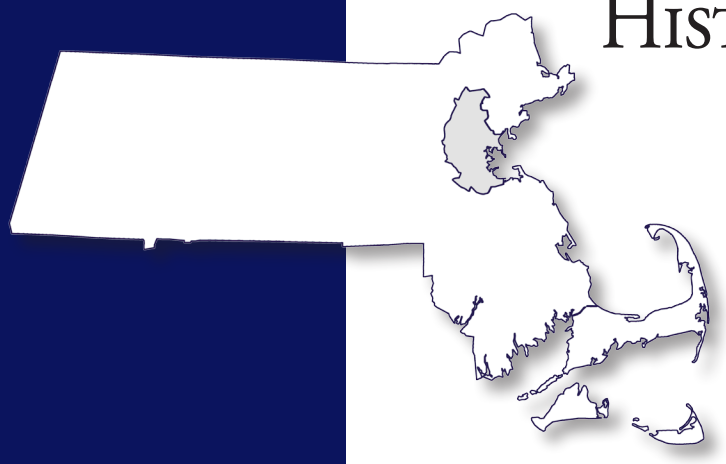

Historic & Archaeological Resources of the Boston Area

A Framework for Preservation Decisions

Massachusetts Historical Commission

William Francis Galvin
Secretary of the Commonwealth
Chair, Massachusetts Historical Commission

HISTORIC & ARCHAEOLOGICAL RESOURCES OF THE BOSTON AREA

A Framework for
Preservation Decisions

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Foreword to the 2007 PDF Reprint Edition of
Historic and Archaeological Resources of the Boston Area:
A Framework for Preservation Decisions

In the late 1970s, the Massachusetts Historical Commission (MHC), like many state historic preservation offices, recognized the need for a more comprehensive understanding of the historic and archaeological resources of the Commonwealth to inform its decision-making processes. While Massachusetts had been a national leader in historic preservation, overall preservation planning efforts still seemed too biased toward a limited range of historic periods, places, events and people. The staff of the Commission felt that decisions on where to direct efforts to protect and preserve properties and sites had to be grounded in a better and more holistic understanding of the types and locations of cultural resources that characterized communities across the state. These efforts to move toward more comprehensive, resource-based decision-making took the form of a special one-year, National Park Service funded study. The result was a groundbreaking, statewide preservation plan: ***Cultural Resources in Massachusetts: A Model for Management***, published in 1979.

In ***Cultural Resources in Massachusetts: A Model for Management***, the MHC advocated an interdisciplinary approach to the assessment and management of the Commonwealth's cultural resources. This approach measured the significance of properties and sites in terms of the broad, anthropological patterns of historical development of the regions and communities of the state. The ***Model for Management*** called for a cultural landscape approach to preservation planning that considered representative and outstanding cultural resources as expressions of the successive patterns of social, cultural and economic activity that shaped and defined communities. To establish local and regional contexts and a uniform baseline of field-observation and artifact derived information on the types and locations of resources, the Commission undertook a statewide reconnaissance level survey. The state was organized into eight study units, and within each study unit, the survey proceeded town-by-town. A major innovation was the assembly of an interdisciplinary team to undertake each regional study unit survey. Each team included members trained in architectural history, historical geography, industrial history, historical archaeology, and prehistoric archaeology.

Three primary products resulted from the statewide reconnaissance survey: 1) individual reports on each surveyed city and town; 2) an accompanying set of thematic maps for each town, produced on transparent polyester sheets overlaid on a USGS topographic mosaic base map; and 3) a summary regional report on each surveyed study unit. The findings and recommendations of the survey teams provided a key organizational framework for the Commission's preservation planning efforts through the 1980s and 1990s. Intensive communitywide surveys and National Register nominations followed the contextual frameworks established by the reconnaissance program.

Although preservation planning concerns have evolved, and the levels of preservation planning activity have advanced considerably across the state, researchers and planners still find the thematic contexts in these reports useful. Long out of print, the completed reports for five regions and the town reports for seven regions[1] are now available in electronic format.[2] Users should keep in mind that these reports are two decades or more old. The information they contain, including assessments of existing knowledge, planning recommendations, understanding of local and regional developments, and bibliographic references all date to the time they were written. No attempt has been made to update this information.

Michael Steinitz
Director, Preservation Planning Division
Massachusetts Historical Commission

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[1] Completed regional reports include those for the **Boston Area** (1982), **Southeast Massachusetts** (1982), **Connecticut Valley** (1984), **Central Massachusetts** (1985), and **Cape Cod and the Islands** (1987). Regional reports for **Eastern Massachusetts** and **Essex** were never completed, and the survey was not initiated for the **Berkshire** study unit.

[2] Electronic text was not available for digital capture, and as a result all reports have been scanned as pdf files. While all have been processed with optical character recognition, there will inevitably be some character recognition errors.

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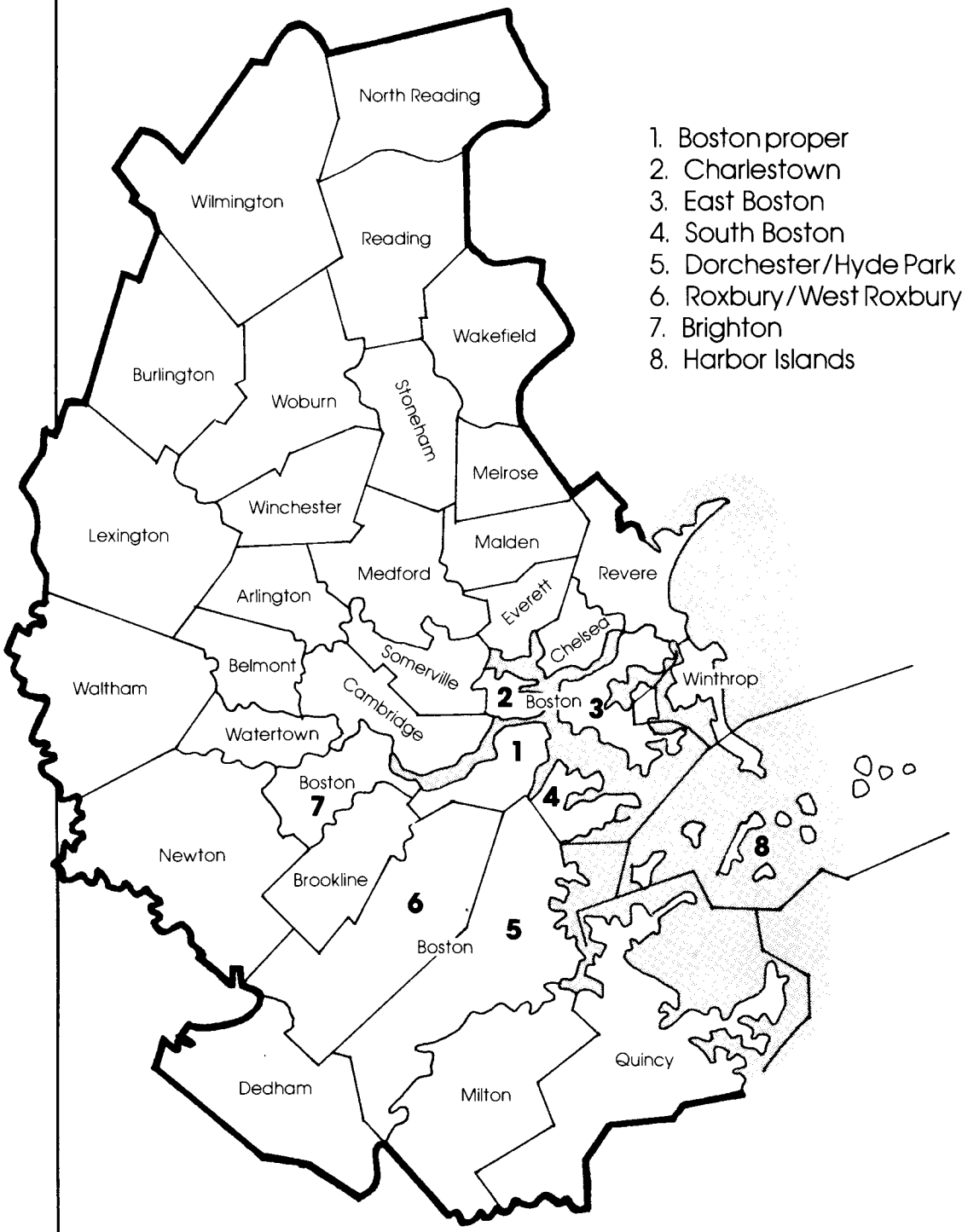
Boston Area Study Unit

Cities and Towns



1. Boston proper
2. Charlestown
3. East Boston
4. South Boston
5. Dorchester/Hyde Park
6. Roxbury/West Roxbury
7. Brighton
8. Harbor Islands

MHC 1981

INTRODUCTION

The purpose of this introductory section is two-fold: to explain why this report was done and what led up to it, and to describe the kind of information covered in the report.

To answer the first question, why the report was done, it is necessary to review some of the Massachusetts Historical Commission's (MHC) own history. The MHC was established in 1963 by Massachusetts General Law Chapter 9 Section 26-27C. This legislation recognized that state government had a responsibility for the preservation of historic and archaeological resources within the Commonwealth. With passage of the National Historical Preservation Act in 1966, the Federal government took a similar position towards protecting historical and archaeological resources which might be threatened by Federal actions. This Act, and subsequent amendments, also directed each state to appoint a State Historic Preservation Officer (SHPO) who would administer the new regulations on the state level and coordinate local, state and federal preservation efforts. In Massachusetts, the office of the SHPO is the Massachusetts Historical Commission.

While the MHC has developed a number of preservation programs, three of its more important functions are: compilation of a state-wide inventory of historic, architectural and archaeological resources, nomination of eligible properties to the National Register of Historic Places and protection of historic properties through the use of state and federal environmental review programs. In each case, the MHC and its staff are constantly required to make decisions of "significance". In other words, what makes a building or site "historic"? Is it historic enough to be listed on the National Register? Is it historic enough to alter the course of a town sewer project, a state highway department road widening, or construction of a federal interstate highway? Faced with the need to answer these kinds of questions on a daily basis, it soon became apparent that

the MHC needed a better base of information from which consistent and informed decisions could be made. Put another way, decisions on what should be protected and preserved had to be grounded in a firm understanding of what resources were there.

In an effort to move towards this kind of resource based decision making, the MHC applied for a grant from the Heritage Conservation Recreation Service (now part of the National Park Service, Department of Interior) in 1979. The purpose of this grant was to outline a program which would provide the kind of information the MHC required. The result was Cultural Resources in Massachusetts, A Model for Management (MHC, 1979).

The Model for Management made several recommendations. First, it recommended that the MHC undertake a state-wide, reconnaissance survey in order to create a data base which would allow decisions to be made in a consistent and defensible manner. Far from replacing the inventory work of local historical commissions and other groups, this state-wide survey would be a supplement, building on existing information and making it more comprehensive. This survey would include both above-ground resources (buildings and other standing structures) and below-ground resources (archaeological sites), and would treat both in an integrated manner.

The second recommendation was that this state survey employ an inter-disciplinary social science approach. Previously the MHC had evaluated properties on the basis of their aesthetic merits or historical associations. A social science based survey would emphasize other factors, the most important of which were developmental process and context. From this basis, many groups of resources which had previously received little attention, such as vernacular buildings and industrial sites, assumed a greater importance.

Finally, the Model for Management set forth a general methodology for carrying out this state-wide survey. There would be two related approaches: one focusing on prehistoric resources (Paleoindian through Late Woodland), the other concentrating on the "historic" period (1500-1940) and concerned with standing structures and landscapes as well as archaeological sites. In addition, the state was divided into eight study units. These were based on a

combination of topographic and political boundary considerations. A theoretical framework for more detailed surveying was also provided, one which looks at development in terms of core areas, peripheral areas and corridors. These terms, which are defined in the Glossary, come largely from the discipline of geography.

The state survey project began in the fall of 1979 and has proved an efficient and effective means for providing the information which the MHC requires. During the past two years, survey work has been completed for over one hundred towns and cities in the eastern part of Massachusetts. This report, which summarizes the developmental history for the twenty-eight towns and cities in the Boston area study unit, is the first study unit report to be completed.

This leads to the second question: what kind of information is included in this report and how is it presented? As noted above, the state survey is based on an interdisciplinary approach. On a practical level, this means the work is done on a team rather than strictly individual basis. The team which did the survey of the Boston area study unit was composed of four people, each of whom brought a particular skill and knowledge to the project. Arthur J. Krim, the historical geographer, was responsible for topography, transportation and settlement. He did the research on these topics and wrote the original drafts of the Topography and Settlement sections. He also drafted the maps for the report. Peter Stott, the industrial historian, wrote the section on Industrial Development. Sarah Zimmerman was the architectural historian for the project and wrote the section summarizing architectural development in the Boston study unit. Finally, James W. Bradley served as the historical archaeologist and was responsible for the the 16th - 18th centuries or bridging the gap between the prehistoric and historic periods. As Survey Director, he was also responsible for organizing, editing and directing the completion of this report.

This report marks the culmination of the survey team's work within the Boston study unit. As such, it is the final product. It is, however, preceded by a series of other reports. During the previous year, the survey team completed reports and maps for each town and city within the study unit. Done in

a similar manner to this report, each town report summarizes the development of that community from 1500 to 1940. For each period (the four and a half centuries are sub-divided into seven periods), information on Population, Transportation, Settlement, Architecture and Economic Base are summarized. These town reports are based on documentary research (both primary and secondary) and reconnaissance level survey of the town. See MHC State Survey Scope of Work for additional details (MHC 1980c).

The town reports are particularly important for two reasons. First, they are the underpinnings of this report. The process which resulted in this document has been an inductive one, from the sources to the town reports to this summary report. The second reason the town reports are important is that they provide much more detail than does this study. The purpose here is to look at towns in the context of their neighbors to discern what broad developmental trends took place. If one wants greater detail on what occurred within a particular city or town, the town report should be consulted. These reports are available at the MHC.

A few additional comments are necessary to introduce the sections of this report. The first two chapters are designed to preface those which follow. The first provides an overview of the study unit's topography. The second reviews prehistory. The prehistoric chapter, written by State Archaeologist, Valerie Talmage, is drawn in part on the work done by the prehistoric team of the State Survey project. The work done by prehistoric team members David Anthony, Frederick Carty and Linda A. Towle has been partially presented in two preliminary documents. See Massachusetts Historical Commission, State Reconnaissance Survey, Prehistoric Survey (MHC, 1980a) and Massachusetts Historical Commission State Survey Project, Prehistoric Survey Team, Interim Report (MHC, 1980b). A second Interim Report will be forthcoming in early 1982.

The third chapter focuses of the processes of Settlement and Land Use. This is the most widely ranging and comprehensive portion of the report. For each of the seven periods, the following topics are discussed: Regional Events, Core-Periphery Relationships, Transportation, Settlement, Survivals and Research Topics. While most of these topics are self-explanatory, a couple require

some introduction. The Core-Periphery sections describe the functional relationships of the period (how things worked and were inter-related) while the Settlement sections describe the structural relationships (what were the components). In other words, the Core-Periphery discussions are the physiology while the Settlement sections are the anatomy.

The other sub-section of the Settlement chapter that needs a word of explanation is the one on survivals. For each period, categories of survivals (whether archaeological, landscape or standing structure) are defined. A chart is then used to indicate which kinds of survivals occur in what towns. Three symbols are used on these charts:

1. An X means that known survivals of importance are present or that there is a high potential for significant but presently unrecognized survivals.

2. A ? means that important period survivals may be present. For standing structures this means that currently undocumented but suspicious buildings were noted and should be investigated further.

3. A blank means that while period survivals may be present, their potential is not considered significant in the context of the other towns within the unit.

One additional option was not to list a town at all. This indicates that while the town may contain some period survivals, there are no significant ones presently known and the likelihood of regionally important examples being discovered is small.

Chapters Four and Five examine particular aspects of the study unit's development in detail. Chapter Four deals with architectural development, examining it in functional rather than aesthetic terms. As a result, the discussion focuses on the evolution of building types. Within the residential category, this takes the form of a chronological review of floor plan development within the study unit. Style is considered secondarily, as an indicator of periodicity. Buildings are identified as being stylistically ahead of their time ("Innovative"), of their time ("Contemporary") or behind their time ("Traditional"). See the Glossary for more detailed definition of these terms.

The Fifth chapter reviews the economic basis of the study unit's development and how that has been reflected in the processes of industrial continuity and innvovation. Twenty of the industries which were most important to the growth of the study unit are reviewed in terms of their history, surviving components and needs for additional research.

The last chapter, Management Recommenadations, summarizes what has been presented in the previous chapters and recommends both general and specific priorities for survey and resgistration.

As noted above, this document is a result of the Massachusetts Historical Commission's need to have an information base from which preservation decisions could be made in a consistent and defensible way. As a result, this study is designed primarily to serve the needs of the MHC and its staff. It is our hope and expectation, however, that other groups, public and private, amateur and professional, will also find this information useful.

The writers would like to acknowledge the assistance of several people whose efforts were important in the successful completion of this project. These include Shirley Southworth and Ellen Starr, for their work in drafting the maps and designing the graphics for the report, and Margaret Donovan (Secretary of State's Office), Nora Lucas (Boston University) and members of the MHC staff for their help in proofreading. Finally, this writer would like to thank the members of the Massachusetts Historical Commission sub-committee whose comments and criticisms helped to shape this report. The members include: Dena F. Dincauze, Paul F. Norton, Louis Tucker, John Worrell and Robert Yaro.

GLOSSARY

core - an area characterized by overlapping focal points of activitiy.

The major catagories of activity include: A. population, B. civic eccles-siatical/institutional, C. transportation, and D. economic.

A. Population refers to the number of people living and/or working in the area as well as to their ethnic, economic and social character.

B. Civic/ecclesiastical/institutional refers to administration and service functions whether sacred or secular. Institutional in this case means those which were perceived as desirable (e.g. libraries, schools) as opposed to those perceived as undesirable (e.g. penal institutions).

C. Transportation refers to the regional or inter-regional movement of people and materials. Important factors include: how the area functions as a point of contact or terminal facility, the diversity of transport systems (water, land and/or air) and proximity/ease of access.

D. Economic refers to the variety, density, and productivity of economic activities in the area. The kinds of resources used, sources of supply and intended markets are considerations as well as distinctive patterns of land use.

Cores are ranked in relation to the areas they influence. Generally, the more intense, complex, or varied the activities, the higher the rank of the core. There are five ranks of cores: lcoal, regional, state, national and international.

local - the activities which define it have influence only on the town level.

regional - the activities which define it have a "regional"influence, that is affect the entire study unit area or large sections thereof, such as drainage basin or counties. State national, and international are self-explanatory.

periphery - an area characterized by few or no focused activities. Those activities which do occur:
- are usually specialized and relate to a specific core.
- may be perceived as unpleasant or undesirable.

Peripheral areas may also be subdivided into inner and outer peripheral zones. An inner peripheral zone is closer to a core area while an outer peripheral zone is further removed.

fringe- a peripheral zone characterized by negative or undesirable activities whether social, industrial, or institutional.

corridor- a regional transport route which has been used successively over time.
Corridors function as specialized, linear cores.

town - a political incorporation of inhabitants and the legally defined area in which they reside.

town center - the primary settlement within a town where civic ecclesiastical/institutional functions as well as residential and economic activities are usually concentrated. A town center usually functions as a local core.

village - a secondary settlement area within a town.

city - a large and complex yet discreet core with: politically defined (and incorporated) boundaries, a system of self-government, specialized economic areas, distinctive social and residential districts, and usually possessing an internal transport system.

Innovative: Buildings which are usually architect-designed and which demonstrate a mastery of the stylistic lanaguage as well as creativity of interpretation. Generally, innovative architecture is dynamic, avant-garde and employs the finest craftsmanship and materials. It can exist in both plain and elaborate forms and in a variety of settings, depending on the taste and resources of the patron. Innovative buildings can usually be dated to within five to ten years of their construction.

Contemporary: Buidlings which reflect the influence of a style but which are generally conservative and do not incorporate the major elements of that style in a comprehensive manner. Contemporary architecture often takes its design from architectural handbooks or builder's guides. For earlier periods, it is generally the product of a master craftsman but after the mid 19th-century it can also be the work of a speculative builder or locally significant architect. Contemporary architecture is almost always highly crafted, employing quality materials and construction. Contemporary buildings can usually be dated within a ten to twenty-five year span.

Traditional: Buildings based on long-standing plans and construction techniques, designed primarily to meet utility and function with style as a secondary criterion. Where elements of an academic style are present, they will often be employed in an uninhibited and personal manner. Traditional buildings are often built by less less sophisticated craftsmen or by the owner himself, or, after the mid 19th century, on speculation. Traditional construction incorporates less expensive building materials and stock detailing. Because their distinctive features remain constant over a long period, traditional buildings are less easily dated to a specific timespan.

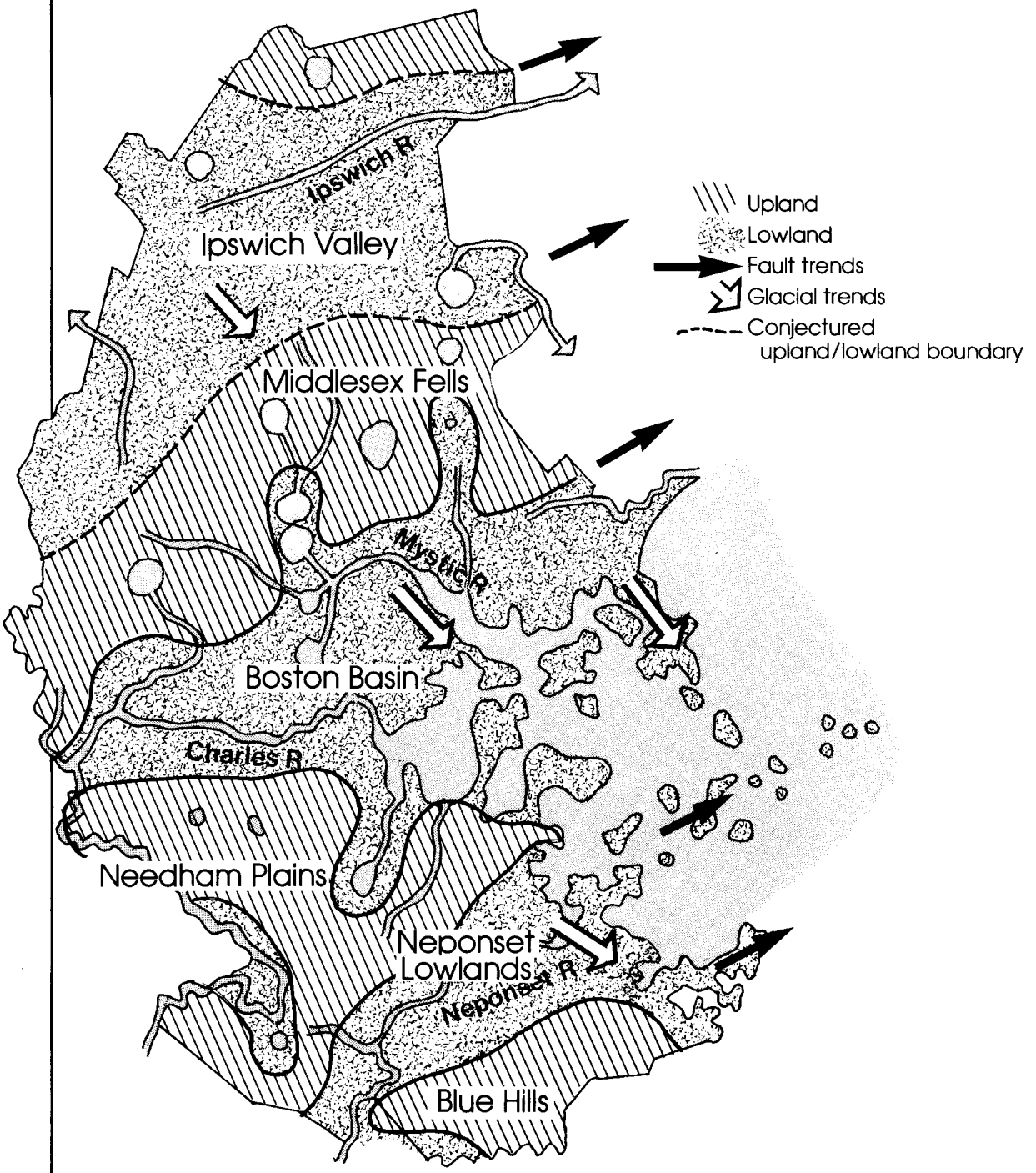
CHAPTER I: TOPOGRAPHIC OVERVIEW

The Boston area study unit encompasses a varied topography from the Boston Harbor Islands on the east to the Charles River highlands on the west, the Ipswich River valley on the north to the Great Blue Hills on the south. Within this area lies metropolitan Boston, a dense urban mosaic of cities and towns circumscribed by the Route 128 beltway (now Interstates 93 and 95) and the coastline of Massachusetts Bay.

A distinctive bedrock grain runs northeast through the Boston area following the lines of the Appalachian tectonic plate. This northeast grain is most obvious in the courses of the Neponset and Ipswich rivers, in the angle of the bedrock islands in Boston Harbor and in the line of rocky cliffs that form the northern rim of the Boston basin. See Map 1. This ancient fault system remains active, and the Boston area has been, and still is, subject to earthquake shocks. While the dominant bedrock grain inclines to the northeast, a secondary system of north-south faults carries several of the smaller rivers, including the Malden, Mystic and Aberjona, through the Middlesex Fells.

The bedrock formations of the Boston area are most evident in the rugged character of the Blue Hills and Middlesex Fells, where volcanics (granites, gneisses, diorities and felsites) outcrop to form a rocky upland landscape. Today these ancient rocks are known primarily for their recreational uses and picturesque qualities. In the past, however, the felsites which outcrop in both the Fells and the Blue Hills were important to the native population as a raw material from which stone tools were made. Later, during the 19th century, the granite quarries in West Quincy supplied the stone which built many of the area's most notable buildings, among them the Bunker Hill monument and Quincy Market.

Topography
Boston Area Study Unit



Map 1

MHC 1981

The Boston area's most distinctive feature is a great lowland basin which begins along the Charles River in Waltham and gradually widens eastward to include the Mystic river estuary and most of the coastline around Massachusetts Bay. See Map 1. On the north, the Boston basin is bounded by the cliffs of the Middlesex escarpment which extend from Waltham to Revere. The southern boundary, though less well defined, is evident adjacent to the Neponset river marshes in Quincy and Milton. Much of the Boston basin is underlain by blue clay and slate. Both of those materials were used extensively as the Boston area developed. During the Colonial period, slate was used for building foundations, roofing and gravestones. Important quarries were located in South Boston, Medford and especially Somerville. The clays were used from the 17th through the 19th centuries for both brick making and the manufacture of pottery.

Between the Boston basin and the Blue Hills lies an intermediate zone of mixed rock, or conglomerate, popularly called puddingstone. Both Roxbury and Stony Brook take their names from this formation. These rocky highlands extend from Newton through Brighton and Brookline to Dedham and Dorchester and contain many picturesque areas such as Franklin Park and the Stony Brook Reservation. Puddingstone, although difficult to quarry, was used during the 19th century in the construction of Victorian Gothic churches. While used throughout the Boston area, puddingstone was especially popular in Brookline and Roxbury.

The most recent topographic changes in the Boston areas are those which resulted from Pleistocene glaciation. As the glacier advanced, it scoured and rounded off the exposed bedrock. As it retreated, it left a series of outwash features. These combined to produce a second grain in the area's topography, one oriented north-northwest. See Map 1. One effect of the glacier's retreat was interruption of existing drainage patterns. The massive amounts of gravel and other material dropped by the glacier altered or blocked both large rivers, like the Mystic, and smaller strems, creating large areas of swamp or bog.

The shallow lakes and ponds located throughout the Boston unit are another indication of the glacier's retreat. Examples of these kettle lakes include Fresh Pond in Cambridge, the Mystic Lakes in Winchester, Horn Pond in Woburn and Crystal Lake in Newton. Historically, these ponds were important locations for prehistoric settlement and later provided attractive settings for Colonial period country estates. During the 19th century, ice harvested from many of the Boston area ponds was shipped to markets around the world. Today, these ponds serve as recreational areas within the MDC park system and as reservoirs for the Boston area water supply.

Glacial retreat also resulted in the formation of drumlin fields, or clusters of smooth sided, elliptical hills composed primarily of gravel. Drumlins are a prominent feature of the Boston basin, and several of them, such as Beacon Hill in Boston and Bunker Hill in Charlestown, are major historical as well as physical landmarks.

A final result of glaciation was the emergence of the present coastline. This was shaped by a number of factors, including the rise in sea level, crustal rebound and local topography. The result was a gradual flooding of what were then coastal lowlands, with many of the larger drumlins and outcrops becoming islands or peninsulas. The rise in sea level also created the extensive tidal estuaries of the Neponset, Charles and Mystic rivers.

One result of the complex geological events which shaped the Boston area was that the amount of level, well drained land within the study unit is limited. The best areas are those sections of glacial outwash plain which were not flooded by the rise in sea level. Many of these areas are along the major river valleys and estuaries. The two most important include the broad rolling plain that extends from the upper Charles along Alewife Brook to the Mystic estuary, and a similar plain on either side of the Neponset. Elsewhere in the study unit, smaller plains are located usually in close proximity to kettle lakes or ponds. Examples occur in Wakefield, Woburn, and Boston near Jamaica Pond.

Throughout the time periods studied, these areas of well drained, fairly level ground have repeatedly been focal points for cultural activity. These are the areas where settlement has tended to concentrate. In a similar way, the major rivers and their valleys have served as the primary corridors for transportation and growth. While the geological character of the Boston area did not determine the cultural development which took place, it did exercise a profound influence on how and where the development occurred.

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CHAPTER II: PREHISTORIC OVERVIEW

Given its complex topography and wide range of available resources, it is not surprising that the Boston study unit has a rich and diverse archaeological heritage. Harvard University has sponsored most of the archaeological work in the Boston area unit, beginning in the late 19th-century with Wyman's (1867) and Putnam's (1884) examination of coastal shell middens. Willoughby (1935) continued Harvard's interest in local prehistory, maintaining contact with collectors and participating in salvage excavations. Two outstanding late 19th century to early 20th-century collections which maintain accurate provenience information are housed in area museums: George Frazar's collection of the Arlington-Belmont area (Peabody Museum, Harvard University) and Ernest E. Tyzzer's collection of the Wakefield/ Saugus area quarries and associated workshop sites of the Lynn Volcanics (R.S. Peabody Foundation, Andover).

In 1939 the Massachusetts Archaeological Society (MAS) was founded, and the statewide survey of sites was initiated. Most of the sites recorded on the exisitng state inventory were originally reported through MAS in the 1940s. Amateur archaeological work continues to contribute to the understanding of the archaeology of the Boston area, particularly from site examinations in the Blue Hills (Bowman & Zeoli 1978 and Rosser 1980).

In the early 1940s, Frederick Johnson of the R.S. Peabody Foundation, Andover, directed a multi-disciplinary salvage and study of the fishweir remains at Boylston Street, Boston. Initially discovered in 1913 during subway construction, additional parts of the fish-weir were salvaged prior to construction of the New England Mutual Life Insurance Company. The project served as a landmark example both of the potential for survival of prehistoric sites in an urban context, and the cooperation between private developers and archaeologists.

Archaeological research was revived in the Boston unit between 1967 and 1971 by Dena Dincauze (1973, 1974) who conducted site surveys first of the Charles River basin, and later of the Greater Boston Area. Cultural resource management studies in the area began in 1975 with Barbara Luedtke's (1975) investigation of the Boston Harbor Islands. Since 1975, several compliance surveys have been conducted in the study unit, with studies in Milton (Ritchie 1981) and Watertown (Barfield 1978) contributing substantial information to area prehistory.

In summary, the prehistoric resources in the Boston area have received adequate attention in the form of site surveys and summaries of the area prehistory. Few sites, however, have been excavated. The State Survey project has concentrated on quantifying and inventorying information on sites represented by collections in area museums. Both the Peabody Museum at Harvard and the R.S. Peabody Foundation in Andover contain substantial information on Boston area sites. The following discussion on culture history and site distributions is based on the published archaeological literature for the area and the statewide prehistoric site files, augmented by information from the state survey project.

PALEOINDIAN (ca. 12,000-9,000 B. P.)

Culture History

Evidence of Paleoindian occupation in the Boston Area study unit is known only from a few single projectile point finds, all of which were inventoried from museum collections. No Paleoindian materials from the study unit are reported in the literature. Single examples of Eden-like points were found at Ossini's Garden (Wakefield), Goat Acre (Arlington), and the Watertown Arsenal (Watertown). All three sites are reportedly multi-component and disturbed, making further

interpretation difficult. Information on site size, function or seasonality is absent.

Site Distribution

All three find spots are located on sandy terraces overlooking the Mill River, Mystic River, and Charles River respectively. The lower sea levels of the period would have set all three sites much further inland than at present, although detailed paleoenvironmental reconstruction of find-spot locations is lacking. The absence of other reports of Paleoindian period sites is partially attributed to the drowning of coastal sites by sea level rise.

ARCHAIC (ca. 9,000-2,000 B. P.)

Culture History

The Early Archaic period in the Boston Area is represented by find spots of bifurcate-based points; except for the bifurcate-based points, Early Archaic artifact assembleges are unclear. Bifurcate-based points have been found in small numbers at several site locations, usually in collections from multi-component sites. Dincauze (1974) records five sites in which bifurcate-based points occur in the Mystic, Charles and Neponset drainages. Specifically, museum collections research found that two points were recovered from Goat Acre (Arlington) and single specimens were recovered from the Watertown Arsenal (Watertown), two unrecorded site locations in Cambridge, Ossini's Garden (Wakefield), and the Water Street Cluster (Wakefield).

More information is known about the Middle Archaic period due to the larger number of recorded sites as well as a better understanding of Middle Archaic assembleges. More variety both in site type and location is evident for the Middle Archaic than for earlier periods. Middle Archaic sites can be identified by Neville and Stark artifact types, although some confusion due to the morphological overlap of Stark points with Early Woodland period Rossville points

may skew the data. Dincauze (1974) recognized twenty-nine Middle Archaic sites in the Greater Boston Area. Middle Archaic sites are known from museum collections at several locations around Spy Pond, Goat Acre, and Arlington Plain (Arlington), the Cambridge Home for the Aged (Cambridge), Brooks Farm (West Medford), Spring site (Medford/Winchester line), Watertown Arsenal (Watertown) and Cedar Hill and the Old Perkins Estate (Wakefield). In addition, Middle Archaic occupation and utilization of sites in the Blue Hills is well documented at Ponkapoag, the Green Hill site and the Stony Brook rockshelter. Middle Archaic stone quarrying at sites in both the Blue Hills and the Lynn Volcanics is demonstrated both by known quarry sites themselves, and by the distribution of Middle Archaic artifacts made from these Boston area lithic materials.

The Late Archaic period is characterized by an increase in both site density and variety; these increases are usually interpreted as representing population increase and the exploitation of ecozones which were little used in previous periods. Three cultural traditions have been recognized: Dincauze (1975) argues that the earliest, the Small Stemmed (Narrow Point) tradition, developed in New England as an indigenous successor to earlier Middle Archaic cultures; the Laurentian and Susquehanna Traditions are arguably intrusive from outside of New England, whether from population movement (Dincauze 1975) or diffusion of a complex of cultural traits (Cook 1976). Laurentian manifestations appear to have had little effect on indigenous cultures whereas the Susquehanna Tradition is interpreted as fusing with the local Small Stemmed tradition in the latest phase of the Archaic, the Orient phase.

Small stemmed projectile points are numerous and widespread, and have been recovered in at least small numbers from most sites in the Boston Area which exhibit Late Archaic period characteristics. Small stemmed components are particularly well represented from sites in Arlington (Goat Acre, Spy Pond, Arlington Plain), the Spring site on the Medford/Winchester line and several sites in Wakefield. Although small stemmed points are common in the Boston area, the

quantities recovered are significantly less than what has been documented in southeastern Massachusetts (MHC 1980). Laurentian sites, characterized by Brewerton style points, occur in smaller numbers in the Boston Area study unit when compared with sites from interior study units. While Brewerton points have been recovered infrequently from most multi-component sites in the area, several specimens have been reported from a cluster of sites in Wakefield. In contrast, Atlantic points, and later Susquehanna and Wayland Notched points of the Susquehanna Tradition, occur in higher numbers in the Boston Unit than in interior units. The Atlantic phase is well represented at Goat Acre in Arlington, and present on sites in Wakefield and from Milton/Dorchester.

Later phase Susquehanna tradition sites seem better represented on the banks of the Charles River (Watertown Arsenal) than are earlier phase sites. Susquehanna materials are also present at most multi-component sites in the unit. The Orient phase is known from sites in the Mystic and Charles estuaries. Orient materials are present on sites in Watertown, Arlington and Wakefield. Stowell's Field (Wakefield), appears to have been an essentially single component Orient site.

Site Distribution

Due to the sparseness of reported sites, patterns of the distribution of Early and Middle Archaic sites are difficult to determine. Early Archaic materials known from non-coastal locations are typically associated with large water bodies. Many Early Archaic sites may have been located on landforms which no longer exist -- either deeply buried by alluvial deposition or drowned by rising seas (Dincauze and Mulholland 1977). Middle Archaic settlement seems to continue Early Archaic patterns, albeit with higher site densities and more information on site function. However, sites continue to be associated with riverine and lakeside locations. Middle Archaic populations apparently exploited both coastal and interior resources. A Middle Archaic

component at Magazine Beach (Cambridge), establishes the use of estuary heads as one preferred location for occupation sites, a preference that continues into the Woodland periods (Dincauze 1974). Finally, the felsites in the Lynn Volcanics and the slates in the Blue Hills were used extensively during the Middle Archaic.

In the late Archaic period, sites are not only more numerous, but more diverse in location and function. Sites include coastal shell heaps, fishweirs, quarries and occupation areas situated adjacent to springs, lakes, ponds, small and large rivers and estuary heads. In the Boston Area study unit, the diversity of Late Archaic site types is demonstrated by upland camps/workshops (Wakefield, Blue Hill sites), the Boylston Street Fishweir, large base camp sites (Goat Acre), ceremonial burial sites (Watertown Arsenal) and estuary fishing sites (Watertown Arsenal). Larger Late Archaic sites are often assumed to be base camps to which hunting, gathering and fishing expeditions returned upon completion of special purpose activities. Dincauze (1974) argues that the Late Archaic site distribution in the Boston area "indicates a well-balanced adaptation to the major resources of the region by people intimately familiar with their diversity".

Despite the identification of three Late Archaic traditions through the artifactual record, corresponding identification of distinct settlement pattern associated with these three traditions has not been successful. At the most general scale, the ubiquity of small-stemmed components is evident while the Laurentian tradition seems to have clearer interior manifestations and Susquehanna materials tend to be located near the coast. Recent excavations have raised questions regarding the validity of small stemmed materials as chronological markers of the Late Archaic since small stemmed materials have been found from excavated contexts in direct association with Early Woodland materials (cf. Current Research, American Antiquity 46:3(696)).

Dincauze (1974) argues that a combination of climatic, environmental and cultural changes severely disrupted the "firmly balanced" Archaic lifeways near the end of the period, and interprets the

Orient phase as a coalescence of Susquehanna tradition and indigenous small stemmed cultures following the dismantling of earlier Archaic adaptive strategies.

WOODLAND (2,000B.P. - 400B.P.)

Culture History

Early and Middle Woodland period sites appear less numerous than their Archaic predecessors. Dincauze (1974) feels that the drop in the density of Early Woodland period sites reflects severe cultural and social changes which irrevocably disrupted Archaic lifeways. The successful Archaic period adaptive strategies disintegrated; Woodland period lifeways are substantially different as reflected in settlement patterns which appear to shift to the coastal fringe and towards lower elevations. Horticulture was practiced during the Woodland period, although details on its introduction and use in the Boston area unit are lacking.

Early Woodland period sites are recognized from Rossville and Meadowood projectile points; Middle Woodland sites are known from Fox Creek Stemmed and Lanceolate as well as Jack's Reef Corner Notched points. Reports of pottery from sites in the Boston area generally lack typological description, and basic ceramic chronologies for New England are still lacking. This has limited the use of pottery except as a generalized Woodland period marker. Most of the sites which have Early and Middle Woodland components also contain Late Archaic materials suggesting a pattern of recurring or continued occupation over long periods of time. Goat Acre (Arlington), the Watertown sites, the Spring site (Medford/Winchester line), Milton sites along the Neponset and several sites in the Wakefield cluster have produced significant Early and Middle Woodland materials. Middle Woodland period quarrying has been relatively well established for the Braintree hornfels sites in the Blue Hills (Bowman and Zeoli

1978). Early and Middle Woodland materials associated with the Lynn Volcanics indicate a continuity in the use of those high grade felsites into the Woodland period.

Artifacts used to identify the Late Woodland period are large triangular (Levanna type) projectile points; however, the apparent extension of large triangular points back into the mid-Middle Woodland period makes them less desirable as a chronological marker. Large triangular points are the single most common point-type inventoried from collections from the Boston Area. Because these points are believed to represent a relatively shorter time span in comparison to tool types used as chronological indicators for earlier periods (i.e. hundreds vs. thousands of years) the large number of these points argues for a high density of Late Woodland period sites.

Large triangular points are not only the most common type of projectile point inventoried, they also occur on more sites than any other point type. Components are known from Arlington, Watertown, Medford, Wakefield and Milton sites (which also yield earlier components) as well as from sites in Winthrop, Revere, Chelsea, Dorchester, Quincy, Cambridge and Newton.

Site Distributions

Several Woodland site types are known: shell middens with nearby habitation sites, estuary head settlements, small inland camps rockshelters and quarries. Large villages, primarily associated with riverine/lowland areas, appear to have developed during the Late Woodland. Early Woodland sites generally occur as components on sites which produce Orient phase materials indicating continuity or recurring occupation from the Archaic period. Middle Woodland sites appear to have a slightly wider distribution. Late Woodland sites are most frequent. Luedtke (1980) indicates that the Boston Harbor Islands became more intensively occupied during the Late Woodland as population expanded and arable coastal land became scarcer. Several

burials were excavated during the late 19th-century from Revere and Winthrop, some of which date to the Late Woodland (others are from the contact period).

In general, the number of coastal sites increased during the Woodland period, reflecting a greater emphasis on coastal exploitation (Barber 1979). While site density apparently dropped between the Late Archaic and Early Woodland periods, this drop may in part reflect an under-recognition of Woodland period sites and an over-recognition of Late Archaic period sites due to mis-interpretation of particular artifact types as specific chronological markers.

Survivals

The classes of prehistoric archaeological sites which survive in the Boston area are generally special purpose sites located in peripheral areas. Shell middens on islands, lithic quarries, rockshelters and small camps have often survived, especially in upland reservation and park areas. Sites in core areas which were located in prime lowland, riverside or estuarine areas have largely been destroyed. Partially documented in the beginning of the century, only fragments of these important sites are assumed to survive.

Continuous development in the Boston Area has destroyed hundreds of prehistoric sites, however, some prehistoric sites and fragments of sites have survived, even in the downtown itself. The discovery and salvage of the Boylston Street Fishweir justifies cautions regarding the possibility of site survival, even in the most developed sections of the city. Similarly, a shell midden is reputed to have been uncovered during excavations for the parking garage next to Quincy Market. The most likely areas where prehistoric sites could survive in Boston and Cambridge are places where extensive filling buried original shoreline and estuarine margins. Elsewhere in Boston, sites have been reported from park areas (Arnold Arboretum, MDC parkland along the Neponset and even the Boston Common). The Boston Harbor Islands have also demonstrated research potential

(Luedtke 1975, 1980). Several sites on the Islands remain intact and prehistoric utilization of the Harbor islands is documented from the Middle Archaic through Late Woodland periods.

The Arlington Plain sites have probably been destroyed as a result of intensive residential development from the turn of the century onward. The Cambridge Home for the Aged, however, is a known site location, and the grounds remain undeveloped. Small lots of parkland and even cemetery land also survive in the area, and fragments of the once large prehistoric sites may have escaped destruction. Similarly, fragments of the Watertown Arsenal site have recently been discovered along the banks of the Charles River (Barfield 1978), although most archaeological contexts have been found to be disturbed.

An area where site survival and research potential is high is in the Blue Hills: several quarries and associated workshops have been identified although site survey in the reservation is by no means complete. Unfortunately the Wakefeld quarries in the Lynn Volcanics have not fared as well. Several sites were destroyed by construction of Route 128 and subsequent residential development. The area from Montrose Avenue to Water, Farm and Wiley streets appear to have the greatest potential for site survival. Similarly, Candle Hill in Wakefield and Wyoming Cemetery in Melrose have good potential. Quarries and associated sites which extend into the Middlesex Fells MDC Reservation have a high potential for survival, although site survey information from the Fells is lacking.

Research Topics

The following are a series of research topics which could be addressed by site survey, site examination and collections research in the Boston Area Unit. Although some of the questions also apply more generally to southern New England, the information known from

the Boston Unit indicates that investigation of these topics in this particular area would be rewarding.

1. Explanation of the differentiation of the three Late Archaic Traditions. Examination of differentiation in settlement vis-a-vis analagous ethnographic explanations of social boundaries and resource utilization. Explanation of the level and type of interaction among distinct social units.

2. Explanation of the changes in settlement pattern observed from the terminal Late Archaic to Early Woodland. Explanation of changing adaptive strategies and exploitation of different resources. Discussion of socio-cultural evolution vis-a-vis the material record. Examination of the merits of existing arguments for severe population decline and dissolution of Archaic efficiency.

3. Synchronic and diachronic explanation of lithic technology at either or both of the two major quarry areas. Definition of quarrying strategies, reduction sequences and associated patterns of workshop sites. Examination of the distribution of Boston area lithics elsewhere in New England, and explanation of the social correlates of observed material distributions.

4. Analysis of Woodland period settlement systems. The Boston Unit may encompass the range of environmental zones important in the seasonal round of the Late Woodland. A detailed examination of the Late Woodland settlement pattern has the potential to contribute siginficantly to understanding of Late Woodland lifeways.

5. Examination of coastal adaptations and how Boston area sites differ from sites in interior locations. Explanation of changes in settlement and resource utilization as coastal

resources play a growing role in lifeways. Adaptations to the environmental richness of coastal, estuarine, river, lake and upland zones.

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CHAPTER III: PATTERNS OF SETTLEMENT AND LAND USE

CONTACT PERIOD (1500 - 1620)

A. Regional Events

The major event of the period was European contact with the native population. Though slowly at first, European influence affected and altered native culture throughout the period. Of the many effects, the epidemics of the late 16th and early 17th-century were particularly drastic, decimating the native population and effectively wiping out the social structures of the native groups within the unit.

B. Core - Periphery Relationships

During the Contact period, the estuaries of the major rivers appear to have functioned as regional core areas. These estuaries (from the coast up to the first major fall line) served as one pole in a seasonal pattern of movement organized around the collection of food and other resources. The other pole, located at the opposite end of the riverine corridor which connected them, was a series of upland tributaries and ponds.

While the details of this pattern of seasonal activity remain unclear, the estuary areas appear to have functioned as regional cores in several ways. They were gathering points for an otherwise dispersed population. Occupied primarily during the spring and fall, they were the focus for community food gathering activities. Fishing was probably the most important activity although the collection of shellfish and hunting of migratory water fowl occurred as well. Finally, although economic efficiency may have brought people together in these estuary locations, these large gatherings were undoubtedly important for social and political reasons as well.

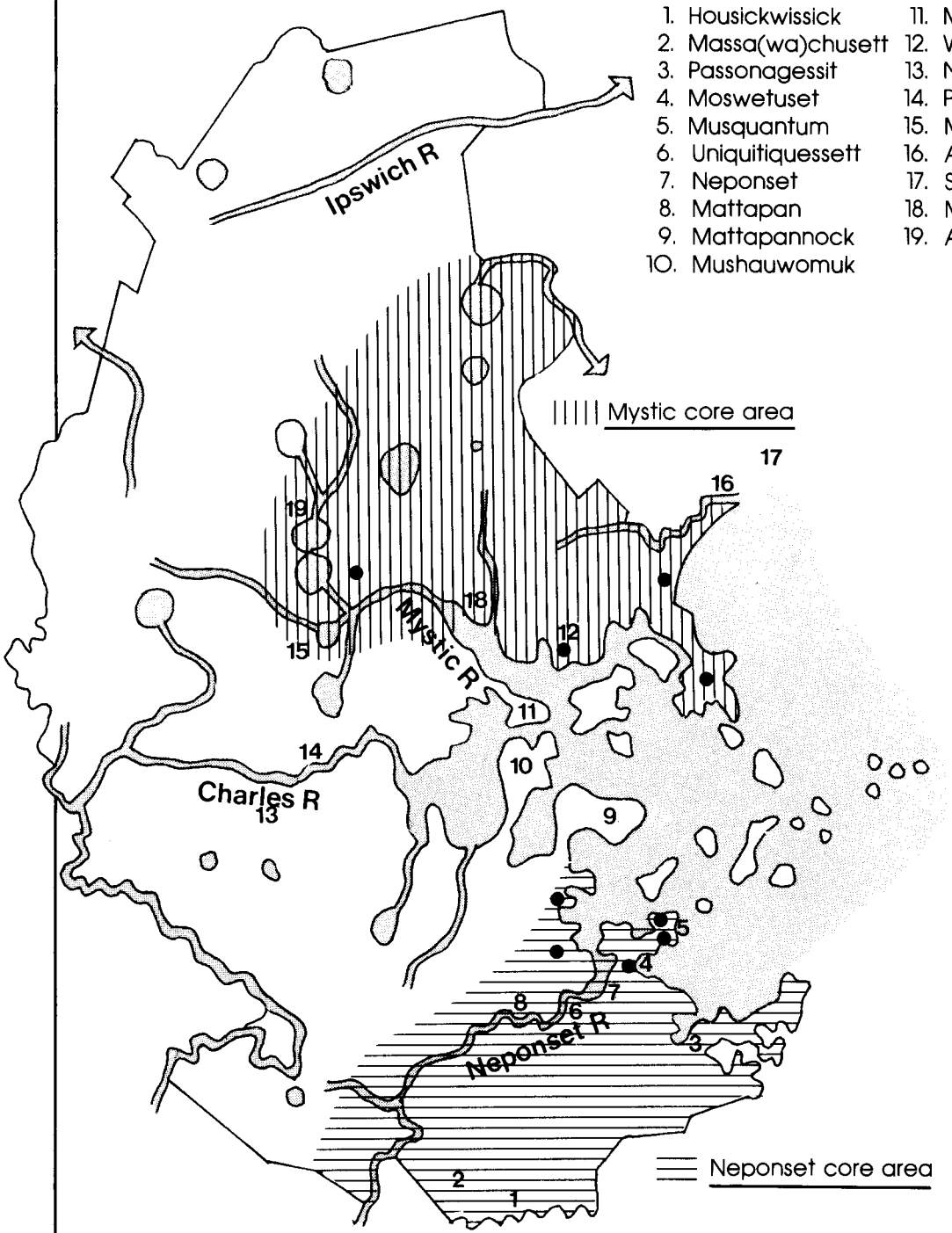
During the summer and winter months, the population apparently dispersed to smaller sites or local core areas. In the summer these were probably agriculturally related sites located wherever conditions were advantageous. During the winter, interior sites may have been preferred both for the greater protection they offered from winter storms and the potential for ice fishing and hunting.

Within the Boston unit, the Neponset and Mystic estuaries were the important regional cores. The coastal component of the Neponset core extended from Dorchester south through Milton and Quincy to at least the Fore River. Also included were the adjacent Harbor Islands. Most of the interior portion of the Neponset core lay outside the boundaries of the Boston study unit and focused around large headwater ponds such as Ponkapoag and Massapoag as well as smaller ponds in Canton, Sharon, and Walpole. Upland sections of the Fore/Monatiquot drainage also were part of the Neponset core area.

Just as the Neponset dominated the southern edge of Massachusetts Bay, the Mystic dominated its northern shore. This core area also included many of the smaller rivers, such as the Malden and Pines, and probably extended north at least to the Saugus River. The coastal component of the Mystic core centered in Malden, Everett, and Chelsea, and included portions of Charlestown, Somerville, and Medford as well as Winthrop, Revere, and the nearby Harbor Islands. The interior component was an arc of large ponds and lakes extending from Cambridge through Arlington, Winchester and Stoneham to Wakefield. Among the most important were Fresh Pond, the Mystic Lakes, Spot Pond, Horn Pond, Crystal and Quannipowitt Lakes. See Map 2.

Though scattered evidence suggests an active native presence along the Charles estuary, the Charles River appears to have served more as a boundary between the Mystic and Neponset cores than as a separate core area. Further research is needed to clarify whether this was the case or whether the Charles estuary also functioned as a core area.

Contact Period Sites and Place Names



Map 2

MHC 1981

In addition to the pattern of seasonal movement between the estuaries and inland ponds, much of the adjacent land was used for a variety of specialized purposes. The rocky outcrops of both the Blue Hills and the Middlesex Fells were a source of lithic material for tool manufacture. The peripheral areas were also important for hunting and gathering and probably served as buffer zones between major population groups.

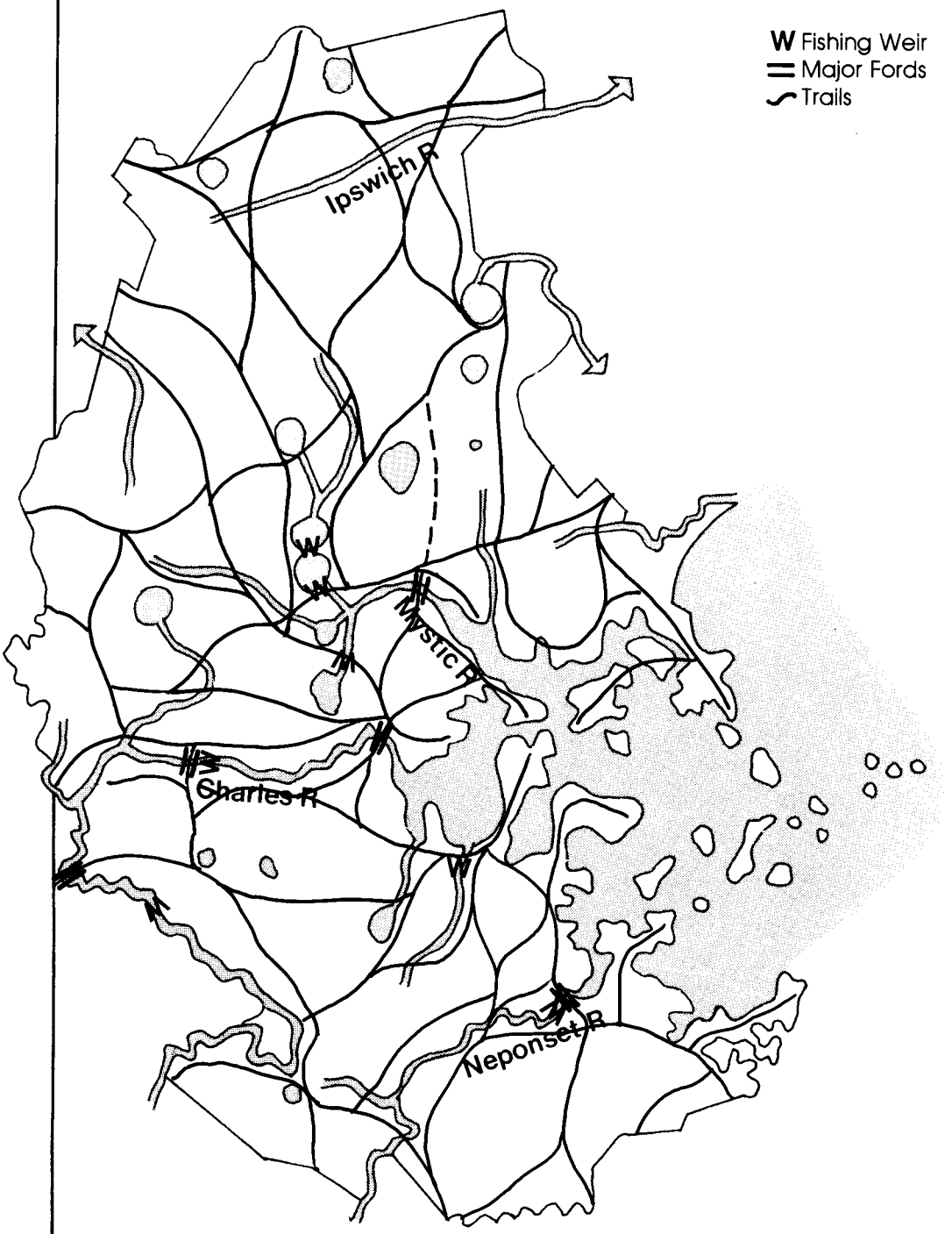
Despite massive changes, both the Neponset and Mystic continued to function as regional core areas throughout the period. The presence of Europeans along the coast probably intensified the Woodland pattern of coastally-oriented settlement, especially as trading patterns formalized. It did not, apparently, alter the basic pattern of settlement and seasonal movement. During the final decades of the period, newly introduced infectious diseases devastated the native population. Although considerable cultural disorganization resulted, the survivors continued to cluster in the two traditional core areas.

C. Transportation

The primary transportation system during the Contact period was a complex network of trails. Generally these followed the natural contours of the landscape, changed elevation at an easy grade, and favored the sunny rather than shady slope whenever possible. Besides avoiding rough or difficult terrain, the trail network had a braided character, branching around obstacles and offering a variety of alternative routes for crossing the landscape. The major components of the trail system are illustrated on map 3.

Within the Boston unit, the trail system can be divided into three groups. First were the major trails, the primary routes which connected the Boston basin with other areas. These trails were the components for five inter-regional corridors. One corridor ran north towards the Merrimac and Piscatiqua Rivers. Another went northwest to the Concord and Nashua Rivers. A third went west towards the Cochituate Lakes, while the fourth ran southwest along the Neponset

Contact Period Native Trails



Map 3

MHC 1981

to Narragansett Bay. The last corridor went south towards Assawompsett Pond and Cape Cod. These major trails, such as the Connecticut Path and Salem Path, frequently were located in the riverine lowlands and tended to skirt the interior edge of the Boston basin rather than follow the irregularities of the coastline. Major fords were located where these trails crossed the larger rivers, usually at or near the first fall line. Primary fords occurred on the Mystic at Medford Square, on the Charles at Watertown Square, and on the Neponset at Lower Mills.

The second group of trails were those which ran along the estuaries and out the peninsulas which extended into the bay. These provided access to the tidal flats and the other resources of the bay and islands. Trails of this kind were located on Winnisimmet (Chelsea), Mishawam (Charlestown), Shawmut (Boston), Mattapanock (South Boston), and Squantum (Quincy) as well as Winthrop and Cambridge.

A series of cross trails which connected inland points in the Boston area with each other constituted a third trail group. These were essentially local routes. Where they crossed the major rivers, further upstream than the primary ford sites, a secondary set of fords occurred. Examples were located above the Mystic lakes in Winchester, across the Charles at Upper and Lower Falls in Newton, and across the Neponset at Mattapan and Martin's Bridge.

While the trail network appears to have been the major transportation system used by native people, archaeological evidence from the Harbor Islands and ethnographic accounts indicate that water transport was also used.

D. Settlement

No period settlements have been archaeologically documented within the study unit. The only known sites are burials. See map 2. A few pertinent settlement descriptions do survive from ethno-

historical sources. Given this limited availability of information, any discussion of settlement should be considered preliminary.

It is likely that the larger villages were located in those areas which functioned as regional cores. Occurring primarily along the major estuaries, these large villages contained pole and bark habitations, probably both round and elongated in form, and were often enclosed by a palisade and ditch. While the actual sites of these villages may have shifted slightly during the period, the same general locations were proably used recurringly.

Smaller villages occurred in those areas which functioned as local cores. These probably included agriculturally related villages (whether located along the coastal margin, riverine lowlands or the interior), upriver fishing camps and interior settlements clustered around lakes and ponds. These smaller villages could range in size from one to several habitations and may or may not have been palisaded.

Though the density of settlement in peripheral areas was markedly less, a variety of forms existed. Generally settlements were small, temporary sites and were related to specific activities. Examples include hunting camps, small habitation/reduction stations near lithic quarries and temporary camps or rockshelters used during travel.

E. Survivals

There are three major groups of survivals from the Contact period: archaeological sites, landscape features and native place names.

1. The largest and most important group of survivals is archaeological sites. These sites offer the greatest potential for information on the Contact period which, at present, is poorly understood. Though the continuous development of the Boston area

has resulted in the destruction of numerous sites, it is likely that significant period sites, or at least portions of them, remain intact. Several factors suggest this. First is the large number of sites which originally existed. The ethnohistoric sources, and to a lesser degree the artifactual evidence, indicate that much of the study unit was densely settled up through the first decades of the 17th-century. While subsequent development has obliterated many of these sites, others may have been buried by the extensive filling which took place along the coastal margin and river estuaries. Sites have also survived in the less densely developed parts of the unit, particularly in the MDC parklands on the north and southwest sides of the Boston basin. Finally, important site remnants undoubtedly survive in backyards, beneath parking lots and even beneath standing structures.

2. The second category of survivals, landscape features, is a subtle one. These are features such as native trails, fords and fishweirs which resulted from native use or alteration of the landscape. Frequently these features have been preserved through use. The logic of the native trail system, for example, remains evident in how later road networks traverse the unit's topography. Trails survive both as main routes, such as Route 20 (Connecticut Path) or Route 60 (Salem Path), and as meandering loops of secondary or even dirt roads bypassed as a result of later road straightening. In a similar fashion, most important ford sites survive as major bridge locations.

3. The final category of survivals is also landscape related. These are native place names which have been retained either through continuous usage or historical documentation. Several examples are listed below and shown on Map 2. Since native people did not use a written language, these names are actually phonetic transcriptions recorded by early settlers. In some cases, only a truncated remnant of a longer original name survives. Also, names have occasionally been shifted and now are used to describe something other than their original reference point. The following list is not intended as a complete or fully researched

inventory of native place names for the Boston study unit. Rather, it is included as an indication of how fragments of native culture have survived, even in common usage, despite later change and development.

1. Housickwissick (now Houghton's Pond, Milton) also Hoosicwhisick (Teele 1887)

2. Massa(wa)chusetts (probably the Great Blue Hill, Milton) (Orcutt 1893; Toomey and Rankin 1901:5; Dincauze 1974:56)

3. Passonagessit (Mt. Wollaston, Quincy) (Hurd 1884:262-63)

4. Moswetuset (hummock located east of Squantum Neck, Quincy) (Wilson 1906)

5. Musquantum (now Squantum Neck, Quincy) (Clapp 1859:10)

6. Unquitiquessett (now Unquity Brook, Milton) also Uncataquissett (Barber 1839:475; Clapp 1859:580)

7. Neponset (apparently referred to river estuary) (Winthrop map 1633 in Krim 1977:2)

8. Mattapan (north side of Neponset River, Dorchester) (Barber 1839:465)

9. Mattapannock (also know as Dorchester Neck, now South Boston) (Simonds 1857:12)

10. Mushauwomuk (also Shawmut penninsula, now Boston) (Dincauze 1974:61)

11. Mishawam (now Charlestown) (Barber 1839:364; Frothingham 1845:19)

12. Winnisimmit (now Chelsea) (Barber 1839:549)

13. Nonantum (area between Newton Corner, Newton and Oak Square, Brighton)) (Barber 1839:418)

14. Pequusset (north side of Charles, Watertown/Belmont) (Bond 1855:1044-45)

15. Menotomet (area between Alewife Brook and Mystic River, Arlington) also Menotomey (Dincauze 1974:61)

16. Abousett (apparently the original name for Saugus River) (Lewis and Newhall 1844:57-58; Frothingham 1845:10)

17. Sauguset (apparently referred to beach area, Lynn and Revere)
(Lewis and Newhall 1844:57; Dincauze 1974:61)

18. Mystic (may have originally referred only to river estuary) also Mystick
(Winthrop map c.1633 in Krim 1977:2)

19. Aberjona (may have referred to area along Mystic River)
(Frothingham 1845:12; Baxter 1917:68-70)

Since development during later periods has destroyed most evidence of the Contact period, any survivals should be considered a priority for preservation. The following list by period core areas, indicates those towns where the most important period survivals or potential occur.

Period Core Areas (Listed by Contemporary Towns)	Archaeological Sites	Landscape Features	Native Place Names
Mystic Core			
Charlestown	X	?	X
Chelsea	X		X
Stoneham	X	X	
Medford	X	?	?
Revere	?	?	X
Arlington	?		X
Woburn		X	?
Malden	?	?	
Winchester	?		?
Everett	?	?	
Wakefield	?		
Winthrop	?		
Neponset core			
Milton	X	X	X
Quincy	X	X	X
Dorchester	?	?	X

Charles River Corridor			
Watertown	X	X	?
Newton	?	?	X
Boston	?		X
Waltham	?	X	
Cambridge	?	?	
Belmont			X
Outer Periphery			
Reading		X	
Dedham	?		
Lexington		?	
North Reading		?	
Burlington		?	

F. Research Topics

So little is currently known about the Contact period in the Boston study unit that it is difficult even to specify subjects for research. The following list suggests what information is most necessary:

1. Information on the location and characteristics of native settlements. At present, the only archaeologically documented sites for the period are burials. Until some settlement information is available, it will be difficult to conduct any meaningful research on the contact period. A high priority should be placed on using documentary research and systematic field survey to determine the extent to which period settlements have survived. This should be followed by selective excavation. Some tangible basis would then exist for addressing other research topics.

2. Dynamics of acculturative change. How did native culture change as a consequence of contact with Europeans, their radically different ideas, materials and technologies.

3. Validity of assigning tribal labels to native groups. Tribal names such as Massachusetts, Pawtucket (Pennacook) and Wampanoag (Pokanoket) are often given to native groups in

Eastern Massachusetts. Frequently these divisions also imply territorial boundaries. It is unclear what relationship these early to mid 17th century labels have to the ways in which native people were structured or defined their political boundaries during the Contact (or Late Woodland) period.

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PLANTATION PERIOD (1620-1675)

A. Regional Events

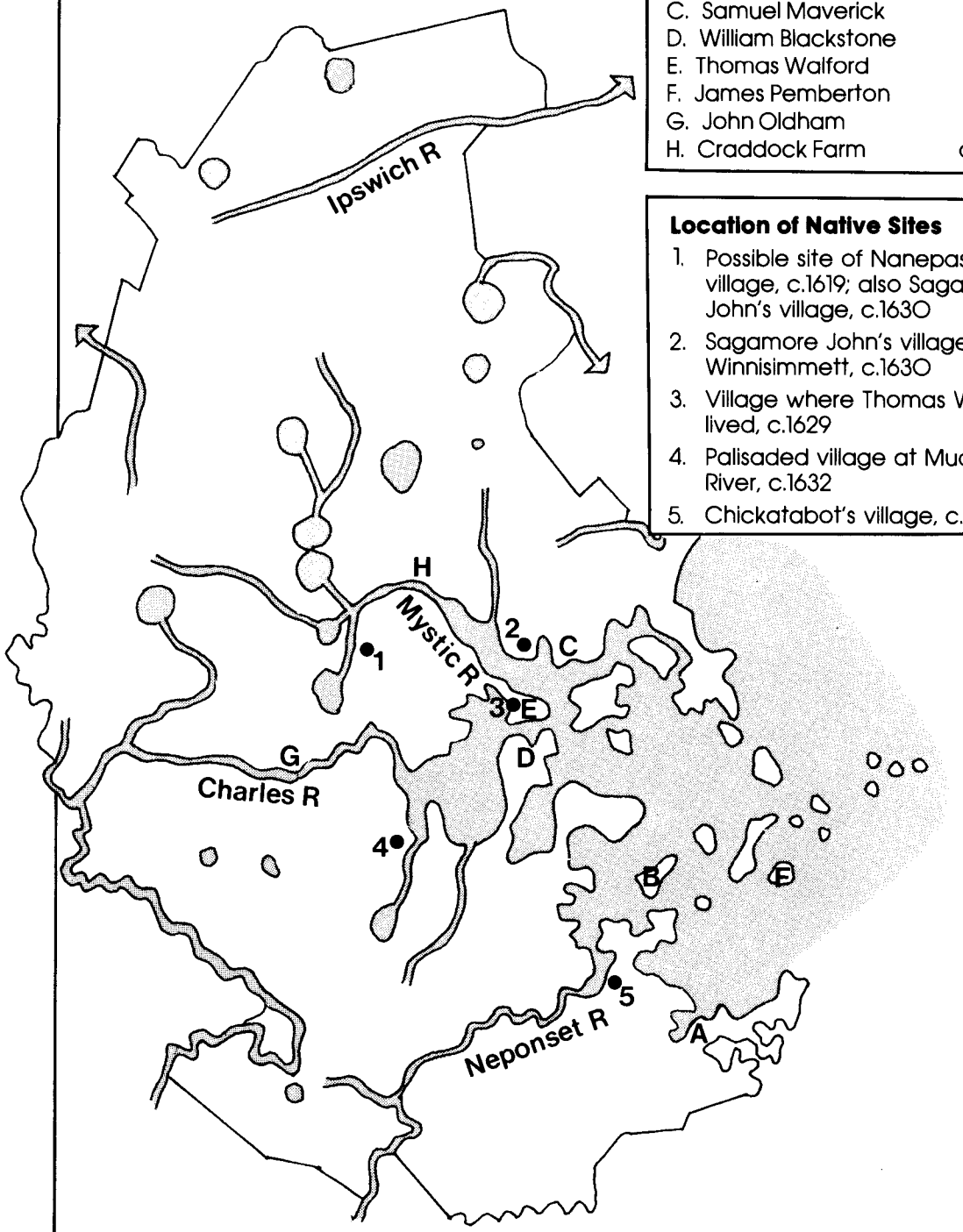
The major event of the period was the establishment of permanent English settlement along the coastal margin and its expansion inland along the major tidal rivers. Specific events include Ferdinando Gorges' Council for New England patent (1621), the first serious English land claim to the area; the Massachusetts Bay Company charter (1629) which precipitated large scale Puritan immigration; and the "Great Migration" of English emigres during the 1630s which insured that the colony would have sufficient population mass to survive. This period is also characterized by the virtual removal of native people from the study unit.

B. Core-Periphery Relationships

Initial European settlement, which included coastal trading establishments and the plantations of the 'Old Planters', did not focus around one particular core area. Instead they tended to cluster, as the remnant native population did, around the two traditional cores, the Mystic estuary and Neponset estuary/Quincy Bay (then referred to as Massachusetts Bay). See Map 4. Other similar plantations were settled outside the boundaries of the Boston study unit. These included Wessagusset, 1622 (now Weymouth), Naumkeag, 1626 (now Salem) and Nantasket, late 1620s (now Hull).

With the establishment of formal towns by 1629-1630, this pattern began to change. Most notable was the rapid emergence of the Charles river estuary as an area of new settlement. Among the towns created were Charlestown (1629); Boston, Roxbury and Watertown (all 1630); and Newtown (now Cambridge, 1631). Despite initial vying with Cambridge for political ascendancy, Boston became the

Plantation Period Settlement



Location of Old Planters

A. Thomas Morton	1625
B. David Thompson	1626
C. Samuel Maverick	1627
D. William Blackstone	c1628
E. Thomas Walford	c1628
F. James Pemberton	1628
G. John Oldham	1630
H. Craddock Farm	c1630

Location of Native Sites

1. Possible site of Nanepashemet's village, c.1619; also Sagamore John's village, c.1630
2. Sagamore John's village at Winnisimmett, c.1630
3. Village where Thomas Walford lived, c.1629
4. Palisaded village at Muddy River, c.1632
5. Chickatabot's village, c.1630

Map 4

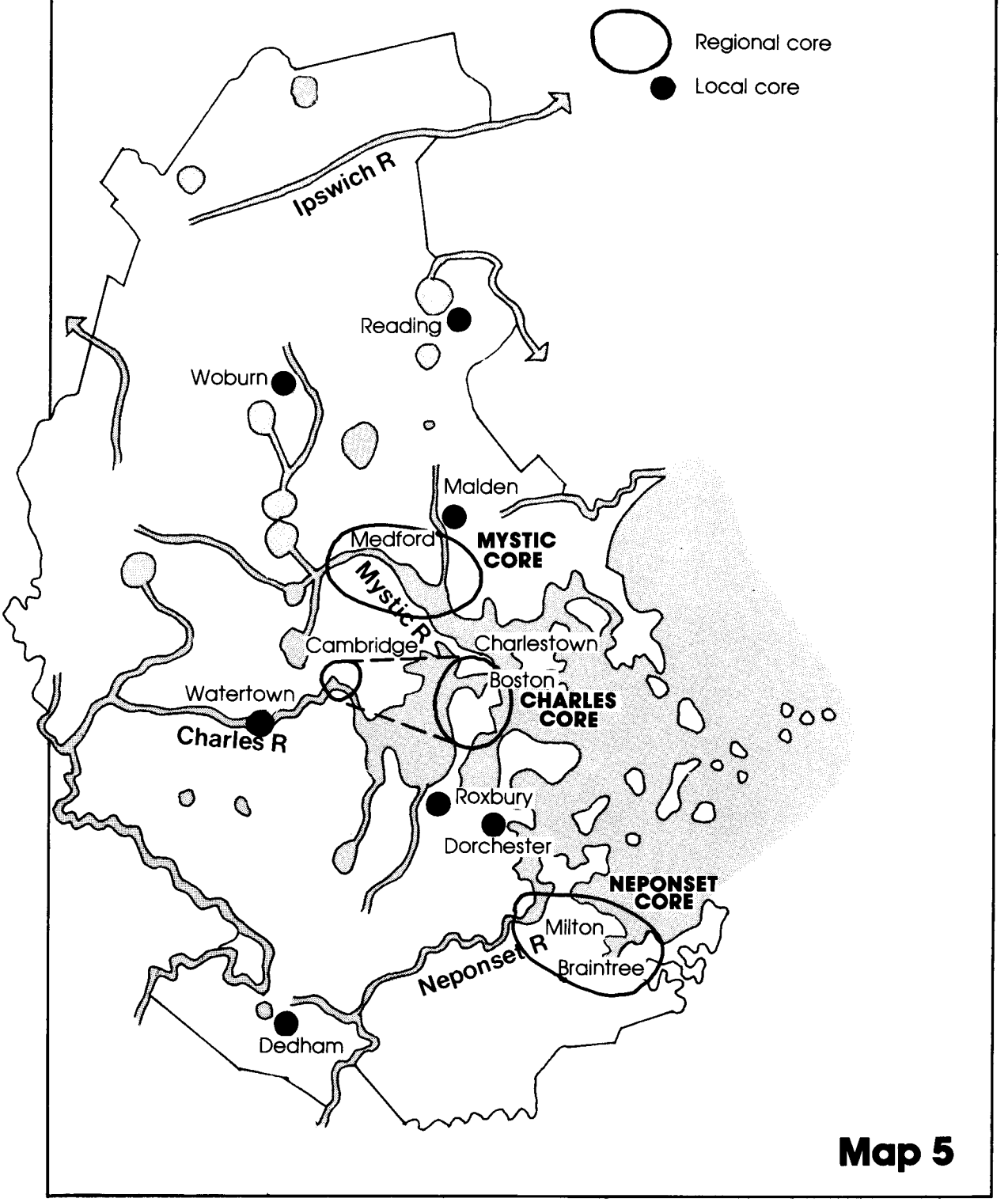
MHC 1981

seat of the General Court and provincial government. This advantage, plus its superior harbor and central location, attracted both people and commercial interests. By 1640, Boston had outgrown its competitors and was the undisputed leader of the Bay communities.

By the end of the period three regional core areas had developed. All were located on major river estuaries or along the nearby coastal margin. See Map 5. Most important and influential was the Charles river core, dominated by Boston and buttressed by the adjacent commercial port of Charlestown and the educational and civic facilities of Cambridge. The two older core areas, the Neponset and the Mystic, became secondary regional centers and developed along different lines. The Neponset core was the stronger of the two with new towns forming in 1640 (Braintree) and 1662 (Milton). Though largely based on agriculture, both also had some industrial base -- Winthrop's Ironworks in Braintree and shipbuilding along the Neponset in Milton. While the Mystic estuary remained a regional core, it declined in importance with the shift in new settlement to the Charles. Another factor slowing the area's development was Medford's status as an estate settlement, not an incorporated town. Despite these drawbacks, the Mystic core remained important for agriculture and shipbuilding as well as for its central location in regional transportation.

The steady expansion of settlement along the major rivers throughout the period resulted in the formation of several smaller local cores. Important factors in the choice of location were accessibility of good land for crops and grazing, milling potential and proximity to transportation routes (frequently a fording place). While a few of these local core communities, like Dorchester (1630), were located near the coast, most were interior towns. Among the important ones were Dedham (1636) on the Charles river, Woburn (1642) on the Mystic, Reading (now Wakefield, 1644) at the head of the Saugus river and Malden (1649) on the Malden river.

Plantation Period Core Areas



Map 5

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In addition to the local core communities, a variety of other small settlements were scattered through the peripheral areas of the unit by 1675. These included mills, as on Cheesecake Brook in the Cambridge Village parish (now Newton) and on Mill Brook (now in Arlington), as well as isolated agricultural settlements. These small, often single family farms were frequently located in upland intervales near water sources such as Vine Brook (Lexington), the Shawsheen river (Burlington) and the Ipswich River (North Reading).

The peripheral portions of the unit were also where remnants of the native population lived. By the mid 17th-century, most natives had left the coastal lowlands under pressure from the growing English colony. Retreating to upland sites in the Middlesex Fells, the Blue Hills or similar areas, a few native groups survived to the end of the period. Most, however, moved to the praying towns of Eastern Massachusetts or further west and north beyond the edge of settlement.

C. Transportation

The transportation systems of the Plantation period employed both water and land routes. As the means by which immigration took place, and given the preference for coastal settlement, water transport remained of primary importance throughout the period. On the largest scale, Boston Harbor served as the terminus not only for trans-Atlantic connections with England but for other commercial destinations particularly in the Caribbean and on the Iberian peninsula. As commercial activities expanded during the period so did the importance of these maritime routes.

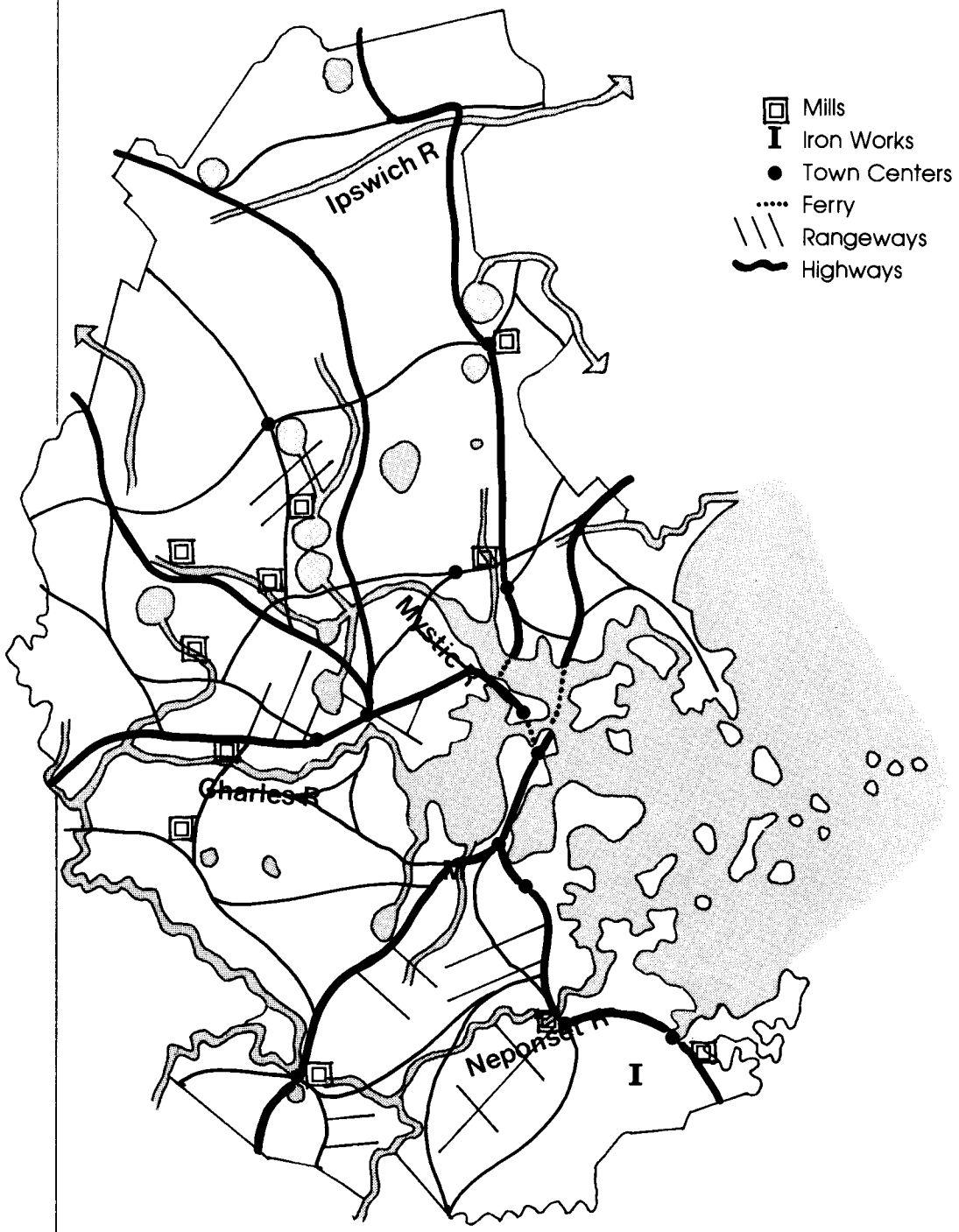
On an inter-regional basis, coastal vessels provided the main transportation and communications link to other English settlements scattered along the New England coast. Primary destinations included Salem and Piscatiqua to the north; Hingham, Plymouth and Newport to the south. In a similar fashion, shallops and other small vessels provided much of the intra-regional transport since most towns were

accessible by water and land routes were often circuitous. On the local level water routes were important for much the same reasons. Ferry service was established from Boston to both Charlestown and Winnisimet (Chelsea) in the 1630s. During the 1640s additional ferries were operating on the Neponset between Dorchester and Braintree and across the Mystic estuary.

Though of less consequence early in the period, land transportation routes grew in importance as settlement advanced inland away from navigable water. See Map 6. The basic template used by the colonists for land transport appears to have been the native trail system. The existing trail network was the most convenient and logical way around a complex and difficult terrain. By expanding paths into cartways, improving ford sites with bridges and reorienting some of the trails to center on colonial settlements, a serviceable land transport system was acquired with minimal effort. The only truly European additions to the existing trail network were the street grids of planned towns, such as Charlestown and Cambridge, and rangeways. These roads, which ran along field division lines, were long, straight and often occurred in parallel. Unlike the roads adapted from the trail system, rangeways ran directly across the landscape ignoring and minimally responding to changes in topography. In general, all the roads were poorly maintained and difficult to travel.

As with water routes, land transport routes operated on several levels. Seven primary corridors connected the Boston unit with other regions. Two of these ran north; one through Lynn and Salem and on towards Ipswich and along the northern coast, the other through Reading and Andover to the interior Merrimack valley. The third and fourth corridors went northwest from Cambridge, one branching to Concord, the other to the ford at Billerica. The Connecticut Path, which went west southwest from Cambridge and Watertown, was the primary route to Sudbury, Marlborough and the lower Connecticut river valley. The route to Rhode Island ran through Roxbury and Dedham and continued southwest along the Neponset.

Plantation Period Highways and Mills



Map 6

MHC 1981

The last corridor went south from Boston, crossing the Neponset at Lower Mills, and continued through Braintree towards Plymouth.

Within the unit, these routes also served as intra-regional connectors. They were supplemented by a series of secondary roads which ran in a circumferential fashion around the Charles and Mystic estuaries and connected many of the outlying towns. Among these routes was one which went from Boston down the neck to Roxbury and through Muddy River (Brookline) to Cambridge and Medford. This route used a ferry, and later a bridge, to cross the Charles avoiding the long trip up to the Watertown ford. A second intra-regional connector ran from the Lower Mills ford (and later a bridge) across the Neponset southwest to Dedham then north through the Cambridge village parish (Newton) to Watertown. Here too, as well as at Medford, a bridge was built at the ford site to expedite crossings.

D. Settlement

The initial type of settlement in the Boston area was the trading station or private estate grant. These were usually small, informal settlements consisting of a main house, which was often fortified, and a few outbuildings. Most of these small estates were located on the coast or the inner Harbor Islands although a few were built further up the major river estuaries. See Map 4. Established primarily for trade with the native population, many of these evolved into country estates for the Boston elite by the end of the period.

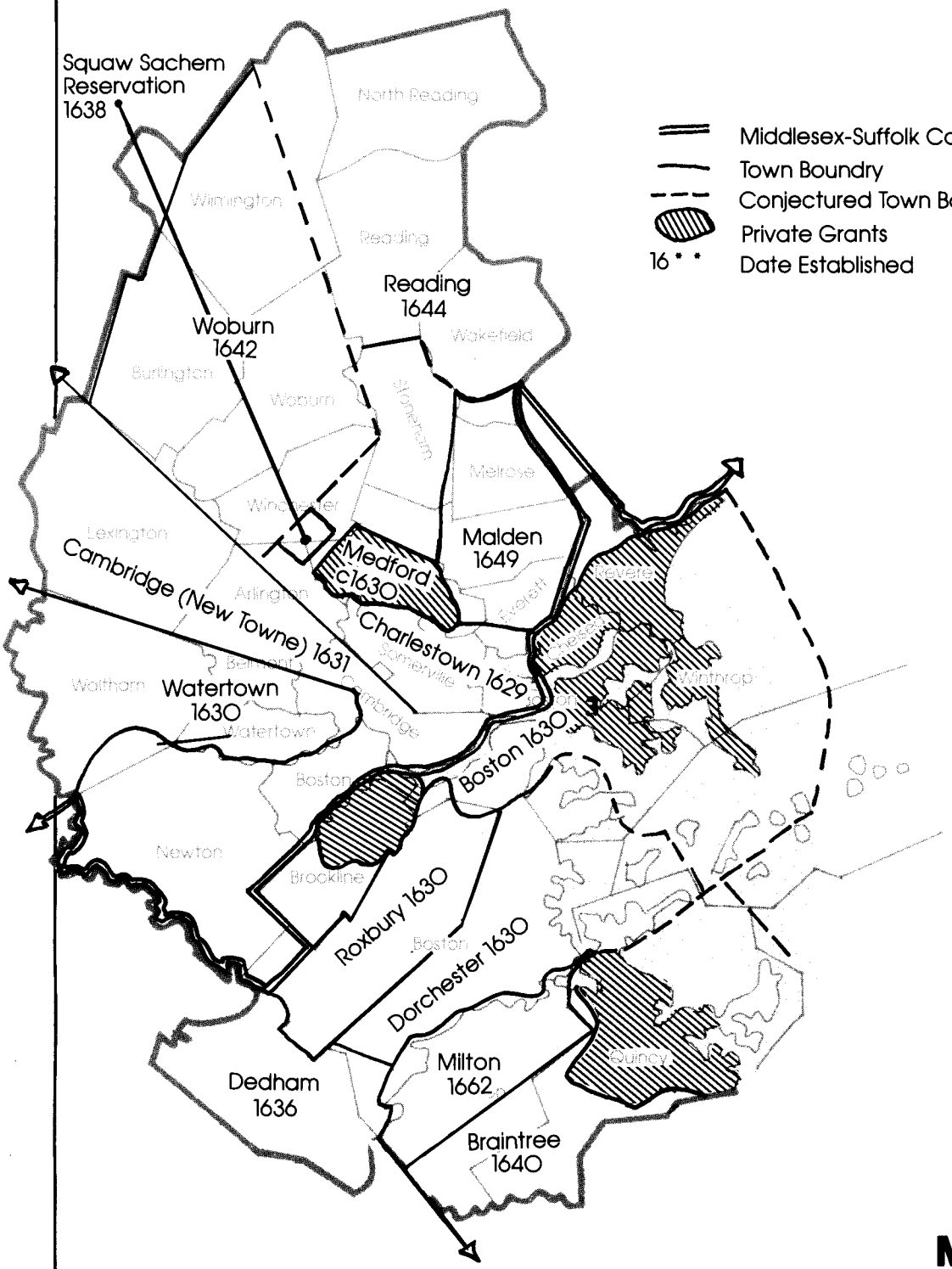
The most important settlement type of the period was the town plantation of the Massachusetts Bay Colony. There were two subtypes: the planned town and the organic village. Of these, the planned town was the more unusual, characterized by a regular street grid and formal market squares. Only two examples are known, Charlestown (City Square) and Cambridge (Harvard Square), both of which date from the first years of colonial settlement. Some partial attempts at formal street plans were also employed in Boston and later

in Dedham. The more common town type was the organic village, usually located at an existing native trail junction and centered around a meetinghouse site and burying ground. Early examples include Watertown, Dorchester, Roxbury and Braintree (Quincy) while mid 17th-century town centers were built at Malden, Woburn, Reading, Wakefield, Newton and Milton.

Both the planned town and the organic village were used as town centers in the large agricultural plantation grants. The lands around these town centers were held in common and were subdivided in one of two ways. One was the medieval open field system, initially used in Cambridge, Dorchester and Charlestown, where separate lots for planting, grazing and meadow were shared jointly. The second method was the East Anglian enclosed field system which was used in Watertown and possibly Roxbury. This land division system gave large multi-purpose lots to individuals and tended to create a more dispersed pattern of settlement. The communal nature of the open field system, on the other hand, tended to create a more nucleated settlement. By the mid 17th-century the distinction between these two systems had blurred and most towns consisted of a small meeting house center with individual farmsteads set within a grid of common land divisions. Most of the towns which functioned as local cores followed this pattern.

The regionally important towns, while also following this pattern, showed the effects of more intense activities. In some cases, such as Medford and Milton, this activity was related to regionally important transportation links (fords, bridges and ferries). In other cases, like Boston and Braintree (Quincy), the intensification was due to commercial or industrial growth. Boston and to some extent Charlestown demonstrated the greatest degree of intensification. By the end of the period Boston was approaching an urban density, evidenced by internal differentiation into separate residential and commercial districts and filling along the shoreline for speculative development.

Plantation Period Political Boundaries



Map 7

E. Survivals

Three classes of Plantation period survivals occur in the Boston area unit: archaeological remains, landscape features, and structures.

1. Archaeological remains include the whole range of European colonial sites - domestic, industrial (mills and foundries) and commercial - as well as Native American sites. Because so little from the period survives above ground, archaeological resources are of particular importance. In areas that were cores, site potential is most likely within original town centers: for example, Harvard Square in Cambridge or around Town Cove in Boston. It should be noted that often the original town center is in a different location than the current one, as in Watertown for example. In areas that were peripheral during the period, likely survivals include milling or other industrial sites, farmsteads and Native American sites. Though the kinds of sites which survive in core and peripheral areas may differ somewhat, the conditions which favor their preservation are similar. Two kinds of areas are most important. First are surviving open space such as the Boston Common. Second are areas where the ground level has been built up by filling, thereby protecting and preserving the underlying layers. Since extensive filling frequently was done along estuaries and the original coastlines, these areas should be considered particularly sensitive.

2. Landscape features are the second class of Plantation period survivals. These include period roads, field division lines, and other boundary markers, town plans, burial grounds, and any other surviving alteration of the landscape made during the period. Surviving period place names, whether for towns like Dedham and Woburn, or for actual landscape features such as Ten Hills, Spot Pond or the Charles River, are often indicators of where other landscape survivals may be found.

As with archaeological sites, the pattern of landscape survivals varies in core and peripheral areas. The most likely features to be preserved from period core areas are remnants of the original town plans. These may include street grids, house lot divisions and burial grounds. City Square in Charlestown is a good example. Though not always located within the immediate town center, burial grounds are probably the most visible period survivors. As Plantation period landscape features, burial grounds are important primarily as preserved locations. Grave markers from the period are rare since stone was not used until late in the period.

In areas that were peripheral during the period, the most likely landscape survivals are roads and field division lines which have been preserved as parts of later street networks.

3. Structures are the last, and rarest, class of Plantation period survivals. Virtually all the documented structures which survive are located in areas which were peripheral during the period. They were originally single or extended family houses and functioned as rural farmsteads. No documented structures are known from period core areas, although remnants may survive as components of later buildings.

Since development during later periods has destroyed most evidence of the Plantation period, any survivals should be considered a priority for preservation. The following list by period core areas, indicates those towns where the most important period survivals or potential occur.

Period Core Areas

(Listed by contemporary towns)

Mystic Core:	Archaeological	Landscape	Structures
Medford	X	?	?
Chelsea	X	?	
Everett	?		
Malden	?		
Charles Core:			
Boston Proper	X	X	?
Cambridge	X	X	?
Charlestown	X	X	
Neponset Core:			
Milton	X	?	X
Quincy	X	?	
Inner Periphery:			
Dorchester	X	X	X
Roxbury	X	X	?
Watertown	X	X	
Belmont		X	?
Outer Periphery:			
Dedham	X	X	X
Winchester	?	X	
Newton	?	?	?
Woburn	?	?	
Wakefield	?		?
North Reading			?
Harbor Islands	?		

F. Research Topics

While considerable research has been done on particular aspects of the Plantation period, such as timber framed construction, there are numerous topics which require additional study. Among these are:

1. A better understanding of the social and economic history, and development of initial settlement both in the Mystic and Neponset core areas. To what extent did the Old Planters set precedents for (or differ from) the later Puritan settlers?

2. A study of the Mystic core area as a center of economic/ industrial innovation, especially in relation to sugar refining and distilling as well as brick and pottery manufacture.

3. A study which documents and records all surviving period landscape features including town and private grant boundaries, field division lines, roads, burial grounds, town plans and toponomy. Public awareness and interest should be encouraged through interpretive signage, programs and publications.

4. Examination of all reported period houses with emphasis on deed research and archaeological investigation of the structure and its setting.

5. Systematic archaeological survey for important period survivals such as native sites (for example the Squaw Sachem reservation), locations of Old Planters estates and trading stations, and original town centers (especially those in which the town center was later moved, such as Watertown).

6. An inventory of all period gravestones.

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COLONIAL PERIOD (1675-1775)

A. Regional Events

Important events during the last quarter of the 17th-century included a general uprising of the native population known as King Philip's War (1675-1676), loss of the Massachusetts Bay Charter (1684), and the waning of Puritan orthodoxy. While the physical effects of King Philip's War occurred primarily in peripheral towns outside the Boston unit, the psychological effects of the uprising combined with the other factors to produce widespread uncertainty and doubt. Among the results were greater secularism and diversity as well as a shift away from the independent isolationism of the Plantation Period towards stronger social, cultural and economic ties with England. Four colonial wars nearly spanned the period (1689-1763) and were a constant drain on both manpower and finances. Other major events of the 18th-century include Boston's continued growth as a major port and distribution center, the religious revival known as the Great Awakening (1740s) and the increasing political dissatisfaction which followed the Stamp Act (1765) and culminated in an outbreak of revolution in the western Middlesex towns (1775).

B. Core-Peripheral Relationships

The basic dynamic of Colonial period settlement was one of gradual consolidation, a filling-in of those areas settled during the Plantation period, rather than the emergence of a new pattern of settlement. One characteristic of this process was a greater emphasis on the interior portion of the unit and diminished interest in new settlement along the coast.

Of the Plantation period core areas, the Charles River core continued to outgrow and dominate its competitors. By the end of the Colonial period, this area would more appropriately be referred to as the Boston regional core. This Boston regional core had several

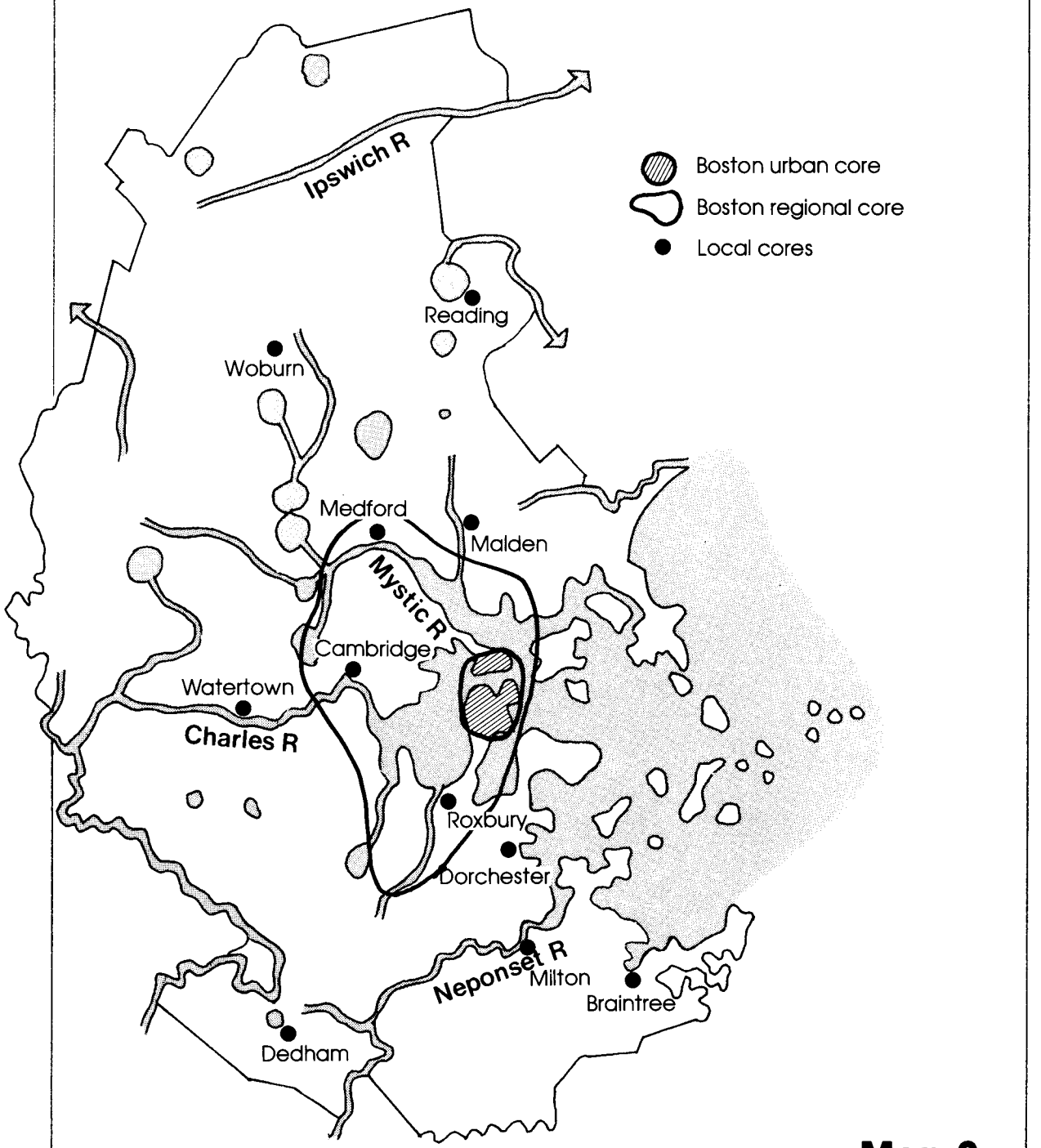
components including Roxbury, Cambridge and much of what had been the old Mystic River core. See Map 8. At its heart was an urban nucleus composed of Boston itself and to a lesser degree Charlestown. By the late 17th-century, Boston achieved sufficient density to qualify as a city. Evidence for this was a process of internal differentiation in which distinct residential, commercial and fringe districts emerged and developed their own separate identities. The city's continued growth as a major Atlantic coast seaport and, as the seat of government in a powerful and influential colony, increased both its density and diversity during the 18th century. See "Settlement" section below for details.

Outside this urban core was a combination of estate districts and town centers which were integrally connected with Boston. Country estates for the wealthy provincial gentry became fashionable during the early decades of the 18th-century. Among the preferred locations for these country homes were the highlands in Roxbury and Chelsea, Jamaica Plain and along the Mystic. These locations allowed access to Boston for business or social reasons without having to endure the noise and the filth of the city on a daily basis.

Also part of the Boston regional core were several adjacent town centers, among them Roxbury which controlled access to Boston along "the Neck". Cambridge, although it exercised a regional influence of its own due to the presence of Harvard College and the Middlesex County Court, was also a part of the Boston regional core. The other town center within the core area was Medford, an important economic center for the region. In addition to brickmaking and shipbuilding, Medford had strong connections in the Triangular trade (sugar/distilling/slaves) which linked the Boston regional core with other ports in the Mid-Atlantic and southern colonies as well as the Caribbean.

While the Boston regional core was the political, social and economic center of the study unit, several other local cores exercised considerable influence in their own respective areas. While the old

Colonial Period Core Areas



Map 8

MHC 1981

Neponset regional core had largely dissolved, both Milton and Braintree (Quincy) continued to grow as major centers of economic activity. Commerce and milling (especially paper manufacture) were most important in Milton while Braintree focused on shipbuilding and fishing.
Other important local cores included Dedham, Watertown, Malden, Woburn, and Reading (Wakefield). Generally, these were small communities oriented around agriculture and grazing. Their products were used locally or shipped to the urban markets of Boston. Some of these town centers, such as Dedham and Watertown, had mills that were vital to the economy of the surrounding area. Others developed a specialized industry or trade usually related to their agricultural base. Examples included tanning in Woburn and shoemaking in Reading.

The importance of agriculture and grazing during the Colonial period was underscored by the ways in which towns changed. As population grew and more interior sections of a town were settled, the meetinghouse was often relocated inland closer to the demographic center. Among the older towns, Dorchester (1679), Watertown (1685), Malden (1718) and Milton (1727) all shifted their town centers further inland during the period.

A related phenomenon was the formation of new towns, usually from the outlying sections of the large Plantation period grants. New towns established during the period included Newton (1691), Brookline (1705) Lexington (1713), Stoneham (1725), Wilmington (1730), Waltham (1732), and Chelsea (1739). See Map 10. In a similar fashion, outlying areas often split off and formed separate parishes. This was a quasi-political separation in which the new parish could erect its own meetinghouse and yet remain a part of the original (or mother) town. Parish separation was frequently the first step towards forming a new town. During the Colonial period new parishes were set up in rural sections of Cambridge, Woburn, Reading and Roxbury. See Map 10.

Despite increased settlement throughout the interior of the study unit, much of this area remained peripheral during the Colonial period. Many of the upland rural towns were thinly settled, a scatter of farms set wherever the soil was good, or small villages clustered around a crossroads or mill.

Agriculture and grazing were the economic mainstays. In several of the towns, especially those along the Shawsheen and Ipswich Rivers, lumbering was also a major activity. In rugged and rocky areas such as the Middlesex Fells and the Blue Hills, quarrying as well as lumbering provided an economic base. An additional peripheral area of note was the Harbor Islands. While used for both grazing and fishing, several of the Islands were utilized for fringe institutional purposes as well.

C. Transportation

As with settlement, transportation during the Colonial period was characterized by consolidation and gradual expansion rather than innovation. Water routes continued to be most important for long distance travel while land routes assumed an ever greater role within the unit.

Boston Harbor was the heart of the water transport system. Its port facilities grew rapidly throughout most of the period and became a center for both inter-regional and international commerce. With the construction of Long Wharf, begun in 1710, Boston emerged as the most important port in British North America. Major mercantile connections were with Great Britain, the Continent, and the Caribbean as well as New York, Philadelphia, Charles Town, and other important colonial ports. On an inter-regional basis, Boston served as the focal point for trade and travel. This was due not only to the city's economic and social pre-eminence, but the presence of the royal governor, other powerful crown officials and the General Court. Despite improvement in land travel, water routes still provided the easiest access between Boston and other coastal towns such as Ports-

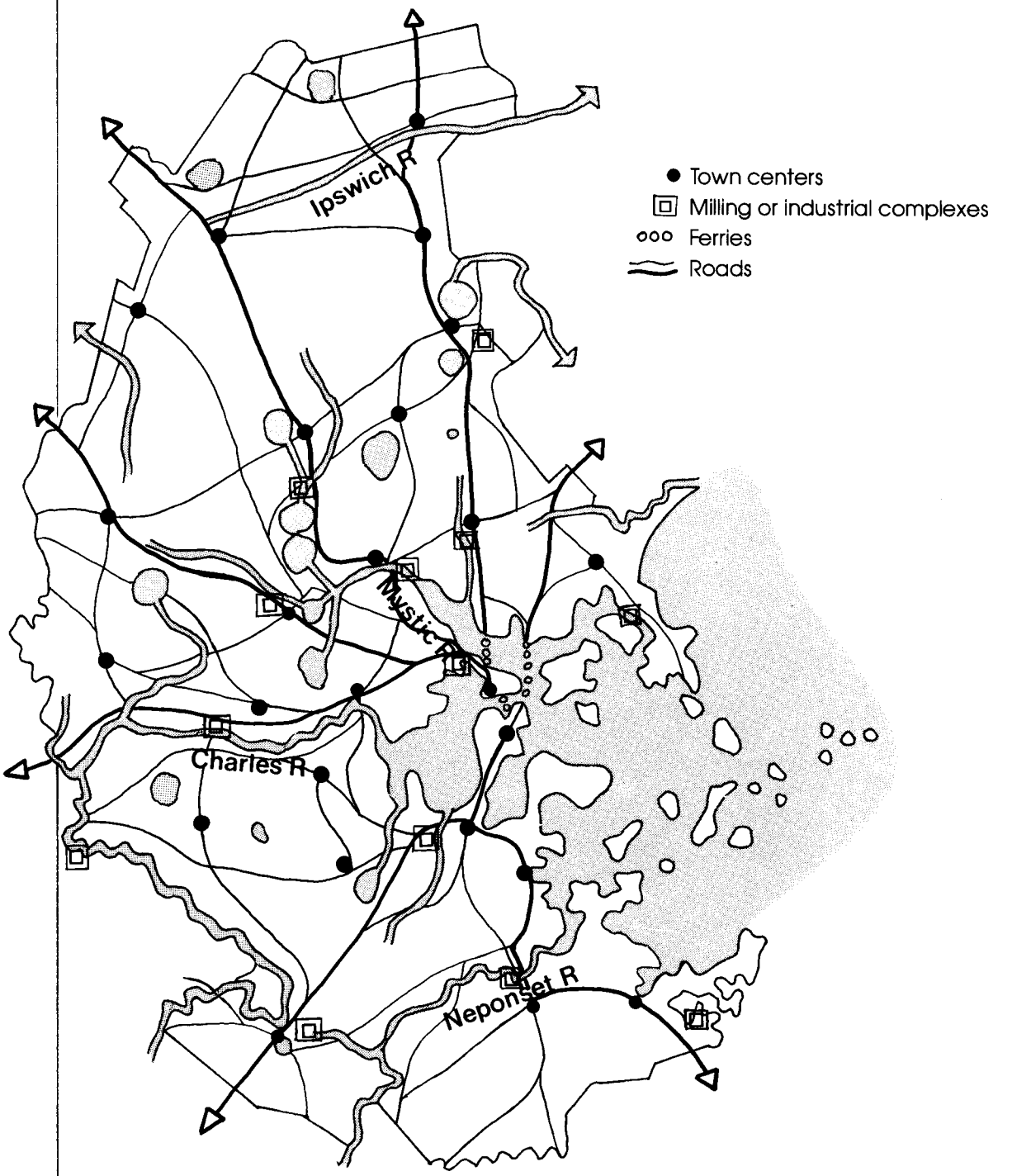
mouth, Salem, and Plymouth. Small sailing vessels and ferries were also used for local travel. From Chelsea, Braintree, or even Roxbury, it was easier to get to one's destination in Boston by boat than by road.

While land transport improved somewhat during the Colonial period, the basic system of roads remained much the same as during the late Plantation period. See Map 9. On an inter-regional level, the same seven corridors continued to connect Boston with adjacent areas. Though these corridors had not changed, the increase in settlement along them defined many of the routes more precisely. Briefly, the seven corridors were as follows:

1. From the Chelsea Ferry through Saugus and Lynn to Salem and the North Shore.
2. From the Mystic Ferry and Medford through Malden and Reading to Andover and the Merrimack Valley.
3. From Cambridge and Medford along the Mystic lakes through Woburn and Wilmington to Billerica, Chelmsford and the upper Merrimack Valley.
4. From Cambridge across the Menotomy Plain (Arlington) through Lexington to Concord.
5. From Cambridge through Watertown and Waltham to Sudbury (Wayland). Here the route split: the Bay Path continued west through Marlborough and Worcester to Springfield; the Connecticut Path west southwest through Framingham to Hartford.
6. From Roxbury through Jamaica Plain and Dedham to Rhode Island.
7. From Roxbury through Dorchester, Milton and Braintree (Quincy) to the South Shore and Plymouth.

While all these corridors focused on Boston, the city itself remained isolated due to its peninsular location. As a result most of the highways actually terminated in adjacent towns within the Boston regional core particularly Cambridge, Roxbury and Medford.

Colonial Period Highways and Mills



Map 9

MHC 1981

Within the study unit the only real improvement in the road system was the enlarging of older bridges to accommodate the heavier volume of traffic, especially freight wagons, and the construction of additional bridges. The Charles River in particular was bridged several new locations, including Dedham, both Upper and Lower Falls in Newton, and Waltham.

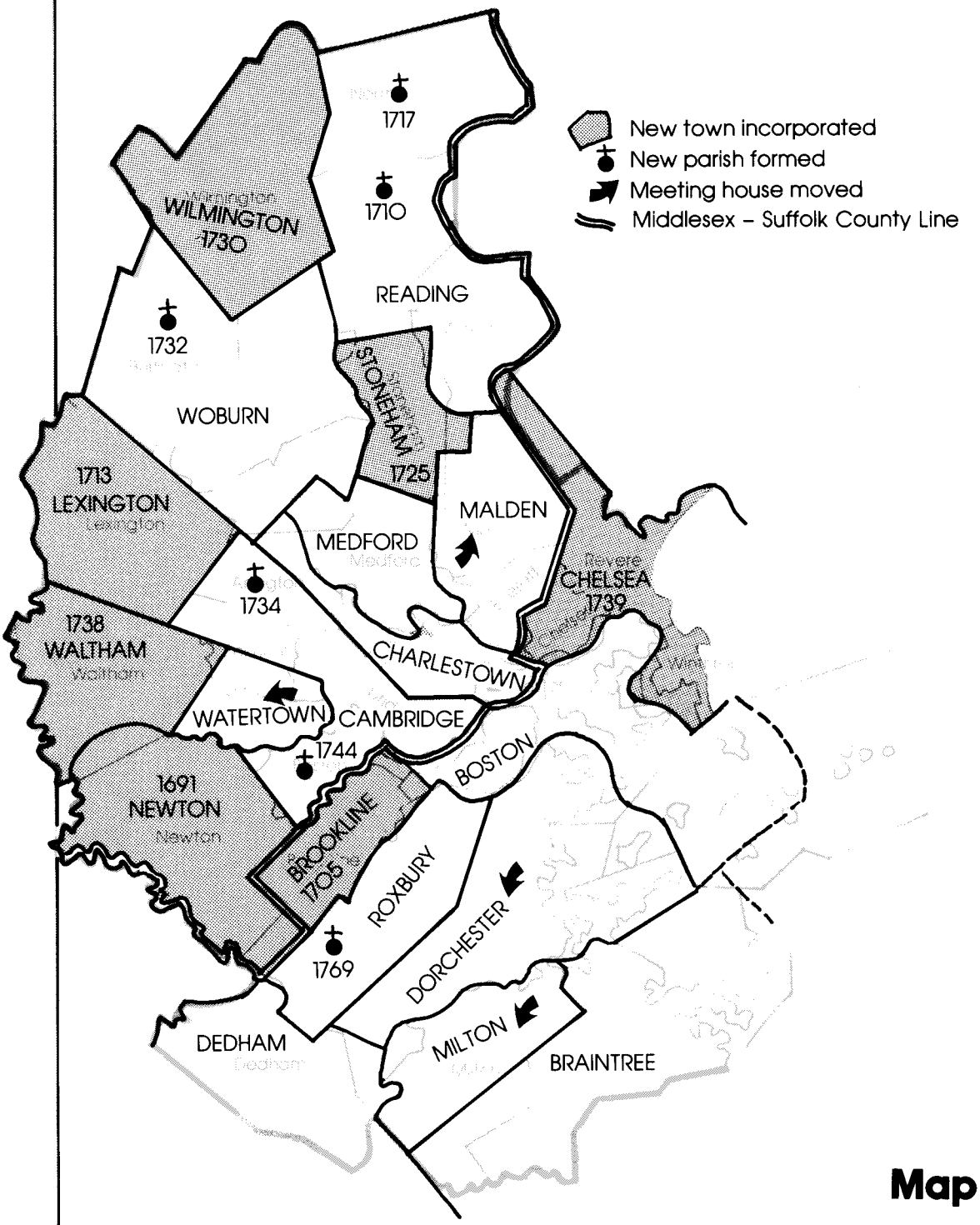
The growth of interior settlements also had an impact on transportation routes within the unit. With the formation of new towns and parishes, new roads were often required to make the meeting house accessible. These were often referred to as radial roads since they radiated out from the town center to the town's boundary. Market Street in Brighton and Wilmington Street in Burlington are good examples. In general, upland routes were used more frequently for both inter-regional and local travel than had been the case during the Plantation period. This was largely a reflection of the shift in settlement not only to the interior but to the uplands as well.

D. Settlement

The major change in settlement form during the Colonial period was the emergence of Boston as a city. By the early 18th-century, the increase in population and mercantile activity resulted in the formation of separate and distinctive social and economic districts. The main residential areas were located in the North End and Old South End. Both contained three story wood and brick houses closely set on narrow lots. Socially, the North End was primarily a craftsman and artisan district while the South End housed the more elite and affluent. Additional evidence of Boston's urbanity included the beginning of hackney coach service within the city during the early part of the 18th century and the establishment of a fashionable promenade along Common Mall (Tremont Street) c. 1730.

Between the two residential areas three and four story brick buildings along Corn Hill (Washington) Street and adjacent to Town Cove marked the central civic-commercial heart of the city. Closer to

Colonial Period Political Boundaries



Map 10

Town Cove and extending along the waterfront towards both the North End and Fort Hill was a fringe district of wharves, shipyards, and lodging houses. Much of this was built on filled land. Other social and economic fringe areas existed on the back side of Beacon Hill ("Mt. Whoredom"), the West End and along Roxbury Neck. By the 1740s, Boston had become the largest city in British North America. By the end of the Colonial period, however, it had dropped to third, superseded by New York and Philadelphia. In large part this decline resulted from the city's peninsular location which set physical limits on new growth.

A common settlement form during the Colonial period was the meetinghouse town center. Created by the process of parish separation, these agriculturally based settlements were composed of a meetinghouse and burying ground, a tavern, and a common or training field. They were usually located on major transportation routes at a central point within the parish or town. Lexington, North Reading, Chelsea (Revere) and Brookline exemplified this type of local core settlement.

In rural and upland areas, small mill villages continued to function as important local centers. Frequently located near major bridges, these settlements focused around a mill or milling complex which served the surrounding area. Examples include Dedham, Newton and Woburn (Winchester).

E. Survivals

Five classes of Colonial period survivals occur in the Boston area unit: archaeologial remains, landscape features, rural landscapes, town/urban streetscapes, and individual structures.

1. Important archaeological remains occur primarily in those areas which were intensively settled during the period. Particularly sensitive areas include the Boston urban core, major town centers and important milling or other industrial locations. Two

factors increase the likelihood of significant archaeological remains in the Boston regional core. First were the "Great Fires" which periodically destroyed much of the city center. During the Colonial period at least nine such fires occurred, undoubtedly producing important sub-surface features. The second factor was the extensive filling which took place along much of the waterfront. In addition to burying and protecting earlier features, these fill episodes can be important features themselves. As with the Contact and Plantation periods, the archaeological remains from the Colonial period are of particular importance since what survives above ground is strongly biased towards specific categories such as single family houses.

2. Landscape features are the second group of survivals. These are primarily period roads, (whether rangeway, radial or other) and town plans (training fields, commons, meeting houses locations and burying grounds).

3. Rural landscapes include both period farmsteads (a complex of buildings and structures with appropriate roads, fields and fences) and clusters of period houses in a low density setting.

4. The fourth group combines streetscapes of both town and urban scale. These are clusters of buildings and structures which retain a colonial period character in either medium or high density setting. While this category is primarily for standing structures, adjacent landscape features such as burying grounds or roads may be included.

5. The final category is self explanatory - structures which have survived but where no period context remains.

	Archeological	Landscape Features	Rural Landscapes	Town/Urban Streetscapes	Structure without Context
Boston Regional Core					
Boston Proper	X	?		X	X
Roxbury	X	?		?	X
Somerville		X		?	X
Cambridge	?			X	X
Medford	?			X	
Charlestown	X				
Inner Periphery					
Arlington	?	X			X
Brookline		X			X
Melrose		X			X
Milton	?	X	?		X
Revere		X			?
Quincy	?				X
Watertown	?				X
Outer Periphery					
Lexington		X	X		X
Dedham	?			X	X
Newton	?	?			X
Reading	?	?	X		
North Reading	?	?	X	?	
Woburn	?	?			X
Burlington		X			?
Wakefield	?			X	
Wilmington		?	X		

F. Research Topics

Portions of the Colonial period have been well-researched, particularly the social, political and economic events which preceded the Revolution. Among the many topics which need further investigation are:

1. The use of masonry construction during the period and the role of Medford and other Mystic river towns as centers of innovation. How did masonry construction relate to other structural innovations such as use of end chimney floor plans and the gambrel roof.

2. A study of Afro-American culture and population during the period. What were the population demographics and what changes in social/economic status took place? What happened to slaves who were freed? To what extent did the black population integrate with the remnant native population?

3. A better understanding of the Triangular trade and its effects on Boston area towns. Not only economically (particularly in regard to shipbuilding, sugar refining and distilling) but socially and architecturally, are Caribbean or South Atlantic coastal influences important?

4. A study of the French Huguenot population and to what extent they were influential in the development of craft industries and commerce.

5. Systematic archaeological survey for important period survivals. This includes survey around standing structures (for example, the Isaac Royall House and slave quarters) as well as in areas where no above ground evidence remains.

6. A study of period burial grounds, in particular, inventorying all important gravestones. A related, and extremely pressing, need

is for better information on gravestone conservation and options for controlling their deterioration.

7. Additional research on surviving period landscape features including town plans, burial grounds and roads. Like similar features from the Plantation period, these need to be better understood and appreciated by the general public. Increased awareness and interest can be achieved through appropriate signage and informational/educational programs.

8. Examination of the surviving period meetinghouses in Burlington and Revere (the only known survivals within the unit, outside of Boston and Cambridge).

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FEDERAL PERIOD (1775-1830)

A. Regional Events

The outbreak of the Revolutionary War (1775) resulted in the burning of Charlestown and peripheral sections of Boston as well as continuation of the blockade of Boston's harbor. Beyond this the Revolution had little physical impact on the unit. In the decades following the Treaty of Paris (1783), extensive rebuilding and expansion took place in Boston. Major processes included the reshaping of Boston's topography through systematic cutting and filling, and dramatic improvement in transportation systems, particularly new bridges, turnpikes, and canals. The Jefferson Embargo (1807) and War of 1812 (1812-1815) severely restricted economic growth during the second decade of the 19th-century. Full recovery in the Boston core was signalled by the opening of the Back Bay mill dam (1821) and Quincy Market (1826). Three notable political changes occurred during the period: the formation of Norfolk County with the court located in Dedham (1796), the relocation of the Middlesex County court to East Cambridge (1814), and incorporation of Boston as a city (1822). Other important economic events included the establishment of the Boston Manufacturing Company in Waltham (1813), the first example of a heavily capitalized corporate venture in manufacturing, and the opening of the Quincy granite quarries in connection with the Bunker Hill monument (1824).

B. Core - Periphery Relationships

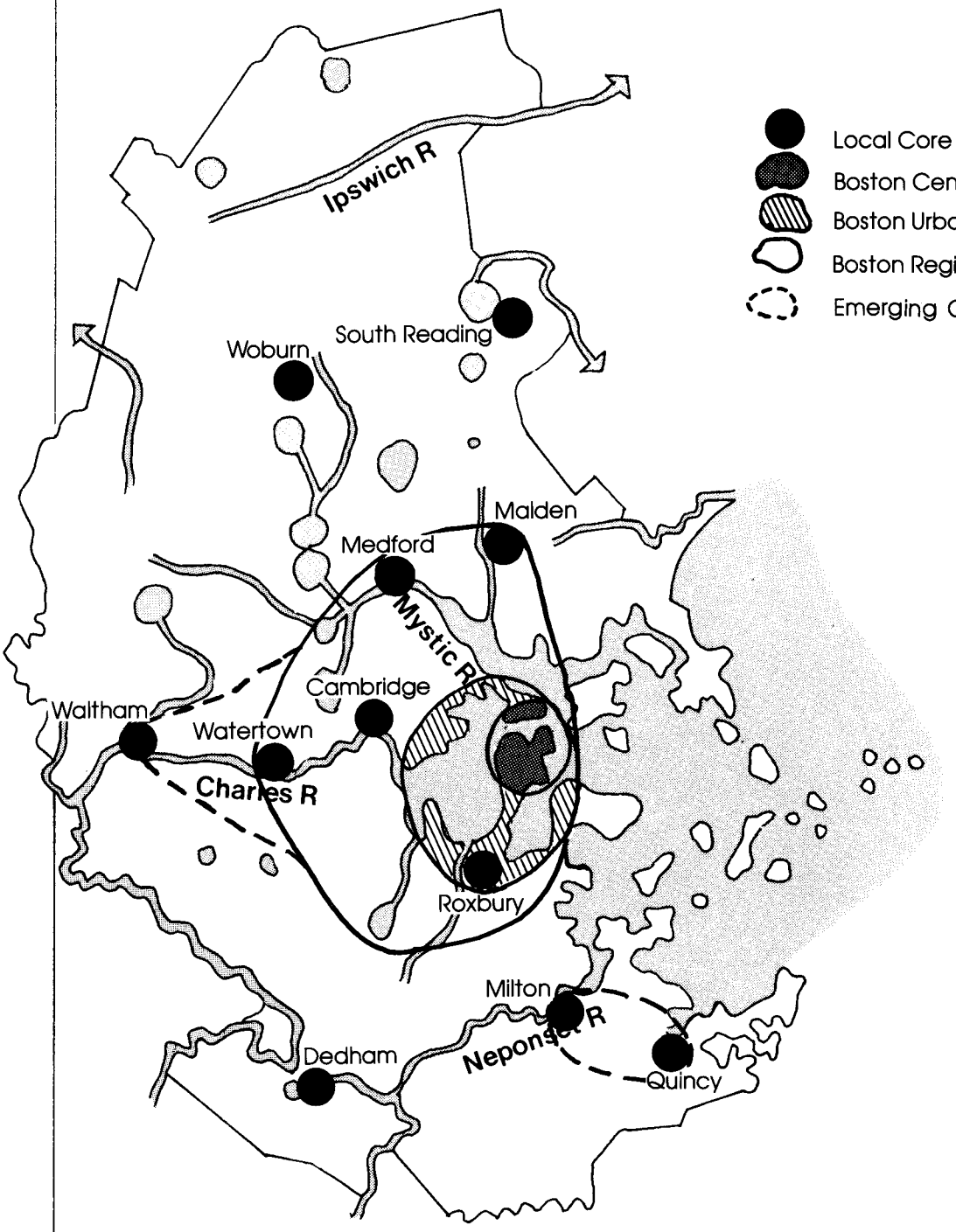
The basic dynamic of the Federal period was the expansion of Boston and its emergence as a city of national rank. Despite two wars and related economic slumps, Boston continued to grow as both an economic and social/cultural core area.

While Boston had become the dominant influence within the study unit during the Colonial period, it assumed an even greater role during the Federal. The perimeters of both the Boston regional core and urban core expanded outward, absorbing adjacent communities, and creating a new, high density central core area. See Map 11. The development of this central core was in part due to the city's rapid growth; however, it was also a response to a problem of space. During the Federal period Boston reached the physical limits set by its shoreline. One solution was the shift to higher density settlement. By 1830 most of the old colonial city and parts of neighboring Charlestown were assimilated into this new central core.

The pressure which caused high density settlement also resulted in outward expansion, as evidenced by the series of new toll bridges which connected the Boston peninsula with nearby Charlestown, Cambridge, and South Boston. These bridges functioned in two ways. They permitted direct access into the civic/commercial heart of Boston thereby stimulating its growth further. They also enabled the urban core to expand beyond the confines of the Shawmut peninsula. For the first time, people could live or work outside Boston yet still have access to the city on a regular basis. As a result, East Cambridge and Charlestown as well as parts of South Boston and Roxbury became urban population centers. With the relocation of the Middlesex County court from Cambridge town center to East Cambridge, political power as well as population were consolidated within the Boston urban core.

A third solution to the problem of how to deal with rapid growth was to create more space, which is precisely what occurred during the first decades of the 19th century. Many of Boston's hills were systematically cut down and used as fill. New land was created from the tidal marshes along the Neck, from the Mill Pond on the north side of the city and all along the waterfront. The rapid growth of Boston's urban core also pushed the city's influence further out into the study unit. Expansion occurred primarily to the west and southwest especially along the new turnpike routes in Roxbury, Brookline, and

Federal Period Core Areas



Map 11

MHC 1981

Watertown. In these communities as well as older town centers such as Cambridge, Medford and Malden, the combination of turnpikes, toll bridges, and omnibus service (horse drawn stages) encouraged new 'suburban' residential development and the expansion of existing estate districts.

Growth within the Boston regional core was not limited only to residential developments. Considerable institutional and industrial expansion took place as well. Frequently the result was a mixing of high status and fringe activities. In Medford, Chelsea, and Watertown for example, wealthy estates and new manufacturing companies or other industrial concerns (brickyards and shipyards) were neighbors and often competed with each other for waterfront locations.

A similar blurring of status and fringe activites took place in sections of Milton and Quincy. Both towns had a burst of economic growth during the Federal period. Milton's development was based on more diversified and intensive milling along the Neponset while Quincy, which, incorporated as a separate town in 1792, boomed with the revival of granite quarrying. The regional importance of these towns and their industry resulted in a re-emergence of the old Neponset core area. See Map 11. A second emerging core area centered on Waltham. A small rural town at the beginning of the period, Waltham became a center for industrial innovation, especially in textile production, after the first decade of the 19th-century.

The expansion of Boston was felt throughout the study unit by the end of the period. Even in peripheral areas, activities were re-oriented either towards Boston or towards providing services along the new transportation routes. Most noticeable was a shift towards agricultural products intended for urban markets, dairying and vegetable production in particular.

C. Transportation

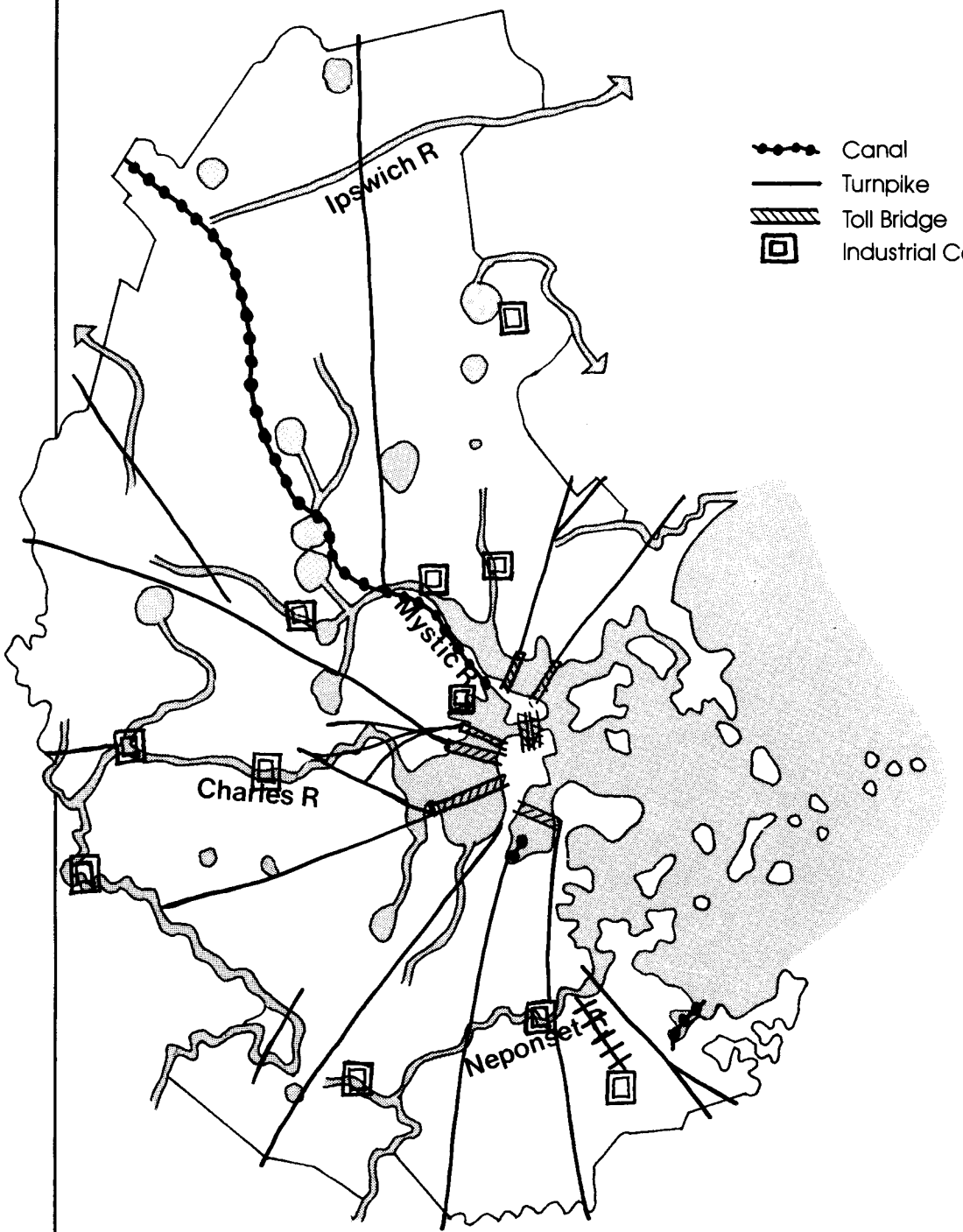
In contrast to the stasis of the Colonial period, transportation during the Federal period was characterized by expansion and innovation. These advances were due in part to increased engineering and technical proficiency. They were also both a cause and effect of Boston's growth.

Most of the major advances were related to land transport systems. Of particular importance was the construction of bridges from Boston across the tidal estuaries of the Mystic and Charles Rivers. Within ten years after the Revolution, bridges were opened to Charlestown, Cambridge, and Malden ending the isolation of the Boston peninsula. These privately financed bridges were actually long wooden causeways. The money invested in the bridges was recouped by charging tolls for both vehicular and pedestrian traffic. Encouraged by the success of these bridges, a second generation of toll bridges was constructed during the first decade of the 19th-century. These connected Boston with South Boston and East Cambridge and Charlestown with Chelsea. See Map 12. Perhaps the most important of these projects was the bridging of the Back Bay across the Beacon Street mill dam during the 1820s. This opened direct access to Brookline and Brighton and provided an alternate to the roundabout route along the Roxbury neck.

Though initially conceived as accesses to Boston, the toll bridges also stimulated construction of a series of regional turnpikes. This new system of land transport routes focused on the bridge heads opposite the Boston peninsula and radiated out, usually in straight line fashion, across the study unit. Unlike the earlier road network, which tended to follow topographic contours, Federal turnpikes cut directly across the landscape, ignoring obstacles and barriers.

The turnpike network was of primary importance during the Federal period. Turnpikes served as major connectors both inter-regionally and within the study unit. See Map 12. There were ten

Federal Period Turnpikes, Canals



Map 12

MHC 1981

major corridors. Seven of these were the original Colonial period corridors. Here, new routes were generally laid out for the turnpikes and the existing older roads were reduced to secondary or local use. Three new corridors were also added:

1. From Malden (Everett) northeast through Saugus to Newburyport.
2. From Brookline west across the Newton highlands and the Charles River to Worcester.
3. From Dorchester southwest through Milton and the Blue Hills to Bridgewater and Taunton.

With an upgrading of the road system came improvements in transit services. The opening of the Charlestown and Cambridge toll bridges resulted in the establishment of daily stage coaches. Service was extended down the Neck to Roxbury during the 1790s. When the second generation of bridges were opened in the 1820s, larger suburban stages began to operate on an hourly basis from most of the town centers within the Boston regional core.

The development of a regional turnpike system was paralleled by the construction of the first regional canal route in the United States. Begun during the 1790s and completed in 1804, the Middlesex Canal ran from Charlestown north to Chelmsford connecting Boston Harbor with the Merrimack River. The canal, modelled after 18th-century English examples, was designed to link Boston with the lumber reserves of the upper Merrimack. The initial success of and enthusiasm over the Middlesex Canal prompted the building of several smaller canals in Cambridge, Roxbury and Quincy. These were primarily freight canals cut along shallow tidal creeks to provide access to warehouses.

Two other transportation innovations deserve mention. One was the beginning of steam powered ferry service in Boston Harbor during the 1820s. The other was the construction of rail lines, used first in the lowering of Beacon Hill and later as the means for transporting granite from the quarry in Quincy to the Neponset River. These

were the precursors of major changes which would soon revolutionize transportation.

D. Settlement

The increased density of Boston's central core resulted in the formation of new kinds of urban districts. Most notable were residential districts of multi-story brick rowhouses set in a planned grid, as on Beacon Hill. A parallel process occurred along the waterfront where multi-story, brick or stone commercial buildings were erected in planned grids in many cases, on newly filled land. Though designed primarily for intensified economic activity, these structures were also intended to be impressive and aesthetic - a reflection of Boston's cultural as well as economic prominence. Examples include India Wharf (1805) and Quincy Market (1826).

Beyond the central core, several kinds of development took place. Most spectacular were the large speculative grids laid out in the South End and along Roxbury neck as well as across the toll bridges in Cambridge and South Boston. Though planned for fashionable 'suburban' housing, the economic uncertainties of the early 19th-century left many of the sections vacant. The result was a patchwork of residential and industrial buildings and confusion over how remaining sections should be developed. In contrast, a different style of rebuilding took place in older urban cores like Charlestown and Roxbury. Here new housing replaced what had been destroyed by war and fires. Generally, these were stylish individual houses built on small lots and designed for either one or two families.

A third kind of development took place between the central core and the outlying residential sections. This was an institutional fringe belt composed of hospitals, prisons, almshouses and naval facilities. Built primarily along the waterfront and often on filled land, this fringe belt existed in Charlestown, South Boston and Boston's West End.

Several of the older town centers outside of Boston, such as Cambridge and Medford, also began to develop urban characteristics during the Federal period. Typical features included the construction of brick commercial blocks and hotels plus a higher density of residential building.

Another major change in settlement outside of Boston was the emergence of a new set of town centers. These included newly incorporated towns such as Brighton (1807), West Cambridge (now Arlington and part of Belmont, 1807) and South Reading (now Wakefield, 1812). See Map 13. Town centers also shifted during the period in order to have access to new turnpikes, as happened in Stoneham, or as a result of industrial development, as in Watertown.

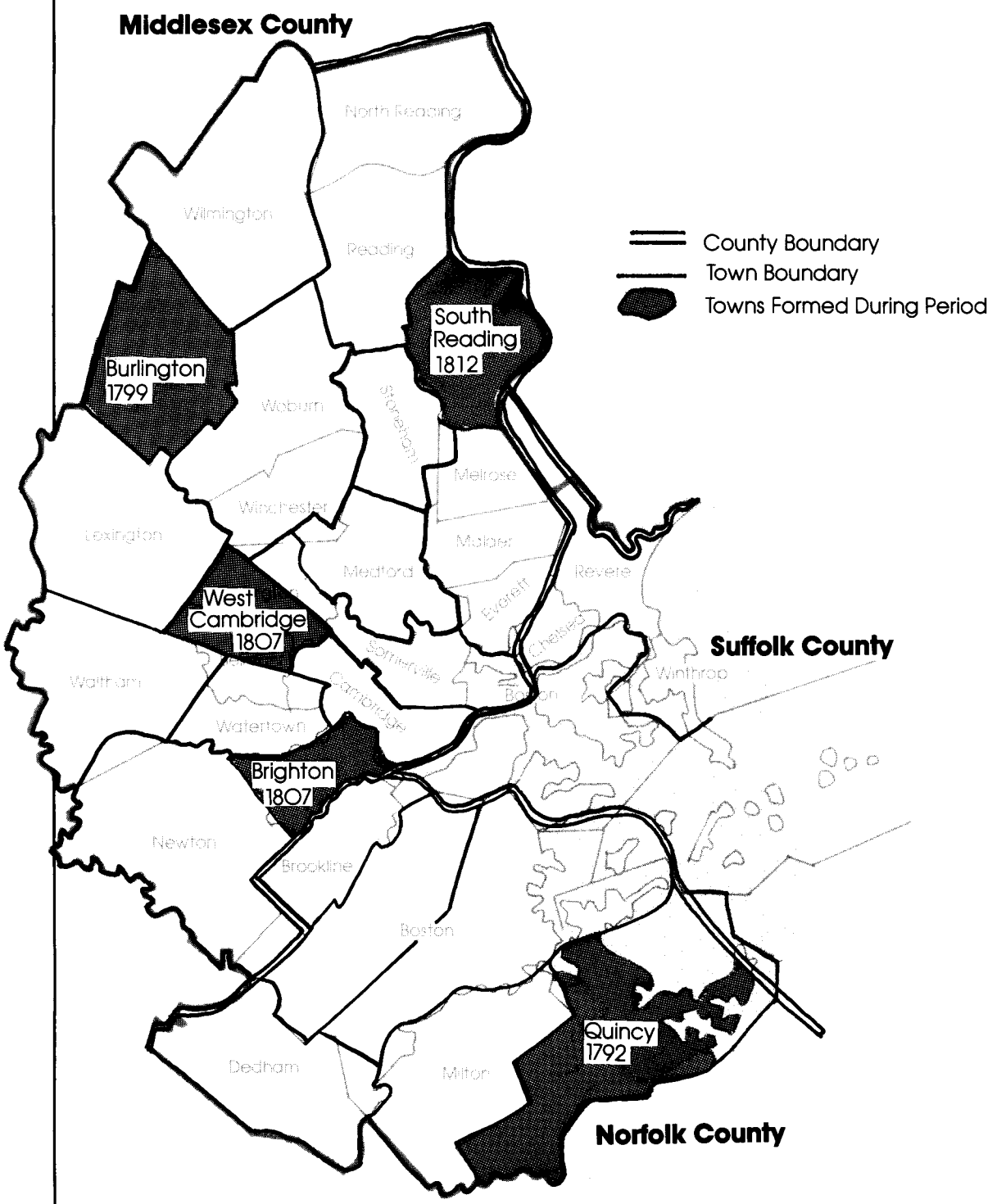
The dynamic changes which took place in the Boston core had an impact on settlement even in peripheral areas. Two new kinds of settlement emerged. Along the turnpikes and the Middlesex Canal, small villages sprang up to provide food, lodging or other services to travellers and teamsters: North Reading and North Woburn are examples. The second factor was the beginning of intensified industrial activity along several of the larger rivers and tributaries. As larger mills and mill complexes were built, housing for the workers was frequently constructed close by. The result was a series of mill villages of which East Dedham and Newton Upper Falls are examples.

E. Survivals

There are six classes of Federal period survivals in the Boston study unit: archaeological remains, rural landscapes, villages, town streetscapes, suburban residential districts and estates, and urban streetscapes.

1. Archaeological remains, while significant, are proportionally less important for the Federal period since a larger percentage of period structures survive above ground. It should be noted, however, that archaeological potential exists around most stand-

Federal Period Political Boundaries



Map 13

ing structures and may, in many cases, be as significant as the structure itself. Important archaeological survivals include industrial/ milling complexes, fortifications and waterfront transport facilities (canals, locks, warehouses). Also important are areas with high site potential due to either period filling or high density period occupation.

2. Federal rural landscapes include both period farmsteads (a complex of buildings and structures with appropriate roads, fields and fences) and clusters of period houses in a low density, rural setting.

3. Villages are a cluster of period buildings, usually a dozen or less, which are set around a mill complex or tavern.

4. Town streetscapes are a cluster of period buildings set around a meetinghouse or town hall. A training field or green is usually present as is a period street layout. Also included in this category are intact period streetscapes of medium density residential and/or commercial buildings.

5. Suburban residential districts include clusters of period houses in a suburban (medium to high density) setting as well as outstanding examples of high-style houses which survive with grounds intact (estates).

6. Urban streetscapes are concentrations of period residential, commercial, or institutional buildings and structures in a high density urban setting.

Period Core Areas (listed by contemporary towns)	Archaeological	Rural Landscapes	Landscapes	Town Streetscapes	Residential Districts & Estates	Urban Streetscapes
Boston Urban Core						
Boston	X					X
Charlestown	X					X
Cambridge	X					?
South Boston	?				?	
Boston Regional Core						
Brookline				?	X	
Medford	X			?		
Roxbury/W. Roxbury				?		
Inner Periphery						
Dorchester	X		X	?		
Waltham	X		?		X	
Milton		X			X	
Quincy	X			?	?	
Newton			X			
Watertown	?			?		
Outer Periphery						
Lexington		X	X	?		
Dedham	?		X	?		
Woburn	?		X	?		
Wakefield	?			X		
Burlington		?		X		
North Reading			X			
Reading		X				
Wilmington		X				

F. Research Topics

Considerable research has already been done on the Federal period in Boston, in particular on the physical evolution of the city and the leading architects and builders who shaped its growth. While certain aspects of these topics could be researched further, there are numerous other subjects which should be studied. These include:

1. The role of state and federal bounties in economic and industrial development (especially for innovative products and manufacturing techniques).

2. The impact of mechanization on industry. How did this affect changes in building form and construction, the geographical centralization of particular industries, and the evolution of industrial complexes (worker housing as well as supply, production and distribution facilities).

3. A study of the influences of the Neoclassical and early Romantic movement on architecture. Who were the innovative designers? Who were the builders? To what extent are these influences reflected in landscape planning?

4. A study of the post-Revolutionary rebuilding sequence in Charlestown, focusing especially on the development of house plans adapted to urban density.

5. A survey of surviving landscape features, especially in urban areas, including street grids and planned development, both residential and commercial.

6. A study of granite as an innovative building material. Why did granite become popular? How did these factors affect the growth of the granite industry?

7. A better understanding of the emergence of the architectural and engineering professions. What was Boston's role as a training ground for these professions?

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EARLY INDUSTRIAL PERIOD (1830-1870)

A. Regional Events

Major events of the period fall into two general categories: economic and social/political events, and innovations in transportation and landscape/urban planning. Critical economic factors included the periodic depressions caused by panics in 1837, 1848, and 1857 as well as the prosperity boom which resulted from the American Civil War (1861-1865). Important social/political events included the formal separation of church and state in Massachusetts by constitutional amendment (1833) and the beginning of large scale European immigration to Boston as a result of the Irish potato famine and the German revolution (both 1848). Several important innovations in transportation occurred during the period and had a profound effect on Boston. Among these were the beginning of regular steam ferry service (1831), opening of regional railroad routes (1835), establishment of trans-Atlantic steamship service (1844), commencement of suburban commuter rail service (1845) and operation of horse drawn street railways (1857). Important events in landscape and urban design included the establishment of Mount Auburn Cemetery (1831), the Boston Water System (1848), and planned residential developments in East Boston (1833) and Back Bay (1857).

B. Core-Periphery Relationships

During the Early Industrial period, the dramatic growth of Boston as a core area of national rank continued. Fed by immigration, the population boomed from 60,000 in 1830 to over 140,000 by the end of the period. Under this pressure (and now free from the confines of the Shawmut peninsula), Boston's three core areas continued to expand, absorbing adjacent communities and towns until the majority

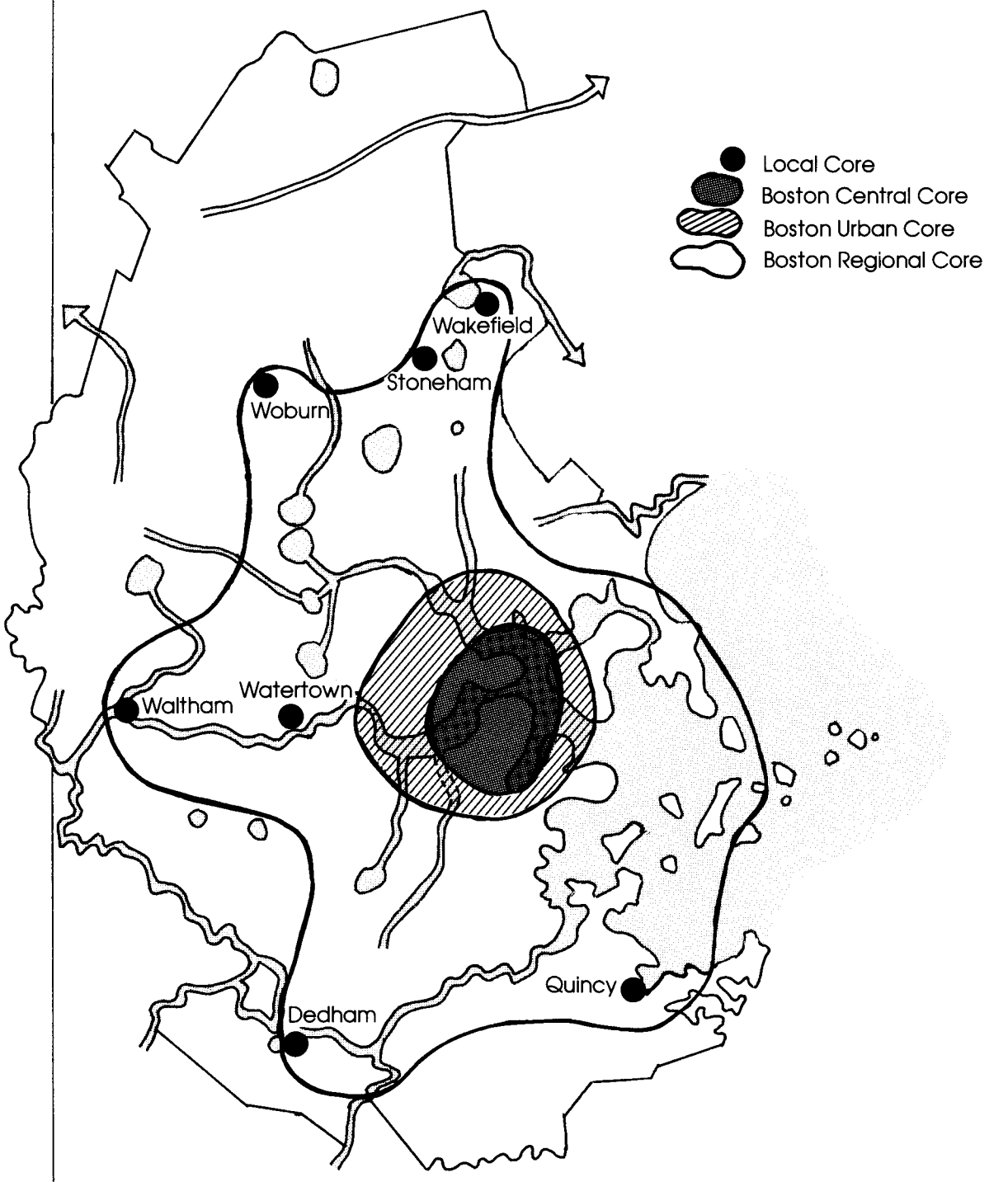
of the study unit was within their boundaries. See Map 14.

Boston's central core underwent a marked expansion in both density and size. The increase in density was characterzied not only by the greater height and closer proximity of the buildings, but by additional differentiation. There were several components to this central core. At its heart was a central business and commercial district which serviced state, national and international markets. Interspersed throughout were clusters of public and private institutions and governmental buildings. Surrounding this were high density, multi-storied residential areas at both ends of the socio-economic scale. During the period, the new developments of Back Bay became the elite residential district while the older areas in the North End and around Fort Hill were converted into tenements. By 1870, the central core encompassed roughly the same amount of area as had been in the entire urban core of 1830. It included the original nucleus of Boston and Charlestown as well as portions of Roxbury, South Boston, East Boston, Chelsea and Cambridge.

A major factor in the growth of the central core was the radical change which took place in transportation systems. The railroads in particular had a profound effect. Not only did they facilitate access in and out of the city, but their stations, yards and shops added to the industrial-institutional fringe belt which surrounded much of the central core area.

The railroads were not the only transportation system which had an impact on Boston's growth. Both the steam ferries (especially from Boston to Everett, and Chelsea and East Boston) and the horse drawn street railways from the western suburban areas served as major means of transit in and out of Boston. See Map 15. Like their turnpike and toll bridge predecessors, these transit systems encouraged greater residential development in areas beyond the central core. Among the towns within the expanded urban core were Chelsea, Everett, Somerville, Cambridge, Brookline, Roxbury and portions of

Early Industrial Period Core Areas



Map 14

South and East Boston. In these communites, people could live in a less congested setting and still travel back and forth to Boston for work.

The composition of the Boston urban core, or inner suburban periphery, was a mixture of medium to high density residential districts, competing or encroaching industrial acitivites and older town centers. In some cases these town centers underwent a process of urbanization of their own. Cambridge and Chelsea, for example, developed their own central business districts. Often this was accompanied by political change. Both Cambridge and Chelsea incorporated as cities during the period. The expansion in population also resulted in the formation of new towns such as Somerville (1842), North Chelsea (now Revere, 1846), Winthrop (1852) and Everett (1870). See Map 17. Other towns, however, like Roxbury, lost much of their individual identity during the period, a foreshadowing of their eventual political assimilation.

The growth of Boston's regional influence was the most dramatic change of the period. By 1870, the Boston regional core encompassed virtually every other core area in the study unit. See Map 14. The boundaries of this regional core were defined by a combination of transportation access and settlement pressure. In other words, the people who lived within the regional core were largely those whose jobs were either in or dependent on Boston and who required access to the city on a regular basis. Here the railroads were of particular importance, connecting the city with more affluent suburban areas in Milton, Newton, Woburn and Wakefield. This process also resulted in the formation of new towns. Melrose (1850), Winchester (1850), West Roxbury (1852) and Belmont (1859) all developed in this manner.

Although tremendous diversity existed within the regional core, from the affluent homes of Arlington and Belmont to the hospitals, prisons and other fringe institutions located on the Harbor Islands, a

common thread existed. All development was tied to, and in some way supported, the inner Boston core.

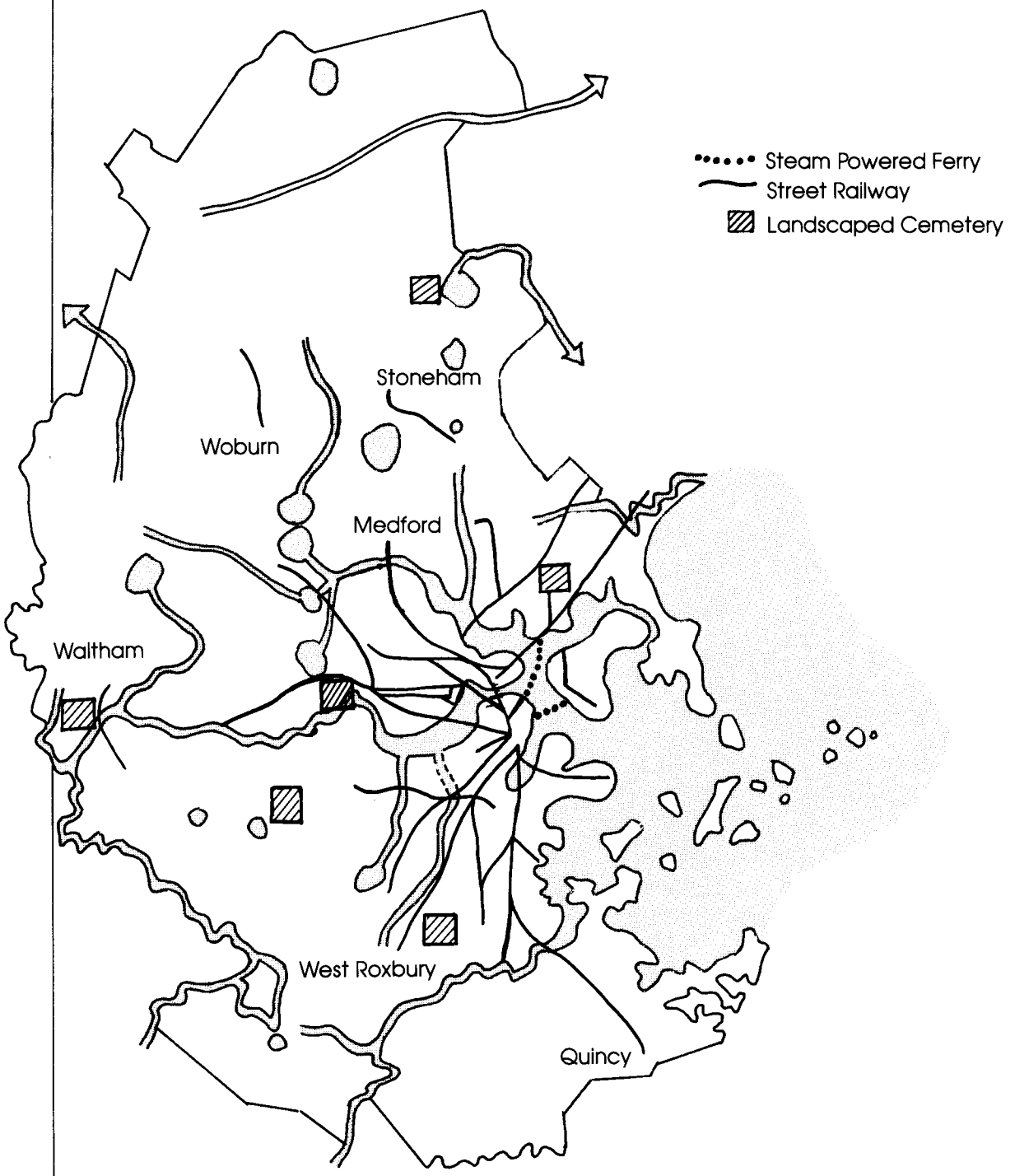
Two components of Boston's regional core deserve specific mention. First was an emerging green belt composed of landscaped cemeteries and municipal properties such as reservoirs. These were accessible by street railway and functioned as important recreational and socializing areas for people who lived in the inner as well as outer suburban belts. See Map 15. The second feature was development of specialized industrial communities. These were towns in which manufacturing became an important or even the dominant economic activity. As a result these towns became influential local cores and usually developed urban characteristics and residential/fringe conflicts of their own. Examples included both newly industrialized towns such as Waltham, Hyde Park and Stoneham as well as older industrial centers like Dedham, Watertown and Quincy.

During the Early Industrial period, the peripheral areas shrank as Boston's influence grew. The primary impact in rural areas was that of the railroad. In Wilmington, Reading and Lexington, some reorientation occurred because of the railroad's presence. Towns bypassed by rail connections, like Burlington, found themselves increasingly isolated. These changes aside, the peripheral areas continued to supply agricultural products to both Boston and suburban markets.

C. Transportation

In the evolution of transportation systems, as in the expansion of Boston, the innovations of the Early Industrial period grew out of Federal period initiatives. Nonetheless, the changes which took place were nothing short of revolutionary. The application of steam and rail technology completely altered the existing system of turnpikes and canals and had profound effects on both settlement and economic development.

Early Industrial Period
Urban Transit Systems



Map 15

Waterborne transportation remained vitally important throughout the period and served a wide variety of needs. These ranged from the ferrying of local commuters to trans-oceanic shipment of freight and passengers. The earliest improvement was regular steam powered ferry service from Boston to Chelsea and East Boston. Commencing in 1831, these ferries not only brought Chelsea and East Boston within the bounds of Boston's urban core, they also demonstrated that steam technology could be successfully adapted to meet maritime needs. As a result, the shift from sail to steam power became a basic dynamic of the period. This change occurred fairly quickly in coastal packets, popular not only for inter-regional travel but as the fashionable means for reaching coastal resort areas such as Nahant and Revere. The change from sail to steam occurred more slowly in large, deep water vessels. By 1870, however, even the clippers could no longer compete successfully against steam powered ships.

On land, two major changes took place. One was the creation of a large scale, urban transit system. The basic element around which this system was constructed was the network of Federal period 'omnibus' or hourly stage routes which connected Boston with most of the nearby towns. During the 1830s and 1840s, these routes were extended throughout the rapidly expanding Boston urban core. A major change in the system took place in 1857 when omnibus lines were converted to street railways. The horse drawn vehicles now moved on rails instead of roads. Expansion of the street railway network paralleled the growth of settlement. By 1870, service extended beyond the urban core and into outer suburban areas such as West Roxbury, Newton, Watertown, Arlington, Medford, Malden and North Chelsea (Revere). See Map 15. Smaller street railways were also built in local urban cores, particularly Watertown, Woburn and Stoneham. The street railway was the major system for local travel and for many people it provided the means to reach both work and recreational areas.

The second, and even more dramatic, innovation in land trans-

portation was the railroad. During the summer of 1835, three new rail companies opened their lines. In less than two decades, the railroads replaced both turnpikes and canals as the primary inter-regional and intra-regional connector.

Eight major railroad corridors operated during the period. See Map 16. The first three opened almost simultaneously in 1835. These were:

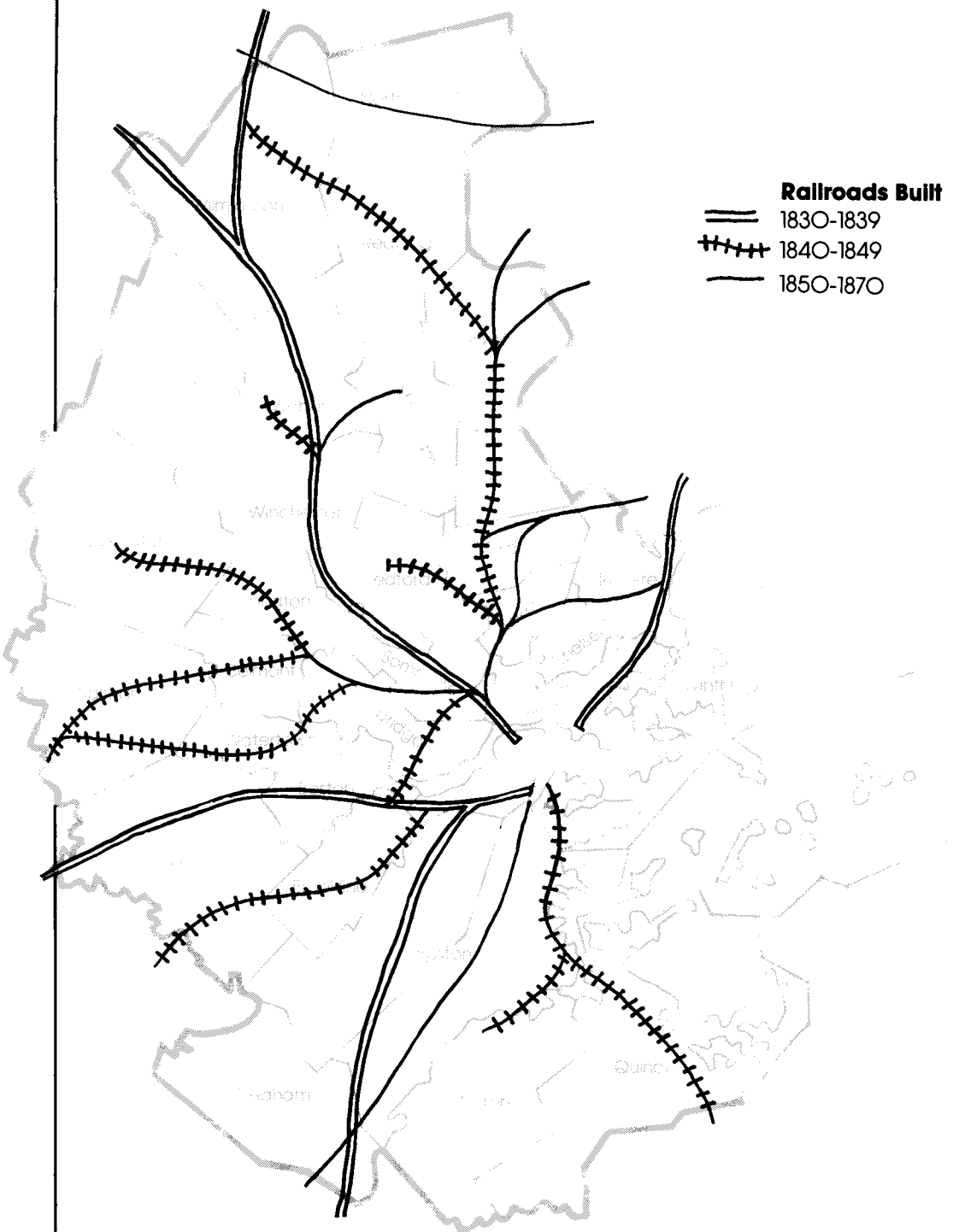
1. The Boston and Lowell, which ran from Charlestown along the route of the Middlesex Canal (through Somerville, Medford, Woburn and Wilmington) to Lowell.
2. The Boston and Worcester, which ran from Boston through Brighton and Newton to Worcester.
3. The Boston and Providence, which ran from Boston through Roxbury and Dedham to Rhode Island.

During the 1840s and 1850s, railroad service began along five additional corridors. These included:

4. The Eastern line, which went from East Boston through North Chelsea (Revere) and Lynn to Salem.
5. The Boston and Maine, which ran from Charlestown through Malden, Melrose, Wakefield and Reading to Haverhill and Portland.
6. The Fitchburg line, which went from Boston through Somerville, Cambridge, Belmont and Waltham to Fitchburg.
7. The New York and Midland, which ran from Boston through Dorchester and Hyde Park to Providence.
8. The Old Colony, which ran from Boston through Dorchester and Quincy to Plymouth.

The next step in transforming these individual rail corridors into an integrated regional system was to connect them. Facilitated by the use of standard gauge, a series of connecting lines were constructed

Early Industrial Period Railroads



Map 16

during the 1850s. Important rail junctions developed in several towns within the urban core area, specifically Chelsea, Charlestown, Cambridge and Brighton. Major junctions were also built in outlying towns such as Hyde Park, Wilmington and Wakefield. By the end of the period, a complex rail network radiated from Boston reaching almost every point of importance in the study unit.

D. Settlement

Three trends summarize many of the changes which occurred in Early Industrial Period settlement. The first was increased density. Not only were buildings (both residential and commercial) built taller, but the number of people who used a building increased. This change was reflected in the shift from single-family to multiple-family residences and in the tendency for people to work in large office buildings or factories. The second trend was the diffusion of new architectural styles and material preferences. As Boston's regional influence increased, new styles spread quickly through the area. A major change in the preferred building material took place. Brick was replaced by granite as the popular material for new construction, especially in commercial and institutional buildings. Finally, the Early Industrial period was one of architectural diversification. During the period, a wide range of specialized building types emerged. Among these new forms were theatres, banks, libraries and office buildings.

By 1870, a distinctive downtown business district developed within Boston's central core, one focused around financial, wholesale, and retail activities. The financial section was centered around State Street and underwent extensive rebuilding, especially of banks and insurance offices. The wholesale area was located primarily on waterfront fill and extended towards the railroad terminals in both the North and South End. In contrast, the retail district followed Washington Street to the Old South End. Along it, the earlier townhouses were replaced with granite store blocks. Around the edges of this central business district were a band of secondary commercial centers composed of hotels, restaurants and warehouses. Generally,

these secondary centers were located around the major railroad terminals.

With the commercial expansion of downtown, the residential districts within Boston's central core were forced either to rebuild at higher densities or relocate. A substantial increase in residential density occurred in the North End as a result of Irish immigration. This encouraged the conversion of existing houses to tenements as well as infilling with backlot shanties. The result was a major urban slum. The first attempts at building new residential districts around edges of the central core took place along Washington Street in the new South End. Here, high density rowhouses were built in planned street grids and accompanied by London style residential parks. A similar development occurred in Charlestown where rowhouse districts were constructed around Monument Square and other small parks. The other important residential district of the period was created on the filled land of Back Bay. Here, elite and often elaborate townhouses were constructed along a Parisian style boulevard (Commonwealth Avenue) and adjacent to the Public Gardens.

In the urban core area, similar residential grids often with landscaped parks were laid out. Early examples were established in Chelsea and East Boston. Their success was tied directly to ferry connections with downtown Boston. In general, residential development throughout the urban core was high density development. The emphasis was on rowhouses and other forms of multi-family construction.

Residential development in the less dense, suburban areas followed similar patterns of planning but was less systematic. In Dorchester, Roxbury, Cambridge and Somerville, for example, a complex pattern of street grids was created along the major omnibus and street railway routes. These were designed as single-family suburban districts and often deed restrictions accompanied the property in order to protect the quiet and comfort of the area from encroaching

fringe activities. During the period, these neighborhoods, and single-family housing in general, were increasingly associated with affluence and upward mobility.

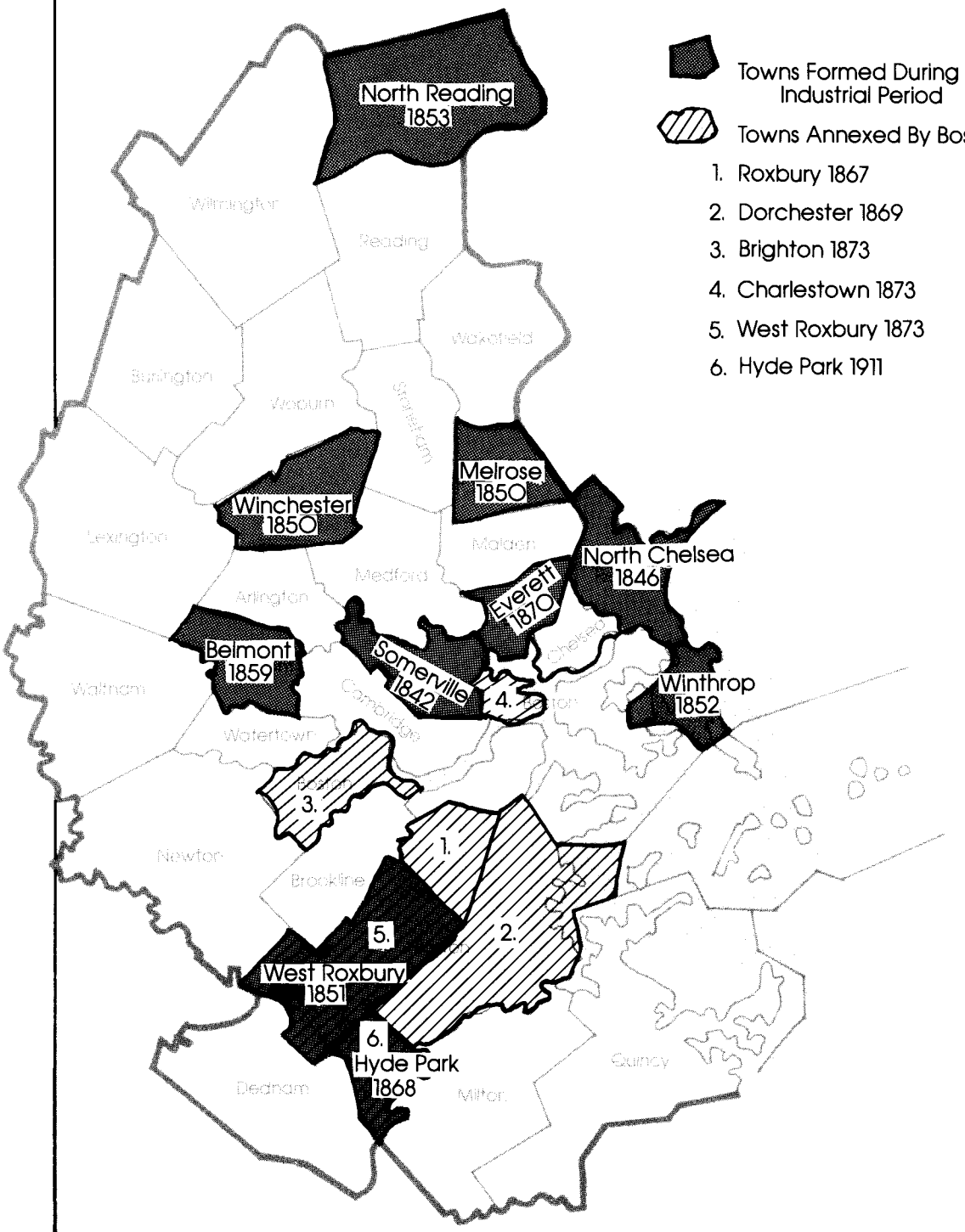
In the outer suburban areas of the regional core, planned development also took place. Usually centered around railroad access for commuting, major residential growth occurred in Hyde Park, Brookline, Newton, Belmont, Winchester, Melrose and Malden. Here stylish single-family houses were built in carefully designed subdivisions which frequently included a landscaped park or picturesque street plan. Located in close proximity to a railroad depot, these residential developments usually created local civic-commercial core areas.

Another important feature of Boston's regional core was the emergence of secondary urban centers. Usually these were the town centers which developed through industrial expansion. Quincy, Waltham, Woburn, Stoneham and Wakefield are examples. These communities had a range of urban characteristics but on a small scale. These included a commercial district along a main street, distinctive residential areas (both multiple-family worker housing and more affluent suburban districts) and an industrial/railroad fringe belt which often separated the different status residential areas.

A final settlement change which occurred within the regional core was the development of coastal resort communities. Tied to the urban and suburban population centers by packet boat, railroad and street railway, new towns like North Chelsea (Revere) and Winthrop grew rapidly during the period. Initially, these resorts centered around large beachfront hotels. Later in the period, these were supplemented by the summer cottages built on the adjacent hills and bluffs.

Towns in the rural periphery were affected in limited ways by Boston's expansion. The most common impact was the establishment

Industrial Period
Political Boundary Changes



Map 17

of a railroad depot and its development as a secondary or even competing town center.

E. Survivals

There are nine classes of survivals for the Early Industrial period: archaeological remains, rural landscapes, railroad depot villages, town center streetscapes, suburban residential districts, industrial complexes, urban residential districts, urban commercial districts, and urban fringe landscapes.

1. Archaeological remains of importance include industrial complexes (mills/factories along the associated structures and buildings such as worker housing), institutional complexes (including fortifications) and areas of high density period occupation, especially if they remain undisturbed. It should be reiterated that, as in the Federal period, much of the important Early Industrial site potential exists around buildings which are still standing.

2. Rural landscapes include period farmsteads (often oriented toward dairying, market gardening, or nurseries) as well as clusters of period houses in a low density rural setting.

3. Railroad depot villages are groups of a dozen or less period structures, residential and/or commercial, focused around a railroad depot (or the site of one).

4. Town center streetscapes are medium density clusters of buildings set in a street grid with a commercial block town hall, library and/or other civic buildings and period residences as the primary components.

5. Suburban residential districts are composed of period houses in a medium density setting with a surviving street plan. Frequently these are set around a park or include a church.

6. Industrial complexes include not only the industrial or milling buildings but associated structures (dams, railroad spurs, etc.) and worker housing as well.

7. Urban residential districts are high density, rowhousing set out in street grids.

8. Urban commercial districts include multi-story (less than six) commercial blocks and related warehouses, wharves or other facilities.

9. Urban fringe landscapes are a miscellaneous category which includes period institutions (jails, hospitals, arsenals, etc.) as well as cemeteries, parks and other open spaces.

Period core areas (listed by contemporary towns)	Archaeological	Rural Landscapes	Depot Villages	Town Center Streetscapes	Town Residential Districts	Town Industrial Sample Complexes	Urban Residential Districts	Urban Commercial Districts	Urban Fringe Landscapes
BOSTON CENTRAL CORE									
Cambridge	X			?	X	?	?		X
Chelsea			X			?	X	?	X
Roxbury	?			X	X		?	X	
Charlestown	X						X	X	
South Boston	X					?	X	?	
Boston Proper							X	?	X
East Boston	?						?	X	?
BOSTON URBAN CORE									
Watertown	X				X	?			X
Dorchester	X				X	?			
Medford				?	X				?
Somerville				?	X			?	
Brookline				?	X				
Malden					X			?	
Everett	?				?	?			

Period core areas (listed by contemporary towns)	Archaeological	Rural Landscapes	Depot Villages	Town Center Streetscapes	Town Residential Districts	Town Industrial Sample Complexes	Urban Residential Districts	Urban Commercial Districts	Urban Fringe Landscapes
BOSTON REGIONAL CORE									
Waltham	X	X	?		X	X			
Woburn	?	X	?	X	X				
Wakefield	X		?	?	X	?			
Stoneham			?	X	X	?			
Dedham	X				?	X			
Newton	?				X	X			
Belmont		?		?	X				
Quincy					?	X			
Winchester				?	X				
Harbor Islands	X								
Revere					X				
PERIPHERY									
Wilmington		X	X	X					
Lexington		X	X						
Reading		?	?		X				
North Reading		?	X						

F. Research Topics

The Early Industrial period in the Boston area is fairly well-documented and significant period landscape and districts remain intact. Nevertheless, certain topics still require additional research in order to assess relative significance and gain perspective on historic context. These include the following subjects:

1. The development and evolution of multiple-family housing types in the central urban core, particularly the survival of early tenements forms in Boston and the relationship to Irish immigration.

2. A careful survey to document the survival of Early Industrial commercial districts, both in the central urban core and the suburban periphery with attention to period storefronts and signage.

3. A study of the innovative industrial sites in the Boston area, such as those related to rubber, meat packing, candy, textiles and furniture. The study might involve both archaeological and documentary investigation of the major industrial complexes in the study unit.

4. A systematic survey to assess the survival of early railroad structures in the Boston area, particularly those related to the first sequence of construction and the initial commuter routes in the suburban periphery. This might also involve archaeological examination of the major terminals in the central urban core, all of which were demolished before the Early Modern period.

5. A survey of 'craft' industrial structures on the suburban periphery, particularly those related to the shoe and granite industries. This might also involve a survey of related industrial housing and the sequence of plan types used in such towns as Waltham and Quincy.

6. A survey of the early picturesque suburban subdivisions, in particular noting the survival of original landscaping and streetscapes especially in Newton, Brookline, Dorchester and Malden.

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LATE INDUSTRIAL PERIOD (1870-1915)

A. Regional Events

During the Late Industrial period, two sets of events had a major impact on the Boston area. The first were the result of national economic and social developments, the second were related to technological innovations (especially in transportation) and advances in local planning. A series of depressions triggered by the panics of 1872, 1893, and 1907 slowed Boston's expansion and caused periodic stagnation in suburban development. Especially severe was the post-Civil War depression (1872-1873). Beginning in the 1880s and continuing through the rest of the period, Boston became a primary reception point for a new wave of immigrants, primarily from Eastern and Southern Europe. Once again, transportation innovations were among the most important events of the period. These included the electrification of the metropolitan street railway system (1889-1894) and the opening of both subway and elevated lines in downtown Boston (1895-1912). Other technological advances included the commencement of centralized electrical power generation (1881), establishment of a telephone system (1879) and the use of concrete as a building material (1901-1906). In terms of planning, the creation of a metropolitan park system (1879-1894) had a major impact on suburban development while construction of the Charles River dam (1905-1910) stabilized growth in portions of the central core. Two other events should be noted: the Great Fire of 1872, which destroyed a large section of Boston's central core, and Boston's growth through the annexation of adjacent towns.

B. Core-Peripheral Relationships

During the Late Industrial period, Boston maintained its status as New England's dominant urban core. Though its national influence gradually declined in respect to the rapid growth of New York and Chicago, Boston remained the industrial and commercial center of New

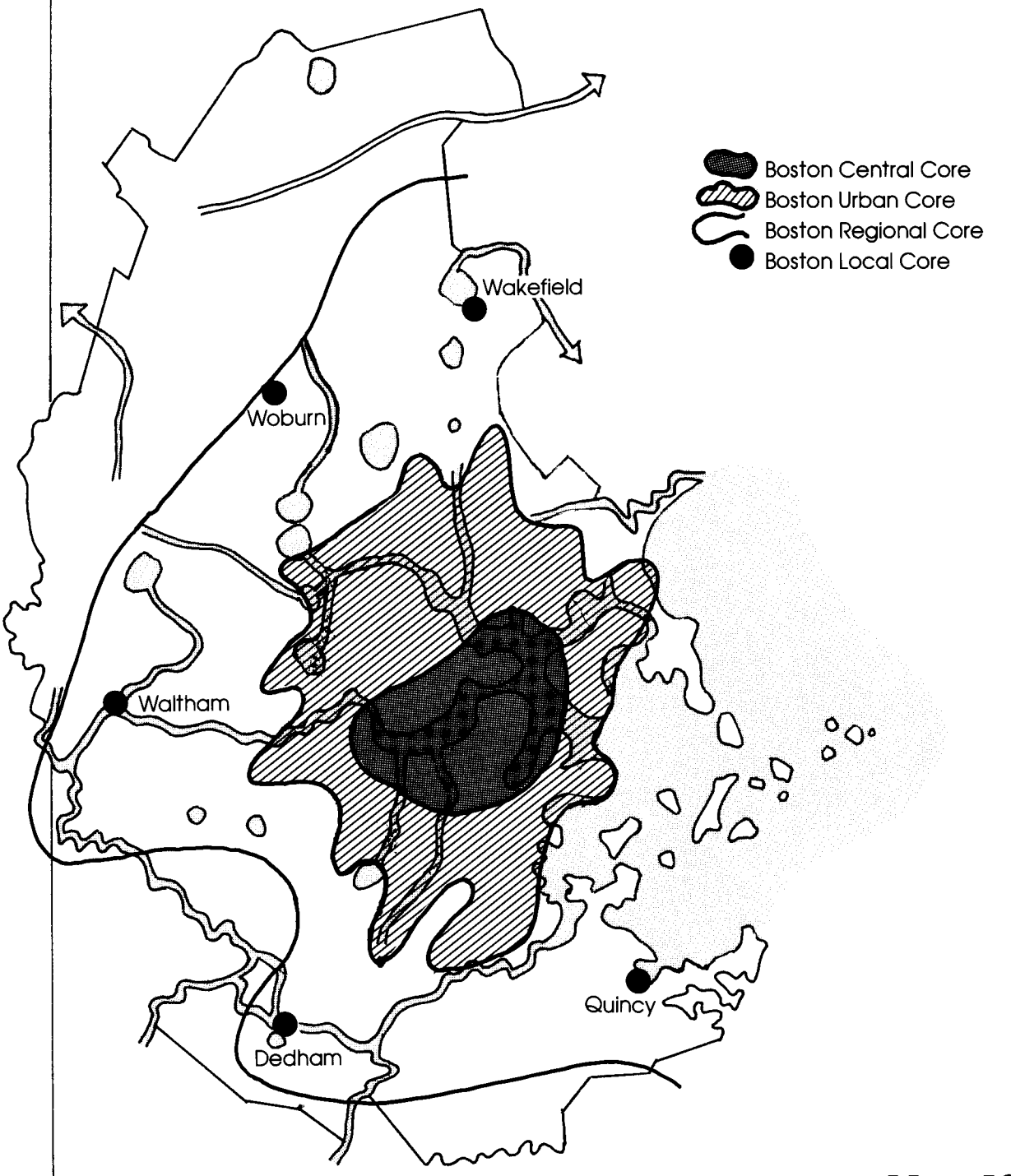
England and maintained a national and international reputation in financial and cultural affairs. Within the study unit, Boston's expansion continued, although at a slower pace than during the Early Industrial period.

Boston's central core increased in both size and density throughout the period. By 1915, it had spread well beyond the original peninsula and Charlestown to include Back Bay and portions of Roxbury, Brookline, Cambridge, Somerville, Everett, Chelsea, East Boston and South Boston. See Map 18. With this growth came changes in the components of the central core. During the period, the downtown central business district faced the same problem which Boston, as a city, had faced a century earlier - where to expand. The solutions remained much the same - rebuild at higher density (i.e. taller) or create new land by filling.

As the commercial districts absorbed more of the space within the central core, residential and even institutional areas were either squeezed into higher density or forced towards the margins of the core area. Within the central city, the residential areas which remained intact were those at the opposite ends of the socio-economic scale: the affluent town houses of Beacon Hill and Back Bay, and the immigrant tenements of the West and North End. While governmental institutions remained within the central city, many of the private ones migrated west and formed a new district of hospitals, museums and educational institutions in the Fens between Back Bay and Brookline. The pressure of expansion also forced relocation of many port and warehouse facilities, particularly across the Fort Point Channel onto new land created from the tidal flats off South Boston. The same pressures created another new fringe district along the East Boston shore.

As Boston's central core expanded, it also underwent its own process of internal differentiation. It becomes increasingly difficult to discuss both the functional processes and components of the central core during the Late Industrial period with the same, rather simple,

Late Industrial Period Core Areas



Map 18

terms used for the earlier periods. By the mid 19th-century, the residential, commercial, institutional and fringe districts which developed during the late 18th and early 19th century began to break down into smaller, more specialized units. These in turn frequently evolved with their own localized set of core-peripheral relations. For instance, by the late 19th-century it is inadequate to discuss 'residential districts'. Instead, there was a range of districts which could be discussed on a variety of scales: high status to low status, emerging to declining, innovative to traditional. In addition, these smaller more specialized areas often overlapped or were mixed together in such a way that they cannot readily be sorted out into 'districts'. For example, instead of a fringe district, there was a series of fringe areas, some old, some new, interspersed throughout the central core. Some were institutional, some industrial, others social; most overlapped or graded into adjoining non-fringe areas. To summarize, a process of secondary differentiation occurred throughout Boston's central core during the Late Industrial period and created a city of increasingly fine grain and remarkable complexity.

A final point on Boston's central core concerns the role of transportation. As in the Federal and Early Industrial periods, transport systems were crucial to the development of the central city. As the central core continued to grow, its dependence on efficient and effective transportation increased correspondingly. Two reasons were most important. The improved local transit systems of the Late Industrial period brought the work force into the central core from increasingly distant residential areas. On a larger scale, the regional and interregional rail and shipping lines that focused around Boston's terminals and port facilities provided the food and other vital materials needed to support the city's population.

Transportation was also a crucial factor in the rapid growth of Boston's urban core. By 1915, high density settlement had spread out in several directions reaching into Revere, Melrose, Stoneham, Arlington, Brighton, West Roxbury and Lower Mills in Dorchester.

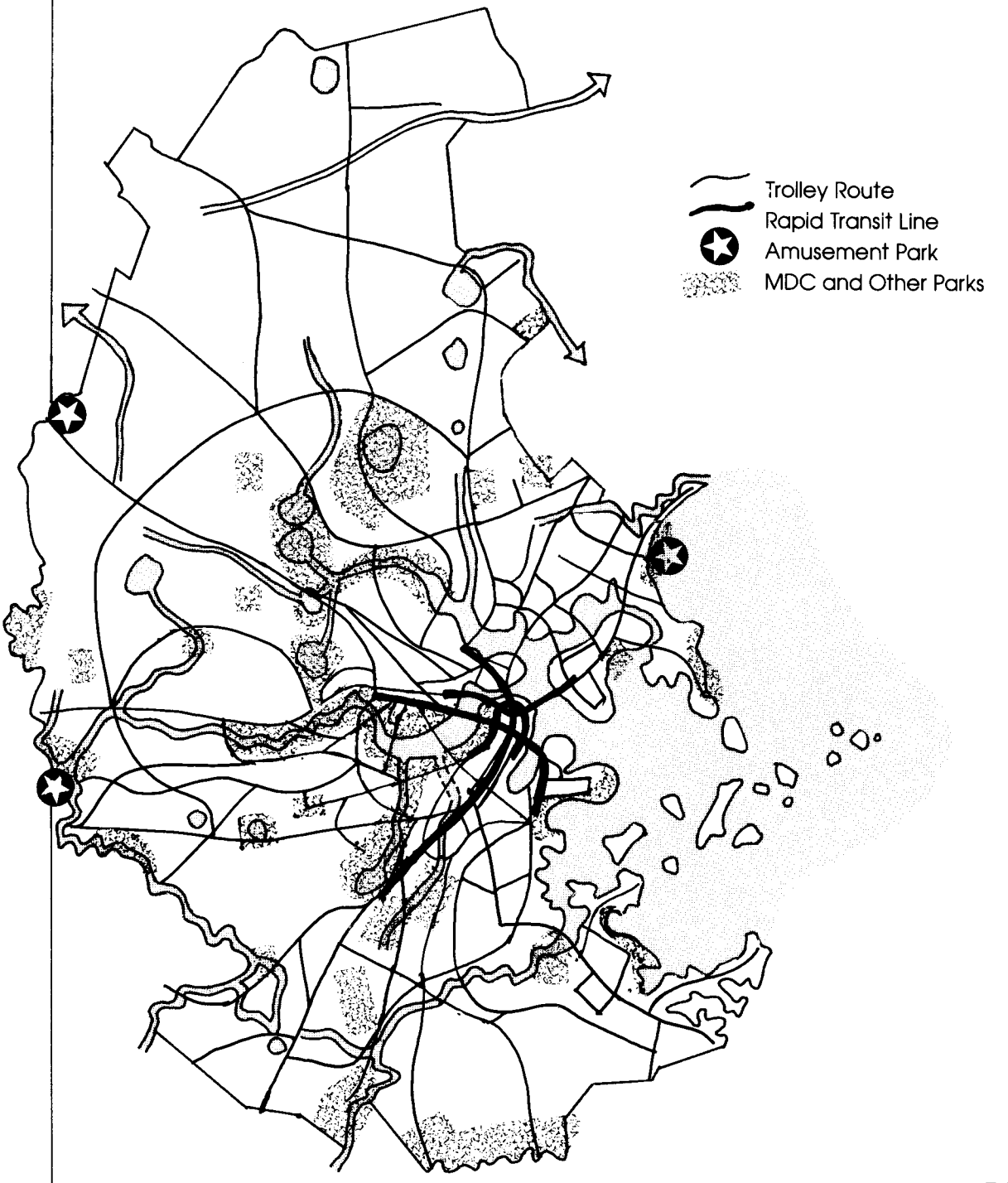
See Map 18. During the period, this urban core became the primary residential area within the unit and was characterized by closely spaced, multiple family housing usually built around access to streetcars or other rapid transit. See Map 20.

Like Boston's central core, the urban core area not only grew in size but underwent additional differentiation. This was most evident in three ways. As population density increased, a series of secondary commercial centers grew up in many of the older towns. These local commercial areas were usually located at intersections of the major transit routes and serviced the needs of the immediate residential population. Examples include Fields and Uphams Corners in Dorchester, Dudley Station and Jamaica Plain in Roxbury, Coolidge Corner in Brookline and Central Square in Cambridge.

Another kind of differentiation took place in fringe areas. Instead of occurring in a few large districts, fringe areas became smaller, more localized and more widely interspersed throughout the urban core. In part, this was a result of increased industrial growth in many of the towns and cities. An additional factor was the spread of institutions, especially Catholic Church-related and town or county hospitals, in many of the suburban towns. Frequently, these institutions located on old estate properties, thereby blurring the distinction between elite residential and institutional areas.

The third factor which contributed to the diverse character of Boston's urban core was the creation of a metropolitan park system. See Map 19. It did this in two ways. The parks themselves were examples of planned differentiation - open areas intended for recreation and frequently set amidst dense suburban development. Parkways were the other source of diversity. Acting as new transportation corridors, they stimulated new development, both residential and commercial, in the areas beyond park boundaries.

Late Industrial Period
Transportation Routes and Parks



Map 19

Outside of the inner suburban towns, Boston's regional influence consolidated rather than expanded during the Late Industrial period. There was some growth, particularly where towns like Lexington and Reading came within Boston's orbit and began to feel the first nudges of development pressure. See Map 18.

If the urban core area functioned as Boston's inner suburban belt, then the regional core was the outer suburbs. Residential development here was generally more affluent, focusing on single-family rather than multiple-family houses, and was still dependent on the railroads for access to Boston. Much of the development within the regional core was in filling of this kind.

The other major feature of the regional core was the growth of several of the industrialized towns into centers of regional importance. While many of the towns closer to Boston were overshadowed or even absorbed, the large towns scattered around the edge of the regional core, like Dedham, Wakefield and Stoneham, tended to retain their own identity. Some towns such as Waltham, Quincy, and Woburn, were incorporated as cities during the period and functioned as the dominant core within their own respective areas.

C. Transportation

The major changes in transportation during the Late Industrial period focused on the expansion and upgrading of Boston's mass transit systems. This occurred in two ways. One was the growth of the street railway from an urban-suburban system to one which serviced the entire study unit. By the end of the period, trolley lines had been extended to outlying towns like Lexington, Burlington and North Reading as well as to the large industrialized communities such as Quincy, Dedham, Waltham, Woburn and Wakefield. See map 19.

The innovation which made this expansion possible was electrification. Electric trolleys became the basis not only for local commuting

but for high speed, inter-urban service which connected towns in the Boston area with Brockton, Worcester, Andover and other destinations. On both the local and inter-regional level, the trolley system competed directly with the railroads during much of the period.

The other major change was the evolution of a rapid transit system within Boston's central core. New corridors were created through the city's dense downtown area by building both below-ground (subways) and above-ground (elevated). This made it possible to move a higher volume of traffic at a faster rate than the traditional street level system. By the end of the period, rapid transit connections ran from Boston to several of the other population centers within the central core. These included Charlestown, Cambridge, Roxbury, South and East Boston. See Map 19.

One additional factor which changed transportation during the period was the revival of roads as an important transport system. While roads had remained in continuous use for local purposes during the 19th-century, their regional and inter-regional importance had been eclipsed by the success of the railroads and trolleys. Several factors contributed to the re-emergence of roads. One was improvements in wheeled vehicles, such as bicycles, which became popular during the period for recreation and even commuting. The introduction of practical and affordable gasoline-powered vehicles also increased the demand for better roads. To some degree, however, the need for improved roads preceded the widespread use of automobiles. A State commission empowered to oversee construction of a state highway system was established in 1893, nearly a decade before automobiles became common.

D. Settlement

Two basic processes characterize the changes in Late Industrial period settlement. One was the continued increase in density throughout all of Boston's core areas. Among the results were bigger and

taller buildings and a diffusion of urban building forms from Boston into adjacent cities and towns. The second process was the expansion of new suburban settlement into the the outlying towns of the study unit particularly those towns located on the main transit corridors.

Within Boston's central core, the specialization of downtown districts begun during the Early Industrial period continued. The financial district was rebuilt with twelve-story, elevator-accessed office blocks along State Street. With the exception of the Customs House tower, steel frame skyscrapers of the New York and Chicago style were not constructed. The wholesale district, composed of multi-story loft buildings and converted pre-Fire row houses, expanded to Fort Point Channel. The most sweeping change was within the Washington Street retail district which was rebuilt (after the Fire of 1871) with large department stores and theaters.

During the 1880s, an extension of the retail district emerged along Boylston Street to meet the needs of Back Bay's residents and to service the new institutions around Copley Square. By the end of the period, however, the institutional focus had relocated further west along the Fenway, and a secondary commercial center developed at nearby Kenmore Square. These later two areas marked the western terminus of Boston's rather elongated downtown.

The surviving residential areas within downtown Boston were divided between the extremes of high and low income. The neighborhoods of the North and West Ends were heavily rebuilt with high density multi-story apartment blocks and served as tenement housing for Italian, Eastern European and other immigrants. Beacon Hill and Back Bay continued as affluent, townhouse districts.

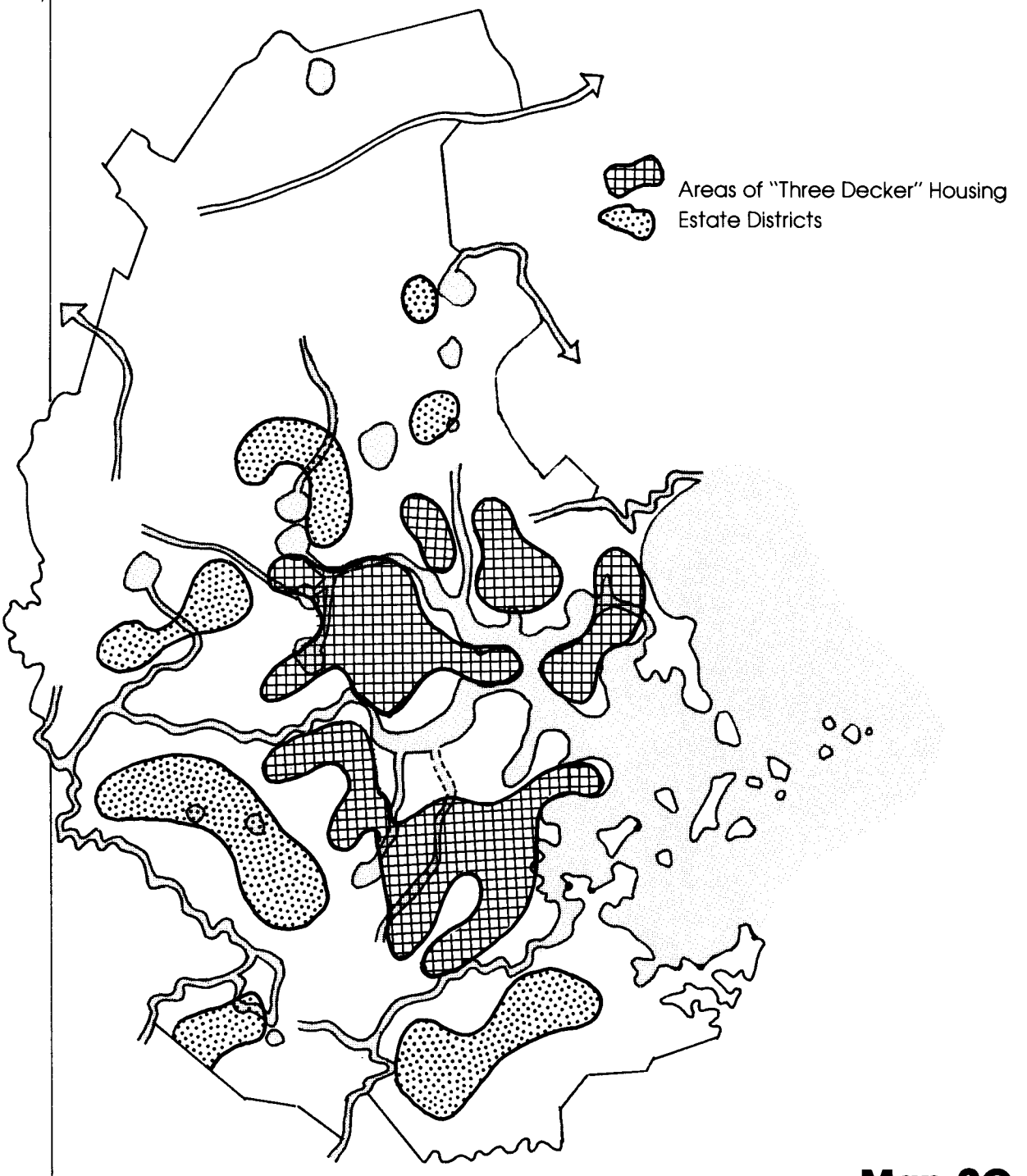
The major change in residential settlement was the shift from multiple-family houses to apartment blocks. During the period, apartments became the dominant form of housing within the central

core. This was most evident in the belt of new brick apartment buildings which grew up around downtown Boston, especially along the primary transit routes to Dorchester, Roxbury, Brookline, Brighton and Cambridge. A similar pattern of apartment construction took place in Chelsea, parts of Somerville and East Boston.

Beyond the central core, residential development continued to favor multiple-family houses rather than apartments. The result was extensive tracts of three-deckers, wooden row housing usually built in close proximity to trolley lines. This form of construction dominated many of the towns in the urban core area, among them Dorchester, Roxbury, Brighton, Cambridge, Somerville, Medford, Malden, Everett, Revere and East and South Boston. See Map 20. In order to provide goods and services to these densely settled residential areas, small commercial areas developed in many locations. Those which were located at major access points on the transit routes became major commercial centers. With multi-story business blocks and a range of civic buildings, these secondary centers often rivalled or even overshadowed the original town centers.

In the outer suburban areas of Boston's regional core, residential development proceeded along two lines. One was continued infilling as neighborhoods of single-family, and occasionally two family, houses were built along the main railroad corridors and the ever expanding trolley lines. This steady residential expansion was characteristic of towns on the edge of the urban core such as West Roxbury, Newton, Watertown, Arlington, Medford, Malden, Melrose and Revere. The other kind of residential development was based on greater affluence. In several of the regional core towns, sizable estate districts developed. These contained large, often elaborate, houses, country clubs and private schools. This kind of development tended to occur in the upland portions of a town where more bucolic surroundings, and perhaps a scenic vista, were available. Milton, Dedham, Newton, Waltham, Belmont, Medford and Winchester all had substantial estate districts of this type. See Map 20.

Late Industrial Period Settlement



Map 20

While Boston continued to dominate the entire study unit, several of the industrialized cities and larger towns, especially those located on the periphery of the regional core, exercised a strong regional influence of their own. Quincy and Waltham in particular had most of the same components as Boston but on a smaller scale. These included a downtown central business district as well as secondary commercial centers, a range of residential neighborhoods from affluent single family to tenement, industrial and institutional fringe areas, trolley and railroad connections and their own expanding suburbs. While Boston's influence was always present, many of these smaller cities and towns still served as the economic and social centers of their own areas.

A final characteristic of the regional core was the development of specialized recreational areas, places accessable by trolley from either Boston or its suburbs. These included the system of metropolitan parks and amusement parks. See Map 19. The beachfront resorts of Quincy, Winthrop and especially Revere were another important group of recreational areas.

By 1915, little of the study unit remained outside of Boston's regional core. Those towns which were, like North Reading, Wilmington and Burlington, continued to engage in specialty farming and vegetable production. The hints of change, however, were increasingly evident and the pressure for development came not only from Boston but from the large industrial cities of the Merrimack Valley as well.

E. Survivals

There are eight categories of Late Industrial period survivals: archaeological, depot villages, commercial centers, suburban residential districts, streetcar suburbs, urban residential districts, urban commercial districts and industrial complex/fringe landscapes.

1. Archaeological remains of importance include industrial complexes (many of the important ones survive only archaeologically), transportation and power generating facilities and areas of high density settlement, especially immigrant neighborhoods.

2. Depot villages include a cluster of small commercial buildings (1-2 stories) and civic structures such as a post office or fire station set around a railroad depot.

3. Commercial centers are continuous streetscapes (usually one block deep) consisting of 3-4 story commercial blocks and apartment buildings, often with a bank or civic buildings and set adjacent to a park or monument.

4. Suburban residential districts are composed of single-family houses set on relatively large lots. Larger estates are also included.

5. Streetcar suburbs consist of two to three-family, multi-story, wood frame houses on individual lots, often with adjacent commercial structures.

6. Urban residential districts include multi-story brick or masonry apartment blocks.

7. Urban commercial districts include multi-story (up to fifteen) steel and masonry commercial buildings as well as adjacent institutional and civic buildings, theaters, and hotels.

8. Industrial complexes and fringe landscapes are largely self explanatory and include railroad yards, waterfront facilities and similar features.

Period Core Areas (listed by contemporary towns)	Archaeological	Depot Villages	Commerical Centers	Suburban Residential Districts	Streetcar Suburbs	Urban Residential Districts	Urban Commercial Districts	Industrial Complexes/ Fringe landscapes
Boston Central Core								
Roxbury	X	X	X	X	X		?	X
Cambridge	?		X	X	X	X		X
Chelsea	X		X		?	X		X
South Boston	?		X		X	X		X
Boston Proper	X					X	X	X
East Boston	X		X		X			X
Somerville			?	X	X			X
Everett			X		X			?
Charlestown	?		?					?
Boston Urban Core								
Dorchester			X	X	X			?
Brookline			X	X		X		
Melrose			X	X				X
Stoneham			X	X				X
Brighton		?	X	?	?	?		X
Malden			X	X				?
Medford			X	X				
Revere		X		X				
Arlington			X	X	?			

Period Core Areas (listed by contemporary towns)	Archaeological	Depot Villages	Commerical Centers	Suburban Residential Districts	Streetcar Suburbs	Urban Residential Districts	Urban Commercial Districts	Industrial Complexes/ Fringe landscapes
Boston Regional Core								
Newton		X	X	X				?
Wakefield	?		X	?				X
Waltham	?		X		X			X
Watertown	?		?	X				X
Woburn	?		X	X	?			
Quincy		?	X	X				
Belmont		X		X				
Dedham			X	X				
Winchester			X	X				
Winthrop		X		X				
Milton		?		X				
Reading			?	X				
Lexington			?	?				

F. Research Topics

Considerable research has been done on the Late Industrial period. Not only is there extensive documentary and photographic information available, but the period is still within the range of living memory. In addition, a considerable number of Late Industrial buildings and structures still stand. Despite this, further research is needed on several topics and a number of survey-related questions remain to be answered. Among these are the following:

1. Survey of the warehouse and loft buildings in Boston's central core area, particularly for structural innovations and adaptation to high density settings.

2. A study of the evolution of apartment blocks from an elite, imported residential style to a mainstay of middle class housing. This can be examined both socially (who lived in apartment blocks?) and architecturally (what floor plans were used, how do they change over time?). Outstanding examples of the process should be identified.

3. A better understanding of how urban forms of multi-family housing, such as three-deckers and tenement flats, evolved. Again, surviving examples which indicate the process should be identified.

4. A survey of rural features of the Late Industrial period such as greenhouses, nurseries and market garden farms. These represent the transition from a traditional agricultural to a suburban residential economy.

5. A study of why height limits were imposed on building construction in downtown Boston and what economic and political realities that decision reflected.

6. A study of how Boston celebrated (or did not celebrate) the Centennial of the American Revolution in 1876 and what relationship this had to Boston's role in the development of Colonial Revival architecture.

7. A survey of worker housing in the large industrialized cities of the regional core - Quincy and Waltham in particular. To what extent did distinctive styles of architecture evolve in these cities?

8. A survey of period pumping stations, power generating plants and other related structures. To what extent does original machinery survive?

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EARLY MODERN PERIOD (1915-1940)

A. Regional Events

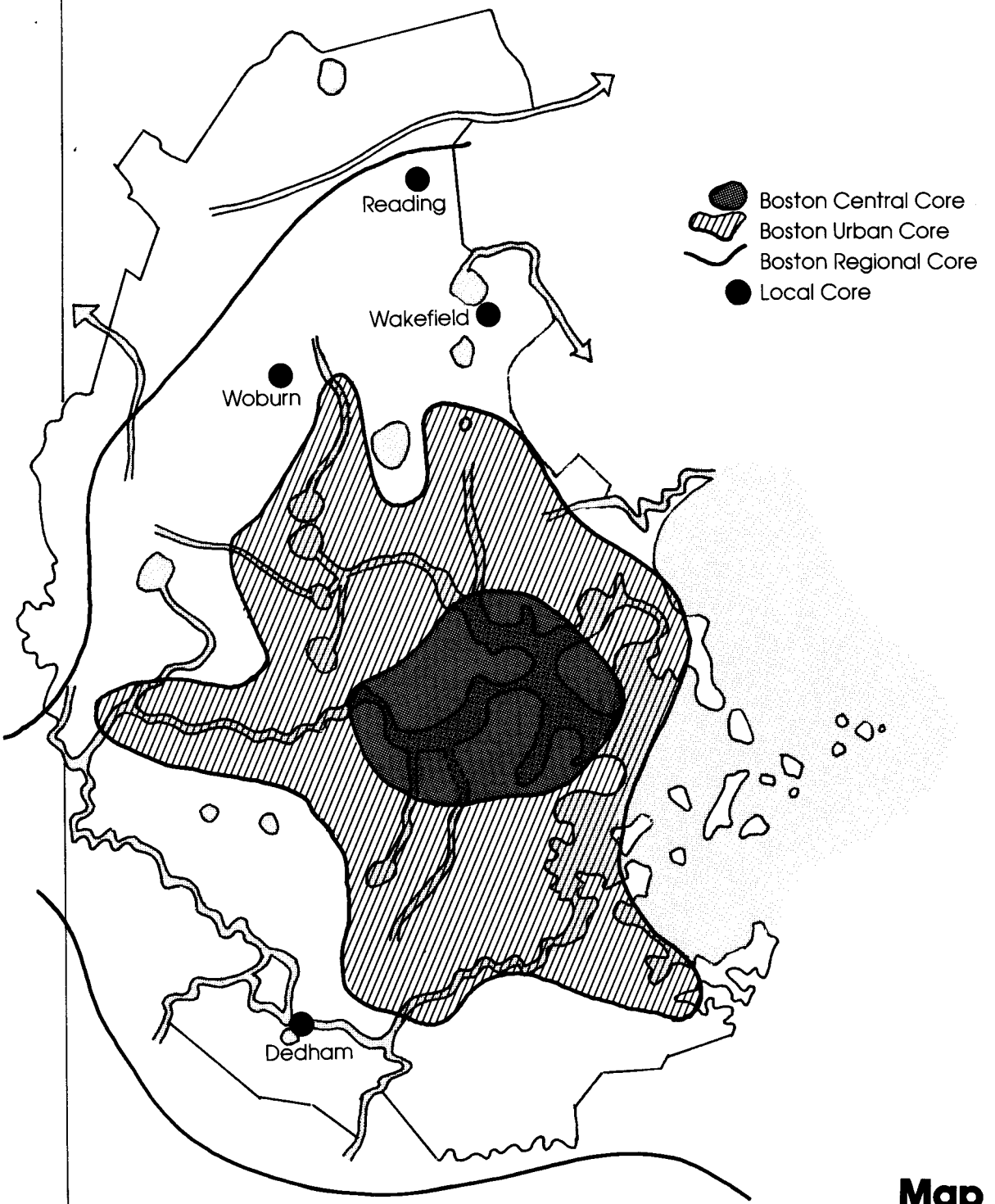
As defined, the Early Modern period spans only a quarter century and thus is the shortest of the historical periods discussed. Within it, however, several significant national and international events occurred which had a direct impact on the Boston area. These included the United States' involvement in the Great or First World War (1917-1919), the effects of the Great Depression (1930-1935) and American preparation for entry into the Second World War. These events either limited or re-channeled development and prosperity within the Boston area. Once again, improvements in transportation technology had decided effects on growth during the period. Most important were the widespread use of automobiles and the introduction of commercial air service. Specific events included the opening of the Boston Municipal Airport (now Logan International, in 1923), building of the Sumner Tunnel which linked Boston and East Boston (1934), construction of a regional superhighway system (1931-1936) and the opening of the first Howard Johnson's restaurant (1935).

B. Core-Peripheral Relationships

Throughout the Early Modern period, there was a gradual stagnation in the development of the Boston area. In large part this was a reflection of New England's declining industrial base and the loss of national influence to cities further south and west. While Boston remained the region's dominant urban core, most of the development during the period was in the surrounding suburban areas rather than within the city itself. See Map 21.

Despite some expansion of its boundaries, stasis and decline were the main dynamics within Boston's central core. In comparison with other large American cities, Boston did not participate in the urban prosperity which followed the First World War. While the city retained its international role in financial and cultural affairs, and

Early Modern Period Core Areas



Map 21

commercial importance within New England, only limited growth and rebuilding took place within the downtown area.

Two factors help explain the decline of the central core. The first was population loss. Between 1915 and 1940, and probably for the first time in the city's history, population density in Boston decreased rather than increased. In part this was a result of the centrifugal pressures which had pulled people out of Boston throughout the 19th-century. The increasingly commercial and institutional nature of the central core discouraged residential development and the continued advances in transportation made it even easier to work in the city and live elsewhere. Some expansion of the central core area did take place during the period. Most of this development was residential, consisting of new apartment blocks constructed along the major trolley lines. It is significant, however, that even this growth took place primarily along the margins of the central core in communities like East and South Boston, Brookline, Somerville, Everett and Chelsea.

One reason the loss of population became so evident was a reduction in immigration. During the 19th-century, the volume of new immigrants had more than made up for those people who migrated out of the city. Highly restrictive quotas enacted early in the 20th-century reduced this flow to a trickle. The slowing of immigration had other effects as well. As population density went down, several of the tenement areas began to stabilize and evolve into ethnic neighborhoods. Examples include the Italian North End and Chinatown, which began to form around the old South Cove during the late 19th-century.

The other important factor in the decline of the central core was the growth of fringe areas. Three kinds of institutional or industrial fringe developments took place during the period. One was military. This included a wide range of docks, shipyards and support facilities which were expanded during the First World War and again in preparation for the Second. While these facilities had an impact on the

Boston area in general, they often overwhelmed the communities adjacent to them. This was particularly the case in Charlestown, much of which served as a boarding house for the neighboring Navy Yard. Similar situations existed in South Boston and Chelsea.

The second kind of fringe development was terminal and port facilities. As the distribution center for much of New England, Boston's waterfront had long been cluttered with wharves and warehouses. During the last half of the 19th-century these were joined by vast coal yards which held the reserves required to fuel the railroads, steamships and power generating plants. New technologies required new fuels and by the early 20th-century, another series of storage facilities, this time for oil, kerosene and other petrochemicals was established. This kind of terminal fringe developed in East and South Boston, Charlestown and Everett.

The third fringe development was institutional. The major components included a series of universities, colleges, private schools and hospitals (both public and private). These were located in an arc which swung from the Huntington Avenue/Fenway area through Kenmore Square and along the Charles. To some extent this area began to function as an institutional/commercial periphery during the Late Industrial period. The addition of new hospitals and schools as well as commercial strips, such as the auto showrooms of Commonwealth Avenue, served to increase the fringe character of the area.

The combination of industrial stagnation, loss of residential population and increased fringe activity brought severe problems to Boston's central core. Among these were abandonment and decay. Most evident around obsolete railroad and water front facilities during the period, these problems were harbingers of more serious difficulties yet to come.

As Boston's central core began to decline, the momentum for growth shifted to the urban core. This area grew considerably during

the Early Modern period, primarily on the strength of expanding residential development. By 1940, it reached north into Stoneham and Winchester, west to Waltham, southwest nearly to Dedham and south to Quincy. See Map 21. With the exodus of people from the central core, the urban core area became the population center of the study unit. This shift fueled a boom in residential development during the 1920s. New districts of two-family houses were built in many of the towns surrounding Boston. Usually these were located along trolley lines, parkways or new auto routes.

Differentiation as well as expansion characterized the changes within the urban core. In the same way that central Boston became increasingly complex and finely grained during the Late Industrial period, the urban core became more diverse and mixed between 1915 and 1940. For example, while residential development within the area can be described as "suburban", it actually covered a wide range of housing types. Most were multiple-family, however, apartment blocks were built in the more urbanized towns like Medford and Watertown. At the same time, many single-family houses were built, especially in communities such as Winthrop, Arlington, Newton and Milton which were located at the edge of the urban core.

Several factors contributed to the urban core's increased diversity. One was the continued urbanization of many of the towns and cities. These included Late Industrial period cities like Waltham and Quincy, which were microcosms of Boston's complexity, as well as newly urbanized towns like Arlington and Watertown. In all these communities, urbanization tended to create smaller, more specialized districts and to blur the broad residential, commercial and fringe categories by mixing their components together.

Another factor which increased diversity was the growth of fringe areas. As within the central core, these fringes were both institutional and industrial. The institutions included hospitals, schools and sanitariums. These were built primarily in communities

west of Boston such as Brookline, Brighton, Newton, Waltham and Belmont. Usually located on old estate property or remaining tracts of open land, these institutions often had an impact on adjacent residential areas. Industrial fringe areas also spread throughout the urban core during the period. The largest fringe areas were along the shore line in Quincy, Dorchester and other waterfront communities. As in the central core, wharves, shipyards, oil storage depots and similar facilities were the main components of these fringe areas.

Finally, the highways and other auto routes built during the period spread commercial as well as residential development through the urban core. In addition to diversifying the areas through which they passed, the new roads created a new kind of fringe landscape - the roadside strip development composed of gas stations, diners and small retail shops oriented towards tourists.

By the end of the Early Modern period, the boundaries of Boston's regional influence had not only encompassed most of the study unit but pushed beyond them in several places. See Map 21. Here too, residential development was primarily responsible for the expansion. In this case, however, greater affluence resulted in the construction of mostly single-family houses. In towns like Milton, Newton and Winchester, neighborhoods of fashionable, and occasionally pretensous, houses grew up. Around these developed small commercial centers, country clubs and other middle class support services.

New roads were an important factor in this outer suburban expansion. With better access, formerly rural towns like Lexington and Reading were brought within a range feasible for commuting. The roads also assisted in creating new commercial centers. Designed to serve the needs of the expanding suburbs and its increasingly mobile population, these commercial centers frequently grew up around major intersections.

The shift in transportation back towards roads had two other effects, although the impacts only began to show during the period. The first was a change in recreational patterns. People were no longer restricted only to those areas on trolley or train lines. With the mobility provided by automobiles, greater recreational use was made of peripheral areas which had not been previously accessable. One result of this new interest in ponds, woods and other scenic or historic areas was a new economic base, one which provided food, lodging and information to travellers and tourists.

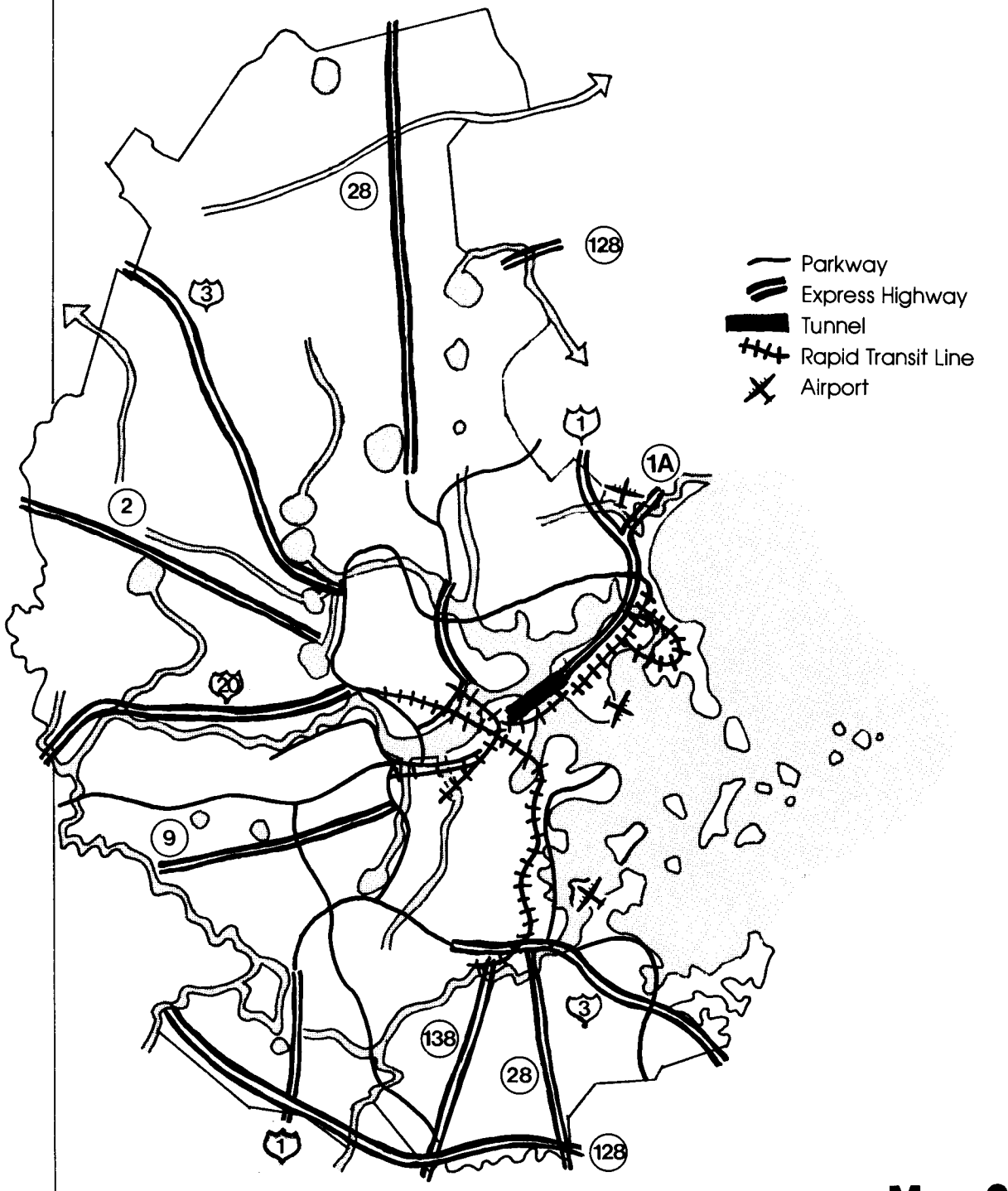
The other effect of the shift back to roads was more subtle. In the same way that automobiles modified public recreational interests, they began to re-orient settlement. Particularly with construction of entirely new highway systems, such as Route 128, industrial as well as commercial and residential development became feasible, even attractive, in areas that previously had experienced little or no development interest. It would require several decades before the full implications of this shift became evident.

C. Transportation

The Boston area underwent a major reorientation of its transportation network during the Early Modern period as a result of the widespread adoption of the automobile. This caused abandonment of much of the suburban trolley system, cessation of many coastal steamer routes from Boston and initiated the eventual decline of the railroads.

Major highway construction took place in two phases. The first was a series of parkways, which had their origins in the Metropolitan District Commission park system during the Late Industrial period. These parkways were designed both as scenic routes and as connectors between Boston and the residential areas of the urban core. See Map 22. Examples include the Jamaica Way (Roxbury) Commonwealth Avenue (Newton), Memorial Drive (Cambridge), the Fellsway

Early Modern Period Transportation Routes



Map 22

(Medford), Revere Beach Parkway (Chelsea) and Morrissey Boulevard (Dorchester). Two important radial highways were constructed to supplement these parkways. They were the Southern Artery, which ran through Dorchester and Quincy as Route 203-3, and the Northern Artery, Route 28 through Cambridge and Somerville.

A second phase of highway construction took place during the Depression when the state Public Works Department upgraded many of the old Federal period turnpikes into multi-lane express highways. This work focused on four major routes:

1. U.S. Route 1 which ran both from Revere through East Boston and via the Sumner Tunnel into Boston, and from West Roxbury southwest through Dedham.
2. Route 2 which went from Arlington west through Belmont and Lexington.
3. Route 9 which also ran west through Brookline and Newton.
4. Route 28 which ran north from Medford and south through Milton.

These routes, shown on Map 22, can be compared with the original Federal turnpikes shown on Map 12.

In addition to the rebuilding of turnpikes, several other roads were also upgraded during the period. Among them Route 138 in Milton, U.S. Route 3 from Winchester northwest through Burlington, and U.S. Route 20 which ran west through Watertown and Waltham. See Map 22. Perhaps the most important road construction, in terms of its future impacts, was the beginning of a circumferential beltway around the urban core. Only two sections of Route 128 were completed during the Early Modern period, one in Wakefield, the other between Dedham and Quincy. The full system was not completed until after the Second World War.

With the construction of a regional highway system, the trolley

network in the Boston area was substantially reduced. Active routes remained only along the primary transit corridors such as those which ran from Boston to Quincy, West Roxbury, Brookline, Arlington, Stoneham and Revere. While the trolley system declined, the rapid transit system continued to expand. Lines were extended through Dorchester to Mattapan and across Back Bay to the Fenway and Brookline.

The evolution of a commercially viable air technology after the First World War prompted the building of airports around Boston Harbor. Usually these were located in peripheral areas which could be used by both land and sea planes. The first flying field was at Squantum in Quincy and was later rebuilt as a military base. The major commercial field (now Logan International) began in 1923 in East Boston. There was direct access from this field to downtown Boston via the Sumner Tunnel. A small private seaplane base was also built in the Pines River marsh lands in Revere.

D. Settlement

Given the economic slowdown of the Early Modern period, the changes which occurred in settlement were less dramatic than those of the preceding periods. Within Boston's central core, two trends took place. The first was in-filling and the replacement of commercial buildings within the downtown area. A flurry of commercial rebuilding occurred during the 1920s and resulted in part from another shift in building material preference. While brick and masonry continued to be used for certain kinds of buildings, there was a marked shift to use of steel frame and concrete construction, often with terra cotta or limestone detailing, for commercial structures. Many of the new commercial buildings in downtown Boston, both in the State to Summer Street area and along Boylston Street, were multi-storied, stylishly detailed examples built in this manner. Further out on the edges of the central core, more modest masonry buildings were built. The one and two story auto showrooms of Commonwealth Avenue are examples.

During the 1930s, large building construction in the central core waned. The few examples which were erected were largely government buildings, like the central Post Office.

The second major trend which took place within the central core was establishment of the apartment block as the urban residential form. While apartments were used across the whole socio-economic scale, they appear to have been used primarily by middle income people. Both accessible and affordable, apartments became the mainstay for those people who wanted to live as well as work in the city. A variation on the growing use of apartments was the development of public housing projects. During the 1930s, housing projects were built in three parts of the central core area: Charlestown, Cambridge and South Boston. These were pioneering efforts to either keep or bring back a residential population to the central core area.

Settlement in the urban core area paralleled that of the central core in that most of the development occurred during the 1920s and tailed off during the 1930s. Within the cities and towns, most of the changes resulted from in-filling and replacement rather than from massive new construction. The most common buildings were one and two story commercial structures and municipal buildings such as post offices and libraries.

Residential growth within the urban core consisted of in-filling in older neighborhoods and the development of new tract neighborhoods. Usually set off from major highways or parkways, these tracts consisted of small single-family or two-family houses in a medium to high density setting. This kind of development took place in towns around the edge of the urban core such as Dorchester, Watertown, Arlington, Melrose and Revere.

New development also occurred along the highways which ran through the urban core. This included both expanded commercial growth, especially around intersections and strip development. A

whole host of new building forms emerged: among them gas stations, diners and other restaurants such as Howard Johnson's. All were designed to serve the motoring public.

In the outer suburban areas of Boston's regional core residential development was characterized by greater affluence and lower density than housing in the inner suburban areas. These planned developments were composed of stylish single-family houses, often with a garage and landscaped yards. They were usually set within a formal street grid or occasionally along picturesque meandering roads. Frequently, a small cluster of commercial buildings, designed to be architecturally compatible with the surrounding residences, was built nearby. This kind of affluent development took place in towns like Milton, Brookline, Newton, Belmont, Winchester and Winthrop.

E. Survivals

There are eight categories of Early Modern period survivals: auto highway strip development, planned suburban development, town commercial centers, commuter suburbs, urban residential areas, institutional complexes, transport fringe areas, and urban commerical/governmental districts.

1. Highway strip development includes period highways with related bridges and commercial structures such as gas stations/garages, diners, tourist cabins or shops, farm stands and roadside advertising.

2. Planned suburban developments are composed of stylish single-family houses in a medium to low density setting often with a few small "neighborhood-scale" adjacent commercial and municipal buildings such as police and fire stations.

3. Town commercial centers are streetscapes with significant period in-fill including large commercial buildings (department stores and chain stores) as well as municipal and civic buildings.

4. Commuter suburbs consist of small single-family or two-family houses built at medium to high density and usually in close proximity to parkways and highways.

5. Urban residential areas are multi-story brick, masonry or steel framed apartment blocks usually set along major public transit routes. These include both fashionable apartment buildings and period public housing.

6. Institutional complexes are large, self contained, multi-unit complexes usually set on their own landscaped grounds. These include hospitals, correctional facilities and educational institutions.

7. Industrial/transport fringe areas include coal and oil terminals, power plants, military related facilities, airports, railroad yards and similar kinds of industrial or waterfront development.

8. Urban commercial/governmental districts include both governmental and commercial high rise office buildings (five stories and up) as well as theatres, hotels and other related urban buildings.

Period Core Areas (by contemporary town)	Auto Highway Strip Development	Planned Surburban Development	Town Commercial Centers	Commuter Suburbs	Urban Residential Areas	Institutional Complexes	Industrial/ Transport Fringe areas	Urban Commercial/ Governmental Districts
Boston Central Core								
Brighton			X	X	X	X		
Cambridge		?	X	?	X	X	?	?
Boston Proper					X	X	?	X
Brookline		X	?		X			
South Boston				?	X		X	
Everett			?	?			X	
Somerville				X	?		?	
Charlestown					?		X	
Chelsea				?			X	
Boston Urban Core								
Quincy	X			X			X	
Waltham	?		X	X		X		
Arlington		?	X	X	?			
Malden			X	?	X			
Watertown			?	X			X	
Roxbury			?	X	?	?		
Dorchester	?		?	X				
Melrose		X		?	?			
Revere	?	?		X				
Medford		X		?				

Period Core Areas (by contemporary town)	Auto Highway Strip Development	Planned Surburban Development	Town Commercial Centers	Commuter Suburbs	Urban Residential Areas	Institutional Complexes	Industrial/ Transport Fringe areas	Urban Commercial/ Governmental Districts
Boston Region Core								
Dedham	X	X	X	?				
Belmont		X	X			X		
Winthrop		X	X	?			?	
Newton	?	X	X					
Milton		X	X	X				
Lexington		?	X					
Reading		?	X					
Wakefield	?	X						
Woburn			X	?				
Winchester		X						
Stoneham	?	?				?	?	

F. Research Topics

Because the developments of the Early Modern period occurred within the range of memory of people still living, there is an immense amount of information available. On the other hand, the recent past is often the most difficult upon which to have perspective. Having grown up with certain period landscapes can hinder one from understanding how they are part of a developmental process. Many of the survey topics listed below focus on identifying Early Modern period features which are either unrecognized or taken for granted. Among these are the following:

1. A survey of Early Modern fringe areas including military complexes, coal and oil storage areas, shipyards and power plants. What impact did these facilities have on the neighboring communities?

2. A study of recreational land use during the period including country clubs, Metropolitan District Commission park land and beaches. How much of the original landscaping and structure survive? Who used these areas and how did this reflect the demographic changes of the period?

3. A study of innovative architecture of the period, especialy residential. Many examples of International Style buildings, for example, are not included in current inventories.

4. A survey of highway related buildings and structures, especially gas stations/garages, drive-in restaurants and signage.

5. A study of how outdated, obsolete period municipal buildings, particularly schools, can be re-used. Generally these buildings are attractive and structurally sound. In addition, they are usually tied in closely with their neighborhood setting. What are the options for re-using them?

6. A study of the emergence of ethnic neighborhoods. How is this process reflected by the institutions (especially synagogues and churches), commercial structures and housing built or modified in the neighborhood?

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CHAPTER IV: ARCHITECTURAL DEVELOPMENT

Introduction:

The essay on architectural development which follows represents a departure from the usual history of building styles and as such requires some explanation. The primary difference is that the information has been organized in a typology by building and plan. For Institutional, Commercial and Industrial buildings, major building types appearing in the study unit were identified and organized into general categories by function. Thus, public and private institutional structures were separated and then further identified: Administrative, Service and Educational function in the case of public buildings, Educational function in the case of public buildings and Ecclesiastical and Education function for private institutions. Commercial structures were grouped by Mercantile/Office or Transportation/ Recreation uses, while industrial buildings fell into categories of either Manufacture or Service/Engineering. A developmental essay was written for each building type following it from its introduction to its demise, and identifying significant examples and survivals.

For residential structures, the greater number of surviving examples warranted a more specific approach. Residential structures were initially broken down into single or multiple-family function. Significant single-family plan types were identified for each historical period and defined as innovative (ahead of their time), contemporary (of their time) or traditional (behind their time). Multiple-family housing was treated as all other structures had been, by building type with a developmental essay for each example.

The following section employs a typology for several reasons. First, a history of building types "allows for a demonstration of development both by style and by function, style being a matter of architectural history, function of social history." (Pevsner 1976: 6) This is especially beneficial in dealing with a body of information which ranges from the most stylish to the simplest of structures. The

use of building types rather than style alone emphasizes the social historical process of architectural development rather than the aesthetic merits of a particular style of structure. In the typology, all structures can be treated as equally significant cultural expressions. Finally, the following essay is intended to complement the preceding settlement section in its emphasis on developmental patterns. Whereas the settlement section describes cultural change in terms of the location of all building types on the landscape, the architecture section describes the nature of architectural change within each type.

I. RESIDENTIAL

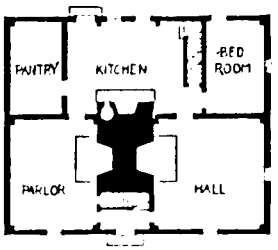
A. Single Family

The single-family house is the most numerous and longest-lived building type of the study unit. Single-family houses were built in every historical period and in every town of the study unit. From the beginning, single-family houses have existed in a variety of forms reflecting a range of economic means and social expectations. Before the Federal period, single-family construction dominated the residential category, although a single-family house was often used by different members of an extended family. In the early 19th century, the evolution of a variety of new multiple-family house types commenced but despite this, the single-family house remained the standard dwelling unit through the end of the Early Modern period. Since details of individual houses vary so greatly from one example to the next, plan types and, secondarily, style, have been the most useful criteria by which to identify local patterns of change. Plan types have been defined as innovative, contemporary or traditional for each historical period.

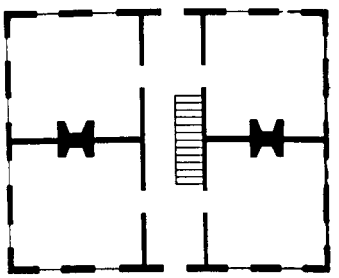
Plantation Period:

While less than a half dozen Plantation Period houses remain in the Boston unit, they nevertheless demonstrate the evolution of plan types. At the time of initial settlement, both one-room, end chimney and two-room center chimney plan houses were constructed in the study unit. These include the Fairbanks House (c. 1636) in Dedham, believed to be the oldest extant timberframed house in the country, and at least four other surviving houses of similar antiquity: the Deane Winthrop House (c. 1638-50) in Winthrop, the Pierce and Blake Houses (c. 1650) in Dorchester and the Capen House (c. 1658), moved from Dorchester to Milton in 1911. Of these, the Fairbanks and Blake Houses were originally constructed as two-room center chimney

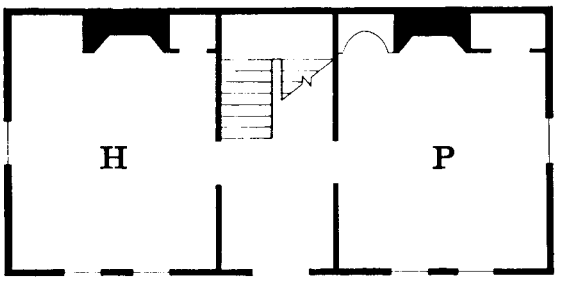
RESIDENTIAL HOUSE PLAN TYPES: 18th and Early 19th century



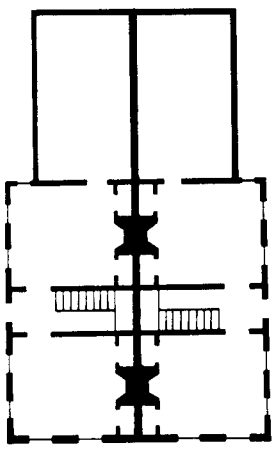
CENTRAL CHIMNEY PLAN
(Morrison, 1952: 474)



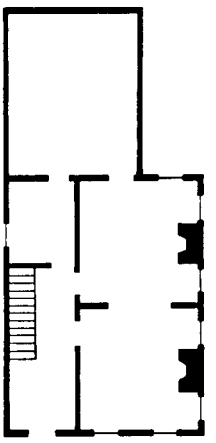
FOUR ROOM, DOUBLE CHIMNEY
(CHC, 1971: 39)



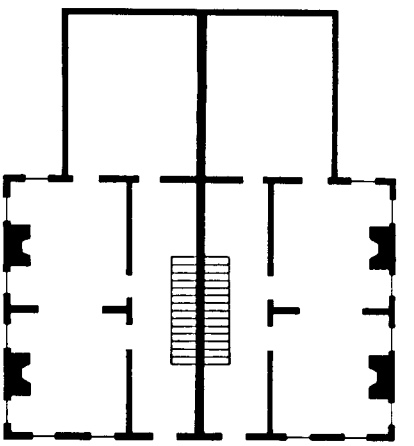
TWO ROOM, TWIN REARWALL CHIMNEY
Daniel Watson House, Cambridge
(CHC, 1977: 64)



DOUBLE HOUSE PLAN TYPE A
(CHC, 1971: 39)



SIDEHALL PLAN
(CHC, 1971: 39)



DOUBLE HOUSE PLAN TYPE B
(CHC, 1971: 39)

plan houses while the Winthrop, Pierce and Capen Houses began as more modest one-room, end chimney plan houses and were later enlarged to center chimney, two-room plan status. Almost without exception, one room, end chimney houses were later enlarged to two-room, center chimney status and the two-room plan became the period's standard plan. One variant of the two-room, center chimney plan is the three-quarter plan house with one large two-bay room, an entrance bay and a small one-bay room; no First Period examples of this type survive in the study unit.

Both of the First Period plan types were common in England at the time of initial settlement. In addition to the chimney itself, (then still a comparatively novel feature which had only come into common use in yeomen's houses in the 16th century), there were significant American innovations in the First Period. The first, the cellar, an adaptation of the food storage service wing of the English house to an underground location, was necessitated by the harsher New England climate. The second, the added lean-to, provided alternative service-room space.

Colonial Period:

The major innovations in plan type during the Colonial period reflect the advent of the Georgian style. The introduction of the center hall necessitated a shift in chimney placement. In the earliest Georgian buildings of the study unit, (the Clark-Frankland and Foster-Hutchinson houses, both built in Boston c. 1690), the chimneys were placed in the end walls, but by the 1730s, double interior chimneys prevailed. With the center hall and double interior chimneys came the symmetrically disposed four-room plan. Before 1750, most houses exhibiting the fully developed Georgian plan (four-room, double interior chimney, center hall) were located in Boston or in one of the outlying towns (Cambridge, Milton, Roxbury, Medford) where such houses were built as country estates for the wealthy.

After 1750, fully developed Georgian houses were built in more of the study unit's towns, but even then, such houses were rare, with one or two examples per town. Often, these were built as parsonages or occasionally, as taverns. While the hip and gambrel roofs were the most commonly employed forms for the fully developed Georgian house, other variants are known including the double hip roof and and hip roof with deck.

The other innovative design which grew out of the Georgian style is the two-room, twin rearwall chimney plan, a more modest plan type which is essentially a half-size version of the fully developed Georgian house. In the twin rearwall chimney plan, the center hall is retained with two rooms, each with a chimney at the rear, disposed symmetrically to either side. The chimneys are most often contained within a rearwall constructed entirely of brick. The earliest twin rearwall chimney houses were probably built in the 1740s and seem to have been most common in the Middlesex County area.

The most common form of the Colonial period, however, was the center chimney house, which was built throughout the period and in all towns of the study unit. Two versions of this plan predominate, one of two room's depth and the other only one room deep. The first is more substantial and seems to have evolved from the 17th-century center chimney house with added lean-to. By the 1660s, the added lean-to had been integrated into the house frame; the integral lean-to in effect created a plan with three major rooms, a hall, a parlor, and, in the lean to a new room, the kitchen. This three-room plan (with ancillary service rooms in the lean-to) became standard around 1700 and remained so through the end of the period. By the mid-century, the lean-to was passé and the range of rooms across the rear had been carried up to the second story and incorporated beneath a gable roof. While the gable roof is the predominant roof form for four-room center chimney houses, double hip and gambrel roofs were also used for more elaborate houses. North of Boston, the preferred roof form for substantial houses seems to have been a pyramidal hip with the central chimney rising through the peak.

The more modest two-room version of the central chimney house retained the plan of the 17th-century central chimney house with a hall and a parlor flanking a center entrance. This plan functioned as one of the simplest house forms, half and three-quarter plans being unusual. Gable roofs were the most common roof form for the center chimney houses, although gambrel roofs seem to have been a popular form for center chimney cottages, especially north of Boston. Although once common, gambrel roofed cottages are comparatively rare survivors.

For all of the above-mentioned house types, frame construction with clapboard sheathing was the rule; brick and stone were employed only incidentally for chimneys, chimney walls and foundations. The use of shingles was also rare. For most houses, detailing was simple and confined to door and window enframements. The most commonly employed Georgian decorative elements are dentilated cornices, windows with crown moldings and doors with triangular or segmental pediments or pilasters supporting a flat entablature and, more rarely, quoins or monumental end pilasters. More elaborate embellishment was reserved for the most ambitious houses.

At least a few exceptions to the patterns discussed above should be noted. While frame construction predominated during the period, both Boston and Medford were early centers of brick construction. As early as the 1680s, the availability of brick (and, in Boston, the scourge of fire) encouraged the construction of one and two-room deep brick houses with chimneys incorporated in the end walls. In Medford, contemporary techniques and forms in brick apparently conditioned local builders to accept the end chimney plan and the steeply pitched, narrowly decked gambrel roof for framed as well as brick houses. Such gambrels were typical on brick houses like the Peter Tufts House (c. 1679). Early frame, end-chimney, gambrel roofed houses were common in the Medford area with at least one example surviving (Oliver Tufts House, c.1714, Somerville).

Another variant to be noted is the continuing importance throughout the Colonial period of the one-room, end chimney plan in urban areas. By 1680, Boston had achieved urban status and there, neighborhoods of sidehall-entered, one-room, end chimney plan houses were built in close proximity to each other. In the urban context, such houses reflected the need for space efficient solutions to increasing population density; the heavily-restored Paul Revere House (c. 1681) is the only surviving example of this once common form.

Federal Period:

The major design shift of the period is one of degree rather than kind; it is a shift away from the robust, massive forms of the Georgian style, which derived from the 17th-century European Baroque, to the finely drawn, geometric lines of the Federal style, those sources of which were in late 18th-century Neoclassicism. That shift in scale is particularly evident in decorative details, but other major changes of the period were in chimney placement, with the interior double chimneys moving out to the end walls, and in roof form, with the hip roof of shallow elevation replacing the steeply pitched hip or gambrel of the Georgian style. Differences in plan type are somewhat more subtle, since both fully developed Federal plan types retain the center hall introduced earlier in the 18th century.

In the first plan, the four room (double pile) end chimney plan, the Georgian double chimenys moved out to the end walls and were divided; instead of four rooms sharing a pair of chimneys, each room in the fully developed Federal double pile plan had its own end wall chimney. The double pile end chimney Federal house was introduced in the study unit after 1800, and most examples were built as substantial farm houses primarily in outlying or rural settings. The Jackson Homestead (1809) in Newton is a good example of this form.

The second fully-developed Federal plan type is a single-pile plan, only one room deep, but it rises to three stories. The three-story end chimney Federal house developed in the densely settled urban core, where restricted lots necessitated a vertical solution. Three-story Federal houses are still common in Boston and Charlestown. They are, however, very rare in other areas of the study unit. When three-story houses were built outside of the urban core, they were generally located at the town center. The Robbins House (c. 1800) in Arlington is one such example.

The twin rear wall chimney plan, first introduced in the Colonial period, is probably the most common plan type of the Federal period. Twin rear wall chimney houses were built through the end of the period and in every town of the study unit, regardless of density. They appear to have been particularly popular in Middlesex county and north of Boston, although examples are known in the southern half of the study unit. Like the end chimney plan, the twin rear-wall chimney plan had the advantage of maintaining an unobtrusive roof line, favored in the Federal period.

The traditional large Georgian house plan of four rooms with interior double chimneys continued to be popular during the period. Before 1790, houses of this plan are merely late examples of the prevailing pre-Revolutionary War Georgian style; a number of houses with transitional late Georgian/Federal detailing are known in Charlestown, for instance, which was completely rebuilt after having been burned in 1775. In Cambridge as well, such plans were standard through the turn of the century. After 1800, however, use of the four-room double-chimney plan became increasingly outdated and was generally confined to the outer suburban periphery with several examples known, such as in the town center in Wilmington.

The traditional center chimney plan remained in common use for modest structures and especially for cottages throughout the period, with both one and two-room deep examples known. In general,

houses of this plan are the simplest of the period and are only to be distinguished from their 18th century predecessors by the use of Federal details, such as an entrance surround with three-quarter sidelights and flat entablature. The number of center chimney cottages surviving from the Federal period is greater than those known for the Colonial period; modest neighborhoods of Federal workers' cottages are known in several towns of the study unit, including Newton and Woburn.

As in the Colonial period, frame construction was the rule for the Federal period. The use of brick increased although houses entirely of brick continued to be unusual; most brick was used for exposed end or rear walls. Stone buildings are somewhat more common, although still rare, with examples known in Milton and Quincy, and isolated examples in Chelsea and Brookline. Detailing for most houses consisted of modest door enframements with segmental or elliptical fanlights or an entablature, three-quarter sidelights, and pilasters; leaded fans and sidelights were comparatively unusual with simple blind fanlights or fan and sidelights with wooden muntins predominating. Porches and porticos are somewhat more common in the Federal period, most of these being rectilinear rather than elliptical or semi-circular. Dentilated cornices, of lighter scale than their Georgian counterparts, remained standard.

One of the most significant developments of the Federal period was the emergence of a Boston-based group of prominent professional architects. Above the general level of substantial houses built in in the study unit was an elite group of architect-designed houses and estates, including landmark buildings like Gore Place (1801-4, J.G. Legrand, Rebecca Gore), Bulfinch's three Otis houses (1797-1801) and Alexander Parris's early Greek Revival Sears House (1819). Also notable is a group of houses in Roxbury and Brookline with monumental porticos wrapping three sides; the type is believed to derive from West Indian sources.

The pattern of building in brick remained common in densely settled neighborhoods in Boston: the sidehall plan, prevalent in Boston since the end of the 17th century, continued to be widely employed as well. The best examples of masonry construction using the sidehall plan are the brick townhouses of Beacon Hill. At least one significant design innovation, the bow front, grew out of that urban architectural form.

Early Industrial Period:

During the Early Industrial period, the concept of symmetry, which had been the prevailing design concept of Georgian and Federal architecture, gradually yielded to the more asymmetrical, irregular lines of the 19th century Romantic revivals. With advances in heating technology, chimney placement ceased to be the major determinant in plan development and a variety of chimney locations became possible. The earliest manifestation of the shift to asymmetrical plans can be noted in the widespread adoption of the sidehall plan, with its off-center entrance.

With the introduction of the Greek Revival style, the house was reoriented with the short gable end toward the street in temple fashion; with that shift, the three-bay facade became common. While the sidehall plan had long been employed in an urban context, during the Early Industrial period, the construction of sidehall-entered houses and cottages spread across the study unit. In most instances, the sidehall plan consisted of two rooms with chimneys set opposite an entrance hall and staircase; service ells to the rear were common features. The use of the gable roof was universal.

In Middlesex and Suffolk counties, more ambitious houses and cottages incorporated porticos, which were most commonly located either along a side elevation or across the facade. Monumental side porticos were generally employed on houses while cottages often incorporated recessed porticos, the gable end forming a deep overhang supported by

the columns of the portico. Temple front sidehall houses and cottages are comparatively rare, although most towns of the study unit contain at least one example of that classic Greek Revival form. Tetrastyle and hexastyle (four and six-columned) porticos in the Doric and Ionic orders predominate. Two variants of the temple front Greek Revival house, both apparently concentrated in Middlesex County, should be noted. The first, apparently derived from designs originating in Cambridge and found along a westward axis from Cambridge that includes Newton and Natick, has very narrow, vertical proportions with a steep-pitched gable roof. The other, most common north of Boston, incorporates a cast iron or wooden balcony on the second story.

While initially the sidehall plan was associated with the Greek Revival style, as the period progressed, the sidehall plan became the accepted plan type for modest-sized housing. A great many simple Italianate sidehall houses were built across the study unit in the emerging suburbs and in working class neighborhoods.

The sidehall plan was used in more elaborate houses as well. In such construction, the basic unit of two rooms and a side stairhall was embellished with dependencies and secondary ranges of rooms to form the second major innovative plan type of the period, the asymmetrical T or L-plan. Generally, the T-plan was used in the Gothic Revival style while L-plans are more common for towered Italianate villas. These asymmetrical plans and houses in the styles associated with them, were most widely employed in the railroad suburbs of the 1840s and 1850s which developed in the encircling highlands around Boston (Roxbury, Belmont, Brookline). While both Gothic Revival houses and towered villas are comparatively rare, by the end of the period the asymmetrical plan was well established.

During the period, the four-room, double chimney plan made a resurgence, being used primarily for modest-sized houses in suburban and rural locations. Early in the period, houses with that plan were built

in the Greek Revival style; most often these retained the five-bay, center entered facade and end gabled orientation common since the 18th century. A very few examples are known (such as in Lexington) where broad gable and monumental portico were added to the five-bay facade. By the 1860s, double chimney plan, Italianate houses with three-bay facades, overhanging bracketed eaves and one story verandas were being built. The type was built through the end of the period although by that time, mansard roofs often replaced the traditional gable form.

Two and four-room, double chimney and end chimney plans remained common for cottage architecture through the 1850s, particularly in Norfolk County and south of Boston. There, numerous center entrance cottages were built, most of these incorporating a recessed Greek Revival portico across the facade. The simplest houses of the period employ the traditional two-room plans with very modest end, double and twin rearwall chimney houses being built into the 1850s.

As before, frame construction predominated. The use of stone increased somewhat during the period with brick construction remaining a common building material in urban areas. Flushboard siding was used fairly often for more ambitious houses, especially on the facade. After 1850, rusticated boarding became a popular exterior finish. Stucco as well as board and batten finishes survive only rarely. Greek Revival door enframements consist of transoms and full length sidelights; peaked lintels are common and unembellished entablatures with wide friezes replace dentilated cornices at the roofline. Gothic lancet windows or Egyptian Revival capitals are occasionally used as an accent within Greek Revival designs. With the advent of the Italianate style, roundhead windows, wide bracketed eaves, one-story verandas, and double leaved doors, and polygonal bays became common, predominating into the 1870s. The mansard roof, introduced in the inner suburban periphery by the 1850s, was widely employed by the end of the period.

The most notable stylistic variant of the period is the Regency Greek Revival, a severe neoclassical type, characterized by very wide, plain pilasters, flushboard siding and unadorned door and window surrounds; surviving examples are rare and are primarily confined to the inner suburban periphery.

Late Industrial Period:

By the Late Industrial period, chimney placement, the traditional determinant of plan type, was no longer a significant factor. Innovations in heating technology made prominent chimneys obsolete and floor plans began to reflect changing lifestyles. The major innovation was the development of the open plan with room placement and size related to use. Stair placement remained important and, in the open plan, the stairhall became a focal point at the core of the house from which other rooms depended. The functionalism of the open plan is reflected in the irregular exterior appearance of the late 19th century houses. This is especially true for houses in the Shingle and Queen Anne styles. After 1900, a return to the rectilinear, symmetrical lines and traditional center hall plans of the Colonial and Georgian Revivals spelled an end to the fluid informality of the late 1880s and early 1890s.

The incipient expressions of the open plan appeared in the asymmetrical T and L- plans of the Early Industrial period; in the 1870s, an asymmetrical plan with intersecting cross gabled blocks became common, especially for houses in the Stick Style. Most of the early Stick Style houses in the study unit are located in more affluent neighborhoods in the inner suburban periphery. Early Stick Style plans had incorporated comparatively rigid floor plans with standard rectilinear rooms; by the 1880s, more informal interior spaces with rooms of differing sizes and shapes had become common. By the 1880s the open plan was the established form for well developed Queen Anne and Shingle Style houses. Most of the study unit's fully developed Queen Anne and Shingle Style houses are ar-

chitect-designed houses located in affluent neighborhoods of the inner suburban periphery (Cambridge, Newton, Brookline, Winchester, Milton), although almost every town of the study unit has at least one elaborate Queen Anne house at the town center. Well-developed Shingle Style houses are unusual outside the inner suburban periphery.

More modest houses retained the cross gabled plan through the turn of the century, usually incorporating either Queen Anne or Colonial Revival detailing. Such houses were built in large numbers across the inner suburban periphery. Because of the great expansion in the period in the number of multiple-family houses constructed, single family houses are increasingly concentrated within discrete suburban neighborhoods of comparative affluence. In more densely-settled areas, the sidehall plan remained current through the 1890s for the simplest Queen Anne and Colonial Revival houses.

After 1900, a resurgence of symmetry occured with the advent of the 17th and 18th-century revival styles. Traditional center hall plans were employed in substantial as well as modest sized Colonial Revival houses across the study unit. Less common, and generally confined to the inner suburban periphery, are houses in more esoteric historicizing styles such as the Georgian, Federal and Tudor Revivals. Also comparatively rare are houses in the Craftsman style; like Shingle Style houses, most of these are located within the inner suburban periphery.

While frame construction predominated throughout the period, other building materials and finishes, in particular, stucco and brick, were used with increasing regularity, especially after 1900. Other specialty finishes include cast iron and terracotta trim (cresting), slate (roof shingles and, occasionally, siding), glazed ceramic tile, stained glass, plaster (sculptural trim in relief) and patterned shingles. Porches and verandas became standard with second-story porches and sleeping porches not uncommon. Classical detailing remained standard but was

often employed in combination with novel floral and faunal elements. The instance of residential design by trained architects rose substantially during the period as the profession matured.

Early Modern Period:

No specific innovations in plan type can be noted for the Early Modern period in the Boston area. The dominant process of the period was one of simplification and consolidation. The complicated massing of the late 19th-century yielded to straightforward rectilinear forms as labor and materials became more expensive. (One example of this can be seen in multiple-family housing, where the standard cross gabled, two-family house form was replaced in the 1910s and 1920s by a very simple two-story structure contained beneath a single, unbroken hip or gambrel roof.) No single plan type predominated, the variants of the open plan coexisting with traditional center hall plans. Plan choice was dependent primarily on style; conservative styles such as the Colonial, Georgian and Tudor Revivals generally retained the center hall plan while bungalows, Prairie Style and Craftsman-related houses more often adopted an open or asymmetrical plan. Although they are stylistically advanced, the International Style houses built in the study unit in the 1930s can be seen, in many instances, as merely the most up-to-date examples in the evolution of the open plan.

Within the inner suburban periphery, a process of consolidation occurred with the infill of established elite late 19th century suburbs, especially along the newly developed parkways around Boston. Some new construction occurred in more modest residential neighborhoods of the inner suburbs with similar construction in established residential areas of outlying cities. Little new residential construction occurred at the central urban core, except as replacement structures became necessary; almost no single-family residences were built in the central urban core. Major new construction was confined to areas of very modest resort housing with simple one-story cottages and houses built around inland ponds (Wilmington) and along the coast (Revere and Winthrop).

In the suburbs, historically an area of architectural innovation, the residential development of the period was of a conservative and cautious character with the Colonial, Dutch Colonial, Georgian and Tudor Revival styles predominating. Prairie Style houses are very rare, but Craftsman-related houses incorporating Colonial Revival details are known in some numbers. While the most elaborate houses may exhibit complex plans with extensions, dependencies, and wings, most large suburban houses were simply massed, center hall structures.

More modest-sized center hall and sidehall houses and cottages, primarily in the Dutch Colonial and Colonial Revival styles, were built in some numbers in less affluent areas, but there, multiple-family housing predominates. Bungalows are very rare in the study unit, with most known examples being conservatively styled Craftsman examples with traditional Colonial Revival detailing. The primary exception to this pattern is a group of highly crafted bungalows incorporating rubble basements and other cobblestone detailing using local fieldstones; almost every town of the study unit has at least one example of this rustic bungalow form with most of the known examples located north of Boston.

Frame construction remained the ubiquitous building technique. Masonry construction was, however, perhaps more widely employed in the Early Modern period than at any time previously. Smaller, more modest workers' and suburban houses of brick are known in some numbers in addition to the larger, more elaborate houses traditionally built of brick. The use of cobblestone, clinker brick and stucco are features of the Craftsman style which lingered through the end of the period. Concrete and concrete blocks were a significant new building material of the period. The study unit's very rare International Style houses often employed reinforced concrete, while more traditional bungalow and cottage designs sometimes used patterned concrete blocks as a partial or total building material.

In general, detailing was stylized and subdued with classically derived elements continuing to predominate. Porches were often incorporated as wings or ells within the overall massing of the houses, with entrance hoods replacing the elaborate verandas of the Late Industrial period. Steel frame casement windows came into use in domestic structures. Asymmetrical gables and parapets occasionally ornament an otherwise plain roofline, but in general hip, gambrel and gable roof forms predominated; flat roofs were sometimes used for the comparatively rare Mission Revival, Spanish Colonial and International Style houses of the study unit.

I. RESIDENTIAL

B. Multiple-Family Housing

Multiple-family residences include double houses, rowhouses, two-families, tenements, three-deckers and apartment blocks.

The earliest houses of the Plantation Settlement and Colonial periods often functioned as multiple-family dwellings: commonly, houses were divided or enlarged to provide space for two or more generations of one family to occupy a single detached residence. It has been suggested that the added lean-to appeared in the 1660s and 1670s, at least in part, as the response of second generation settlers to the need to house and care for their by then aging parents (Cummings, 1979: 29-32). Besides members of an extended family, boarders, apprentices and indentured servants might also be housed in structures built for single-family occupance. In addition, at least a few houses originally constructed for multiple-family use are known (Clough House, Boston, 1717). Houses specifically built for multiple-family use were not, however, common until the Federal period, at which time, the double house (two single-family houses constructed as a unit and divided along a vertical party wall) came into general use.

Federal period multiple-family dwellings survive in good numbers in Charlestown, Newton (Upper Falls) and Waltham. The Newton and Waltham buildings are double workers' cottages with end interior chimney sidehall plans (Fig. 1) and are associated with early industrial activity along the Charles. Several types of multiple-family housing, including double cottages and double houses, stand in Charlestown.

Because Charlestown was densely settled by the Federal period, plans often had to be adapted to unusual lot configurations. Narrow deep lots also encouraged the orientation of houses with the gable end to

the street. In Charlestown, the more common double type seems to have been two center hall plan houses set back-to-back and sharing a party wall with chimneys (Fig. 1). In less developed areas, the sidehall end interior chimney type appears to have predominated.

The double house types introduced in the Federal period became the traditional multiple-family forms and remained so through the late 1870s. Commonly, double houses (and more modest double cottages) were concentrated at early industrial cores where they were erected as workers' housing. This is especially evident in Waltham where a great many Italianate double houses of the 1850s, 1860s and 1870s have survived. Most of these are back-to-back Plan C double houses set with the gable end to the street. After 1860, the Plan C double house was often doubled again to form a single block of four residences; this solution to workers' housing was apparently unique to Waltham. More substantial and stylish double houses were rare, but a few Italianate double houses stand in Boston, Charlestown, East and South Boston and Cambridge; unlike the bulk of the unit's suburban double houses (which are frame), double houses of the inner urban area are generally of brick. As two-family houses (where the units were stacked one atop the other rather than side by side) became common at the end of the 19th century, double houses ceased to be built.

Rowhouses: The rowhouse, an extended series of single-family houses sharing party walls, evolved from the freestanding sidehall plan townhouse and has always been an urban residential form associated with high-density settlement. While most rowhouses have traditionally been constructed of brick or stone, sizable concentrations of frame rowhouses survive in the study unit in East and South Boston and Charlestown. The earliest surviving rowhouses of the study unit are the brick Federal and Greek Revival townhouses of Beacon Hill; similar construction characterized much of the South Cove, West and North Ends of Boston. The filling of the South Cove

and Back Bay in the 1840s opened that area for construction in the 1850s and it, too, was built up with three and four-story sidehall plan brownstone and brick rowhouses, many of them of considerable architectural pretenstion. The widening perimeter of rowhouse construction defined the expansion of Boston's central urban core during the late 19th century.

In the 1850s, 1860s and 1870s, large numbers of Italianate rowhouses were built in Charlestown, South and East Boston and Chelsea. In each instance, elite neighborhoods of stylish brick structures, focused on a central square, were developed within larger, more modest neighborhoods of frame rowhouses; neighborhood focus in more modest areas was oriented to the corner store. This pattern is particularly well preserved in South and East Boston where neighborhoods of three and four-story frame Italianate and Second Empire rowhouses with mansard roof are interrupted by brick Second Empire cornerstore blocks. The rowhouses of East Boston are notable for their well-preserved Eastlake detail, a style rarely employed in the study unit. While brick and stone rowhouses in the Colonial, Georgian and other academic revival styles continued to be built in the Back Bay through the end of the Late Industrial period, rowhouse construction ceased in more modest and working class neighborhoods with the evolution of two new house types, the three-decker and two-family house.

Two-Family Houses: In two-family houses, the two single-family living units are divided horizontally, by floor, rather than by a vertical party wall as in the double house. Although they often resemble single-family houses, two-family houses are generally larger in scale, and can be distinguished by the existence of two exterior doors and often by the duplication on the second floor of first-floor fenestration patterns and details (such as projecting bays). The earliest two-family houses in the study unit probably date from the late 1870s with survivals of that date likely in the inner suburban periphery (examples known in Jamaica Plain, Cambridge and Somerville). Most of these early examples are similar in size to single-

family houses with gable roofs, verandas, two-story bays and Italianate, Stick or Eastlake detail. By the 1890s, the two-family house had spread to the outer suburban periphery and were built in residential neighborhoods in all cities of the study unit. Two-family houses reflected the general increase in house size for the period, but were commonly larger and bulkier than single-family houses. Most two-family houses of the period 1890-1915 exhibit a standard plan consisting of two-and-a-half stories below a broad gable, hip or gambrel roof with prominent cross gables; two-story porches and bays are common and double exterior doors were almost universal. Quality detailing in the Queen Anne, Colonial and Classical Revival styles was common and indicates that the two-family house of the turn of the century functioned as a substantial middle-class suburban dwelling.

Two-family houses continued to be built through the Early Modern period with the largest concentration of period examples built in Belmont (other clusters in Arlington, Watertown, Milton and Quincy). A decrease in size can be noted with simple, square, hip roofed plan and more modest Craftsman detailing predominating. Two-story porches remained standard. Geographically, two-family house constuction did not expand beyond the outer suburban periphery but rather occurred as infill in pre-existing middle and working class neighborhoods.

Tenements Blocks: Tenement blocks are an early and comparatively rare form of urban working class multiple unit dwelling; once less rare than at present, tenements have perhaps been more subject to demolition and urban renewal because of their traditionally negative image. In form, tenements resemble both rowhouses (with which they are contemporaneous) and three-deckers (which descended in part from the tenement). Generally, tenements are utilitarian structures of frame construction, three or four stories in height, with flat roofs and simple detailing; although sometimes built in an extended series (like the rowhouse), they are often free standing blocks, usually with

a central entrance. Many tenement blocks incorporate retail space on the ground floor. Internally, living units are divided with one unit per floor for each vertical section (Cambridge Historical Commission, 1971:41).

The earliest examples surviving probably date from the 1850s and were built (somewhat experimentally) as workers' housing, especially in the industrializing towns of the northern half of the study unit. By the 1870s, the form was known throughout the inner suburban periphery, although it was concentrated in comparatively few locations (Chelsea, Charlestown, South and East Boston) and generally in close proximity to factories. The tenement block continued to be regarded as an appropriate form for housing the poor through the 1870s, as is evidenced by the construction by the trustees of the Amos Lawrence Estate of a group of brick model tenements for the poor in 1874 (Lawrence Model Lodging Houses, East Canton St., Boston). By the turn of the century, few tenements were being constructed, as three-decker houses became the accepted form of working class housing. An exception is the North End of Boston, where brick tenements were built in the early 20th century to replace deteriorating woodframe housing of the late 18th and early 19th centuries.

Three-Deckers: The three-decker, which emerged after the Civil War, is probably the most significant housing innovation of the Late Industrial period. Directly linked to the development of a network of street railways in the inner suburban periphery, the three-decker filled the housing needs of both the middle and working classes. Although urban in density, three-decker neighborhoods are es - sentially suburban in outlook and pretenstion. The three-decker takes its form from the tenement and the rowhouse, both urban forms, yet in design and style, the three-decker relates closely to the substantial Queen Anne and Colonial Revival suburban single-family houses of the period. While the three-deckers of Dorchester make it the classic streetcar suburb, three-deckers were constructed in great numbers throughout Boston's urban core, as well as in the working class neighborhoods of the study unit's outlying industrial cities. In outlying cities, three-deckers tend to be concentrated

near factories or along major roads, while in the inner suburban periphery, entire neighborhoods of well detailed three-deckers are more common.

The three-decker, a free standing structure incorporating three living units, separated horizontally by floor, takes its name from the presence of a triple tier of porches (or decks) on the rear. Three-story polygonal or bowed bays and a double or triple tier of porches on the facade are other characteristic features. Although the three-decker may be popularly perceived as being a flat roofed building (as most late examples are), hip and gable roofs are also common. The earliest three-deckers date from the late 1870s and employ mansard roofs, a design feature clearly derived from the rowhouse. In the 1880s, the three-decker emerged as a distinctive form. Stylistically, these early three-deckers resemble the tenements of the period with bracketed cornices and simple entrances with door hoods or small porches, rather than the monumental porches typically seen on the turn of the century examples.

By 1900, the standard three-decker form with bays and double or triple stacked porches balanced on the facade, was well established. As the underlying form remained more or less constant, the Queen Anne and Colonial Revival three-deckers of the turn of the century have a rhythmic organization to their classical detailing which their suburban counterparts often lack. Three-deckers continued to be built (primarily as infill housing) through the Early Modern period, but by the end of the 1920s, most of the three-deckers being built were of a very plain and utilitarian character with simple Craftsman or Prairie style detailing.

Apartment Blocks: Apartment blocks are a high density urban residential form confined primarily to the central urban core, with outlying examples located along major transportation routes and surrounding the central business districts of cities within the inner suburban periphery; apartment blocks are also found in small numbers at the

periphery of central business districts in outlying industrial cities. Most apartment blocks are multi-storied structures of masonry construction with two or more living units per floor. The earliest apartment block in the study unit was the Hotel Pelham (1857) in Boston; it and other residential hotels of the late 19th century (with permanent residents rather than the transient clientele of the commerical hotel) adopted the "French flat" plan of one living unit of standard single-family dimensions per floor. Such hotels functioned as town houses for the wealthy and generally featured sophisticated academic designs and lavish appointments; several late 19th century residential hotels survive in the Back Bay, in Cambridge, and along Beacon Street in Brookline.

While imposing residential hotels continued to be built in Boston through the end of the Late Industrial period, by 1900 more modest apartment blocks with smaller flats were being built in Brighton, Brookline, Cambridge, Newton and other inner suburban towns. Many of these are U-shaped complexes organized around an entrance court. Apartment blocks generally took their detailing and massing from the commercial blocks of the day rather than from the predominantly woodframe architecture of single-family dwellings; in common with commercial blocks, many apartment blocks incorporated molded cast concrete trim of Adamesque, Renaissance or Georgian Revival design within a rectilinear and often flat roofed masonry structure. The common qualities of commercial buildings and apartment blocks may be a reflection of several factors, among them the shared geographical location of both types at town and city centers, their masonry construction and the presentation of the apartment block as a sophisticated urban alternative to suburban living.

Courtyard apartment blocks continued to be built into the Early Modern period although utilitarian free standing blocks filling an entire lot became common in built up urban areas. Also built in the 1920s were long rows of contiguous flats, examples of which are common along major transportation routes in Brookline and Brighton. Although innovative at the time of its introduction, c. 1900, the courtyard apartment block design had become traditional by the 1930s

when it was incorporated into one of the study unit's first public housing projects, Newtown Court (Cambridge, 1937). At least one major innovation in apartment design did occur in the Early Modern period; this was the construction in 1923-24 of Longwood Towers (Kenneth deVos, architect) in Brookline, the earliest and only known example in the study unit of a free standing, high rise apartment block predating 1940.

II. PUBLIC INSTITUTIONAL

1. Administrative

The public administrative includes Town and City Halls, Courthouses, Almshouses, Powerhouses and Armories, Jails and Prisons.

Town /City Halls: The earliest governmental structure built in the study unit was the Town House (1657) at Boston, a two-story framed structure combining market space on the open first floor and public meeting space on the second, in which the Courts met. When this burned in 1711, it was replaced by the present Old State House (1712), the oldest surviving governmental structure in the study unit. As befits its function as the provincial seat of the Massachusetts Bay Colony, the State House is one of the most pretentious examples of early 18th century Georgian architecture in the study unit and demonstrates, in its stepped end gables, perhaps more clearly than any other surviving period structure, the strong Dutch influence on late 17th-century English culture. Town houses (now called town halls) did not appear in numbers until the Federal period when the disestablishment of the Congregational church and the separation of church and state began to eliminate the traditional town meeting space in the meetinghouse. In the 1810s and 1820s, town houses, most of them simply detailed, one and two-story gable roofed structures, a few of brick, began to be built in the towns, but none are known to survive. Later, Greek Revival style town houses with monumental facades with porticos became more common. Comparatively few town houses of the Early Industrial period survive. The earliest surviving example is the Quincy Town Hall (Solomon Willard, 1844), a two-story gable roofed Greek Revival structure of granite with anthemia and Greek key detailing. Although few survive, most of the town halls of the 1850s were imposing Italianate or Romanesque Revival style buildings with central cupolas and ornate heavily scaled entrance and window detailing. (One of the finest examples was the

Malden City Hall, 1857-1980*). Simpler designs were also employed and one more modestly detailed town hall, the Somerville City Hall (1851), still stands; this is a very simple two-and-a-half story, brick Greek Revival/Italianate building now flanked by later additions. The Boston City Hall (G. J. F. Bryant and Arthur Gilman, 1862-65) furthers the tradition of highstyle and ambitiously detailed municipal buildings; with its projecting pavilions, superimposed orders and mansard roof, the City Hall is nationally noted as an early example of the French Second Empire style.

By the Late Industrial period, many of the towns in the study unit had constructed imposing Second Empire and Victorian Gothic town halls, only one of which, a simple frame Second Empire building (c. 1870) in North Reading, is known to survive. The most notable city hall of the Late Industrial period is the Cambridge City Hall (Longfellow, Alden and Harlow, 1889), a hip roofed, towered building in the Richardsonian Romanesque style. Most of the study unit's town halls were constructed after 1900. Masonry Colonial and Georgian Revival designs dominate in the inner suburbs of the the study unit with conservative Beaux-Arts structures of lesser distinction built in the inner urban centers around Boston. In rural areas, simpler frame Queen Anne/Colonial Revival and Craftsman town halls, one and two stories in height, were constructed.

Courthouses: The earliest courts in Boston were convened in the city's multi-purpose governmental buildings, the Town House (1657) and later, the Province (State) House (1711). A separate courthouse apparently was not erected in Boston until 1808, when the first Suffolk County Courthouse, a two-story, neoclassical granite building designed by Charles Bulfinch, was built on the site of the present old Boston City Hall; the Bulfinch courthouse was notable for its early use of granite.

*The use of two dates indicates first, the construction date and second, the date of demolition.

A courthouse was built in Cambridge, the colony's first capital and later shire town of Middlesex County, during the 17th century. The earliest courthouse was built shortly after 1636 and was replaced in 1708 with a 30' x 24', two-story, hip roofed structure with an octagonal center cupola. A similar hip roofed structure with a cupola replaced the second courthouse in 1758. Architecturally, both structures were similar in form to meetinghouses and schools, the other major governmental buildings of the day.

During the Federal period, courthouses were built in Dedham (established as the shire town of Norfolk County in 1793) and in Cambridge as well as in Boston. A two-story, end gable courthouse with quoins and an open domed cupola (1793) stood in Dedham until 1827 when the present Norfolk County Courthouse, a two-story granite amphiprostyle Greek Revival building designed by Solomon Willard, was built. In 1814-16, Charles Bulfinch designed a two-story Federal style courthouse at the present Middlesex County Courthouse site in East Cambridge; although the original stuccoed building was refaced and enlarged in 1848 by Ammi B. Young, portions of the Bulfinch building still stand. The additions made by Young are conservative in character with late Federal and Greek Revival details such as a monumental cupola, Palladian windows and recessed wall arches.

The courthouses at Dedham and East Cambridge were enlarged during the Late Industrial period: in Cambridge, brick structures were added in 1889 and 1896 while in Dedham, neoclassical wings were added to Willard's original building in 1862, 1892 and 1895. Also constructed in the Late Industrial period was the present Suffolk County Courthouse (George Clough, 1884-91) at Pemberton Square. A monumental granite Second Empire building, the Courthouse was enlarged in the 1930s with the addition of a highrise Moderne office building.

During the Late Industrial period, federal, state, and local judicial organization expanded; with this came a corresponding increase in the number of federal, district and municipal courthouses built. Most of these are architect-designed, masonry structures of some pretension in either neoclassical or Georgian and Colonial Revival designs. Among the best of these is the District Courthouse at West Roxbury, a well-detailed brick Georgian Revival building.

Jails and Prisons: The earliest jails and prisons of architectural significance date from the Federal period: a small one-story Georgian jail with corner quoins was constructed in Dedham in 1797, and the major correctional instutution of the period, the state prison at Charlestown (1804). This building established a standard design in prison architecture consisting of central service pavilion with flanking cell-block wings. The Charlestown prison was also notable as one of the earliest granite public buildings in the study unit. Later jails retained granite construction but adopted a radial plan most often organized around a central octagonal pavilion; in jails of the 1850s and 1860s Gothic Revival crenellations were often added at the roof-line. The Norfolk County and Charles Street jails follow this pattern. In the Late Industrial period a state wide system of large prisons located away from major cities was established.

Almshouses: The first almshouses of the study unit were also constructed in the Federal period as the responsibility for social welfare shifted from the parish to the state. In outlying towns, town farms were established in farmhouses either built or purchased for the purpose of housing the poor; these do not differ from the prevailing domestic architecture, except that they were usually very modestly detailed and located on poorer quality land, often in fringe locations. By the mid-century, larger almshouses built for the purpose became necessary; the only surviving example, the Cambridge Alms House (Dwight and Bryant, 1850), closely resembles the prison architecture of the period with four-story wings flanking a central octagonal pavilion. Like the prisons of the day, the Alms House is of granite construction. By the beginning of the Late Industrial period, state

poorhouses were being built, thus reducing the need for municipal institutions. Nonetheless, poor farms continued to be built. By the 1890s, poor farms had begun to assume a more campus-like appearance with separate dormitory and service buildings set in landscaped grounds. Comparatively few of these complexes are known to have been built in the study unit and none are known to survive intact.

Powderhouses and Armories: Municipal powderhouses are a comparatively rare building type. Most powderhouses were constructed at the end of the 18th century, powder having been stored most often in meetinghouses prior to 1750. The surviving powderhouses of the study unit (in Dedham and Milton) are small, one-story brick structures with hip roofs. The powderhouse at Somerville was originally constructed as a windmill. Related to powderhouses in their military function are armories: municipal armories predating the Civil War are not known. After the Civil War, however, and particularly during the late 1880s and 1890s, many cities in the study unit constructed armories. Most of those predating 1900 were two-story masonry castellated structures while those built after 1900 were more utilitarian in appearance with characteristic shallow arched roof construction. Of the period's armories, the First Corps of Cadets Armory (William G. Preston, 1887), a granite Richardsonian Romanesque structure with an imposing six-story corner tower, is undoubtedly the finest.

II. A. PUBLIC INSTITUTIONAL

2. Service

The service category of public institutional buildings includes hospitals, libraries, police and fire stations, and post offices.

Hospitals: One of the first institutions to be housed in a building constructed for its own use is the Massachusetts General Hospital; established in 1811, the hospital constructed its first building in 1818. Designed by Charles Bulfinch, the granite building is similar in plan to other institutional buildings of the day (such as prisons) with a four-story central pavilion flanked by lower three-story wings, although the design features such embellishments as a dome and pedimented portico not normally found on more utilitarian structures. Few hospitals were established in quarters built for their own use before the Late Industrial period; more often, hospitals re-used domestic structures or built semi-domestic frame buildings. Examples of this practice are McLean Hospital, originally located in the Barrell mansion (Charles Bulfinch, 1791) in Somerville (then Charlestown), and the Perkins Institute which was first housed in the Mount Washington hotel (1828) at South Boston. A major new hospital was not constructed until the end of the Early Industrial period, when the Boston City Hospital (1861-64, G.J.F. Bryant), a U-shaped complex with a domed neoclassical central block flanked by mansard roofed wings, was built. During the Late Industrial period, hospitals began to be built in the towns of the inner suburban periphery with frame Queen Anne and Colonial Revival buildings of semi-domestic scale constructed in most towns. By the end of the period, most towns of the study unit had a private or public hospital. Most of those built after 1900 are three or four stories in height, of masonry construction in simplified Beaux-Arts or Georgian Revival designs. In the affluent towns of the inner suburban periphery, well-detailed, architect-designed hospitals set within landscaped, campus-like grounds were

occasionally constructed; one of the most distinguished of these is the Boston Hospital for Women (1895, Shaw and Hunnewell) in Brookline, a brick and granite Beaux Arts/Queen Anne structure.

The campus-like plan was well-established with the construction after 1900 of a number of county and state hospitals in Waltham; most of these are modestly detailed, utilitarian buildings of red brick in Colonial and Georgian Revival designs. They followed the lead of the McLean Hospital, which relocated to the outer suburban periphery (Belmont) in 1893. The McLean complex contains a wide range of red and yellow brick Colonial, Georgian, Renaissance and Jacobean Revival dormitory and administration buildings by nationally noted architects; as a private institution, it was possible to commission structures of far greater pretension than those of related public institutions. In contrast to the landscaped semi-pastoral hospitals of the outer suburbs, which relate to the surrounding residential architecture, Boston's Late Industrial and Early Modern period hospitals are generally much more formal neoclassical designs in granite and limestone with pedimented porticos. In plan, however, these are conservative, with four and five-story buildings originally set in open complexes, now filled in with later buildings. The first hospital to reflect its urban setting with a high rise building was Massachusetts General which in 1938 constructed a Moderne structure designed by Coolidge, Shepley, Bulfinch and Abbott.

Libraries: The earliest libraries of the study unit were founded and built in Boston; although the Boston Public Library was established in quarters at the Tontine Crescent as early as 1793, it was not until 1858 that a building was constructed for its use. Like other private libraries of the 1840s such as the Boston Athenaeum (Edward C. Cabot, 1848), the first Boston Public Library building featured a Renaissance derived design, although it was less formal than that of the Athenaeum. Several other cities and towns established private library societies in the 1850s, but it was not until the 1870s that the public library concept was widely adopted. The earliest public libraries outside Boston were founded in the affluent inner suburbs,

Newton's Public Library (1870) still stands, apparently the only survivor. However, a strong pattern of philanthropic donation of library buildings meant that many towns in the study unit received impressive and architecturally stylish libraries regardless of social or economic status. The study unit's Late Industrial period libraries, often built by wealthy donors and commissioned to notable architects, are probably the largest and most ambitious group of public institutional buildings surviving. Well-detailed Richardsonian Romanesque, Beaux-Arts classical, and Queen Anne structures in brick and stone stand in Watertown, Belmont, Somerville, Cambridge, Everett, Milton, Winthrop and Stoneham. With the Boston Public Library (C.F.McKim, 1888-95) and the Richardson libraries (Winn Memorial, Woburn, 1877; Crane Memorial, Quincy, 1880; Converse Library,Malden, 1883), the study unit possesses an outstanding collection of late 19th-century library buildings of national significance.

Only one Carnegie-donated library is known in the study unit: this is the library at Revere (1903), an elaborately detailed domed Beaux-Arts design, probably the work of Boston architects McLean and Wright, who designed an identical Carnegie library in Rockland, Massachusetts in the same year.

After the boom of library building at the end of the 19th century, few libraries were constructed. One brick Colonial Revival library of the 1920s is known in Reading, but not until the 1950s, with post-War population growth, was additional library construction necessary.

Police and Fire Stations: The earliest police and fire stations were probably built in the Federal period, although the earliest station known to survive is a fire station in Cambridge (1832), a story-and-a-half brick Greek Revival structure. The first fire and police stations were built in the inner urban areas. Very few stations of the 1850s and '60s are thought to survive, although some may stand in altered condition; stations of the mid-century were utilitarian structures of masonry construction, generally two stories tall with

gable roofs and modest Italianate detailing. By the 1870s, buildings of greater architectural pretention were being constructed; the High Victorian Gothic Seaverns Avenue police station in Jamaica Plain (c. 1873) is an example of this development. As was true for other types of public institutional construction, a major building campaign occurred in the Late Industrial period with the result that a fair number of fire and police stations, especially those built after the turn of the century, have survived. Of these, fire stations are the more numerous with good examples surviving in almost every town of the study unit. This is so, in part, because fire stations were built in individual neighborhoods while the police were usually housed in a single, centralized building. Fire stations had a more conventional plan; the towers needed for the drying of fire hose make late 19th century fire stations one of the most recognizable building types of the period. Most fire stations, especially those in the inner suburban periphery, were of masonry construction and many featured Renaissance Revival designs, because the campanile form provided a convenient design precedent for fire station hose towers. After the turn of the century, Georgian and Colonial Revival designs became more common and new hose technology made the distinctive tower obsolete.

Police stations follow a similar design pattern some Victorian Gothic stations (Jamaica Plain, Somerville) were built in the 1870s, a number of Renaissance Revival designs were built in the 1880s and 1890s, and Colonial and Georgian Revival designs were built after 1900. Although less distinctive architecturally, police stations were also generally architect designed, masonry structures, often set on a raised basement containing jail cells. Comparatively few police and fire stations are known for the Early Modern period, but they are more common in the outlying suburban areas which developed in the period; there, brick Colonial Revival designs predominate.

Post Offices: The earliest post offices were established in the Federal period with postmasters operating from private houses or businesses. Buildings built as post offices did not become common before

the Early Industrial period and even then were often used for a variety of purposes in addition to the handling of mail. Most of these early buildings were small woodframe structures, a story-and-a-half in height with a semi-domestic character; at least a few exhibited the three-bay, center entered facade which was common on the stores of the period. Most post offices were located at town centers, along the turnpikes over which the mail travelled. Such structures remained common in the outer suburban periphery through the 1870s. More substantial masonry post offices were undoubtedly being constructed in Boston by the 1840s, but little is known of their appearance; probably these were utilitarian buildings, similar in character to the stores of the day. By the Late Industrial period, however, this had changed and a monumental, architect designed post office of considerable architectural pretension had been built in Boston (Sub-Treasury and Post Office, A.B. Mullet, 1869). Most of the study unit's post offices date after 1900, with Beaux-Arts and Colonial Revival designs of the early 20th century being replaced (after a lull in the 1920s) by conservative federally sponsored Moderne designs in the 1930s. In addition to the monumental Moderne Post Office (1929-31, Cram and Ferguson and James A. Wetmore) in Boston, more modest Moderne structures are known in a few cities of the inner suburban periphery (Cambridge, Arlington). Most of the post offices standing in the study unit, however, are conservative Colonial Revival buildings of brick built in the 1930s; these are located in almost every town of the study unit.

II. A. Public Institutional

3. Educational

The earliest schools of the study unit appear to have been constructed in the mid-17th century; most towns built schoolhouses rather than holding "moving" schools in private residences. Contemporary descriptions indicate that they were simply finished, one-story structures with hip or gable roofs. None are known to survive. Colonial period schools continued to be constructed along much the same lines. With the establishment of school districts toward the end of the 18th century, the number of schools constructed in each town increased. The earliest known surviving school in the study unit is a one-and-a-half story, gable roofed, center entrance Federal school in Burlington, built in 1792.

Schools with three-bay facades and double entrances, one for boys and one for girls, had been introduced by the 1820s. Despite an active period of contruction in the 1820 and 1830s, very few Early Industrial schools are known to survive: examples are known in Quincy, Dedham, and Charlestown. The basic Greek Revival form (one-story, gable roofed building with double entrances and a pedimented gable end) remained common through the 1850s and 1860s, updated with bracketed Italianate cornices, paneled cornerboards and often, a small cupola. In the urban areas and inner suburbs, a few two-story brick schools were built with at least one example surviving, in Dedham. The first high schools of the study unit were constructed in Boston and the inner suburbs in the 1850s, most of these being elaborately detailed, two-story, framed Italianate or Romanesque Revival structures.

The first major school building campaigns appear to have occurred in the 1870s. High Victorian Gothic schools of brick with poly-

chromatic detailing and complexly massed rooflines were built in inner urban areas but very few survive. Examples are known in Woburn, South Boston and Dorchester. A similarly small number of schools of the 1880s remain, but by the 1890s, large hip roofed, red brick Romanesque Revival schools, generally two stories tall on a raised basement, were being built in numbers, especially in Boston and the inner suburbs. Examples stand in Quincy, Boston, Roxbury, Dorchester, East Boston, Arlington, Wakefield, Revere, and Malden. Frame construction remained the norm in outlying rurual, areas; low, one-story, hip roofed Queen Anne and Colonial Revival elementary and secondary schools were constructed as the district system was dis-established. Colonial and Georgian Revival schools began to be built in suburban areas by the turn of the century; more rectilinear and horizontal than the steep-roofed blocky schools of the 1890s, early 20th-century schools also exhibit a greater variety of plans and materials although still retaining the two-story/raised basement formula.

In Boston, more ambitious elementary and high schools were constructed. Elementary schools were generally more restrained Romanesque and Renaissance Revival structures while high schools were most imposing with Collegiate Gothic and neo-classical designs known. Only one International Style school is known, in Burlington (1936).

II.B. Private Institutional

1. Ecclesiastical

Plantation Period meetinghouses, the first and most important institutional structures built in the towns, were generally simply finished buildings, roughly square, with hip roofs topped, in some instances, with an open, square belfry; none of the earliest of these have survived, most having been replaced by the end of the Plantation Period with buildings of greater size or pretension. The earliest surviving meetinghouse in the unit is the Rumney Marsh meetinghouse (1710) in Revere. This structure, since altered, was originally a two-story building with a gable roof and a center entrance on the long side, and it typified the framed meetinghouses of the Colonial period. Most of the outlying towns of the study unit constructed similar meetinghouses in the period but the only rural meetinghouse surviving is that of the Second Parish of Woburn in Burlington, built in 1732. Old South Church (Robert Twelves, 1729) in Boston also exhibits the traditional Colonial meetinghouse form, although as executed in brick and embellished with a Wren-inspired octagonal belfry and spire, stringcourses and bull's eye windows, it is a good example of master builder-designed Georgian architecture. More progressive is Christ Church ("Old North," William Price, 1723), with the first axial cruciform plan in New England. The most sophisticated designs were produced by gentleman/architects like Governor Francis Bernard and Peter Harrison, who had access to English builders' guides, but Harrison's churches at Cambridge (Christ Church, 1760) and Boston (King's Chapel, 1740) had little impact outside the core area. Brick and stone were not used outside Boston itself and as the Colonial period progressed, the most notable changes in ecclesiastical architecture consisted of the addition of pedimented entrance porches and increasingly complex, multi-stage steeples.

In the Federal period, the Congregational church rejected the auditorium meetinghouse plan with entrances along the long side in favor

of the Anglican cruciform church plan, entered on the gable end. Projecting porch towers with steeples were discarded for a shallowly projecting three-bay wide frontispiece with the steeple, now often composed of two, three or even four stages set on a square base. That form, popularized through the pattern books of Asher Benjamin, remained the standard throughout the period. In Boston, brick was the most common building material, while framed construction prevailed outside the city. By the end of the period, the influence of a growing architectural profession was evident in such innovative structures as the First Parish Church (Alexander Parris, 1825) in Quincy, an early and unusual local example of neoclassical architecture, and in early Gothic Revival churches, such as the Bowdoin Street Church (Solomon Willard, c. 1831-33), in Boston; both churches are constructed of Quincy granite, which first became widely available as a building material after 1802-03. The Quincy First Parish Church also demonstrates that Boston's influence as a center of architectural innovation was beginning to be felt in those outlying towns where, due to their economic and cultural stability, they could avail themselves of Boston's relative sophistication.

The number of churches constructed increased in the Federal period as Congregationalism was disestablished and other sects and denominations grew. Trinitarian and Universalist churches remained conservative, and tended to mirror existing Congregational church forms. Baptist and Methodist churches were more modest, simpler, smaller structures; none of these are known to survive. A most unusual survivor is St. Augustine's Chapel (1818) in South Boston, a small structure with lancet windows, the earliest Catholic church in the study unit.

Churches of brick and stone began to be built more frequently in the Early Industrial period, particularly in the inner urban areas, although frame construction still remained the rule in outlying areas. Templefront and end gable Greek Revival churches are unusual, occurring in fringe areas (North Reading, Stoneham) and at the core

(St. Joseph's, Boston, 1823). The established Federal form (two-story, end gable church with three-bay projecting pedimented frontispiece and two-or three-stage steeple) remained dominant in the intervening suburbs through the 1850s, updated by then with Romanesque Revival corbelled cornices, roundhead windows, and more heavily scaled detailing. The Romanesque Revival has been shown to have been the preferred style of the Congregational church after 1853 (Pierson, 1981): this is borne out in the Congregational churches of the Boston area with particularly outstanding Romanesque Revival churches in Newton, Arlington, Woburn and Cambridge. In addition to these churches, at least two churches with Egyptian Revival detailing, a very rarely employed style, are extant in Cambridge and Arlington.

If the Romanesque Revival became the hallmark of mid-century Congregational churches, then the Early English Gothic was surely the standard style for the Episcopal churches of the period. As the number of Episcopal churches built in the period increased, those parishes that could afford to do so chose designs which reflected the influence of the English Ecclesiologists. Important churches in brick and brownstone by Richard Upjohn and H.H. Richardson stand in Brookline, Medford and Boston. Less well-to-do parishes made do with board-and-batten Gothic Revival churches taken from mid-century pattern books; very few of these survive, with no survivors in unaltered condition.

The most significant new group of churches built in the Early Industrial Period were the Catholic churches established in the industrial urban centers of the unit in the 1850s and 1860s. Founded in response to the influx of Irish immigrants to the area, these tended to be large, solidly built structures of brick or stone when possible, their size and solidity an indication to the community of the permanence of the Catholic Church's intentions. In style, most of the Catholic churches are Romanesque or French Gothic Revival with early

examples surviving in Waltham, Dorchester, East Boston, Charlestown and Boston.

Most of the churches standing in the study unit date from the Late Industrial period. Architect designed churches in brick and stone were constructed in all but the most remote towns of the study unit. While many imposing churches survive, a number of more modest churches also remain, providing a wide range of extant ecclesiastical architecture. High Victorian Gothic designs of the 1870s, with paired or offset spired towers and polychromatic masonry, remained popular into the 1880s, especially for urban and Catholic churches, while in the late 1880s and 1890s, with the advent of the Colonial Revival, a number of asymmetrically planned frame Queen Anne and Colonial Revival churches with an abundance of classical detailing were constructed, primarily in suburban locations. With the turn of the century came the construction in elite suburbs of carefully detailed masonry churches with low, square towers derived from English country parish churches; for less substantial congregations, L-plan Craftsman churches with half-timbering and stucco were a common choice. By the end of the period, Lombard Romanesque and Mission Revival churches had replaced Gothic Revival designs as the most popular form, especially for Catholic parishes. The Stick and Shingle Styles are more rare with a few chapels and a very few larger examples surviving.

Generally, the Stick Style represented a low cost alternative to the highly crafted masonry Gothic Revival of the period. Newly established churches and churches in less affluent areas could achieve a modicum of the Gothic Revival craftsmanship and elaboration in the less expensive wooden construction of the Stick Style, and it became a common choice in working class and rural communities. The Shingle Style, with its strong associations with suburban and resort residential architecture, was rarely used and then primarily for chapels in more affluent neighborhoods.

Through the influence of H.H. Richardson, many well-detailed Richardsonian Romanesque churches were built in the Boston area; Richardson's influence was so widely felt that churches in the Richardsonian Romanesque style were constructed in many communities of the study unit, apparently without the usual restrictions of economic and social status. Particularly outstanding clusters of Late Industrial churches in a variety of styles stand in Boston, Newton, Wakefield, Somerville, Cambridge, Stoneham, Roxbury, Melrose and Woburn with nationally-significant churches in Copley Square (Trinity, H.H. Richardson, 1873) and Dorchester (All Saint's, Ashmont, R.A. Cram, 1893). In addition to churches, synagogues began to be constructed at the end of the Late Industrial period. Before 1900, many congregations bought or rented space in vacant churches built for other denominations, but as Jews became established in the community, congregations constructed their own synagogues. Most of these are brick Romanesque Revival structures with rounded arch detailing although at least a few neoclassical examples in stone are known.

Fewer churches were built in the Early Modern period, most of those constructed being either replacement structures or smaller chapels of newly established missions. Catholic churches appear to be the most numerous of those constructed and were among the most decorative, with Lombard Romanesque style buildings predominating. Protestant congregations tended to choose more conservative Colonial and Georgian Revival designs in brick. A number of synagogues were also constructed, especially in the urban and inner suburban communities of the study unit. Most commonly, these were built in variations on the Romanesque, although a few neoclassical synagogues are known. In addition to actual church buildings, related parochial complexes were constructed in some numbers during the period, especially by the Catholic Church. These include parochial schools, convents, and rectories built adjacent to new or existing churches, as well as separate related complexes, such as seminaries, monasteries, and convents. In general, schools conform to the established, two-story brick public school form, although most are finished with Romanesque

rather than Georgian or Colonial Revival detailing. Where possible, rectories and convents are of brick as well. Catholic seminaries, colleges, monasteries and convents tend to be clustered in the outer suburban areas, such as Waltham, Brookline and Milton with a notable cluster at Brighton. In many instances, large late 19th century mansions were converted to institutional use by the Catholic Church with new residential or educational blocks built on the surrounding grounds. Most of these tend to be conservative, masonry structures with stock Baroque or neoclassical detailing. As they became established in the community, Greek and Russian Orthodox congregations were able to construct churches in their traditional Byzantine architecture, with several notable examples constructed in inner suburban and working class neighborhoods (Watertown, Cambridge, Boston).

II. B. Private Institutional

2. Educational

The category includes colleges and universities, academies, lyceums, and museums.

Colleges/Universities: The oldest educational institution in the study unit, Harvard University, was founded in 1637-38. Throughout its history, Harvard has sponsored the construction of a remarkable array of substantial and innovative buildings, several of which have become landmarks of architectural history and many of which were models of style and taste in their day. The earliest of these, Harvard Hall (1637-1677)*, was one of the largest and most elaborate buildings of the First Settlement period, with a cross gable, H-plan and complex roofline with gables, dormers and four chimneys. Stoughton (1699-1764), Massachusetts (1718), and Harvard (II, 1671-1764) Halls were some of the most innovative Georgian style buildings of the study unit. Other important Georgian buildings at Harvard include Holden Chapel (1742), the Wadsworth House (1726) and Hollis Hall (1762, Thomas Dawes).

Noted local architects, including Charles Bulfinch, Solomon Willard and engineer Loammi Baldwin, designed buildings at Harvard in the Federal period; these are well-detailed but traditional three or four-story hip-roofed masonry buildings typical of the institutional construction of the Federal period. The second oldest academic institution in the study unit is the Newton (now Andover-Newton) Theological School (1825); the three-story, hip roofed brick building which originally housed the school still stands and is, like Harvard's Federal buildings, typical of and traditional for the period. More distinctive and innovative, stylistically, were the buildings constructed

*The use of two dates indicates first, the construction date and second, the date of demolition. A single construction date signifies that the building is extant.

at Harvard during the Early Industrial period; these included Dane Hall (1832-1918), one of the study unit's earlier temple front Greek Revival buildings, Gore Hall (1838-1913, Richard Bond), an early stone Gothic Revival building, the Harvard Observatory (1843, Isaiah Rogers), with the deep eaves of the Italianate style, and Ware and Van Brunt's monumental High Victorian Gothic Memorial Hall (1868).

During the Early Industrial period, several other important academic institutions were founded, the most prominent of which are Tufts University (1852), the Massachusetts Institute of Technology (1860), and Boston College (1863). Of these three, only Tufts had a suburban campus; the other two maintained urban campuses through the end of the 19th century, along with the study unit's other major academic institution, Boston University. Of the four institutions, M.I.T. probably had the single most distinguished building: William G. Preston's Rogers Building (1863), a free standing Renaissance Revival block. Boston University's original Beacon Hill campus also included Preston buildings. The first buildings of both Tufts and Boston College were rather more utilitarian three and four-story brick Italianate and Second Empire buildings. Lasell Junior College (1851) in Newton, which maintains a picturesque campus of semi-domestic Stick Style and Queen Anne buildings, should also be noted as one of the first academic institutions to be established in a suburban location.

Significant changes in any of the study unit's academic institutions did not occur before the turn of the century. After 1900, both M.I.T. and Boston College moved to new campuses outside Boston. M.I.T.'s neoclassical campus (Welles Bosworth, 1913) in Cambridgeport relates to its urban setting with an ordered, formal Beaux Arts plan, while the Boston College campus (Maginnis and Walsh, 1909) in Newton, with traditional early 20th-century Collegiate Gothic structures in brick and stone, follows a picturesque open plan in harmony with its suburban setting above Chestnut Hill Reservoir. The shift of these institutions away from the central city parallels the establish-

ment during the period of other academic institutions in the suburban periphery; these include Mount Ida College at Newton as well as other institutions, such as monasteries, seminaries and convents, which also relocated to the outskirts of Brookline, Brighton and Milton around the turn of the century. The youngest academic institution in the study unit, Brandeis University (1948), is the latest institution to follow the pattern of suburban location. Like some of their suburban counterparts, those academic institutions which stayed in the central urban core were forced to relocate to previously undeveloped areas, most of which had remained undeveloped because until the 20th century because of undesirable features. The Commonwealth Avenue campus of Boston University, which before the damming of the Charles River had been subject to tidal fumes, was not developed until the 1930s.

Architecturally, Harvard University remained the most distinguished academic patron, initiating major building campaigns at the end of the 19th century; from these emerged a succession of notable buildings by H.H. Richardson, Peabody and Stearns, McKim, Mead and White, Richard Morris Hunt and others. Building at Harvard culminated after 1900 in the construction of a series of monumental Georgian Revival buildings, many of them by the Boston firm of Coolidge, Shepley, Bulfinch and Abbott; these provided a unifying visual character to the more eclectic buildings of the 1870s, 1880s and 1890s. Harvard's Georgian Revival buildings proclaimed the propriety of traditional 18th century English architecture for academic structures, a dictate that predominated through the end of the Early Modern period. Not until the very end of the period did any of the study unit's universities veer from their established architectural forms; in 1940, M.I.T., with the construction of the International Style Alumni Pool (Anderson and Beckwith), initiated a trend towards experimentation with avant-garde architectural styles which has continued, with some lapses, through the present.

Academies: Private academies were established in the study unit

during the Federal period. Most of those noted were located in the outlying agrarian towns of the study unit (Lexington, Reading, Milton); although private schools certainly existed at the Boston urban core, most of these are believed to have been housed in private residences or in structures originally built as residences. Of the academies built in the study unit's peripheral towns, most were two or three-story, hip roofed frame buildings with center cupolas following the accepted form of Federal institutional construction; of the many academies built in the Federal period, only one is known to survive, and that in much altered condition (Lexington Academy, 1822). A well preserved example of the Federal academy type is the Newton Theological School (1825) in Newton Center. Most academies closed in the 1840s and 1850s with the establishment of municipal high schools.

Lyceums: Lyceums, which functioned as civic and cultural centers, were established in the mid 19th century; most of those known were located in the industrializing towns north of Boston (Woburn, Reading, Winchester). Most lyceums were two-story brick Italianate buildings, often with retail space on the ground floor and a lecture hall above. Although a lyceum was established in Cambridge as early as 1841, most lyceums were built between 1848-1855. The only known surviving lyceum in the unit is in Winchester (1851, Sumner Richardson); originally built in the Gothic Revival style, the Winchester Lyceum was remodelled twice and no longer retains any of its exterior detailing.

Museums: The earliest museums in the study unit were established in the Early Industrial period in Boston. The Museum of Natural History (established 1830) and the Museum of Fine Arts (incorporated 1870) were both housed in innovative buildings of local architectural significance; the Renaissance Revival Natural History Museum (1862, William G. Preston) is one of the Back Bay's most distinguished free-standing structures while the original Museum of Fine Arts (Sturgis and Brigham, 1870) at Copley Square was notable for its

early and extensive use of terracotta. Most of the study unit's remaining museums date from the 20th century; these include the German Baroque Busch-Reisinger (Bestelmeyer; Warren and Smith, 1914) and Georgian Revival Fogg Art Museums (Coolidge, Shepley, Bulfinch and Abbott, 1925) at Harvard as well as Isabella Stewart Gardner's "Fenway Court" (1903, Willard T. Sears) and the present Museum of Fine Arts (1907, Guy Lowell). Both the Gardner Museum and the Museum of Fine Arts were built as part of a transitional institutional belt on the outskirts of central Boston.

III. COMMERCIAL

A Mercantile/Office

The earliest mercantile building of the study unit was the Town House (1657-1711) of Boston, its open first-story arcade containing public space for a regional market. Although the original specifications survive, its appearance is known only through conjecture, based on English models from which medieval prototype the Town House derived in plan and function. Boston's Triangular Warehouse of c. 1680 probably functioned in a similar fashion as a regional center for storage and distribution of goods. The brick construction of the warehouse made it one of Boston's more ambitious buildings, while the warehouse's three polygonal corner turrets, steep hip roof and asymmetrical massing demonstate the continuing strength of "medieval" design in Boston. The other major commercial structure of the Colonial period, and the only one standing, is Fanueil Hall (John Smibert, 1742), built to provide market space lost thirty years earlier when the Town House burned. As built, the two-story, three-by-nine bay hall spoke notably for the Georgian style with its classicized detailing of pilasters, Doric frieze, quoins, and domed cupola. Aside from these major commercial buildings at the core, all of which functioned as mercantile centers for the region, Plantation and Colonial Period commercial usage in the remaining towns of the study unit was confined primarily to smaller shops incorporated within domestic structures; the only known surviving structures are in Boston (Old Corner Bookstore, Union/Hanover/North Streets area). The pattern of commercial usage in a domestic setting continued into the Federal period in most towns of the study unit. In Boston, however, the city's early 19th century expansion to the largest seaport on the Atlantic coast demanded specialized new construction. Three and four-story brick warehouses were built along the wharves, most with low hip roofs and simple dentilated cornices; these strongly resemble the residential construction of the period. The expansion

of Fanueil Hall (Charles Bulfinch, 1804) and the construction of Quincy Market (Alexander Parris, 1824) are architecturally the most notable additions to the mercantile category. By the end of the period, granite pier and lintel construction was becoming common for commercial buildings in Boston. Unknown outside the city, this massive masonry construction was well-suited to the Greek Revival style and gave Boston's commercial district a distinctive character.

Outside Boston, brick construction prevailed for more ambitious commercial buildings. The earliest commercial structures built for the purpose outside Boston appear to date from the 1820s and consist primarily of small scale, semi-domestic structures in the Federal or Greek Revival styles. No banks of the Early Industrial period are known to have survived, but the earliest examples recorded date from the late 1820s, with Greek Revival temple front banks predominating and one unusual octagonal Gothic Revival example known (Norfolk Bank, Roxbury, 1826).

In the 1840s and 1850s, a few new types of commercial buildings evolved; in the inner urban areas surrounding Boston, well detailed three and four-story brick corner blocks with rounded end bays were built at intersections as new turnpikes and roads cut across the earlier colonial road system. Their generally prominent location and distinctive round corners often made these buildings the most notable mid-century commercial buildings in town. A second type which developed in the 1850s was a three to four-story brick commercial block with a single pitch shed roof and paneled wall surfaces with quadrant corners defining the bays. Examples of this comparatively rare commercial type survive in Stoneham, Medford, Roxbury and Cambridge.

By the late 1850s and 1860s, more elaborately detailed Renaissance Revival and Neo-Grec commercial buildings, four, five and six stories tall with granite or brownstone facades, slate mansard roofs and incised window and entrance details began to be constructed in the

commercial districts of Boston and in a few of the larger, industrialized cities of the study unit. Cast iron facades, extremely rare survivors in Boston, are unknown outside the city. Comparatively few wooden commercial structures are known to survive, but it is likely that at least some smaller examples may still stand, converted to residential use; this is particularly likely in the smaller, outlying cities of the study unit.

Many of the towns in the study unit retain well-preserved and imposing late 19th century Main Street commercial districts. These include several late 19th century districts of considerable urbanity in Roxbury, Dorchester, Everett, Malden, Quincy, Waltham, and Cambridge, all of which achieved sufficient autonomy and wealth (based on industrial prominence) to construct buildings in brick, stone and concrete to a height of as many as five and six stories. While High Victorian Gothic blocks were rare, Renaissance Revival and Queen Anne buildings in red brick, often with abundant terracotta ornament, were built in numbers through the 1880s and 1890s. After the turn of the century, the use of yellow brick became most common, with cast-metal ornament replacing terracotta. More formal and restrained Georgian Revival and Beaux-Arts derived designs characterize the buildings of the years after 1900. While most commercial buildings are similar in organization, with stores on the ground floor, and offices or occasionally, auditorium space for public meetings above, Late Industrial period banks were exceptions to this pattern. Many banks remained housed in smaller, often free-standing blocks of considerable architectural pretension. Outstanding Beaux-Arts, Gothic, and neoclassical bank buildings survive in Dedham, Brookline, Watertown and Charlestown.

Most of Boston's downtown area was built up in the Late Industrial period, at least in part as a result of the disastrous fire of 1872. The downtown commercial districts preserve the well-established 18th-century land use patterns of a retail district focused along Washington Street and a financial center in the State Street area. The earliest surviving retail structures are Panel Brick buildings such as

Kennedy's Department Store (c. 1874). The largest group of late 19th century commercial structures are the brick warehouses of the Leather District; these well-detailed five to six-story Renaissance Revival and Richardsonian Romanesque structures represent the highstyle standard in the warehouse architecture of the region. Warehouse buildings outside Boston were primarily utilitarian, four and five-story brick, or after 1910, concrete structures confined to the inner and urbanized areas of the study unit.

Steel frame office buildings were not constructed in Boston until after 1893, and until 1928 a height limit of 125' kept buildings to a maximum of ten stories. Structural conservatism was paralleled by stylistic restraint. The generalized shift to the more formal and derivative Beaux-Arts classicism after 1893 is evident in the masonry and sandstone-faced office buildings of downtown Boston. The best of these Beaux-Arts, Georgian and Renaissance Revival structures are Mannerist in character with over-scaled classical detailing. Toward the end of the Late Industrial period, the use of new materials such as glazed terracotta and cast stone facilitated increasingly plastic and ornamental detailing, particularly for retail establishments, although most offices and banks sought to maintain a more modest and dignified appearance. In several instances, office blocks were designed with massing and detailing which made historical allusions to architecturally significant buildings of Boston's past; the most notable examples of this conscious historicism are the Tremont Building (73 Tremont, c. 1910) and the Kirstein Branch, Boston Public Library, derived from the Tremont House and Tontine Crescent respectively.

Architectural design remained conservative through the Early Modern period with very few Art Deco buildings constructed in Boston or surrounding communities; simplified neoclassical buildings prevailed. The most ubiquitous commercial structure of the late 1920s is the one-story masonry store block with poured concrete stock detailing in Georgian, Colonial and Tudor Revival, Adamesque and Beaux-Arts designs. Quickly and inexpensively constructed, these storeblocks

were built in the expanding downtown commercial districts of the cities and towns of the study unit and, most conspicuously, at corner locations in the suburban streetcar and automobile subdivisions of the 1910s and 1920s. Comparatively few multi-story suburban commercial blocks were built after 1920, but well-detailed Tudor and Colonial Revival commercial buildings mirroring surrounding residential development are known in the more affluent suburbs of the unit.

III. COMMERCIAL

B. Transportation/Recreation

The transportation/recreation category includes taverns and hotels, railroad stations, gas stations and auto showrooms, and theatres.

Taverns and Hotels: Inns, taverns and ordinaries were the earliest transportation-related commercial buildings constructed. Most of these operated from private residences through the Plantation period and into the Colonial. While no surviving Plantation Period houses are known to have been used as taverns, many Colonial houses still standing are known to have functioned as taverns and ordinaries. Commercial use is known in surviving residences of the study unit built as early as the 1680s and continued through the end of the Colonial period, particularly in houses located at crossroads and along major thoroughfares. In outlying areas, taverns and inns were established in a variety of houses, from very simple houses built as single-family residences to larger and more stylish buildings built with their commercial function in mind. In Boston, a handful of well known taverns were housed in more monumental buildings such as the Green Dragon Tavern (1680-1828), a very early end chimney brick structure with Georgian detailing.

Taverns, restaurants and inns built for the purpose were not widely known until the Federal period. One of the most imposing Federal commercial buildings was the Exchange Coffee House (Asher Benjamin, 1808-1818), a seven-story brick structure with a rusticated basement, Ionic pilasters, and a low oval dome, but most other commercial service buildings of the Federal period are known to have operated from then existing residential structures. In this period, the first hotels were constructed in Boston and at early regional industrial centers (Waltham, Medford, Dedham, Newton). The first resort hotels in the study unit also were constructed in the Federal period, at Winthrop

and around Lexington's historic Common. Most of these were frame structures, two or three stories in height and domestic in character, generally with one-story verandas. Other hotels of the period include Isaiah Rogers' widely known and innovative Tremont House (1818) and hotels in South Boston, Dedham and Roxbury. The Tremont House was notable not only for its novel plan and early use of indoor plumbing but also for its granite Greek Revival design. The other hotels mentioned were all of brick construction with traditional Federal detailing; of these, only the Norfolk House (1802) in Dedham still stands.

By the end of the Federal period, commercial hotels of masonry construction stood in the towns of the urban core as well as in a few of the towns of the inner periphery; in the outlying areas of the outer periphery, the traditional pattern of semi-domestic, frame taverns remained standard. In the 1830s, hotels in the emerging industrial centers particularly north of Boston began to exhibit a new plan. This consisted of a two-and-a-half story Greek Revival building with a monumental pedimented portico with two-story verandas and a long rear ell with many bays incorporating a series of hotel rooms, presumably arranged off a center hall running the length the building. The only example of this type known to survive stands in Waltham, but other Greek Revival hotels are known in Brighton and Newton.

Toward the end of the Early Industrial period, larger resort hotels began to be built, most of these three and four stories tall with mansard roofs and two-story verandas running the length of the facade. Such commercial hotels were built at Lexington Common, where a growing tourist trade based on the town's Revolutionary War fame was focused, and at the study unit's beaches (Winthrop and Revere); none of these survive. Hotels were also built at important transportation terminals (East Boston, Boston). While none of these survive, most were five to six stories in height, of brick, and constructed in the Second Empire style. In the Late Industrial period in

Boston, restaurants began to be constructed as individual structures, although most restaurants continued to re-use existing residential structures which had been engulfed in the expanding central business district.

Very few commercial hotels were constructed in the study unit after 1900, except in the central urban core. Of those built, most were located in Boston and in Cambridge and many survive, still in use as commercial hotels. Almost all of these are multi-story, masonry structures, a few of which may be classified as high rise buildings. All are architect designed buildings in a variety of formal, academic styles, including Beaux-Arts classical, Renaissance and Georgian Revival examples. Comparatively few of the study unit's early 20th-century hotels are located within the central business district, most having been built at the edges of elite residential districts, such as Boston's Back Bay, or near transportation terminals. Although no Moderne hotels were constructed, most hotels of the 1920s incorporate Art Deco interior detailing.

Railroad Stations: The earliest surviving railroad stations in the study unit are the Lexington and West Cambridge depot at Lexington (1846) and the Grand Junction depot at Chelsea (1853). Both are small, story-and-a-half frame structures, the Lexington depot in the Italianate style originally (now Colonial Revival) and the Chelsea depot in the Gothic Revival. The Lexington depot is notable as a very rare example of the earliest one-sided train shed with tracks running beneath an open-ended shed. A fragment of the Gothic Revival Belmont depot survives in the form of an octagonal pavilion. The rural and suburban depots of the 1840s and 1850s were almost all of frame construction and built in the Italianate style with round-arched windows and corner quoins. Boston's first terminals, however, were all masonry structures of considerable pretension. Occasionally, innovative designs, such as the crenellated Gothic Revival design for the Fitchburg station (1845), were constructed, but most of the terminals were more conservative with Renaissance Revival designs predominating.

By the 1870s, a standard Stick Style design, one-and-a-half stories tall with either a hip or jerkin-head roof cupola and deep eaves supported on prominent wooden trusses, had been adopted for rural and suburban stations. While most of these are frame, a few masonry stations were built. Examples of this type stand in Wilmington, Wakefield and Reading. This type predominated through the end of the 1880s, especially for rural depots and freight sheds.

Major innovations in depot design took place with the construction, beginning in 1881, of suburban depots designed by H.H. Richardson for the Boston and Albany and Old Colony lines: the Richardson stations, with highly styled design, quality construction and, often, landscaped grounds, set a precedent in suburban railroad architecture which remained strong through the turn of the century. Similar suburban depots were constructed in Somerville and other towns north of Boston in the 1890s and after 1900.

Railroad terminals in Boston underwent several evolutions most of the original stations of the 1840s and 1850s were replaced twice, once in the 1870s and again around 1900. By the Early Modern period, the monumental Second Empire, Renaissance Revival and neoclassical stations of the Late Industrial period had all yielded to time with the exception of Shepley, Rutan and Coolidge's South Station (1898). Boston's other two standing railroad stations are Back Bay (c. 1925) and the Moderne North Station (1927-28, Fellheimer and Wagner). While North Station is notable as an early Moderne design, the Back Bay station is a conservative and utilitarian structure of little distinction.

Gas Stations and Auto Showrooms: The other major form of transportation-related commercial construction were the automobile-related buildings of the end of the Late Industrial and the Early Modern periods. The automobile showroom was the most ambitious form of

this architecture with large architect designed one and two-story, masonry buildings constructed in Tudor and Georgian Revival, neo-classical and Moderne designs. The largest group of these stands along Commonwealth Avenue in Boston but other examples survive along major transportation routes throughout the inner suburban periphery.

Architects were commissioned to design service stations as well. A number of these, dating from the 1920s and 1930s, survive across the study unit. Three notable types, all of masonry construction, emerged. The first type was the Colonial Revival gas station, most often with a hip roof and Mount Vernon-derived Georgian cupola, the design reflecting the strength of the Colonial Revival style in the suburban residential construction of the period. The second type, represented by the Beaux-Arts classical stations of the Beacon Oil Company, with their domed pavilions supported on Corinthian columns, related to the prevailing and conservative commercial design of the early 20th century business districts. The third, and rarest type was the concrete Moderne style station with cubic massing and flat roof. At least one eccentric design, a lighthouse, survives in Quincy; also known is an early gas station, probably dating c. 1910, in Somerville.

Less important architecturally are the many surviving one-story, flat-roofed repair shops of the 1910s and 1920s, although some may be notable as early examples of concrete block construction.

Theatres: Theatres are a form of commercial structure unknown in the study unit before the Federal period. The earliest theatre known was the Boston Theatre (Charles Bulfinch, 1793-4), a two-and-a-half story brick building with unusually elaborate Adamesque detail. No additional theatres were built before 1827 (Tremont Theatre) and theatres were not constructed in any numbers in Boston before the 1850s. At that time, several theatres were constructed at Scollay Square. Although grander than the retail stores of the day, the

theatres did not constitute an innovative design group but were, rather, contemporary with the Italianate and Gothic Revival styles of the period. Boston remained the center for theatrical entertainment until the end of the century; but after 1900, legitimate, vaudeville and moving picture theatres began to be built in most of the commercial districts of the study unit's inner suburbs as well as in Boston. Most of these were masonry structures, the earlier ones exhibiting stock Beaux Arts detail with more flamboyant Egyptian, Moorish and Art Deco movie theatres being constructed in the 1920s and 1930s. After 1900, legitimate theatres in Boston were built in some numbers and constituted an impressive group of Georgian, Renaissance Revival and Beaux-Arts classical designs, most of considerable sophistication.

IV. INDUSTRIAL

A. Manufacturing

While the Boston area is noted for its Plantation Period industries, such as shipbuilding, brickmaking, sugar refining and iron founding, no above ground remains survive; excavation of the Braintree Furnace in Quincy has revealed foundations of that structure. Furnaces and forges, shipyards and distilleries were comparatively rare, however, with saw and grist mills being the most common industrial structures of the Plantation Period and early Colonial years. Tide and windmills are also known to have been built shortly after initial settlement at Boston and Charlestown. While none have survived and representations of them are rare, the earliest mills undoubtedly did not differ from English and European types and were probably all simple frame structures incorporating rubble foundations.

The earliest known surviving industrial structure is the Powderhouse at Somerville. Originally constructed as a windmill as early as 1702 according to some sources, the conical, slate structure has been heavily restored. Throughout the Colonial period, industrial structures remained small in scale and semidomestic in character. Not until the advent of the textile industry in the Federal period did innovative designs in industrial structures develop. The use of larger power-driven machinery demanded heavy construction, open floor space and increased light; from these demands, the mill form evolved. Masonry construction, a multi-storied, rectilinear plan, clerestories for added light, exterior stair towers for access between floors and a belfry to summon workers were the hallmarks of the Federal industrial structure; these became the standard for 19th century factories of all types. The earliest standing industrial structures in the study unit are the Boston Manufacturing plant at Waltham (1813) and Norfolk Manufacturing plant at Dedham (1832). Traditional industrial construction of semi-domestic scale and character

continued in other established industries such as paper milling and distilling; the fieldstone Roberts papermill in Waltham (1802) and the now demolished brick distillery in Medford (1797) were both low, gable roof, story-and-a-half structures with little other than their extended length to distinguish them from residential structures.

During the Early Industrial period, masonry buildings began to be constructed in greater numbers, in many industries replacing the more fragile frame structures of the earlier periods. Certain industries, such as tanning, ice, rubber, and paint, retained frame construction with the result that few of these structures have survived. For most industries, though, Federal style mill form became the established industrial form in the Early Industrial period and remained so through the end of the Late Industrial period.

After the 1850s, most buildings incorporated some elements of the Romanesque Revival style, such as corbelled cornices, round-arched spandrels, decorative string coursing and stair-tower belfries of increasing elaboration with dormers, cresting, etc. The steeply-pitched gable roofs of the early structures yielded by the end of the century to a broad shallow gable form. Another innovation of the period was slow burning mill construction, first used in 1862. (Manufacturer's Mutual Fire Insurance Company, 1935:226) In mill construction, the many light joists of a bay were massed into one heavy beam supporting a thick plank floor.

Among the outstanding industrial buildings surviving in the study unit are the Waltham Watch Company (c. 1860), the Silver Lake Cordage Company (1866) in Newton, North Meat Packing plant (1879) in Somerville, Baker's Chocolate works in Dorchester (c. 1880), Chickering Piano works in Boston (1853) and the Roxbury breweries, which form an impressive subgroup distinguished by their extensive use of such materials as glazed ceramic tile and terracotta in sculptural relief. Most surviving late 19th century industrial structures are, however, more utilitarian in design with modest Romanesque or Renaissance Revival detailing.

Significant innovation in industrial design did not occur until after the turn of the century with the introduction of reinforced concrete construction. At that time, the second major industrial form was developed; still rectilinear in plan and multi-storied, the reinforced concrete factories are highly utilitarian in character with flat roofs and close set bays with metal sash windows and concrete spandrels filling the interstices. Significant early examples stand in Cambridge (Boston Woven Hose, 1907; Simplex Wire, 1902) and Watertown (Stanley Steamer works, c. 1908). Utilitarian brick construction remained dominant through the end of the Late Industrial period although office structures within industrial complexes reflect the eclectic architecture of the period with Dutch, Mission and Colonial Revival examples known. By the Early Modern period, reinforced concrete industrial construction had become the established form and remained so through 1940.

Warehouses: Although technically they are commercial buildings, warehouses are considered here as they relate geographically and architecturally to the industrial structures. The earliest warehouse in the study unit was the Triangular warehouse of c. 1680. Although individual storage structures were undoubtedly constructed in some numbers during the Colonial period, especially along Boston's wharves, widespread commercially sponsored construction of such structures probably does not predate the Federal period when the port of Boston began to assume national importance. The Broad Street warehouses of c. 1805, designed by Charles Bulfinch, are the earliest surviving examples known in the Boston area. Built of brick, the four-story warehouses are architecturally conservative as they do not differ in style from the Federal rowhouses of the period. Significant innovation in warehouse construction awaited the availability of granite from the Quincy quarries in the 1820s. During the 1830s and 1840s, granite Greek Revival warehouses utilizing pier-and-lintel construction were built on most of Boston's wharves and along the harbor; these

included examples by notable architects such as Bulfinch, Isaiah Rogers and Richard Bond.

The 1872 Boston Fire discouraged the further use of granite for fireproof construction as it demonstrated that the stone shattered under heat and water. Thereafter, most warehouses tended to be of brick with brick-arched interior or mill construction or, after the turn of the century, of reinforced concrete. Unlike the granite warehouses of the early 19th century, whose pier-and-lintel construction created widely spaced bays with standard fenestration patterns, later brick warehouses commonly had few wall openings which were generally fitted with cast-iron shutters. Most of these buildings are of utilitarian design although a few more fanciful examples exist (such as the castellated Metropolitan Storage warehouse [Peabody and Stearns, 1895] in Cambridge). Warehouses were constructed at transportation terminals across the study unit with many examples surviving in Boston (Fort Point, East Boston, Roxbury-Stony Brook access), Cambridge, Chelsea, and Everett.

IV. INDUSTRIAL

B. Service

The category of service buildings includes pumping stations, power stations and stand pipes. The construction of any service facilities did not commence until the Federal period when Boston's increasing urbanity began to demand an organized solution to the provision of an essential resource, water. The earliest effort at providing a potable water supply in the study unit was the Jamaica Plain Aqueduct Company's construction of a gravity-fed, log-pipe system from Jamaica Plain to a reservoir at Fort Hill (Roxbury) in 1795.

A municipal water system was not realized until 1846 when the Cochituate Aqueduct (John B. Jervis, engineer) was completed. The gatehouses and reservoirs associated with the Aqueduct were among the earliest Romanesque Revival structures built in the study unit. The only structures surviving from the 1840s are in Brookline: these are a small granite ventilating chamber located off Reservoir Road and the two-story granite pumping station on Warren Street. It has been suggested that the Beacon Hill Reservoir (1848) of the Cochituate system, a massive, rock-faced granite structure with arcaded, battered walls, may have served as inspiration to H.H. Richardson (O'Gorman, 1978: 191). Later water system structures, including examples in Brookline and Brighton, retained use of the Romanesque Revival style through the 1870s; thus, the Romanesque Revival style, introduced as an innovation in the 1840s, had become traditionally associated with industrial structures by the time of the expansion of the Cochituate system with the Sudbury Aqueduct in 1874.

Among industrial structures, the pumping stations of the 1880s and 1890s may be the finest and best-developed examples of the architectural eclecticism contemporary to that era. A number of

highly-crafted structures survive in the study unit including Richardsonian Romanesque pumping stations in Arlington (Brattle Court), Boston (Calf Pasture), Brookline (Fisher Hill), Brighton (Chestnut Hill) and Waltham with Beaux Arts (Chestnut Hill), Romanesque Revival (Stoneham) and Victorian Gothic (Newton) examples known. Most of these are one to two-and-a-half story, hip-roofed structures; all are of masonry construction, either brick or stone. Most of the pumping stations in the study unit date from the period 1890-1910; subsequently few stations were built and none of any architectural significance are known for the Early Modern period.

Power Stations: Most of the surviving electric power generating stations date from the Late Industrial period with inner urban stations built just after the turn of the century joined by a widening range of suburban substations in 1909, 1910 and 1911. The inner urban stations are generally monumental Beaux-Arts classical, Renaissance or Romanesque Revival structures with notable examples including the Boston Edison plant at South Boston (1903, Bigelow and Wadsworth?) and the Cambridge Electric Light Plant (1901, Sheaff and Jaastad). Similarly styled street railway power stations (same dating from the 1890s) also survive in the study unit with examples in Boston, Charlestown, East Boston and West Roxbury. Most suburban substations are more utilitarian in design with a standard brick Renaissance Revival Edison design of two stories with blind arcaded walls predominating.

Standpipes: Like power and pumping stations, standpipes have generally received some window dressing of architectural style. The earliest surviving example in the study unit is the Chateauesque Roxbury standpipe (1869, Standish and Woodbury). The Chateauesque style predominated for standpipes with the conical-roofed donjons of medieval French chateaux providing an historical allusion for the cylindrical late 19th-century structures. Other Chateauesque standpipes survive in Reading (1890-91) and Quincy (c.1910). Neoclassical

designs were introduced in the Early Modern period with a masonry standpipe at West Roxbury (1916) and a particularly fine reinforced concrete standpipe at Arlington (1921, Frederick F. Low).

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CHAPTER V: ECONOMIC AND INDUSTRIAL DEVELOPMENT

Introduction

The twenty industrial summaries which follow are an attempt to give an indication of the broad diversity in economic development which characterized the Boston region, particularly in the 19th century. Although 17th and 18th-century industries are represented, in the 19th century Boston became a regional center for manufacturing equal to New York, Baltimore, or other regional centers, developing simultaneously products as diverse as locomotives and pianos, readymade clothing, and mattress-making machines. In the 20th century, as changing freight rates and national markets replaced regional markets, the area lost many of these industries to other cities closer to the national population centers.

Any attempt to choose twenty representative industries is bound to be guilty of omission. Nevertheless, the following concepts underlie the choices made. Industries were included based on:

a. frequency of encounter (e.g., iron and machine works; ice trade).

b. overriding importance in the development of an individual town (e.g., tanning in Woburn; granite in Qunicy; brewing in Roxbury).

c. hitherto undervalued importance (e.g. paints and varnishes; coal and petroleum products).

d. importance of the Boston area development in national industry (e.g., rubber, ice, pianos, printing, cotton textiles).

To some extent, industries were omitted if they had adequately been discussed in other study unit reports. Thus the shoe industry was omitted because it had been covered in the Eastern Massachusetts study unit report. Likewise, it was anticipated that cordage would be treated in the Southeast Massachusetts study unit report.

The industries chosen were not all of equal importance. Some stand out as being important over the whole span of time (e.g. shipbuilding, or the brick industry), while others, like the silk or rubber industries, can be pinned down to particular decades, when they experienced extraordinary bursts of activity because of a technological innovation suddenly seized upon.

The twenty separate reports are organized essentially in chronological order according to their first introduction or period of greatest expansion.

I. Shipbuilding

A. Primary Locations:

Medford, Quincy, East Boston, South Boston, Charlestown.

B. Historical Development:

The cessation of emigration from England after 1640, during the English Civil War, forced an early interest in maritime commerce and shipbuilding. Both were boosted also by the impetus of the Navigation Acts of 1651, limiting colonial commerce to English and colonial vessels. The first yard was built at Charlestown in 1641, and probably at Boston about the same time. Other yards were established at Quincy (encouraged by active fishing trade) and Medford -- all utilizing large quantities of oak from nearby towns. Ancillary industries included a copper foundry for ships' hardware located in Boston by the early 18th century, the first colonial drydock, built in 1678 at Charlestown, and numerous ropewalks in Boston, Charlestown, etc.

A sharp reduction in shipbuilding through the late 1780s was due to war and trade restrictions. The revival of shipbuilding during the Federal period was due to the discovery of the new Canton trade and tonnage duties on foreign ships (1789). New yards established on the Neponset, at Medford, Charlestown, and South Boston attracted many North River shipbuilders for whom the North River was now too shallow for the larger class of vessels they were building. Massachusetts ship tonnage doubled between 1789 and 1792.

The opening of the timber route from upper Merrimack via the Middlesex Canal attracted Thatcher Magoun to Medford where, by the 1830s, the evolution in marine techniques was especially visible in the construction of a large number of East-Indiamen with large cargo capacity and limited crew needs. The zenith of swift cargo fleets was reached in the early 1850s with clipper ship construction, particularly at East Boston where the yards of Donald McKay, Samuel Hall and others gained national reputation, together with important yards at Medford and Quincy.

Clipper ships, designed in the years immediately following the discovery of gold to meet the special need of cargo speed to California, were of immense significance to naval architecture. However, they were an economic failure by the 1850s, "when even California trade yielded only normal profits" (Morrison). The loss of much maritime trade to New York, coupled with the new popularity of iron hulls, brought about the closure of numerous Boston-area yards by the 1870s. Some active iron shipbuilding was maintained through association with boilerplate and machine shops in East and South Boston, initiating the developing association of shipbuilding with iron and steel works. The small Fore River Engine Company was established by a mechanic from East Boston's Atlantic Works, c. 1883. By 1893, despite the continuance of some wooden shipyards, shipbuilding was a recognized branch of the steel Industry, although the Fore River plant was not purchased by Bethlehem Steel until 1913. Spurred by large World War I contracts, Bethlehem established plants at Squantum and East Boston.

C. Surviving Resources:

Abandoned shipyards were frequently subject to waterfront reclamation efforts such as in East Boston and Quincy, or arterial highways, such as Medford or Charlestown.

Surviving:
Atlantic Works (East Boston, 1880s)
Boston Naval Shipyard (Charlestown, 1800s, NHL)
Densmore yard (Quincy, 1890s)

D. Research Topics:

Although the importance of Medford, East Boston and Quincy wooden-ship yards is well chronicled, the early iron-ship yards in East and South Boston have been little documented. What were the key yards and what were their respective roles in the development of iron shipbuilding?

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II. Brick/Pottery Manufacture

A. Primary Locations:

Medford, Cambridge, Somerville, Chelsea, South Boston, Dorchester, Dedham, Charlestown.

B. Historical Development:

The earliest brick yards in the Boston area were begun in the mid-1630s among the rich glacial clay deposits of the Boston basin. The earliest geographical center identified was in Medford with prominent Plantation Period houses of local brick construction remaining evident. Brickyards were in Cambridge by 1660 and probably in Charlestown/ Somerville by the mid 18th-century.

By the early 19th-century, the opening of Middlesex Canal, turnpikes, and later, of rail access, together with the growth of Cambridge and Boston, spurred demand and production for brick. New brick presses were introduced by local makers (Medford, Malden, Cambridge) and new yards were opened, with specialized technologies for draining clay pits and drying and molding the product. For most of the century, Cambridge brick production (largely in North Cambridge) exceeded that of all other Middlesex County towns, and Middlesex County exceeded the brick production in all other counties of the state.

Most yards remained small until the 1860s when the introduction of steam forced economies of consolidation on many smaller yards. The last quarter of the 19th century saw the peak of large steam brick yards in Cambridge, Chelsea, Somerville, and Belmont, as streetcar suburbs experienced an explosion in population and residential construction. The same expansion, however, put a high real-estate value on brick lands, and by 1900, many yards had closed or moved away from the metropolitan area.

Redware potteries were begun by the mid 18th-century or earlier with local Boston Basin clays in Cambridge and Charlestown. Red and brown earthenware continued to be produced through most of the 19th century, culminating in building material companies for terra cotta, sewer pipe, and structural clay tile. (Hews, already using Cambridge clay since the late 18th century, moved from Weston to North Cambridge in 1871; "La Ceramica," the Boston-area plant of Gustavino Co. was an important innovator in structural tile vaults.)

The foundation for art potteries was begun in the 1850s in Chelsea by Scottish immirgant A.W. Robertson with brown earthenware. By the 1870s, Robertson's firm, Chelsea Keramic Art Works, had established faience and crackleware of national importance. (After reorganization, the company reopened in Dedham in 1891.) Low Art Tile Works, 1871 ff., also in Chelsea, is said to have been the largest manufacturer of high-grade art tiles in the world. Other important potteries producing distinctive glazed wares of national reputation well into the 20th century included Grueby Faience Co. (South Boston, 1897) and Dorchester Pottery (Dorchester, 1895).

C. Surviving Resources:

For the most part, only fragments remain, including Hews Pottery stable (North Cambridge) and Dorchester Pottery kiln. Most impressive is the laboratory and showroom, "La Ceramica," of the Guastavino Tile Co. in Woburn.

D. Research Topics:

The development of ceramic materials in the Boston area has been inadequately treated in the sources encountered.

E. Bibliography:

Ries, Henrich, and Henry Leighton
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III. Paper Manufacture

A. Primary Locations:

Milton, Newton, Waltham, Watertown

B. Historical Development:

The earliest paper mill in New England was started in Milton in 1728, with the financial encouragement of the General Court by prominent Boston men. Its failure by the 1750s was due to lack of skilled workmen. The industry began again in 1760 when James Boies trained several important Massachusetts paper makers including the Crane brothers, Stephen and Zenas. By 1796, there were four paper mills along the Neponset River at Milton and Dorchester, but paper activities were already moving to Charles River sites in Newton and Waltham, often with the encouragement of state loans. By 1815, there were six mills at Newton Lower Falls.

Despite the 18th-century introduction of Hollander, most of the paper-making process was still a hand-made batch system until the early 19th century. Various "cylinder" machines, the predecessor to European Fourdrinier, were introduced in the 1820s by Massachusetts men, including an 1829-patent cylinder by John Sanderson of Milton. Despite early operational problems, the first use of continuous feed Fourdrinier machines, c. 1829,was a key development. Though Newton, Wellesley and Waltham all make claims for the "first" Fourdrinier, none seem justified.

The succeeding decade, 1830-40, saw vast improvements as textile finishing techniques of bleaching, cleaning, etc. were adapted to treatment of raw pulp, making possible the production of fine papers from raw materials hitherto consigned to the manufacture of coarse products.

The pre-Civil War decades were the 'golden age' of paper manufacture at Newton Lower Falls, where by 1839, there were ten mills. Of these the largest and most extensively equipped, the Curtis Mill, repeatedly won national recognition for quality papers.

With the introduction of steam and newer and faster equipment in the larger plants of western Massachusetts and elsewhere, most volume paper production left the Boston area. The remaining plants specialized in coarse papers for wrapping, roofing, etc., such as Watertown's Pequossette Mill, which owed its success to the invention of bag-making machinery by Leonard Whitney in 1857.

C. Surviving Resources:

Paper manufacture has been usually considered a 'nuisance' industry. Consequently, its survival rate has been low, especially at Newton Lower Falls. Nevertheless, good representative examples within the study unit include:

Roberts Mill (Waltham, 1802)
Ware or Crehore Mill (Newton, NR)
Hollingsworth & Whitney's Pequossette Mill (Watertown, 1860s)
Tileston & Hollingsworth's Mattapan Mill (Hyde Park, 1890s)

D. Research Topics:

Though the industry's key period of development occurred 1820-40, little has been written, particularly in relation to Boston-area mills, which were among the first to introduce new equipment and pro-

cesses. The possibility of a relationship between the introduction of bleaching and cleaning and the nearby chemical and textile finishing firms should be explored.

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IV. Tanning

A. Primary Locations:

Roxbury, Charlestown, Woburn, Winchester

B. Historical Development:

The earliest tanning operations were part of the local agricultural base which produced leather for local use, though as early as the 1670s, the Woburn tanyards were associated with a large shoemaking economy. Large-scale tanning operations were apparently not begun until the Federal period. However, the convergence of cattle routes in Roxbury made that town an early tanning center. Charlestown tanneries produced morocco leather as early as 1770 and retained the lead in morocco production for much of the 19th century.

Many towns had small tanneries through the 1830s and 1840s, though Woburn had large tanneries and bark houses as early as 1800, supplying shoe shops in Woburn and adjacent Stoneham. By midcentury however, specialization of industries induced by competition had

already closed down most small home operations. In Woburn shoemaking declined in the face of burgeoning leather manufacture, and its success was transmitted to nearby Winchester. Major figures like Woburn's John Cummings played a key part in spreading the tanner's trade.

Technological advances in the Early Industrial period (hide-splitting machines and the like) were followed in Late Industrial period by rapid growth of machine shops in Woburn and Winchester and by expansion of tanning facilities. Beggs & Cobb Tannery in Winchester is said to have been largest tannery of upper leather in the world by the late 1890s.

A key development, the replacement of bark tanning by chrome tanning about 1901, was led by Harry Thayer, who in that year introduced chrome-tanned side leather and became the first tanner to market the product. Many factories converted to patent leather manufacture in this period. Along Webster Street in North Woburn alone, by 1910, there were five patent leather factories (including Thayer's) all built within the preceding ten to fifteen years.

Despite technical advances, tanning was not compatible with the suburban metropolitan area. Roxbury's tanneries had been located on streams required by downstream breweries; Woburn's and Winchester's were on tributaries of the Mystic River, the major source of Boston's water supply. By the 1920s, tanning was already on the decline.

C. Surviving Resources:

Tannery buildings, primarily large, wood-frame structures, were usually eyesores by the end of their lives as tanneries, and there was little incentive to preserve them. Portions of three tanneries still exist in Woburn, though only one (Beggs & Cobb) dates to the 19th century. The only operating tanner, the John J. Riley Co. on Salem

Street, operates a plant consisting entirely of post-1910 frame buildings. Also in Woburn two tannery equipment suppliers survive, Woburn Machine Co. (1899) and Bailey & Blendinger Manufacturing Co. (tanner's knives). Small tan-pit sites probably exist in many outlying towns.

D. Research Topics:

No adequate history of the industry was encountered, particularly in regard to important technological advances in mid and late 19th century. Apart from questions relating to strict historical development are questions also of public policy, such as the tanning town's handling of the industrial effluent. How did these towns deal with the industrial waste as a public issue?

E. Bibliography:

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1886 "Sketch of Benjamin F. Thompson's Tanning and Currying Establishment," Winchester Record 2:354-363.

Woburn Mass. Board of Trade
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V. Cotton and Woolen Textiles

A. Primary Locations:

Watertown, Waltham, Dedham, Newton

B. Historical Development:

Early developments in textile manufacture were encouraged by state

bounty on sail cloth in the late 1780s-1790s. A large Boston factory was built, which was apparently only successful as long as the bounty lasted. The earliest sustained experience of cotton textile manufacture was represented by the work of Seth Bemis at Watertown with the earliest use of cotton spinning powered by water within the study unit (1803). During the Embargo, Bemis became the first U.S. manufacture of cotton duck.

The earliest Dedham mills, built during the Embargo and stimulated by Beaumont's mill in nearby Canton, like the Watertown example and those of other towns to the southwest, were based on the Rhode Island model of a small family-run mill.

The earliest experimentation with large-scale Boston capital in textile manufacture was provided by Boston Manufacturing Co. at Waltham, a landmark precedent for investors' subsequent investment in Lowell. Similar Boston investment followed in the 1820s at Newton with the Elliot Manufacturing Co., and at Dedham, where a corporate-structure woolen mill backed by Boston investors succeeded a family-run cotton mill built on the Rhode Island model. Key to the success of the three major complexes were trained mechanics whose innovations provided most ot the 19th century textile machine technology in a relatively short (twenty-year) time span. Simon Pettee, in Newton, founded one of New England's most extensive textile machine shops at this time.

Until the 1860s most quality wool and woolens were imported, and the scarcity of the raw material provided a frequent embarassment to woolen manufacturers. But the Civil War, in cutting off the cotton supply, provided tremendous stimulus to New England woolen production, with the formation of companies like Aetna in Watertown and Merchant's Woolen in Dedham to supply new demand. Woolen machinery development experienced a similar stimulus and by the 1870s worsted production, negligible twenty years earlier, was represented by major complexes in the study unit, including Nonantum Worsted in Newton, and others.

Another stimulus to the local woolen industry was the development of Boston as a major wool market. By 1870, merchants there had secured forty percent of the imported wool and one third of the domestic clip, and twenty years later the city had become the largest wool market in the United States.

C. Surviving Resources:

Textile mills, readily adaptable to other uses, and in the Boston area, usually built of stone or brick, have had an excellent survival rate.

Boston Manufacturing Co. (Waltham)
Aetna Mills (Watertown)
Elliot Manufacturing Co. (Newton)
Saco-Lowell Shops (Newton)
Mauchaug Manufacturing Co. (Hyde Park)
Norfolk Manufacturing Co. (Dedham)
Nonantum Worsted (Newton)

D. Research Topics:

The achievements of Boston Manufacturing Co. are too often looked at in isolation, and should be critically examined in the context of other activities at Newton, Dedham, Watertown, and in Waltham itself.

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Dunwell, Steve
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North, S.N.D.
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Stanwood, Edward
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VI. Glass Manufacture

A. Primary Locations: Quincy, Boston Proper, South Boston, Cambridge, Somerville

B. Historical Development:

The earliest glassworks within the study unit was undertaken in Germantown (Quincy) in the 1750s-1760s with German workmen and Boston capital. With the stimulation of a State bounty, the industry recommended in 1787 with the Boston Crown Glass Co, said to have been "the first really successful glass works in the United States" (Watkins 1930: 3), as well as the first

successful factory for crown glass. As with the Germantown works, German workmen were imported; in 1802 and 1811 branch operations in South Boston and Chelmsford were begun. In the latter instance, in order to compete with Bristol crown glass, British workmen were imported from Bristol, beginning the long tradition of British workmen in the Boston-area glass works. Chief of immigrants, Thomas Cains, was the initiator of flint-glass production in United States at the South Boston works in 1812, before moving across the street to found Phoenix Glass Works, c. 1820.

Cambridge glass production, with encouragement of local land speculator Andrew Craigie, was begun in 1814, and, by 1818, was acquired by New England Glass, the longest-lived and most prosperous of any of the Boston area glass firms. About 1820, New England Glass developed the side-lever glass press, variously credited at the single most significant advance in flint-glass industry until the 1880s, making mass production and cheap glassware widely available. Until new processes were developed outside of the area, beginning in the 1880s, the principal change within the industry was in the number of furnaces and size of plants. Both South Boston and Cambridge firms stimulated several competitors in both localities.

Beset by high cost of Pennsylvania coal (midwestern glasshouses had oil and natural gas close at hand), by the 1870s, Boston-area works were financially pressed. Most held out, however, until the 1880s when new labor demands made profitable operation impossible. Only Somerville's Union Glass Works survived until 1924.

C. Surviving Resources:

No glassworks are known to survive, except as archaeological sites.

E. **Bibliography:**

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Jarves, Deming
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Scoville, Warren Candler
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Watkins, Lura Woodside
1930 Cambridge Glass, 1818 to 1888. Marshall Jones Co., Boston.

Watkins, Lura Woodside
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Watkins, Lura Woodside
1950 American Glass and Glassmaking. Chanticleer Press, New York.

Wilson, Kenneth M.
1972 New England Glass and Glassmaking. Crowell, New York.

VII. Iron/Machine Works

A. **Primary Locations:**
South Boston, Roxbury, Charlestown, Chelsea, Cambridge, Quincy, Newton, Watertown, Wakefield, East Boston, Malden

B. Historical Development:

The earliest iron activity within the study unit was that at Winthrop's Braintree Furnace (Quincy, 1643-5), which closed shortly after it opened due to lack of wood and waterpower. Nail works commenced in Malden (Odiorne brothers) and Newton (Ellis) in the early 20th century, but were subsidiary to Plymouth and Bristol county activities.

Key developments in the iron industry in the Boston area required the import of both raw material and hot-blast technology, not available until the first decades of the 19th century when Boston, as a port was a source of financial capital, and as the site of concentrated manufacturing activity, attracted iron masters away from Plymouth county towns. South Boston Industry was initiated by Cyrus Alger (W. Bridgewater), whose South Boston Iron Co. (1814+) came to dominate much of South Boston iron activities, lasting for three quarters of the century. While initial products included armaments, by the 1820s and 1830s, foundries and machine shops were turning out steam printing presses and textile machinery. Boilers, stationary and locomotive engines, and stove parts were produced in the 1830s and 1840s. By the 1840s Cambridge and Malden in particular, were sharing in this industry. Led by George Odiorne's Middlesex Iron Co. (1846), Malden became the site of a sizable number of iron and later pattern and woodworking shops.

The diversity in product types during Early Industrial period, multiplied in the post-Civil War period, though primary foundry activity, like that of the glass industry, was sharply reduced as furnaces moved closer to the source of raw materials. Instead, heavy emphasis was placed on machine manufacture to service other Boston-area and regional industries, with increasing specialization as the century drew to a close: companies produced items such as buttonhole machines, paper-box machines, woodworking machines, pumps and blowers. The peak of activity was reached in the Late Industrial Period, though foundry and machine-shop products remained third on list of leading

Boston products through 1929 (after publishing and clothing) with five percent of the manufactured total, though the industry employed slightly less than it had in 1890.

C. Surviving Resources:

The surviving resources are numerous. Though some are wood-frame structures, most are brick buildings and of a size that, when still in industrial areas, lend them to reuse by other industries. Among the more important observed include:

McLauthlin Elevator Co. (NR, Boston)
Sturtevant Mill Co. (Dorchester)
Putnam Nail Co. (Dorchester)
Sturtevant Blower Works (Hyde Park)
Norway Iron Works (South Boston)
S.A. Woods Machine Co. (South Boston)
Walworth Mfg. Co. (South Boston)
George F. Blake Pump Works (Cambridge)
Sturtevant Blower Works (West Roxbury)
Kinney Pump Co. (West Roxbury)
Willard Felt Machine Shop (Milton)
Pettee Machine Works (Newton)
Mathweson Machine Works (Quincy)
American Tube Works (Somerville)
Waltham Machine Works (Waltham)
Woburn Machine Co. (Woburn)

D. Research Topics:

Although the complexity of the subject makes it difficult to summarize, Many of the individual companies noted above would make important monographs. There appears to have been no adequate discussion

of the machine industry in the Boston area other than what has been covered in the general sources noted below.

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1901 History of South Boston. Boston.

Gilman, Arthur, ed.
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Stone, Orra L.
1930 History of Massachusetts Industries 4 Vols., S. L. Clark, Boston.

VIII. Ice Trade

A. Primary Locations:

Arlington, Cambridge, Melrose, Stoneham

B. Historical Development

Frederick Tudor is believed to have cut the first ice for commercial purposes at Long Pond in Melrose. The development of icehouse design by Tudor, and of the ice cutter by his associate, Nathaniel Wyeth, was crucial to the rapid expansion of business. The product was teamed to Charlestown wharves. Transportation to Charlestown wharves was made possible by the extension of the Charlestown Branch Railroad, later the main route of Fitchburg mainline. Production was shifted to Fresh Pond in Cambridge by the 1820s and by mid-century, Boston ice had found a world-wide market. Throughout the metropolitan area, most ponds of any size with transportation access featured ice houses.

As in the granite industry, the ice industry offered key incentive in the development of materials handling equipment, including both early use of rail transport and hoisting equipment. Jacob Hittinger, owner of Fresh Pond ice houses and the Charlestown dock, was a pioneer in developing hoisting engines. William T. Wood purchased the ice-tool business of Arlington blacksmith Abner Wyman in 1845. By 1900, Wood was the recognized national leader in the manufacture of ice harvesting equipment.

Although the introduction of artificial refrigeration for commercial usage (breweries, packing houses etc.) by the 1880s reduced commercial usage of ice, domestic consumption remained high until after World War I, and the widespread adoption of home refrigerators.

C. Surviving Resources:

Invariably located on scenic ponds, decaying, dis-used ice houses became ready prey to new housing developments, park plans, water supply systems or arson. Ice houses, generally wood-frame structures, were one of the most fragile types of buildings known. They were susceptible to fire even when filled. There are now no known commercial ice houses in southern New England. However, some elements of the Fresh Pond Ice Co. distribution facilities (1880s) survive in Somerville along the Fitchburg main line.

D. Research Questions:

The ice industry as a whole is fairly well understood. Less well documented are the technological innovations accompanying industrial development.

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IX. Granite Industry

A. Primary Locations:
Quincy, Milton

B. Historical Development:

Surface boulders were used for local building purposes since early settlement of Quincy, but fear of exhausting the supply caused the town to license all quarrying in 1715, and, after a large quantity of South Common stone was taken for King's Chapel in 1749-52, to close granite quarries altogether in 1753. Significant operations were not undertaken again until 1800, when the introduction of iron wedges to facilitate splitting caused the reopening of quarries. Despite only the primitive means of stone dressino and transportation available, Quincy granite was used in State Prison at Charlestown and in the Dedham jail, both built in 1817.

Early attempts at granite transportation included two canals (1824; 1825-6), before the Granite Railroad was built under the direction of Gridley Bryant to supply Bunker Hill Monument. The needs of the monument were key not only to construction of the railroad, but to development of drills, derricks, and shops--the granite technology that made possible the new granite commercial architecture of downtown commercial districts. In the 1830s and 1840s, the granite industry boomed. Speculation suggests that despite the initial enthusiasm for granite architecture, hand methods of production and primitive tools discouraged further advances.

The introduction of stone polishing machinery in 1869 revolutionized the industry. The number of quarries tripled from 1865 to 1875. Capital investment in new shops and equipment altered the character of business from family to corporate management as it altered both quantity and quality of product. The peak years of production were probably 1890-1910. Collateral to the introduction of this new technology was the parallel growth in machine and tool shops.

One of the effects of the Boston Fire of 1872 was to confirm the fact that granite grew brittle with heat and shattered under water; this further strengthened the movement away from the use of granite in architecture. By 1879, seventy percent of Quincy granite was being used for cemetery and monumental work. A large quantity of granite also went into paving blocks, shipped all over the East.

With revived interest in Classical architecture, lighter colored and easier-to-work stones such as limestone and sandstone replaced granite for use in architectural trim. Simultaneously, shipbuilding and military needs drew many stone workers away from the quarries. By World War II many quarries had closed altogether.

C. Surviving Resources:

Several late 19th century granite sheds and derricks survive; some may still be in use. However, portability of derricks and nondescript construction of sheds offers little incentive for preservation.

The polygonal form of shed with openings arranged to face a central derrick is apparently unique to usage and was in use at least as early as the 1880s.

Granite railway and incline (NR)
Stone machine shop of Willard Feld (Milton)
Ruins of Lyons Turing Mill (NR)

D. Research Topics:

No adequate history of industry was encountered, particularly in regard to important technological advances in the last half of the 19th century.

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1878 A History of Old Braintree and Quincy. Green & Prescott, Quincy.

Brayley, Arthur W.
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X. Silk Manufacture

A. Primary Locations:

Newton, Dedham, Brighton

B. Historical Development

Colonial experience with silk raising and spinning, discouraged by the high cost of labor, was largely sporadic and unsuccessful. It revived

again after the Revolution. In Massachusetts, there were a number of important promoters in the 1820s and 1830s. State promotion (following Federal lead) was introduced by sponsorhip of a silk culture manual by Dedham Lawyer and industry promoter Jonathan Cobb, who built the "first partially integrated silk factory" (Davis 1973) for his New England Silk Co. in Dedham in 1832.

The revival of silk products manufacture in the 1820s was limited by the availability of raw silk until the introduction in 1826 of a new strain of mulberry tree (Morus multicaulus). However, the demand for mulberry trees, artificially inflated by New York promoters in 1838, made cultivation of mulberry trees more profitable than the harvest of cocoons, despite state bounties on native-grown cocoons and raw silk in 1835 and 1836. The Multicaulus bubble burst shortly afterward and a blight in 1844 effectively ended raw silk manufacture in the state. The supply was taken up by the increased imports of raw silk from China beginning in the 1840s.

Spun silk, made from unwindable raw silk, was introduced in the 1850s, with machinery developed to reprocess left-overs. Late 19th-century examples exist at Newton Upper Falls at the old Elliot Mfg. Co. mill. There was rapid growth in silk demand after World War I. By the 1930s, New England Spun Silk Co., "material factor in increasing importance in U.S. of spun silk industry." operated factoreis in both Newton and Brighton.

C. Surviving Resources:

The Otis Pettee Silk Mill in Newton, dating probably from the 1830s survives. No other known structures are identified solely with the silk industry, though both former Elliot Mfg. in Newton in the 1820s and former Sewall & Day Cordage works in Brighton in the 1890s housed factories of New England Spun Silk.

D. **Research Topics:**

No adequate history of industry for the late 19th and early 20th centuries was encountered. The significance of Newton's 1880s silk activities and of early 20th-century activity in Brighton and Newton needs to be further explored.

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XI. Rubber and Rubber Products

A. **Primary Locations:**

Roxbury, Woburn, Stoneham, Malden, Melrose, Reading, Watertown, Chelsea, Cambridge

B. **Historical Development:**

The earliest commercial interest in rubber manufacture was probably spurred by the importation, from Brazil, of solid Para rubber overshoes, through Salem in the 1820s. By 1833, the McIntosh Patent of ten years earlier or a similar method of coating cloth with dissolved

rubber was developed by Roxbury India Rubber Co., the first commercial manufacturer of rubberized cloth products. The company, had a slow start until the appearance of President Andrew Jackson on the Boston Common in a rainstorm wearing the company product, which was apparently a source of 'craze' in rubber manufacture. Nine separate rubber companies incorporated in the succeeding two years. All foundered on the problem of stabilizing rubber until Nathaniel Hayward, an employee of Eagle Rubber Co. (Montvale, Woburn) discovered the application of sulfur in 1836, and Charles Goodyear, in Woburn, discovered the application of heat in 1839. The two processes were integral to "vulcanization."

By the late 19th-century, the manufacture of rubber products was broken down into classifications of footwear; rubber clothing; and hose, belting, packing, etc. Of these, half of the industry product was devoted to rubber shoe manufacture. Primary rubber shoe production had shifted with Hayward to Connecticut and Rhode Island in the 1840s and 1850s, though Elisha Converse made an early start in Stoneham (the district was later named Haywardville when Nathanial Hayward returned to open a branch plant of the Hayward Rubber Co. in the former Converse factory), expanding in 1853 to Malden with the Boston Rubber Shoe Co., Converse opened a second plant in Melrose in 1883. The Company's lead was overtaken in the early 20th-century by the shoe products division of the Hood Rubber Company in Watertown after 1896. By 1930 Hood was said to be one of the world's largest manufacturers of canvas and rubber footwear.

The earliest rubber belting in the U.S. was manufactured by Boston Belting Co., a corporate descendent of the former Roxbury India Rubber Co., and by the 1890s a heavily capitalized firm producing a variety of rubber products. Invention of the circular loom in the 1870s was responsible for keen competition between various Cambridge, Chelsea and Roxbury firms for production of rubberized fire-hose. By 1890, rubber hose, belting and specialty products amounted to a third of the total rubber industry's product.

Waterproof cloth was slower to be developed, with a three-phase evolution from heavy cloth in the 1850s to gossamer cloth in the 1880s. Important work was done by Thomas Mayall in his Reading Rubber Mills. The importation of British elastic web manufacturers in the 1860s and 1870s by Chelsea firms was key to the product's advance in that city. The third phase of waterproof cloth evolved in the early 20th century with raingear products still used today.

C. Surviving Resources:

Rubber factories or plants, generally perceived as blights, have low survival rates. Survivals include:
Boston Rubber Shoe No.2 (Melrose, 1883)
Davidson Rubber Co. (Charlestown)
Boston Woven Hose and Rubber (Cambridge)
Cambridge Rubber Co. (Cambridge)
Everlastik (Chelsea)
Eastern Elastic Gusset (Chelsea)
Thomas Martin & Bro. (Chelsea)
Chelsea Web (Chelsea)
Boston Rubber (Chelsea)

D. Research Topics:

The evolution of the rubber industry after the invention of vulcanization is incompletely understood. How are changes in the industry represented in Boston-area plants? Andrew Jackson's association with the rubber 'craze' needs documentation.

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Geer, William C.
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Van Slyck, J. D.
1879 Hayward Rubber Company. In New England Manufacturers and Manufactories 1: 323-328. Van Slyck, Boston.

XII. Ready-made Clothing

A. Primary Locations:

Boston Proper, Watertown, Cambridge

B. Historical Development:

The ready-made clothing industry was born simulateously in New York and Boston as early as the 1830s. The Boston branch grew out of old sailor's outfitting establishments in the North End, sparked by the new availability of satinett and by John Simmons, who established a reputation for quality in a product hitherto consigned to sailors and backwoodsmen. By the 1850s, the industry was already dominant in Boston Proper. Spurred on by the introduction of technical innovations, the sewing machine in the 1850s and the buttonhole machine in the 1880s as well as the availability of cheap labor, the industry remained dominant for the next half century.

Ready-made shirts were first made in New York in 1832. Their manufacture, at least as a cottage industry, picked up in the Boston

area soon after. Early Watertown activity was led by C.F. Hathaway in the 1840s, followed by the location and expansion there of starch factories, commercial laundries, and machine shops for laundry equipment. By the early 20th-century, New England Laundries Co., in Watertown and Winchester, was the largest commercial laundry in New England.

C. Surviving Resources:

Crystal Springs Starch Works (Watertown)
Lewandos Dyeing & Cleansing Co. (Watertown)
Monk's Steam Laundry, (Cambridge)
Reversible Collar Co., (Cambridge)
White Cross Laundry (Somerville)

D. Research Topics:

No adequate history of the industry was encountered, resulting in significant omissions in the developmental picture.

E. Bibliography

Woard, Edward J.
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XIII. Piano Manufacture

A. Primary Locations:

Boston Proper, Cambridge, Reading

B. Historical Development:

The earliest instance of piano manufacture in New England was by Milton mechanic Benjamin Crehore, c. 1800. Its subsequent develop-

ment in Boston is directly traceable to Crehore's activity. Crucial Crucial technical innovations in the 1820s and 1840s by Babcock and Chickering included cast-iron frame and single-piece method of casting. The availability of large supply of cheap labor was the key element in the industry's rapid growth at mid-century and later, led by the new Chickering factory. The close connection to cabinet and woodworking shops determined pirmary location of piano factories near waterfront lumber yards, though substantial business was carried on with firms in outlying towns (including Arlington, Winchester, and Reading), which by mid-century were producing piano cases, actions, and keys. The peak of activity was apparently in 1890-1910 with the construction of several new piano factories in the Harrison Avenue vicinity in Boston, and in Cambridge. The subsequent decline in the popularity of pianos is credited to new forms of entertainment -- player pianos, victrola, automobile and cinema.

C. Surviving Resources:

Extant buildings are generally large brick factories well-suited to other uses, either manufacturing or residential (e.g. Chickering to apartments).

Chickering Piano Factory (Boston Proper)
Emerson Piano Factory (Boston Proper)
Everett Piano Factory (Boston Proper)
Bay State Organ Factory (Boston Proper)
Samuel Pierce Organ Pipe Factory (Reading)
Hallet & Davis Piano Factory (Dorchester)

D. Bibliography:

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XIV. Printing and Lithography

A. Primary Locations:

Cambridge, South Boston, Roxbury, Boston Proper, Chelsea

B. Historical Development:

The earliest printing press in the colonies was established at Cambridge in 1636. Major developments in printing hinged on the application of steam power to press operation beginning in the 1820s, with an early patent given to Boston inventor David Treadwall in 1826. Key inventions in 1830 and 1836 by Seth Adams, of Roxbury and South Boston, revolutionized the printing business with the concurrent establishment of publishing houses and the Starr typecasting machine.

The earliest lithograph house was established by W.S. Pendleton in 1827. Important color lithography introduced by Louis Prang in 1856, made possible the explosion of cheap chromos, packing labels, post cards and the like in the post-Civil War period.

The last quarter of the century also witnessed heavy capital investment in large publishing houses with the construction of landmark printing facilities, equipped with a new generation of faster machines and improved inks based on carbon black for halftone screens (c. 1880). The three-color process was invented in 1882, though until World War I, aniline dyes were primarily imported.

Forbes Lithograph, by 1930 the leader in lithographic products, is reputed to have been the first producer of theatrical posters and "the

pioneer in artistic can labels designed and lithographed in order to sell merchandise" (Stone 1930).

C. Surviving Resources:

Extant buildings are generally well suited to adaptive use (e.g., Prang to apartments; Atheneum to offices). Important survivals include:

Louis Prang Art Publishing House (Roxbury)

Atheneum Press (Cambridge, 1895, NR)

Carter's Ink Co., (Cambridge, 1909)

Forbes Lithograph (Chelsea, c. 1884)

Thomas Strahan wallpaper factory (Chelsea, 1907)

D. Bibliography:

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XV. Cattle Markets and Meat Packing

A. Primary Locations:

Brighton, Watertown, Cambridge, Somerville

B. Historical Development:

Thriving export trade in beef and pork was responsible for the sizable herds of cattle in Boston-area towns by the 1650s. Cambridge, Charlestown, Dorchester, Dedham and Watertown all provided rich grazing land for cattle shipped from Boston docks. The first identified cattle market was established in Brighton by Jonathan Winship to supply Revolutionary war troops with beef. The arrangement's success led to permanent establishments there though operations were apparantly small scale until the introduction of the rail lines in 1835 and later, when the Brighton market was followed in rapid succession by markets in North Cambridge, South Medford and Watertown.

Meat packing operations, established in Boston by the mid-17th century as part of an exptnsive ship-provisioning industry, remained close to the waterfront until increased demand and the need for rail access and for plant expansion forced the industry out of Boston by the early 1840s. Large-scale commercial meat packing, said to have been originated by J. P. Squire in 1842 in East Cambridge, was followed in the next decade by Charles North, only one block away in Somerville. Both of these operations were heavily dependent on the local ice trade until the establishment of artificial refrigeration in the 1880s.

The expansion of demand which forced meat packing out of Boston also forced Boston agents to develop new sources for beef. Midwestern beef packing was begun in the early 1840s by Boston provision houses, with the product returned to Boston via the Mississippi and New Orleans.

The scientific breeding of cattle was begun early in the 19th-century on a limited scale. Important improvements were made by Samuel Jacques in Somerville (1820s) and by John P. Cushing and Winthrop Chenery, in Belmont in the 1850s. Chenery was responsible for the introduction and widespread promulgation of Holsteins after 1857.

The Early Industrial period was the heyday of the independent slaughterhouses, although gross unsanitary conditions were a key factor in the formulation of the State Board of Health in the late 1860s. The first act of the board called for the substitution of a modern abbatoir (central slaughterhouse) for the independent houses, and for the strict regulation of slaughtering. The Brighton Abbatoir opened in 1873, the year of the town's annexation by Boston.

Boston began the transatlantic shipment of refrigerated beef in 1875 and of live cattle in 1877. This prolonged the presence of the cattle and meat-packing industry in the Boston area to the mid 20th-century, although by the 1870s, the geographical center of the industry had already shifted to the midwest.

C. Surviving Resources:

In addition to the following list, other small slaughtering facilities may survive in outlying communities.

North Meat Packing Plant (Somerville)
Thomas I. Reed "Ham Works" (Burlington)
"Cattle Tunnel" (North Cambridge, the only known market remant)

D. Research Topics:

No adequate history of the industry was encountered. This resulted in significant omisions in the developmental picture, particularly in the late 19th and early 20th centuries.

E. Bibliography:

Russell, Howard S.
1976 A Long Deep Furrow: Three Centuries of Farming in New England. University Press of New England, Hanover, NH.

XVI. Sugar and Confectionery

A. Primary Locations:

Dorchester, Milton, Boston Proper, Cambridge, East Boston, South Boston, Charlestown

B. Historical Development:

Both sugarcane and raw cane sugar were imported through Boston probably as early as the 1640s, as an integral part of commerce in rum and molasses. Dependence on the imported raw material for the three subsequent centuries was responsible for the nearby concentration of related industry. Early refineries (open-kettle boiling) were apparently established in Charlestown, Boston Proper and Medford.

Early technical innovations in Europe, (the vacuum pan in 1813 and the boneblack clarifier) were not introduced into the United States until the 1830s. The East Boston refinery of 1833, one of the earliest to introduce modern European methods, was followed by that of South Boston in the 1840s. A number of American-made technical improvements by the mid 19th century, such as centrifugals, the "triple-effect" process, greatly cheapened the cost of producing sugar with a resulting rapid growth in consumption. There was a dramatic increase in other sugar-dependent food stuffs: confectionery, ice cream, cranberries, etc.

Early mills for grinding cocoa beans were constructed in Boston Proper by the early 18th century, and in Milton in 1764. Modern confectionery, however, was dependent on mid 19th-century technical innovations such as the 1847 lozenge cutter and the availability of cheap sugar. The construction of the Revere Sugar Refinery in Each Cambridge in 1871 was apparently key to the expansion of the Cambridge confectioners, who by the early 20th century, outnumbered Boston makers. By 1930, Cambridge was the fifth largest producer of confectionery in the United States.

The last big confectionery plant, Schrafft's, followed the relocation of the Revere Refinery to Charlestown. In the early 20th century, under new corporate trust ownership, refineries experienced substantial modernization.

C. Surviving Resources:

Surviving confectionery plants and refineries, generally brick or concrete, have usually been well suited to adaptation for other purposes.

Surviving are:

Revere Refinery (Charlestown, 1917)
Baker Chocolate (Dorchester, Milton, (1880s) (NR)
Schrafft's (Charlestown, 1927)
Lowney Chocolate (Boston Proper, 1896)
George Close (Cambridge)
C.A. Briggs (Cambridge)
Touraine (Cambridge)
Boston Confectionery (Cambridge)
Daggett Chocolate (Cambridge)
New England Confectionery (Cambridge)

E. Bibliography:

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Holcomb, Frederick G.
1939 The Sugar Refining Industry of New England. Ms. on file Baker Library, Graduate School of Business Administration, Harvard University.

Vogt, Paul L.
1908 The Sugar Refining Industry in the United States. University of Pennsylvania, Philadelphia.

XVII. Coal and Petroleum products

A. Primary Locations:

South Boston, Chelsea, Everett, Waltham

B. Historical Development:

The earliest experimentation with coal tars was in the early 1820s, as a residue product of coal-gas manufacturing plants, with the laboratory isolation of several products in the 1820s and 1830s. Creosote, invented in 1832, was quickly adopted as a wood preservative. "Preserving works," established in port towns, were often associated with timberyards receiving coastwise softwood trade. The first coal-tar boiling plant in the United States was reputedly set up in Chelsea (now site of Cabot stains), by James Cross in 1842. Ten years later, Cross was supplying pitch and tar to inventors and manufacturers of tarred paper and composition roofs on the South Boston waterfront.

Impetus for further work was driven by the rapidly rising price of whale oil and the simultaneous need for lubricants for fastrunning textile, printing, and locomotive machinery that would not break down under heat. By the early 1850s, sperm oil dealers were increasingly interested in new substances. One of the first, "coup oil," was produced by the U.S. Chemical Manufacturing Co., in Waltham. With Atwood's help Samuel Downer of South Boston established the second kerosene refinery in the United States, and, with the pioneer Gesner firm in New York, licensed all subsequent manufacture. Simultaneously, Stephen Jenney, another whale-oil merchant, built an alcohol and camphene plant in 1856 in South Boston to manufacture "burning fluid." With the discovery of petroleum wells in western Pennsylvania in 1859, both companies converted to petroleum refining early in the 1860s.

German chemistry was introduced via Samuel Cabot, who, fresh from study at MIT and in Zurich, purchased Cross oil plant in 1877. Cabot pioneered the development of shingle stains, various types of tars, and waterproofing materials. Beginning in the 1890s, increasing amounts of marshland were reclaimed in Chelsea and Everett for coke and petroleum products as Boston became the regional distribution center for growing national companies. The post-war development of oil company terminals in Chelsea was led by Beacon Oil's home terminal, a pioneer in the manufacturing of ethyl gasoline.

C. Surviving Resources:

Petroleum refineries and terminals, like active chemical plants in general, are difficult or impossible to preserve due to changing technologies, although administrative office buildings and laboratories do sometimes survive. Survivals include Cabot Paints & Stains (Chelsea, 1909) and portions of the American Oil Company terminal (Chelsea, 1917). A possibly quite significant find is a mansard-roofed brick structure from the Jenney Kerosene Oil Works (South Boston, 1870s).

D. Research Topics:

There has been no adequate study of coal and petroleum products for the Boston area as yet identified. Downer, the Atwoods, Jenney, and others were key figures, and their contributions should be documented. Even less understood are the late 19th-century developments in the Boston area.

E. Bibliography:

Butt, John
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Men Who Have Made Oil History Joshua Merrill
1898 The Derricks Hand-book of Petroleum pp 88-90. Derricks Handbood Co., Oil City, PA.

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XVIII. Paints and Varnishes

A. Primary Locations:

Chelsea, Charlestown, Malden, Everett, Roxbury, South Boston, Brighton, Cambridge.

B. Historical Development:

Dry-pigment painters' colors were imported through Boston, in quantity, for most of the 18th-century, and, due to mechanical grinding required, were long associated with dealers of drugs and dyestuffs. The earliest "chemical factory" Dix & Brinley, c.1800, in South Boston was probably such a "paint mill" since both were later selling drugs and paints on the Boston waterfront c. 1825.

White lead, entirely imported until the 1780s, saw its first significant United States manufacture as a result of the War of 1812, with several companies in operation in the 1820s. Roxbury Color and Chemical, incorporated in 1826, producer of white and red lead in addition to chrome pigments, was followed by the Boston Lead Co. in 1829, the first known U.S. producer of lead pipe, making red and white lead by 1831. Like white lead, the first U.S. produced linseed oil was begun in the post-war decade, but the industry grew slowly until the key development of seaport linseed oil plants, dependent on the importation of flax seed from Russia in 1839, and India in the 1840s.

Frederick Tudor, who had an oil mill on his Charlestown wharf, presumably imported Calcutta flax seed in return for ice shipments to that port. The earliest U.S. commercial manufacture of varnish was in Cambridge by Franklin Houghton and David McClure in the 1820s (Heckel 1928). However, with rosin oil distillation in Chelsea in the 1840s, the center of oil and varnish industry appears to have shifted to that town. By 1855, the manufacture of oils, paints and varnishes dominated the industrial exonomy of Chelsea, amounting to over $650,000 annually. Varnish manufacture was also present in Brighton, Everett and South Boston. Silas Burbank opened an early varnish manufacturing plant in Charlestown in the 1860s.

By the early 20th-century most of Boston's varnish and paint industry, while retaining Boston outlets, was absorbed by larger companies further west.

C. Surviving Resources:

Late 19th-century paint and varnish plants appear usually to have been collections of smaller buildings, and are often woodframed. Exceptional survivals are the landmark Burbank Varnish factory in Charlestown, c. 1865, and portions of the Boston Varnish Co. factory in Everett, possibly dating from the 1880s. Other resources include a "paint mine" in Lexington (a yellow ochre deposit worked in the 1870s) and the Boston Stone.

D. Research Topics:

The only regional treatment of this industry encountered is Gould's, although, as in the case of coal and petroleum products, between the 1820s and 1880s there were important innovations made here in the field that have been little explored.

E. Bibliography:

Eastman, Whitney
1968 The History of the Linseed Oil Industry in the United States. T. S. Denison, Minneapolis, MN.

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Heckel, George B.
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Gould, George L.
1914 Historical Sketch of the Paint, Oil, Varnish, and Allied Trades of Boston. Paint & Oil Club, Boston.

XIX. Furniture Manufacture

A. Primary Locations:

Cambridge, Somerville, Boston Proper

B. Historical Developments:

In the 17th century, furniture manufacture developed as a craft industry, and was probably widespread throughout the study unit by 1760, with a natural orientation toward Boston as principal market. By the early 19th century, Boston supported a strong cabinetmaking tradition supplying products, and setting stylistic standards for much of New England. The Boston orientation was aided by the protective tariff of 1812 and the import of foreign woods through the port of Boston.

The tradition of small workshop manufacture was apparently radically altered by technological and transportation improvements between the 1830s and 1850s, resulting in the growth of small factories among domestic shops. Competition from companies able to invest heavily in

plants close to rail locations, such as Dorchester, Dedham and Newton, concentrated industry primarily in inner Boston towns. The same period also witnessed development of speciality products: oval picture frames made in Arlington by a German immigrant family; rattan furniture made in Wakefield; coffin manufacturing made in Cambridge; plush parlor furniture made in Newton; and the simultaneous development of knock-down furniture for national markets. By the mid 19th-century, further furniture manufacturing in Boston was determined by access to water as well as lumber and coal wharves.

The post-Civil War period was dominated, in Boston and immediate suburbs, by a dramatic growth in residential construction. Large furniture companies which developed to meet resulting demand were able to make use of large immigrant pouplation for cheap labor. By 1880 although Boston ranked fifth in product value behind other U.S. cities, in terms of product value per employee, Boston production ranked first with important allied manufacturers of wood-working tools, of which S. A. Woods in South Boston was a key example.

The growth in demand led to further specialization, particularly in school and office furniture companies. Beginning in the 1880s many firms relocated factories to less expensive real estate (Cambridge, Sommerville, Chelsea), while maintaining showrooms in Boston. Some, like Paine in Boston, moved out of manufacture altogether into strictly retail operations.

Despite relocation and specialization, however, by the last quarter of the 19th century the national center of industry was already shifting west as were population and timber sources.

C. Surviving Resources:

Derby Desk (Somerville)
Williams Table & Lumber (Somerville)
Miller Bros. Coffin Manufacturing (Somerville)

Paine Furniture (Boston Proper)

Old Schwamb Mill (Arlington, NR)

A.H. Davenport (Cambridge)

Wakefield Rattan Co. (Wakefield)

E. Bibliography:

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1966 The Development and Structure of the Furniture Industry. London.

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1935 One Hundred Years at Paine's, 1835-1935. Boston.

XX. Brewing

A. Primary Locations:

Roxbury, West Roxbury, South Boston, East Boston, Charlestown

B. Historical Development:

Some ale ('top fermentation') brewing was practiced by the early 19th century, but the development of a major brewing industry within the United States, as in the Boston area, awaited the introduction of lager ('bottom fermentation') beer into the United States c. 1840, with the beginning of widespread German immigration.

In the Boston area, the earliest lager beer is said to have been produced in 1846 by the Roessle brewery in Roxbury, where there was a concentration of German settlements. The fresh water of Stony Brook continued to provide a major attraction to brewers through 1900.

Most brewing was confined to winter months until the widespread introduction of refrigeration in the late 1870s and 1880s, which resulted in enormous growth of beer production and consumption. Most existing brewery complexes date to this 1880-1900 period. Between 1890 and 1901, most of the Boston breweries were acquired by two Massachusetts combines: Massachusetts Breweries Co., Ltd. and New England Breweries Co., both of which had substantial British investment.

A series of legislative setbacks in the early 20th-century culminated in Prohibition, closing many Boston breweries and forcing others into soft-drink production. With the end of Prohibition, only seven of the seventeen breweries operating before prohibition reopened, although most had closed for good by the late 1950s. The Haffenreffer plant in West Roxbury was the last to operate, closing only in 1964 due to competition and union demands.

C. Surviving Resources:

Intact structures are to a large extent architecturally impressive; they are, though, currently used for storage or other marginal purposes, and receive limited maintenance. Existing fragments include the Burkhardt stable and the Union Brewing power house, both in Roxbury. A list of complete breweries includes:

In Roxbury:
Highland Spring Brewery
Houghton Brewery
Alley Brewery
Rockland Brewery
American Brewery
Franklin Brewery (West Roxbury)
Haffenreffer Brewery (NR) (West Roxbury)
Boston Beer (South Boston)
Puritan Brewing (Charlestown)

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CHAPTER VI: MANAGEMENT RECOMMENDATIONS

Changes in the Landscape (1940-1980)

In the four decades which followed the end of the Early Modern period, widespread changes have continued to alter and reshape the cities and towns within the Boston study unit. Two processes have been most responsible for the continued evolution of the area's landscape. One was rapid and sprawling development (residential, industrial and commercial) in what had previously been peripheral sections of the study unit. The other was acceleration of decay and abandonment in the older urban core areas, particularly Boston.

Before making either specific or general preservation recommendations, the impact of these processes needs to be reviewed since these are the forces which have most recently shaped the landscape and which, in large part, remain the primary threats to those cultural resources which have survived.

Urban Core Areas

Decay and abandonment, and the demolition which has often followed, have been the major problem in urban core areas. While these problems have been most evident within the Boston central core, they have occurred in secondary urban centers such as Quincy and Waltham as well.

Abandonment has taken place in residential, industrial and commercial terms. Continuing the trend of population loss from the Early Modern period, people moved from the cities to new surburban areas throughout most of the period. As people left, building maintenance decreased and much of the housing stock deteriorated. This was particularly evident in communities like Dorchester, Chelsea, Roxbury and Boston's New South End. The urban renewal programs of the 1950's and 1960's were, in part, an attempt to remove large areas of these abandoned or rundown buildings through demolition. Charlestown and Boston's West End were communities strongly affected by these 'renewal' procedures.

In addition to residential abandonment, many industrial and commercial interests also left the urban core areas. Increased competition, changes in technology and a shifting relationship with labor were factors which sped the decline of many of the area's urban-based industries. Those that survived often followed the residential population, and its commercial services, to the suburbs. Behind were left the buildings, yards and transport connections which had become obsolete or unprofitable. These effects were heightened by the shift in transportation as railroads and shipping facilities were dropped in preference to highways. The highways themselves were major contributions to the erosion of urban areas. Not only did they often require extensive demolition for sufficient right-of-way, highways tended to split up and segregate existing neighborhoods, isolating the remnants and driving out the remaining residential population. These effects were evident in varying degrees in the construction of Boston's Central Artery, the Massachusetts Turnpike and the Southwest Corridor.

While decay and abandonment were the major problems in urban core areas, continued development brought both new difficulties and potential remedies. In an effort to halt the loss of resident population, urban renewal clearance was followed up by construction of new housing, primarily public housing projects and high rise apartment complexes. A recent trend has begun to return residents to urban core areas. Beginning in the late 1960s, the renovation of both commercial and residential properties by private sector groups and individuals has done much to stop, and in some cases eliminate, the process of deterioration and abandonment. Gentrification, however, has also brought new problems. Among these are over-restoration (ironically) and a wide range of social conflicts as the composition of neighborhoods changes.

The most serious problem resulting from continued new construction has been the frequent lack of compatability between a new building and its surroundings. The high density and high rise character of much recent construction has tended to overwhelm adjacent buildings and overpower the existing sense of scale. While this has been most evident in Boston, the effects of changed scale can be seen in most other urban centers.

Inner Suburban Areas

Though less chronic than in urban core areas, decay and abandonment have also been problems in inner suburban communities. This has been most evident in the breakup of traditional neighborhoods as the original population moved further out and new groups moved in. Dorchester, Roxbury, Watertown and Malden have all experienced this kind of neighborhood deterioration. In a similar fashion many communities have lost their industrial base and become primarily residential. While this loss of industry in towns like Dedham, Newton, Winchester and Medford may have had limited effects in terms of abandonment, it has resulted in profound changes in the character of those communities.

Developmental pressures have changed the inner suburbs in several dramatic ways. Most important has been the impact of larger and more numerous highways and the commercial development that has taken place along them. Commercial growth has been in two forms both of which are dependent on automobile access. The first is the shopping center complex. Second is the commercial strip development along a major highway such as Route 9 in Brookline and Newton or Fresh Pond Parkway in Cambridge. In both cases, commercial development has tended to overwhelm, if not replace, the previous landscape. The other effect of highway expansion has been the chopping up of communities. New or improved roads frequently sectioned neighborhoods off from the remainder of the town and isolated them. This often resulted in many social changes within those neighborhoods and occasionally led to their deterioration. The effect of highway construction on communities can be seen in Revere (Route 1), Medford and Stoneham (I-93), Newton (the Mass. Pike) and Dorchester as well as Quincy (the Southeast Expressway).

Outer Suburban Areas

The outer suburban communities were significantly altered by the effects of post-World War II prosperity and the preeminence of the automobile. Decay and abandonment have not been a problem, with

the possible exception of lost agricultural land, rather it has been development which characterized these communities.

In residential terms, a boom occurred in single-family house construction. Frequently houses were built as part of a tract development. A number of factors contributed to this growth. Among them were the personal freedom and mobility provided by the automobile, the new and upgraded system of state and Federal highways which made the automobile so versatile, Federal subsidized home morgages (FHA and VA) which made house purchase possible to a broad section of the population, the general prosperity of the 1950s and 1960s and cultural values that placed an emphasis on spacious suburban living. The resulting pattern of settlement was one characterized by dispersed and largely unplanned growth in areas that previously had been peripheral agricultural land. This kind of residential growth occurred in communities like Milton, Dedham, West Roxbury (and adjacent Newton), Waltham, Lexington, Woburn, Reading, Wakefield and Revere.

Industrial development was also an important factor in outer suburban communities. During the period, many light industries, particularly those involved in electronics or new technologies, moved from the older urban areas to suburban locations. The Route 128 beltway, especially the Lexington-Waltham area, became a focal point for these industries. Over the last two decades this industrial development has expanded northeast along Route 128 towards Wakefield and south towards Dedham. There have been numerous reasons why industries have shifted to these new locations. Land was cheaper and more available than in urban core areas, therefore new construction was easier. Companies found that larger parcels of land were necessary since parking facilities had to be provided for the increasing number of employees who drove to work. Finally, location in the outer suburbs provided companies with better access to the new and increasingly dominant highway system and inter-state trucking. As the highway system expanded, the intersections of the major routes became prime locations for industrial development. This is evident around the junction of Routes 3 and 128 in Quincy and Braintree, Route 128 and I-95 in Dedham, Routes 2 and 128 in

Lexington and Waltham, Routes 3 and 128 in Burlington and Route 128 and I-93 in Woburn.

Commercial interests, both retail and wholesale, also moved to the outer suburbs in large numbers. Retail and service business followed the population and during the period both forms of commercial development, shopping centers and commercial strips, became prominent features in communities like Dedham, Burlington and Wakefield. Wholesale businesses relocated to the outer suburbs for much the same reasons as industry did, more space and better access to the interstate trucking network.

Summary

The processes of disinvestment in core areas and sprawling suburban development have had a profound effect on the historical landscape over the past four decades. Though the effects of these processes have differed in urban and suburban areas, the result has tended to be the same: what generally has survived are individual buildings, structures and sites; what generally has been lost is historical context --the sense of scale and inter-relationship which are distinctive and characteristic for any given period.

General Recommendations

A concern for this loss of historical context underlies the two general recommendations made in this section. Before presenting these recommendations, the concept of 'historical context' and what it means needs to be explained.

As noted above, historical context is the combination of scale, proportion and spatial arrangement that reflect and are particular to each historic period. On a specific level, this is what makes an individual building or structure part of a recognizable historical setting. How is a building oriented in respect to neighboring buildings? How close should they be? How tall? These are only a few of the considerations which are part of understanding the historical context of a specific building or site.

On a more general level, historical context is what gives a community its own individual and often unique character. It is the combination of past landscapes and streetscapes which tell how and why a city or town developed. It is both the obvious historical survivals, the buildings, cemeteries and monuments, as well as the less recognizable ones, the archaeological sites and subtle landscape features. Chapter III of this study has discussed historical context in some detail looking in particular at the distinctive patterns of settlement and land use which typified each historical period.

Since historical context exists both on a specific and general level, it can be threatened on each level as well. On the specific level this means divorcing a building or site from its surroundings. On the general level, it is the destruction of those elements that make up a community's historical identity.

While the historical traditions which characterize a city or town may be deeply engrained, the physical remnants upon which that heritage rests are often extremely fragile and vulnerable. The elements that make up a period landscape or streetscape can be easily altered or upset. For example, construction of an inappropriate building can change or destroy historical context as severely as does the demolition of an important contributing structure. Put simply, we need to be concerned with protecting and preserving historical context on the general (community) as well as the specific (individual building or site) level. This is the first recommendation.

Recommendation 1

The MHC should direct its activities towards the preservation and protection of historical context on the general as well as the specific level. This means an emphasis on landscapes and streetscapes (clusters of related buildings, structures, landscape features and archaeological sites). Protecting historical resources on this level should be an MHC priority.

Just as cities and towns vary, so does the historical context which characterizes them. What survives in an outer suburban com-

munity is likely to be different from what survives in either an inner suburban town or a city. In part this is because a different mix of buildings, structures and landscape features exists in each area; in part it is because the threats, and therefore the survivals, are also different in each.

Despite this variety, there are two general patterns of survival. The first is where a 'time capsule' landscape or streetscape from a particular period has been preserved. Examples might include an Early Industrial period industrial complex where the mill buildings, related engineering features and workers' housing all remain intact, or a Colonial period rural landscape where a farmstead including the main buildings and out buildings as well as field and fences has survived.

The second general pattern of survival is one which shows the process of change through several time periods. An example of this pattern would be a town center with a Greek Revival church, an Italianate Town Hall, a three story brick commercial block built in 1879 and a 1920s Moderne department store all set around a Federal period common and on top of a prehistoric village site. Such a streetscape is a three-dimensional history, one which shows how that particular town center grew and changed over time.

These two patterns of survival are of particular interest because they fit well with an observation made by the survey team: namely that the patterns of survival are different in core areas and in peripheral areas. The following traits characterize historical resources in core areas:

1. As a result of the continuous growth, development and rebuilding which typify core areas, historical resources tend not to survive well.
2. Those which do survive are often fragmentary or altered.
3. Generally those resources which do survive are recognized and understood.
4. The individual buildings or sites which survive are often of state or national significance.
5. The larger scale survivals are usually streetscapes which are dynamic, that is they are a composite from many historical periods.

In contrast the following traits characterize historical resources in peripheral areas:

1. Because there is less activity in peripheral areas, historical resources tend to survive fairly well.
2. Although deterioration and abandonment may be present, historical resources in peripheral areas are usually less altered in peripheral areas than in core areas.
3. Those resources which survive are frequently not recognized or understood.
4. The individual buildings and structures which survive are often only of local significance.
5. The larger scale survivals are usually landscapes or streetscapes which are static, that is they reflect the particular period when most development occurred.

This difference in patterns of survival, and therefore the kinds of historical resources present, in core and peripheral areas leads to the second recommendation.

Recommendation 2

Since the patterns of survival for historical resources differ between core and peripheral areas, different standards of evaluation may be needed for each. The MHC should examine this issue and define these standards, particularly for what constitutes integrity and significance.

Specific Recommendations

In addition to the general recommendations above, several specific recommendations can also be made. These are organized on a period by period basis and summarize as well as review the recommendations which have been made in the previous chapters. For each period the following topics are covered: State of Knowledge, Threats, Survey Priorities, Registration Priorities and Other Recommendations.

PREHISTORY

State of Knowledge: Survey information is best recorded for the Charles River Basin and the Boston Harbor Islands. The Mystic and Neponset drainages are less well documented. The lower reaches of all the river basins are better known than the outer areas. In the uplands, survey is best in the Blue Hills area, with relatively less information from the Middlesex Fells/Lynn Volcanics area. The only prehistoric sites listed in the National Register from the Boston Area are in the Blue Hills; portions of the once large Watertown Arsenal site have been determined eligible for the National Register.

Threats: Many Boston area sites have already been destroyed by the last century's development; surviving sites continue to be threatened by commercial and residential development. In addition, sites on the Harbor Islands face severe erosion problems, particularly when located on north facing storm cliffs. However, by far the biggest threat to prehistoric sites is unknowing destruction often due to the failure to consider prehistoric potential when conducting project planning. The Boston area sites are usually "invisible" --small fragments of once larger sites located in landscapes which have been vastly altered over the last three hundred years. Because the presence of archeological sites is so rarely expected by city planners, sites in the urban area are most seriously threatened.

Survey Priorities: Important prehistoric sites are known to have existed in the towns of Arlington, Wakefield and Watertown. However, the present integrity of the sites in these towns is unknown. Field surveys should be conducted to evaluate the existence and research potential of sites in the three towns. Survey information on prehistoric sites is extremely limited for several towns in the study unit. In particular surveys in the following towns are most needed: Brookline, Burlington, Chelsea, Dedham, Lexington, Melrose, Newton, Quincy, Revere, Stoneham, and Woburn.

Finally, the locations with the best potential for surviving prehistoric sites are the many parkland areas in the study unit. In particular, survey in the Middlesex Fells and Fellsway Ponds area, in parks along the Neponset River, and in the various Boston

parks (e.g., the Olmsted system and Arnold Arboretum) would be rewarding.

Registration Priorities: A nomination of the Boston Harbor Islands as an archaeological district is a priority in developing a preservation plan for the sites on the islands. The nomination would both highlight the importance of the archaeological resources of the harbor, and would indicate their present state of jeopardy. Also, integration of archaeological information with the many existing interpretive programs is an attractive possibility.

Other Recommendations:

The Metropolitan District Commission owns some of the best known sites, as well as areas with the best site potential. However, the MDC does not have any in-house archaeological expertise and has not developed preservation plans or guidelines for the sites. MDC's role in archaeology has been a review and compliance response to specific project undertakings. The MDC should be encouraged to develop preservation plans for the sites they own in the Blue Hills and Harbor Islands, and to develop a better survey base for the Middlesex Fells.

The Department of Environmental Management owns several sites on the Boston Harbor Islands, and should develop a preservation plan for those sites, including interpretative plans, as appropriate.

Arlington and Wakefield area sites are demonstrably important for understanding area prehistory; however, no local groups are active in site survey or protection. Local Massachusetts Archaeological Society members and local historical commission members should be encouraged to develop a protective interest in the prehistoric resources of these towns.

The town of Milton and city of Quincy both have town dumps which threaten several prehistoric quarry sites in the Blue Hills. The two towns should be encouraged to consider the impacts to the National Register sites in the Blue Hills and to develop alternative plans to avoid adverse effects.

CONTACT PERIOD

State of Knowledge: The state of knowledge is generally poor. No period occupation sites are known. The only source of information outside of a few documentary hints are a series of burials which were recovered during the 19th and early 20th century. Based on this, sites are known primarily from coastal areas, particularly in Revere, Winthrop, Chelsea, Dorchester and Quincy, and to a lesser degree along the estuaries of the major rivers. At present no sites are known in the interior portions of the study unit (above the first fall line). Only one Contact period site in the Boston study unit is listed on the National Register, Moswetuset Hummock, Quincy. This site was listed, however, for its alleged contribution to the name Massachusetts rather than for its archaeological resources.

Threats: As with prehistoric sites, many of the Contact period sites in the Boston area have been destroyed by development. This is particularly the case since colonial and later settlement tended to be in the same locations as had been used for Contact period settlement. Coastal erosion is another threat especially in Quincy where known sites are exposed on actively deteriorating slopes. The greatest threat, once again, is lack of knowledge. Period sites may survive, even in densely settled urban areas such as Cambridge and Charlestown, but without some program to verify and record them it will not be possible to prevent the destruction of what does remain.

Survey Priorities: A combined program of preparatory documentary research and field testing should be undertaken in the following areas: the Mystic core area which includes Medford, Everett, Chelsea, Revere and Winthrop as well as the interior towns of Woburn, Winchester, Stoneham and Wakefield; the Neponset core area which includes Dorchester, Quincy and Milton; and the Charles river area which includes Charlestown, Cambridge, Boston Proper, Newton and Watertown.

Registration Priorities: At present, there are no known contact period sites in the Boston study unit which qualify for the National Register.

Other Recommendations: Local historical commissions and societies as well as professional preservation and planning agencies in those communities listed above should be informed of the potential for Contact period sites and encouraged to watch for them. This effort should be made especially in cities like Boston and Cambridge where a professional preservation staff is present.

PLANTATION PERIOD

State of Knowledge: The understanding of Plantation Period resources varies widely depending on the category. Standing structures are generally well recognized and most have been professionally researched. Nearly all the examples in the Boston Unit have been listed on the National Register. While all the major building survivals from the Plantation period are probably known it is possible that additional fragmentary or altered structures may yet be discovered. Landscape features from the period are less well known. While obvious examples, such as the Boston Common and Town Hill in Charlestown, have been listed on the National Register, most landscape features have not been recognized. An exception is the city of Cambridge's program which has identified period streets and boundary lines through publicly-oriented signage. Archaeological sites are the most poorly understood category. Only limited survey information is available. Excavations have been minimal and have resulted in only one National Register listing - the Winthrop iron furnace in Quincy.

Threats: The major threat is lack of awareness that archaeological sites and landscape features from the Period do survive, even in urban areas. This lack of awareness means that these resources are frequently lost because they are not included in the planning process. Many Plantation period resources also are threatened by their location in what currently are urban fringe areas. Low maintenance, vandalism and large scale renewal/revitalization processes all are potential threats in Charlestown, Boston proper and Dorchester. The continued pressure of new development remains a threat as well, even where period resources are fairly well documented, for example Harvard Square.

Survey Priorities: Archaeological surveys should be conducted in those cities and towns that were focal points for Plantation period settlement. These include Boston proper, Charlestown, Medford, Cambridge, Watertown, Roxbury, Dorchester, Dedham, Milton and Quincy. This survey work should be preceeded by thorough documentary research and should be co-ordinated with the identification and mapping of period landscape features. Systematic testing around surviving standing structures should also be done. Topical priorities for survey include identification of surviving Old Planters' settlements, period native sites (for example, the Squaw Sachem reservation) and original town center locations (particularly Watertown, Dorchester and Wakefield).

Registration Priorities: Those standing structures from the period which have not been placed on the National Register should be nominated. These include the Bernard Capen house in Milton and the Deane Winthrop house in Winthrop. While insufficient information is currently available to nominate landscape features and archaeological sites, these resources should be considered for inclusion in existing or proposed National Register districts.

Other Recommendations: The city of Boston should be encouraged to hire an historical archaeologist. The city has major archaeological potential. Within the current city boundaries are four 17th century settlements - Charlestown, Boston proper, Roxbury and Dorchester. Lack of knowledge plus the rapid pace of current development is destroying what may be the city's most important and unrealized resource. In other communities with Plantation period resources, local historical commissions and other preservation and planning agencies should be encouraged to learn more about potential landscape and archaeological survivals. Awareness and interpretation of all period survivals should be encouraged through the use of appropriate signage and educational efforts.

COLONIAL PERIOD

State of Knowledge: In general, the resources of the colonial period have been identified and are recorded within each town's

inventory. Traditionally, colonial period structures have formed the bulk of the properties inventoried within a town, with single family houses, which are the most numerous survivors, being the most common building type recorded. Major public and private institutional buildings, especially those in the Boston-Cambridge area, have also been inventoried and are generally well-documented. Less well-understood are the number of surviving cottages of the colonial period; because cottages are simpler and more traditional structures than houses, they have not been as easily identified or dated and consequently are more likely to be overlooked.

In the past, much of the Commission's activity has focused on the registration of Colonial period houses and institutional buildings. Just as individual National Register listings have concentrated on single family houses of the Colonial Period, so too National Register districts have reflected a high percentage of Colonial period structures and landscapes, such as town commons. Colonial period landscapes without standing structures have received less recognition, with the possible exception of some of the more important industrial sites.

Threats: The two major problems relating to Colonial period structures are over-restoration and inaccurate construction dates. Over-restoration covers a wide range of conditions from the restoration of more extensive or more elaborate detailing than existed originally to the removal of subsequent additions which, although not part of the original building, may nonetheless be an important and architecturally significant component in the structure's development. More common is the lack of adequate documentation for construction dates. The use of construction dates based on tradition and faulty deed research rather than structural and/or stylistic analysis, careful documentary research or sometimes common sense, is particularly problematic for Colonial period structures. The condition is so common and so widespread as to render suspicious the construction dates of almost all but the most significant structures.

Survey Priorities: At least four towns in the Boston unit have no inventory. These are Woburn, Wakefield, Watertown and Everett. Of these, Woburn, Wakefield and Watertown are all towns settled in

the Colonial period which can be therefore expected to retain resources of the period. Period structures are known to survive in Woburn and Wakefield, while in Watertown, period resources are not immediately known but would be particularly significant given the town's stature in the 17th century and its present heavily built-over character. In Everett as well, the number of surviving period structures is probably very small but the current lack of knowledge about the town's period buildings and the densely-settled aspect of the town make it even more important that the few colonial structures which still stand receive recognition and protection. Similar problems of encroachment and an inadequate awareness of the number of surviving period structures exist in Winthrop and Burlington. In at least one instance (Newton), the focus of local inventory on the town's rich collection of 19th-century houses has tended to de-emphasize Newton's Colonial period residences which are among the earliest and most numerous in the Boston area.

The comparatively small number of Colonial period structures surviving makes specific topical or thematic survey less useful for this period than for other periods.

Registration Priorities: There are almost no registration priorities for the Colonial period since most significant structures of the Period have been recognized and listed. Resources which have not generally been considered for registration include period landscapes, structures within extensive period settings and archaeological sites.

Other Recommendations: The cities of Boston, and to a lesser degree, Cambridge, should be encouraged to have an historical archaeologist on their professional preservation staffs. Both cities have emphasized above ground survivals in their past and present activities; the majority of unknown resources are those beneath ground.

Stabilization, protection and interpretation of period burial grounds is a major concern. Particularly in Boston, a comprehensive program involving the Boston Landmarks Commission, the Boston Parks and Recreation Department and other interested public and private agencies should be established to advise and oversee improvements.

FEDERAL PERIOD

State of Knowledge: Many of the same types of resources inventoried for the Colonial period are also well-documented for the Federal period. These include the most stylish single-family houses (usually only one or two examples per town) as well as many of the town's more modest period houses (particularly those associated with prominent citizens or those which functioned as taverns) and the major institutional buildings, primarily churches. In addition to these building types, those few towns with surviving industrial structures of the period, either mills or collections of workers' cottages, have generally inventoried those as well. Multiple family housing, such as early doublehouses and rowhouses, minor or less distinctive institutional forms, such as schools, town halls and post offices, and minor semi-domestic commercial buildings, have generally received less attention in local inventory, often because such buildings only become apparent through documentary research. Surviving residential and commercial buildings along Federal period turnpikes have also tended to be overlooked as later strip construction has often given the turnpike an appearance not generally regarded as "historic." Existing registration tends to follow categories similar to those of the colonial period: outstanding single-family houses, major institutional buildings and town center districts, often with a large component of period structures, comprise the bulk of listed Federal period properties. Period landscapes, especially turnpikes, have not generally been considered for listing.

Threats: Over-restoration remains a problem for Federal period structures, although inaccuracies in dating construction tend to be less of a problem than they are for the colonial period. Construction of houses within living memory of 19th century historians, more accurate property records, and the existence of maps identifying individual properties make dating of Federal houses much easier. Because many Federal structures were build along the period turnpikes, which have been subject to intensive later strip development, surviving structures have often been severely encroached upon. In many instances, commercial development is ongoing and constitutes a present danger.

Survey Priorities: Towns for which survey priorities for the Federal period exist include Watertown, Wakefield and Woburn, none of which have any inventory at present. Woburn and Wakefield both retain period houses of considerable pretention, while in Watertown workers' housing may survive in some quantity. Other communities with as yet undocumented Federal houses include Everett, South Boston, Brighton and Winthrop; in each of these instances, only one or two houses per town were observed, however. The lack of knowledge about these examples makes their documentation particularly important. Further survey work in Charlestown would be especially useful as the town retains perhaps the largest collection of frame Federal structures extant in the study unit. The area is also notable as a probable innovation center for urban and multi-family plan types.

Topical survey for the Federal period reflects an increase in the number of building types found in the study unit. This increase was caused primarily by the growth in governmental bureaucracy and in the government's role in social welfare. Those building forms of which a sufficient number of examples survive to warrant further survey include poor farms and schools; less numerous but nevertheless important are monuments, academies and Catholic churches. The advent in the period of industrial activity for the national market is also highly significant in the region's development. Further topical survey work on the study unit's two major industrial innovation centers, the Neponset (Quincy/Milton) and Charles (Waltham/ Newton) rivers, would be especially useful.

Registration Priorities: The only registration priorities identified have been for districts consisting primarily of residential structures. Comparatively few of the districts identified for the entire study unit retain a sizeable Federal component. Nearly all of the districts identified are rural or survive in isolated locations. Linear districts of isolated Federal period structures mixed with other later components are Hillside Street and Milton Hill in Milton and Prospect Street in Wakefield. Town or village centers with major Federal components are Meetinghouse Hill in Dorchester, Harmony Vale in North Reading, North Woburn Center and Wilmington Center. The only industrial village retaining Federal elements is at Newton Upper Falls.

Other Recommendations: An effort should be made to work with the Massachusetts Department of Public Words to identify surviving Federal period turnpikes and consider how important elements (including period scale and proportion) can be preserved when road improvements are needed.

Implementation of the Middlesex Canal Heritage Park feasibility study should be encouraged, both on the level of the individual towns through which the park will pass and with the Department of Environmental Management which co-ordinates the Heritage Park System.

Local historical commissions should be encouraged to include period institutional buildings, industrial structures and sites and vernacular housing in their inventory efforts.

EARLY INDUSTRIAL PERIOD

State of Knowledge: In general, existing survey for the Early Industrial period concentrates on single family housing, especially the most stylish and elaborate examples, although middle and working class housing in well-preserved period context constitutes an increasing portion of the properties inventoried. Also well-represented are major institutional buildings, such as town halls, schools and the churches of predominant denominations, as well as major commercial or industrial buildings. Beginning in the Early Industrial period, the number of extant period buildings becomes sufficient to allow for some degree of prioritization in local inventories. Particularly after 1850, the buildings inventoried tend to be the most substantial and best articulated examples of their type in the town. This is most evident for commercial and industrial structures. In these two categories, masonry buildings of definable architectural style are often the only examples inventoried.

Multiple-family housing, minor institutional and commercial buildings and industrial buildings are generally less well-documented. This is especially the case for the simpler buildings and those of frame construction. While lesser vernacular single-family houses may be common enough not to warrant further survey work, more unusual

building types, especially early multiple-family dwellings, the churches of minority elements in the population, as well as the simpler commercial and industrial buildings are worthy of better documentation.

Registration has reflected similar constraints but for the Early Industrial and all later periods, the greater number of standing structures has encouraged the use of stricter criteria for listing. Most districts have consisted of well preserved and generally rather more pretentious neighborhoods of single-family houses. Town centers also have continued to be an important focus for districting; of these, institutional districts have been more commonly listed than commercial areas, although of course in many instances, these two have overlapped. Fewer individual buildings are listed in the later periods, primarily because outstanding structures are often located within areas of similarly eligible structures and thus are included in districts. This is especially true for single-family houses. Most listed individual structures are single-family houses or institutional buildings of outstanding architectural or historical significance. Commercial and industrial structures are more rarely listed individually, with most of the examples listed being structures which have tended to be recognized for their historic technological associations. Often such buildings survive in isolated context.

Threats: The suburb is probably the most significant new settlement type of the period. While the most elite suburban areas of the Early Industrial period (such as those in Newton and Belmont) have been well-preserved through ongoing high-status use, other areas of early suburban development have been and continue to be severely threatened by more recent developments. This is particularly evident in areas which have been absorbed within the present urban core, such as Cambridge, Roxbury and, to a lesser extent, Brookline. In these areas, a range of factors, from higher density residential development and condominium conversion to arson, abandonment and decay, create a threat to surviving Early Industrial suburbs.

Urban renewal and transportation improvement programs have constituted a severe threat to Early Industrial period resources,

particularly industrial complexes. A large percentage of the study unit's period industrial structures (and a considerable number of residential institutions and commercial buildings as well) have already been lost to these processes in the central urban core. But ongoing development around 20th century transportation routes, especially Route 128, now constitutes a major threat to surviving agricultural landscapes of the inner and outer suburban periphery. This process can be noted in North Reading, Burlington, Wilmington, Lexington, Milton and Dedham.

A more subtle threat to surviving resources of the central urban core is gentrification. In addition to the disruptive social effects of gentrification, material threats to standing structures include over-restoration and unsympathetic rehabilitation and re-use.

Survey Priorities: Towns with a significant number of period structures surviving but which at present have no inventory are Woburn, Wakefield, Watertown, Everett and East and South Boston. In Woburn, Wakefield and Watertown, period structures of some pretention are known to survive. The only other towns with an important collection of stylish period buildings which has not been inventoried is Milton. In almost all of these towns, period resources include residential, institutional and commercial buildings. In general, very few industrial buildings are included in local inventories. Those towns with a number of unrecorded industrial buildings are Chelsea, Dedham, Dorchester, Quincy, Medford and Waltham. Further documentation would be especially useful in these towns as they are all areas of significant early industrial activity. The establishment of resort communities at Winthrop and Revere is an important aspect of settlement in the Early Industrial period; future survey efforts in both towns should document period resort architecture which is known to survive at Winthrop and at Beachmont in Revere.

A number of new institutional and commercial building types developed in the Early Industrial period. For several of these, the nature and extent of surviving structures is at present ill-comprehended. These include Catholic and Episcopal churches, town halls, high schools, fire and police stations, commercial hotels and lyceums. Industrial buildings related to a few specific industries, such

as iron shipbuilding, textile finishing, granite quarrying and rubber production, are also worthy of further study.

Registration Priorities: The majority of the districts identified for possible registration are primarily residential in character. Of these, Wellington Hill (Belmont), Summer Street (Reading), and Salem Street (Wakefield) are suburban residential areas. Districts of planned urban residential development stand at Monument Square (Charlestown), Camp Hill (East Boston), and Telegraph Hill (South Boston) with a mixed residential/commercial district at Maverick Square (East Boston). The remains of an industrial village with period residential, commercial and institutional components stands at East Milton Square (Milton) with a more rural and smallscale area of linear mixed industrial/agrarian activity along Elm Street in North Reading. An area of mixed residential/institutional use with a complex of early Catholic church structures is preserved at School and Church Streets in Waltham. It should be noted that for the Early and Late Industrial periods, the number of surviving structures is so great that the above-mentioned areas constitute only a portion of the resources with registration potential. Further townwide and topical survey will undoubtedly reveal a greater and wider range of structures, areas and sites worthy of registration.

Other Recommendations: Owners of abandoned period railroad right of ways should be identified and encouraged to: preserve and protect the remaining features, structures and landscapes, and examine the potential for re-using right of ways for recreational purposes.

Local historical commissions should be encouraged to identify period landscapes, especially industrial complexes. These might include mill buildings or sites, related engineering features such as dams and power canals as well as associated worker housing. Once identified, an effort should be made to protect these landscapes as a unit rather than in a piecemeal manner.

LATE INDUSTRIAL PERIOD

State of Knowledge: Buildings of the Late Industrial period probably form the largest numerical group of buildings inventoried. These seem to include a higher proportion of simple single and multiple family houses than are recorded for earlier periods, in addition to a large number of elaborate and well-detailed single family houses. In part, this is due to the more ornate and eclectic nature of late 19th century styles, which often demand the observer's attention, and to the comparative newness of the structures, which have generally survived well and in large numbers. In addition to residential structures, Late Industrial period institutions and commercial structures, especially those in the urban core, have also been well-documented. During the Late Industrial period, the number of institutions and commercial buildings built rose as higher population density marked the increasing urbanity of the study unit. Not only did the absolute numbers of these structures increase, but they also became materially more substantial, with a much higher proportion of multi-storied, masonry buildings constructed. Normally, one or two individual examples are noted, but many local inventories overlook the town's remaining body of institutional or commercial structures. This is most evident in the case of schools, but is also true for district fire and police stations and for commercial districts outlying the town center. Overall, it is the industrial buildings of the Late Industrial period which have received the least attention in local inventory efforts. This is changing as developers seek to take Tax Act benefits for the rehabilitation of the large, utilitarian late 19th century structures; however, local organizations are often unaware of the significance of industrial buildings.

Registration for the Late Industrial period follows some of the same patterns of local inventory but recent listings reflect a reevaluation of the types of properties registered with a conscious attempt to compensate for the biases found at the local level. The shift to the Multiple Resource nomination and recent focus on thematic nominations have done much to alleviate past discrepancies. Individual listings increasingly recognize only the most outstanding examples with a

much larger component of engineering and industrial structures. The Tax Act of 1976 has tended to skew the registration picture toward late 19th-century industrial buildings and it is expected the Economic Recovery Tax Act of 1981 will further this pattern. (Again, these patterns reflect the numerically larger proportion of Late Industrial period buildings to evaluate.)

Threats: In addition to the ongoing threats of recent development, which primarily affect the central urban core and the outer suburban periphery, the major threats to structures of the Late Industrial period are the same as those for the Early Industrial period. The most widespread problems are abandonment and decay, which affects all types of buildings. Arson is an especially pernicious and increasingly common threat to historic structures, in particular to institutional, commercial and industrial structures.

A more general threat to all buildings is insensitive remodelling or residing. Late 19th and early 20th century buildings are particularly ill-suited to later alterations as the eclectic and decorative styles of the period often depend on fragile details for their effect. Insensitive residing is an increasingly significant problem for institutional buildings and has long been a problem for residential structures, many of which have undergone two or three separate residing episodes: in the 1920s with asphalt shingles, in the 1940s with wood or asbestos shingles and in the 1960s and 1970s with aluminum and vinyl siding. The effects of insensitive residing are most evident in areas of the central urban core, where they are often endemic to working and middle class neighborhoods. A less significant problem affecting residential properties has been the "Colonial Revivalization" (via white paint) of Queen Anne and Shingle Styles houses originally intended to be painted in a variety of darker colors. This has been the case from the 1920s through the 1960s, but is less problematic at present as the taste for colorful house painting has returned.

Survey Priorities: As for the previous periods, the three towns with no existing inventory, Watertown, Wakefield and Woburn, are those for which survey is most urgently needed. Of these, Woburn has the most significant collection of period resources with important institutional and commercial buildings at the town center (including

the Winn Library, H. H. Richardson, 1877) and several neighborhoods of stylish period housing. Watertown also has several noteworthy period residential neighborhoods; Wakefield is notable primarily for its period industrial buildings.

Although their individual components are generally more modest, important and well-preserved collections of period residential, institutional and commercial buildings stand at Charlestown and East and South Boston, none of which are adequately surveyed at present. Additional survey activity is highly recommended in Milton, which retains an outstanding group of late 19th-century houses and estates. Further survey work is also needed in Chelsea (especially for residential and industrial structures), Winthrop (both for residential and institutional structures) and Dedham (primarily for period commercial and industrial structures). Towns whose industrial structures are at present inadequately documented include Waltham, Dorchester, Medford and Melrose.

A number of new building types of the period are at present ill-understood and deserve further study. Perhaps the least understood, in terms of numbers and architectural form, are synagogues. Other institutional building types for which topical survey is recommended are prisons, orphanages, fire and police stations. A variety of new commercial types appeared or became widespread in the Late Industrial period, among them theatres (especially vaudeville), hotels, department stores and gas and automobile service stations. The larger number of surviving industrial buildings makes a topical survey by industry feasible; among the types of industrial buildings recommended for further study are breweries, meat packing, textile finishing and petroleum/chemical plants as well as structures constructed of the major new building material of the period, reinforced concrete. Bridges and power and pumping stations are also recommended. The beginnings of such quasi-institutional organizations as country clubs and social clubs are also in the Late Industrial period. The types of construction used and the number of surviving original structures for these organizations is also little understood. The major innovative type of residential architecture is the bungalow, a form which is comparatively rare in the study unit and about whose introduction and form little is currently known.

Registration Priorities: Among the districts suggested for registration are residential single-family districts in Brighton (Sparhawk Street), River Street (Medford), Melrose (Melrose Highlands), Milton (Brush Hill), Watertown (Meetinghouse Hill), and Reading (Prospect Street). Town center districts with both institutional and commercial components are Main Street in Everett, Main Street in Melrose, and the town centers at Revere, Waltham, Winthrop and Woburn. Linear districts composed primarily of commercial structures are Belmont Center and Moody Street in Waltham. The only two industrial districts recommended are for the Fort Point Channel bridges and the Roxbury breweries.

Other Recommendations: An effort should be made to work with the Massachusetts Department of Public Works department to identify and protect important elements and structures of the parkway system. This should be coordinated with a program to protect similar elements controlled by the Metropolitan District Commission. In addition to bridges and other parkway features, the MDC should also be encouraged to identify and protect both important recreational features and aspects of the water supply system.

The Massachusetts Bay Transportation Authority should be encouraged to identify its important period buildings and structures (elevated and subway stations, car barns, power stations and maintenance facilities). A program should be drawn up for the preservation, reuse or mothballing of these resources. The MBTA administration should be encouraged to see historical buildings and structures as assets rather than liabilities.

Local and regional planners should be encouraged to find new and innovative reuse possibilities for obsolete period institutional buildings (schools, fire and police stations).

Identification and protection programs should be undertaken with those state agencies responsible for large institutional facilities (Corrections and Mental Health, for example). Important buildings and complexes should be noted and plans drawn up for their maintenance or reuse.

EARLY MODERN PERIOD:

State of Knowledge: Until recently, little consideration has been given to the Early Modern period. Information about the period has been inconsistently gathered and while the 1920s are widely perceived as a distinct historical entity, traditionally few distinctions have been made between the developments of the late 1930s and the years immediately following World War II. This is particularly evident in the architecture at the end of the Early Modern period, in which examples dating from the 1930s are often difficult to distinguish from post-war structures. In general, existing inventories note only major residential, institutional and commercial structures, such as the house in the most fantastic 1920s revival style, a large school or church or such characteristic 1920s commercial structures as movie theatres. Given the construction boom of the 1920s, very little documentation exists for important developments such as middle and upper class residential subdivisions, adaptations in multiple-family housing (especially apartment blocks) and the evolution of streetcorner commercial districts. Early automobile-related commercial activity, such as tourist cabin motels, restaurants and gas stations, has not yet received serious consideration and is still generally regarded as being within the purview of nostalgia fanatics despite the rapidly dwindling and fragile nature of the resources.

If anything, registration for the period has been less reflective of the actual numbers of Early Modern structures surviving in the study unit. Most of the Early Modern structures registered are included within districts of earlier buildings, with comparatively few buildings of the period listed individually.

Threats: The primary threat to structures of the Early Modern period is a lack of awareness of the quality and particular characteristics of the resources. Because of this, resources have been overlooked and have not generally received serious consideration either from planners or scholars. As with Late Industrial period structures, the merits of which have only recently

been recognized, Early Modern period structures are particularly susceptible to inappropriate later renovations. This is most apparent in residential and commercial structures, which are most subject to shifts in taste as owners change.

Survey Priorities: Of the four towns for which no inventory exists, three of these, Everett, Watertown and Woburn contain known period resources of some quality. Everett and Woburn, have well-preserved town centers with several notable commercial and institutional buildings, while Watertown contains residential, commercial and industrial buildings of note. Wakefield, the fourth town for which there is no existing inventory, retains a number of well developed residential structures of the period. Nearly all towns of the study unit contain sizable residential neighborhoods of period construction, most of which have not been inventoried. Further survey is especially recommended for period subdivisions in Newton, Brookline, Belmont, Milton, and Dedham.

In addition to inventorying basic building types such as single-family houses, schools, churches and other municipal, commercial and industrial structures, certain other specific building forms appearing or maturing in the Early Modern period should receive special consideration. Synagogues, movie theatres, department stores and gas stations are recommended for topical survey. Probably the most significant group of structures recommended for further survey are the International Style houses and other Moderne buildings of the study unit. Generally, International style houses were constructed with extensive landscaping for privacy; hence it has been difficult to locate houses in the style as many are not visible from the public way. Corollary to a survey of International style houses would be a survey of buildings, residential, institutional, commercial and industrial in the Moderne style; these also are comparatively rare in the study unit and although major examples are recognized, outlying and less accessible examples have been overlooked.

Conclusion

The MHC should focus its preservation activities on the identification, evaluation and protection of historical landscapes and streetscapes. Protection of historical context in broad as well as specific terms should be an MHC priority.

Since the survival of historical resources differs between core areas and peripheral areas, different standards of evaluation are needed for each. The MHC should define these standards, particularly for what constitutes significance and integrity.

In addition to these two general recommendations, the following specific recommendations are made. The MHC should:

1. Work with the Metropolitan District Commission to identify, evaluate and protect the prehistoric sites located within MDC parks, specifically the Blue Hills and the Middlesex Fells.
2. Encourage the city of Boston to hire an historical archaeologist as a member of their professional preservation staff, and to actively incorporate archaeological considerations in their preservation planning programs.
3. Encourage local historical commissions to expand the range of buildings, structures and sites they include in their inventory. Special attention should be paid to vernacular housing, industrial buildings, important structures such as bridges and dams, and locally known archaeological sites (both prehistoric and historic).
4. Encourage local historical commissions to view completion of their inventory as the beginning of rather than the end of preservation efforts. Assist them in using inventory information as the basis for ongoing preservation activities such as: public education, selection and nomination of properties to the National Register, preparation of local historic districts and coordination with town planning boards and officials.
5. Encourage the integration of preservation concerns into other local, regional and state planning efforts.

6. Establish a Massachusetts State Register of Historic Places. This can be patterned after the National Register of Historic Places and should be designed to protect the state's important buildings, structures, sites and landscapes.

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