat especially suited to the Lowell canals. - Very relevant, a nice tie-together experience of the canals and Lowell
	<u>Dennis Frenchman</u> Thesis for Master of City Planning/Architecture "Connecting the Past to the Present: A Planning Strategy for Urban National Historical Parks"	Examines difficulties in planning large-scale, urban historical projects and proposes alternative strategy in which local needs and federal interests receive balanced consideration. This strategy is then applied to the development of a national historical park in Lowell. - Excellent source of information and strategies
	<u>University of Lowell</u> Canal studies	A research project at the University of Lowell investigating the biological, chemical and physical characteristics of the canal system, and to explore potential greater utilization of the system as a community resource. - A good source of information on Lowell's canal system - A source of ideas on the use of the canals by the community
	<u>Boston University</u> Community Sociology Program	A team of people is writing a social profile of Lowell. - Source of sociological information
	<u>University of Lowell</u> Philadelphia Social History Project	Large data collection project aimed at producing a comprehensive data bank for study of Philadelphia, 1850-1880. The data is mainly the lives of thousands of people. Urbanization, industrialization, and emigration are the 3 forces focused upon. - Model for Lowell's social history project

Table 10:

TOPIC AREA	ORGANIZATION	DESCRIPTION
	<u>Massachusetts Bicentennial Commission</u> Visible Cities	Program begun in 1973, under a Massachusetts bill intending to make the cities involved visible to their citizens, through programs originating within the community, and to point out the heritage and uniqueness of the city. - Model for programs aimed at interpreting Lowell to its citizenry and tourists
	<u>CONFERENCE & SEMINARS</u>	
	<u>University of Lowell</u> Professional Societies	Approximately 16 Societies at the University which sponsor lectures in the arts and sciences. The LUNCP could lead to a: - broadened base of support and - the lecture subject matter could be coordinated with pur- plans of the Park
	<u>University of Lowell</u> Lecture Series (4)	Lectures in economics, English, environmental sciences, geology. - Suggests the idea of joint series planned by LUNCP and University of Lowell
	<u>University of Lowell</u> "International Conference on the Interactions of Neutrons with Nuclei"	350 scientists from fifty countries will attend this conference in July. This is the first major conference on neutron physics to be held in the United States since 1957. World famous scientists will be in attendance. - Chance to build Lowell pride, to show world visitors what changes are taking place in Lowell - Chance to relate to ethnic groups. LUNCP could attract future international conferences
	<u>University of Lowell</u> Various Conferences	Mass. Council of Women in Public Higher Education - fall, 1975; Alternative Urban Technologies Conference - April 2-3, 1976; N.E. Asphalt Paving Conference - March 17, 1976; "Candidates' Night" - fall, 1975; "Popular Culture" Conference - fall, '75. The LUNCP could cooperate with the University to make Lowell a conference center and to have conference participants enter into the life of Lowell while visiting the city.
<u>CITY & COMMUNITY ORGANIZATIONS</u>	<u>Lowell Garden Club</u>	Promotes gardening. - Potential ties with the Park lands and forest
	<u>Spindle City Garden Club</u>	Promotes gardening in Lowell. - Resource of people interested in gardening who might be involved in gardening in the Park

Table 10:

TOPIC AREA	ORGANIZATION	DESCRIPTION
	<u>Human Services Corporation</u>	A non-profit, broad-based organization geared to improving the economic and social conditions of the community and region. Programs include economic and social planning, health care, educational research and career development. HSC is a direct outgrowth of and gives continuity to programs from the Model Cities era. It has been designated by the city to coordinate and promote the Urban National Park.
MUSEUMS & HISTORICAL SOCIETIES	<u>Lowell Historical Society</u> <u>The Lowell Museum Project</u>	Has designed an exhibition on the history of Lowell. Construction of the exhibit has been funded and it will be housed in a mill building. - Excellent program for Park programs - Promotes history of Lowell - Expressed interest in full cooperation with the Park
	<u>Hooisuck Community Resources Corporation</u>	A community development organization involved in restoration of historic buildings, including the Windsor Mill. Space will be used by artisans, businesses, and the Guild School. The Guild School is an alternative form of education associated with the Massachusetts state college system. - Model for restoration of mills and other historic buildings - The Guild School is an excellent model for alternative education and possibly could be aligned with a "Lowell Park Guild School" - Hooisuck is enthusiastic about cooperating with Lowell
	<u>Slater Mill Historic Site</u> <u>Museum and Collection</u>	Restored water powered, spinning machinery and cotton mill; 5 acres of parkland; 2 dams at falls of Blackstone River; important collection of early textile and machine artifacts. - Source of artifacts - Source of advice and counsel - Example of "off the beaten track" museum
	<u>Boston Children's Museum</u> <u>The Wharf - New Site for the Children's Museum and Museum of Transportation</u>	Children's Museum and Museum of Transportation are relocating to larger, more centrally located quarters. - Excellent model of cultural and educational programs - Good model of conversion of warehouse space to multi-program use - Program proposes to relate to waterfront - Good model of tenant mix options
	<u>Middlesex Canal Association</u>	Maintains a canal museum and a publication, "Towpath Topics". - Model for a canal museum and its programs - Model of a museum publication

Table 10:

TOPIC AREA	ORGANIZATION	DESCRIPTION
	<u>Report: "The Children's Museum of Inquiry and Discovery", Washington, D.C.</u>	Report assesses the feasibility of establishing a children's museum in the District of Columbia. Discusses the funding, staffing, facilities, etc. of the proposed museum. - Model for establishment of similar institution in Lowell - Excellent source of information on museum funding, expenditures, staffing, facilities, etc.
	<u>University of Lowell</u> <u>Libraries: Alumni-Lydon and Daniel O'Leary</u>	LIBRARIES These libraries contain a very complete collection of books on textiles, the canal system, and the history of Lowell. Both sponsor special exhibits and displays. - Excellent source of information - A place to interpret the significance of Lowell to people through exhibits - Sponsor research into Lowell history, textiles, canals, etc.
	<u>City of Lowell</u> <u>Lowell Public Library</u>	The Library sponsors special exhibitions. Also, has submitted to the state a proposal to set up a multi-ethnic section to include books, records, and tapes on various ethnic groups. - A place to interpret Lowell via exhibitions - Fine source of information on Lowell
ETHNIC GROUPS & ACTIVITIES	<u>Ethnic Organizations</u>	Lowell's population includes some 30 different cultural groups with about eight predominating. Many have their own organizations including Franco-, Greek-, Irish-, Polish-, Portuguese-, Lebanese-, and Puerto Rican-American groups. One of the Park's main functions will be to create facilities and programmatic opportunities to preserve Lowell's cultural diversity - thus, a continuing interaction between the planners and the various cultural groups is essential.
	<u>International Institute</u>	Non-profit, non-sectarian, non-political social service agency that functions as a focal point for services, activities, and information to immigrants. Several ethnic clubs are associated with the Institute. The Institute is their only connection with the American community. - Promote ethnicity - Interested in working with the Park - Rich source of information on immigrants, their stories of arriving in Lowell, their problems, etc.

Appendix Five: Inventory and Data Base

Table 10:

TOPIC AREA	ORGANIZATION	DESCRIPTION
	<u>University of Lowell/ Ethnic Groups</u> Series of Ethnic Programs and Performances	Initial discussions have taken place between Dr. Duff, President of the University of Lowell, and Fat Mogan, the city's Long Range Planner, for a fortnight of lectures and performances focusing on the history, art, music, poetry and traditions of particular cultural groups. The Park needs to support such plans and perhaps design or allocate facilities for a regular series of such programs.
	<u>St. Joseph's University</u> Ethnic Studies	Sponsored symposia celebrating the ethnic heritage and diversity of the people of Pennsylvania. - Model for ethnic programs
	<u>University of Lowell</u> <u>LACORN Broadcasting</u> Cultural Highlights	Ethnic and cultural programs for radio. - An ongoing ethnic/cultural service to the community
<u>MUSIC AND DANCE</u>	<u>Lowell Opera Group</u>	Company of 24 plus ten soloists, piano and orchestra. Present one major opera and 3 or 4 "Nights at the Opera" a year. A non-profit cultural organization. - Could present a "Night at the Opera", a selection of numbers from various operas - Most enthusiastic about coordinating with the Park
	<u>SCAMP: Study Center of American Musical Pluralism</u> (University of Pittsburgh)	Initial discussions have taken place between Theodore Grame, Director of SCAMP and Dr. Patrick Mogan, long-range planner for the City of Lowell. Possible cooperative projects include: - A study on the ethnic cultures and musics of Lowell - An LP record/cassette of the musics of Lowell - Airing of the radio program "One Land, Many Voices" (14-week series) on local stations; creation of another series entitled "Voices of Industry" in which the cultures and history of Lowell would be delineated - Summer training workshop in the collection and dissemination of folklife for teachers and other interested persons.
<u>ARTS & CRAFTS</u>	<u>Lowell Art Association</u>	Non-profit art association founded in 1878 to promote and develop the visual arts in Lowell. Sponsors lectures, demonstrations, art exhibitions. Large art collection ranging from primitive American to contemporary art. Active in promoting ethnic art in Lowell. Also presents flower shows. - Interpret the significance of Lowell via art - Involving local citizenry in Lowell - A source of local artists - Could exhibit in the Park, etc.

Table 10:

TOPIC AREA	ORGANIZATION	DESCRIPTION
	<u>University of Lowell</u> Gallery 410	A student project, exhibiting student art. In future, hope to exhibit artists outside the University. Also sponsors annual Spring Art Exhibition at the University, showing art of students and local people. - Encourages art in the area - Source of artists for various art projects of the Park - An ongoing exhibit that could be displayed in Park facilities
	<u>University of Lowell</u> Professional Art Gallery	In planning stage now, this art gallery will exhibit professional and community art. The Gallery will be a meeting ground between the college and the community. Plan to hold concerts, art shows, etc. - Broaden base of support - Possibly stage some exhibits or concerts in the Park - Increases involvement of Lowellians in the arts
	<u>City of Lowell</u> Fine Arts Commission	Started January, 1976. Are cataloguing all painting, sculpture and artifacts in Lowell, privately or publicly owned. Plan to establish an art gallery of all city owned art in the Lowell library. Will sponsor special exhibits. - Source of art of Lowell - Avenue to involve people in the Park - Bernard Petrusziello - excellent source for information on the arts in Lowell - Street art shows
	<u>Proposal to Identify Ethnic Expressions in Art</u>	Propose to identify ethnic expression in architecture and landscaping that could be expanded to lend more character to the city of Lowell. Also proposes to create a stained glass window depicting Lowell history to be exhibited in Lowell. - Encourages art in Lowell - Potentially could involve a large number of Lowellians in enhancing their homes and grounds
	<u>Gumpus Crafts</u>	A group of artists and craftsmen now working in the Jackson Mills. Includes potters, painters, silversmiths, etc. - Interested in working with the Park - Excellent project to be housed in the mills
	<u>Indian Hobbyist Association</u>	Promote involvement of Lowellians in arts and crafts - Could perhaps be housed in Park buildings
<u>THEATRE</u>	<u>Chelmsford Players</u>	An active repertory theatre. - Theatre productions could be presented in the Park - Increase involvement of Lowellians in the performing arts - Could re-enact Lowell historical events

Table 10:

TOPIC AREA	ORGANIZATION	DESCRIPTION
<u>FILMS</u>	<u>University of Lowell</u>	Film festival sponsors 15 films, free to students and the public.
	Spring Film Festival "Women on the Silver Screen: Great Actresses and Archetypes"	- A film festival model, suggesting other film series devoted to specific topics such as labor, industrial development, immigration, etc.
	<u>Peter Shell</u>	Plan to show old classical films. Society in the planning stage.
	Film Society	- Interested in working with the Park. The Park could provide one or a series of sites (theatres) where such film series could be shown. Perhaps tie-ins could be established with commercial theatre owners
<u>FESTIVALS</u>	<u>Regatta Festival Foundation</u>	Gigantic, city-wide festival, including parades, races, shows, ethnic foods, celebrities, etc. Has attracted up to 500,000 people.
	<u>Oktoberfest</u>	- With broad community support and involvement, this festival epitomizes the new Lowell spirit and the qualities that are sought for the LUNCP itself
	<u>Greater Lowell Regatta Festival Foundation</u>	A city-wide May festival and celebration featuring boat races, parades, concerts, ethnic dances and foods, etc. Broad community support and involvement.
	<u>Regatta Festival</u>	- Like Oktoberfest, a major city-wide celebration expressing the city's values, creativity, ethnic heritage, etc.
<u>PARKS AND RECREATION</u>	<u>Various Ethnic Organizations</u>	A great variety of local celebrations and festivals are put on each year by various ethnic organizations.
	<u>Ethnic Celebrations</u>	- These festivals are expressive of Lowell's cultural diversity. LUNCP needs to support and facilitate these activities without encroaching upon their inner vitality.
<u>PARKS AND RECREATION</u>	<u>A Coalition for the Development of the Lowell Dracut Forest for Recreation and Education</u>	Plan for an outdoor classroom managed by the state, utilizing the regional educational resources (swamps, forests, etc.). Facilities and trails partially laid out. Forest includes 1000 acres.
		- Terrific space to show the transition from agrarian to industrial urbanization - Plants and shrubs associated with different ethnic groups could be grown and sold to the public in a nursery in the forest - Is an educative program with a product to sell

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Table A-4	Historic Employment Trends, Lowell Metropolitan Area
Table A-5	Employment Projections to 1995, Lowell Metropolitan Area



Wannalancit Mill Fronting on the Northern Canal



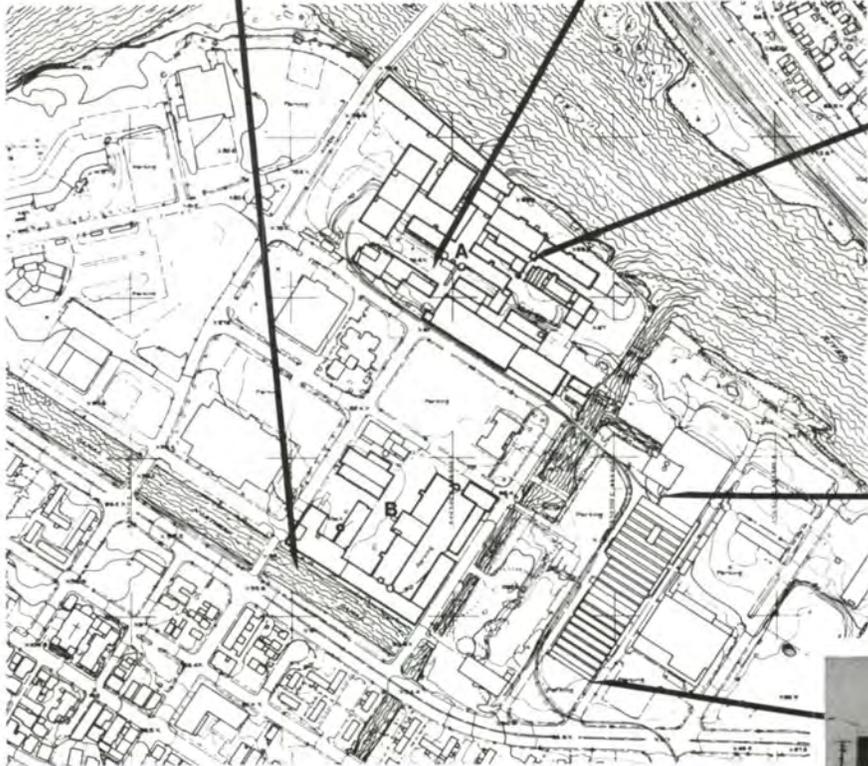
towers of the Lawrence Mill & later additions



Lawrence Mills - across the Merrimack river



Detail - Lawrence Mill



Courtyard - Lawrence Mill



French Street Extension - Wannalancit Mill & Currier building

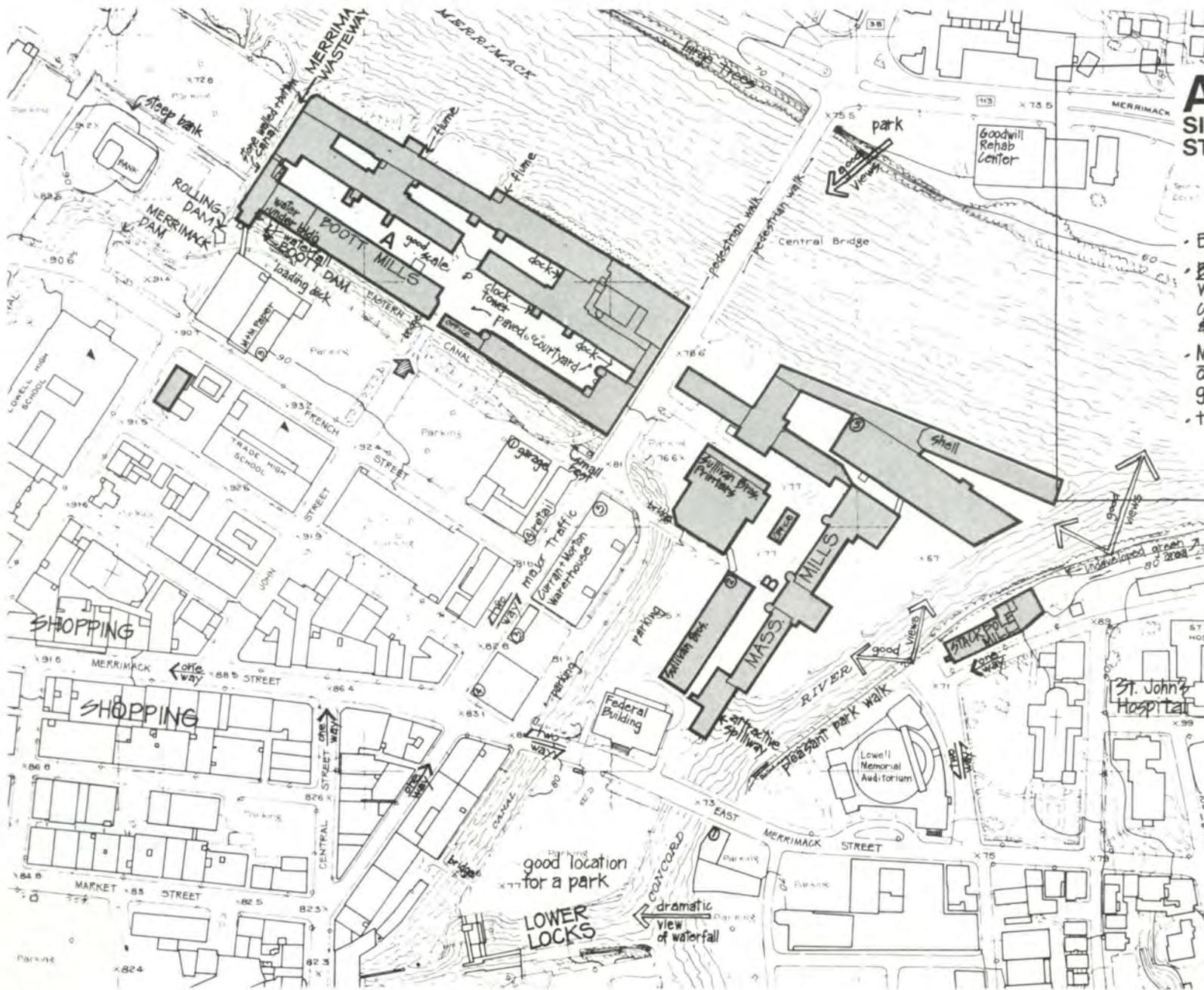
AREA II BUILDING STUDY

A LAWRENCE MILLS (1831)

- 1. LAWRENCE MFG CO.
- 2. ATLANTIC ASSOCIATES
- 3. HUB HOSIERY
- 4. RIGGS & LOMBARD
- 5. MERRIMACK WAREHOUSE
- 6. STEAM ASSOCIATES

B WANNALANCIT MILL (1832) 500,000 S.F.





AREA III SITE & NEIGHBORHOOD STUDY

- Eastern part of C.B.D.
- Boot Mill - major intact mill complex with good scale & enclosed courtyards, though parking is limited & access difficult.
- Mass Mills - functioning industrial complex with sufficient parking & good access. Ends "Mile of Mills"
- two intact boarding houses



FIGURE
A3



typical mill interior
(Boott Mills)



Eastern Canal at the Boott Mill



Lowell skyline - Boott Mill tower



'Mile of Mills' - fronting on the Merrimack River



courtyard - Boott Mills



Massachusetts Mills - downstream on the Concord River



confluence of the Concord & Merrimack Rivers - and of the 'Mile of Mills'

AREA III

BUILDING STUDY

A
BOOTT
MILLS (1835)
465,000 S.F.
1. BOOTT MILL

B
MASSACHUSETTS
MILLS (1835)
590,000 S.F.
1. SULLIVAN BROS PRINTERS



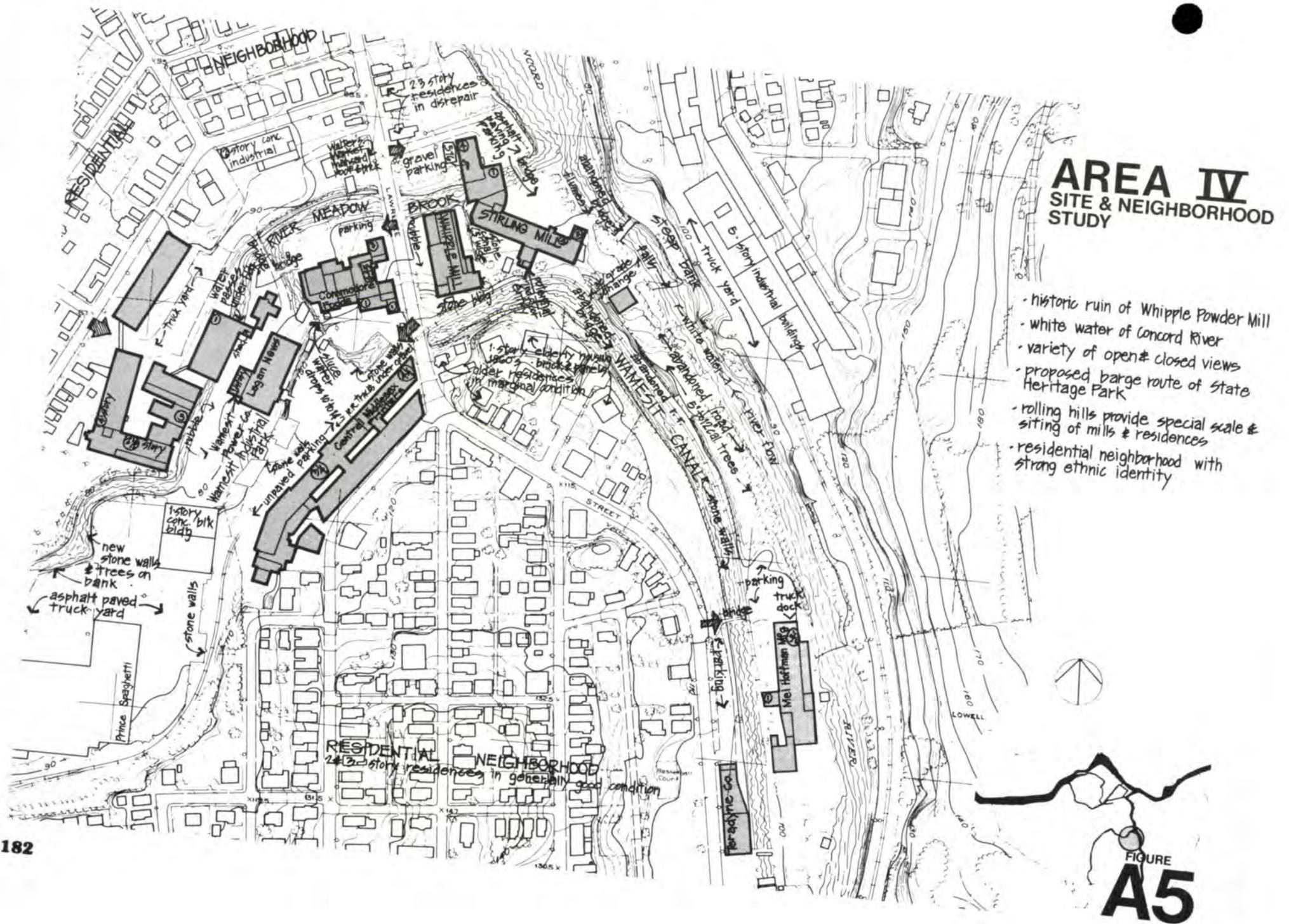


FIGURE
A5

AREA IV BUILDING STUDY

WAMESIT

1. STIRLING MILL (1850)
28,000 S.F.
- A. K.M. SCAGEL
- B. WHITE + HODGES
2. WHIPPLE POWDER MILL (1820)
3. COMMODORE FOODS
4. CENTRAL MIDDLESEX PRINTERS
5. LAGAN NEWS
6. WAMESIT POWER
350,000 S.F.



River Meadow Brook flowing under the Sterling Mill



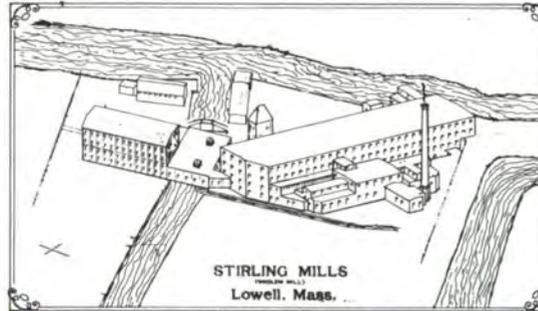
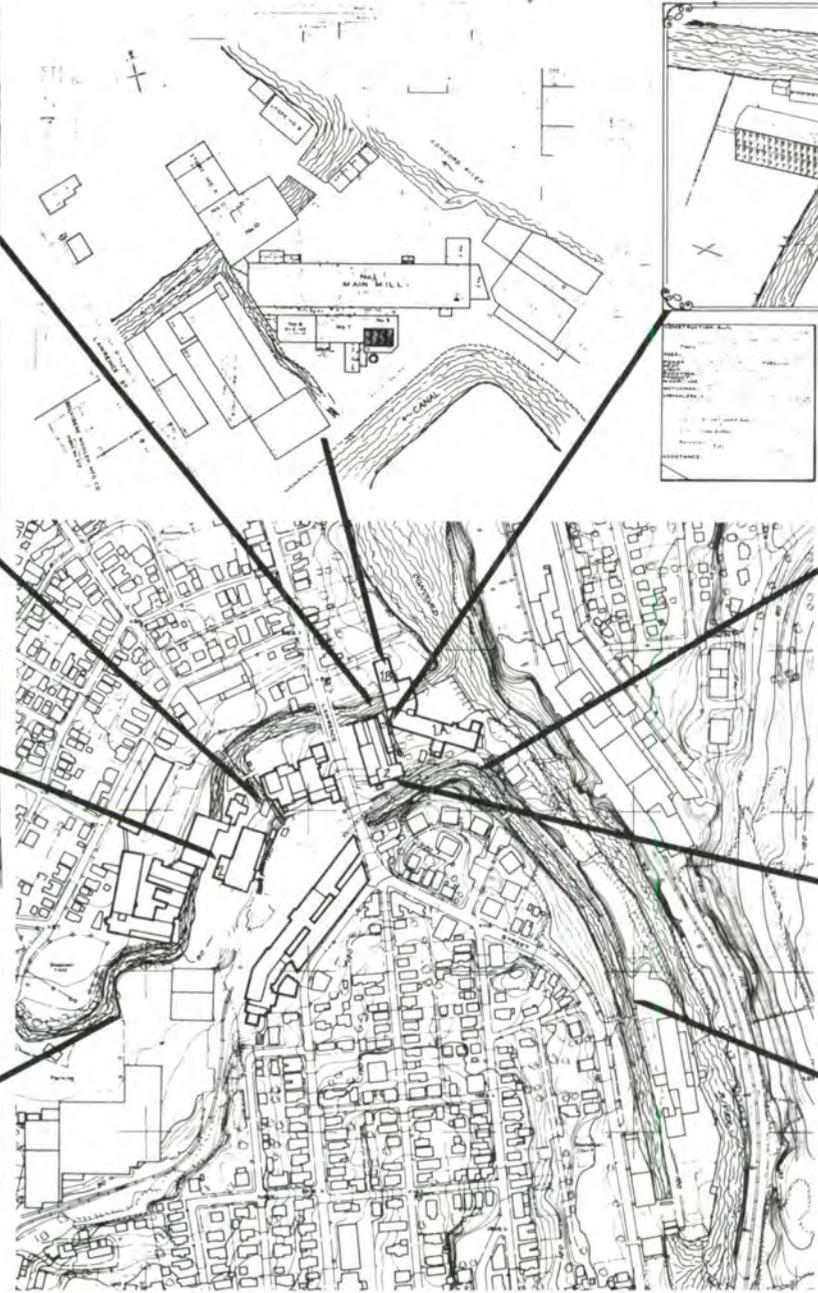
disused sluiceway on the Wamesit Canal



Yard in the Wamesit Industrial Park



reconstructed canal bank



STIRLING MILLS
Lowell, Mass.



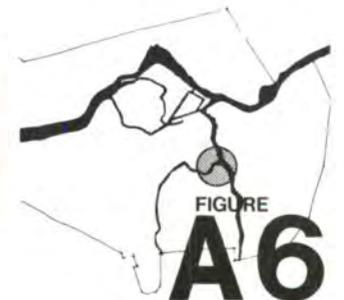
Wamesit Canal, R.R. tracks, & rear of Sterling Mill



south wall of Whipple Powder Mill



Wamesit Canal, R.R., Hoffman Manufacturing





AREA V

BUILDING STUDY

A
C.I. HOOD
BUILDING
(1883)

C.I. HOOD BUILDING
(Thornlike Factory)

B
OLD COUNTY (Keith Academy)
JAIL (1856)



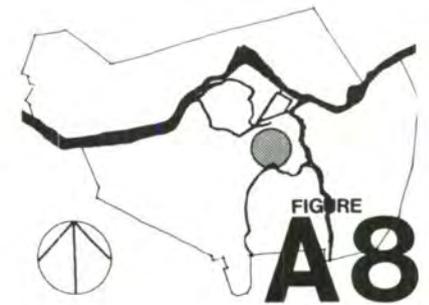
C.I. Hood - Front entry & Parking lot

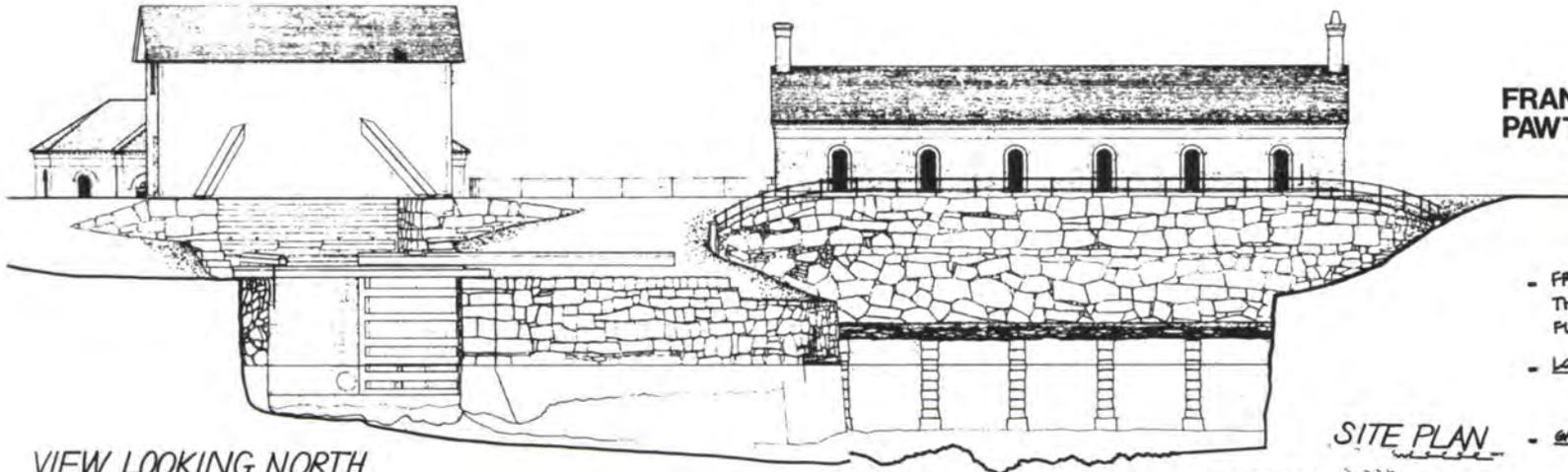


front elevation - old jail (now Keith Academy)



New Rail Road station, parking & C.I. Hood





**FRANCIS GATE COMPLEX
PAWTUCKET CANAL**

- FRANCIS GATE COMPLEX CONSISTS OF THREE STRUCTURES PERFORMING THREE FUNCTIONS:
 - LOCKS - BUILT IN 1716 TO ALLOW NAVIGATION ALONG THE PAWTUCKET CANAL. LOCK HOUSE BUILT IN 1881.
 - GATE HOUSE - BUILT IN 1825 DURING THE EXPANSION OF THE PAWTUCKET CANAL. GATE HOUSE BUILT IN 1870.
 - FRANCIS GATE - BUILT IN 1880 TO ACT AS FLOOD CONTROL ON TWO OCCASIONS, 1882 & 1936, IT SAVED THE CITY FROM INUNDATION.
- NOTE: Drawings Courtesy of The Historic American Engineering Record.

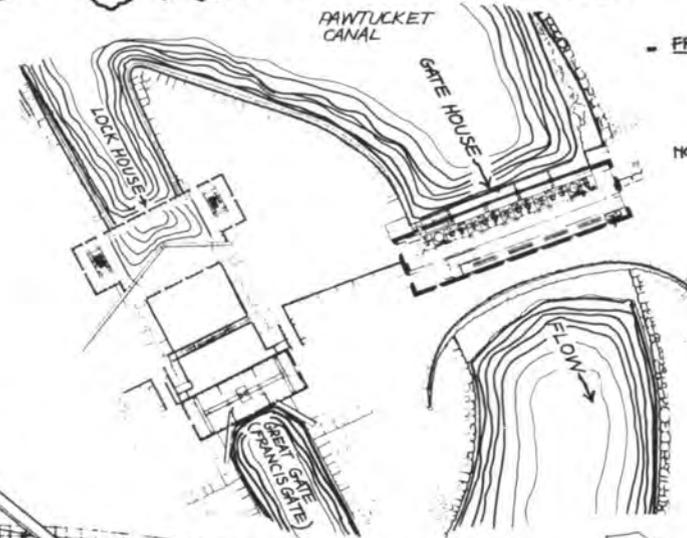
VIEW LOOKING NORTH

SITE PLAN



View looking North-upstream Francis Gate-left Gatehouse-right

Francis Gatehouse from East



VIEW LOOKING EAST

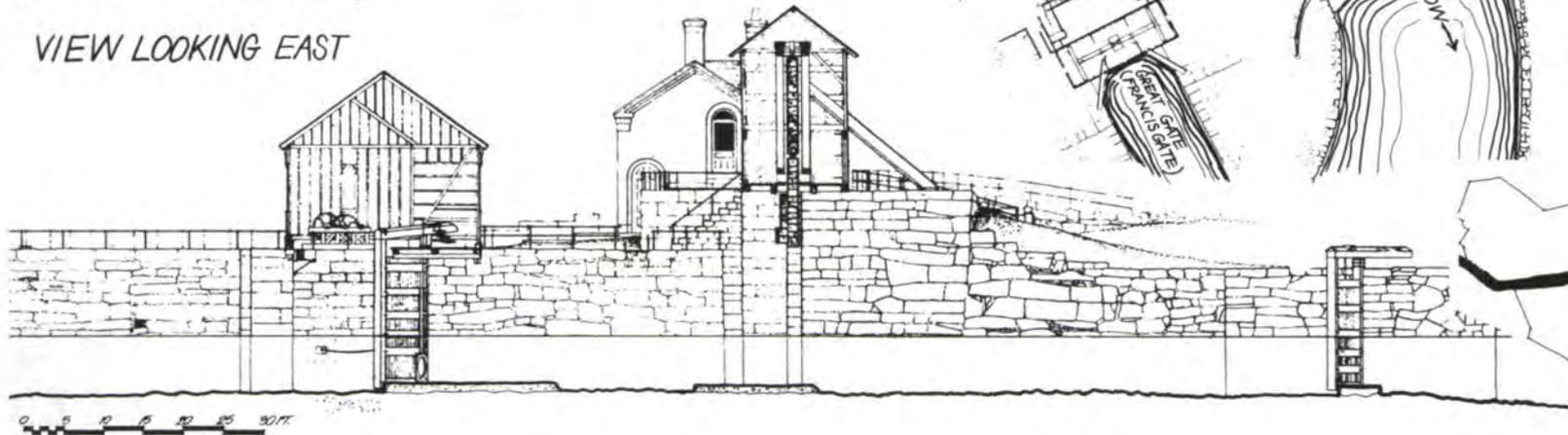
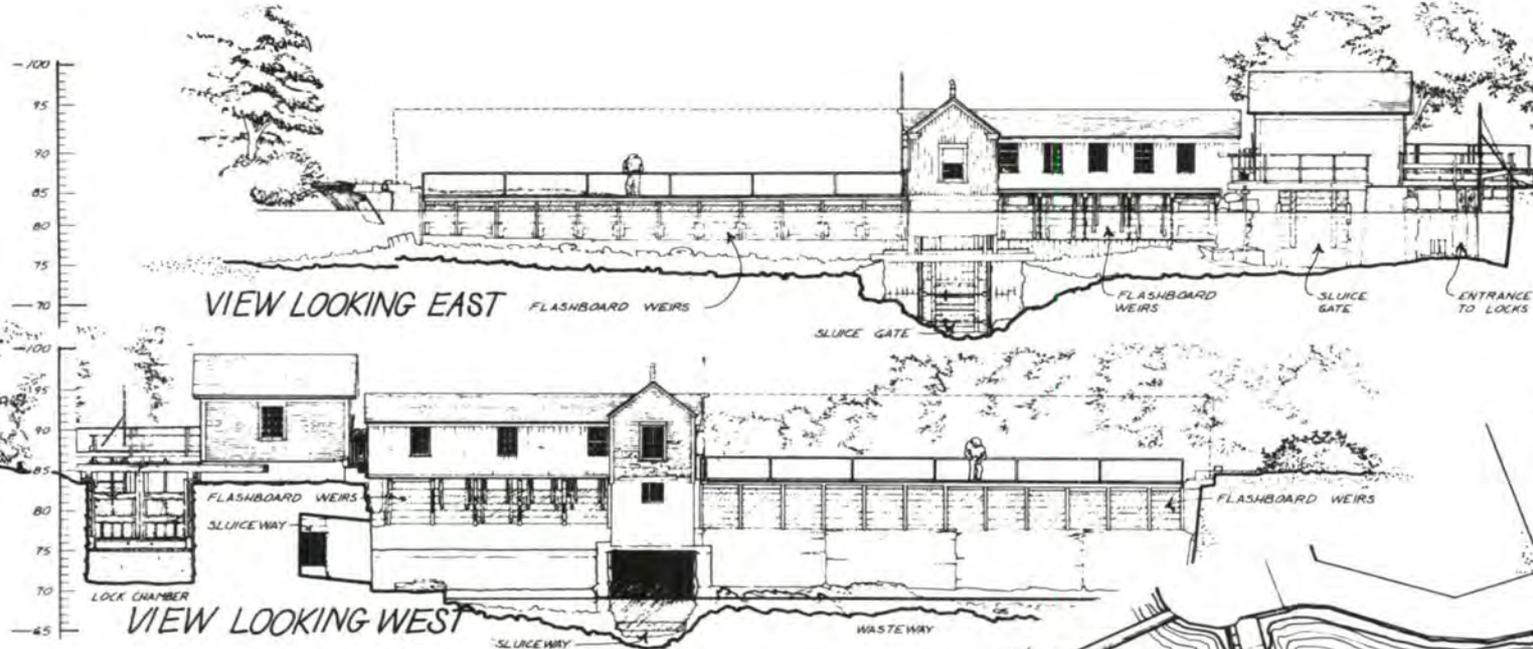


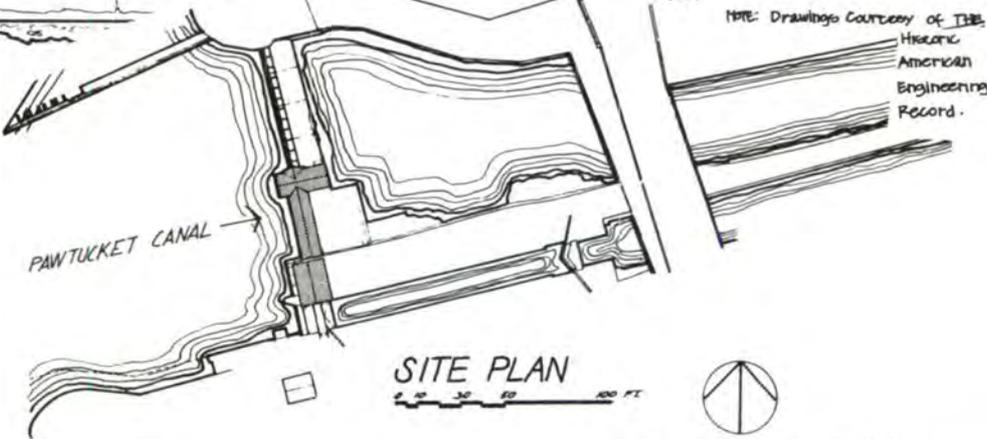
FIGURE
A9

**SWAMP LOCKS
PAWTUCKET CANAL**



- THE SWAMP LOCKS SITE CONSISTED OF THREE AREAS, BUILT IN 1792.
- LOCKS - THE NAVIGATION LOCKS ARE 12 FT. WIDE AND HAVE NOT BEEN USED SINCE 1828
- DAM - THE STRUCTURE MARKS THE SEPARATION OF THE UPPER & LOWER LEVELS OF THE PAWTUCKET CANAL - A 15' DROP.
- SLUICE GATES - THESE CONTROL THE WATER SUPPLY

NOTE: Drawings COURTESY OF THE
Historic
American
Engineering
Record.



View East above lock



View West below falls

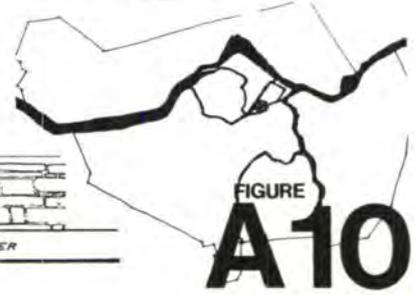
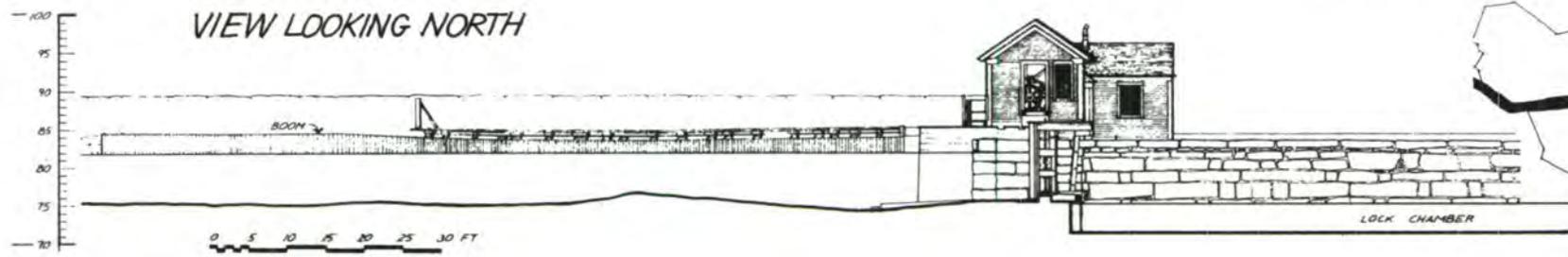
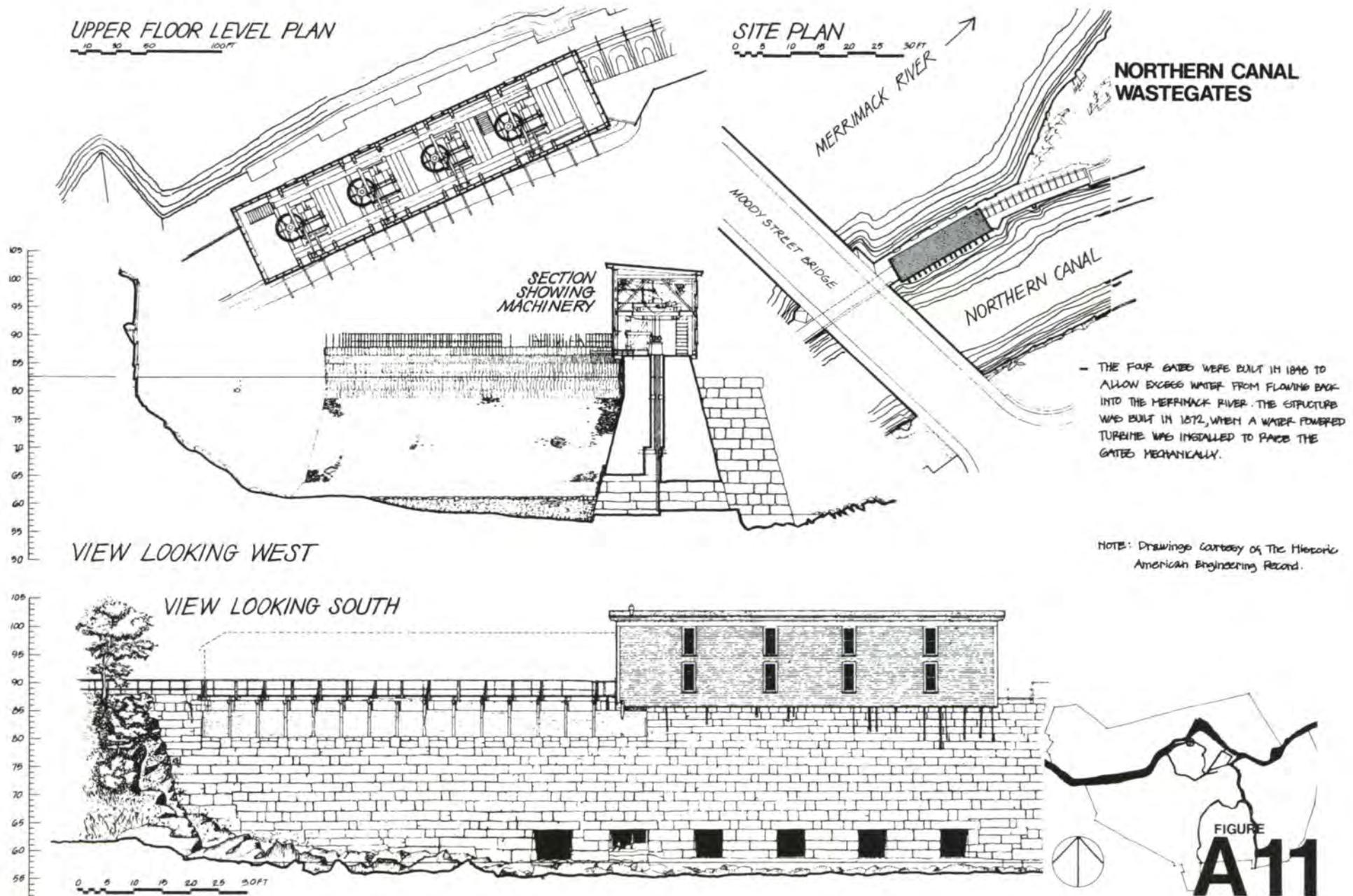
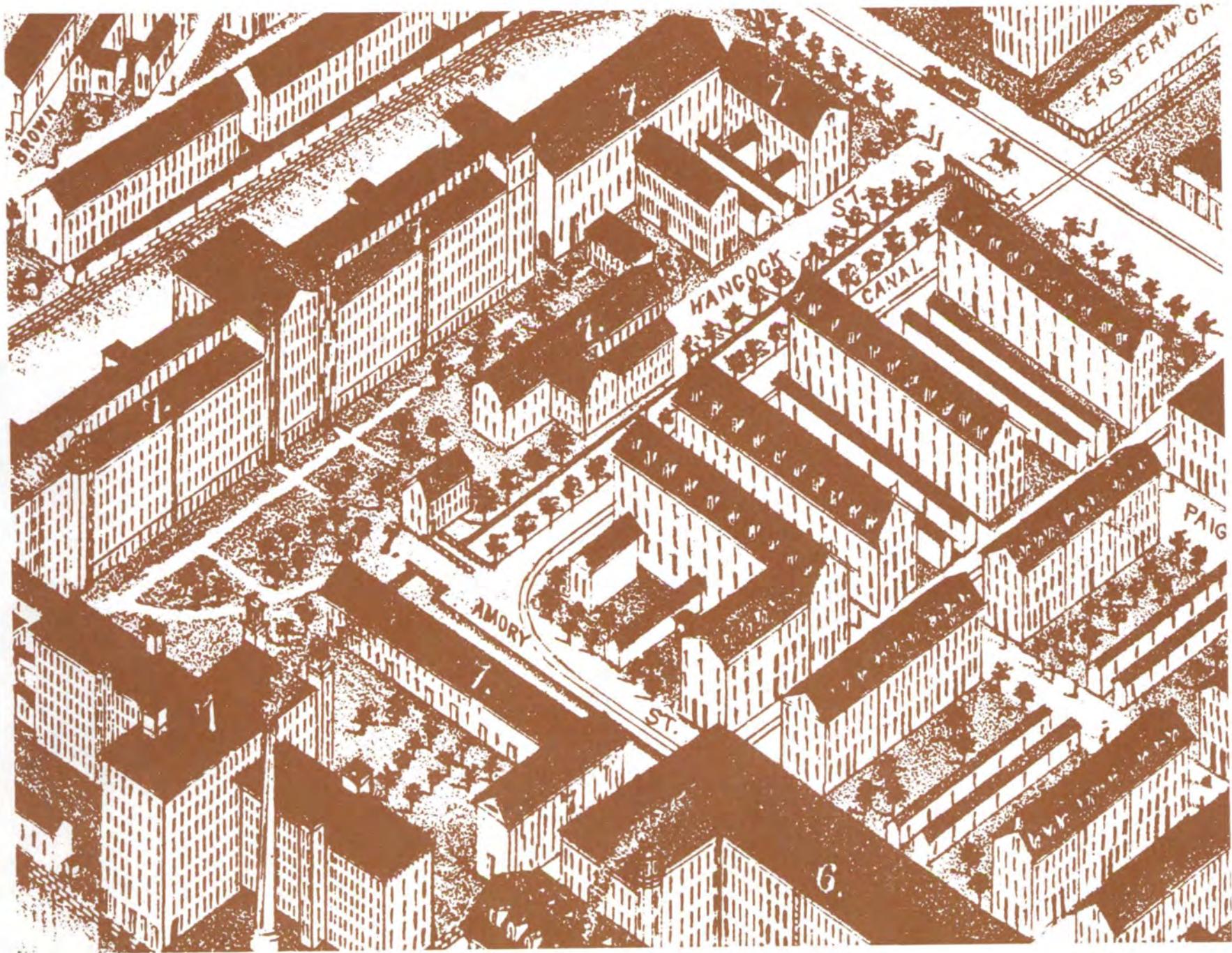


FIGURE
A10







Appendix Six

Master Plan and Management Alternatives

The materials which follow are excerpted from the **Phase II Report**, prepared by The Lowell Team and submitted to the Commission on July 15, 1976.

PHASE II: Development of Alternatives

Submitted to the
Lowell Historic Canal District Commission
by The Lowell Team, a joint venture of

- o David A. Crane and Partners/DACP Inc.
- o Gelardin/Bruner/Cott, Inc.
- o Michael Sand & Associates, Inc.

July 15, 1976

CREDITS

Lowell Team Project Coordinator: Jonathan S. Lane.
Technical work was performed by the following personnel.

	David A. Crane & Partners/DACP Inc. Planning and Urban Design	Gelardin/Bruner Cott, Inc. Architecture and Adaptive re-use	Michael Sand & Associates, Inc. Educational/Cultural Programming
Primary Staff	John Shields Dennis Frenchman	Robert Gelardin Simeon Bruner Leland Cott	Michael Sand
Support Staff	Richard Glaser Randolph Jones Janis Mones	Phil Hresko Tim Anderson	Alison Wampler

The Lowell Team was assisted by the following consultants in preparing this report:

- o Evans Clinchy, educational and cultural programming.
- o Nancy Cott, social history
- o Economic Research Associates, tourism, evaluation, and economic impact.
- o Randolph Langenback, architectural history.
- o Dr. Patrick Malone, technological and historical background.
- o Gail Rotegard, implementation.

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- o Summary of Alternatives

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- o Interpretation
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- o Management Functions
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Purpose and Organization of the Report

The purpose of this report is to present the results of Phase II of the Lowell Urban National Cultural Park Study. Phase II represents three months of effort and includes the development of alternative master plans and management scenarios for the park. Building on the base data inventory assembled in Phase I, this report provides the basis for selecting a preferred alternative to be developed in detail during Phase III. The report is divided into four sections:

- o The Summary describes the methodology used to develop alternatives and briefly outlines the master planning concepts which characterize each approach.
- o The Legislative Mandate section describes the major considerations and assumptions relating to each of the four planning areas which Congress charged the Commission to investigate. These areas are preservation, interpretation, development/use, and management.
- o The Description of Master Plan Alternatives explains the concepts and attributes of each alternative in terms of the four planning areas mandated by Congress. A brief evaluation accompanies each alternative.
- o The Management section presents some possible scenarios for managing the development and operation of the park.

Approach

PROGRAM ELEMENTS

In its charge to the Lowell Historic Canal District Commission, Congress identified four broad planning areas:

- o Preservation
- o Interpretation
- o Development and Use
- o Management

Early in Phase 2, individual program elements relating to each of the four areas above were identified and analyzed. A "program element" is defined as a set of issues relating to the park that can be conceptualized and dealt with independent of other sets of issues. The following program elements were identified:

- o Preservation
 - Worthy historic features in Lowell
 - Mechanisms for preservations
- o Interpretation
 - Educative City
 - Thematic Program
- o Development/Use
 - Entry
 - Primary Node
 - Secondary Node
 - Site
 - Barge Travel
 - Pedestrian Movement and areas
 - Recreation
 - Potential (retail, housing, etc.)

- o Management
 - Environmental Management
 - Project implementation
 - Coordination

Each program element was analyzed to understand, first, the nature of its component issues and, second, the "needs and constraints" which should be considered in attempting to resolve that set of issues. Next, for each program element, various "concepts" or approaches to resolving the pertinent issues were posed. Lastly, several "options" or possible ways of resolving the set of issues in question were detailed. An attempt was made to generate at least one option for each conceptual approach. A large number of individual options resulted from this process, each of which responded to the issues raised by a particular program element.

Master plan alternatives were constructed by combining various options for each element under preservation, interpretation, development and use according to six generic concepts. Management was dealt with separately and alternative scenarios were generated by combining various options for each management element.

CONCEPTUAL ALTERNATIVES

Six alternative master plans are presented in this report. They embody six generic concepts which were generated by asking two basic questions: Where spatially in the city should resources and efforts be expended to create an Urban Cultural Park and what should the scale of those efforts be?

Spacial Configuration

With respect to the spacial configuration of the park, two options were explored:

- o Concentrating resources and efforts in the downtown area. This approach places maximum effort in the most visible area of the city. It complements the State Heritage Park which is primarily involved with now-downtown sites, canal banks and riverbanks, and recreational development. Although most of Lowell's most historic sites are in the downtown area, this approach strictly applied would exclude several significant outlying places (not incorporated in the State Heritage park). Because most components of the park would be within walking distance of one another and easily interrelated, a concentrated approach has the potential to attract

and handle large numbers of visitors.

- o Dispersing resources and efforts throughout the city. This approach attempts to interpret significant happenings in Lowell's history at the sites where they actually occurred. Because many of these places are widely scattered, this approach requires greater emphasis on developing linkages such as barge or train connections. Although a dispersed approach would make it difficult for many visitors to experience the total park, it has the potential to involve more local neighborhoods with park activities and facilities than does a concentrated approach.

Concentrated and dispersed approaches to the Urban Cultural Park were each explored at small, medium, and large scales resulting in six master plan alternatives. In this case, "scale" refers to several relative attributes: degree of federal investment, degree of change in the city from the present situation, and the amount of park related activity. Each scale represents not an end state but an entry level for federal, state, and local involvement.

Scale

- o A small scale venture would result in a park closely identified with efforts currently underway in the city. These include the State Heritage Park, Lowell Museum, and others. The basic aim would be to enhance and expand those efforts enough to create a unified program. Limited preservation resources would be directed at only the most historically significant pieces of Lowell's environment.
- o A medium scale endeavor would produce a park in which current efforts were integrated with several important new components. Sufficient resources would be available to effectively improve the environment of a few places in the city, and to develop new activities uniquely identified with the urban cultural park.
- o A large scale endeavor would result in a park which made some substantial changes in aspects of Lowell's environment and which developed a few major or many small new centers of activity. Efforts currently underway in the city would be treated as one or more parts of a substantially larger program. A major, active preservation effort would be aimed at recreating historical settings as well as preserving individual structures. A large scale park could potentially have a considerable impact on the local economy and encourage substantial additional private development.

Preservation

BASIC ASSUMPTIONS

Development of an overall program for preserving Lowell's physical heritage has been broken down into two readily identifiable program elements. 1) Worthy historic features i.e. What should be preserved and 2) Mechanisms for preservation, i.e. How should one go about protecting and enhancing those worthy historic features once they are identified? Two basic assumptions are made concerning these two elements of any preservation program:

1. Three general thematic categories related to Lowell's heritage have been established dealing with 1) technological 2) social 3) economic stories. The preservation plan should first concentrate on preserving and enhancing the physical settings where nationally significant stories related to these themes can be told.
2. The city is actively involved in a variety of preservation activities. These include the development of neighborhood preservation plans, the establishment of a local preservation plan aimed at protecting individual structures, and the seeking of National Historic register status for specific structures and areas in the city. It is upon this activity that the Lowell Historic Canal District Commission's preservation plan should be based.

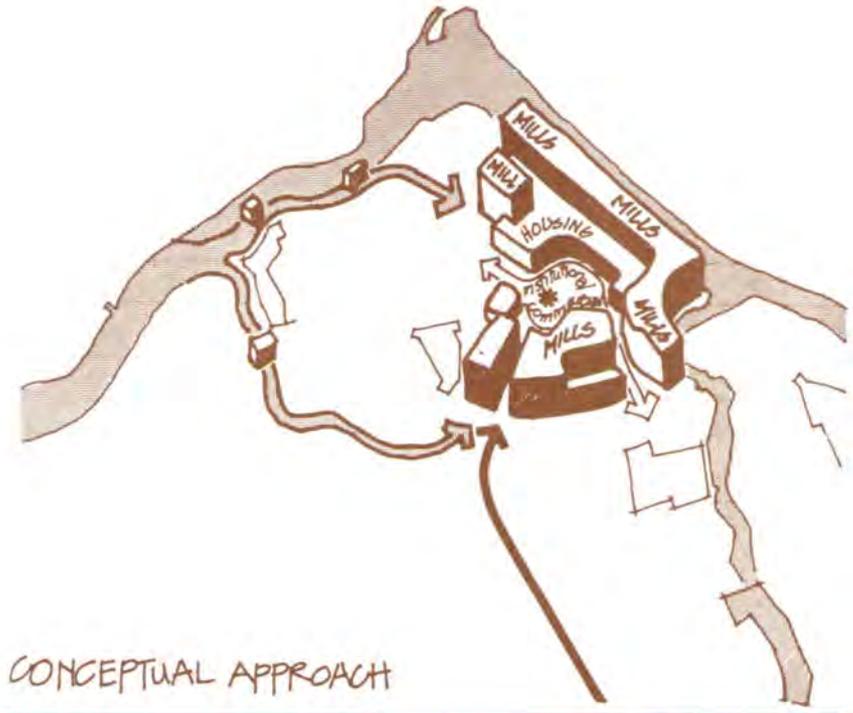
WORTHY HISTORIC FEATURES

Concept

Ultimately, Lowell's significance as a historic national resource is bound to its creation, its development and its eventual decline as a total industrial manufacturing system born early in the Industrial Revolution in this country. The preservation plan should focus on indiscrete areas of the city occupied by:

1. the corporate/industrial system, i.e. the dams, locks, canals, gatehouses, turbines, tailraces, the former industrial spine comprised of mills, corporation housing and ancillary institutions established and supported by the founding corporations.
2. the key physical determinates and characteristics of pre-industrial Lowell which led to the choosing of this particular spot in the world by developers as a site for this unique undertaking.
3. important physical and social consequences, particularly in regard to the development of the downtown institutional/commercial center and mill employee neighborhoods whose fate was and still is tied so closely to that of the "industrial manufacturing system."

The sum of these general areas and discrete pieces of the historic fabric felt to be most important to telling Lowell's story would be designated the Lowell Historic Canal District. This conceptual approach is cartooned in the following figure which identifies the corporate/industrial system in heavy outline and 3-dimensional relief. Key physical determinants and important physical and social consequences are mapped as two dimensional areas using light ink lines.

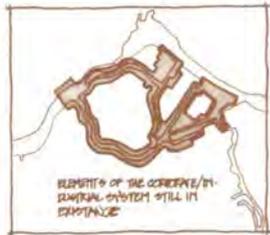


More specifically, the commission's preservation plan should aim at identifying and saving those pieces of the historic fabric which show:

1. Urban form as dictated by industrial needs: this includes location of various activities and the juxtaposition of use and scale
2. Evolution of the factory as a building type
3. The development of energy systems for powering industry: includes hydropower/steam/gas/electricity
4. Symbols of an industrial society. This includes, clock towers, chimneys, name plates, engravings, cogwheels, machinery, railroads spurs, trains key mill yards, examples of the management/worker hierarchy
5. Ethnic Heritage as expressed in the physical fabric: includes housing, restaurants, and clubs

Determination of the Historic Area

Six discrete categories of physical zones have been identified for possible inclusion in the historic district where the bulk of the preservation effort will take place. These include:



Remaining pieces of the corporate/industrial system:

Includes dams, locks, canals, gatehouses, turbines, tailraces, the mills, machine shop and all corporate housing. The hydropower system and the mill complexes and the boarding houses which sheltered the workers are so closely interrelated that they should be preserved as a unit.



Area once occupied by the Corporate/Industrial Spine

The mills, machine shops and corporate housing once formed a "wall" enclosing the city center and forming the famous "Mile of Mills" view along the Merrimack. While large portions of the spine have been demolished, enough remains to clearly show the way in which the needs of the industrial process dictated the urban form.



The Institutional/Commercial Core

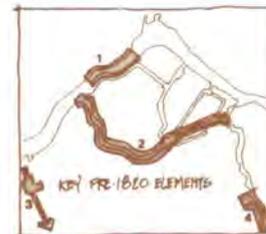
Merrimack Street retains its 19th century character. The corner of Dutton and Merrimack was the heart of town with mills on 3 sides.



Non Corporate neighborhoods

The corporate-industrial system brought about the development of several uniquely different residential areas in the city:

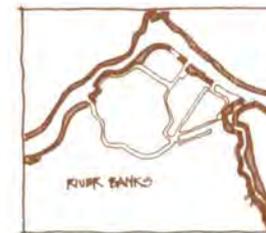
1. Chapel Hill: Middle Class (1830's/1840's)
2. Worthen Street: Early worker housing
3. The Acre: immigrant tenement housing
4. Belvidere: Upper Class mansions
5. Pawtucket/Wannalancit/Clare Streets includes pre-1820 farm houses, upperclass Victorians, early 20th century workers neighborhood.



Key Pre-1822 Elements

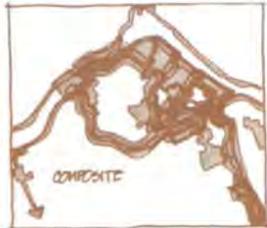
A combination of physical site characteristics contributed to Lowell's creation as an industrial new-town:

1. Pawtucket Falls - a 30+ foot drop in the level of the Merrimack River
2. Pawtucket Canal - Adapted to become the backbone of the power canal system
3. Middlesex Canal/Village - the link to Boston's distribution centers
4. Wamesit/Whipple Area. The industrial forerunner. The Whipple Powder Mill is the oldest remaining industrial building in the city, the Wamesit Canal is one of the oldest and best preserved power canals in New England.



River Banks

The Merrimack and Concord River banks comprise a unique resource. In addition to recreational potential, the banks offer access and views to much of the remaining remnants of the original hydrological infrastructure



A preliminary preservation area

Each of the areas discussed above was overlaid on one another realizing the composite diagram shown to the left. At a minimum it is proposed that a "base preservation area" be a part of any individual Park alternative. This area, shown screened in the large diagram below, included pieces of the corporate/industrial system still in existence, the old corporate/industrial spine (actual area adjusted to align with new street configurations), and that portion of the historic institutional/commercial core around the corner of Merrimack and Dutton Street. In addition to the base area, Figure __, includes remaining historically significant areas, any of which can be added to the base plan, in tailoring a preservation plan to a given conceptual alternative. This process is followed in determining the preservation component of each Alternative in Section III of this report.



PRESERVATION AREAS

- Base Preservation District
- Additional Areas Worthy of Preservation

PRESERVATION MECHANISMS

Major issues related to developing a preservation plan once the area and the individual elements in the historic scene have been identified include identification of preservation mechanisms, and an analysis of their cost and effectiveness. The Phase I Report includes a detailed discussion of the range of potential mechanisms available for preservation. This section reorganizes in summary fashion that material into the following three general categories which define three scales of involvement at which Lowell's historic resources might be directly managed and preserved.

Legal Controls

Establish passive legal restraining orders to preserve and/or restore specific notable characteristics, as new development takes place, either in the public or private sector. Examples include:

- o "Floating zones" to protect miscellaneous important structures outside the designated "canal district."
- o Establishment of a district with designated environmental management controls.

Funding Assistance

Provide funding for those elements of the environment which have preferred status as to their historic/visual importance particularly in regard to key restoration projects, facade easements, landscaping, and relocation costs. Examples include:

- o Grants - to public and private sector
- o Revolving loan pool to private sector
- o Tax Abatements to private sector

Active On-going Involvement

Active involvement in managing key sites within the District particularly with regard to allowing the facility to be open to the public. Preservation of the site is assured by virtue of the fact that it is developed as one of the parks interpretive nodes.

Examples include:

- o Fee acquisition and direct control of management and operation
- o Long Term Leasing
- o Cooperative agreement with present owners operating the facility.

major canal network, portions of the Boot Mill and an example of a boarding house. Other sites will be added, depending on which alternative is chosen for further detailing in Phase III. The creation of a historic park and the creating of specific nodes will act as a catalyst to related private development which can potentially preserve the resources through reuse.

DEFINING A BASE
PRESERVATION PLAN

Once a final historic preservation area is determined, the goal of the preservation plan is to 1) protect the setting and 2) preserve key elements of the historic fabric within the district as well as significant discrete historic resources lying outside the district.

Legal Controls

The Base Preservation Plan would establish a set of legal constraints applicable within the district. Some of these constraints would apply to the entire district while others would be tailored to preserving the characteristics of individual sub-areas comprising the district. It is possible for these controls to be appropriately enacted. The city could enact design and development controls within the district or the district could define the geographical jurisdiction of a state level environmental management commission. A more detailed discussion of environmental management occurs in Section IV.

Funding Assistance

Some pieces of the historic fabric are so important to the preservation and interpretation of Lowell's heritage that funding assistance should be provided if necessary to insure their preservation. These key structures to be accorded this "preferred status" will be identified in Phase III.

Active On-Going
Involvement

Finally the Base Preservation Plan insures protection of key resources by developing them as interpretive sites within the park. At a minimum these will include the locks, canals, gatehouses and dams of the

Interpretation

THE STORY

There is nowhere else in the entire United States where people can witness the monumental, fascinating and inspiring story of the establishment of America's great industrial cities. Nowhere else can the forces of nature and economics that gave rise to those urban societies be better demonstrated than at Lowell, Massachusetts.

The concerns of the founders and the workers, and their values are startling.

The message is the courage, technological brilliance, and (sometimes overzealous) exploitation of resources (both human and material), emergent in and around Lowell.

Lowell was a novel, and radically different model from 18th Century America's way of living, working and thinking about one's place in life. In the space of several decades, one generation, an entirely new system for production, marketing and distribution of goods, housing, ownership of property, and the significance and place of Lowell in the region and the rest of the country was altered. Lowell, and the rest of our cities, have never been the same since.

Technology
and
Hydropower

Lowell has many stories to tell. One of the principal goals of an Urban National Cultural Park is to find a means to allow that to happen. Among these stories is the explanation of how hydropower and the conception of harnessing the vast resource that is represented in Lowell's geographic location at the junction of the Merrimack and Concord Rivers and the 30-foot change in water level from one end of the city to the other, was exploited by the 19th Century visionaries, Francis Cabot Lowell, Nathan Appeltion, Patrick Jackson, Ezra Worthen, Paul Moody, Kirk Boott, and James B. Francis. There are several major areas where visitors, and particularly students, will have a chance to become involved in the presentation of interpretive programs focused on the natural resources of Lowell, such as the generation of electricity; the use of locks; and other key issues.

Free Enterprise
and Capitalism

Lowell was the first major example of a city devoted primarily to industry, where resources were owned and decisions as to the city's future were arrived at, at the hands of corporations. Acting on motivations of seeking profit, these men decided to invest in the establishment of a series of what was, at the time, huge organizations for the manufacture and distribution of textiles. Big business, speculation, and management planning were all new concepts. The morality and trade-offs of exploitation were concepts that were initially explored then without any of the social history we have since acquired. How did they make their decisions then? How do we arrive at solutions today?

Working and Living in
an Industrial City

Why do people work? Why work in Lowell? What place did work have in people's lives then? Today? What were the expectations, concerns and sources of satisfaction or pride then and today? Lowell served as a forerunner of our entire industrial society, and the models of occupational roles, housing, and company-dominated social structure which we now know so intimately, began here. Much of the physical fabric that supported that society can be seen as a diagram. The size, location and style of buildings reveal much about the attitudes of those who controlled and were in turn controlled by the Mills. The dramatic upheaval of social life caused by the influx of new workers; the transformation of farmworkers and craftspeople into factory operatives; the substitution of corporation-run boarding houses; and the replacement of family life with the congregate living arrangements of the workers, all demanded that new social institutions emerge to provide emotional and spiritual support for the population. From housing for the operatives to owner's dwellings, the pattern for a society can be easily seen as a diagram. It is hard today to

recognize what a shift of values this was. An Urban National Cultural Park may be able to provide some of that perspective.

Immigration and the
Settling of a City

Lowell could not have been established without a ready supply of manpower to build and operate the mills. This manpower came from many corners of the world and represented a key resource for the Lowell model. From farm girls to immigrants from Greece, Poland, Italy, Ireland, Germany, Lithuania, France, Canada, Scotland, and England. How they settled in, adapted old ways to new situations, what they contributed, and how they have maintained values and traditions throughout the last 150 years, is also part of the Lowell heritage.

BASIC
ASSUMPTIONS

- o An attempt to restore, redevelop, preserve or maintain the physical assets of Lowell cannot occur without a substantial re-awakening and development of appreciation for the historical significance of those resources which previously and currently describe Lowell and the Canal District.

- o The significance of Lowell's physical and cultural heritage, if it is to be appreciated by those other than architectural and industrial historians, must be viewed holistically. That is, the intertwined relationships of the evolution of the economic, industrial, cultural and social fabric must be seen as one piece.

It is because Lowell continues to retain substantial facets of these elements that the potential for a truly special, broad and comprehensive interpretive program exists.

- o The most emphatic way to generate appreciation for Lowell's past, among potential sponsors, developers, residents and visitors, is to portray the way Lowell's past is relevant to today, and the way we may face tomorrow.

One demonstrable strategy for doing this is to create a network of programs which reach out to a broader public, through formal and informal means, to bring the remote concepts of government, finance, technology and natural resources, down to the more easily understood ideas about decisionmaking, personal gain, invention and the limits of nature.

Because people are diverse, these programs should be constructed to offer many ways to relate to the messages portrayed, and should be accessible to those with serious, focused interests as well as the casual visitor.

- o One method for describing this educational network to ourselves, to the potential sponsors and those who might visit an Urban National Cultural Park, is to relate it to the rather broad and expansive idea of "An Educative City." That concept has the range and generality sufficient to embrace almost any program and so it has been necessary for those planning the LUNCP to identify which elements of an interpretive program (Technology and Hydropower; Free Enterprise and Capitalism; Working and Living in an Industrial City; Immigration and the Settling of a City) might best be accomplished under the LUNCP auspices, and which would not be able to come into being were it not for the multi-dimensional planning, development and administrative capabilities of some entity such as an Historic Canal District Commission.
- o The elements of an Educative City are meant to be the kinds of offerings that contribute to make living and working in Lowell more meaningful. It includes ways to make the physical environment more understandable and appreciable to those who use it. Students doing a project for school, housewives shopping, elderly finding a way of remaining a part of the city's life all would benefit from such a program.
- o New institutions that bridge the traditional gaps between education, social service and recreation can be invoked, and joint-use programs and facilities established to meet citizens daily needs. . . both spiritual and material. Programs for those with special needs, job training programs, cultural arts centers, and a wide array of educational offerings could all take place under an umbrella such as the Educative City.
- o Many of these elements would be attractive enough to give rise to visitation to Lowell by others. In addition, special attractions and interpretive programs would be developed specifically to attract children and adults to visit Lowell, individually, in groups and as families.

We have tried to portray as program options in the six alternatives which follow, those elements which we feel are most likely to contribute to an integratable and coherent group of educational and cultural programs.

APPROACHES

Numerous mechanisms exist for invoking specific Park interpretive programs. They fall into four categories:

- A. Provide a clear and appealing Thematic Scheme which describes the reasons for the founding of Lowell and the technical, economic, social, political and physical attributes which make it such a key development in the emergence of an industrial society.
- B. Make the city environment more legible. Examples of projects in this category would include the publication of maps, and institution of historic markers at appropriate sites; the restoration of now-defunct or deteriorated elements of the architectural fabric of the city; development of informal exhibits at street-corners; lots and storewindows.
- C. Encourage the use of the city as a learning/teaching resource. Implicit in strategies which attempt this goal is the encouragement of joint-use and other collaborative ventures among individual institutions. Some of the programs which would occur in this vein would be the opening up of certain factories and craftsmen's studios, and the establishment of tours, audio-visual programs; large-scale models and demonstration devices, and other techniques for explaining what did/does go on in these environments. Studies and projects involving the colleges and universities in the architecture, sociology, musical heritage, land-use, and even art could be accommodated. Classes, field trips, and programs for younger children in studies of ecology, water-power, physics, math, and so on could be designed and spaces, teaching aids and facilities provided.
- D. Engage citizens in the establishment and interpretation of activities related to the Park. The most effective programs will be those that make use of the talents, interests and sense of appropriateness of the people in Lowell. If the Park's interpretive programs are to feel relevant and not become a source of antagonism to the community, many of the programs should be of, by and for Lowell citizens. Local radio shows featuring local figures; senior citizens coming in to an elementary school class once each week for a storytelling hour of "the way it was;" local people acting as interpreters at their "previous" job; merchants sponsoring mini-exhibits; establishment of mini-courses taught by locals to both locals and visitors in crafts, ethnic cooking or music or dance, and obviously, encouragement of events that bring people together such as Heritage Week.

Development/Use

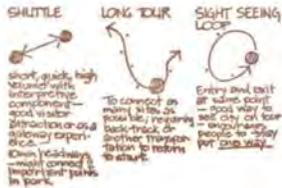
BASIC ASSUMPTIONS

Our Phase I and II investigations have revealed a set of policies, approaches, and considerations which we feel should be integral to each development alternative. Together these assumptions form a conceptual base on which Master Plans can be developed.

1. The development/use plan is the actualization of preservation, interpretive and economic objectives.
2. Lowell's physical form naturally zoned the development of any park into two components, a walkable, imagable downtown segment and an outlying segment tied to the canal system and water related natural features. Transportation loops readily conform to these two zones.
3. The Park should make maximum use of the historic resources in developing interpretive experiences (i.e., the city as exhibit).
4. Certain aspects of Lowell's environment are so integral to understanding its history that they should be preserved and reinforced in any development scheme. These include:
 - o the canal network
 - o the corporate-industrial spine forming the "mile of mills" and encircling the center of the city.
 - o the Dutton Street/Merrimack Canal axis which includes the historic gateway to the

Barge Travel

This is undoubtedly the most imaginable transportation mode in the park, offering not only a means of getting from site to site but also a powerful interpretive experience. The barge system should:



- o Connect various sites by water
- o Reinforce canal system structure in minds of visitors and residents
- o Celebrate water, generate water oriented activities, interaction
- o Create an active, exciting attraction for tourists
- o Interpret Lowell's hydrosystem

Three conceptual route configurations are shown in the diagram to the left. These typical arrangements would apply equally to other transportation modes such as buses and trolleys.

Pedestrian Movement

Given the objective of making the city the exhibit, pedestrian routes and zones should be an important part of any alternative. The visitors experience should include:

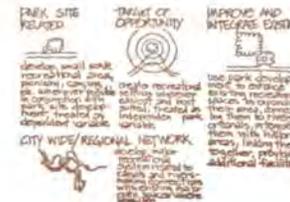


- o Slow scale of movement through the park--time to think and look at a pace closer to that of the 19th Century.
- o Ways to gain personal contact with feel of Lowell's environment
- o Informal way to see city--ability to explore, stop, go when wanted
- o Alternative linkages to important park sites
- o An urban "nature trail" to point out detailed effects of growth, change

Various concepts to designing conceptual pedestrian interaction pedestrian movement are shown to the left.

Recreation

In addition to Lowell's historic resources there is numerous recreational opportunities which should be considered in the development of the park. Opportunities include:

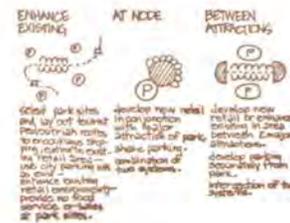


- o Improved access to water and availability of water related activities
- o Additional attractions for visitors to Lowell area
- o Organized recreation facilities in local neighborhoods
- o Regional recreation in Lowell metropolitan area
- o Links between existing facilities

Several approaches to exploiting recreational potentials are shown to the left.

Potential Related Development

Public investment in park facilities could attract significant related public and private development. They might include the following:



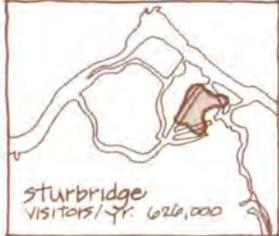
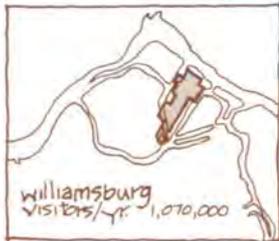
- o Educational program facilities for the public school system developed in conjunction with interpretive nodes
- o A comparative cultural institute connecting university level activities and research with the park program
- o Private retail and other commercial development in conjunction with major park attractions
- o Private housing development encouraged by park related environmental improvements

The diagram to the left illustrates conceptual approaches to locating one of these types of related development. Logical locations for this induced development are indicated in the various alternatives presented in Section III.

COMPARABLE SCALE PROJECTS

A number of urban projects which are comparable in some ways to development concepts under exploration for the Urban Cultural Park were investigated in Phase II. The diagrams to the left show how some of these projects compare in physical scale to the City of Lowell. Each of these represents a walkable interpretive experience which have been successfully developed in other parts of the country. While these are not direct precedents for Lowell they do suggest reasonable limits to pedestrian oriented park areas.

Whether or not they are located in large urban areas, each historic "park" demonstrates an ability to attract a relatively high level of visitation.



Management

BASIC ASSUMPTIONS

The following assumptions have been used in developing an approach to management strategies.

1. Neither the federal government nor any single entity would develop all of the major components of an urban cultural park. The actions of agencies at several levels of government and private groups will need to be managed to create a unified park program.
2. The overriding aim of the park program and its management structure should be to secure and enhance Lowell's unique historical resources and communicate their importance to residents and visitors.
3. Although focused on securing and interpreting historical resources, the park program should be implemented in such a way as to maximize positive impacts on the city's economy, environment, and culture.
4. A strong, local commitment and continuing local support is the only logical basis on which a park management program can be built.
5. Participation by the federal government -- in either an active or passive role -- is crucial to successfully meeting the goals of the park and therefore should play a central role in any management strategy.

PROGRAM ELEMENTS

Environmental Management

To successfully develop an Urban National Cultural Park, three management functions will need to be undertaken regardless of which master plan alternative is eventually chosen. First, Lowell's environment must be soundly managed on a broad basis to preserve and enhance those historic resources which are the basis of the park. Second, specific projects must be developed to enable residents and visitors to understand and interact with Lowell's unique heritage. Third, projects and activities undertaken by various actors must be coordinated to create a unified, directed program.

Environmental Management is the legal framework by which decisions to develop or change the environment are made for the public good. The existing management mechanisms operating in Lowell - such as the zoning codes, historic districts, and State Heritage Park memo of understanding - are valuable but are not effective enough to insure protection and encourage enhancement of those nationally significant resources which would form the basis of the urban cultural park. A system of design and use controls is needed, and it is assumed that such a system would underlie any of the six master plan alternatives presented in Part III of this report.

Project Implementation

Facilities and transportation links need to be developed so that people can learn about and interact with Lowell's historic resources. Park related facilities and linkages should be designed and located so as to encourage related private development (housing, commercial, etc.) that is needed to improve the city's economy and environment. Three types of entities could potentially be involved in implementing aspects of the total park. Public agencies (local, state, and federal) private entrepreneurs, and a park development entity specifically established to further the goals of the park. The specific role of each of these would vary depending on the master plan alternative chosen. Possible roles for each are identified for each alternative in Part III.

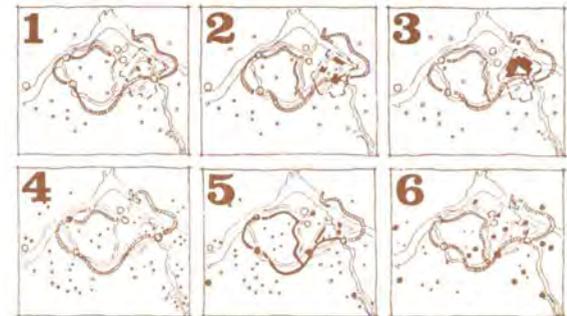
Coordination

Since the total park program is quite likely to be implemented by several agencies or other groups, a way is needed to (1) coordinate separate actions to produce a unified program; (2) to integrate long range planning for the park with day to day decision making, and to integrate related activities of educational and cultural institutions with the program of the park. (3) to integrate related activities of educational and cultural institutions with the program of the park. Coordinating mechanisms could vary significantly. They could range from simply gaining consensus among key implementors that they will follow a certain plan of action, to establishing a joint state-federal commission capable of managing all park related activities. Coordination, project implementation and environmental management are each discussed in greater detail in Section IV: Management.

Development of Alternatives

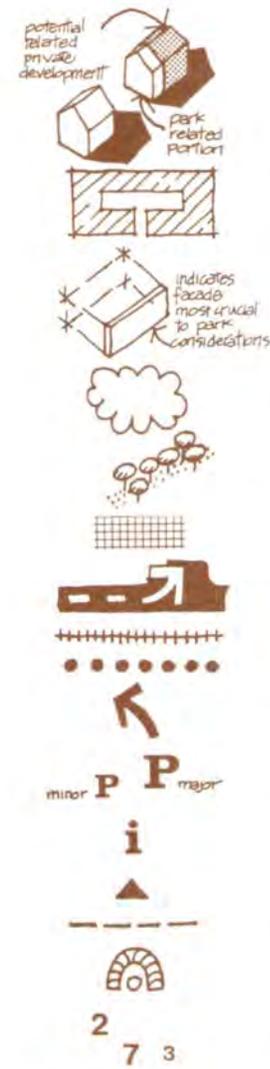
	small	medium	large
concentrated	1	2	3
dispersed	4	5	6

The spacial and scaler options discussed above were used to generate six conceptual alternatives to the urban cultural park which are identified and numbered to the left. Although the master plan alternatives developed from these concepts cover successive scales of effort, they are not additive in many respects. As indicated in the conceptual sketches below, each alternative is unique in significant ways from all of the others. The most distinguishing characteristics of each are summarized in Section 3 of this report.



Alternative master plan concepts.

KEY



For "Development and Use" diagrams, Alternatives 1-6,

STRUCTURES INCLUDED IN THE PARK - ACTIVELY RESTORED AND PART OF THE INTERPRETIVE PROGRAM

OTHER IMPORTANT HISTORIC BUILDINGS - FIRST PRIORITY FOR PRESERVATION GRANTS, FACADE EASEMENTS, ETC.

PENDING OR POSSIBLE NEW DEVELOPMENT WHICH COULD SIGNIFICANTLY DETRACT FROM OR ENHANCE THE QUALITY OF THE PARK

STATE PARK NODE

ENVIRONMENTAL IMPROVEMENTS/LAND ACQUISITION PROPOSED AS PART OF PARK PROGRAM

ENVIRONMENTAL CONTROL ZONE - PEDESTRIAN IMPROVEMENTS + LANDSCAPING IN ORDER TO RESTORE HISTORIC SETTING

BARGE

RAIL SHUTTLE

BUS LOOP

AUTO

VISITOR PARKING

INFORMATION

INTERPRETIVE KIOSK

INTERPRETIVE TRAIL

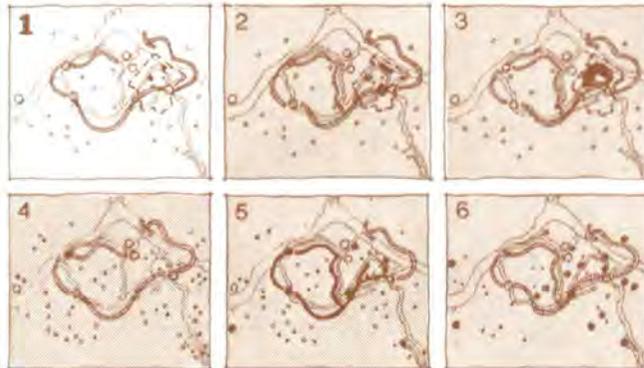
ACTIVITY SETTING

NUMBERS KEY SITES TO DEVELOPMENT/USE TEXT

Alternative

1

Concentrated/Small



Introduction

By concentrating resources and efforts in the downtown area, this small scale venture would result in an Urban Park very closely identified with efforts currently underway in Lowell. Programs such as the State Heritage Park, the Lowell Museum, the High School expansion and the Palmer Street Mall would be enhanced through a unified Urban Park program.

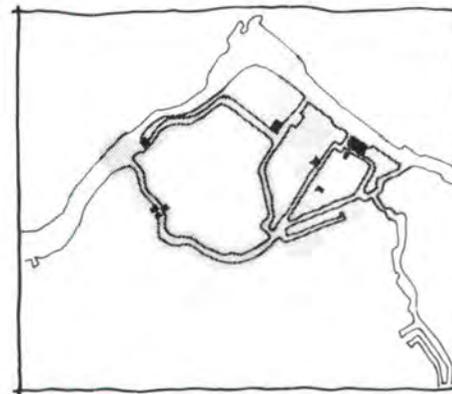
Small interpretive centers in the Boott Mill, the Old City Hall and the Wannalaucit-Tremont Yard form the nucleus of Park Activities in Alternative 1.

The most significant aspects of Lowell's history will be interpreted for the park visitor in these centers with the emphasis being on Lowell's industrial development of water power.

A minimal preservation program would protect a small number of Lowell's historic structures and would offer incentives for their re-use. The (burden of) management responsibility for this small scale venture would be at the city and state level with no direct federal participation anticipated, tourist visitation would number 40-60,000/year.

Preservation

The historic district in this scheme is limited to the area defined by the "Base Preservation District." In addition, individual pieces of the historic fabric preserved by development as a park interpretive node are mapped and listed below.



- Base Plan
- Recommended Additional Areas
- Buildings Actively Preserved
- Other Key Protected Structures

Boott Mill

Facade and landscape easements of the building exterior, including walls, bell/stair towers, catwalks, fire boxes and restoration of the forecourt and portions of the main interior mill yard.

John Street Boarding House

Acquisition of the structure and restoration of the building exterior and one interior section to illustrate typical mill girl quarters.

Old Town Hall

Investment for preservation and restoration of the building exterior.

Other Preservation Assistance

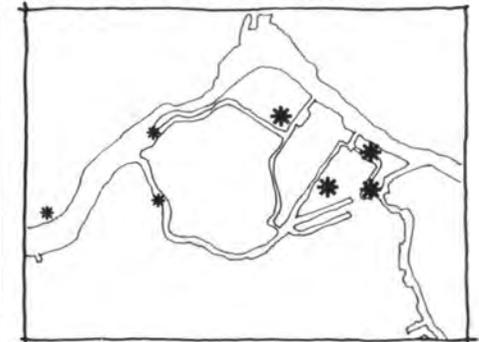
Investment as required to preserve exterior facades in the area accorded "Preferred Status."

Interpretation

This is the most modest of the interpretive schemes proposed, and would afford visitors an elementary view of the most dramatic themes of Lowell's Heritage. In this scheme the existing State Heritage Park nodes are reinforced, and the Lowell Museum exhibits are seen as prominent attractions. Additionally, two other sites are established as magnets.

The small but focal series of exhibits at the Boott Mills, counting house, inside and courtyard spaces, would be developed to portray the emergence of the first major planned industrial city, and the people who founded it. The Visitor Center at the Old Town Hall would describe the people who built and worked in the mills, their origins, and the neighborhoods that allow the traditions of these people to be maintained.

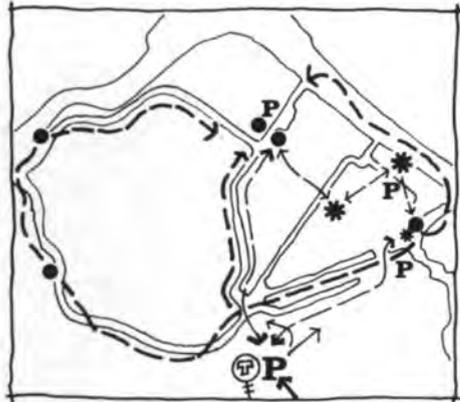
Technical exhibits showing the systems devised for the most efficient production of textiles would be presented at the Lowell Museum, and these would be enhanced by outdoor exhibits developed at the Tremont Yard site. A large, operable hands-on scale model of the entire cityscape, showing the complete Lowell industrial system, would be built at the Rex Lot site, and would provide an overall orientation to the city. Additionally, a system of explanatory graphic panels at each facility would encourage visitors and residents to visit and explore these and other sites.



Alternative 1 continued

Development/Use

Scheme 1 supplements current interpretive activities by developing two downtown nodes in historically significant buildings: the Boott Mill and the Old City Hall. Also, the State Heritage Park Rex Lot site is more intensively developed as an interpretive node and barge terminus. These facilities work together with a third node at the Wannalancit-Tremont Yard park area. All three nodes are linked by a bus shuttle loop beginning and ending at the proposed transportation terminal.



- * Node (Federal Focus)
- Node (Others)
- P Parking
- Water Edge Park
- - Barge Loop
- -> Bus Shuttle
- T Trolley
- > Auto

MAJOR LOCATIONS

1. Boott Mill

- o Restoration of counting house, clock tower portion of mill yard, and adjacent boarding house.
- o Interpretive experience--small exhibit in counting house emphasizing the development of mill buildings and some of the more universal themes of the Lowell story; exhibit in boarding house to illustrate the life of mill girls.
- o Visitor services--orientation to park and city, events, etc.

2. Old City Hall

- o Exterior restoration and reuse of interior.
- o Interpretive experience--small exhibit emphasizing Lowell's social history and ethnic heritage.
- o Visitor orientation to nearby historic structures.
- o Community Meeting spaces.
- o Administrative facilities for entire park.
- o Small gift/souvenir shop fronting on Merrimack Street and selling ethnic crafts or other items related to Lowell history.
- o Small unusual eating place.

Joint Use:

- o Build on existing Lowell Museum and State Heritage Park node.
- o Interpretive experience--concentrate on the development of hydropower from the water wheel to the hydroelectric turbine; demonstrate a working mill.

3. Wannalancit/Tremont Yard

- o Build on existing Lowell Museum and State Heritage Park node.
- o Interpretive experience--concentrate on the development of hydropower from the water wheel to the hydroelectric turbine; demonstrate a working mill.

4. Rex Lot

- o Large model of locks and hydropower system.
- o Major barge on/off.

5. Transportation Terminal

- o Parking intercept as planned by the state.
- o Information/orientation facility.
- o Shuttle bus departure point to major sites.

MAJOR LINKAGES

6. Bus Shuttle Loop

- o Runs in two directions from the transportation terminal and connects.

7. Barge Tour

- o Stops at Heritage State Park interpretive sites.
- o Major on/off with parking at Tremont Yard and Rex Lot.

PARKING

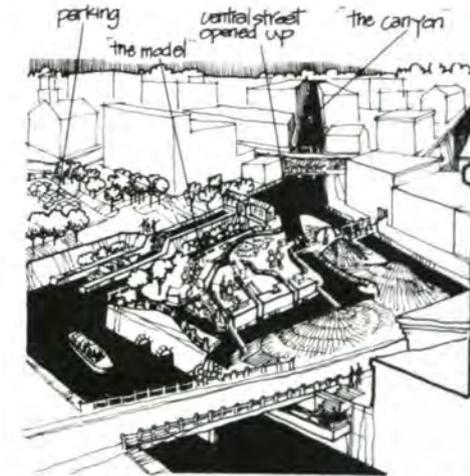
8. Tourist Related--120 spaces total
- o Primary parking at the transportation terminal; secondary lots at Rex Lot and Tremont Yard for barge ride, at Boott Mill and near Old City Hall for interpretive exhibits.

Space Requirements Summary SITE	Interpretive Space	Administration	Educational/Cultural Program	Retail	Other Commercial	Housing
1. Boott	4,000					
2. City Hall	3,000	1,000	3,000	6,000		
3. Wannalancit	existing					
4. Terminal	500					
TOTAL	7,500	1,000	3,000	6,000		

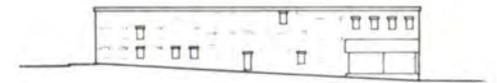
← Potential Related Private Development →



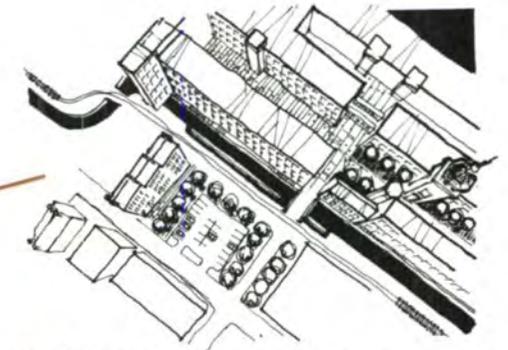
A small scale park node will be developed in the Old City Hall to serve as a visitor/interpretive center, focusing on Lowell's social history and ethnic heritage.



Encourage development of the state park's Rex Lot, their only downtown node, into a working model of the "industrial city."



An existing boarding house in disrepair will be completely restored to its original 19th Century appearance.



A park node in this area would clearly show the very compact interrelationship of various elements of the industrial system: canals, turbines, tailraces, boarding houses, management residences, the counting house, clock towers and associated open space.

Alternative 1 continued

Potential Roles

One scenario for this scheme might call for no actual federal presence in Lowell. Federal grants and technical assistance would be made available to help the city government, the State Heritage Park, and others to develop additional facilities. For example, the state park might expand to include three new sites, such as the Boott Mill Interpretive Center, the adjacent boarding house, and the Swamplocks Area. The city might develop the Old City Hall with Federal aid and use its own funds for public space improvements in the vicinity of park facilities. The city would be largely responsible for enacting and enforcing environmental management/preservation ordinances. Federal funds could be used to help the museum expand and integrate its program with the state's Tremont Yard Park facilities. Likewise the university could take a lead role in coordinating research and educative aspects of the park as well as assist in the development of community outreach programs. Overall coordination might best be provided by a non profit corporation representing the various major participants.

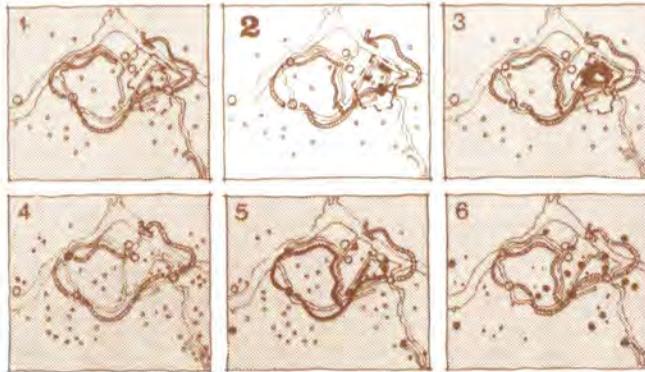
Summary Evaluation

Lacking a federal presence to lend added legitimacy and identity to the park, a modest level of visitation of from 40-60,000/year could be expected. Although this alternative would be one of the easiest to implement, it would have minor influence on the city's economy. Limited public investment would encourage minimal private development. Lowell's most significant buildings would be preserved, but it is doubtful that this alternative would make a sufficient impact on Lowell to induce the long term local effort needed to protect and enhance the city's other unique aspects.

Alternative

2

Concentrated/Medium



Introduction

This medium scale endeavor would result in an Urban Park closely integrated with present efforts in the concentrated downtown area. Existing programs such as the State Heritage park, the Lowell museum, and downtown planning activities would be augmented by an active park presence. The resulting additional resources would be used to effectively improve the environment of historic areas in the city.

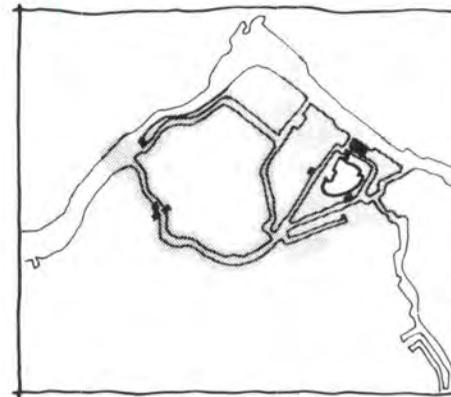
Medium size interpretive centers at opposite ends of the downtown will generate significant tourist activity between them. These interpretive experiences will be designed to unify the thematic program of the Urban Park.

At this scale, a base preservation program would protect many of Lowell's historic structures and districts.

In addition to the city and state environment a federal presence would add to the image of the Urban Park. With an expectations of 150,000-250,000 tourists/year, the federal government might become directly involved with the historic Boott Mill site.

Preservation

The total historic district in this scheme adds more of the downtown area to the "Base Preservation District." In addition, key pieces of the historic fabric preserved by development into park nodes are mapped and listed below.



- Base Plan
- Recommended Additional Areas
- Buildings Actively Preserved
- Other Key Protected Structures

Boott Mill

Facade and landscape easements of the building exterior, including walls, bell/stair towers, catwalks, fire boxes and restoration of the forecourt and portions of the main interior mill yard.

John Street Boarding House

Acquisition of the structure and restoration of the building exterior and one interior section to illustrate typical mill girl quarters.

Old Market Building

Investment for preservation and restoration of the building exterior.

Other Preservation Assistance

Investment as required to preserve exterior facades in the area accorded "Preferred Status."

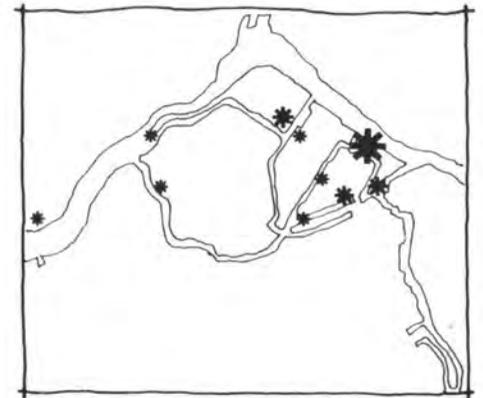
Interpretation

The opportunities for a novel and engaging series of learning experiences is significantly greater in this scale of alternative, which provides an overall interpretive experience at the Boott Mill and specialized exhibits in other key locations.

An engaging series of exhibits at the Boott Mill, including restoration of a boarding house, the "ghosting" of key missing pieces of the fabric and a 7-10,000 sq. ft. visitor center would be established.

In addition, the Old Market Area would become the revitalized site of a collection of functionally and educationally-oriented cultural activities. The ethnic heritage of the city would be featured in an interpretive exhibit, adjacent to a new food and craft market and shopping plaza, located at the Old Market, and in conjunction with the redeveloped Rex Lot and Central Street pedestrian improvements.

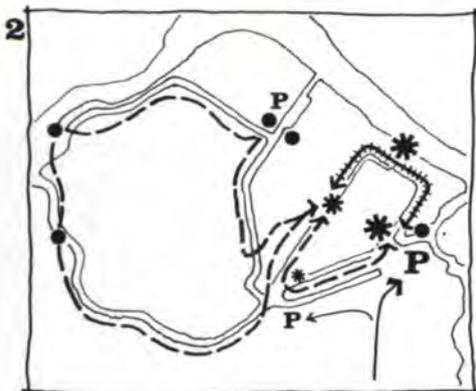
The significance of the canals as a key element of Lowell's heritage will be emphasized at the barge-train transfer stop at the YMCA block, where an outdoor series of mini-exhibits in kiosks will illustrate the designing, building and operation of the locks.



Alternative 2 continued

Development/Use

Scheme 2 concentrates park related activities, environmental improvements, and joint development at two locations on opposite sides of the downtown: the Boott Mill area and the Old Market area. These sites are linked by a barge/trolley loop which operates between the YMCA block and the Old Market and which encircles the downtown.



- * Node (Federal Focus)
- Node (Others)
- P Parking
- Water Edge Park
- Barge Loop
- - - Bus Shuttle
- Trolley
- Auto

MAJOR LOCATIONS

1. Boott Mill Area

- Park Use:
- o Interpretive experience designed to unify the thematic program of the park.
 - o Visitors' services--orientation to park areas, sites, city facilities.
 - o Administrative offices for entire park.
 - o Educational/cultural program facilities--local school system extension for activities tying directly into park program.
 - o Restoration of adjacent boarding house to illustrate life of mill girls.

Potential Related Development:

- o Major housing development in portions of mill not suitable for industrial uses.

2. Old Market Area

Park Use:

- o Small interpretive exhibit on social and ethnic history.
- o Activity setting for cultural programs.
- o Barge/trolley transfer point with direct access to Rex Lot.
- o Major environmental and pedestrian improvements designed to join Old Market area with Rex Lot development across Central Street.

Potential Related Development:

- o Ethnic market/specialty shopping center oriented to the water--developed by reusing Old Market, reusing nearby buildings on Central St., and designing some retail space into proposed parking structure.

3. YMCA Block

Park Use:

- o Barge/trolley transfer point.
- o Water oriented activities.

Potential Related Development:

- o Wentworth and Mack buildings developed for uses which take advantage of proximity to water.

MAJOR LINKAGES

4. Long Barge Loop

- o To outlying Heritage State Park sites.

5. Downtown Loop

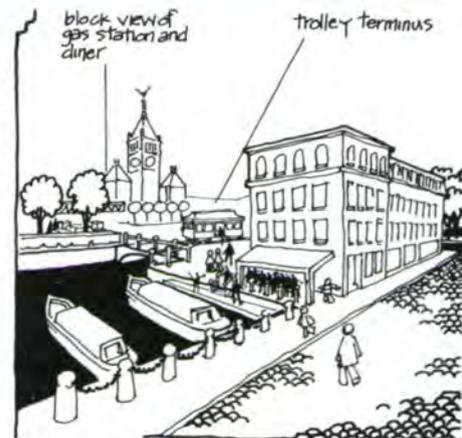
- o Split between a barge shuttle and a rail shuttle operating between terminals at the Ethnic Market and the YMCA block.

PARKING

- 6. Tourist Related--220 spaces total
 - o Primary parking at Smith Lot with overflow at Swamplocks area.
- 7. Potential Related Retail--375 spaces total
 - o Split between proposed Market Street garage and Smith Lot.
- 8. Potential Related Housing--400 spaces total
 - o Located adjacent to Boott Mill and shared with Merrimack River.

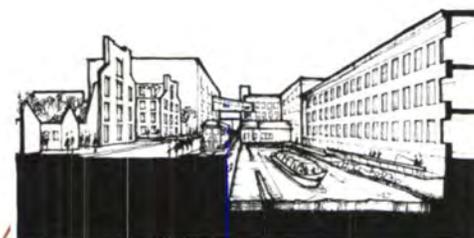
Space Requirements Summary SITE	Interpretive Areas	Administration	Educational/Cultural Program Spaces	Retail	Other Commercial	Housing
1. Boott	7,000	2,000	7,000			moderate
2. Old Market	3,000		3,000	75,000		
3. YMCA area				10,000		
TOTAL	10,000	2,000	10,000	85,000		moderate

Potential Related Private Development →

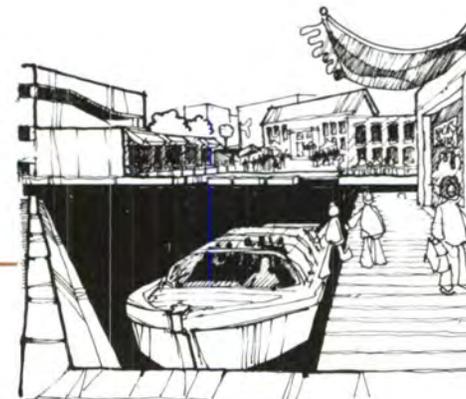


Remove YMCA Building and develop the area between the Mack and Wentworth Blocks as major water nodes.





A new barge and trolley system will enable visitors to move along the Eastern Canal between the Boott Mill and re-created boarding house facades.



An ethnic market focusing on the Old Market Building, would be developed around a major water node. This node would tie closely to the state park's Rex Lot site.

Alternative 2 continued

Potential Roles

One potential scenario for this scheme would directly involve the Federal Government in developing one discrete piece of the park. For example, the Boott Mill interpretive center might be developed as a national Historic Site. This seems appropriate since the Boott Mill--a complex where the classic mill form has remained completely intact--is probably one of the most nationally significant mill buildings in Lowell. Alternatively it could be developed jointly by NPS and the Smithsonian which possesses a large collection of textile machinery, now in storage. The Federal government might also provide aid for local organizations to implement park related projects. The city would logically take a lead role in affecting development of the ethnic market. Private investment in this venture could be aided by incentives such as potentially provided by the Lowell Community Development Corporation. With federal aid, the state park could expand its transportation plan to realize the downtown barge-trolley loop. This would include development of transfer nodes at the YMCA, and Old Market area. City environmental management policies could be reinforced by obtaining legal status for the state's existing review and comment procedure relating to the Heritage State Park. Major participants could agree to an overall set of policies and coordinate individual projects on an ad hoc basis.

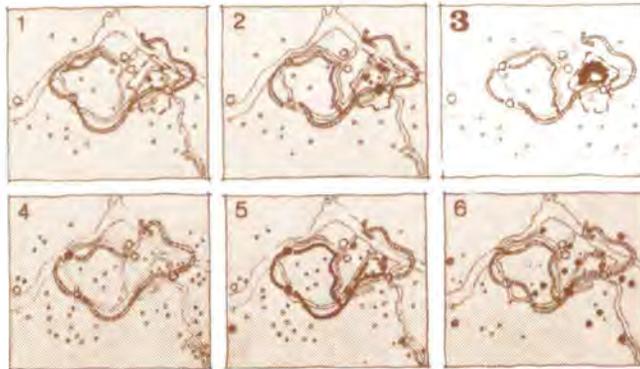
Summary Evaluation

With a federal presence adding to the legitimacy and identity of the park, visitation levels of from 150,000-250,000/year could be expected. It is probable that a park this size would alter perceptions about Lowell sufficiently to induce a fair amount of private development. The ethnic market would be an obvious place for private investment--as would the Boott Mill, where housing could be developed in areas unsuitable for light industry. A direct federal commitment to the city at this scale would provide a strong impetus on the local level to support the park and make it work. Federal aid to park related projects could be made contingent on continued local efforts in certain key areas.

Alternative

3

Concentrated/Large



Introduction

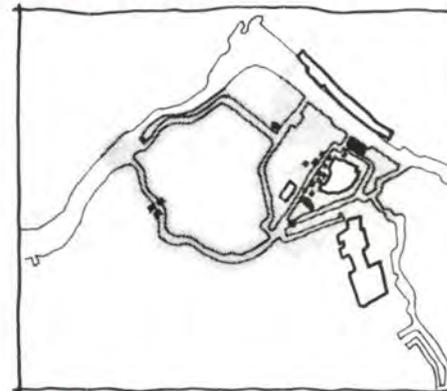
In this highly concentrated, large scale scheme downtown renewal efforts that are presently underway would be treated as parts of a substantially larger program. Major activity centers at the Lowell Mill and at the Boott Mill will be developed at both ends of a downtown controlled zone of historic character. Re-creations of historical settings, a large/trolley circulation systems and a highly refined interpretive program are the major characteristics of Master Plan Alternative 3.

A major preservation effort would protect worthy downtown sites, the canal system and other unique environmental features.

Contributions at the city, state and federal level would make this park alternative a major attraction in the New England area with a draw of 650,000 to 750,000 new visitors per year.

Preservation

The total Historic District includes the "Base Preservation District" plus the remainder of the downtown, Worthen Street, Towers Corner/Chapel Hill, and the river banks opposite the "Mile of Mills". A major effort aims at preserving and enhancing a piece of the historic downtown setting by establishing a Control Zone between the Boott Mill and the Lowell Mills. Individual structures preserved as a park interpretive node are mapped and listed below.



- Base Plan
- ▭ Recommended Additional Areas
- Buildings Actively Preserved
- Other Key Protected Structures

Boott Mill/Lowell Manufacturing Co.
Facade easements of exterior walls, bell/stair towers, catwalks, fire boxes and restoration of the forecourt and portions of the main interior yard.

Other Buildings Actively Preserved
Boott Boarding House; Childs House; Other Kirk Street Structures; Merrimack Gate; Yorick Club; St. Anns; Old City Hall; Gas Company; and Mack, Wells, Wentworth and Mack Blocks.

Other Preservation Assistance
Investments as required to preserve the exteriors of other buildings in the district accorded "Preferred Status."

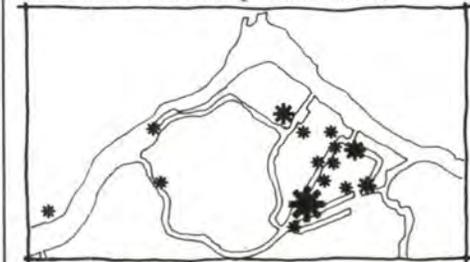
Interpretation

This alternative features careful restoration and preservation efforts; the adaptive reuse of the Lowell Mills; and the opportunity to ride a canal and trolley based interpretive tour, linking sites and events.

Visitors would walk through a re-creation of 19th century Lowell with a bustling mixture of commerce, tourist-oriented exhibits, craft displays, barge rides, and cultural and educational programs, some of which might relate to joint projects undertaken with the adjacent Lowell High School, would be developed.

In its fully developed form this alternative provides the physical structure for a very substantial hub of activity. At the Lowell Mills it would be expected that approximately 20,000 sq. ft. would be redeveloped as a visitor center, containing exhibits and related services. An additional 20,000 sq. ft. would be programmed with educational and cultural facilities, such as joint programs with the school system. These would support an ethnically-oriented retail and commercial cluster, all wrapped around a barge landing.

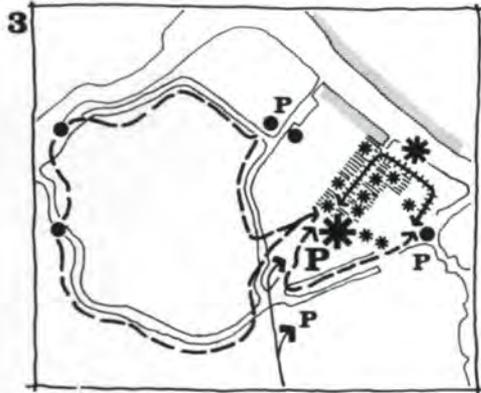
The Boott Mill would house an exhibition describing the economic and social underpinnings of the mills, and the story of the establishment of America's first major corporation-organized city. Boarding houses, counting houses, and other sites indicated with (*) would be restored to allow adaptive reuse while encouraging visitation and interpretive tours.



Alternative 3 continued

Development/Use

In Scheme 3 a controlled zone of historic character is established which parallels the Merrimack Canal. Major park activity centers are developed at either end of this zone: the primary visitor's center and a large commercial development in the Lowell Mills; and an interpretive center and housing development at the Boott Mill. Park related activities generally encircle the downtown and are linked by a barge/trolley loop which operates between the YMCA area and the Rex Lot.



- * Node (Federal Focus)
- Node (Others)
- P Parking
- Water Edge Park
- Barge Loop
- > Bus Shuttle
- ~ Trolley
- > Auto

MAJOR LOCATIONS

1. Lowell Mills

- Park Use:
- o Interpretive experience--designed to unify the thematic program of the park; a major attraction.
 - o Visitor services--orientation.
 - o Administration--for entire park.
 - o Educational/cultural program facilities--to include public school system extension for activities tying directly into park programs.

Potential Related Retail:

- o Specialty retail--community-sized center with ethnic image; designed to encourage tourist trade and to reinforce existing retail activities.
- o Other commercial--moderate sized hotel with meeting facilities, restaurants, entertainment, etc.

2. YMCA Area

- Park Use:
- o Barge/trolley transfer point--demolish all structures except Wentworth Block and Mack building; excavate area to provide expanse of water.
 - o Water activities--development of water related uses to become downtown amenity, adding to unique image of city and extending Lucy Larcom Park.

Potential Related Development:

- o Redevelop Wentworth and Mack buildings for water related uses.

3. Boott Mill

- Park Use:
- o Interpretive experience--reuse of portion of mill to contain an exhibit focusing on the development of manufacturing.
 - o Educational/cultural program facilities--school system extension for activities tying directly into park program.
 - o Restoration of adjacent boarding house to illustrate the life of mill girls and development of "ghost" structures to indicate location of destroyed boarding houses.

Potential Related Development:

- o Housing in portion of mill not suitable for light industry.

4. Controlled Zone

- Park Use:
- o Active restoration of individual structures and pedestrian improvements to recreate historical setting--public access where possible; related activities where appropriate.
 - o Interpretation--role of institutions in the development of Lowell society;

reflection of social status in housing types.

Potential Related Development:

- o Uses compatible with the historic purpose of various buildings (for example, store in the Welles block which sold typical early 19th century goods).

MAJOR LINKAGES

5. Long Barge Loop

- o To outlying Heritage State Park sites.

6. Downtown Loop

- o Split between a barge shuttle and a rail shuttle operating between terminals at the UMCA area and the Rex Lot.

PARKING

7. Tourist Related--820 spaces total

- o Primary parking at Dutton Street area with overflow at Swamplocks area.

8. Potential Related Retail/Commercial--900 spaces total

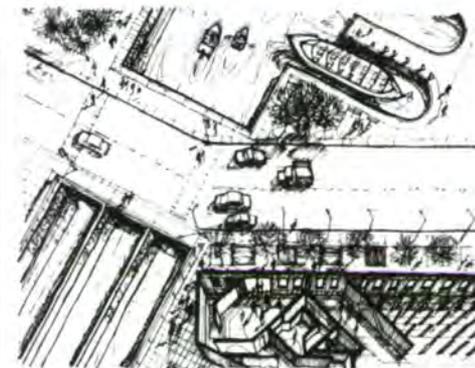
- o Split between proposed Market Street garage and Dutton Street area.

9. Potential Related Housing--400 spaces

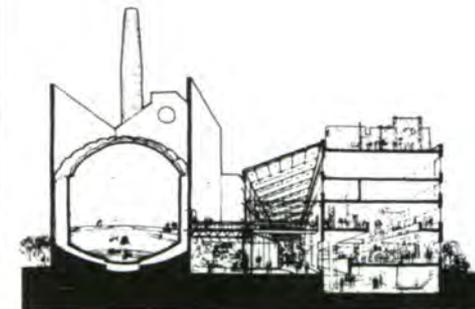
- o Located adjacent to Boott Mill and shared with Merrimack Plaza.

Space Requirements Summary SITE	Interpretive Areas	Administration	Education/Cultural Program Spaces	Retail	Other Commerce	Touring
1 Lowell	20,000	5,000	10,000	150,000	100,000	
2 YMCA area				10,000		
3 Boott	7,000		7,000			major
4 Other	10,000		10,000			
TOTAL	37,000	5,000	37,000	160,000	100,000	major

Potential Related Private Development



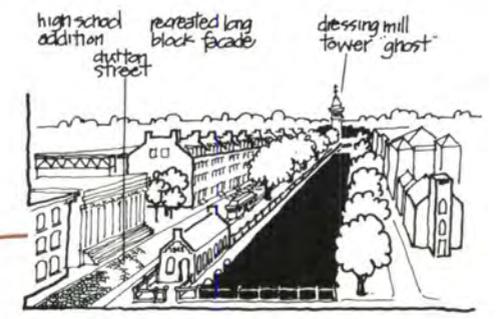
A canal interpretation center in the Lowell Mill and barge docking facilities at the former YMCA site will reinforce water related activity in the City Hall Historic District.



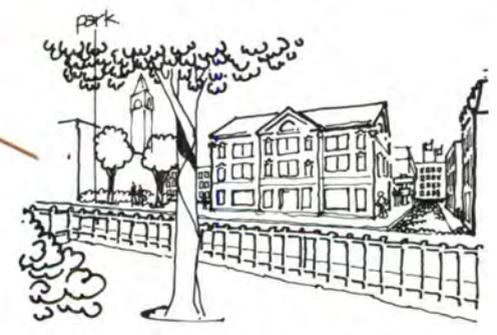
A pedestrian arcade, exhibit galleries and an audiovisual facility will transform the Lowell Mill into an engaging series of interpretive spaces for park visitors.



Re-establish the 19th Century residential character of Kirk Street through public space improvements and facade restorations.



Restore the character of the Dutton Street/Merrimack Canal axis, the single most historic setting in Lowell.



Remove non-descript structures and develop park adjacent to Old City Hall to enhance historic setting and open views to Middle Street and the Mills beyond.

Alternative 3 continued

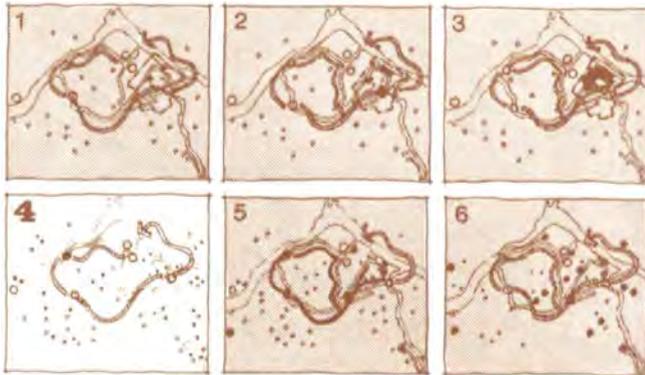
Potential Roles

One possible scenario for this alternative would call for federal participation with the state on a joint commission charged with developing major aspects of the park. Concentrating on the downtown fabric, these efforts could include the Lowell Mill interpretive center, and park development in the control zone. This group would institute and enforce an environmental management program and coordinate park related activities. In this scheme the Park Service might develop a National Historic Site in the Boott Mill Area as one part of an overall program. The state park might take the lead role in developing the recreation potential of the canal and river banks city wide and the development of barge and trolley loops. City efforts concentrate on improving environments in the vicinity of the park, and integrating the park with the needs of local neighborhoods and the business community. Alternatively, a National Historical Park could be developed, focusing on the downtown on a cooperative basis with other agencies, institutions and private groups. In this latter case major participants could agree to an overall set of policies and coordinate individual projects on an ad hoc basis.

Summary Evaluation

The multiple, highly imageable attractions developed under this alternative would draw from 650-750,000 people/year--equal to some of the major attractions in New England. These visitors could be handled with little disruption to the city because of the efficient configuration of access, parking and circulation. The park would reinforce the existing locus of activities in downtown Lowell, and park related environmental improvements could add significantly to the image of the area. This scale of park should be sufficient to encourage substantial private investment such as that proposed for the Lowell and Boott Mill centers. Park activities encircling the downtown should improve the economic climate and provide a strong impetus for private restoration. Although this scheme would be among the more expensive to develop, its return to the city and to the federal government per dollar spent is likely to be the greatest.

Alternative

Dispersed/Small**4****Introduction**

A dispersed, small-scale program would provide a series of modest interpretive displays which could be enacted at sites appropriate to particular themes.

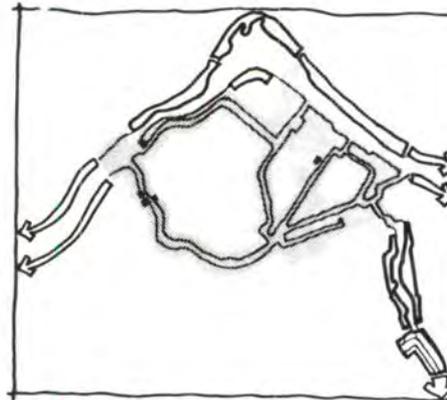
Ongoing planning efforts by the city and state would be reinforced and would be jointly supported by the Urban Park themes.

Walking trails and activity settings would be developed to complement interpretive displays, and would allow Park visitors to explore sites by themselves, and in groups.

A minimal preservation program would protect a small number of Lowell's historic structures and would offer incentives for their adaptive re-use.

Preservation

In this scheme the total historic district adds Lowell's riverbanks to the Base Preservation District. There is no direct active preservation of any individual buildings aside from minimal funding assistance within the "Base Preservation District."

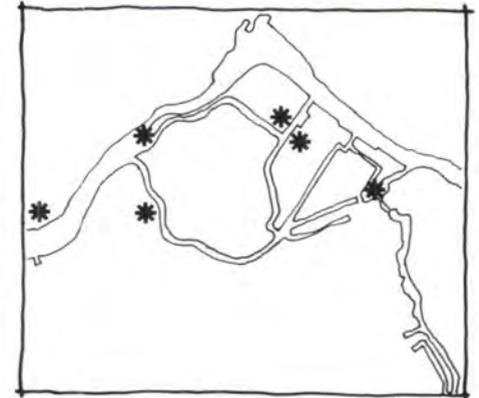


- Base Plan
- Recommended Additional Areas
- Buildings Actively Preserved
- Other Key Protected Structures

Interpretation

This most modest option would offer visitors and residents the most informal and unpretentious interpretation of the vast system of production that was once Lowell. By selectively preserving and making secure certain key industrial sites, and by providing a series of small-scale exhibits and signage programs, it will be possible to offer a clear description of the historic themes presented in the more ambitious programs alternatives.

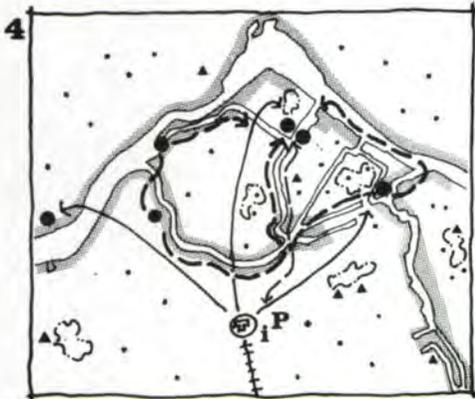
By reinforcing and adding to the network currently being planned as the Heritage State Park, a series of bike and walking trails, recreation areas, and activities and programs organized to reinforce the ethnic and cultural heritage of the city, an initial step will have been taken to make the general ambiance of the city, and its neighborhoods, an "educative city".



Alternative 4 continued

Development/ Use

In Scheme 4, plans and proposals which have begun to be implemented in Lowell and which could potentially become part of the urban cultural park are assisted to insure their full realization. Special emphasis is given to assisting the State in securing and developing lands along the river and canal banks as has been envisioned for the State Heritage Park. Small interpretive displays and activity settings are developed at various locations with the aim of telling each story where it actually occurred. A long barge tour and bus shuttle are available too but they do not reach every interpretive location.



- * Node (Federal Focus)
- Node (Others)
- P Parking
- Water Edge Park
- Controlled Zone
- Barge Loop
- Bus Shuttle
- Trolley
- Auto
- ~ Pedestrian

MAJOR LOCATION

1. State Park Nodes

- o Rex Lot/Outlet Locks, Francis Gate, Pawtucket Boulevard, Northern Canal Walk, Tremont Yard.
- o Small interpretive centers.
- o Activity settings for cultural and interpretive events where appropriate.

2. Concord River Bank

- o Acquire and develop for recreation--emphasis on bike and pedestrian paths.
- o Outdoor interpretive displays--role of Concord and Wamesit Canal in very early industrial development.

3. Merrimack River Banks

- o Acquire and develop for recreation emphasizing bike and pedestrian paths.
- o Outdoor interpretive displays--role of Merrimack Falls in founding of Lowell, importance of Merrimack Valley in industrial development of US.

4. Wannalancit/Lawrence Area

- o Developed in conjunction with Tremont Yard Park/Lowell Museum.
- o Walking tour and interpretive displays hypopower, weaving technology; housing and life style of mill girls.

5. Downtown

- o Walking tour and interpretive displays role of institutions in early Lowell society; business and commercial development; experience of industrial spine which once encircled downtown.

6. The "Acre"

- o Walking tour, activity setting, outdoor interpretive displays--housing and life styles of early immigrants; ethnic heritage of city.

7. Chapel Hill

- o Walking tour, activity setting, outdoor interpretive displays--housing and life styles of early middle class.

8. Bellvedere

- o Walking tour, outdoor interpretive displays--housing and life styles of mill owners and the wealthy class.

9. Middlesex Village

- o Walking tour activity setting, interpretive displays--role of Middlesex Canal in development of Lowell.

10. Schools, employment centers, City Hall (places where people gather)

- o Interpretive displays--describing the park and current activities/events.

11. Transportation Terminal

- o Parking intercept as planned by state.
- o Information facility to orient visitors.
- o Shuttle bus departure/arrival point.

MAJOR LINKAGES

12. Barge Tours

- o Per State Heritage Park.
- o Major on/off at Tremont Yard.

13. Bus Shuttle

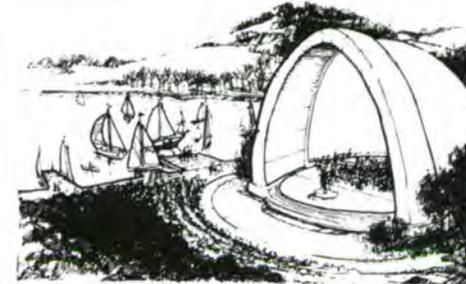
- o Connecting transportation terminal with Tremont Yard barge terminus.

PARKING

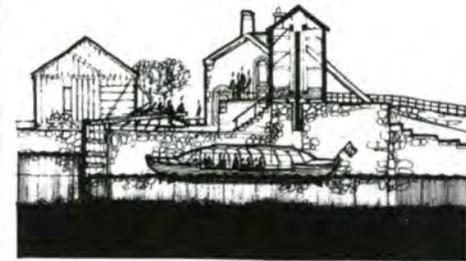
14. Tourist Related--120 spaces total

- o Primary parking at transportation terminal, minor lots convenient to interpretive displays and walking tours at various locations in the city.

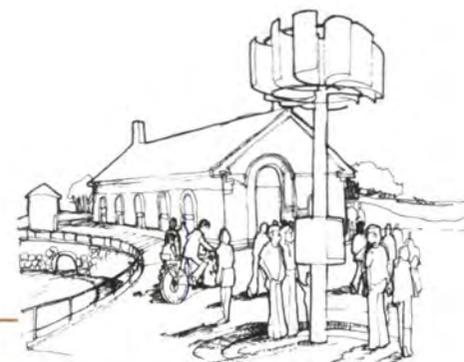
Space Requirements Summary	Interpretive Space	Administration	Education/Cultural Program Space	Program Related Development
Terminal	500			
Areas 4-10	1,000			
TOTAL	1,500	1,000	negotiable	negligible



Lowell has many sites that will become major activity centers contributing to the success of the Urban Park.



Riders on the Pawtucket Canal barge loop will pass through a working system of locks at the Francis Gate as part of their trip along a completely restored canal system.



Orientation devices will be placed throughout the city at appropriate sites for the purpose of educating Urban Park visitors.



An extensive system of interpretive trails throughout Lowell will reveal different aspects of the Lowell story to the Urban Park visitor.



A series of self-guided tours will enable all Urban Park visitors to explore Lowell's neighborhoods, historic sites and canal banks.

Alternative 4 continued

Potential Roles

One potential scenario for this scheme might call for no actual federal preserve in Lowell. Rather, federal grants and technical assistance would be made available to help the city government, the Heritage State Park and others to develop park programs. For example, the State Heritage Park would be aided to fully develop canal and river banks for public uses and to develop a complete barge tour. The city might be assisted to construct an array of small interpretive displays, walking trails and activity settings. Local institutions would be aided to develop park related educational and cultural programs. The city would be largely responsible for enacting and enforcing environmental management/preservation ordinances. Overall coordination might best be provided by a local level commission.

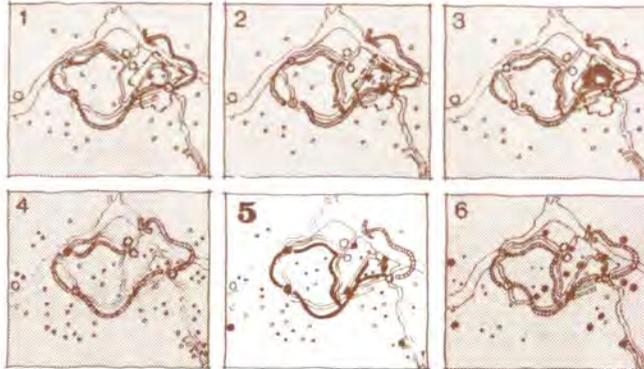
Summary Evaluation

This minimal scheme would probably be the easiest and least costly to implement. The park would help interested visitors to get a fair understanding of Lowell, and would attract 20-40,000 people per year-- the lowest of any alternative. There would be negligible consequences to the city's economy and little private development would be induced. However, the redevelopment of canal and river banks could provide significant urban amenities such as increased parkland and educational/cultural facilities. Although significant structures relating to the industrial system would be preserved, there probably would not be sufficient resources to insure the future of other buildings or to restore historic settings.

Alternative

5

Dispersed/Medium



Introduction

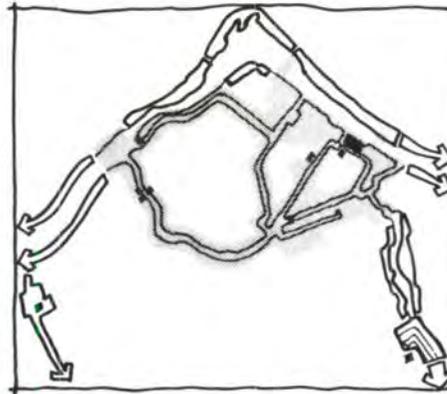
Through direct support, this plan will fully insure that existing city and state plans are realized in the Lowell area. Support of the State Heritage Park and related activities is one feature of this medium scale dispersed scheme.

Conceptually, Alternate 5 differs from the other master plan alternatives by placing the central significance on a series of highly interpretive barge rides. This "floating node" is intended to be the major device for interpretation, and would allow visitors to obtain a unified presentation of the Urban Park themes. Interpretation would be provided while riding barges utilizing a variety of audio-visual techniques, and would be supplemented by additional exhibits at approximately six landing sites.

Preservation

In this scheme the total historic district is expanded to include Lowell's riverbanks and two pre-1820 areas (Middlesex Canal/Village and the Whipple/Wamesit Area) in addition to the "Base Preservation District." Individual pieces of the historic fabric preserved by virtue of their active development as a part interpretive node are mapped and listed below.

- o Boott Mill
- o Bridge St. Boarding House
- o Glassblowers Quarters
- o Middlesex Canal Traces
- o Whipple Powder Mill
- o Wamesit Canal

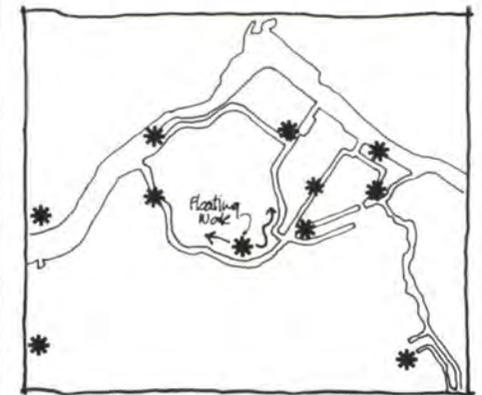


- Base Plan
- Recommended Additional Areas
- Buildings Actively Preserved
- Other Key Protected Structures

Interpretation

The major characteristic of this alternative is the development of a series of "routes" through the city, and in effect, through Lowell's history. By utilizing the restored canal and trolley network, and creating a series of long and short loops, visitors, students and residents will be able to see and hear a substantial presentation of the original and remaining city plan, "mile of mills", housing styles and the wonder of the canals themselves.

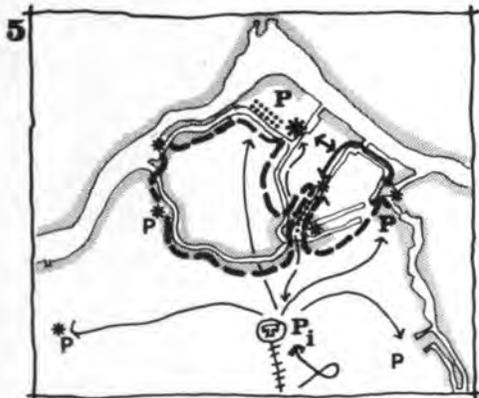
While no major construction of facilities is contemplated, a number of small exhibits, as indicated in the diagram by (*), and informal information centers would be established in proximity to the canals which will clearly become the centerpiece of this scheme. Because the interpretation would be programmed into the means of transportation, it would be likely that audio-visual, guided tours and other demonstrations would be made available. Architectural tours, women's tours, Greek tours, Weaving tours, Art or Music tours, and so on, might be scheduled.



Alternative 5 continued

Development/Use

Scheme 5 assists on-going efforts to insure that existing plans are fully realized, but adds several important components which are not currently being planned. First, the barge/trolley system is designed and structured to be the central interpretive experience of the park. Second, several small interpretive nodes are developed at key historic sites to supplement the state park nodes and focus the outdoor displays described in scheme 4. Third, two linear elements which were once an important part of Lowell's city-scope are recreated to emphasize their historical role and to provide major urban amenities: the Northern Canal Promenade and Dutton Street, the traditional gateway to the city.



- * Node (Federal Focus)
- Node (Others)
- P Parking
- Water Edge Park
- Controlled Zone
- Historic Linkages
- Barge Loop
- - - Bus Shuttle
- Trolley
- Auto
- Pedestrian

MAJOR LOCATIONS

1. State Park Nodes

- o Small interpretive centers and activity settings.

- 2. Development of walking tours, activity settings, and interpretive displays in the following areas as described in scheme 4:
 - Merrimack Banks, Concord Riverbanks, Wannalancit/Lawrence Area, Downtown, Middlesex Village, The "Acre", Chapel Hill, Bellvidere, Schools, employment centers, etc.
- 3. Northern Canal Promenade
 - o Formal tree planting, landscaping, and restoration of 19th century pedestrian way along entire length of canal.
- 4. Dutton Street Gateway
 - o Landscaping, formal tree planting, restoration of 19th century feeling--displays explaining importance.
 - o Historic train on tracks.
- 5. Boott Mill
 - o Small interpretive center in counting house.
- 6. Bridge Street Boarding House
 - o Small interpretive center--life of mill girls.
- 7. Merrimack Canal Gate House
- 8. Swamp Locks
- 9. Wannalancit Mill
 - Park Use:
 - o Walking tour, displays to supplement Museum and Tremont park.
 - Potential Related Development:
 - o Housing.
- 10. Whipple Powder Mill (Wamesit Area)
 - o Small interpretive center--displays describing history of the Wamesit Canal.
 - o Stabilized as a ruin and developed as part of the natural setting.
- 11. Glass Workers' Housing (Middlesex Village)
 - o Small interpretive center.
- 12. YMCA Area
 - Park Use:
 - o Terminus for interpretive barge tours--excavate area to provide expanse of water.
 - o Interpretive experience--in Wentworth or Mack buildings; introduction to barge experience.
 - o Barge/trolley transfer point.

Potential Related Development:

- o Remaining portions of Wentworth and Mack buildings to be redeveloped for compatible uses.
- 13. Transportation Terminal
 - o Parking, information, shuttle bus departure.

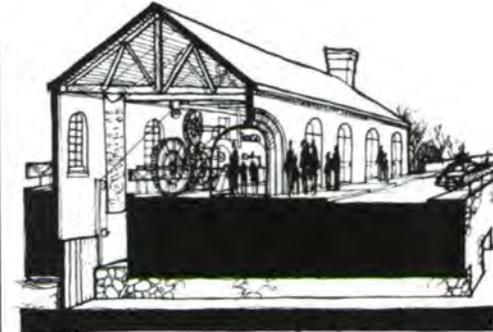
MAJOR LINKAGES

- 14. Long Barge Loop
 - o Major interpretive experience to be developed using barge ride as focus; displays and multimedia presentations incorporated into canal right of way.
 - o Begin and end at YMCA block; route includes outlying Heritage State Park sites.
- 15. Downtown Loop
 - o Split between barge shuttle and rail shuttle operating between terminals at Rex Lot and YMCA block.

PARKING

- 16. Tourist Related--220 spaces total
 - o Primary parking at transportation terminal, other major parking at Rex Lot and Tremont Yard area (for barge).
 - o Minor lots at interpretive centers.
- 17. Potential Related Housing
 - o Wannalancit area.

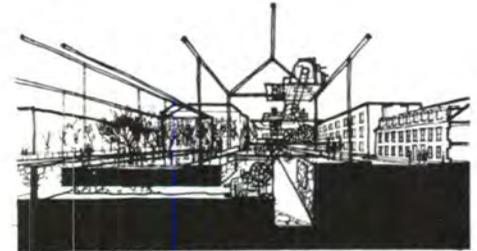
Space Requirements Summary	Interpretive Space	Administration	Educational/Cultural Program Space	Retail/Commercial	Housing
TOTAL	10,000	2,000	10,000	50,000	moderate
all sites					



The interior of the Northern Canal Gatehouse will be refurbished to allow pedestrians to view working machinery and canal lock system.



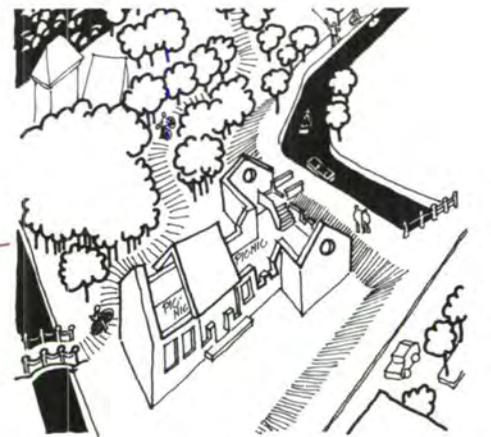
Re-establish the 19th Century promenade paralleling the Northern Canal, reaching from Downtown to the "Canal Walk."



"Ghost mill buildings" built over existing raceways will turn the Tremont Yard Park into a 3 dimensional sculpture garden illustrating the workings of a textile mill.



The removal of the YMCA will allow a downtown focus to be developed for the barge ride interpretive experience.



"Develop" Whipple Powder Mill into a historic "ruin." Reuse covered sections as a picnic pavilion.

Alternative 5 continued

Potential Roles

One scenario for this scheme might call for major federal funding assistance for the state and others to implement park related projects. The state would concentrate its efforts on developing the canal system and river banks, including the Wamesit Area. The arm would be to maximize the canal's potential as a setting for the barge interpretive experience. This would include restoration of the system and the development of barge landings and all reconstruction necessary to allow barge passage. The barge ride, itself might be operated by a private company for profit. Alternatively, a non-profit corporation could be established for this purpose and subsidized by public moneys. In addition, the federal government could become directly involved by designating the Boott Mill Area a national Historic Site. In addition to developing this site, the Park Service might implement a unified interpretive program for the park.

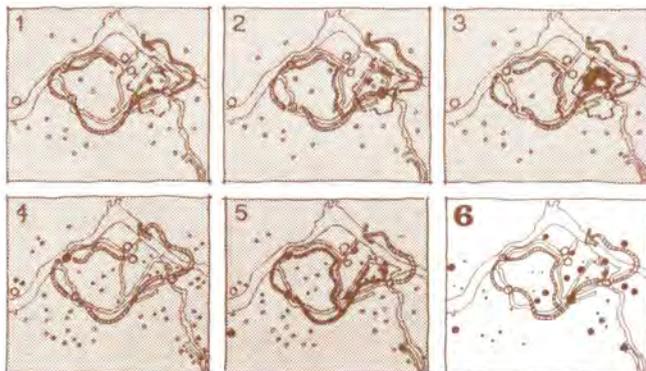
Summary Evaluation

The barge and canal ride experience, central to this scheme, should be a sufficient attraction to generate from 150-250,000 visitors/year. A park of this scale could expect to generate modest increased sales at existing locations in the vicinity of barge stops. It is also probable that a fair amount of private development would be induced in the area of the downtown barge terminus and at other important barge related sites. There is a high potential to create significant water related amenities and activity settings jointly with the development of the barge system.

Alternative

6

Dispersed/Large



Introduction

As a large-scale dispersed master plan, Alternative 6 would develop a great number of interpretive centers throughout Lowell. An extensive network of pedestrian walkways, bicycle paths and short-term parking sites would be complemented with barge rides and trolley loops.

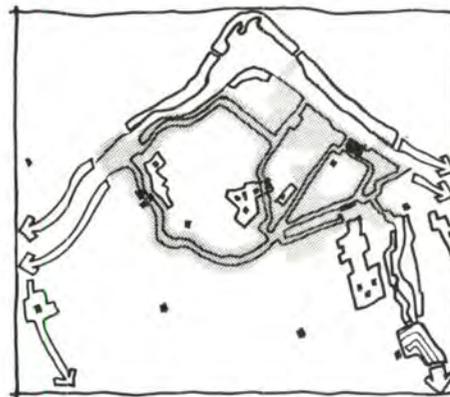
Ongoing planning efforts of the city would be incorporated into the theme of the Park and many more sites would be developed, each offering a part of the Lowell story.

Through this proliferation of sites, a rather extensive and widespread preservation program might result. Federal assistance would be sought for some of these sites, and direct federal involvement might be sought for one or more additional sites.

Preservation

In this alternative the Total Historic District includes the Base Preservation Plan, the riverbanks, plus several outlying historic areas including: the Middlesex Canal/Village area, Wamesit/Whipple area, Towers Corner/Chapel Hill Area, Worthen St., the Acre, Belvidere and the Pawtucket/Wannalancit/Clare St. area.

In addition, many key buildings would be preserved by virtue of the fact that they are targeted for direct, active development, as park interpretive sites. These are mapped and listed below.



- Base Plan
- Recommended Additional Areas
- Buildings Actively Preserved
- Other Key Protected Structures

Facilities Actively Preserved

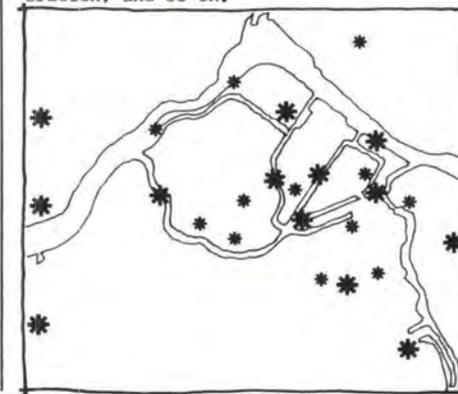
Boott Mill; Bridge St. Boarding Houses; Glassblowers House; Middlesex Canal Traces; Whipple Powder Mill ruins; Wamesit Canal; Whistler's House; Belvidere; Chapel Hill Houses; the Gas Works; the Old County Jail; the Old County Courthouse; the Courier Citizen Building; the Old Market Building; the City Stables; the Old Polish Immigration Center; historic churches.

Interpretation

This alternative offers a substantial array of interpretive programs and activities. By creating a large number of scattered and diverse nodes and individual sites for interpretation, visitors and residents will be able to move through the city and its neighborhoods, constantly discovering one of several dozen little gems.

Combined with efforts to restore and open up to visitors 20-30 key sites, this network of exhibits, displays, demonstrations, activities, markets, and graphic panels will come closest to allowing visitors to "teach themselves" about Lowell. It will also offer the greatest likelihood of engaging current Lowell citizens in the kinds of interactions and exchanges with visitors, students and each other, as people make use of the mini-parks, festivals, factory tours, and shops which help comprise this network of program offerings.

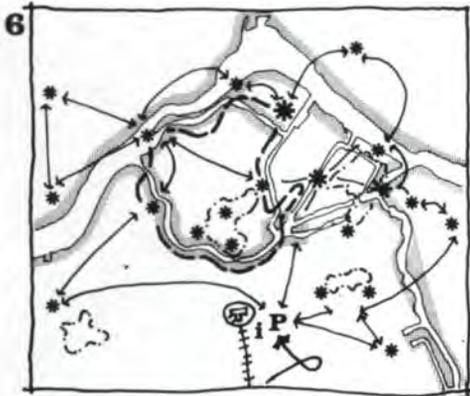
While there are advantages to the fact that visitors will be encouraged to move throughout the city, this feature might be considered a liability for those trying to see many scattered sites in a short time or by public transport. And while the diversity of offerings might produce a much appreciated diversity, this might also result in unevenness of quality, schedules of operation, and so on.



Alternative 6 continued

Development/Use

As with schemes 4 and 5, this alternative assists on-going efforts to insure that existing plans are fully realized. In addition, a large number of small interpretive nodes are developed in historic buildings scattered throughout the city. Each node (1) interprets a certain aspect of the Lowell story, (2) provides a setting for educational or cultural activities, and (3) acts as a point of departure for tours of the immediate geographic/historic area. A network of barge, trolley, and bus routes provides linkages to most interpretive nodes.



- * Node (Federal Focus)
- Node (Others)
- P Parking
- Water Edge Park
- Controlled Zone
- Barge Loop
- Bus Shuttle
- Trolley
- Auto
- Pedestrian

MAJOR LOCATIONS

1. State Park Nodes
 - o Interpretive centers, and activity settings.
2. Development of the following areas as described in scheme 4 and 5:
 - Merrimack Banks, Concord Banks, Wannalancit/Lawrence, Downtown,

Middlesex Village, "Acre", Chapel Hill, Bellvidere, Schools, employment centers, Northern Canal Promenade, Dutton Street Gateway, etc.

Development of interpretive centers at the following sites.

3. Boott Mill
4. Bridge Street Boarding House
5. Swamp Locks
6. Wannalancit Mill
 - o Displays to supplement Lowell Museum and Tremont Yard Park.
7. Whipple Powder Mill
 - o Stabilized as a ruin and developed as part of the natural setting.
8. Glass Workers Housing
9. Ecumenical Plaza
 - o Ethnic history of the area.
 - o Stories of Irish and Greek immigration.
10. City Stables
 - o Exhibit on ethnic history.
 - o Activity settings for crafts, events.
- Potential Related Development:
 - o Ethnic market with stores and restaurants representing various cultures.
11. Old City Jail
12. Old County Courthouse
13. Hamilton Mill-Courier Citizen Building
14. Former Polish Immigration Center
15. Old City Hall
 - o Exhibit emphasizing Lowell's social history.
 - o Administrative facilities for park.

16. Old Market Building
 - o Exhibit on trade and commerce.
 - o Specialty retail.
17. Lowell Gas Company
18. Hydropower Generation Station (proposed)
19. Dracut State Forest
20. Butler Mansion (Bellvidere)
 - o Wax Museum

Other important locations:

21. YMCA Block
 - o Barge/trolley transfer point.

- Potential Related Development:
- o Wentworth and Mack buildings developed for uses which take advantage of proximity to water.
22. Transportation Terminal
 - o Parking intercept as planned by the state.
 - o Information facility to orient tourists.
 - o Shuttle bus departure point.

MAJOR LINKAGES

23. Long Barge Loop
 - o To outlying heritage state park sites.
24. Downtown Loop
 - o Split between a barge shuttle and a rail shuttle operating between terminals at the YMCA area and the Rex Lot.

PARKING

25. Tourist Related--220 spaces total
 - o Primary parking at transportation terminal with minor at interpretive centers.
26. Potential Related Housing
 - o Wannalancit area.

Space Requirements Summary	Interpretive Space	Administration	Educational/Cultural Program Space	Retail & Commercial	Housing
TOTAL all sites	40,000	5,000	20,000	30,000	more/6



The Dracut State Forest is an ideal camp site for Urban Park visitors wishing to spend longer periods of time enjoying Lowell's natural resources.



Various sites throughout the city can be utilized to involve park visitors in Lowell's rich ethnic heritage.



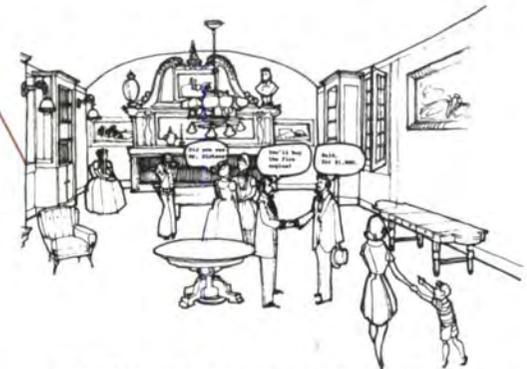
Displays of old world craftsmanship, such as a glassblower at work, will take place at the actual historic site and will be easily accessible to the tourist.



Tours of the recently proposed central power generating plant would connect the past to the present.



The Ecumenical Plaza is typical of many locations throughout the city where ethnic events staged by Lowell citizens can breathe life into the Urban Park.



Educational exhibits at Belvidere and at many other historic sites throughout the city will interpret the many facets of Lowell's history.

Alternative 6 continued

Potential Roles

One scenario for this scheme is major federal funding assistance to a variety of federal, state, and local organizations willing to undertake the development of an interpretive node. For example, St. Patrick's and Holy Trinity Church might develop a node in a nearby tenement structure in the Acre focusing on ethnic history. Middlesex County could sponsor a node in the Old Country courthouse. The historical society could restore and open the Butler Mansion in Belvedere to the public. The Park Service could develop a National Historic Site at the Boott Mill. This scheme might best be coordinated by a non-profit corporation, which would receive federal funds and disperse them according to a set of Federal policies. The city would be responsible for enacting and enforcing environmental management preservation ordinances.

Summary Evaluation

Although this alternative would be among the more expensive, it would endeavor to preserve and restore the greatest number of important buildings in Lowell. Lacking the identity of a central focus, this alternative would draw a moderate number of visitors: 150-250,000/year. A park of this scale might generate modest increased sales in the vicinity of some interpretive centers. Little private development would be encouraged, because visitors would not be concentrating in any few areas. Although it would not provide many economic benefits, this alternative has the potential to involve many local neighborhoods with park activities and facilities.

Management Functions

The purpose of this section is to explore possible approaches to managing the development and operation of the park. There are 3 basic functions which must be dealt with to insure the success of any alternative master plan that might be selected. As described in Section 2, these functions are:

- o Environmental Management
- o Project Development
- o Coordination

In formulating an overall management scenario, these functions could be carried out by a single organization or several separate organizations.

In the first part of this section, the three functions are explored separately. Important issues, needs, and constraints related to each function are listed, and some optional mechanisms which could be employed to carry out each function are described. The second part of this section deals with ways of combining the 3 functions into an overall management strategy. Several possible scenarios are described to illustrate some different approaches which might be taken.

ENVIRONMENTAL MANAGEMENT

Issues, Needs, and Constraints

Environmental management is the legal framework by which decisions to develop or change the environment are influenced for the public good.

Three environmental management mechanisms are currently operating in Lowell which relate to the park.

- o Zoning code with board of appeals--based on a master plan approved in 1967 and amended a number of times; the code does not reflect many of the goals and priorities inherent to the development of an UNCP.
- o Historic Districts with historical commission--review of all exterior alterations and new construction in designated areas; the designation and administration of districts had not been guided by a clear set of goals, also the commission has shown itself to be easily influenced by political pressures.
- o Heritage State Park memo of understanding--the Department of Environmental Management is informed of and may review and comment on any development proposal within 200 yards of a canal or river bank; the memo leaves the future of statewide and nationally significant resources to a local body which could choose to ignore the state's recommendation for political reasons; also the DEM does not have the capacity to review many development proposals.

Our analysis leads to the conclusion that existing mechanisms are not effective enough and sufficiently integrated to (1) insure that important aspects of the historical environment will be preserved, (2) to guide the quality of new development to reinforce the city's unique aspects, and (3) protect local neighborhoods from unwanted or poorly planned development encouraged by the park, itself.

There is a need for a comprehensive system to manage environments in Lowell--especially those in the vicinity of historic resources and facilities that are part of the park program. A key constraint on developing this system is the fact that only the local government or the state by special legislation can exercise direct control over land use and development on the local level. The federal government cannot establish and enforce environmental management regulations over the use of private property. But it can encourage an environmental policy by purchasing properties and easements, by negotiating special agreements with individual property owners, and by establishing monetary or other incentives.

Concepts and Options

Two approaches to creating a more effective environmental management system in Lowell are available:

Federal (and/or State) incentives for the local government to improve and integrate local mechanisms.

- o Option
Federal aid to develop park facilities and programs could be made contingent on: (1) revision of the zoning ordinance, historic district ordinance and other local mechanisms so that they encourage one common set of environmental policies which are supportive of goals for the cultural park, and (2) the creation of new mechanisms where necessary. These could include an urban design review process capable of administering a set of design incentives and resources and other areas of environmental value.
- o Option
The federal government might establish a Lowell Trust to purchase preservation easements aimed at protecting unique aspects of the city's environment.

Increased state power over environmental decision-making in the vicinity of park resources.

- o Option
Legal status could be given to the state's existing review and comment procedure relating to the Heritage State Park. For example, the Department of Environmental Management might be given the authority to adopt design and use guidelines for areas in the vicinity of canal and river banks. The city would be expected to adopt development regulations consistent with state guidelines, but if the city failed to act, the Department of Environmental Management could adopt and enforce its own regulations.
- o Option
The state legislature could establish a special commission with the authority to adopt development policies for areas of critical planning concern in Lowell. These policies could be enforced by requiring a permit from the commission prior to any demolition, alteration or new construction in a critical area.

PROJECT IMPLEMENTATION

Issues, Needs, and Constraints

Facilities and transportation links need to be developed so that people can learn about and interact with Lowell's historic resources. Other development (housing, commercial, etc.) is needed to improve the city's environment and economy. Park facilities and linkages should be designed and placed to encourage such additional development.

Public Projects

- o Park infrastructure--preservation/restoration of historic places, development of interpretive facilities, provision of visitor's services, and parking should be the first priority for public investment. Primary responsibility would probably fall to state and federal governments.
- o Public amenities--such as pedestrian spaces, landscaping, canal and river bank improvements should be developed to compliment park infrastructure development. Primary responsibility would probably fall to local government.
- o Other public projects--such as schools, parking garages, and road improvements should be carefully programmed and designed to maximize their potential contribution to the park program. Primary responsibility would probably fall to local government.

Private Sector

- o Commercial space, housing, etc.--developed to take advantage of public investment and in response to public incentives. Private development made viable by public investment in the park should be subject to design and use requirements to insure that its potential contribution to the park program is maximized.
- o Interpretive experience and other visitor attractions developed for profit--such projects should be integrated into the overall interpretive program of the park.

Park Development Entity

- o Public or private non-profit development corporation established to further the goals of the park.

- o Could execute key park infrastructure projects not being implemented by others.
- o An important goal of a park development entity would be to recapture some of the increased land values created by public investments in park facilities. For example, it could execute joint development projects--such as specialty shopping adjacent to a park visitors center--and use the income generated to expand the infrastructure of the park.

Concepts and Options

Two approaches to implementing park related projects are available.

The Federal government limits its involvement to grants and technical assistance.

- o Option
Aid is granted to existing local entities to expand and intergrate their programs to meet a set of federal goals for the cultural park. The City of Lowell, Lowell Museum Corporation, Lowell University, the State Heritage Park, and others might receive grants under such a program.
- o Option
Federal, state, and local resources could be pooled and entrusted to a park development entity which would create the infrastructure of the park according to an agreed upon set of policies.

A federal agency actively implements projects in Lowell.

- o Option
Federal, state, and local agencies could each develop a certain specific piece of the over-all program. For example, the state might deal with the canal system, gate houses, barge ride, and the interpretation of hydraulic power; the federal government might develop one or two important historic buildings to present a comprehensive interpretive story, and provide visitor's services; the city might develop public amenities near park resources, create interpretive trails, and provide parking.
- o Option
A federal agency, National Park Service, could develop a major presence in the city, coordin-

ated with state and local efforts. Federal actions might include preservation of a number of historic structures and the development of a visitor's center as the focus of a major interpretive program.

COORDINATION

Issues, Needs, and Constraints

A mechanism is needed to (1) coordinate the various projects and activities being implemented so that they form a unified park program and (2) integrate long range planning for the park with day to day decisionmaking, and (3) integrate related activities of local educational and cultural institutions with the program of the park.

Any coordinating entity which is established should have the Urban National Cultural Park as its only responsibility. Existing state and city agencies do not have the capacity to oversee park planning and development, and might be motivated at times by political considerations which are contrary to the goals of the park program. The local government and affected neighborhoods should be strongly represented on any coordinating entity which is established.

Concepts and Options

Local level commission

- o Option
A semi-autonomous arm of the local government could be established which received its funds directly from the federal government. Project and activity sponsors would not be eligible for federal grants unless they agreed to cooperate with the program and policies of the local commission. The City Council would hold veto power over the commission's actions (Model Cities).

Non-Profit Corporation

- o Option
Major implementors of park projects could join to form and support a non-profit corporation to coordinate their individual efforts. This corporation would disburse federal grants to specific projects according to a set of federally approved policies. The non-profit corporation could also act as a park development entity (Mystic Seaport, Inc.).

Special purpose state level body established by the legislature.

- o Option
A state commission could be created which represented the three levels of government, major implementors, and local neighborhoods. The commission would have two functions: (1) to coordinate the implementation of park related projects and (2) to manage environments in the vicinity of park resources. A permit would be required for any demolition, alteration, or development in designated areas. Permits would be granted on the basis of publicly adopted development and use policies (San Francisco Bay Conservation and Development Commission).
- o Option
A state authority representing affected groups could be established with the power to issue bonds insured by the federal government and to accept federal grants. The authority would develop and operate most of the park infrastructure as well as some joint use projects. The authority would be required to coordinate its efforts with others underway in the city. The authority might also be given permit powers to manage environments in the vicinity of park resources.

A major federal entity

- o Option
Should the National Park Service or another federal agency establish a major presence in Lowell, it could take on the job of coordinating all park related projects, as well as disbursing federal money to aid other organizations in implementing their portions of the overall program.

Ad hoc coordination guided by policy concensus

- o Option
Major entities involved with the park program might agree to execute certain portions of a jointly developed action plan. In this instance the plan itself would be the coordinating mechanism. Individual implementors would coordinate their actions on an ad hoc basis guided by a policy framework spelled out in the plan. To encourage cooperation, all federal aid for park related projects could be made contingent upon the agreement and continual adherence to these policies.

Scenarios

Three management scenarios are described on the following pages to illustrate how various options for environmental management, coordination, and implementation could be combined to produce an overall program. The scenarios represent a range of federal involvement from simply providing aid - to a major active presence in the city. It should be recognized that these are not the only scenarios that could be developed and that the final choice of a management strategy will depend as much on political receptiveness as on the master plan alternative which is chosen.

SCENARIO 1: NON-PROFIT CORPORATION

Summary

Environmental Management	- By local government with federal incentive.
Coordination	- Non profit corporation
Implementation	- Infrastructure: non profit corporation and individual agencies and institutions. Joint Development: non profit corporation and private developers.
Federal Involvement	- Funds to non profit corporation with no active presence in the city.

A non-profit development corporation would be established to oversee implementation of the park program and to coordinate the various actors involved. This corporation would receive funds appropriated by Congress, contributions from state and

local governments, and seek private foundation grants. Its board of directors might include representatives of the various levels of government, appropriate local neighborhoods, and institutions involved with the park program. The federal government would not be actively and directly involved in implementing any portion of the park program but would establish strict guidelines for the use of its money.

The corporation and its staff would (1) disburse aid for park related projects and activities to be implemented by others, (2) develop park infrastructure and interpretive programs not being developed by others, (3) develop ancillary uses such as specialty shopping which are aimed at capturing increased land values created by investment in park facilities, (4) purchase facade and preservation easements. The corporation would also carry out such day to day activities as (1) coordinating various projects being implemented that are part of the park program, (2) monitoring public and private development which could positively or negatively impact the park, (3) continued planning, and (4) managing park operations and maintenance.

To encourage the city to protect and manage unique aspects of its environment, all federal funds for the park would be made contingent on the adoption of urban design, development and use controls for federally designated areas of critical planning concern.

SCENARIO 2:
JOINT FEDERAL-STATE COMMISSION
 (with local representation)

Summary

Environmental Management	- Joint federal/state commission with permit powers granted by the Massachusetts legislature.
Coordination	- Joint federal/state commission with local representation.
Implementation	- Infrastructure: Commission and individual agencies and institutions, and National Park Service, if involved. Joint development: Private developers.
Federal Involvement	- Either limited to funds to commission; or funds to commission plus active presence of NPS to develop 1 aspect of the park.

mentation of the park program, and coordinate. The federal government could limit its involvement to providing funds to the commission but might also become actively involved in implementing one aspect of the park.

Under this scenario, the Massachusetts legislature would establish a Lowell Preservation and Development Commission representing the federal, state, and local governments, affected neighborhoods and major institutions. This commission would have the power to review and issue permits for all development or changes in designated areas of critical planning concern. Sets of policies would be devised to guide the issuance of permits in various types of areas. This action would insure that significant aspects of Lowell's environment were responsibly managed, and it would lay the basis for federal investment to preserve and interpret the cities historic resources.

Complimenting the state's efforts, Congress would establish a federal commission to administer a federally supported Lowell Trust. This trust would provide funds to (1) purchase preservation easements, (2) purchase and restore important historic buildings, (3) develop park infrastructure, (4) support program development. The commission could undertake such projects directly or aid public and private institutions to undertake them. Unlike a non-profit corporation, the commission would not have the power to develop park related joint uses.

Ideally, the federal trust commission and the state preservation and development commission would be one and the same entity. In addition to the activities mentioned above, the joint commission and its staff would manage park operations, carry on continued planning and seek ways of coordinating various activities and developments in Lowell with the program of the park.

In addition to providing funds to the joint commission, the federal government might play an active role in implementing one aspect of the park. For example, a national historic site might be designated to protect and interpret a small set of nationally significant structures. In such a case, the Park Service would be represented on the joint commission along with other implementing agencies and institutions, but of course would receive its funds and direction from Congress.

SCENARIO 3:
FEDERAL-STATE-LOCAL COOPERATION
ON AN AD-HOC BASIS

Summary

Environmental Management	- State policies with expected local compliance.
Coordination	- Ad hoc basis: National Park Service - State Department of Environmental Management- City of Lowell.
Implementation	- Park Infrastructure: NPS, State, others. Joint use: Private developers.
Federal Involvement	- Active presence of NPS to develop or oversee development of major aspects of the park.

Congress would designate that a national historical park be developed in Lowell with a heavy cooperative emphasis. Under such an approach, some aspects of the park would be directly developed by the National Park Service, and some aspects would be implemented by other agencies, institutions, and private groups using federal aid (administered by the Park Service). Depending on its program, the Park Service could directly purchase preservation easements, purchase and restore important historical resources, and develop visitor services and interpretive programs. The Service could enter into cooperative agreements with private owners of historic structures, whereby the Park Service would help maintain a structure, if an owner agreed not to alter or demolish it without federal approval. The Park Service could also serve as a conduit for funds to the state government, the city, or others to develop facilities and programs which would complement the Service's own efforts.

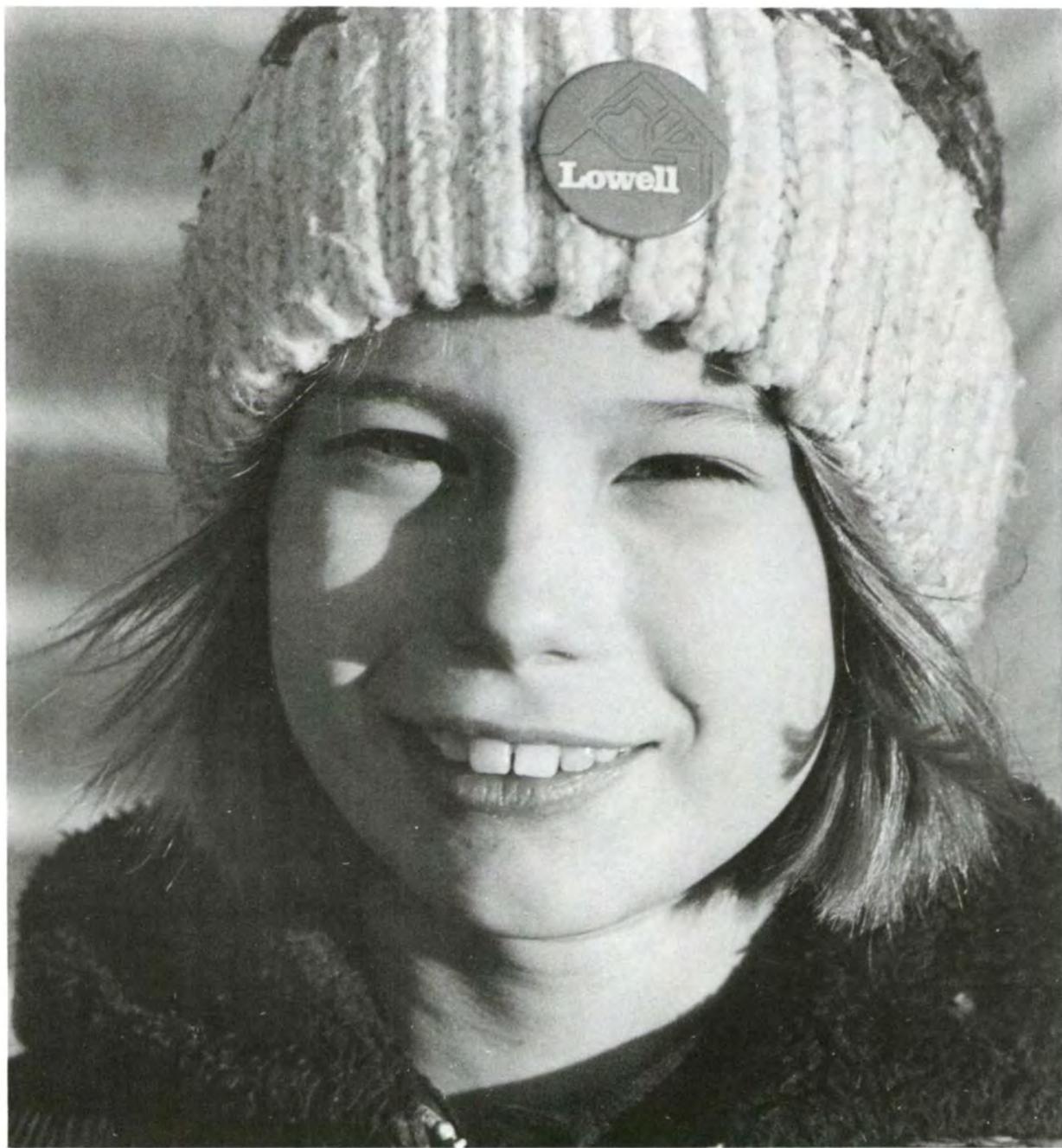
This scenario would require especially close coordination between the National Park Service and the State Department of Environmental Management which is developing the Lowell Heritage Park. Various relationships between these two agencies can be envisioned. For example, they could agree to split development of an overall program and to coordinate efforts on an ad-hoc basis. The state might take the responsibility for developing the recreation potential of the canal and river banks on a city-wide (or even regional) scale. The Park Service might concentrate on insuring that important historic buildings were preserved (especially downtown) and developing a unified interpretive program for both state and federal components. This approach would avoid the implementation of two separate interpretive programs, and allow the state

to concentrate its resources on building a first class recreational network. If necessary, federal grants could help the state to execute its portion of the total park program.

The creation of a sound environmental management system should be a prerequisite to federal investment in the city, including aid to the state and others. The most effective management strategy given this scenario would be to secure legal status for the state's existing review and comment procedure relating to the State Heritage Park. The legislature could give the Department of Environmental Management the authority to adopt design and use guidelines for areas in the vicinity of park resources. The city would be expected to adopt development regulations consistent with state guidelines, but if the city failed to act, the state could adopt and enforce its own regulations.

COMPARISON OF MANAGEMENT SCENARIOS

	SCENARIO 1: NON-PROFIT CORPORATION	SCENARIO 2: JOINT STATE-FEDERAL COMMISSION (WITH LOCAL REPRESENTATION)	SCENARIO 3: STATE-FEDERAL-LOCAL COOPERATION ON AN AD-HOC BASIS
CHARACTERISTICS			
Environmental Management	By local government with federal incentive	Joint federal/state commission with permit power granted by state legislature	State policies with expected local compliance
Coordination	Non profit corporation	Joint federal/state commission with local representation	Ad hoc basis: National Park Service - State Department of Environmental Management
Implementation	Infrastructure: Non-profit corporation and individual agencies and institutions Joint Development: non-profit corporation and private developers	Infrastructure: Commission and individual agencies and institutions, plus NPS, if involved Joint Development: private developers	Park infrastructure: NPS, State, others Joint Use: private developers
Federal Involvement	Funds to non-profit corporation with no active presence in city	Either limited to funds to commission or funds to commission and active presence of NPS to develop one aspect of park	Active presence of NPS to develop or oversee development of major aspects of the park
STRENGTHS/WEAKNESSES			
Federal Control over Federal Dollars spent	poor	fair	good
Protection of Historic Resources (Environmental Management)	fair	good	good
Local Input to Project Development	good	good	poor
Effectiveness in Developing Park Infrastructure	good	good	good
Ability to Undertake Related Development	good	not possible	not possible
Effectiveness in Integrating Separately Developed Projects	good	good	fair
COMPATABILITY WITH MASTER PLAN ALTERNATIVES			
1 concentrated small			
2 concentrated medium			
3 concentrated large			
4 dispersed small			
5 dispersed medium			
6 dispersed large			



Karin Rosenthal

Appendix Seven

Community Participation

An essential feature of the Lowell Team's proposal to the Lowell Historic Canal District Commission was an emphasis on informed community participation in the planning process. This participation was viewed as necessary to insure responsiveness to community concerns and to build a constituency for the project. Several key mechanisms were adopted to develop this liaison with the Lowell community:

- establishment of **an open and communicative work process**
- publication of **The Canal Packet**, a newsletter which described in detail, each stage of the consultants proposals, and through which additional community input was requested.
- establishment of the **Lowell Room**, an evolving exhibit of current park plans, and information center, located at the Merrimack Canal Gatehouse.
- establishment of a series of **citizen task forces** representing individuals from each neighborhood, the business community, and various educational and cultural institutions.
- participation by team members at several dozen **conferences, briefings and seminars** with individuals and community organizations. At many of these the team made a presentation accompanied by slides and was available to answer questions regarding the progress of the work.

- distribution of over 10,000 **Lowell Buttons** which depicted the canal system, and gave an identifiable image to the project.
- conduct of three groups of **open community meetings**. At the first, a review of project goals and objectives was offered, including the distribution of a questionnaire whereby residents were invited to identify their own priorities.

Through these various means a clear set of objectives was defined, and then refined. The views of thousands of citizens were sought through the publication of three issues of the Canal Packet of 7500 copies each, and through a series of articles, radio broadcasts, and even a special 20-page supplement in the Lowell Sun.

When six alternative approaches to the plan were prepared, they were reviewed by both the Commission and by representatives from each of the citizen task forces. As the final preferred alternative was refined, additional input was specifically sought from those who would be most directly affected.

The final plan, as presented, represents the broadest possible input from Lowell's citizens.





What do YOU Think?

Here's your chance to tell us what **YOU** think about some of the goals and objectives that have been suggested for the Lowell Urban National Cultural Park --

When you are done with this side, please turn the sheet over and... write down any goals or objectives you feel we have missed or any comments you may have, and... answer the questions.

Thanks!

the Lowell Team

Goals... Three broad goals are listed below, divide 100 points among them to represent the importance you attach to each goal. The most important goal should receive the most points

1 Environmental Quality (to improve the physical conditions, accessibility, and usability of Lowell's historic, natural, and man-made resources) = POINTS

2 Economic Development (to strengthen and diversify Lowell's economic base) = POINTS

3 Educational/Cultural Growth (to interpret through educational and cultural activities, the contributions of diverse peoples and groups to Lowell's heritage) = POINTS

TOTAL POINTS 100

Objectives... Divide the points you allocated to each goal among the objectives for that goal, which are listed below. The most important objectives for each goal should receive the most points.

- a restore the canal system
- b improve the riverbanks
- c preserve and protect historic buildings and spaces
- d improve neighborhood quality
- e improve downtown environmental quality

- a revitalize the downtown business climate
- b create tourist attractions and a tourist industry
- c expand Lowell's industrial base
- d increase population and housing
- e create local jobs

- a involve local citizens in planning and implementation
- b interpret the significance of Lowell to people
- c promote research into Lowell's history
- d develop educational and cultural activities and programs
- e create new institutions for education and culture

Some information about you:

1. if you live in **Lowell**, what neighborhood? _____

2. if you **do not** live in Lowell, what town? _____

3. what is your occupation? _____

4. if you would like to be on our **mailing list**, please write your --
 name _____
 street address _____
 city _____
 zip _____
 phone _____

What have we missed?

1. are there additional goals or objectives that you feel are important?

2. any other ideas or comments?

The Canal Packet

What the Canal Packet is About
Based on strong and continuing support from people in Lowell, the City of Lowell and the United States Army, the Canal Packet is a monthly newsletter published by the Lowell Board of Canal District Commissioners. It is published by the Lowell Board of Canal District Commissioners, through the staff of the Canal Packet. The Canal Packet is published monthly, and contains information on the history, culture, and development of the Lowell Canal System. The Canal Packet will provide you with a summary of the project and the work done to date.

Project Update
The Lowell Board of Canal District Commissioners is pleased to announce that the Canal Packet is now published monthly. The Canal Packet is a monthly newsletter published by the Lowell Board of Canal District Commissioners. It is published by the Lowell Board of Canal District Commissioners, through the staff of the Canal Packet. The Canal Packet is published monthly, and contains information on the history, culture, and development of the Lowell Canal System. The Canal Packet will provide you with a summary of the project and the work done to date.



Restored Canal Crossing

Task Force Meetings Help Define Goals
Representatives from Lowell's neighborhoods, business, and law firms gathered during the week of March 15th to begin active participation in the planning for the urban outdoor park. Decisions were made on the scope and goals of the project. The task force will continue to meet regularly to discuss the project and its progress. It is hoped that the project will be completed by the end of the year.



Task Force participants discuss the project.

Lowell Room Opens
City officials, Commission representatives, and the press recently gathered at the Lowell Room to discuss the project. The Lowell Room is a new facility that will be used for meetings and events. It is located in the downtown area of Lowell. The Lowell Room is a new facility that will be used for meetings and events. It is located in the downtown area of Lowell.



Community members evaluate the progress for goals and objectives for the project.

Workshop
A workshop was held to discuss the project and its progress. The workshop was held in the downtown area of Lowell. It was attended by representatives from the community and the project staff. The workshop was a success and provided a good opportunity for the community to provide input on the project.

Public Hearing
A public hearing was held to discuss the project and its progress. The hearing was held in the downtown area of Lowell. It was attended by representatives from the community and the project staff. The hearing was a success and provided a good opportunity for the community to provide input on the project.

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The Work Plan

The work plan is a document that outlines the project's goals and objectives. It is a key tool for project management and is used to track progress and ensure that the project is completed on time and within budget. The work plan is developed by the project manager and is approved by the steering committee. It is a living document that is updated as the project progresses.

Phase I Start-up and Inventory
To be completed on or about April 1, 1978

Task A
Task A involves the initial start-up and inventory of the project. This includes identifying the project's goals and objectives, developing a work plan, and establishing a steering committee. Task A is completed by the end of Phase I.

Task B
Task B involves the development of a detailed master plan. This includes conducting a site study, developing a conceptual master plan, and conducting a public hearing. Task B is completed by the end of Phase II.

Task C
Task C involves the development of a detailed master plan. This includes conducting a site study, developing a conceptual master plan, and conducting a public hearing. Task C is completed by the end of Phase III.

Phase II Development of Alternatives
To be completed on or about July 1, 1978

Task D
Task D involves the development of a detailed master plan. This includes conducting a site study, developing a conceptual master plan, and conducting a public hearing. Task D is completed by the end of Phase II.

Task E
Task E involves the development of a detailed master plan. This includes conducting a site study, developing a conceptual master plan, and conducting a public hearing. Task E is completed by the end of Phase III.

Task F
Task F involves the development of a detailed master plan. This includes conducting a site study, developing a conceptual master plan, and conducting a public hearing. Task F is completed by the end of Phase III.

Task G
Task G involves the development of a detailed master plan. This includes conducting a site study, developing a conceptual master plan, and conducting a public hearing. Task G is completed by the end of Phase III.

Phase III Detailed Master Plan and Program
To be completed on or about October 1, 1978

Task H
Task H involves the development of a detailed master plan. This includes conducting a site study, developing a conceptual master plan, and conducting a public hearing. Task H is completed by the end of Phase III.

Task I
Task I involves the development of a detailed master plan. This includes conducting a site study, developing a conceptual master plan, and conducting a public hearing. Task I is completed by the end of Phase III.

Task J
Task J involves the development of a detailed master plan. This includes conducting a site study, developing a conceptual master plan, and conducting a public hearing. Task J is completed by the end of Phase III.

Task K
Task K involves the development of a detailed master plan. This includes conducting a site study, developing a conceptual master plan, and conducting a public hearing. Task K is completed by the end of Phase III.

Task L
Task L involves the development of a detailed master plan. This includes conducting a site study, developing a conceptual master plan, and conducting a public hearing. Task L is completed by the end of Phase III.

Task M
Task M involves the development of a detailed master plan. This includes conducting a site study, developing a conceptual master plan, and conducting a public hearing. Task M is completed by the end of Phase III.

Task N
Task N involves the development of a detailed master plan. This includes conducting a site study, developing a conceptual master plan, and conducting a public hearing. Task N is completed by the end of Phase III.

Task O
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Task P
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Task Q
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Task R
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Task S
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Task T
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Task U
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Task V
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Task W
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Task X
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Task Y
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Task Z
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Task AA
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Task AB
Task AB involves the development of a detailed master plan. This includes conducting a site study, developing a conceptual master plan, and conducting a public hearing. Task AB is completed by the end of Phase III.

Task AC
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Task AD
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Task AE
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Task AF
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Task AG
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Task AH
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Task AI
Task AI involves the development of a detailed master plan. This includes conducting a site study, developing a conceptual master plan, and conducting a public hearing. Task AI is completed by the end of Phase III.

Task AJ
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What the Park Will Be Like

Six alternative park plans were prepared by the consultants. This was the alternative selected. The final plan will vary somewhat from the Plan II proposed here, but the major features of the park are presented below.

to use highly accessible park areas that can be used and enjoyed by all. A comprehensive program for the park will be developed in the next few years. The park will be developed in a series of stages. The first stage will be the development of the park's basic structure, including the main walkway, the main parking area, and the main playground area. The second stage will be the development of the park's secondary structure, including the main walkway, the main parking area, and the main playground area. The third stage will be the development of the park's tertiary structure, including the main walkway, the main parking area, and the main playground area.

Making Full Use of What is Already Here



Portions of the East Mill Roundabout will be used to accommodate a variety of activities. A walkway will be developed along the roundabout, and a playground will be developed in the center. The walkway will be developed in a series of stages. The first stage will be the development of the walkway's basic structure, including the main walkway, the main parking area, and the main playground area. The second stage will be the development of the walkway's secondary structure, including the main walkway, the main parking area, and the main playground area. The third stage will be the development of the walkway's tertiary structure, including the main walkway, the main parking area, and the main playground area.



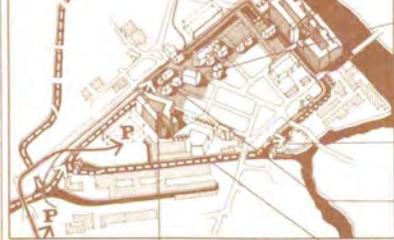
Simple, yet bold, development ideas will be used to create a park that is both functional and aesthetically pleasing. The walkway will be developed in a series of stages. The first stage will be the development of the walkway's basic structure, including the main walkway, the main parking area, and the main playground area. The second stage will be the development of the walkway's secondary structure, including the main walkway, the main parking area, and the main playground area. The third stage will be the development of the walkway's tertiary structure, including the main walkway, the main parking area, and the main playground area.



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What Does the Alternative Encompass?

- The plan is intended to be a long-term plan, one that will be updated as the park develops.
- The park will be developed in a series of stages, with each stage building upon the previous one.
- The park will be developed in a way that is both functional and aesthetically pleasing.
- The park will be developed in a way that is both accessible and enjoyable for all.
- The park will be developed in a way that is both sustainable and resilient.



Central Zone Links Major Nodes



The central zone will be developed in a series of stages. The first stage will be the development of the central zone's basic structure, including the main walkway, the main parking area, and the main playground area. The second stage will be the development of the central zone's secondary structure, including the main walkway, the main parking area, and the main playground area. The third stage will be the development of the central zone's tertiary structure, including the main walkway, the main parking area, and the main playground area.

Not All Development



Not all development will be used to create a park that is both functional and aesthetically pleasing. The walkway will be developed in a series of stages. The first stage will be the development of the walkway's basic structure, including the main walkway, the main parking area, and the main playground area. The second stage will be the development of the walkway's secondary structure, including the main walkway, the main parking area, and the main playground area. The third stage will be the development of the walkway's tertiary structure, including the main walkway, the main parking area, and the main playground area.

Down Town



The downtown area will be developed in a series of stages. The first stage will be the development of the downtown area's basic structure, including the main walkway, the main parking area, and the main playground area. The second stage will be the development of the downtown area's secondary structure, including the main walkway, the main parking area, and the main playground area. The third stage will be the development of the downtown area's tertiary structure, including the main walkway, the main parking area, and the main playground area.



The building will be developed in a series of stages. The first stage will be the development of the building's basic structure, including the main walkway, the main parking area, and the main playground area. The second stage will be the development of the building's secondary structure, including the main walkway, the main parking area, and the main playground area. The third stage will be the development of the building's tertiary structure, including the main walkway, the main parking area, and the main playground area.

Telling Leland's Story



Telling Leland's story will be developed in a series of stages. The first stage will be the development of the story's basic structure, including the main walkway, the main parking area, and the main playground area. The second stage will be the development of the story's secondary structure, including the main walkway, the main parking area, and the main playground area. The third stage will be the development of the story's tertiary structure, including the main walkway, the main parking area, and the main playground area.

Home of Leland Mills

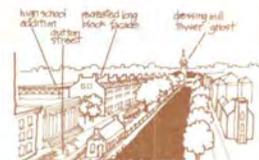


The home of Leland Mills will be developed in a series of stages. The first stage will be the development of the home's basic structure, including the main walkway, the main parking area, and the main playground area. The second stage will be the development of the home's secondary structure, including the main walkway, the main parking area, and the main playground area. The third stage will be the development of the home's tertiary structure, including the main walkway, the main parking area, and the main playground area.

Looking at a view from the East Mill



Looking at a view from the East Mill will be developed in a series of stages. The first stage will be the development of the view's basic structure, including the main walkway, the main parking area, and the main playground area. The second stage will be the development of the view's secondary structure, including the main walkway, the main parking area, and the main playground area. The third stage will be the development of the view's tertiary structure, including the main walkway, the main parking area, and the main playground area.



The Park is Already Happening

The park is already happening in many ways. The walkway will be developed in a series of stages. The first stage will be the development of the walkway's basic structure, including the main walkway, the main parking area, and the main playground area. The second stage will be the development of the walkway's secondary structure, including the main walkway, the main parking area, and the main playground area. The third stage will be the development of the walkway's tertiary structure, including the main walkway, the main parking area, and the main playground area.



The building will be developed in a series of stages. The first stage will be the development of the building's basic structure, including the main walkway, the main parking area, and the main playground area. The second stage will be the development of the building's secondary structure, including the main walkway, the main parking area, and the main playground area. The third stage will be the development of the building's tertiary structure, including the main walkway, the main parking area, and the main playground area.



The building will be developed in a series of stages. The first stage will be the development of the building's basic structure, including the main walkway, the main parking area, and the main playground area. The second stage will be the development of the building's secondary structure, including the main walkway, the main parking area, and the main playground area. The third stage will be the development of the building's tertiary structure, including the main walkway, the main parking area, and the main playground area.

How You Can Be Involved

Fill out and return to The Leland Team, 1100 Madison Street, Boston, MA 02116

Name: _____

Address of Interest: _____

Address: _____

Comments: _____

83% Would Support Park Actively

More than 80% of the community would support the park actively. The walkway will be developed in a series of stages. The first stage will be the development of the walkway's basic structure, including the main walkway, the main parking area, and the main playground area. The second stage will be the development of the walkway's secondary structure, including the main walkway, the main parking area, and the main playground area. The third stage will be the development of the walkway's tertiary structure, including the main walkway, the main parking area, and the main playground area.

Next Steps

The next steps will be to develop the park's basic structure, including the main walkway, the main parking area, and the main playground area. The walkway will be developed in a series of stages. The first stage will be the development of the walkway's basic structure, including the main walkway, the main parking area, and the main playground area. The second stage will be the development of the walkway's secondary structure, including the main walkway, the main parking area, and the main playground area. The third stage will be the development of the walkway's tertiary structure, including the main walkway, the main parking area, and the main playground area.



The building will be developed in a series of stages. The first stage will be the development of the building's basic structure, including the main walkway, the main parking area, and the main playground area. The second stage will be the development of the building's secondary structure, including the main walkway, the main parking area, and the main playground area. The third stage will be the development of the building's tertiary structure, including the main walkway, the main parking area, and the main playground area.

Six urban park alternatives ready

LOWELL — A decision on the Urban Cultural Park could be near. A report with six different types of parks is ready for the Lowell Historic Canal District Commission which is meeting next Monday.

The commission might make a decision on which type of park looks best or at least give the three park consultants a direction.

"Some of the media and techniques are very sketchy right now," said Michael Sand who is designing educational and cultural programs for the park.

"The final alternatives will really be a combination of the best aspects of them all," said Dennis Frenchman, who is doing urban design for the park with David A. Crane and Partners. "In a sense, all the alternatives are kind of straw. You can't say this is going to be the park, but you can say this is the major thrust of the park with some things from the other alternatives."

The present report of the alternatives, called a phase two report, will narrow down the choices. The commission will hopefully decide which kind is best, according to possible resources, and ask the consultants to go on to a phase three report, or actually design a park.

Then if the commission approves of the final design, the report will go to Congress later this year.

The types of park to be discussed by the commission vary from large scale to small, from a concentrated design to a dispersed design. For instance, three alternatives range

from large, medium to small but are planned to concentrate the activities downtown. The other three have the same range but will be dispersed throughout the city.

EACH ALTERNATIVE IS examined according to how it fulfills the mandate of Congress: to preserve historic sites, to interpret the meaning of the sites, to develop and use the buildings and to manage the park.

"For each one, we have a summary, and keyed to each summary is an expanded description," Frenchman said. The summary will describe the advantages and disadvantages of each type of park.

For instance, a small-scale park could be designed to attract 100,000 visitors a year and mainly reinforce the present plans for downtown Lowell, such as the downtown improvements. However, the potential for attracting private industry and business back to the city would be limited.

If the small-scale but dispersed plan were adopted, the impact would be even less.

A medium size park designed to attract 150,000 to 250,000 visitors could include a barge ride through the canals while a guide explains what the sites along the canal meant to Lowell and the industries.

"All the schemes involve a barge ride," said Frenchman. "There aren't too many cities that boast of canals that go through the downtown." Stressing the canals could mean improvements to the canal banks and renovation of bordering buildings.

The largest scheme with the most impact on the city would be what the consultants call the "concentrated large scale" design. This would be a historical zone that encircles downtown possibly including the Boott and Lowell mills with a barge ride and trolley loop for transportation.

SUCH A CIRCLE would encourage people to cross through downtown, encourage more retail business yet not interfere with the daily workings of the city, Frenchman said. Also it could attract 650,000 or more visitors a year.

The park would illustrate the "themes" of the 19th century, according to Michael Sand. How much could each alternative teach about the use of water power for the mills, about the economics of the free enterprise, capitalism of the mill system, about how people's lives were disrupted and changed by a new technology?

"We think Lowell is exactly right for developing each of these, and showing the connection," said Sand. "Everyone today has come around to values that were begun in Lowell."

Urban park consultants give first report

LOWELL — The consultant studying the feasibility of a urban national park in Lowell this morning made their first report to the federal commission responsible for recommending whether the park should be built.

Meeting this morning at the University of Lowell, the commission heard the consultants deliver the results of a two-month study on the condition and historical significance of buildings in Lowell.

The team preparing the report is a joint venture of David A. Crane and Partners, Gelarin-Brunner-Cott, and Michael Sand and Associates, as part of a \$150,000 grant, they have been studying Lowell from a cultural, educational and architectural viewpoint.

"It is clear from the inventory that there are a large number of fine old buildings in Lowell, "many of historical significance and most in reasonably good repair," the report says.

But the report says, "it is important to understand that if taken individually, only a relatively modest number of buildings could be considered nationally significant."

The difference in Lowell's historical significance is that it has almost no buildings associated with famous people or patriotic events and few could be considered as what the report calls "the epitome of any architectural style."

In Lowell's case, the significance is more in relation to social, cultural and economic forces more than any individual structure, the report concluded.

It adds the city's importance is in the fact its developers brought together some of the most advanced ideas of the mid-19th century in the areas of industrial and transportation technology, production control, capital formation and social organization.

This produced what the report calls the first "industrial city in the nation, "geared to production and unencumbered either by an existing urban fabric or entrenched lifestyle.

Appendix Eight

Cost Data

This appendix includes the items below. All costs are in 1976 dollars (000).

- **Funds Expended or Committed by Existing Agencies Towards the National Cultural Park**

Breakdown of integral and indirectly related commitments made at the local, state, and federal levels.

- **Summary of Capital Costs by Program Category**

Gives costs by program category allocated to the National Park Service and the proposed management entity. Included are per unit costs used in developing estimates.

- **Summary of Capital Costs by Site**

Allocates costs by five program categories and thirty-seven geographic areas.

- **Breakdown of Capital Costs**

Allocates costs by geographic area and detailed cost subcategories (five charts).

- **Operating Costs**

Funds Expended or Committed by Existing Agencies Toward the National Cultural Park

Integral to UNCP	Local	State	Federal
Western Canal	\$354		\$176
Ecumenical Plaza	220		191
LHSP		\$9,000	
Merrimack Canal Gatehouse	5		
Pedestrian Way Merrimack Street			183
Middle Street Mall	1,400		
Historical Markers	8		
Cultural Center Study	10		30
Transportation Improvements (25% total)		56 (planning)	131 (planning)
Historic Preservation Grants		736	1,719
Museum Corporation			30
LHCDC			112
Subtotals	592	56	973
	1,405	9,736	1,749
Indirectly Related	Local	State	Federal
Transportation Improvements		168 (planning)	394 (planning)
		2,210	5,157
Market Street Garage			4,000
Total	592	224	1,367
	1,405	11,946	10,906

Expended
Committed

Summary of Capital Costs by Site

Note: Cost indicated by (*) would potentially be included in preservation loan and grant programs.

Appendix Eight: Cost Data

	Preservation 1.0	Renova- tion for park facilities 2.0	Transpor- tation 3.0	Landscap- ing & pedestri- an areas 4.0	Exhibits 5.0	Totals
Barges			900			900
Boott Boardinghouse			30	75	20	125
Boott Mill	660	615		250	850	2,375
Bridge reconstruction Central St. @ Pawtucket Canal			1,035			1,035
Child's House	1,135			130	10	140
Concord riverbanks between Rex Lot & Wamesit	*			75	10	1,220
Control zone				200		200
Dutton Street Garage				1,510	250	1,760
47-49 Kirk Street			3,225		40	3,265
Hamilton-Appleton Mills *	430			20	5	455
John St. Boardinghouse	600	320		230	600	1,750
Lawrence Mills	*					*
Lowell Manufacturing Co.	162	2,225		68	1,875	4,330
Mack Building	150					150
Massachusetts Mills	*					*
New Market Mills	80					80
Northern Canal (between river & Tremont Yard)	*			100		100
Northern Canal Gate		15			15	30
Old Market area			200	75		275
Old Market Building	40					40
Old City Hall	750	325			225	1,300
Rex Lot			300		1,750	2,050
Riverbanks between Boott & Tremont				60	110	170
Riverbanks opposite "Miles of Mills"	*			100		100
Swamp Locks	75	30	250	75	50	480
Swamp Locks parking			220	28		248
Trolley system			625	590	25	1,240
Wannalancit	*					*
Wells Block	340				250	590
Wentworth Block	1,010	520				1,530
Whipple Powder/ Wamesit area	*	50	40	240	30	360
YMCA water node			400	145		545
Land Acquisition	813					813
Building Acquisition	1,560			370		1,930
Easements	377					377
Relocation	51	353		110		514
Subtotals	8,233	4,453	7,225	4,451	6,115	30,477
Unassigned preservation funds	1,500					1,500
Totals	9,733	4,453	7,225	4,451	6,115	31,977
25% fees & contingency	2,433	1,113	1,806	1,113	1,529	7,994
Grand Totals	12,166	5,566	9,031	5,564	7,644	39,971

Costing Assumptions

Category 1.0 Preservation

- **Land acquisition costs** are computed at 75¢/sf average.
- **Building acquisition and easements:** Mills are computed at acquisition costs up to \$2.50/sf depending on condition and occupancy.
- **Other dwellings** depending on occupancy, e.g. multi-family residential at \$5,000 to \$10,000 per dwelling unit, commercial at \$10-\$14/sf.
- **Facade easements** approximately 10% fair market value times extent of easement as a proportion of entire facade.
- **Exterior preservation and interior restoration, mills:** For most of the mills the exterior preservation treatment is stabilization including cleaning and repointing brick where necessary, painting, carpentry, roof repair and spot window replacement, each only when necessary to keep the facade from further deterioration.

Cleaning and repointing at 46¢/sf of exterior brick area; cleaning only at 27¢/sf. Percentages to be repointed varies from 50% to 25% depending on the condition of the building. Window areas are computed at between 20% and 35% of facades. Window replacement is generally assumed unless specifically stated otherwise, to be 25%. Replacement costs range from \$200 to \$300 per window, depending on window size and whether stabilization or restoration was involved.

In the case of the Boott, there will be restoration on the south facade and southeast yard including all exterior brickwork, reopening blocked windows, refurbishing sills and lintels and replacement of all windows to match original, and including roof repair. In the case of Lowell Mills, this exterior restoration will cover all facades, and windows will be replaced all over except where special treatment is designed in connection with the public arcades.

- **Specialized restoration work** on all other buildings is computed at \$90/sf of floor area, covering both exterior and interior restoration work.

Category 2.0 Renovation

- **Renovation:** Renovation costs are computed at a range of \$20 to \$40/sf of floor area. \$20 was applied for the most straightforward renovations, not including furnishings, \$35 for somewhat more complex renovations, and \$40 for renovations complete with interior furnishings.
- **Relocation:** Relocation costs are computed in conformance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, the Federal law which meets or exceeds state requirements. Small business moving costs are computed at \$10,000 which is the maximum payment under law in lieu of actual moving costs. For larger businesses with more complicated moves, the actual moving costs are computed at \$15,000, \$25,000 or perhaps \$30,000 or more, depending on the extent of heavy machinery and complicated rigging. Moving costs for families and individuals are computed at \$300 actual plus \$200 dislocation allowance plus a maximum of \$4,000 as a replacement housing payment for a total of \$4,500 per family or household.

Summary of Capital Costs by Program Category

*funds appropriated to National Park Service including fund required to expand State Heritage Park program to meet National Park goals

	NPS*	Park Entity	Total
1.0 Preservation Program			
.1 Building and land acquisition	1,348	1,025	2,373
.2 Easements	102	275	377
.3 Exterior restoration/stabilization	2,145	957	3,102
.4 Interior Restoration	1,995	335	2,330
.5 Preservation grants		1,500	1,500
.6 Relocation	51		
Totals	5,691	4,092	9,733
Category Total			12,166

Including Fees (10%) and Contingency (15%)

	NPS*	Park Entity	Total
2.0 Building Renovation			
.1 Interpretive space	1,265		1,265
.2 Educational/Cultural Program space	---	1,005	1,005
.3 Administration Maintenance and Support	140	140	280
.4 Relocation	131	222	353
.5 Other	405	1,145	1,550
Totals	1,941	2,512	4,453
Category Total			5,566

Category 3.0 Transportation

- **Barge systems:** Barge acquisition is computed at \$90,000 per barge.
- **Bridge reconstruction:** Is computed at \$75/sf of bridge area.
- **Trolley system:** Trolley acquisition is at \$25,000 per trolley including the horses.
- **Parking installations:** Are computed at \$1,000 per space for surface parking and \$5,000 per space for structured parking.

Category 4.0 Landscaping and Pedestrian Access

- **Restoration and special treatment landscaping** range from just under \$4.50/sf in the control zone to \$5/sf for restoration of large areas like the Boott courtyard, to \$6/sf for restoration of small areas like those surrounding specialized structures in the control zone.
- **Development of parkland acreage** was computed at \$2/sf or less for the creation of paths, sitting areas, lighting and cleanup of essentially grassy or presently woody areas.

Category 5.0 Exhibits

- **Exhibit costs** are computed at \$75/sf which includes the exhibit proper plus preparation, administration and maintenance areas. The special installation on the Rex Lot of a large scale model of 19th century industrial Lowell including a working canal system, was computed at \$6/sf for basic landscaping, and from \$25 to \$100/sf of model depending on level of complexity.

	NPS*	Park Entity	Total
3.0 Transportation			
.1 Barge System	3,085	---	3,085
.2 Train System	625	---	625
.3 Parking	3,515	---	3,515
Totals	7,225	---	7,225
Category Total			9,031

	NPS*	Park Entity	Total
4.0 Landscaping and Pedestrian Areas			
.1 Improvement of urban public spaces to restore historic character	2,728	255	2,983
.2 Pedestrian ways	860	68	928
.3 Parkland development	540	---	540
Totals	4,128	323	4,451
Category Total			5,564

	NPS*	Park Entity	Total
5.0 Exhibits			
.1 Interpretive experiences	3,780	---	3,780
.2 Informational devices	405	---	405
.3 Special installations	1,930	---	1,930
Totals	6,115	---	6,115
Category Total			7,644
Totals	31,313	8,658	39,971
Including fees and contingency			

Detailed Breakdown of Capital Costs

1976 Dollars (000)

Category 1.0 Preservation

	Land ac- quisition 1.10	Building acqui- sition 1.11	Ease- ments 1.2	Exteriors 1.3	Interiors 1.4	Total 1.0
Boott Mill			*	390	270	660
Child's House		*		340	795	1,135
Concord riverbanks between Rex Lot & Wamesit area (east bank only)	*					*
47-49 Kirk Street		*		250	180	430
Hamilton-Appleton Mills			*			*
John St. Boardinghouse		*		360	240	600
Lawrence Mills			*			*
Lowell Manufacturing Co.		*		162		162
Mack Building			*	150		150
Massachusetts Mills			*			*
New Market Mills			*	80		80
Northern Canal (between river & Tremont Yard)	*					*
Old City Hall		*		500	250	750
Old Market Building			*	40		40
Riverbanks (between Boott & Tremont)	*					*
Riverbanks opposite "Mile of Mills"	*					*
Swamp Locks			*	25	50	75
Wannalancit			*			*
Wentworth Block		*		675	335	1,010
Wells Block			*	130	210	340
Whipple Powder/ Wamesit area	*					*
Land acquisition	813					813
Building acquisition		1,560				1,560
Easements			377			377
Totals	813	1,560	377	3,102	2,330	8,233

* See Column Totals

**includes \$51,000 relocation costs

Note: Cost indicated by (*) would potentially be included in preservation loan and grant programs.

Category 2.0 Renovation

	Visitor interpre- tive 2.1	Educa- tional/ cultural 2.2	Admini- strative/ main- tenance 2.3	Other 2.4	Reloca- tion 2.5	Total 2.0
Boott Mill	140	245	80	150		615
John St. Boardinghouse	320					320
Lowell Mills	700	700	200	625		2,225
Northern Canal Gate				15		15
Old City Hall	105	60		160		325
Swamp Locks				30		30
Wentworth Block				520		520
Whipple Powder Mill/ Wamesit area				50	50	
Relocation					353	353
Totals	1,265	1,005	280	1,550	353	4,453

Category 3.0 Transportation

	Barge 3.1	Trolley 3.2	Parking 3.3	Total 3.0
Barges	900			900
Boott Boardinghouse end walls area			30	30
Bridge reconstruction	1,035			1,035
Dutton Street Garage			3,225	3,225
Old Market Area	200			200
Rex Lot	300			300
Swamp Locks	250			250
Swamp Locks parking area			220	220
Trolley system		625		625
Whipple Powder Mill / Wamesit area			40	40
YMCA water node	400			400
Totals	3,085	625	3,515	7,225

Category 4.0 Landscaping and Pedestrian Areas:

	Public space 4.1	Pedes- trian ways 4.2	Parkland develop- ment 4.3	Total 4.0
Boott Boardinghouse end walls area	75			75
Boott Mill	250			250
Central Street @ Pawtucket Canal	30	100		130
Child's House	75			75
Concord riverbank (east) from Rex Lot to Wamesit area			200	200
Control zone (8 acres)	1,510			1,510
47-49 Kirk Street	20			20
John St. Boardinghouse	230			230
Lowell Manufacturing Co.		68		68
Northern Canal from river to Tremont Yard		100		100
Old Market area	75			75
Riverbanks between Boott & Tremont		60		60
Riverbanks opposite "Mile of Mills"			100	100
Swamp Locks	75			75
Swamp Locks parking area	18	10		28
Trolley system		590		590
Whipple / Powder Mill / Wamesit area			240	240
YMCA water node	145			145
Misc. acquisition & demolition	370			370
Relocation	110			110
Totals	2,983	928	540	4,451

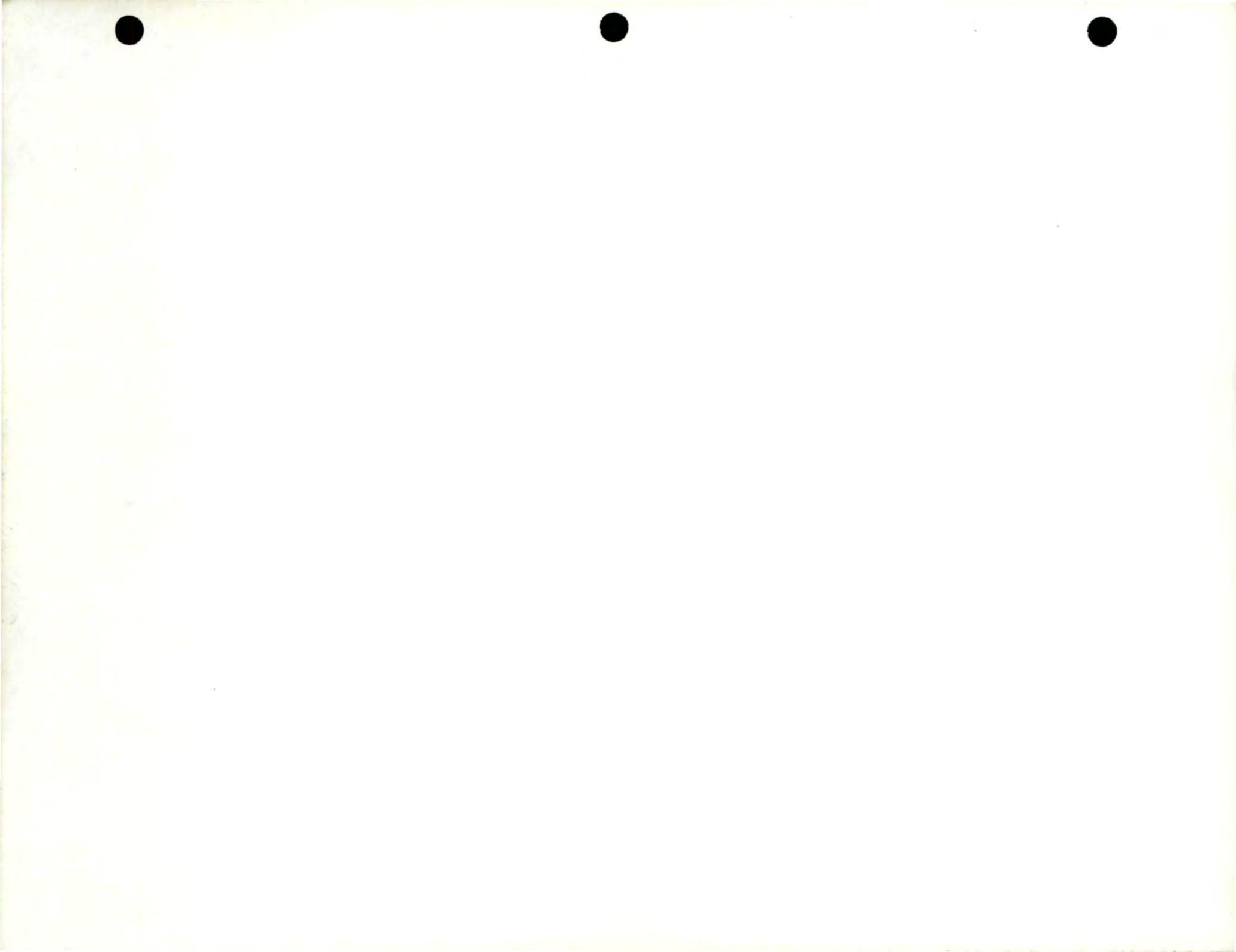
Category 5.0 Exhibit Costs

	Interpre- tive ex- periences 5.1	Informa- tional services 5.2	Special installa- tions 5.3	Total 5.0
Boott Boardinghouse end wall area			20	20
Boott Mill	750	100		850
Central Street @ Pawtucket Canal		10		10
Child's House	10			10
Control Zone (8 acres)		250		250
Dutton Street Garage			40	40
47-49 Kirk Street	5			5
John St. Boardinghouse	600			600
Lowell Manufacturing Co.	1,875			1,875
Northern Canal Gate	15			15
Old City Hall	225			225
Rex Lot			1,750	1,750
Riverbanks between Boott & Tremont		10	100	110
Swamp Locks	50			50
Trolley System		25		25
Wells Block	250			250
Whipple Powder Mill / Wamesit area		10	20	30
Totals	3,780	405	1,930	6,115

Operating Costs

Category 6.0 Staffing and Program Development (Average per year costs)

	Year 1-5	Year 5-10	Year 10+
Park Entity			
6.1 Administration, Planning, Development	\$300	450	150
6.2 Educational/Cultural Grants	100	150	---
Subtotals	\$400	600	150
National Park Service:			
6.3 Planning, Programming, Negotiations	\$260	130	79
6.4 Administration	191	191	191
6.5 Interpretation	130	260	260
6.6 Protection	40	79	79
6.7 Maintenance	97	194	194
Subtotals	\$718	854	803
Totals	\$1118	\$1454	\$953



This report, and the planning, urban design, architecture, educational and cultural programming were prepared for the Lowell Historic Canal District Commission by The Lowell Team, a joint venture of David A. Crane and Partners/DACP Inc., Gelardin/Bruner/Cott, Inc., and Michael Sand & Associates, Inc.

	David A. Crane & Partners/DACP Inc.	Gelardin/Bruner Cott, Inc.	Michael Sand & Associates, Inc.
	Planning and Urban Design	Architecture and Adaptive Re-use	Educational and Cultural Programming
Project Coordinator	Jonathan S. Lane		
Primary Staff	John Shields Dennis Frenchman	Robert Gelardin Simeon Bruner Leland Cott	Michael Sand
Support Staff	Richard Glaser Randolph Jones Janis Mones Bruce Schultz	Phil Hresko Tim Anderson Guillermo Bahamon	Alison Wampler Nancy Olson Frederick Kresse Carol Monacelli Augustine du Bois Peter Adrian Thomas
Consultants to the Lowell Team:	Dr. Patrick Malone, for historical background inventory and technological and cultural review		
	Randolph Langenbach, for architectural history research		
	Economics Research Associates, for regional market review		
	Gail Rotegard, for review of implementation strategies		

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