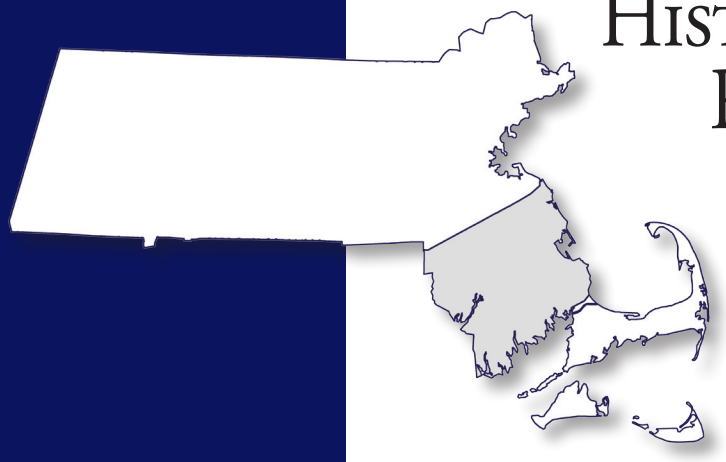

Historic & Archaeological Resources of Southeast Massachusetts

A Framework for Preservation Decisions

Massachusetts Historical Commission

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

HISTORIC & ARCHAEOLOGICAL RESOURCES OF SOUTHEAST MASSACHUSETTS

A Framework for Preservation Decisions

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Foreword to the 2007 PDF Reprint Edition of
Historic and Archaeological Resources of Southeast Massachusetts:
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[9] are now available in electronic format.[10] 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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[9] 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.

[10] 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.

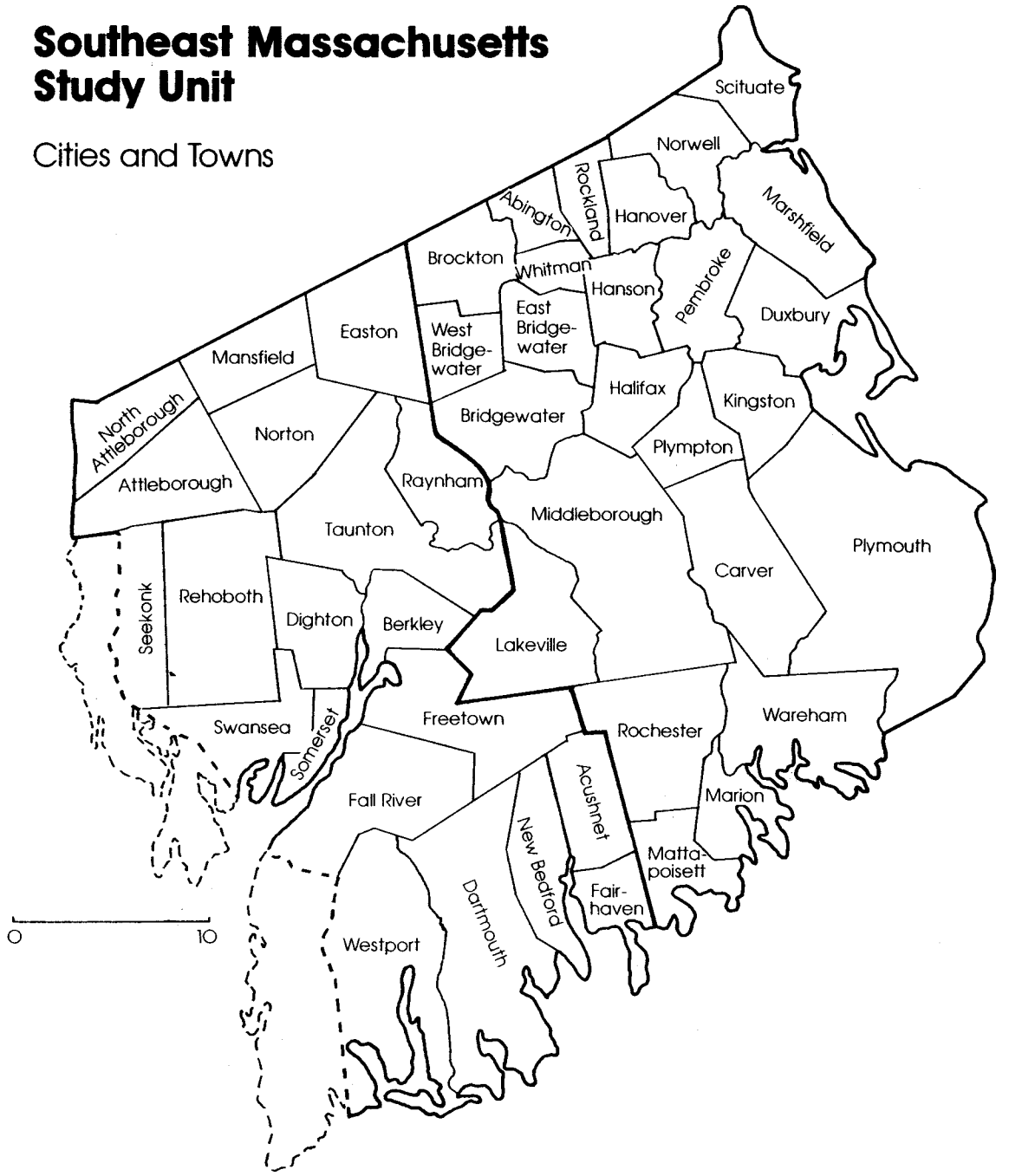
ERRATA

Unfortunately, inspite of editors and proofreaders, errors somehow persist. Thanks to the diligence of several readers who spotted errors and reported them to us, the following corrections should be noted:

P. 14, line 19	Quilticus Lake should be Quitticus Lake.
P. 77, line 12	Jessie Reed should be Jesse Reed.
P. 197, line 16	Delete "established by the Old Colony Railroad".
P.198, line 3	Replace "only" with "best".
P. 250, line 29	Route 97 should be Route 79.

Southeast Massachusetts Study Unit

Cities and Towns



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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 history of the Massachusetts Historical Commission (MHC). 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, it has given priority to the following functions: 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 road or construction of a federal inter-state 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 boundaries. 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 and twenty towns and cities in the eastern part of Massachusetts. This report, which summarizes the development of the forty-five towns and cities in Plymouth and Bristol Counties (the southeast Massachusetts study unit), is the second 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 an individual basis. The team which did the survey of the southeast Massachusetts study unit was composed of four people, each of whom brought a particular skill and knowledge to the project. Neill De Paoli served as the historical archaeologist and was responsible for bridging the gap between the prehistoric and historic periods. He wrote the sections summarizing settlement and land use during the Contact, Plantation and Colonial periods. Maxine Farkas, the team's geographer, was responsible for topography as well as transportation and settlement process for the Federal through Early Modern periods. She wrote the initial drafts of these sections and drew several of the maps used in 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 study unit. Additional observations on transportation routes and developmental pressures in Plymouth County as well as the political boundary maps of the Plantation through Federal periods were contributed by Arthur J. Krim. Finally, James W. Bradley, the Survey Director, was responsible for organizing, editing and directing the completion of this project.

This report marks the culmination of the survey team's work within the southeast Massachusetts study unit. 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. Second, the town reports 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, which provides an overview of the

study unit's topography, was written by Brona Simon, a member of the MHC staff. The second chapter reviews prehistory. This 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).

The third chapter focuses on 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 interrelated) 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 particular towns. Three symbols are used on these charts:

1. An "X" means that survivals of importance are known 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

intriguing 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 to leave a town unlisted. 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.

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 innovation. Fourteen of the industries which were most important to the growth of the study unit are reviewed in terms of their history, and surviving components.

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

As noted above, this document is a result of the Massachusetts Historical Commission's need to have an information base from which preservation decisions can 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 to 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; Gwen Chin, Edward Revell and Skip Andersen for their dedication and effort in preparing and reproducing the report; and Margaret Donovan (Secretary of State's Office) as well as 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 activity. The major categories of activity include: A. population, B. civic/ecclesiastical/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: local, 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 a drainage basin or county.

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.

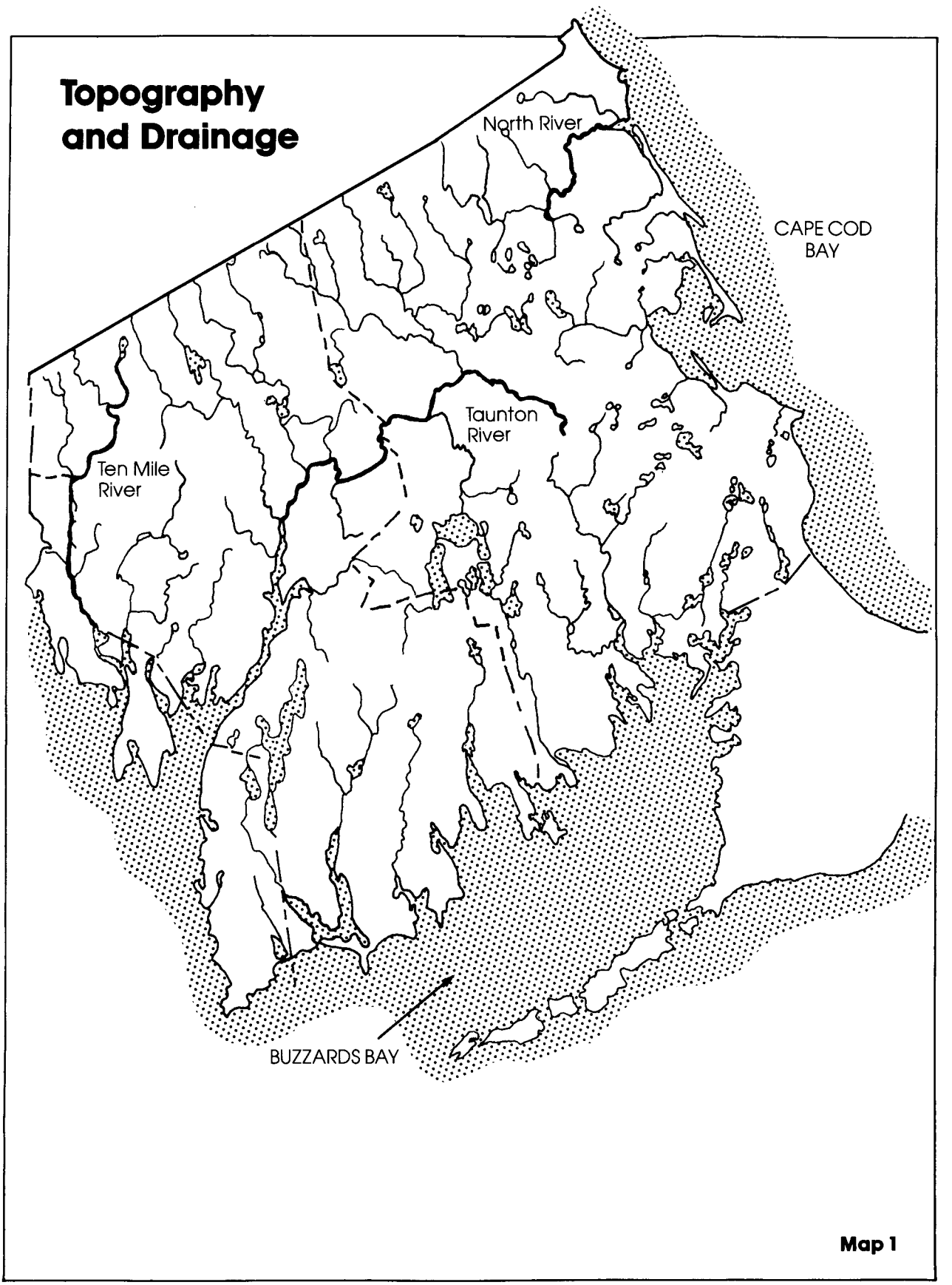
village - a secondary settlement area within a town.

city - a large and complex yet discrete 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 language 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 - Buildings 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 accomodate 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 sophisticated craftsmen or by the owner himself, or, after the mid 19th century, by speculative developers. 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.


Topography
and Drainage
North River
CAPE COD
BAY
Taunton
River
Ten Mile
River
BUZZARDS BAY

Map 1

CHAPTER I: TOPOGRAPHIC OVERVIEW

The southeast Massachusetts study unit lies within the present boundaries of Bristol and Plymouth counties. This area is within the New England Seaboard Lowland physiographic zone, a transition region defined by Thornbury (1965) between the New England uplands and the ancient seabed of the Coastal Plain. The Coastal Lowlands include land below 100 meters in elevation along the New England Coast. The study unit is characterized by gently rolling terrain with only a few areas of noticeably high relief, centering around the vicinities of Freetown and Fall River, Attleboro and Rehoboth, and eastern and northeastern Plymouth Counties. This broad expanse of lowland can be divided into two major drainage areas: (1) the Taunton River drainage; and (2) the coastal zone.

The Taunton River and its tributaries represents the most extensive drainage system in the study unit. The direction of flow of the component streams of the system are structured by the Narragansett Basin (a bedrock formation) which bounds the system to a great extent. The Taunton presents a dendritic drainage pattern with a general northeast/southwest flow except in the northern portion of the Basin where major tributaries flow from the northwest to the southeast.

The tributary streams and brooks of the Taunton drainage derive their source of water from the numerous and extensive wetlands which form a patchwork within the Basin. The Taunton River itself widens dramatically in Berkley/Dighton, where it turns brackish and empties into Mt. Hope Bay near Fall River. Mt. Hope Bay is affected by coastal tides within Narragansett Bay and Sakonnet River in Rhode Island.

One unique aspect of the river drainages associated with the Taunton system was the Quequechan ("Falling River"), a river which

flowed northwesterly across Fall River from Watuppa Pond to Mt. Hope Bay before it was filled in for urban development. The Quequechan was known for its steep grade and innumerable natural falls within a very short stretch of river.

In contrast to the Taunton River drainage, the coastal zone river systems are generally less extensive and less intricate. The majority of coastal rivers within the study unit feed from wetlands and empty into Buzzards Bay in parallel, north/south linear valleys (for example, the Agawam, Wankenco, Weweantic, Sippican, Mattapoisett, Acushnet, Slocums and Westpoint Rivers). The eastern portion of Plymouth county contains only one major river system, the North River, which flows into Massachusetts Bay. The southeastern portion of the town of Plymouth is perhaps the most poorly drained area in the study unit, with a dispersed group of ponds that pit a glacial outwash plain. While some of these ponds are stream-fed, others are kettle holes, the results of ancient glacial formations.

The coastline of the study unit is characterized by many bays and estuaries, especially around Buzzards and Plymouth Bay.

River drainages are obviously affected by topographic relief. The landscape features of the lowland were principally formed by glacial and post-glacial processes. However, certain topographic constraints have also been defined by underlying bedrock formations. The geomorphological complexity of the study unit is evidenced by the diversity of the wetlands, rivers, ponds, and bays in the region. Since the various sources of water were intensively and differentially utilized over the span of human occupation in the area, an understanding of the study unit's geomorphology is important for understanding the environmental features which shaped prehistoric and historic land use there.

Predominantly comprised of pre-Cambrian metamorphics, the bedrock geology of the study unit includes the more recent granites,

volcanic and sedementary rocks of the Narragansett Basin. The Narragansett Basin, a broad bedrock depression, is located in the northwestern portion of the study unit, and extends southerly along the coast of Rhode Island to Newport Bay.

Prior to 14,000 years ago the entire area was covered by the Wisconsin glacier which, at its maximum size, extended well out onto the continental shelf. The outer extent of the glacier is documented by moraine deposits on Cape Cod, Nantucket and Martha's Vineyard. When the glacier receded, the topographic and hydropological features which dominate the Lowland area today were formed. The receding glacier caused the sea level to rise all over the globe. The consequences of rising sea levels varied in local areas. Some land surfaces also rose, rebounding from the release of the weight of the glacier. Rebound could also involve local subsidence as parts of the land acted as a see-saw with the glacier sliding off one end (Thorbahn 1982). This may account for the bedrock exposures in the Attleboro area where outcrops veins of red felsite are known to have been quarried by prehistoric peoples from ca. 9,000 B.P. to 300 B.P.

The net change in the level of the ocean since the glacial retreat has been a rise from between 80 and 160 meters (Moir 1979). In southeast Massachusetts the present shoreline is several kilometers inland from the location of the glacial shoreline. Since southeast Massachusetts was suitable for habitation by 12,000 B.P., and since sea levels continued to rise rapidly until ca. 5,000 B.P. when the rate slowed, a significant percentage of the coastal land surfaces which were available to Paleoindian groups have been inundated. Consequently, an unknown percentage of Paleoindian and Early Archaic Period archaeological sites have been submerged.

The retreat of the glacier also had direct consequences on the formation of the landscape. The glacial break-up and recession in southeast Massachusetts was relatively rapid and irregular. Large blocks of ice were left behind, surrounded by sand and gravel

washing out from the melting ice. As the ice blocks melted and broke up, a wide range of geomorphological features were formed including a complex pattern of outwash plains, kames, drumlins and kettle holes which were interspersed by lakes, ponds and streams which were fed from meltwaters. One of the principal early post-glacial features of the area was Glacial Lake in Taunton which was located in the Hockomock Swamp basin north of the city of Taunton. Deposits of glacial till in a series of kames and drumlins account for the areas of high relief near Fall River and eastern Plymouth County. The wetland areas of the Seaboard Lowland all began as glacial meltwater features, and have been filling in at various rates, depending on the size, shape, depth and internal configuration of the glacially formed basins, and the drainage and sediment flow of the particular wetland (Goldsmith and Simon 1979). Wetland areas differ substantially in their physical characteristics and in the kinds of plant and animal resources which they support; human occupation and utilization of the different wetland types varied accordingly. For example, lakeside locations such as those adjacent to the Assawompset Long/Great Quilticus lakes in Lakeville, or the Pembroke Ponds, were important focal points for native settlement and attractive locations for summer tourist settlement in the 20th century. These lakes are survivals of the once numerous lakes and ponds which formerly existed in the area. Subsequently, many major prehistoric sites have been identified along the borders of present wetlands such as the Hockomock and Titicut Swamps in northeastern Bristol County. Many wetlands had supported large stands of cedar trees which were cut by 17th-18th century settlers at an alarming rate, causing several swamps to dry up. This affected the water flow utilized to power early mills and as a result many mills were relocated. The many bogs, especially in Plymouth County, were important not only for the 17th and 18th century bog iron industry, but also to the 19th-20th century cranberrying.

Similarly, the numerous ledges (or falls) in stream level were important for native occupation as anadramous fish station sites, and were also important water power sites which influenced the direction

of 18th and 19th century development. The Taunton River drainage and coastal zone rivers in Bristol County were especially productive in anadramous fish species, which were exploited by prehistoric and colonial inhabitants. These rivers also served as the focus for early industrial development because of the available water power, best exemplified by the development of Fall River at the Quequechan. Coastal marsh and estuarine areas such as the Plymouth Bay area supported large Woodland period village settlements, and were intensively utilized for grazing during the 17th and 18th centuries.

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CHAPTER II: PREHISTORIC OVERVIEW

Summary of Research

Most archaeological investigations in southeast Massachusetts have been site-specific excavations; few site survey projects have been undertaken. Although several site reports have been published describing excavations, comprehensive reports of field work analyzing materials and site distributions are generally lacking. Archaeological investigations in southeast Massachusetts have been largely descriptive, rarely comparative and most infrequently analytical.

At the end of the 19th century amateur historians and naturalists developed an interest in local prehistory, and several individuals amassed sizeable artifact collections. John A. Richardson was a notable collector whose large (ca. 40,000 artifacts) and relatively well provenienced collection from sites in the Attleboro area is available for study today at the Bronson Museum. During the early 20th century Rudolf Haffenreffer stimulated collecting activity in several Massachusetts towns near the Rhode Island border by encouraging artifact collecting, and by buying artifact collections. Haffenreffer's sponsorship was aimed predominantly at recovering artifacts rather than pursuing scientific inquiry, and questions of provenience and cultural context were seemingly of secondary concern. The results of Haffenreffer's activities are poorly published or documented. An exception is the excavation at Grassy Island in Berkley by Edmund Delabarre whose collection was purchased by Haffenreffer. Delabarre's 1925 investigation combined geomorphological with archaeological analysis to provide a chronological context for the cultural remains, and established an important precedent of interdisiplinary analysis in the region. In 1939 the Massachusetts Archaeological Society (MAS) was founded, and the members' considerable knowledge of site distributions was amassed in the statewide inventory. MAS members from Plymouth and Bristol counties contributed a substantial portion of data to the site files which remains as the major corpus of information

on site distributions in the region. In addition, the MAS Bulletin published site information, and a number of southeast Massachusetts sites have been reported in this periodical.

In 1942 Frederick Johnson of the R. S. Peabody Foundation, Andover and Hugh Raup of Harvard University resumed investigations at Grassy Island in cooperation with the Warren K. Moorehead Chapter of the MAS. The archaeological analysis was combined with geological studies of peat deposits, and the problems of assigning culture chronology (prior to the invention of radiocarbon dating) were directly addressed in this study. Johnson and Raup's work seems to have stimulated the local MAS chapters to pursue intensive and exacting site excavations. From 1946-1951 the Warren K. Moorehead Chapter excavated at the Titicut site in Bridgewater. The Cohannet Chapter began excavation at the Wapanucket site in Middleborough in 1952 under the direction of Maurice Robbins, and the chapter still continues excavations there. In 1980 Maurice Robbins' site report describing the results of over twenty years of excavation was published. Robbins, State Archaeologist from 1972-1979, remains an important and knowledgeable archaeological force directing research in the region.

Several cultural resource management studies have been undertaken in southeast Massachusetts during the last decade, as part of the environmental planning process for industrial parks, sewer projects and construction programs. Most important are the survey and data recovery programs associated with the construction of Route I-495 from Foxborough to Bridgewater conducted by the Public Archaeology Laboratory (PAL) at Brown University. The PAL has examined regional settlement systems in the Taunton basin. Their research has gone beyond description and is a processual analysis of prehistoric cultural systems. A final draft report on this mitigation project was submitted to the MHC during the spring of 1982.

Archaeological survey and excavation projects have been unevenly distributed throughout the region. A study conducted by the PAL to examine prehistoric settlement processes in Plymouth, Bristol and

Barnstable Counties used trend surface projections to delineate under-reported areas (Thorbahn et al 1980:30). In particular, the interior of Plymouth County to the Bristol County line and the interior of Bristol County were areas which were demonstrably neglected by prior archaeological survey efforts. In general, coastal areas and the large river drainages have been better studied than have interior sections. Bristol County has been better reported than has Plymouth County. The following summary of the study unit's prehistory necessarily reflects the results from the better known and reported sections of the study unit.

PAL's 1980 study of southeast Massachusetts prehistoric settlement processes (Thorbahn et al 1980) also noted that nearly 60% of the known sites lacked information necessary for assigning chronology. Although all prehistoric time periods were represented in the range of sites reported in the statewide inventory, less than one half the reported sites could be used for examining chronological distribution variations.

In addition, the PAL study reported an uneven distribution of sites, partially attributable to collector bias. The highest density of sites occurs in coastal locations; density drops off abruptly, and then tapers off more gradually towards interior locations (Thorbahn et al 1980). However, clustering of sites was demonstrated to be independent from density. While sites were more or less uniformly distributed within high density areas, clustering of sites was particularly evident in areas near New Bedford, and in the Upper Taunton.

Using paleoecological and cultural information recovered as a part of the I-495 mitigation project, PAL has tested a model of prehistoric settlement systems and the dynamics of cultural change in southeast Massachusetts. The model follows Dena Dincauze's (1980) proposal to New England archaeologists to study human adaptation processes to environmental diversity. It also follows Lewis R. Binford's (1980) model examining the organizing principles of social systems based on

mobility and organizational complexity. As a part of the I-495 project, the PAL examined the variability of key resources and cultural logistics for obtaining them as the primary variables of culture change. The PAL model studied culture change, as reflected in the archaeological record, by looking at the relationships of settlement to environmental patterning. This complex model relating territory size, logistic complexity and environmental diversity has substantial explanatory power which researchers will need to consider in future archaeological investigations in southeast Massachusetts. The following synopsis is abstracted from Thorbahn's (1982) draft report for the I-495 project:

During the early prehistoric periods, cultural groups had high mobility, low population density and large territories adapting to an environment which was relatively "coarse grained" or with low internal variability. Given small groups of people moving great distances and remaining only briefly at sites, coupled with the loss of up to 75% of original land surfaces as a result of glacial retreat, rising sea levels and isostatic change, the very low frequency of early period sites is predictable.

By 4,000 B.P., environmental conditions approximated modern conditions, however, palynological evidence from I-495 indicates a severe environmental stress due to greatly reduced water tables. The occurance and location of key resources were highly variable. Societal adaptation to this condition emphasized a highly efficient exploitation strategy within small territories. Territory size was drastically reduced, perhaps because long distance movement was risky. The lithic preference for almost exclusive use of locally available materials indicates that exchange with adjacent groups was at a minimum. The few favorable habitats (i.e., margins of the largest and deepest wetlands and lakes which may have represented the only open water in the region) were intensively utilized. Tool kits were more diverse, supporting the idea of a general exploitation strategy. In addition, food storage and processing features are common at sites, indicating a higher level of community response to environmental uncertainty. The complexity and density of on-site activity peaks at this period of

environmental dessication (Simon et al 1981), suggesting a complex pattern of occupation and reoccupation within a relatively short time period. A pattern of special activity use of hinterlands surrounding the intensively used favorable habitats, appears to have been established. Given this settlement system, a mosaic of large and small sites, larger sites exhibiting complexity and smaller sites representing special purpose activities, can be expected. Previous speculation regarding the large number of Late Archaic sites as indicating large population size appear to be unwarranted.

After 3,000 B.P. the range of settlement appears to have expanded as environmental conditions ameliorated. Sites exhibit increasing complexity, and tool kits increase in diversity. Palynological studies indicate the posibility of widespread clearing, suggesting initiation of slash and burn agriculture. Environmental conditions improve as water levels increase, and heterogeneity of resources seems to decrease. Specialized short term sites seem to characterize land use in the interior; high density settlements are concentrated in coastal and riverine areas. The seasonal round within an expanded territory may have become defined as environmental conditions became more predictable and certain.

The development of the PAL model was based on a number of analytical studies of the I-495 excavation results. For instance, Simon et al (1981) examined the features excavated from the I-495 sites and inferred changes in settlement and subsistence patterns over time. Similarly, results from palynological (Fitzgerald et al 1982) and lithic (Ritchie & Leveillee 1982) studies contributed to the development of the PAL settlement/subsistence model.

In summary, archaeological investigations in southeast Massachusetts have been diverse; information ranges from descriptions of large artifact assemblages to complex predictive models. Some areas are well represented; others are poorly understood. The following section is a preliminary attempt to summarize the region's culture history and site distributions.

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

Paleoindian remains are known from a few excavated sites and a larger number of find spots. One major Paleoindian component was excavated at Locus #8 at the Wapanucket Site (Robbins and Aggogino, 1964; Robbins 1980). The site includes a large and comprehensive assemblage of fluted projectile points, gravers, scrapers, channel flakes as well as debitage. Apart from the Wapanucket site, Paleodindian finds are tantalizing, but scarce. Single projectile point finds are reported from Mansfield, Bridgewater, Wrentham, Carver and Norwell. Materials from Wapanucket include cherts and jaspers, indicating long distance exchange and/or large territories.

The complex process of glacial melting and the concomitant rise in sea level, combined with isostatic changes as the land rebounded from the removed weight of the glaciers, resulted in a substantial loss of Paleoindian land surfaces. Many Paleoindian sites are likely to have been destroyed by the rising sea levels (Dincauze and Mullholland 1977). Those sites that have been reported would have been located much further inland when they were occupied than are their modern locations. The lakes and ponds of southeastern Massachusetts all began as glacial meltwater, and have filled in at varying rates over time.

Analysis of Paleoindian site distributions involves the complex task of reconstructing local and regional paleoenvironments. Paleoindian finds are suspected to be located on the margins of glacial wetland features, although geomorphological reconstruction of site areas has not been conducted to date. Thorbahn (1982) questions whether the low reported frequency of sites is due only to low densities and loss of land, or whether the low frequency results from a problem of identification. Small, and ephemeral sites of indeterminate age may represent very early period occupation.

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

Early Archaic components recognized primarily from bifurcate-base projectile points are scarce. Nevertheless, Dincauze and Mulholland's (1977) examination of Early Archaic distributions cite southeast Massachusetts as an area of relatively high frequency when compared with other parts of southern New England. Several bifurcate-base points are known from isolated contexts. An apparent concentration of Early Archaic materials has been reported from the upper Taunton River area (Taylor 1976). An Early Archaic component was excavated at the Double P site in Bridgewater for the I-495 mitigation project; radiocarbon dating between 6505 ± 325 and 8555 ± 200 B.P. provides the first chronological reference for bifurcate-base materials in eastern Massachusetts.

Many Middle Archaic components are known, although the sites are poorly documented. Collections exhibit a significant increase in Middle Archaic materials when compared with earlier periods. Ritchie and Leveillee (1982) indicate a gradual shift from use of non-local to local lithic sources from the Early to Middle Archaic. Use of Boston Basin lithics on sites from the Upper Taunton was common during the Early Archaic; these regional sources were replaced by local shales and argillites in the Middle Archaic.

The distribution of Early Archaic sites is poorly understood. The few sites which have been reported provide a fragmentary and distorted picture of Early Archaic settlement patterns. Middle Archaic sites are known from a wide variety of environmental settings: the margins of bogs, swamps, rivers, lakes and ponds. Dincauze and Mulholland (1977) suggest the initiation of scheduling subsistence activities during this period. In particular, they suggest that the relationships of different size Middle Archaic sites, and the apparent functional differentiation, argue for the development or intensification of territoriality. Several types of sites are known and the use of estuarine and anadramous fish areas intensifies during the period.

Late Archaic materials dominate artifact collections from sites in the area. In particular, the Small Stemmed Tradition, characterized by a variety of small stemmed points and small triangular points, is prevalent. Dincauze (1975) has proposed that the Small Stemmed Tradition was an indigenous development in southern New England. Small stemmed materials have been recovered from most sites in the area. Analysis of collections from the Bronson Museum, Attleboro, included examination of over 7600 Late Archaic projectile points; nearly 6500 of these points were small stemmed variants. Sites from southeast Massachusetts have produced significantly greater quantities of these materials than have sites from other areas of the state (almost every reported site includes small stemmed materials). The Narragansett Basin is clearly an important focus for this tradition.

Southeast Massachusetts' small stemmed materials are characteristically made from locally available quartz and to a lesser degree argillite. This preference contrasts with a more diverse lithic use in areas north and west of the Boston Basin where use of locally available felsites and argillites were as common as quartz. The preference for quartz also contrasts with materials from the preceding Middle Archaic period where use of argillites, felsites and rhyolite in addition to quartz was common.

Sites with small stemmed materials range in size and complexity. The Archaic component at the Wapanucket site is remarkable due to its size, quantity and diversity of materials, and the site's internal complexity. The small stemmed tradition dominates the Late Archaic occupations at the site. At Locus 8, 484 features were excavated including 110 hearths, 300 refuse pits, 34 "ceremonial" features (including burials) and 1355 post molds from which 15 oval shaped structures were detected. These structures represent the first evidence of a village pattern during the Late Archaic in southern New England. Radiocarbon dates for these features range from 4700 - 3435 B.P. (Robbins 1980:327).

Small stemmed materials were also the dominant lithic tradition of sites excavated for the I-495 project. Radiocarbon dating of small stemmed components expanded the expected chronological range of small stemmed materials: almost continuous dates between 4835 ± 250 and 2310 ± 110 years ago were obtained at the Canoe River West site. In addition, small stemmed materials were found in direct association with Early Woodland period pottery at the Bay Street I site (Current Research, American Antiquity 46(3):696). The assignment of small stemmed materials as a chronological indicator of the Late Archaic has incorrectly limited the range of use of these materials, at least in southeast Massachusetts. The apparent dramatic decrease of early Woodland sites may be a misperception due to the unwarranted chronological limits previously assigned to small stemmed materials.

Although small stemmed materials dominate the Late Archaic in southeast Massachusetts, artifacts representing other Late Archaic traditions are present, although in smaller quantities, throughout the region. Small amounts of Laurentian and Susquehanna Tradition remains have been found at most of the larger Late Archaic sites. An important Susquehanna site was located at the Narragansett Race Track (actually in East Providence). This represents the only reported site where Atlantic points outnumbered small stemmed materials. This site, located near the lower end of the Narragansett Bay Drainage, has yielded more Susquehanna Tradition materials than is reported for other sites. Its site location conforms to Dincauze's (1968; 1971) observation of the distribution of Susquehanna Tradition sites in coastal areas. The Terminal phase of the Archaic, characterized by Orient Fishtail points, provides good evidence for procurement and utilization of cherts and jaspers from non-local sources (Ritchie & Leveillee 1982). This pattern suggests a reestablishment of an expanded exchange system contrasting with the earlier Late Archaic system. In addition, elaborate cremation burials have been documented in several locations such as Dighton and Carver.

In summary, Late Archaic sites exhibit the widest range of site

size, complexity and location. The PAL's work suggests that favorable habitats were drastically reduced due to low availability of open water, and the margins of the largest and deepest wetland areas were intensively used. Sites located in these areas may represent base camps from which smaller groups would move in and out. The hinterlands around large base camps such as Wapanucket, and on a smaller scale, Titicut and Bay Street I, include a variety of special function small sites. The differing patterns of site distribution associated with the three different Late Archaic Traditions have not been examined in southeast Massachusetts.

WOODLAND

Although the Late Archaic small stemmed materials appear dominant in virtually all collections examined from southeast Massachusetts, Thorbahn et al (1980:18) found that sites containing Woodland period components were twice as frequent as those with Archaic components. This increase in Woodland period sites can be explained by: (1) problems of identification, especially since any site containing pottery would be recorded as Woodland, whereas sites containing only undiagnostic lithic materials would more probably be classed as "unknown"; or (2) the result of a population shift focusing on the coastal plain and away from upland areas; or (3) the result of higher Woodland period populations (and/or the increased complexity of social organization and labor differentiation). Despite the apparent increase in the number of Woodland sites, review of artifact collections indicates a significant decrease in Early Woodland materials as identified by Meadowood or Rossville projectile points. However, the I-495 radiocarbon dates suggest an extended use of small stemmed materials, at least into the Early Woodland. Consequently, the perceived decrease in Early Woodland representation may be an archaeological mis-observation. Early Woodland sites seem to be represented as minor components of sites with other Archaic and Woodland components. However, the distribution of the Early Woodland in light of reevaluation of the small stemmed materials will significantly alter archaeologists' impression of settlement patterns between 2000-1200 B.P.

Middle Woodland sites are slightly more numerous, and are known from a greater variety of environmental locations than are earlier sites. Coastal and interior riverine sites were intensively utilized. Some occupation along smaller inland stream and swamp margins is reported. Middle Woodland materials documented by Fox Creek Stemmed and Lanceolate, and Jack's Reef Corner Notched points, increase in number in comparison to the Early Woodland markers. A significant amount of non-local lithic materials were utilized in the Middle Woodland, in contrast to the almost exclusive use of local quartz and argillite during the Late Archaic. In particular, use of Boston Basin lithics such as the hornfels from the Blue Hills is significant (Ritchie and Leveillee 1982). Late Woodland components, as identified by Levanna triangles, are predominant in artifact collections. Late Woodland lithic technologies in southeast Massachusetts relied heavily on locally available materials, especially quartz, although use of felsites was also common. Levanna triangles may actually initiate in Middle Woodland contexts, extending their perceived duration of use.

Several Woodland period sites have been excavated by MAS chapters. In particular, the Titicut and Seaver Farm sites in Bridgewater; the Land Farm site in Norton, and the Fort Hill site in Middleborough have important Woodland period occupations. Sites exhibit an increasing complexity, both in terms of their tool kits and in the internal structure of the sites. The use of semi-permanent houses was indicated by findings at Titicut.

The intensive use of coastal resources, particularly within the esturarine zone, during the Late Woodland is well established (Tohrbahn et al 1980). Coastal and riverine sites are often larger than interior sites and may reflect increasing sedentism. Slash and burn agriculture may have became an important part of the subsistence base, and seasonal movements between riverine and coastal locations probably occurred as well. Interior sites, such as the Woodland period sites excavated for I-495, appear to be small specialized function sites. Details on site seasonality are lacking, and the settlement

processes involved in changing from a highly generalized exploitation strategy characteristic of the Late Archaic, to a highly formalized pattern involving horticulture and seasonal movements are poorly understood at present.

SURVIVALS

Studies of the rate of site destruction in southeast Massachusetts are alarming. In 1980 MHC undertook a windshield survey of the sites in Attleboro that were represented in the Richardson collection at the Bronson Museum. Only 5 sites appeared to retain integrity and potential for research; seven other sites had been at least partially destroyed, and the remaining 20 were completely obliterated.

Similarly, Thorbahn (1982) notes that two-thirds of the 39 sites located in the I-495 corridor have been either partially or completely destroyed. He estimates nearly one half the prehistoric sites recorded in southeast Massachusetts has been destroyed every ten years.

Southeast Massachusetts sites are particularly vulnerable to gravelling operations, a major and virtually unregulated industry common to the area. The sandy glacial knolls overlooking extensive wetlands were as attractive to prehistoric settlement as they are to gravel companies. Even when federal or state protective regulations apply, gravel operations have been elusively uncontrollable. For example, the White Rabbit Site in Taunton was deliberately destroyed during gravelling.

A similarly unregulated industry which has a severe effect on archaeological sites is the cranberry industry in Plymouth County. Precision levelling of wetland margins, and damming to form bogs, has dramatically altered wetland landscapes. Since the interior of Plymouth County is under-reported, sites are not recorded and their destruction goes on unwittingly.

Development along transportation corridors also presents a major threat to archaeological resources. Local development enhanced by the completion of I-495 has already threatened archaeological sites. Although the impacts to sites caused by the road project were mitigated under the provisions of the National Historic Preservation Act, impacts from secondary development are expected to go unchecked. Associated industrial parks and residential development are expected to destroy hundreds of prehistoric sites. Only a small percentage of this development will require review in compliance with state and federal regulations; the larger portions of the private development will not be subject to the provisions which protect sites.

In summary, the use of federal and state environmental statutes to protect sites in southeast Massachusetts has been successful for mitigating the direct effects of particular publicly sponsored projects. However, the majority of threats to sites originate from non-public actions. Addressing these uncontrolled impacts is the major management challenge to the archaeological community.

RESEARCH TOPICS

The following research topics could be addressed by site survey, site examination and collection research in southeast Massachusetts. Although some questions may apply more generally to southern New England, they could be especially profitably addressed in southeast Massachusetts. These topics synopsize some of the research possibilities presented throughout this chapter.

1. Analysis of settlement systems from 12000 to 4000 B.P. Despite the few reported sites, Paleoindian and Early Archaic presence is better demonstrated in southeast Massachusetts than elsewhere in southern New England. Research is needed in paleoenvironmental reconstruction including geomorphological understanding of site localities, as well as improving the quality of cultural information. Determination of whether the low frequency of reported sites actually reflects the archaeological record, or is

due to recognition problems and/or methodological shortcomings is important. General questions analyzing the relationships of paleoenvironmental and culture change could be addressed.

2. Examination of Late Archaic adaptations to severe environmental conditions, including a detailed understanding of the relationships between the Laurentian, Susquehanna and Small Stemmed Traditions. Understanding of the spatial and temporal extent of environmental deterioration. Re-evaluation of Archaic settlement systems within southeast Massachusetts context, and in particular, analysis of the Small Stemmed Tradition which is a dominant feature of the Narragansett Basin is paramount.

3. Analysis of the southeast Massachusetts quartz industry. Collections from the area generally include a large percentage of quartz particularly Squibnocket, Small Stemmed and Levanna related materials. Definition of quartz quarrying strategies, manufacturing technique and patterns of workshop sites across space and through time. Once again, study of the Small Stemmed Tradition, its chronological range and spatial relationships.

4. Analysis of the Terminal Archaic/Woodland transition. Examination of changing adaptive strategies including the establishment of swidden (slash and burn) agriculture. Information on site seasonality and distribution is critical for this analysis.

5. The current state of knowledge is strongly weighted towards interior sites. Survey is needed in the coastal zones, especially along Buzzards Bay and from Plymouth Bay to the North River. This would provide data which would allow for comparisions between coastal and interior settlement systems.

6. To what extent does varied site size and internal composition reflect changes in social organization as opposed to site function or seasonality? How do these factors correlate with changes in mortuary pratices?

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CHAPTER III: PATTERNS OF SETTLEMENT AND LAND USE

CONTACT PERIOD (1500-1620)

A. Regional Events

European contact with the native population was the primary event which occurred during this period. Initial contact was brief and sporadic, and probably had limited impact on native culture. However, increasing interaction throughout the 16th and early 17th centuries introduced European material culture and diseases, both of which drastically altered native culture and society.

B. Core-Periphery Relationships

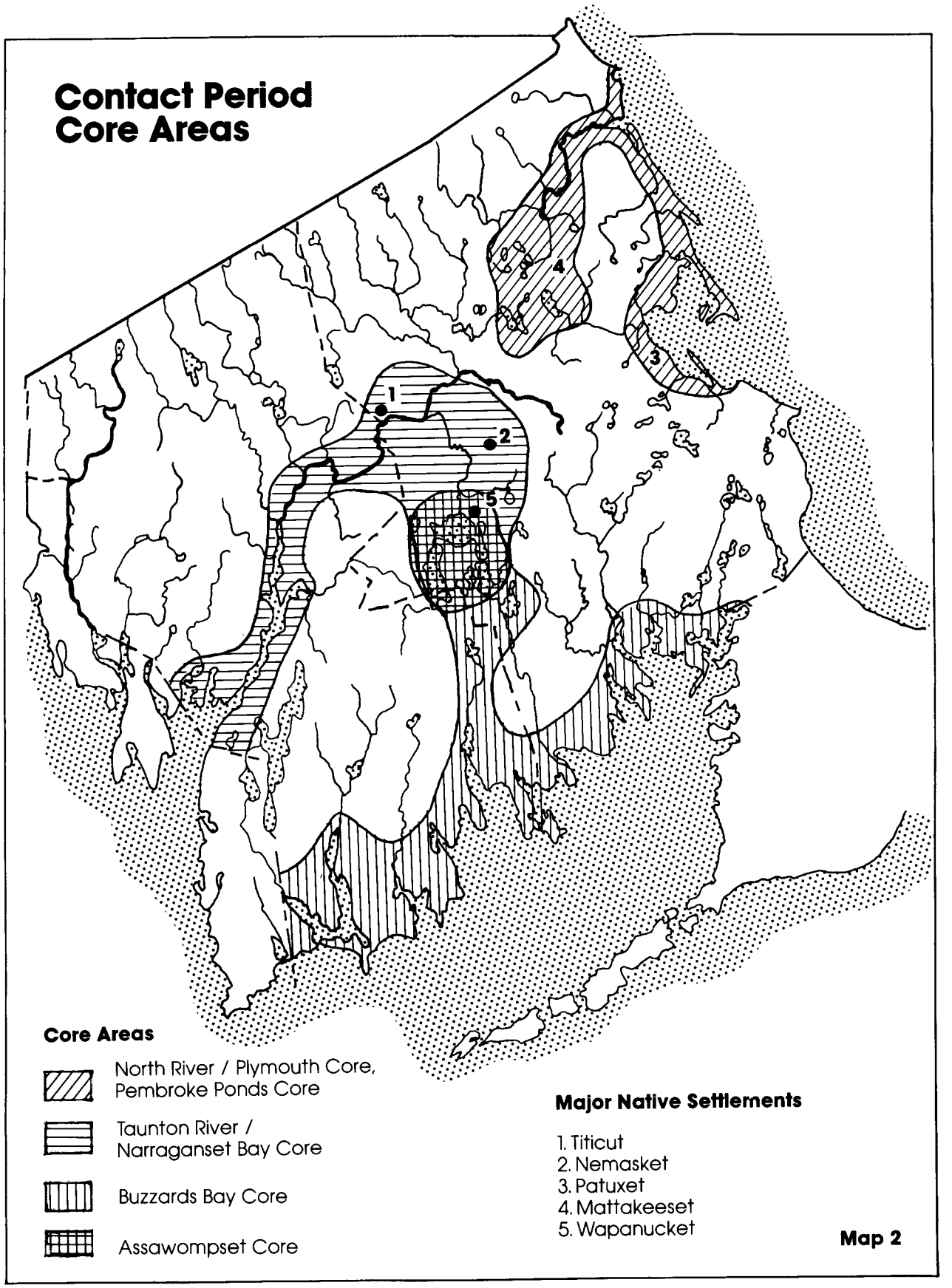
During the Contact period, native core areas appear to have been established along major river drainages where the natives made seasonal rounds between the river estuary, its headwaters and associated tributaries and interior ponds. Native movement on this interior-coastal axis was dictated primarily by the seasonal availability of food and other resources as well as the growing presence of European explorers and fishermen. These river systems served as core areas because of the diverse resources they contained, including extensive freshwater and marine food sources, proximity to good agricultural land and accessible water routes for transportation.

Seasonal movement appears to have followed a set pattern. Coastal settlement was probably heaviest during the spring and early fall when native groups were engaged in fishing, hunting and shellfish collecting. During the summer months, native settlement was probably more dispersed. The male members would periodically leave the village on hunting and fishing expeditions while the remaining occupants - women, aged, children - tended the village and planting

grounds. With the onset of colder weather in the late fall and winter, the coast was abandoned in favor of the less exposed interior village sites situated at the headwaters of the river drainage or interior ponds. At this time of the year, food sources were likely confined to reserves accumulated during the summer and early fall, and to the game and fish caught in the interior woodlands and ponds during the fall and winter. The following spring, the process was reversed, with native groups moving from their interior locations back toward the coast.

Current evidence suggests there were five major core areas in the southeast Massachusetts study unit during the Contact period. See Map 2. Three of these regional core areas were coastal; the remaining two were located in the interior of the unit. The largest regional core, located on the unit's southern coast, from Westport east to Wareham, was composed of several smaller cores. From west to east, these included local cores along the Paskamanset/ Slocum, Acushnet, Mattapoisett, Weweantic, Wankinco and Agawam river drainages. A second major core was located northwest of the Buzzards Bay region, and encompassed the lower portion of the Taunton River (Dighton, Berkley, Somerset, Swansea, and Fall River). As a regional core, this area was probably related to the heavily populated Mt. Hope and Narragansett Bay (eastern shore) core, traditionally considered the center of Wampanoag (Pokanoket) territory. Dominating the eastern coastline of southeast Massachusetts was a third major coastal core which extended from the North River south to Plymouth Bay. Within this area, settlement congregated primarily along the North, Green Harbor, Town and Eel River estuaries and around Duxbury, Kingston and Plymouth Bays. The last site was the central location of the Patuxets, probably a cultural and linguistic sub-group of the Wampanoags. Extensive settlement in the area's interior, particularly in Plymouth, was probably discouraged by both rocky uplands and poorly drained, sandy soils.

The two remaining cores were located in the interior of the study unit. The most important of these encompassed the large pond


Contact Period
Core Areas
1
2
3
4
5
Core Areas
North River / Plymouth Core,
Pembroke Ponds Core
Taunton River /
Narraganset Bay Core
Buzzards Bay Core
Assawompset Core
Major Native Settlements
1. Titicut
2. Nemasket
3. Patuxet
4. Mattakeeset
5. Wapanucket
Map 2

complex which included Assawompset, Long, Great and Little Quitticas Ponds as well as several smaller outlying ponds. This interior core appears to have been associated with both the Buzzard's Bay and Taunton River/Narragansett Bay cores. Three settlements were located either in or near the Assawompset Ponds core. One was the village of Nemasket, located in what is now Middleborough, on the Nemasket River. This settlement appears to have been the primary site of the Nemaskets, a sub-group of the Wampanoags, and the dominant group in the Assawompset core. In 1621 when Edward Winslow and Stephen Hopkins stopped in Nemasket on their way to confer with Massasoit they observed that the natives travelled to the Buzzards Bay coast in the spring to harvest lobster. (Weston 1906:22.) Two additional settlements were situated north and south of Nemasket. The first was Wampanacket, located on the eastern shore of Assawompset Pond. The second, Titicut, was on the Taunton River. Titicut's ready access to Narragansett Bay via the Taunton River suggests that it was an interior component of the Taunton River/Narragansett Bay core.

The second major interior core was the Pembroke Ponds complex situated in the towns of Pembroke, Plympton, Halifax and Hanson. An interior-coastal pattern of relationship likely existed between this core and the North River/Plymouth area. The Pembroke Ponds core was reportedly occupied by the Massachusett group.

The portions of the study unit outside of these coastal, riverine and pond-related core areas appear to have sustained a much smaller population and more specialized activities. Smaller local core areas existed. Examples include the lower Ten Mile River (Attleboro and Seekonk) and the complex of ponds including Winnecunnet, Watson and Lake Sabattia along the Mill River (Taunton, Norton and Raynham). Beyond these cores were large peripheral areas used primarily for hunting, fishing and collection of other necessary resources. Southern Plymouth and Carver, eastern Fall River and Freetown and Abington-Brockton-Easton all appear to have been peripheral areas during the period.

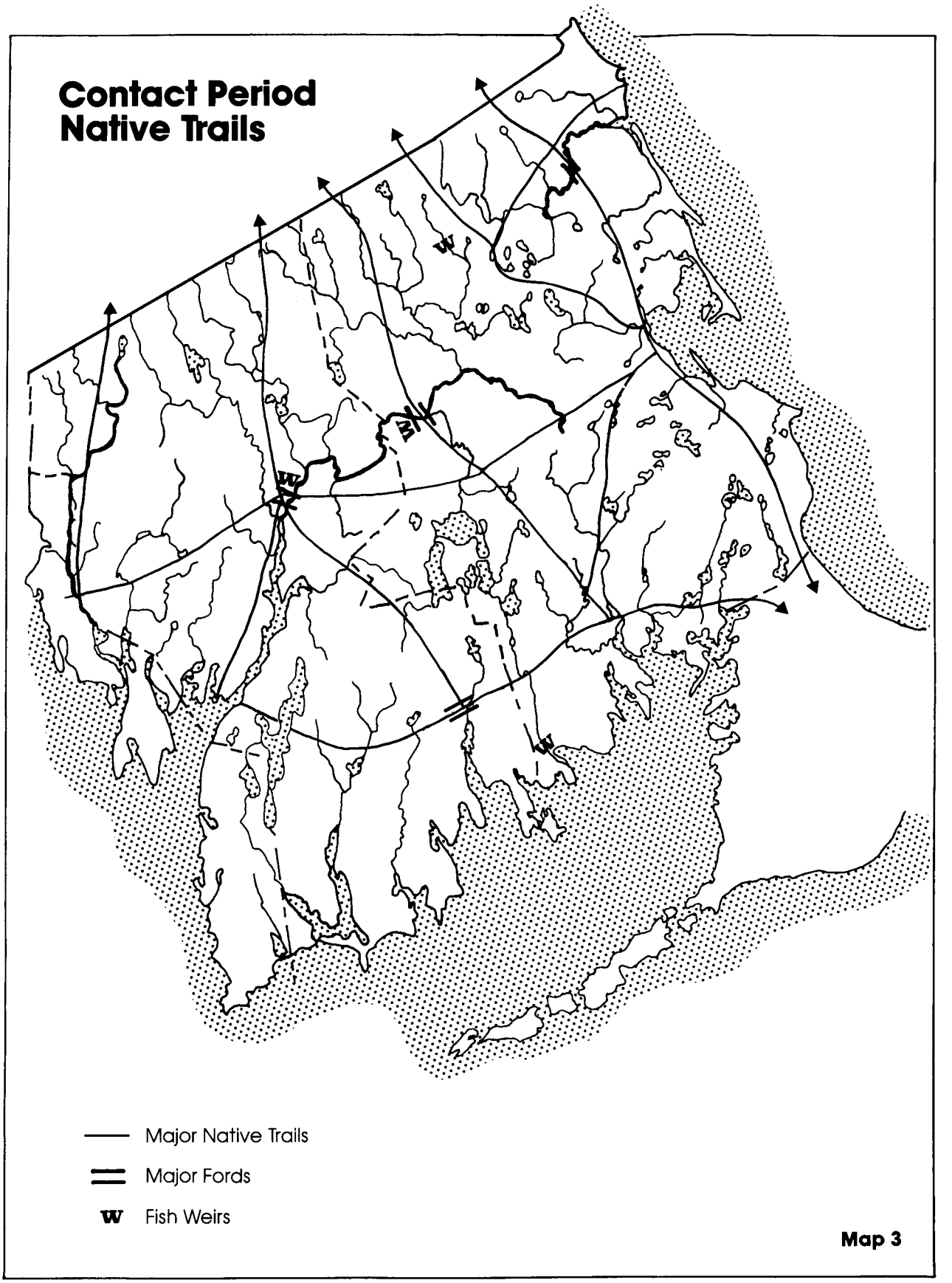
These settlement and subsistence patterns appear to have remained generally intact until the turn of the 17th century. By this date, European-native trade was a relatively frequent occurrence and may have been established as a formalized institution. Intensification of this phenomenon encouraged increased native emphasis on coastal settlement. The resulting epidemics among the native population depopulated vast coastal areas of the study unit, most notably the settlement core in Plymouth (Patuxet).

C. Transportation Corridors

During the Contact period, native travel relied on an extensive overland trail system as well as water transportation. The native trail network exhibits many of the same basic features as observed in the Eastern Massachusetts and Boston study units. Native trails were characterized by minimal elevation changes and generally followed the contours of the terrain. Natural obstacles such as steep grades and bogs were avoided whenever possible. Routes often skirted around the perimeter of such obstacles. Directional changes were gradual, contributing to the braided appearance of the trail network. Frequently, a number of routes led to a single endpoint. Map 3 illustrates the major trails within the study unit.

Most important within the overland network were a series of inter-regional trails which connected southeast Massachusetts with settlement and resource areas north, west and south of the study unit. There were six primary corridors along which these trails ran. Four of these were north-south oriented, the other two east-west. See Map 3.

1. The easternmost of the north-south trails ran south from Massachusetts Bay through Norwell, forded the North River in Hanover, continued southeast along Plymouth Bay and on through southern Plymouth to Cape Cod.


Contact Period
Native Trails
Major Native Trails
Major Fords
W Fish Weirs

Map 3

2. The second of the north-south trails went south from the Blue Hills through Abington and the Bridgewaters, forded the Taunton River at Titicut and continued southeast through Middleborough (Nemasket) to Wareham.
3. The third north-south trail also ran south from Massachusetts Bay through Easton and Taunton to the ford at Cohannet across the Taunton River. Here the trail split. One branch went southwest through Dighton and Somerset towards the Taunton River estuary while the other ran southeast through Freetown and New Bedford to the ford on the Acushnet River.
4. The last north-south trail ran from Massachusetts Bay along the Neponset River and then followed the Bungey and Ten Mile Rivers through the Attleboroughs and continued towards upper Narragansett Bay.
5. The major east-west trail went west from Plymouth (Patuxet), forded the Nemasket River in Middleborough and the Taunton River at Cohannet and continued west to Narragensett Bay.
6. A second east-west trail ran closer to the Buzzards Bay coast. From Cape Cod, it went west through Wareham and Rochester, crossed the Acushnet River and continued through Dartmouth and Fall River to the Taunton River estuary.

In addition to these inter-regional connectors, a number of intra-regional routes provided access between major settlement cores and resource areas. These trails generally extended from the study unit's interior to the resource-rich coast. Several other intra-regional routes radiated out from the Pembroke Ponds core connecting this area with Nemasket to the west and Patuxet to the south. Major routes extended from Nemasket and Cohannet south to the Buzzards Bay region. Additional interior trails linked the settlement cores of Titicut, Nemasket and Wampanucket.

On the local level, an extensive network of minor routes provided access to secondary camp sites and resource areas such as hunting and fishing camps, quarry sites and tidal marshes. Frequently, these trials branched off of the more important intra-regional and inter-regional routes.

Because of its extensive coastline, water transportation probably played an important role during the Contact period. The Buzzards Bay region was particularly well suited for water travel because of its well protected coastline. Cape Cod, the Elizabeth Islands and Martha's Vineyard sheltered the Bay from off-shore storms and may have permitted water travel as far west as Narragansett Bay. In turn, the heavily convoluted coastline and associated river drainages permitted water access into the interior. The Taunton, Acushnet and North Rivers appear to have been the most heavily utilized. Coastal travel on the study unit's eastern coast generally was more hazardous due to the region's exposed coastline. Exceptions were the Plymouth, Kingston and Duxbury Bays and the North River estuary.

D. Settlement

Archaeological documentation of Contact period settlement in the southeast Massachusetts study unit is extremely sparse. The only reference in the literature to settlement sites is to a small probable period encampment situated in Duxbury (19-PL-41). Most of the known archaeological evidence comes from burials which were excavated during the late 19th or 20th century in Swansea, Fall River, Bridgewater (Titicut), Middleborough (Wapanucket and Taylor Farm) and several towns along Buzzards Bay. In general, the documentation of both village sites and burials is poor.

A generalized and tentative reconstruction of the unit's native settlement types during this period is possible through examination of the several ethnographic accounts made by European explorers and settlers of the 16th and early 17th centuries. It is unclear if these

settlement types were pervasive throughout the Contact period since the majority of these accounts describe native settlement well after initial European-Indian contact.

Current evidence suggests the largest native settlements generally occurred in the coastal or interior regional cores on major river estuaries or interior pond complexes. These villages were comprised of a large number of wooden structures clustered together. On several occasions, it was noted that wooden palisades surrounded individual huts which, though varied in size and shape, were generally circular or rectangular in form. These huts consisted of a framework of flexible poles lashed together. The poles, in turn, were covered with bark sheets or woven mats. The huts' simple design facilitated their rapid dismantlement, an important feature among a group who migrated seasonally. Individual or communal agricultural plots were usually located within the village (Salwen 1978, Winship 1968).

Smaller villages were probably situated on the tributaries of major river drainage systems or smaller lakes and ponds. These settlement complexes likely were composed of no more than a handful of structures which were similar in design to those described previously. These smaller villages may have functioned as subsidiaries of the larger core villages or as special activity villages (e.g., fishing, hunting).

The smallest native habitation sites were probably those established by single families or small special activity bands during the summer when native mobility was at its maximum. These sites appeared to range from open air camps and sapling shelters to single-family huts located on fringe areas.

E. Survivals

Survivals of the Contact period fall into two broad categories--archaeological sites and landscape features. The former holds the

most promise in reconstructing the lifestyle of the study unit's native population during this period. Archaeological data would be particularly helpful in detailing the natives' poorly understood settlement and subsistence patterns. Despite the current dearth of reported Contact period sites, two factors suggest that considerable archaeological remains continue to survive in southeast Massachusetts. Ethnohistoric sources note the presence of an extensive native population until the devastating epidemics of the second decade of the 17th century. In addition, southeast Massachusetts has not undergone the same degree of intensive development as has occurred in other parts of eastern Massachusetts. This is especially true in the Buzzards Bay region and much of the unit's interior. Fragments of sites may also survive in the moderate to heavily developed coastline between Scituate and Plymouth as well as in more heavily populated communities such as Fall River and Taunton.

The second category, landscape features, encompasses a variety of physical and toponymic manifestations of native utilization of the landscape. These include native quarries, fish weirs, trails, fords and place names. The first two features frequently survive because of their obscure locations. Native trails and ford locations generally survive because of their incorporation into later transportation systems. A number of major native trails have been adapted for use as major highways including Routes 44, 123 and 138. Secondary paths often survive as jeep and hiking trails. In turn, most of the important native fords have survived as major bridge sites. Two examples include the Indianhead River Bridge in Hanover and Little's Bridge in Scituate. Finally, native place names have survived both through continued usage and historical documentation. Place names were initially recorded by English settlers as transliterations of the original native label. The native name frequently underwent considerable changes in appearance in the process of this and subsequent English adaptations. On a number of occasions, they were applied to slightly different locations than originally intended. For example, 'Mattapoisett' in its original native derivation designated an area encompassing Gardner's Neck in Swansea. Whether native place

names have survived through everyday usage or as obscure terms recorded only in early documents, they can serve as useful guides in reconstructing core areas and in delineating linguistic boundaries. A sample of southeast Massachusetts study unit native place names is provided below:

1.	'Satuit'	Scituate (Krusell 1978 Map)
2.	'Nishamahoquanett'	an area "near Duxbury mill" (Duxbury). This location was utilized by natives in the mid 17th century as one of several points delineating the southern extent of Chickataubut's, a (Massachusett sachem territory (Chaffin 1886:29)
3.	'Nipesincoos'	Snow's Pond, Rochester (Rochester Historical Society 1969 Map)
4.	'Schumasactacut'	Beaver Brook, Abington (Old Colony Planning Council 1978:13)
5.	'Coweset River'	Wading River, Norton (Seaver nd Map).
6.	'Shimsuet'	an area located on the east side of the Noquochoke River approximately one mile south of the Hix bridge, Westport (Old Dartmouth Historical Society 1908:10)
7.	'Accushnet'	New Bedford area (Ricketson 1858:13). Originally probably encompassed the whole Acushnet river drainage.

The following list indicates those towns in which important period survivals exist or are likely to be present:

Period Core Areas (Listed by Contemporary Towns)	Archaeological Sites	Landscape Features	Native Place Names
Buzzards' Bay Core			
Westport	?	?	?
Dartmouth	?	?	X
New Bedford			?
Fairhaven	?	?	?
Acushnet	?	?	
Mattapoisett	X	?	X
Marion	?	?	
Wareham	?	?	X
Taunton River/Narraganset Bay Core			
Dighton	?		?
Berkley	X	?	
Somerset	?		
Swansea	X	?	
Fall River	?		?
North River/Plymouth Bay Core			
Scituate	?	X	X
Norwell	?	X	
Hanover	?	?	
Marshfield	?	X	
Duxbury	?	X	?
Kingston	?	X	
Plymouth	?		
Assawompsett Ponds Core			
Bridgewater	X	X	?
Middleborough	X	X	?
Lakeville	X	X	X
Freetown	?	?	?
Rochester	?	?	?
Pembroke Ponds Core			
Pembroke	X	X	X
Plympton		?	
Halifax		?	X
Hanson		?	X

F. Research Topics

The Contact period is poorly understood in the southeast Massachusetts study unit. The existing data are, at best, incomplete and in many cases nonexistent. Consequently, this period abounds with potential research topics. Those below are only a partial list.

1. Examination of the process of acculturation. What impact did contact with Europeans have on traditional native culture (i.e., social and political structure, religious beliefs, population)? Geographically and demographically, how widespread were the effects of European introduced epidemics among the unit's native population?

2. Delineate native cultural and political boundaries. The currently accepted cultural and political boundaries are based primarily on ethnohistoric accounts of the 17th century. Should it be assumed these were similar to those predating the 17th century?

3. Establish a chronology of Contact period sites. At present, there are few if any artifactual horizons for distinguishing an early Contact period site (early 16th century) from a late 16th or early 17th century site.

4. Clarify native settlement and subsistence rounds. To what extent did these remain generally intact throughout the Contact period?

5. Given the stong Late Woodland presence in southeast Massachusetts, especially in coastal areas, and the enthnohistoric indications of a sizable native population during the late 16th and early 17th century, very few sites (other than burials) are known. Where are the Contact period occupation sites and why have they been so difficult to find?

6. Examination of Contact period sites in the Narragansett and Mt. Hope Bay area of Rhode Island. How does this information relate to the development of native settlement in the Taunton River/ Narragansett Bay and Buzzards Bay core areas?

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PLANTATION PERIOD (1620-1675)

A. Regional Events

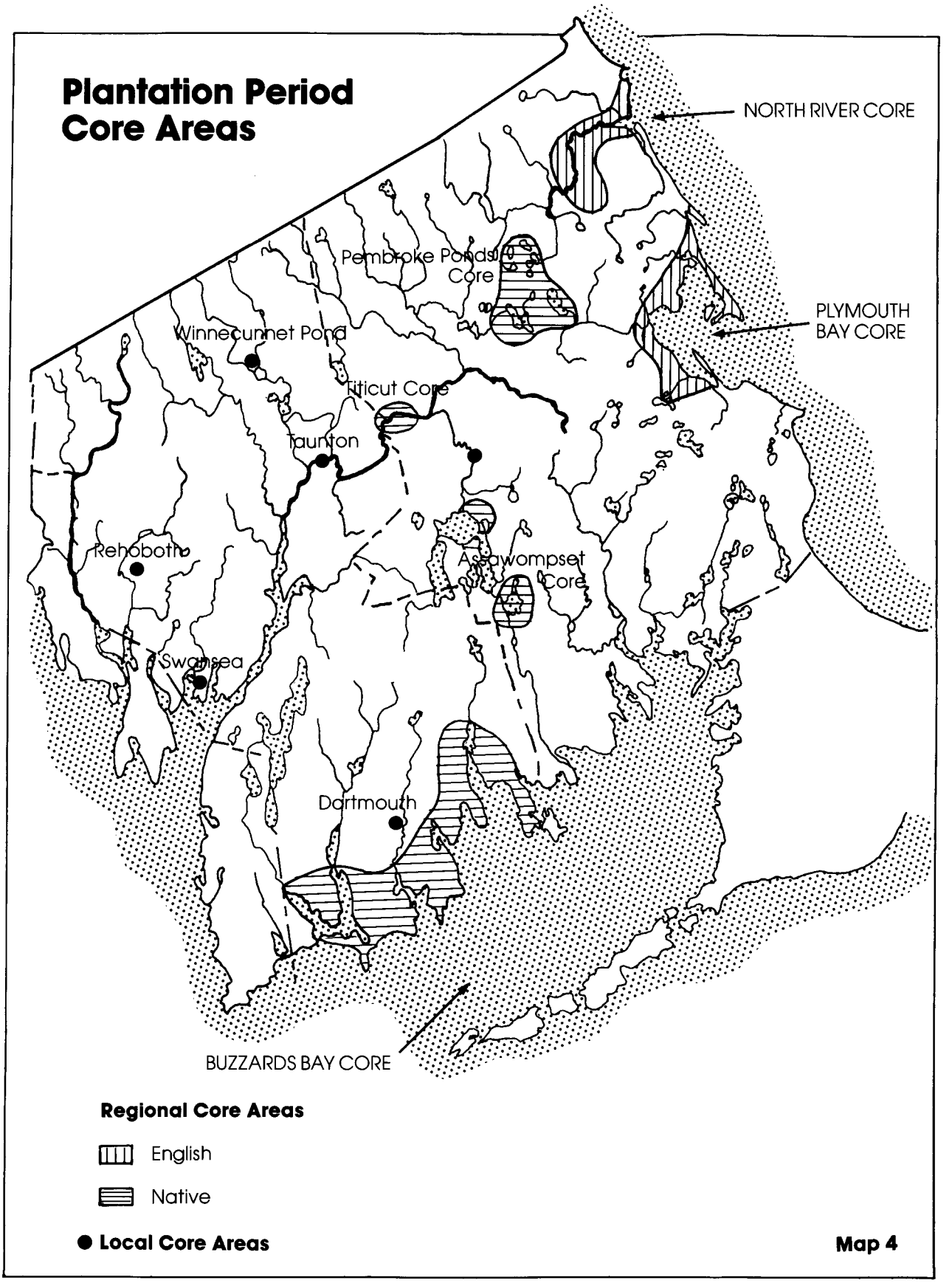
The primary event which occurred during the Plantation period was the establishment of permanent English settlements initiated with the founding of Plymouth in 1620. From here, English settlement expanded along the coast and up several river drainages. Three factors which were important in facilitating settlement were the granting of a patent by the Council of New England to John Pierce and associates for the settlement of New England (1621), the formal establishment of Plymouth Colony (1629) and an epidemic among the natives of southern New England in the early 1630s. The extensive immigration of English settlers in the 1630s and early 1640s was crucial to the perpetuation of permanent settlement in the southeast Massachusetts study unit. Despite a weakened state, the native population maintained a semi-autonomous existence. Most native groups withdrew from the coast and settled in or near one of several interior cores.

B. Core-Periphery Relationships

Until the late 1620s, English settlement was restricted almost exclusively to the Plymouth coast. It was here that the unit's first primary core was established along Plymouth Bay. Plymouth's early commercial strength was based on the fur trade. From the early 1620s until the mid 1630s, Plymouth reigned as the fur trading center of southern New England. Trade was carried on with the natives of Long Island, Connecticut and as far north as Maine. Plymouth-sponsored posts were erected in Bourne (Cape Cod), Hartford (Connecticut) and Penobscot and Cushnoc (Augusta?), Maine. However, by the late 1630s the Plymouth Bay core's position as a commercial center was rapidly being eclipsed by Massachusetts Bay towns, especially Boston.

Beginning in the late 1620s, a small number of Plymouth "First Comers" left the Plymouth area for the fertile land of Kingston and Duxbury Bays, Green Harbor (Marshfield) and the North River. Increased settlement in these areas in the 1630s and early 1640s resulted in the northern expansion of the Plymouth Bay core into Kingston and Duxbury Bays and the emergence of a second regional core along the North River. See Map 4. This development resulted in the founding of several new towns, including Scituate (1636), Duxbury (1637) and Marshfield (1640). See Map 6. Not only were these areas attractive agriculturally, but they had considerable commercial and industrial potential. Both the Plymouth Bay and North River cores had access to a tremendous diversity of freshwater and marine resources which stimulated the growth of a number of fishing shellfish collecting, fish curing and salt evaporation operations. These products and local agricultural produce and livestock were shipped out from these two cores primarily to Massachusetts Bay and England. By the end of the period, the North River core had developed into a regionally important shipbuilding center. Two shipyards were established on the North River (Briggs Yard, 1645; Wanton Yard, 1670) while a third was built in Scituate Harbor (Scituate Harbor Yard, 1650). The North River core was also the site of the majority of the study unit's mill operations. See Map 5. One of southern New England's earliest mills (a wind-powered grist mill) was erected in about 1630 in Scituate adjacent to the Third Cliff. A smaller industrial center developed in the Plymouth Bay core in Plymouth between the 1630s and 1670s.

Settlement outside of these two regional cores was limited. The only interior settlement which predated the mid 17th century involved the establishment of a local core in the vicinity of the Taunton and Mill Rivers (Taunton) in the late 1630s. This core developed as a local agricultural and industrial center largely due to the presence of considerable fertile land and mill power sources. This area was the site of one of New England's earliest iron works, which was erected in present Raynham ca. 1656.


Plantation Period
Core Areas
NORTH RIVER CORE
Pembroke Ponds
Core
PLYMOUTH
BAY CORE
Winnecunnet Pond
Titicut Core
Taunton
Rehoboth
Assawompset
Core
Swansea
Dartmouth
BUZZARDS BAY CORE
Regional Core Areas
English
Native
Local Core Areas
Map 4

Five smaller local cores emerged after the mid 17th century, one on the Nemasket River (Middleborough), another on the lower portion of the Palmer River (Rehoboth), a third at the mouth of the Taunton River (Swansea), a fourth near Winnecunnet Pond (Norton) and the last on the Paskamanset River (Dartmouth). The presence of good agricultural land, freshwater ponds and accessible waterways were important considerations in the settlement of these areas. Settlers in the Taunton River and Paskamanset River cores also placed considerable emphasis on marine fishing because of their proximity to the rich marine resource bases of Narragansett and Buzzards Bays. The only industrial development in these four cores was restricted to a small mill complex erected on the Palmer River in the early 1660s and a possible pre-1675 iron operation in Russell's Mills, Dartmouth. The remaining English settlement consisted of a small number of isolated farmsteads or small hamlets scattered across the less desirable interior uplands.

The beginning of English settlement resulted in the displacement of much of the unit's native population. By the mid 17th century, most of the southeast Massachusetts coast was devoid of any major native cores. The majority of the natives probably congregated in one coastal and three interior core areas, all of which had persisted at least since the Contact period. These regional cores were located in the vicinity of 1) the Pembroke Ponds, 2) the Assawompset Pond complex, 3) Titicut on the Taunton River, 4) the western end of Buzzards Bay (the Westport, Solcum and Acushnet river estuaries). See Map 4. All of these areas were the sites of extensive freshwater sources and moderate tracts of agricultural land. A smaller local core remained adjacent to Fowling Pond in Raynham. Additional local cores probably existed in the Buzzards Bay region since English settlement in this area (excluding Dartmouth) was virtually non-existent until after King Philip's War. Generally, the native population probably maintained a certain degree of access to the majority of the study unit's coast since most of the English settlement was confined to the North River and Plymouth Bay areas.

C. Transportation

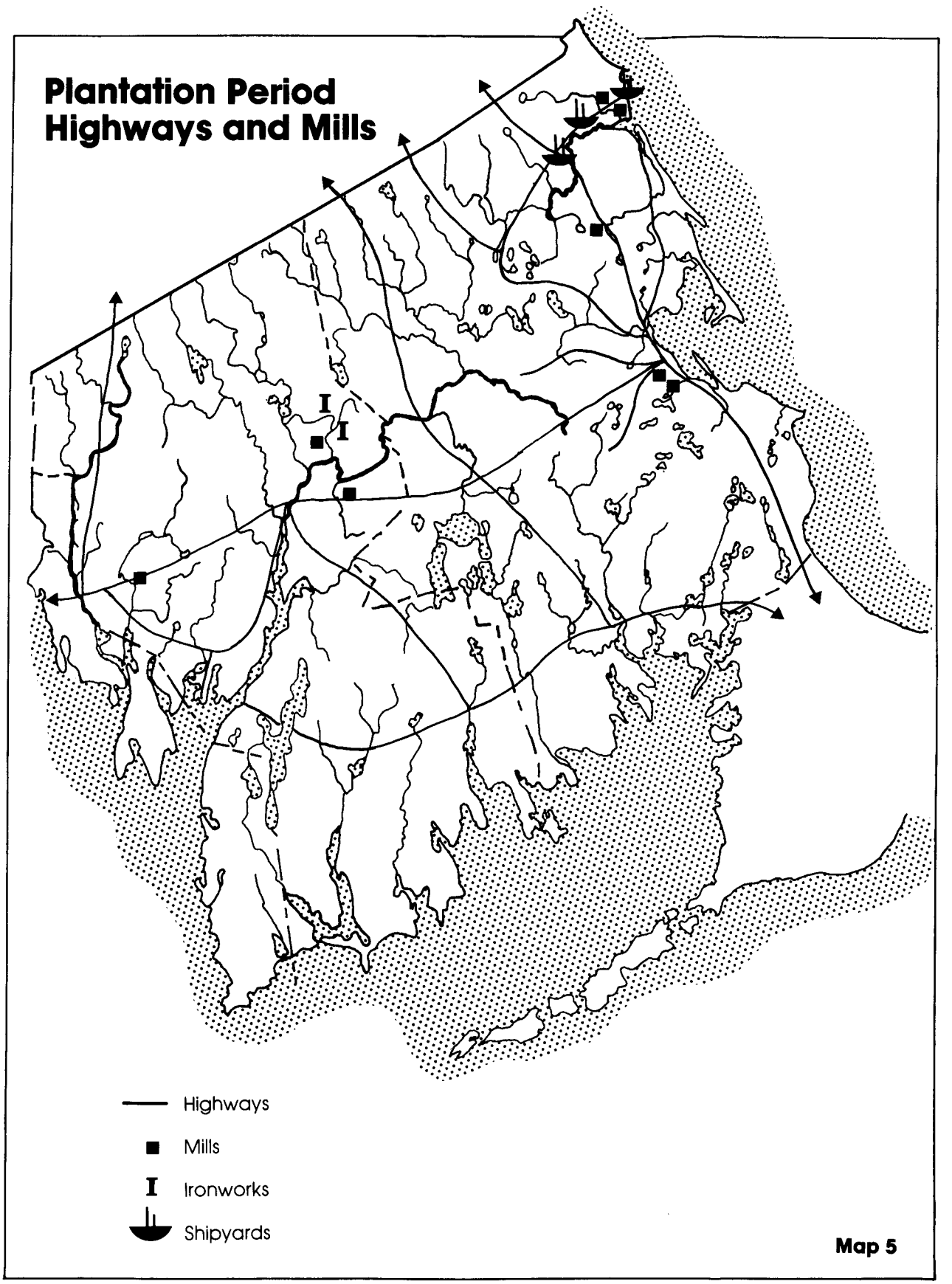
While a combination of land and water routes were utilized during the Plantation period, the English settlers depended primarily on the region's waterways for transportation. The Plymouth Bay core rapidly emerged as the focal point of the unit's water transportation system. Throughout the period, the majority of the region's import and export trade emanated from the Bay. Vessels departed with local products bound for destinations such as England and the West Indies and returned with English emigrants and a variety of goods from England and the European Continent. Plymouth, however, fell far short of equaling Boston as a regionally important port in partly because extensive tidal flats and sand bars limited the harbor's accessibility.

Inter-regional contacts were maintained by coasting vessels which sailed from southeast Massachusetts to settlements along the New England coast. These communities included Boston, Piscataqua (New Hampshire) and Pemaquid (Maine), to the north and Hartford (Connecticut), Newport and Providence (Rhode Island) to the south. The study unit's extensive river drainage system enabled considerable water travel from the coast throughout the interior. The Taunton and North Rivers emerged as two of southeast Massachusetts' major intra-regional water routes. The former route also facilitated contact with those settlements in the Narragansett Bay region, particularly Providence, Newport, Portsmouth. Not surprisingly, this region exerted a strong influence on the commercial and social systems of those communities such as Rehoboth, Swansea and Dartmouth which were established adjacent to the eastern periphery of Narragansett Bay. While the Taunton and North rivers did serve as important intra-regional transportation routes, they also acted as a barrier to land travel. As a result, ferries were established at an early date, especially on the North River. By 1644, three ferries operated on the river, providing easier passage between the North River settlements of Scituate and Marshfield.

The study unit's overland transportation system was poorly developed during the Plantation period. The basic framework consisted of the pre-existing native trail network. Incorporation of the native routes into a colonial road system saved the settlers the substantial expenditure of time and resources necessary for establishment of a new overland network. Generally, the only improvements necessary for colonial use was the widening of the trails for use as cart paths, placement of ferries or bridges at native fords and the reorientation of some native paths to provide direct access to new settlements. The only important category of new roads constructed by the settlers was that of planned streets within settlements, for example the Driftway and Kent Street in Scituate and Dean Street in Taunton.

Inter-regional land travel took place along three primary corridors. See Map 5. These all followed routes which had been used during the Contact period.

1. The first route ran from Cape Cod north to Plymouth. North of the town it forked. One branch continued north through Duxbury, Marshfield and Scituate then continued along the coast through Hingham to Boston. The other branch took a more interior route (through Pembroke and Hanover) entering Hingham by Accord Pond and from there joined the first near the coast.
2. The second major route, known as the 'Nemasket Trail', went west from Plymouth. It forded the Nemasket River at Middleborough, the Taunton River at Taunton and then continued west through Rehoboth to Providence, Rhode Island.
3. The last corridor served the nascent settlements along Buzzards Bay and ran from Cape Cod west towards the Taunton estuary and Newport, Rhode Island.


Plantation Period
Highways and Mills
Highways
Mills
Ironworks
Shipyards
Map 5

A secondary network of intra-regional routes connected destinations within the study unit. These also tended to follow native trail routes which had been used during the Contact period. These local routes were most evident in the eastern part of the study unit, particularly around the North River and Plymouth cores where settlement was heaviest. Overland routes through the sparsely settled interior were less extensive.

D. Settlement

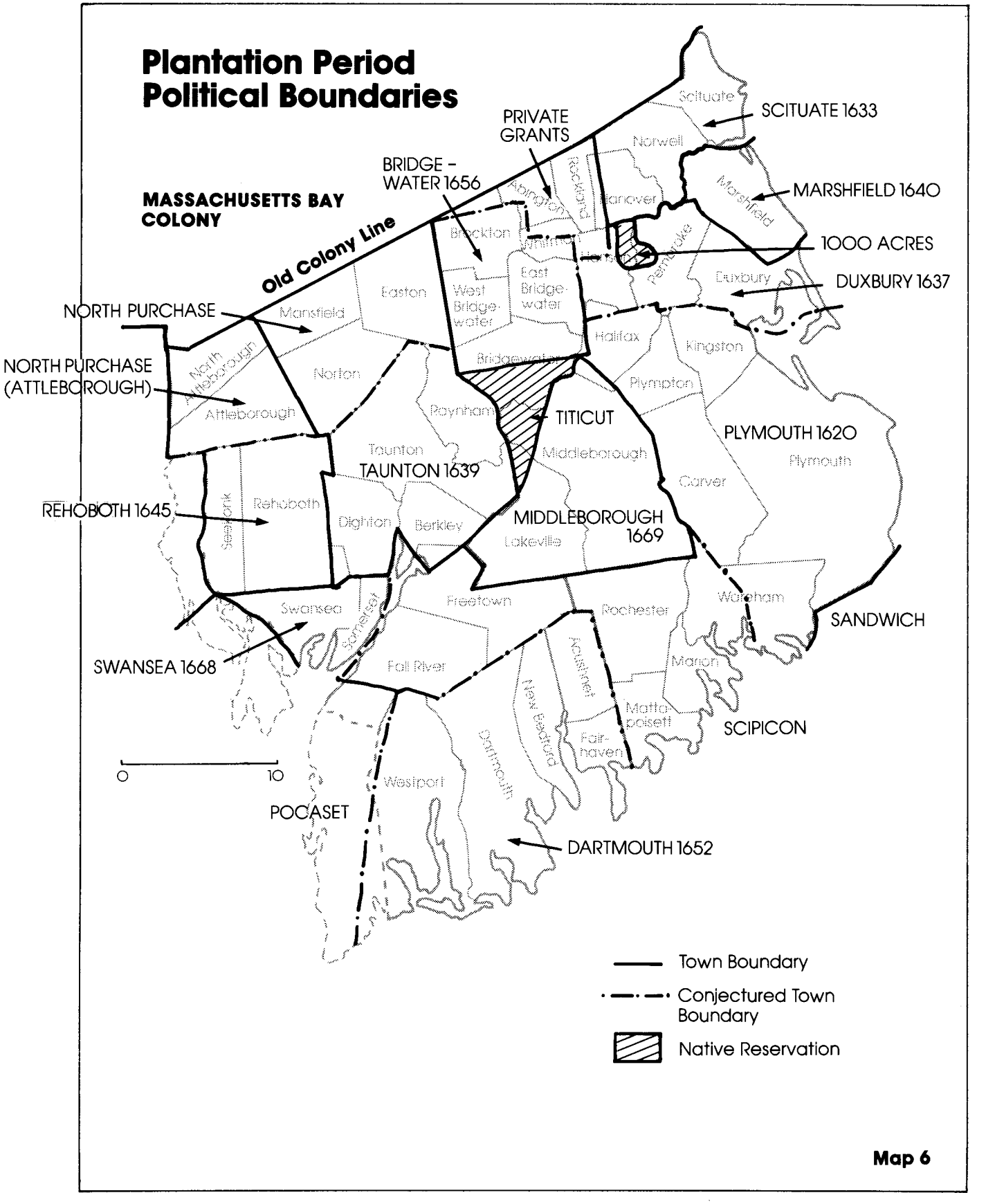
The basic settlement unit established during this period was the town, consisting of two sub-categories, a combination of the planned town and organic village, and the organic village. None of the settlements in the study unit exhibited the regular grid pattern and market square of the planned town. However, several communities possessed traces of planned development. Plymouth probably came closest to resembling a planned town. The early community (late 1620s) consisted of a main thoroughfare (Leyden Street) intersected by a cross street. The settlement was enclosed by a wooden stockade with a 'fort' at the highest point within. Scattered farms surrounded the stockaded town. Scituate and Taunton also exhibited some evidence of planned development; lots were laid out along a main thoroughfare. The majority of the settlements were organic villages. These generally consisted of a settlement nucleus centered around a meetinghouse and burial ground. Duxbury (1637) and Marshfield (1640) were two of the earliest examples. Post-1650 examples include Dartmouth (1664), Swansea (1668) and Middleborough (1669). With the growth of Anglo-Indian tensions late in this period, the majority of the settlements had one or more garrison houses established for protection. However, there is no evidence suggesting that these tensions led to a drastic modification of existing settlement patterns.

Surrounding the center of these settlements were vast tracts of largely undeveloped land. These lands consisted of either large plots granted to individuals or corporations, or common lands set

aside for community wide uses such as grazing, haying, crop production, lumbering. Frequently, the large private grants were not occupied by the original owners but utilized for their resources or sold to a group of settlers who purchased individual portions of the grant. The common lands traditionally were only available to town residents. As the community grew beyond its original center these lands were distributed to new settlers for occupancy.

Despite continued expansion of English settlement during this period, there is limited evidence of the development of discrete activity areas (residential, commercial or industrial districts) within individual settlements. The only examples occur in Plymouth and Scituate. In Plymouth, a small industrial district had emerged on the Town Brook by the end of the Plantation period. In addition, a civic center had developed in Town Square with the erection of the settlement's second meetinghouse in about 1638 and the Plymouth County Courthouse in 1670. Although less pronounced, Scituate's North River waterfront had developed by 1675 into a shipbuilding district which would flourish during the 18th and 19th centuries.

Documentation of native settlement during the period is once again limited. The existing data suggest maintenance of those patterns exhibited during the Contact period. The largest villages were probably concentrated in the native regional cores situated at Titicut and around the Pembroke and Assawompset Pond complexes. A pallisaded native fort was erected about 1660 on Fort Hill in North Middleborough. The native population continued to establish smaller seasonal hunting and fishing camps on the coast and the interior. However, the coastal camps were probably considerably less numerous and smaller than those of the Contact period because of the expanding English coastal settlement. Also, small but increasing number of natives were modifying or abandoning their traditional lifestyle for that of the English. Some moved into English settlements where they secured jobs as laborers. In Middleborough, three small Christian native villages similar to John Eliot's "praying towns" were established between 1650 and 1675.


Plantation Period
Political Boundaries
MASSACHUSETTS BAY COLONY
Old Colony Line
PRIVATE GRANTS
BRIDGE – WATER 1656
SCITUATE 1633
MARSHFIELD 1640
1000 ACRES
DUXBURY 1637
NORTH PURCHASE
NORTH PURCHASE (ATTLEBOROUGH)
TITICUT
PLYMOUTH 1620
TAUNTON 1639
REHOBOTH 1645
MIDDLEBOROUGH 1669
SANDWICH
SWANSEA 1668
SCIPICON
POCASET
DARTMOUTH 1652
Scituate
Norwell
Marshfield
Pembroke
Duxbury
Halifax
Kingston
Plymouth
Carver
Wareham
Rochester
Marion
Mattapoisett
Fairhaven
Abington
Rockland
Hanover
Brockton
Whitman
Easton
West Bridgewater
East Bridgewater
Bridgewater
Mansfield
North Attleborough
Attleborough
Norton
Raynham
Taunton
Middleborough
Lakeville
Rehoboth
Seekonk
Dighton
Berkley
Swansea
Somerset
Freetown
Fall River
Acushnet
New Bedford
Dartmouth
Westport
0
10
Town Boundary
Conjectured Town Boundary
Native Reservation

Map 6

E. Survivals

Three general categories of features survive from the Plantation period. These include archaeological resources, landscape features and standing structures.

1. The archaeological resources include domestic, commercial, industrial, military and native sites. These resources are valuable since so little remains of the original standing structures or other period features. In southeast Massachusetts the potential for extant period archaeological resources is good because of the area's limited development. The town centers of the original English settlements still have great archaeological potential. The two outstanding examples are Plymouth and Swansea. The former community has had several archaeological excavations during the last two decades. The original periphery of these settlements was the location of scattered farmsteads, industrial operations and native settlements. Despite some development, these areas may still have greater archaeological potential than the town center since generally less disturbance has occurred. This is the case in the area immediately southeast of Marshfield Hills (Marshfield), the site of a small pre-1675 hamlet.

2. Landscape features encompass historic features such as roads, field divisions (stone walls), boundary markers burial grounds and place names. Period roads survive in both core and peripheral areas but in somewhat different fashions. The roads remaining in the original settlement core appear primarily as part of the present community's street grid. Those period roads which survive in the original settlement's periphery usually were routes which connected the area either with the town center or adjacent settlements. On occasion, boundary markers remain on what originally was agricultural land or adjacent to

period roads. Burial grounds often provide an indication of the settlement's original location, since they, along with the community meetinghouse, were two of the earliest town facilities established. Although there were no documented examples of pre-1675 grave markers in any of the study unit towns, the sites of several original burial grounds still exist (particularly in Plymouth, Marshfield and Scituate). Extant period place names provide locational information for a variety of period features including original settlement areas such as Rexhame (Marshfield) and Scituate, natural features such as the Harbor River (Marshfield) and Billington Sea (Plymouth), and transportation routes like Leyden Street (Plymouth) or Dean Street (Taunton).

3. Standing structures are the feature least likely to survive from the Plantation period. The majority of those which remain are situated in peripheral areas where they originally functioned as isolated rural farmsteads. Extensive development in the original town centers of communities such as Plymouth, Scituate and Taunton have resulted in the destruction of most period structures. The unit's existing period structures occur primarily in Plymouth and the North River area. Further field examination and research may reveal additional Plantation period buildings, particularly those which have been incorporated into later structures. As the present rate of development accelerates, increasing pressure is being placed on the already limited quantity of resources which survive from the Plantation period.

The list which follows provides a general assessment of the extent of these resources remaining in the southeast Massachusetts study unit.

PLANTATION PERIOD

Period Core Areas (by present towns)	Archaeological Sites	Landscape Features	Standing Structures
1. ENGLISH			
North River Core:			
Scituate	X	X	
Norwell	X	X	?
Marshfield	X	X	?
Pembroke	?	?	
Hanover	X	?	
Plymouth Bay Core:			
Plymouth	X	X	X
Kingston	X	?	?
Duxbury	X	?	?
Local Cores:			
Taunton	X	X	
Middleborough	X	?	?
Dartmouth	X	?	
Swansea	X	X	X
Rehoboth	X	?	?
Norton	?	?	
Outer Periphery:			
Westport		?	?
Acushnet	?	?	?
Fairhaven	?	?	
2. NATIVE			
Pembroke Ponds Core:			
Pembroke	X	X	
Hanson	?	?	
Halifax	?	?	

Assawompset Ponds Core:		
Middleborough	X	X
Rochester	?	?
Freetown	?	?
Lakeville	X	X
Titicut Core:		
Bridgewater	X	?
Middleborough	X	?
Raynham	?	?

F. Research Topics

1. A detailed reconstruction of the study unit's economic and social development. To date, the vast majority of research has dealt with individual communities, particularly early Plymouth. More attention should be given to regional development, especially of the North River core and the unit's interior settlements. Of special interest are the early iron production operation in Raynham, shipbuilding on the North River and the Plymouth fur trade operation.

2. Examination of the extant native population and their response to the establishment of permanent English settlement. Currently, only limited information is available on the natives of southeast Massachusetts. Such an undertaking is important since a sizeable native population remained in the study unit during this period in contrast to Massachusetts Bay. Particular emphasis should be placed on clarifying native settlement locations, economy and population. Were there distinct tribal boundaries and characteristics?

3. Systematic survey of surviving English and native period archaeological sites. Such an undertaking is important because of the rapid growth occurring in southeast Massachusetts, particularly the eastern coast.

4. Survey of the remaining period structures. The research would include a documentary, archaeological and architectural examination of the structures and their original locale. This examination would not only provide a broader picture of the building's developmental history but also aid in locating vestiges of period structures incorporated into later buildings, and correcting the dates of mis-dated structures.

5. Survey and inventory of surviving period landscape features

including street grids and roads, field and property divisions, boundary markers, burial grounds and place names. The importance of many of these features is often not understood or appreciated. Recording these features is crucial since development, vandalism and neglect threaten their existence.

6. A detailed examination of settlement and land use patterns undertaken in the study unit. Current research has done little to explore to what extent Old World settlement and land use traditions were utilized in southeast Massachusetts. Are those appearing in period study unit settlements distinctly different from those of other regions of Massachusetts, particularly Massachusetts Bay?

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COLONIAL PERIOD (1675-1775)

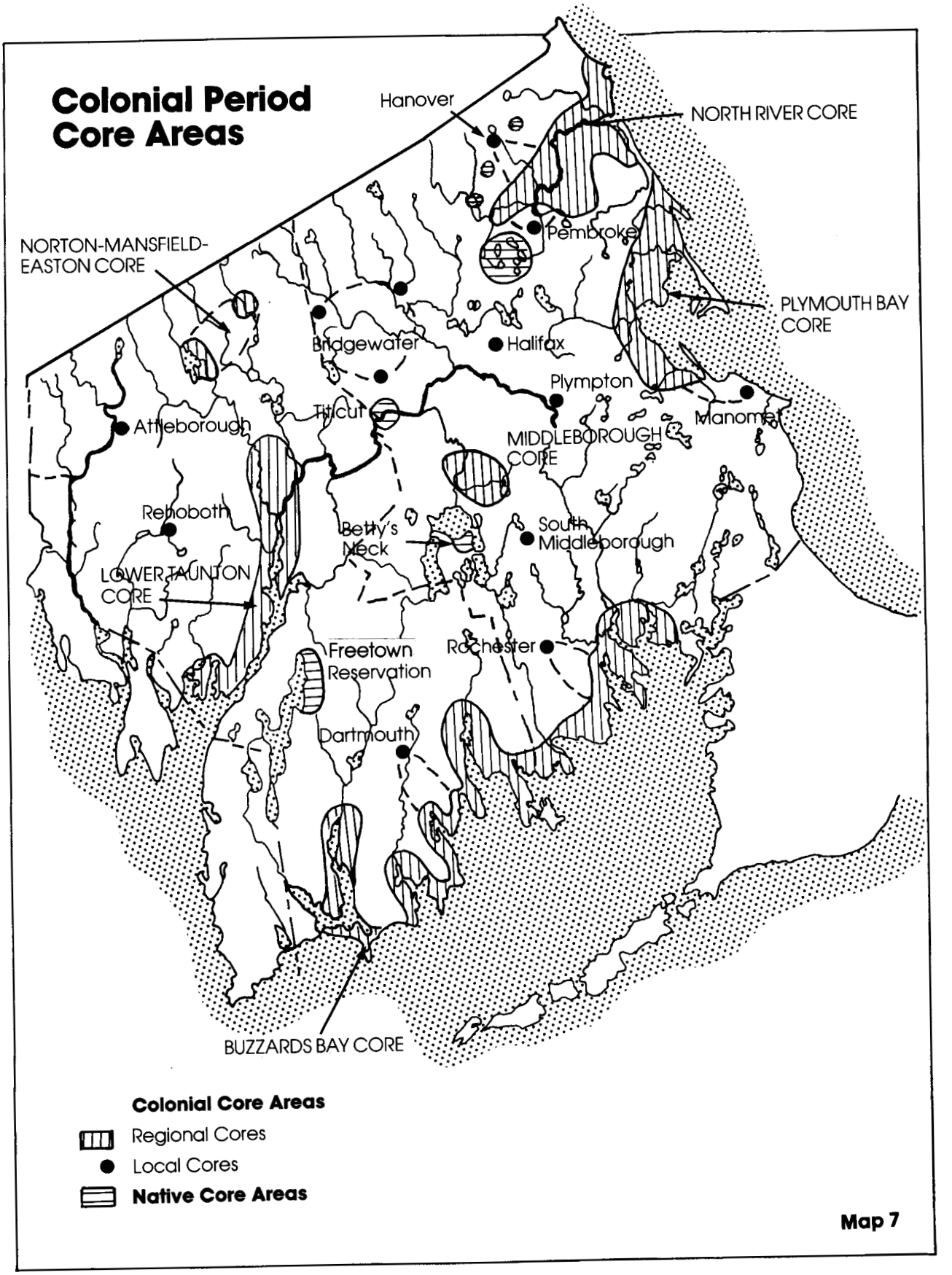
A. Regional Events

Foremost among the regional events that occurred in the late 17th century was an uprising of the southern New England natives known as King Philip's War. Not only did the warfare result in a substantial loss of life and destruction of a large number of homes, commercial/industrial operations, crops and livestock, but it left many settlements with considerable post-war debts. Particularly hard hit were the region's peripheral communities. King Philip's War also signalled the dispersal of the southeast Massachusetts native population. Most of the remaining native lands were confiscated by the English while the survivors were dispersed throughout the unit's periphery or sold into slavery in the West Indies. The late 1680s witnessed the outbreak of intercolonial warfare between France and England which continued intermittently until the early 1760s. The periodic fighting placed a considerable strain on southeast Massachusetts' economy and manpower despite its occurrence outside the study unit. Throughout this period, unit towns were called upon for supplies and manpower to support the colonial war efforts. By the turn of the 18th century industrial development rapidly accelerated throughout southeast Massachusettsand by the mid-eighteenth century, the study unit had several well developed iron production centers. The 1740s marked the appearance of the "Great Awakening" in New England, an event which caused considerable controversy within the social and political as well as religious establishment. Finally, the passage of a number of restrictive and unpopular colonial statutes by the Crown in the mid to late 18th century sparked active colonial resistance which led to the outbreak of war between England and its American colonies in 1775.

B. Core-Periphery Relationship

The Colonial period was noted for the expansion of the two Plantation period regional cores (Plymouth Bay, North River) and the development of several local cores into regional cores. The Plymouth Bay core grew during this period as settlement increased in southern Marshfield, Duxbury and Kingston. The termination of King Philip's War coupled with the area's rich riverine and marine resource base were two of the most important factors in the continued expansion of this core. Not surprisingly, the Plymouth Bay core's economic base focused on marine related activities. At the forefront was the Plymouth area's role as a regional shipping center. Plymouth remained the keystone of this area's import/export trade as commercial contacts existed with the Carolinas, Virginia, Jamaica, Martinique, Guadalupe, the Mediterranean and England. Coastal and deep water fishing underwent further expansion as well. Large scale commercial whaling was first undertaken in the 1730s or 1740s. By 1774, Plymouth had 75 whalers. Others operated out of Kingston and Duxbury, while whaling support facilities were established in Kingston in the second half of the eighteenth century. The early eighteenth century witnessed the development of the Bay core as one of the study unit's shipbuilding centers with the construction of a number of yards in Duxbury and Kingston. Industrial growth was restricted primarily to the core's interior and was highlighted by the establishment of several iron production operations in Kingston and Duxbury prior to 1740. Plymouth retained its position as the seat of Plymouth County government.

The North River core also underwent extensive growth during this period. Settlement expanded west and south of the original Plantation period core into an area adjacent to the Indianhead and North Rivers. This growth resulted in the incorporation of the towns of Pembroke (1712) and Hanover (1727). The North River core maintained its position as the southeast Massachusetts study unit's primary shipbuilding center with the establishment of at least six new shipyards in Norwell, Marshfield, Hanover and Pembroke. A complex


Colonial Period Core Areas
Hanover
NORTH RIVER CORE
Pembroke
NORTON-MANSFIELD-EASTON CORE
PLYMOUTH BAY CORE
Bridgewater
Halifax
Plympton
Titicut
Manomet
Attleborough
MIDDLEBOROUGH CORE
Rehoboth
Betty's Neck
South Middleborough
LOWER TAUNTON CORE
Freetown Reservation
Rochester
Dartmouth
BUZZARDS BAY CORE
Colonial Core Areas
Regional Cores
Local Cores
Native Core Areas
Map 7

of industrial support operations were erected along the Indianhead River in the early 18th century. In addition, the core was heavily involved in coastal and international trade and deepwater fishing.

A third regional coastal core developed in the Buzzards Bay region, an area which had only been sparsely inhabited during the Plantation period. Termination of King Philip's War and the presence of extensive marine resources, well-protected bays and harbors and agricultural land were important factors in the core's post-war growth. Settlement focused on the coast and major river drainages and extended from Onset Bay (Wareham) west to the Westport River (Westport). By the late 17th to early 18th century, the western portion of the Buzzards Bay core (Westport, Dartmouth, New Bedford, Fairhaven, Acushnet) had developed into the unit's primary Quaker population center, a result of Quaker influence from the Portsmouth/ Newport area.

Until the mid 18th century, the Buzzards Bay core lacked a dominant center. Settlement and economic activities appeared to be relatively evenly distributed within the coastal core. The second half of the 18th century witnessed the ascendancy of the Acushnet River area (New Bedford, Fairhaven, Acushnet) as the core's economic and settlement center. By this date, this area dominated the Buzzards Bay core's fishing and import/export operations. An extensive waterfront complex situated on the western and eastern banks of the Acushnet River handled domestic and international shipping departing for or arriving from destinations such as England, the West Indies and the southern colonies. Locally, strong commercial ties existed with the Narragansett Bay region and Cape Cod. As in the other coastal cores, the Buzzards Bay fishermen increasingly turned in the 18th century to deepwater fishing, particularly whaling. In 1775, New Bedford (the core's leading whaling community) was operating 40-50 whalers ranging as far as the Gulf of Mexico and South America. Whaling support facilities were located on the New Bedford

and Acushnet waterfronts. Shipbuilding, although not well documented, was probably a major component of the area's economy.

After King Philip's War, a fourth regional core developed. It spread from Taunton south along the Taunton River to the river's mouth. Extensive settlement in this region was encouraged by the displacement of the native population, abundant agricultural land and the Taunton River's value as a major shipping route. Two focal points existed within the Lower Taunton River core. The first area encompassed Taunton; the second was the Dighton/Berkley waterfront area. Taunton expanded its industrial base with the erection of several iron production, pottery and brick manufacturing operations in the eighteenth century. Its position as a regionally important center was further enhanced with its selection as the seat of the Bristol County government in 1746. The Dighton/Berkley area capitalized on its strategic river location and by the early eighteenth century had developed into the primary distribution point for Carribean, South American and European goods destined for southern and central New England. Finally, the 18th century witnessed the growth of the Lower Taunton River regional core into an important shipbuilding center, although not on par with the North River and Buzzards Bay cores.

Despite the increased emphasis on interior settlement during the Colonial period, there were only two regionally important interior cores situated in the study unit. The first was Middleborough, which grew out of the Plantation period local core situated in the Nemasket area of Middleborough. This core developed from what originally had been an agricultural region into a regional iron producing center by the mid 18th century. At the heart of Middleborough's industrial core was an extensive industrial complex established by Peter Oliver in the 1740's. Farming and light industry predominated outside of the core's industrial heartland. The second interior regional core encompassed Mansfield, Norton and Easton (Map 7). This core's economy was based on a strong agricultural and industrial base. By the

mid 18th century, it was a regional iron production center and probably possessed the largest number of iron works in southeast Massachusetts.

The Colonial period witnessed the growth of a large number of local cores in the study unit's interior. The majority of these cores focused around the town center and one or more mills or iron production facilities. Outside of the community center, crop and livestock production predominated. Local cores were situated in Attleboro, Rehoboth, South Middleborough, Plympton, Manomet (Plymouth) and the Bridgewaters. See Map 7.

The upsurge in interior settlement during the period was illustrated by the marked increase in newly incorporated towns. Normally, town incorporation was a two stage process. The first step involved the establishment of a parish within the pre-existing town. The parish existed as a semi-autonomous political entity within the original town and maintained its own meetinghouse. Several years usually elapsed before the parish sought incorporation as a town. The first generation of colonial period towns were created from the large Plantation period grants such as Plymouth and Taunton. Among these were Attleboro (1694), Plympton (1707), Pembroke (1712), Norton (1711), Dighton (1712) and Kingston (1726). In turn, a second generation of new interior towns evolved from the older Colonial period towns. Examples included Easton (1725) from Norton, Halifax (1734) from Pembroke and Plympton, Berkley (1735) from Dighton, and Mansfield (1775) from Norton. See Map 9.

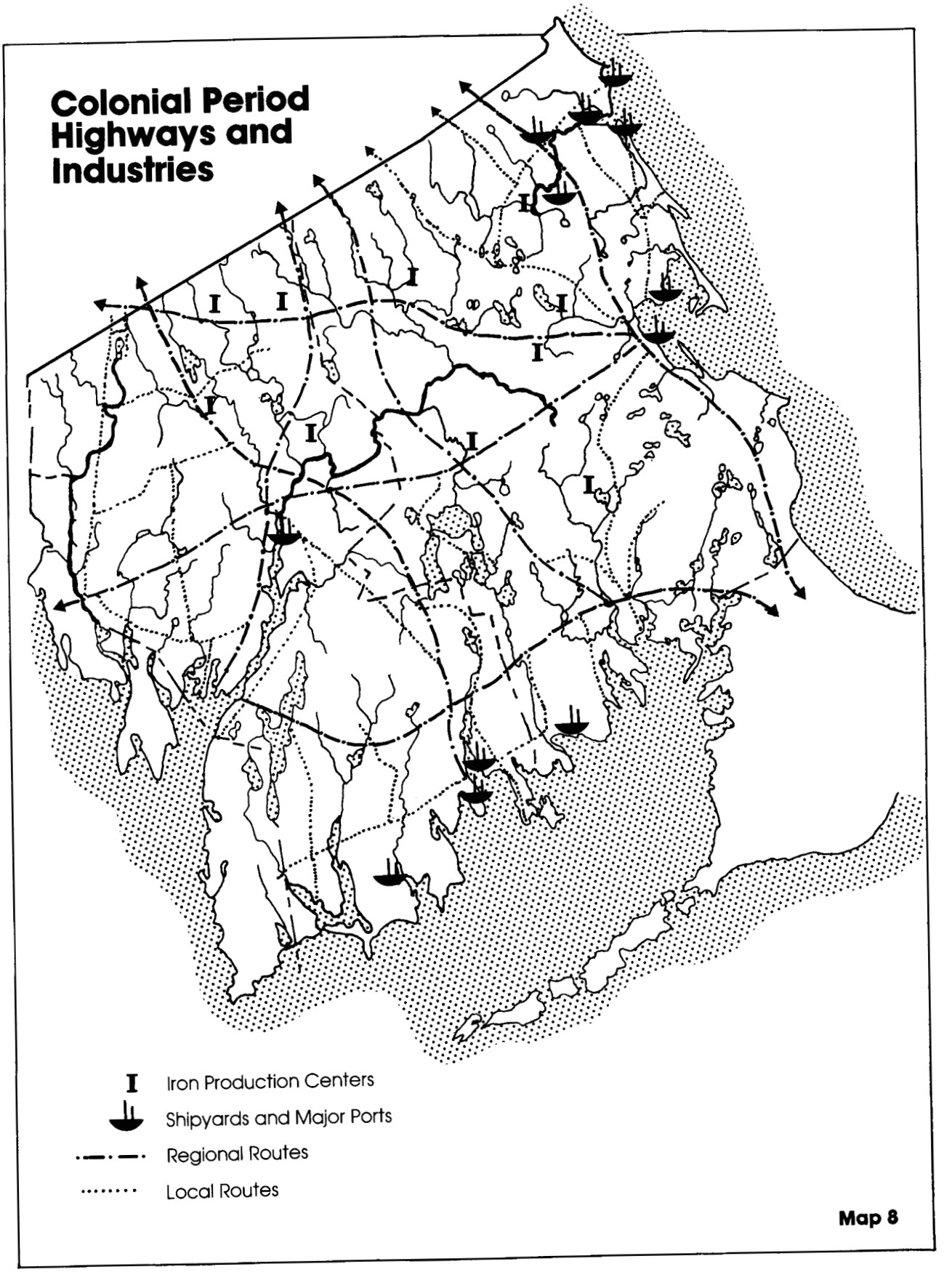
As mentioned previously, native settlement was reduced drastically during this period. Those natives who survived King Philip's War and remained in southeast Massachusetts congregated primarily in a few locations scattered throughout the interior on sites only peripherally interesting to English settlers. Three primary settlements continued during the period: the Freeport Indian Reservation (east of North Watuppa Pond), Betty's Neck (Lakeville) and the northern portion of the Pembroke Ponds (Pembroke, Hanson).

The remaining natives lived on scattered sites in Scituate, Norwell, Hanover and Carver. The sole documented coastal site consisted of a community of relocated "Pigwackets" (Eastern Abenaki?) established on the Mattapoisett coast early in the 18th century. These settlements were rarely self-sufficient since the availability of quality agricultural land was limited. Generally, the native population subsisted on those crops raised on available farmland, hunting, fishing, lumbering, sale of native products and by employment in the English wage market. However, many natives were unable to sustain themselves on the meager available resources and became town wards.

C. Transportation

Although the unit's overland transportation network expanded considerably, water transportation continued to be the primary means of transportation in southeast Massachusetts. Foremost among the changes was the development of several new commercial ports. Two primary ports were situated at the mouth of the Acushnet River (Dartmouth) and at the head of the lower portion of the Taunton River (Dighton/Berkley). The third port developed at the mouth of the Mattapoisett River (Mattapoisett). The establishment of these shipping facilities, combined with the two existing port areas (Plymouth Bay, North River mouth), provided southeast Massachusetts with key distribution points for regional and international trade on the study unit's three coastal/riverine regions (eastern coast, Buzzards Bay, Taunton River/Narragansett Bay). By the 1760s, the Dighton/Berkley ports probably equalled Plymouth in importance as the unit's focal point for trade and transportation. Intra-regional water transportation via shallow draft vessels and ferries continued on the study unit's major rivers, specifically the Taunton, Westport, Acushnet, Agawam and North Rivers.

The overland transportation network continued to expand from its Plantation period origins. Seven primary corridors were used. Four of these had been major transport routes during the Plantation


Colonial Period
Highways and
Industries
I Iron Production Centers
Shipyards and Major Ports
Regional Routes
Local Routes

Map 8

period; the other three were new corridors which reflected the growth of settlement within the study unit's interior. See Map 8.

1. The first corridor was the traditional route from Plymouth north to Massachusetts Bay and south to Cape Cod.
2. Second was a parallel north-south corridor located further inland, running from Wareham through Middleborough and the Bridgewaters towards Braintree and Boston.
3. Third was the traditional east-west corridor form Plymouth through Middleborough and Taunton to Providence.
4. Fourth was the Buzzards Bay corridor which ran from Cape Cod west through Wareham, Rochester, Dartmouth and Freetown to the Taunton River estuary.

In addition to these traditional overland routes, three new corridors were added:

5. From Plymouth Bay (Kingston) west through the Bridgewaters, Easton and Mansfield to Wrentham and interior Massachusetts.
6. From the west side of the Taunton estuary (Swansea) north through Dighton, Taunton and Easton to the Neponset river basin and Massachusett Bay.
7. From the Acushnet estuary (Dartmouth) north through Freetown, Taunton, Norton and Mansfield to the Neponset basin.

Expansion of the road network during the Colonial period was most apparent on an intra-regional and local level. New road construction was especially evident in the Buzzards Bay and interior portions of the study unit. As new towns were established, transportation links were required to connect them with older communities. Radial roads were also built within towns so that outlying sections would have access to the meetinghouse and town center. Other routes were established to serve commercial and industrial sites, providing them with necessary raw materials or connecting them with markets. This kind of industrial-related road network was built for

the iron producing area in Easton known as Furnace Village during the 1740s and 1750s.

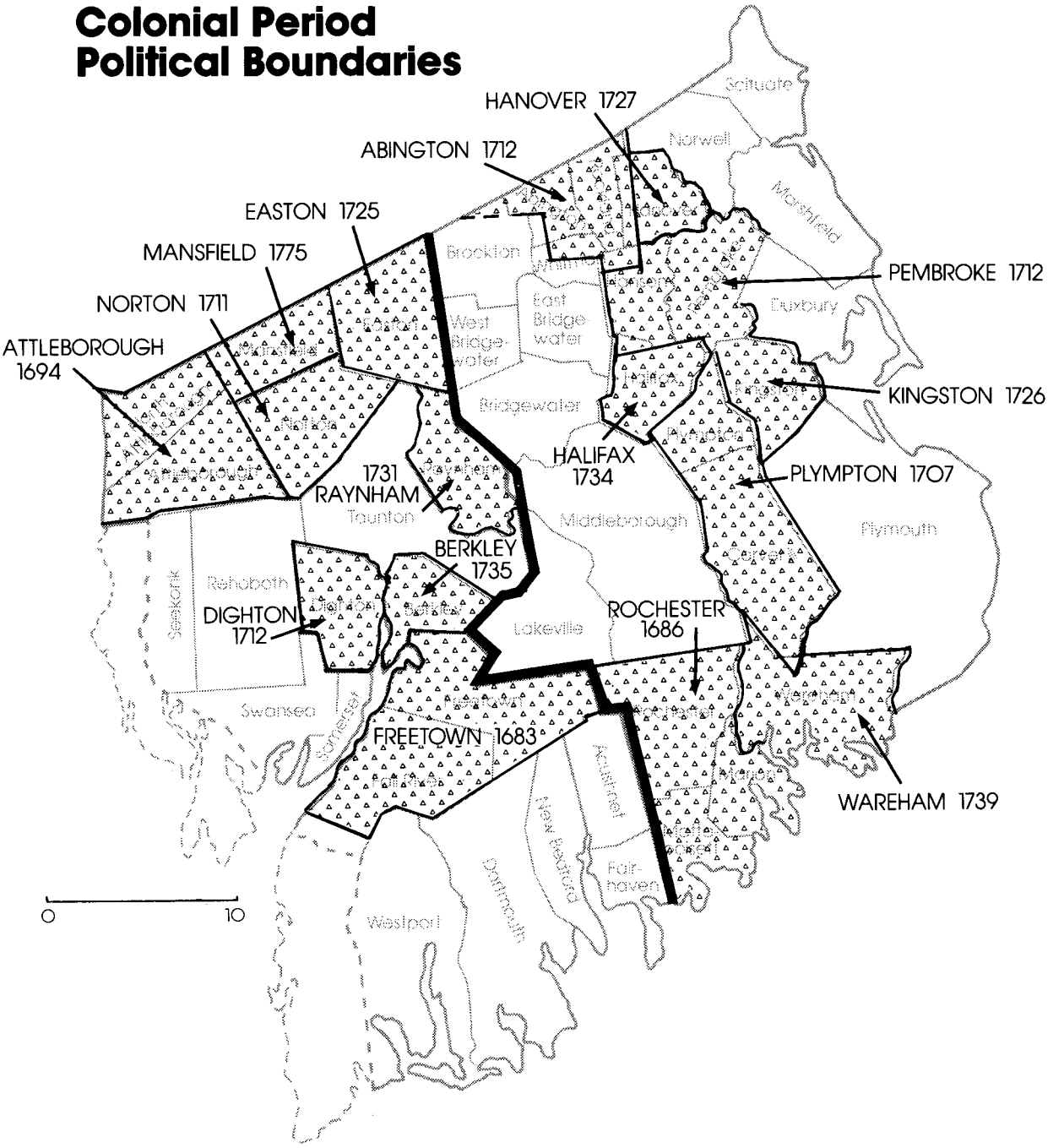
D. Settlement

None of the communities in the southeast Massachusetts study unit could be defined as cities during the Colonial period. Even Plymouth, which was the most extensively developed of the Colonial period settlements, lacked the necessary density and differentiation. Several towns, however, did develop specialized economic and social districts. These communities included Plymouth, Fairhaven, New Bedford, Acushnet and Taunton.

Plymouth was the most highly developed of these towns. The vast majority of the town's population was concentrated along a narrow zone adjacent to the waterfront. A number of wharves and commercial establishments were situated on the waterfront while private residences clustered on Court Street and its various side streets. A complex of civic and religious facilities were located in the town center at Town Square. By the second half of the eighteenth century, the two remaining coastal towns (Fairhaven, New Bedford) exhibited similar but less pronounced developmental patterns.

Many of the other towns followed a different plan of settlement which began to emerge late in the Plantation period. This pattern consisted of a meetinghouse with an adjoining burial ground, training field and a handful of light industrial operations such as gristmills, sawmills, blacksmith shops and cooperages. Frequently, these towns were also situated at the junction of major transportation routes. This settlement type existed on both a parish and town level. Examples include Rehoboth, East Bridgewater, Plympton and Rochester.

Colonial Period Political Boundaries



New Towns Incorporated

Bristol / Plymouth County Line (1685)

Map 9

Settlement outside of these local cores was generally dispersed with occasional small villages or hamlets congregated around one or several mills or iron production facilities. Generally, these villages lacked the civic and religious facilities which normally were sought in the parish or town center. Period examples existed in Scituate, Carver and Norton. In some instances, however, individual villages did establish their own churches after religious disputes within the town's established church. This situation occurred in Rehoboth which, by the end of the Colonial period, had six churches.

E. Survivals

Four categories of Colonial period survivals exist in southeast Massachusetts. These include archaeological remains, landscape features, rural landscapes and town streetscapes.

1. The most extensive archaeological remains are likely in those areas which underwent the greatest growth during the period. These include the primary parish and town centers as well as the major industrial and shipping complexes. Considerable portions of these sites probably survive throughout the study unit. Even in more heavily developed urban areas, important archaeological remains are likely to survive.

2. Landscape features include period roads and town plans. The latter category encompasses training fields, commons, meeting house and town fortification sites.

3. Rural landscapes consist of period farm complexes (dwelling house, associated barns and outbuildings, fields, fences or walls) or clusters of period houses in a low density surrounding.

4. Town streetscapes consist of clusters of buildings and structures that retain a colonial period character in a medium or high density setting. The primary components of this category are standing structures and related landscape features such as burial grounds or roads.

COLONIAL PERIOD

Period Core Areas (listed by contemporary towns)	Archaeological Sites	Landscape Features	Rural Landscapes	Town Streetscapes
1. English				
North River Regional Core				
Scituate	?	?		
Norwell	?	X	?	
Hanover	X	X	?	?
Pembroke	X	?		
Marshfield (north)	X	?	?	
Plymouth Bay Regional Core				
Marshfield (south)	X	X	?	
Duxbury	X	X	?	
Kingston	X	X	X	?
Plymouth	X	?	X	?
Buzzards Bay Regional Core				
Wareham	?	?		
Mattapoisett	?	?	X	
Acushnet	?		X	
Fairhaven	?	?		
New Bedford	?	?		
Dartmouth	X	X		?
Westport	X	?	?	
Middleborough Regional Core				
Middleborough	X	X	?	
Lower Taunton River Core				
Taunton	?	?	?	
Dighton	X	X	X	
Berkley		?		
Somerset		?		X
Swansea	?	X	?	

Period Core Areas (listed by contemporary towns)	Archaeological Sites	Landscape Features	Rural Landscapes	Town Streetscapes
Norton/Mansfield/Easton Regional Core				
Mansfield	X	?		
Norton	X	?		
Easton	X	X		
Local Cores				
Pembroke		?	X	
Halifax	?	?	?	
Hanson		?		
Plympton	X	?	?	
Carver	X	?		
Rochester	?	X	?	
West Bridgewater	?			
East Bridgewater	X	?		
Bridgewater	?	?	X	
Rehoboth	X	X	X	

2. Native

North Watuppa Pond Regional Core				
Fall River	?			
Betty's Neck Regional Core				
Lakeville	X			
Titicut				
Bridgewater	X			
Middleborough	X			

F. Research Topics

Existing research on the Colonial period in southeast Massachusetts has tended to concentrate on the unit's political and religious history, and on the events leading up to the American Revolution. While some progress has been made in reconstructing regional patterns within the study unit, the following topics are additional areas in need of research.

1. Clarify southeast Massachusetts' role as a Colonial period iron producing region within Massachusetts and New England as a whole. Were most of the iron production operations geared primarily to the local market or to a larger clientele? This study should include an examination of the technological aspects of the operations. Was this region innovative in its production processes?

2. Examination of the Quaker population center which developed in the western portion of the Buzzards Bay core in the late 17th and early 18th centuries. How important a Quaker religious center was it? Did its role as a religious center extend beyond the study unit?

3. Examine the remnants of the native population which survived King Philip's War. To what degree did the survivors retain their traditional pre-war lifestyle? Particular attention should be devoted to intermarriage between the native and Afro-American population and the resultant cultural blend.

4. What was southeast Massachusetts' role in both regional and international import/export trade? Clarify the trade networks. To what degree was the study unit involved in the triangular trade?

5. Detail Colonial period whaling in southeast Massachusetts. The existing research has focused primarily on the region as a whaling center during the 19th century and has provided little understanding of its early roots.

6. How extensive was shipbuilding in Buzzards Bay during this period? How did it compare with the more publicized North River area?

7. Inventory of extant period archaeological sites in southeast Massachusetts. The undertaking of such a project is becoming increasingly important because of the accelerated rate of development.

8. What effects did the expansion of milling and the iron industries have on the study unit's environments? A number of period protective statutes suggest industrial development had a considerable impact on the southeast Massachusetts environment during this period.

9. The impact of disease on study unit development during the Colonial period. Several secondary sources referred to a number of serious epidemics within individual unit towns. Were these epidemics actually part of regional outbreaks of infectious diseases? What were the social as well as medical impacts of traditional and emergent "scientific" approaches to treatment of these diseases?

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FEDERAL PERIOD (1775-1830)

A. Regional Events

The Federal period was one of war and political upheaval as well as social and technological innovation. While the Revolutionary War had little physical effect on the study unit (other than the burning of New Bedford in 1778), the impacts of an inflationary economy and the confiscation of Loyalist properties (such as the Oliver Iron Foundry in Middleborough) slowed development during the early years of the period. The post-Revolutionary period was marked by the beginning of a shift from an agricultural to an industrially based economy. Important innovations included Samuel Slater's first spinning mill in Pawtucket, Rhode Island (1790), Jessie Reed's nail and tack making machines (1809-1815) and several improvements in the technology of the whaling industry. While the Jefferson Embargo (1807) and the War of 1812 (1812-1815) severely restricted maritime commerce, they acted as a catalyst for industrial growth, particularly in textiles. The general economic prosperity of the last decade of the period was reflected in the formation of several new towns and in a shift of both population and influence towards the emerging industrial cities on the Taunton River and on Buzzards Bay.

B. Core-Periphery Relationships

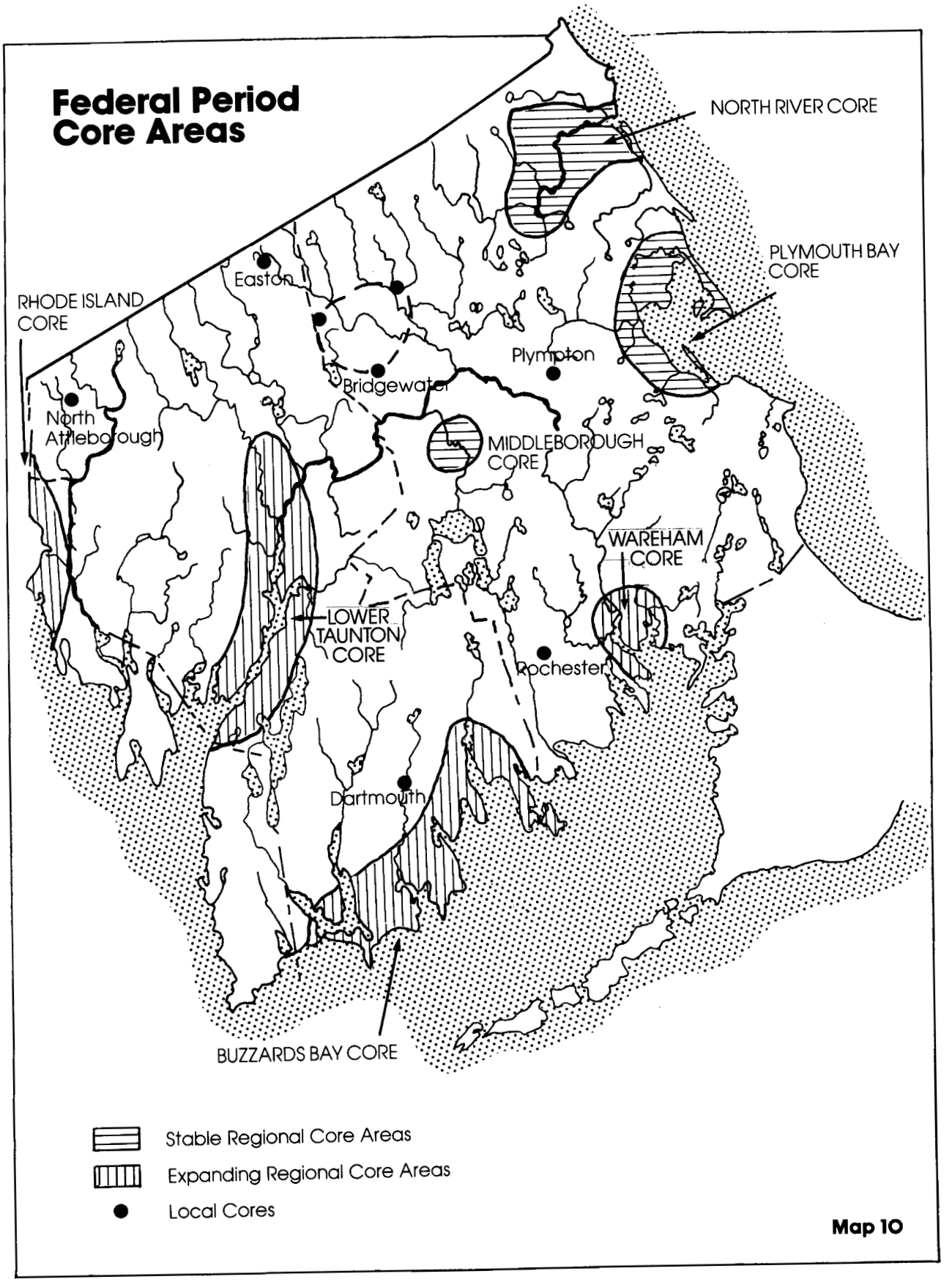
The Federal period was one of town formation and shifts in core areas. In 1775 there were 23 towns in the unit; by 1830 the total had reached 35. This was the last period of extensive town formation in the unit and marked the end of the equality of Plymouth and Bristol Counties as population centers. At the beginning of the Federal period, population was equally divided between Plymouth and Bristol Counties. The bulk of the population in both counties was located in

coastal areas or along river valleys. While a preference for sites close to water continued throughout the Federal period, the distribution of population between the two counties shifted during the period as Bristol County began to industrialize and develop more rapidly than Plymouth County.

There were seven cores in the study unit during the Federal period. Two of these were on major rivers (the Taunton and the North), two were on major water bodies (Buzzards and Plymouth Bays), two were interior (Old Bridgewater and Middleborough) and one, Pawtucket, is no longer in Massachusetts. See Map 10.

The Federal period marked the beginning of the end of the multi-nucleated regional core in the study unit. The multi-nucleated regional core was basically the creation of a predominantly non-urban society or rather a society in which there is no strong urban presence. The multi-nucleated regional core consisted of specialized local cores united to provide the full spectrum of core functions. Generally a multi-nucleated regional core was dominated by a particularly strong local core which provided the focus for core activities. In addition, there was usually a physical focus such as the Taunton River or Buzzards Bay which bound the core area together.

The multi-nucleated regional core generally occurred on the landscape as a loose confederation of towns with dispersed core functions. For example, the Taunton River core, composed of Taunton and parts of Dighton, Berkley, Freetown, Fall River and Somerset, had a major county level governmental function at Taunton (the county seat), a federal level function at Dighton and later Fall River (customs house), commercial centers at Somerset Village, Assonet and Taunton and industrial functions as well as a massing of population in villages along the Taunton River. Although industrialization began in Fall River by the middle of the period, the town did not rise to prominence until after 1830. While each of the towns comprising the Taunton River core was self-sustaining, the inter-relationship of the towns created the critical mass necessary to function as a regional


Federal Period
Core Areas
NORTH RIVER CORE
PLYMOUTH BAY
CORE
Easton
RHODE ISLAND
CORE
Plympton
Bridgewater
North
Attleborough
MIDDLEBOROUGH
CORE
WAREHAM
CORE
LOWER
TAUNTON
CORE
Rochester
Dartmouth
BUZZARDS BAY CORE
Stable Regional Core Areas
Expanding Regional Core Areas
Local Cores
Map 10

core. The Taunton River was perhaps the most complex of the Federal period cores, the pattern of inter-relationships was repeated in several of the other cores of the study unit.

The Buzzards Bay area was also a multi-nucleated regional core with a specialized maritime economic orientation, principally fishing and whaling along with shipbuilding and related support activities. At the beginning of the period, the core was a loose confederation of fishing villages and ports (Westport Point, South Dartmouth, New Bedford, Fairhaven, Acushnet Village, Mattapoisett and Wareham). Gradually, however, the center of activity shifted towards New Bedford which began to emerge as the major focus of the area. New Bedford's growth rested almost entirely on the success of the whaling industry. A second focal point emerged at the eastern end of the Buzzards Bay core as Wareham developed around both shipbuilding and iron production. This shift of both primary and secondary iron manufacture to Wareham took place largely for one reason--the need to be closer to port facilities, both for the importation of ore and the exportation of finished goods. The growth of the Buzzards Bay core was reflected in the formation of several new towns during the period. These included New Bedford (1787), Westport (1787) and Fairhaven (1812). See Map 12.

A variation of the multi-nucleated regional core was the specialized core. While Taunton had a diverse economic base (iron industry, shipbuilding, trade and, later in the period, textiles) the North River had an industry-specific base with little diversification. The North River had been an important shipbuilding center since late in the Plantation period, with shipyards and support activities located along the North River from Hanover Four Corners to White's Ferry. The towns that composed the core (Scituate, Marshfield, Hanover and Pembroke) maintained separate town governments and institutions. The population was scattered along the river and except for the two villages mentioned above there was little massing of population within the core.

The Plymouth Bay core was the other major governmental center in the unit, serving as the seat of Plymouth County government in addition to performing federal level functions as a port of entry. Although the oldest of the core areas, Plymouth Bay was one of the least complex in terms of composition. It contained parts of Kingston, Duxbury and Marshfield as well as Plymouth. Unlike Taunton, most of the core functions were concentrated in Plymouth itself. As the major population center, its economy rested primarily on fishing and maritime commerce. During the period, however, some industrialization, especially textiles, cordage and iron, supplemented the traditional maritime activities. Duxbury also emerged as a secondary commercial center with shipbuilding as the primary industry.

Middleborough was the most compact of the Federal period core areas. Located in the center of the study unit, this interior core was situated halfway between Taunton and Plymouth at the junction of several major transportation routes. Its prosperity was derived from this central location as well as two additional factors. Middleborough served as the market center for much of the unit's agriculturally oriented interior. The town also had a strong industrial base with primary iron production, textiles and iron products the major components.

The final regional core area was located in Bridgewater and was composed of three related local cores. These developed largely around the manufacture of iron and specific iron products, although textiles as well as boot and shoe manufacture became important during the early 19th century. Economic success led to dispersion rather than consolidation, however, as several of Bridgewater's precincts incorporated as separate towns during the 1820s. See Map 12.

One additional regional core deserves mention although it is no longer within the political boundaries of Massachusetts. The emergence of Pawtucket, Rhode Island, as an industrial core was the

result of improved technology in textile production. During the Federal period Pawtucket, as well as neighboring Providence, exercised considerable influence on the towns in the western part of the study unit. The cession of Pawtucket to Rhode Island during the Early Industrial period removed this core area from Massachusetts.

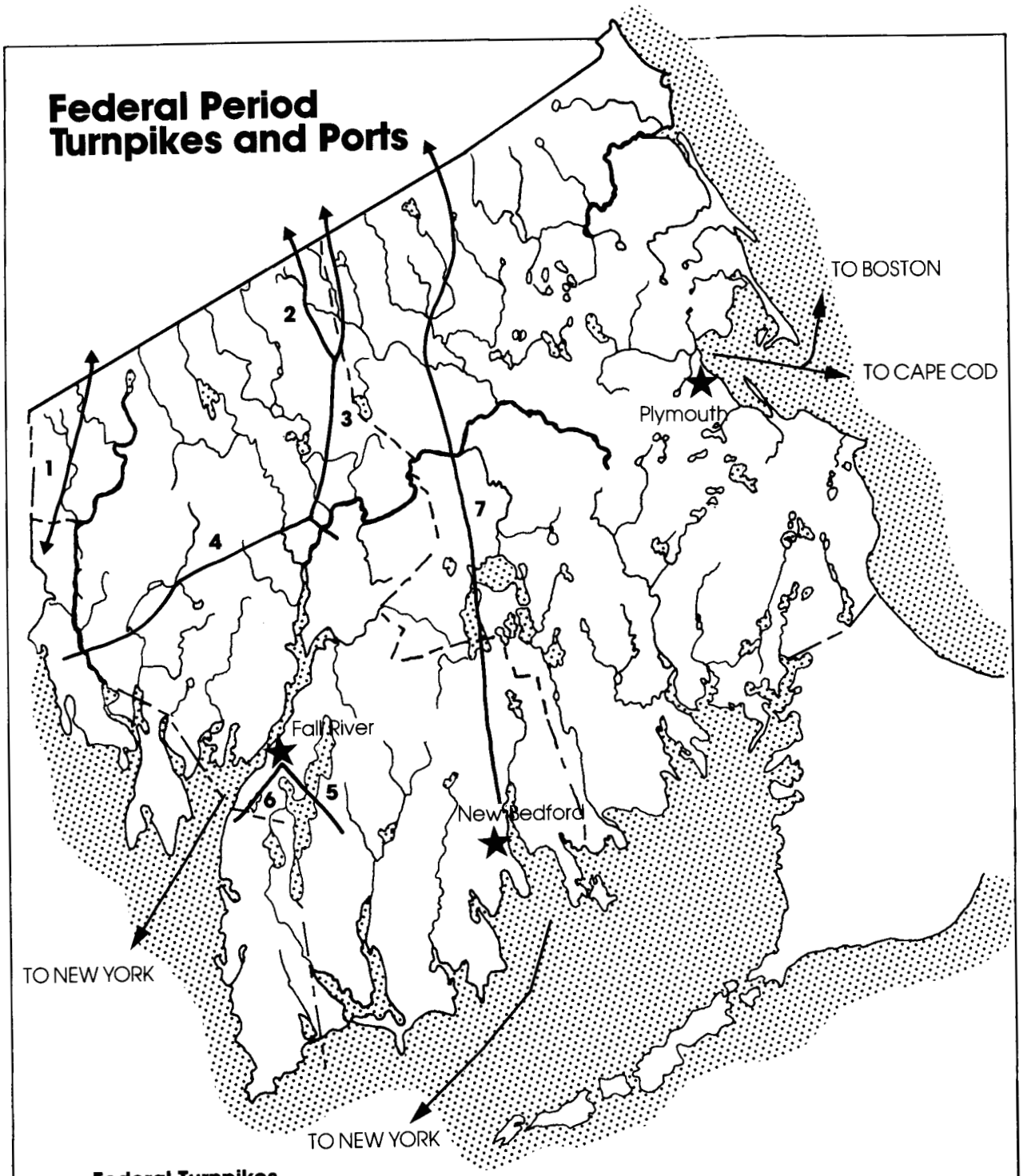
Several town centers functioned as local cores during the period, among them Dartmouth, Rochester, Plympton, Easton and North Attleborough. Most of these communities served as local distribution and supply centers and had some industrial base: Dartmouth - salt, Plympton - tacks, Easton - shovels, and North Attleborough - jewelry. Rochester, a strictly agricultural community, was an exception.

The Federal period also saw changes in peripheral land use. While agriculture remained important, two major economic activities waned. Use of local bog ore for iron production dropped sharply as superior quality ores were more frequently imported from Europe and the mid-Atlantic states. By the end of the period, timber resources also were depleted, signalling the eventual decline of shipbuilding particularly in northeast Plymouth County.

In summary, most of the development which occurred during the Federal period took place within the regional cores. Outside of these areas growth was limited and occurred primarily along the major transportation routes.

C. Transportation

The most important means of transportation in the study unit during the Federal period continued to be waterborne, both coastal and riverine. A primary reason for this was the location of all the regional core areas (except Middleborough) on navigable waterways. The study unit's almost peninsular character and numerous good harbors also reinforced the feasibility of water transportation.



Federal Turnpikes

1. Norfolk and Bristol
2. Stoughton
3. Taunton and South Boston
4. Taunton and Providence
5. Fall River and Watuppa
6. Fall River and Stone Bridge
7. New Bedford and Bridgwater

Map 11

In terms of inter-regional transport, three port areas were dominant: Plymouth-Duxbury, New Bedford and Taunton-Fall River. While all three engaged in both coastal and long-distance trade, Plymouth-Duxbury served primarily as a terminus in the coasting trade with Boston while New Bedford and the Taunton River ports were more oriented towards New York City and other cities along the mid and southern Atlantic coast. See Map II. Within the region, the major and many of the minor rivers continued to serve as preferred routes for both individual travel and the transportation of material.

Despite innovations in road building during the period, the existing Colonial period road network continued to serve as the basic land transportation system. Three factors did contribute to new road construction. The formation of new towns often resulted in the need for new roads as well as reorientation of existing ones. In a similar manner, the industrial expansion, particularly in iron production and textiles, required new roads. The most important change was the advent of turnpikes. Unlike the older Colonial roads which tended to meander across the countryside following topographic contours, turnpikes cut directly across the landscape. While turnpike construction was more limited in southeast Massachusetts than in other parts of the state, seven turnpikes were built during the period. See Map II. Taunton, located between Boston and Providence, was the focus for the most extensive turnpike activity. In general, there was more turnpike construction in Bristol County than in Plymouth County.

D. Settlement

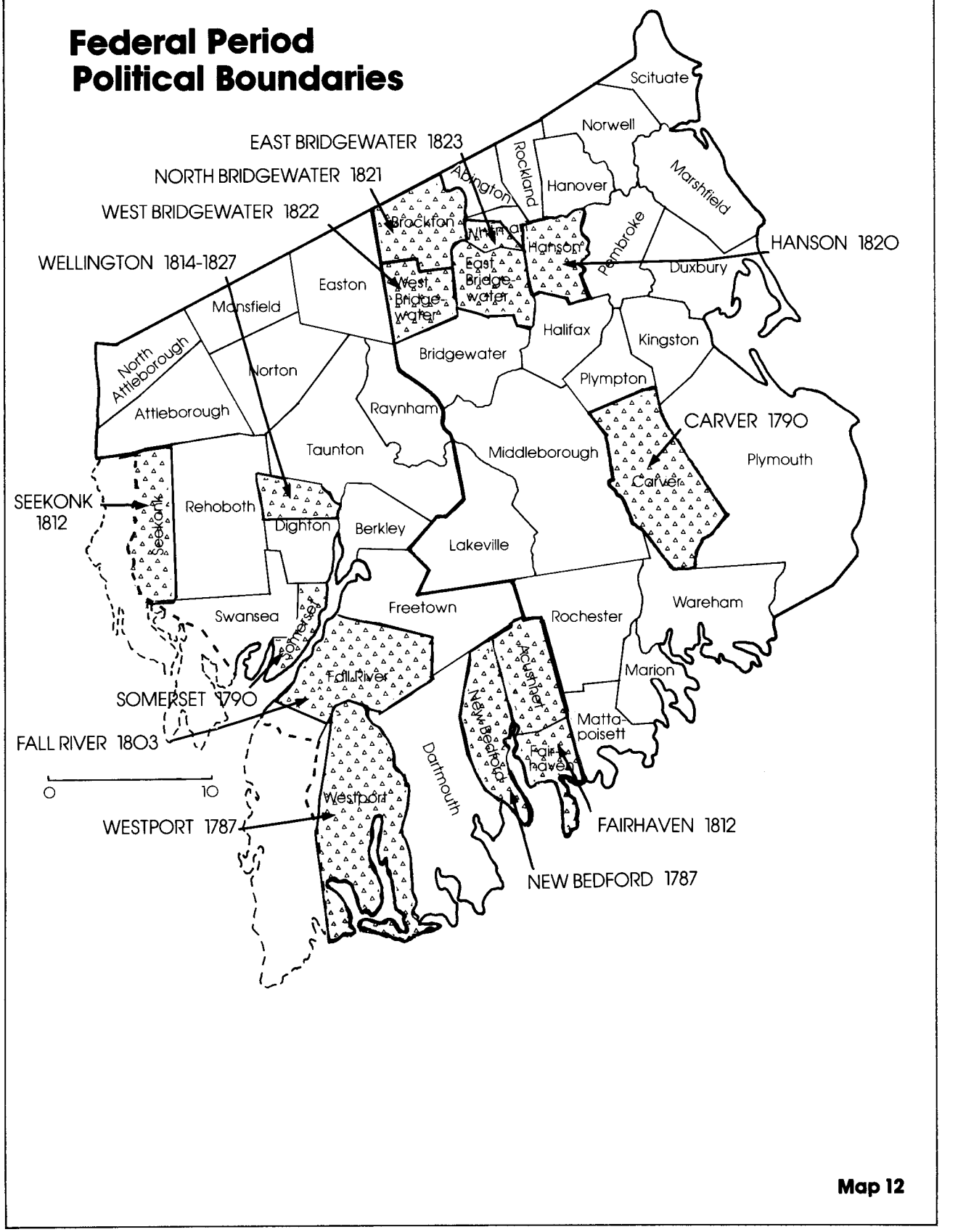
Considerable change in the structure of settlement occurred during the Federal period. In large part these changes resulted from the increased economic activity of the period and particularly the shift towards an industrial base.

By the end of the period only one town in the unit, New Bedford, had acquired an urban character. This was evident both in terms of density and degree of differentiation. With the booming of

the whaling industry, New Bedford rapidly developed a mercantile/ commercial waterfront. Adjacent residential areas contained tightly spaced houses, many with urban scale floor plans. By the end of the period, some multiple-family houses were probably constructed as well. One further indication of New Bedford's emerging urban character was the establishment of a formal street grid. Probably begun in the 1790s, this rectangular grid provided a template for expansion during the early decades of the 19th century.

While only New Bedford achieved an urban character during the Federal period, many of the other regional core towns in southeast Massachusetts began to show development in the same direction. Plymouth, Middleborough, Taunton and Fall River all grew in both size and density. The emergence of a centralized business district, either turnpike or waterfront oriented, was a major feature of the period. Also contributing to the growth of these town centers was the increase in construction of institutional buildings. In both Plymouth and Taunton these included county as well as local facilities.

Similar changes occurred within many of the local core towns though on a smaller scale. Centralization was encouraged by several factors. One was the formation of new towns in which the meetinghouse was built at the demographic center of the community instead of the geographic center as had often been the case during the Colonial period. The need to construct and have access to other town structures, such as schools, was another centralizing force. Finally, greater commercialization and even industrialization, such as the building of a tack or textile factory in the town center, resulted in larger, more populous and better defined settlements. A particular variation of this growth of local core towns deserves mention. Because of its extensive coastline and the importance of water transport, many towns developed along water routes or at the heads of navigation. Generally these communities were linear, stretched out along a waterfront and not extending back inland any great distance. Examples include Duxbury, Westport and Somerset.


Federal Period
Political Boundaries
Scituate
Norwell
EAST BRIDGEWATER 1823
NORTH BRIDGEWATER 1821
WEST BRIDGEWATER 1822
WELLINGTON 1814-1827
Abington
Rockland
Hanover
Marshfield
Brockton
Whitman
Hanson
Pembroke
HANSON 1820
Duxbury
East Bridgewater
West Bridgewater
Easton
Mansfield
Halifax
Kingston
Bridgewater
North Attleborough
Norton
Plympton
Attleborough
Raynham
CARVER 1790
Taunton
Middleborough
Plymouth
Carver
SEEKONK 1812
Seekonk
Rehoboth
Dighton
Berkley
Lakeville
Swansea
Freetown
Rochester
Wareham
Somerset
Fall River
Marion
SOMERSET 1790
Acushnet
Matta-poisett
FALL RIVER 1803
New Bedford
Fair Haven
0
10
Dartmouth
Westport
WESTPORT 1787
FAIRHAVEN 1812
NEW BEDFORD 1787

Map 12

A final settlement form typical of the Federal period was the small village. Villages usually grew up in two settings, around a major road or turnpike junction, or around an emerging industrial complex or harbor. Generally these villages consisted of a small cluster of houses with a tavern. Examples include Joppa (a turnpike village in East Bridgewater), Factory Village (a factory village in Easton) and West Wareham which is both a crossroads and industrial village.

E. Survivals

There are five categories of Federal period survivals in the southeast Massachusetts study unit: archaeological, rural landscapes, turnpike or industrial villages, town streetscapes and urban streetscapes.

1. Important archaeological remains include industrial/milling complexes, waterfront areas and locations with high site potential due either to period filling or high density occupation. It should also be noted that important archaeological potential is likely to exist around structures and buildings which are still standing.

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

3. Turnpike or industrial villages are composed of a cluster of period houses, usually two dozen or less which are set around a crossroads, harbor or industrial complex. Often a tavern, small green or factory is present.

4. Town streetscapes are clusters of period residential and/or commercial buildings in a medium density setting usually on or adjacent to a meetinghouse/town hall and green.

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

FEDERAL PERIOD

Period Core Areas (listed by contemporary towns)	Archaeological Sites	Rural Landscape	Turnpike or Industrial Village	Town Streetscapes	Urban Streetscape
North River Core					
Norwell	X			X	
Marshfield	X	X	?		
Hanover			X		
Pembroke	X	X	X		
Plymouth Bay Core					
Plymouth	X		X	X	
Kingston			X	X	
Duxbury	X		X	X	
Middleborough	X	X		X	
Buzzards Bay Core					
Wareham	X		X	?	
Marion			X	X	
Fairhaven			X	X	
Acushnet		X	X		
New Bedford	X				X
Dartmouth			X		
Westport	X	?	X		
Mattapoisett		X	X		
Taunton Core					
Taunton	X		X	X	
Berkley		X			
Dighton		X	X		
Somerset			X		
Fall River	X		X	X	
Raynham	X		X		
Freetown			X		
Swansea			X		

Period Core Areas (listed by contemporary towns)	Archaeological Sites	Rural Landscape	Turnpike or Industrial Village	Town Streetscapes	Urban Streetscape
Local Core Areas					
Easton	X		X		
W. Bridgewater			X		
E. Bridgewater			X		
Bridgewater			X	X	
Plympton		X	?		
Rochester		X	X		
Peripheral Areas					
Halifax		X			
Rehoboth		X			
Carver		X	X		
Hanson			X		
Whitman			X		
Rockland				?	

F. Research Topics

Research on the Federal period in southeast Massachusetts has been spotty. Most has been focused on either a specific economic activity, such as shipbuilding or maritime commerce, or on the growth of communities, particularly New Bedford. Other topics with research potential include:

1. The role of state and federal bounties, especially in response to the Embargo of 1807 and the War of 1812, in industrial development, in particular textiles and iron production.
2. The extent to which the Rhode Island model influenced industrial growth in southeast Massachusetts, particularly in terms of locational preference and settlement pattern.
3. A survey of surviving urban landscape features in New Bedford including street grids and planned developments, both residential and commercial.
4. A study of Federal period brickyards and the use of brick as an anomalous building material within areas of southeast Massachusetts.
5. An examination of architectural conservatism in southeast Massachusetts during the Federal period, especially the retention of Georgian plans and detailing.
6. A study of the active religious movements in southeast Massachusetts and why specific movements developed so strongly within specific areas, for example, the Swedenborgians in northern Bristol and adjacent Plymouth Counties, and the Christian Church in southern Bristol County. How are these movements related to the Congregational/Unitarian influences from Boston and the Quaker/non-sectarian traditions of Rhode Island?
7. The impact of other Atlantic coast seaports, especially Nantucket, Newport, New York, Baltimore and Charleston, on New Bedford and other southeast Massachusetts ports in terms of architectural style, mercantile orientation and social customs.

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EARLY INDUSTRIAL PERIOD (1830-1870)

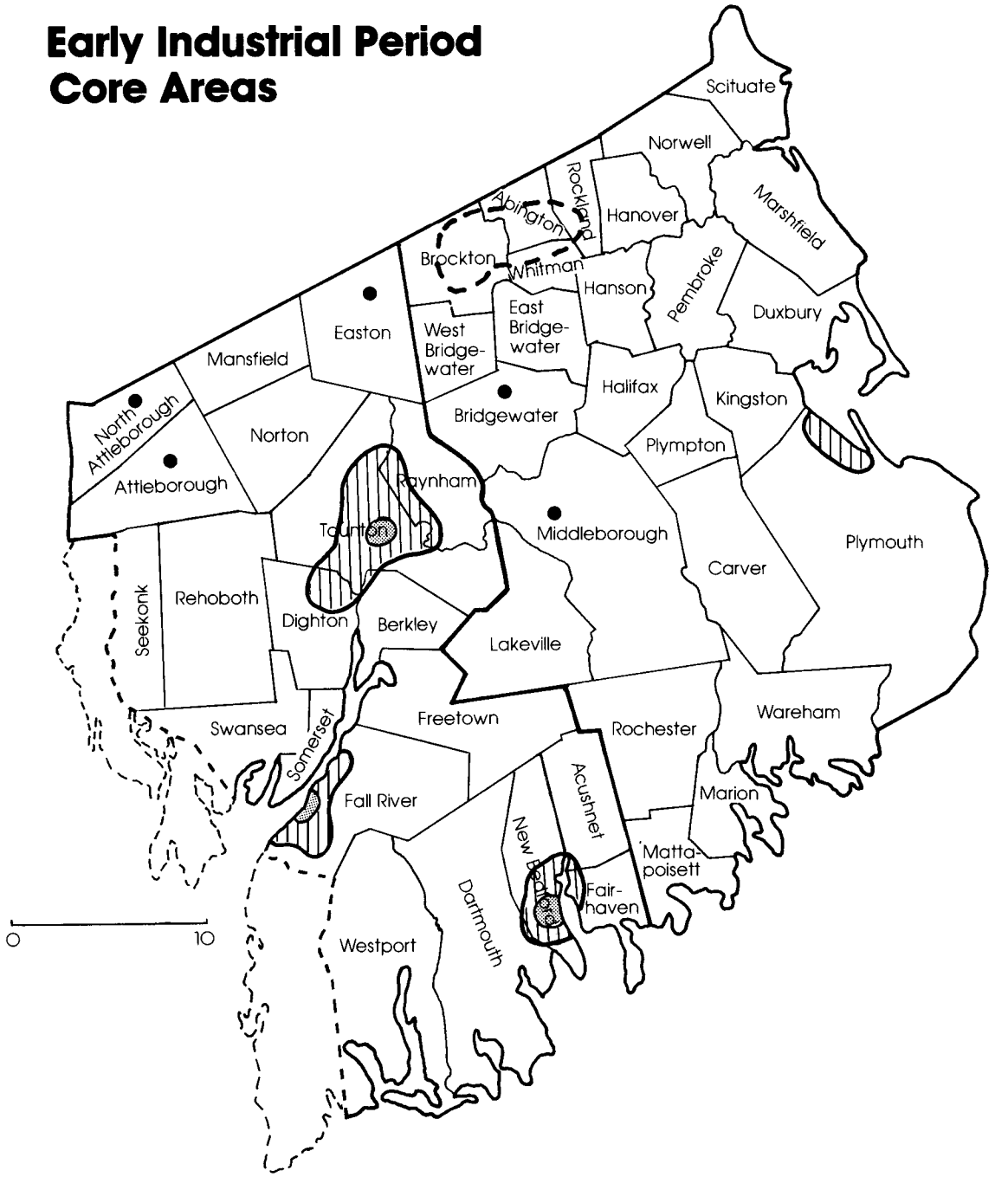
A. Regional Events

Major events of the period fall into two broad categories: economic and social/political events, and innovations in industry and transportation. 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 immigration from Western Europe, especially Ireland and Germany, into the growing industrial cities such as Fall River and North Bridgewater (Brockton). The settlement of the Massachusetts/Rhode Island boundary in 1861 and consequent loss of the Pawtucket area altered the course of development in northern Bristol County. The major innovation of the period was the introduction of railroads which revolutionized land transportation within the study unit and had major effects in both settlement and economic development. The opening of the Pennsylvania oil fields in the 1850s produced an alteration of the whaling industry, shifting emphasis from whale oil to less profitable products. The impacts of the Civil War were mixed; on the one hand the textile and shoe industries prospered while, on the other, there was a drain on the populations of the smaller towns in the unit.

B. Core-Peripheral Relationships

The population shifts that began in the Federal period continued during the Early Industrial period with Plymouth County dropping from 45 to 37% of the total unit population between 1830 and 1870. This decline in relative population is indicative of the increasing industrialization which occurred in the Narragansett Basin during the

Early Industrial Period Core Areas



Emerging Core

Regional Cores

Urban Centers

Local Cores

Map 13

period. As a result of these changes there were dramatic shifts in the pattern of core area development. For the first time, strong urban centers emerged, refocusing the large amorphous core areas of the earlier periods around them. See Map 13.

At least two core areas of national rank developed during the Early Industrial period; these were New Bedford and Fall River. New Bedford's strength rested initially on whaling and its support industries. During the 1850s New Bedford handled nearly half of all the whale oil used in the country. With the collapse of the whaling industry after mid-century, New Bedford was able to diversify its economic base. Starting with the establishment of the Wamsutta Mills in 1849, the city increasingly became known for the manufacture of fine cotton cloth. New Bedford was also the first town in southeast Massachusetts to incorporate as a city (1847). Its population grew steadily throughout the period as a result of immigration.

In many ways Fall River's emergence as a city (incorporated in 1854) was even more striking than New Bedford's. A small, closely knit factory town at the end of the Federal period, Fall River became one of the state's dominant industrial centers during the Early Industrial period. Several factors encouraged Fall River's growth. The city's location was ideal for water powered manufacturing. In addition the city was situated on easily navigable water midway between Boston and New York. This advantageous location was enhanced by the construction of several railroad lines which solidified Fall River's position as a major distribution center. The availability of jobs in the textile mills made Fall River a focal point for immigration and was the major factor in the city's phenomenal growth during the period.

Three other core areas functioned at the level of state/regional importance during the Early Industrial period: Taunton, Plymouth and North Bridgewater/Abington (now Brockton). Taunton was the third city to be incorporated in the study unit during the period (1864).

Located on the opposite end of the old Lower Taunton core, Taunton's growth was based on heavy industry, such as the manufacture of locomotives and copper-zinc ship sheathing, and the railroads. A branch line of the Boston and Providence Railroad was built to Taunton in 1836; this was extended to New Bedford in 1840. The addition of other connectors during the period made Taunton a major railroad junction. See Map 14. Taunton also remained the county seat for Bristol County despite the growth of New Bedford and Fall River and attracted new state facilities such as the Taunton State Hospital in 1853.

Plymouth, like Taunton, retained its role as a county seat. Unlike Taunton, it was largely bypassed by the railroads and had only limited industrial development (primarily in textiles, tacks and cordage). While the town continued to be a major influence within Plymouth County, the county as a whole was eclipsed in importance by the booming urban centers in adjacent Bristol County.

The exception to this pattern of Bristol County dominance was the West Brdigewater/Abington core. The strength of this emerging yet still unfocused core was the boot and shoe industry. Old Abington (now Abington, Whitman and Rockland) in particular was a traditional shoe making center. The high demand for shoes (especially for the Union army during the Civil War) and plentiful immigrant labor combined to form a rapidly intensifying urban area which would coalesce into the city of Brockton in 1874.

Several towns served as strong local cores during the period. Generally these towns had good railroad connections and a particular industrial base. Easton, for example, was dominated by the Ames Shovel Works while North Attleborough continued to be a center for jewelry and button manufacture. In some cases, the industrial base of a local core town shifted during the period; jewelry production replaced textiles in Attleboro after 1850.

The last two prominent local cores, Bridgewater and Middleborough, differed somewhat from the others. While both had been regionally influential during the Federal period, their influence became more localized during the Early Industrial period. Both, however, retained some specialized functions. The establishment of state institutions in Bridgewater, notably the Bridgewater Normal School (now Bridgewater State College) in 1840 and the state Work House (now Bridgewater Correctional Institution) in 1853, kept the town in direct contact with state government in Boston. In addition, the Bridgewater Iron Works with its unusual facilities for heavy casting, forging and machining prospered during the period. This was especially the case during the Civil War when armaments were in high demand.

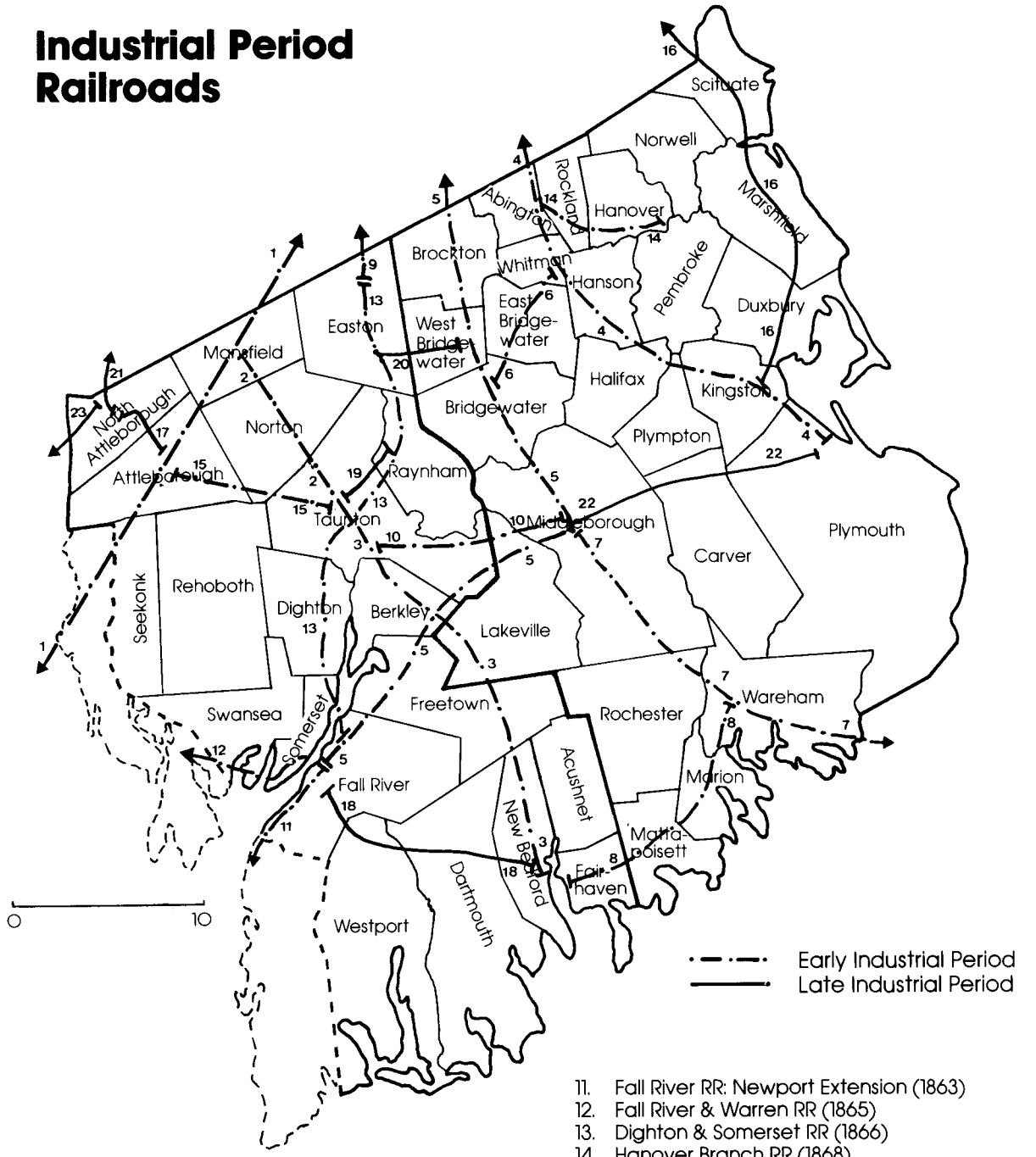
Middleborough remained the agricultural and distributional center for interior Plymouth County. It also had a more diversified economic base, producing woolens, straw bonnets, shoes and shovels as well as farm products. Middleborough's other major asset was its central location. As with the older road networks, all land transportation networks seemed to converge in Middleborough. During the 1840s, the town became a major railroad junction and continued to serve as such throughout the period.

C. Transportation

The introduction of the railroad in 1835 began a radical transformation of southeast Massachusetts' land transportation system. Within a decade, four major rail lines had been completed across or through the study unit. These included the Boston and Providence (1835), the Taunton branch (1836), the New Bedford and Taunton (1840) and the Old Colony (1845). By 1855 the number of rail lines had more than doubled as routes were extended and connectors added. By the end of the period, at least fifteen railroads crisscrossed Plymouth and Bristol Counties. See map 14.

With the railroads increasingly taking both freight and passenger traffic, the road system went into eclipse as the means for interregional travel. They remained, however, the mainstay for local

Industrial Period Railroads



Early Industrial Period

1. Boston & Providence RR (1835)
2. Taunton Branch RR (1836)
3. New Bedford & Taunton RR (1840)
4. Old Colony RR (1845)
5. Fall River RR (1846)
6. Bridgewater Branch RR (1846)
7. Cape Cod Branch RR (1848)
8. Fairhaven Branch RR (1854)
9. Easton Branch RR (1855)
10. Middleborough & Taunton RR (1856)
11. Fall River RR: Newport Extension (1863)
12. Fall River & Warren RR (1865)
13. Dighton & Somerset RR (1866)
14. Hanover Branch RR (1868)
15. Attleborough & Taunton RR (1869)

Late Industrial Period

16. Duxbury & Cohasset RR (1871)
17. Attleborough Branch RR (1871)
18. New Bedford & Fall River RR (1875)
19. Whittenton Branch RR (1882)
20. West Bridgewater Branch RR (1888)
21. Walpole & Wrentham Branch RR (1891)
22. Plymouth & Middleborough Branch RR (1892)
23. NY, NH & Hartford RR cutoff (1903)

Map 14

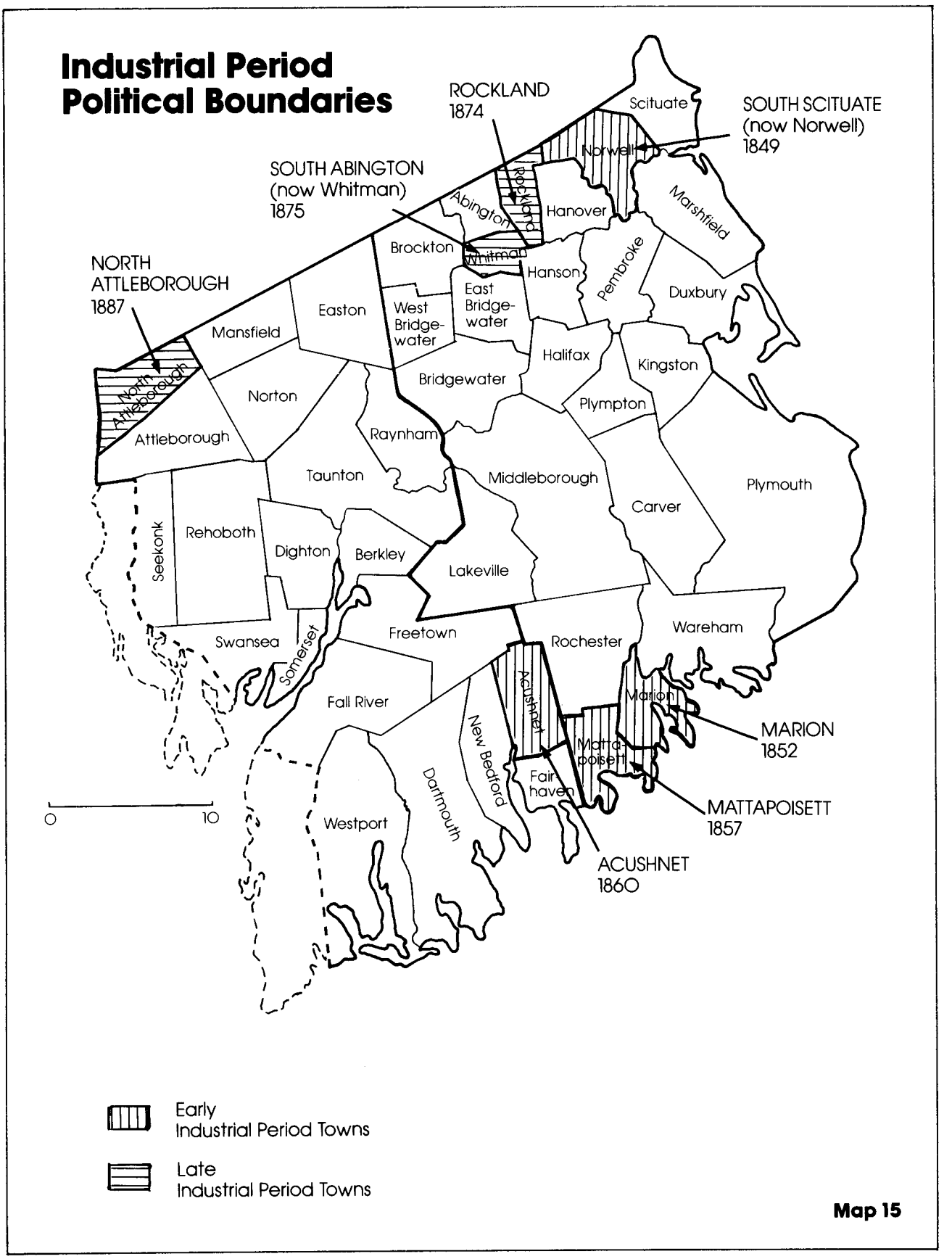
travel. To some degree the railroads even replaced the traditional water transportation routes. This was especially the case with the coastal trade. Water transport continued to be a strong factor throughout the period however. Several of the industrial cities were located on navigable water and relied on ships both for the importation of raw materials and the removal of finished goods to markets along the east coast and around the world. An important innovation during the period was the successful adaptation of steam power technology to ships, resulting in more efficient and reliable water transportation. By the end of the period steam-powered coastal packets ran regularly between Fall River and New York City as well as on numerous other routes along the study unit's coastline.

D. Settlement

Period settlement was characterized by increased density and diversification. In the large regional core areas, these changes were often dramatic as communities shifted from a town to an urban scale.

Three major changes took place in the study unit's cities (Fall River and New Bedford). One was the emergence of a central business district composed of financial, wholesale and retail buildings. Not only were traditional business buildings built higher and at greater density in these areas, new building forms such as banks and office buildings were added.

The second change was differentiation, especially of residential districts. During the Early Industrial period, distinct residential neighborhoods developed, each characterized by particular building forms. In working class areas these were closely spaced, multiple-family houses, or in the case of Fall River, tenements. Single-family houses increasingly were associated with affluence and upward mobility during the period. As a result they tended to be built in neighborhoods somewhat removed from the congestion and noise of the business and industrial areas. Finally, small districts of fashionable


Industrial Period
Political Boundaries
ROCKLAND
1874
SOUTH SCITUATE
(now Norwell)
1849
SOUTH ABINGTON
(now Whitman)
1875
NORTH
ATTLEBOROUGH
1887
MARION
1852
MATTAPOISETT
1857
ACUSHNET
1860
Scituate
Norwell
Rockland
Abington
Hanover
Marshfield
Brockton
Whitman
Hanson
Pembroke
Duxbury
Easton
West
Bridge-
water
East
Bridge-
water
Mansfield
Halifax
Kingston
North
Attleborough
Norton
Bridgewater
Plympton
Attleborough
Raynham
Taunton
Middleborough
Plymouth
Carver
Seekonk
Rehoboth
Dighton
Berkley
Lakeville
Swansea
Somerset
Freetown
Rochester
Wareham
Fall River
Acushnet
Marion
Matta-
poisett
New Bedford
Fair
haven
Dartmouth
Westport
0
10
Early
Industrial Period Towns
Late
Industrial Period Towns
Map 15

and expensive houses were built for wealthy families. Usually these elite districts were located on hill top areas overlooking the city.

The third change was the growth of industrial and transportation related fringe areas. This included not only the textile mills, iron foundries, shops and other similar manufacturing facilities, but the extensive waterfront and railroad complexes which serviced them. While these three changes were most evident in urban centers, they also occurred to lesser degrees in the study unit's small cities and larger towns.

E. Survivals

There are nine classes of survivals for the Early Industrial period: archaeological remains, rural landscapes, village streetscapes, 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 as well as clusters of period houses in a low density rural setting.

3. Village streetscapes are groups of a dozen or less period structures, residential and/or institutional, usually including a church, school, railroad depot or small factory.

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 consist of high density rowhousing set out in street grids.

8. Industrial/Institutional fringe landscapes are a miscellaneous category which includes period institutions (hospitals, jails, poor farms and fortifications), cemeteries and industrial or transportation support facilities such as rail yards, wharves and warehouses.

EARLY INDUSTRIAL PERIOD

Period Core Area (by Contemporary towns)	Archaeological Sites	Rural Land-scapes	Village Street-scapes	Town Center Street-scapes	Suburban Residen-tial Districts	Industrial Complexes	Urban Resi-dential Dis-tricts	Urban Fringe Landscapes
New Bedford Core								
New Bedford	X			X	X	X	X	X
Fairhaven		X		?	X			X
Acushnet			X					
Fall River Core								
Fall River	X		X	X	X	X	X	
Taunton Core								
Taunton	X	X	X	X	X	X	?	X
Raynham		X	X					X
Dighton		X	X					
Berkley		X	X					
Plymouth Core								
Plymouth		X	?		?	X		
N. Bridgewater/ Abington Core								
Brockton	?		X	?	X	?		
Abington			X	?		X		
Rockland		?		X	X	?		
Whitman		X		X	X	?		
Local Core								
Easton	?	X	X	?	X	X		
Attleboro		X	X	?	X	X		
N. Attleborough		X	X	X	X	X		
Bridgewater	X	X	X	X	X	?		
Middleborough	X	X	X	X	X	X		

Period Core Area (by Contemporary towns)	Archaeological Sites	Rural Land-scapes	Village Street-scapes	Town Center Street-scapes	Suburban Residen-tial Districts	Industrial Complexes	Urban Resi-dential Dis-tricts	Urban Fringe Landscapes
Peripheral Areas								
Norwell		X	?	X				
Marshfield		X	X					
Hanover		?	X	X				
Pembroke		X	X	X				
Duxbury		?	X	X				
Kingston		X	X	X				
Hanson			X					
Halifax		X						
Plympton		?		X				
Carver		X		X				
Wareham	X	?	X	X	X	X		
Mattapoisett		X	?	X				
Lakeville		?	X					
Freetown		X	X	X	?			
Dartmouth		X	X	X	?			
Westport		X	X	X				
Somerset		?		X				
Swansea		?	X					
Rehoboth		X						
Mansfield			X	?	?	X		
Norton		X	X			X		
W. Bridgewater		X	X					
E. Bridgewater		?	X	X				

F. Research Topics

Although much of the Early Industrial period has been researched several topics still present opportunities for further study. These include:

1. The development and evolution of multiple-family housing (two-family houses, double houses and tenement blocks) in the core areas of the study unit. To what extent, and why, was there a preference for specific forms within individual core areas (for example, two-family houses in New Bedford; tenement blocks and double houses in Fall River)?
2. A study of the influences of topography and the availability of arable land on the settlement pattern in preipheral areas.
3. The process of residential differentiation in urban areas. What factors initiate this and in what forms (both in terms of plan and locational preference) did it manifest? To what extent are particular architects influential in this process?
4. The influence of Federal contracts on industrial growth and development, expecially in textiles, boots and shoes and armament-related iron products.
5. A study of the origins of railroad, later street railway, parks (Island Grove in Abington (1847) was the prototype) and their relationship to abolitionist, evangelical or other social movements.
6. To what extent did these railroad/street railway parks set the stage for later, more widespread recreational use of the study unit's interior lakes and ponds?
7. Examine the influence of the railroads on settlement patterns within the study unit, especially the creation of developmental corridors along railroad lines.

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LATE INDUSTRIAL PERIOD (1870-1915)

A. Regional Events

The Late Industrial period was characterized both by social/economic upheavals and technological change. The period opened with the destruction of a large portion of the New Bedford whaling fleet in the Arctic ice pack (1871) and a post-Civil War depression after the Panic of 1872. Depressions also followed panics in 1892 and 1907, bringing periodic instability to the region's industries. While the Massachusetts Ten Hour Act (1874) and the beginnings of labor organization also affected industrial development, increased immigration, especially from Southern and Eastern Europe, continued to provide cheap labor. By the end of the period the ethnic composition within the study unit, particularly in the larger cities, had changed dramatically. Technological innovations of the period included the establishment of a street railway system through the study unit and the beginning of centralized electrical power generation in the larger cities. Two additional changes of importance were the beginning of resort development along Buzzards Bay (Marion) as well as in Scituate and Marshfield during the 1880s, and the introduction of cranberry cultivation into southern Plymouth County in 1878.

B. Core-Periphery Relationships

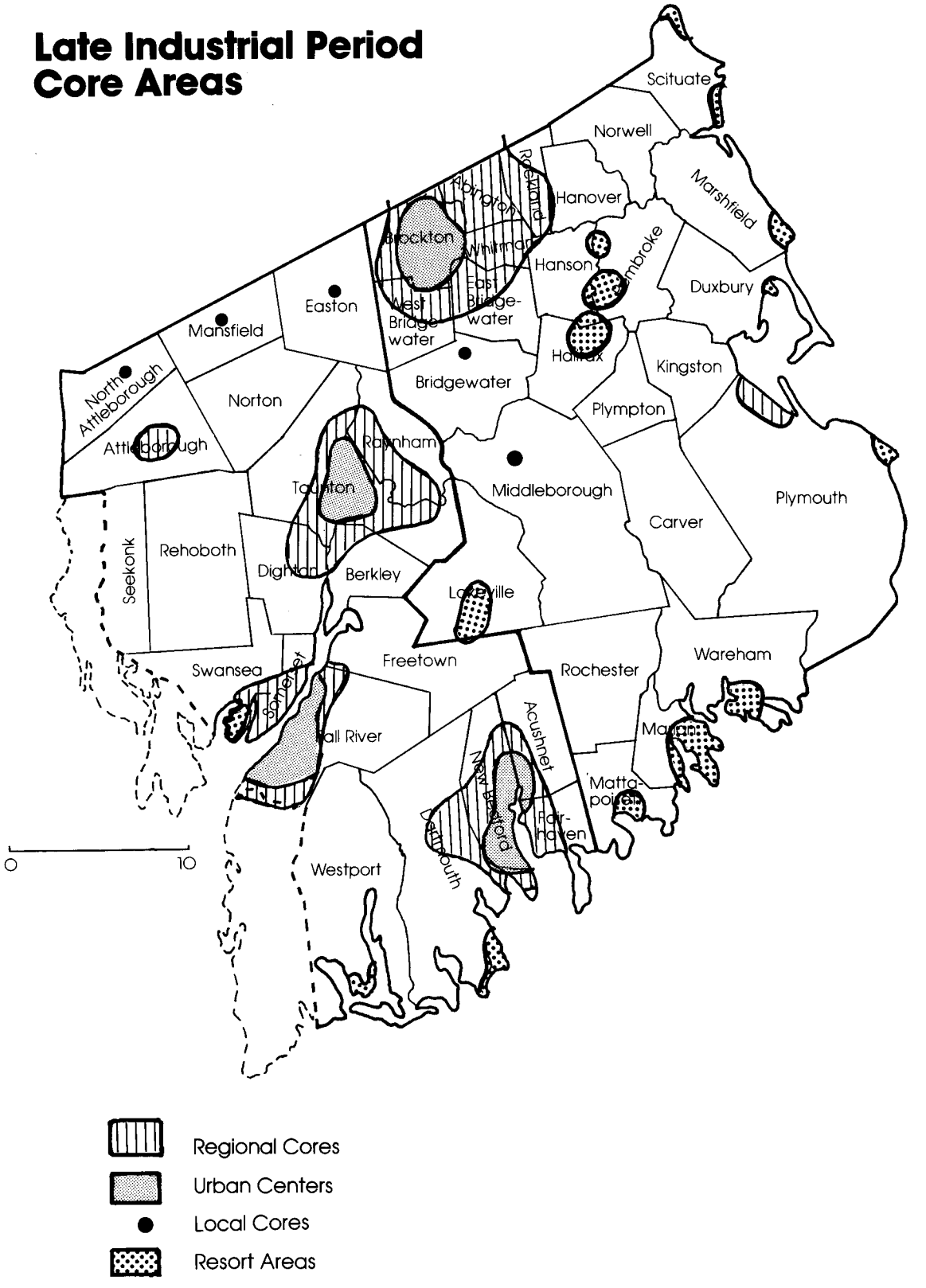
The Late Industrial period was one of consolidation rather than dramatic new growth. Most of the region's core cities and towns continued to grow, primarily through suburban expansion and the reconstruction of their commercial centers at higher density. Population continued to concentrate in the large urban cities throughout the period. By 1915, New Bedford, Fall River and Brockton contained almost 60% of the study unit's population, almost double that of the beginning of the period.

Three core areas of national rank dominated southeast Massachusetts during the Late Industrial period; these were New Bedford, Fall River and Brockton. See Map 16. New Bedford underwent a major change during the period, shifting from its traditional economic base of whaling to textile manufacture and commercial fishing. By 1915, New Bedford was the country's largest producer of fine cotton textiles. Steady immigration throughout the period was both a cause and effect of industrial growth and profoundly changed the city's ethnic balance which by the end of the 19th century included a considerable Portugese population. New Bedford's industrial and population expansion also translated directly into physical growth. Considerable suburban expansion took place, especially as the street railway system (beginning in 1872) provided access to the city from interior sections. The construction of a bridge across the Acushnet River also brought sections of Fairhaven and Acushnet within New Bedford's regional core area.

Fall River's development during the period was similar to New Bedford's, but without the diversity. Although there was some effort made at the end of the period towards production of different materials, Fall River remained a one industry city. This was the peak of Fall River's prosperity. Several new print cloth mills were constructed and the jobs filled by the continued influx of Eastern and Southern European immigrants. In particular, sizable French Canadian and Portugese communities developed. As with New Bedford, new transit systems brought about rapid growth in a regional core around the city. Several street railway lines opened during the 1880s. These plus new bridges across the Taunton River brought much of Somerset and parts of Swansea within Fall River's orbit.

Brockton, like Fall River, was a single-industry city which achieved national prominence through specialization and innovation. During the decades following the Civil War, the continued growth of the boot and shoe industry transformed the old Early Industrial period North Bridgewater/Abington core. Old Abington was split up as parishes incorporated into the new towns of Rockland (1874) and

Late Industrial Period Core Areas



Map 16

Whitman (1875). See Map 15. More important, however, was the emergence of North Bridgewater, renamed Brockton in 1874, as the focus of this rapidly emerging urban core. Incorporated in 1881, Brockton gained a reputation for progressiveness. The city pioneered a number of urban systems including electrical street lighting (1883) and sewage filtration (1893). Good railroad connections and an extensive street railway system, much of which was converted to electric trolley between 1890 and 1905, were also components of Brockton's success. The shoe industry was the foundation for all of this growth and prosperity. Brockton-made shoes were sold all across the country and during the 1880s began to be marketed abroad. By the early 20th century, Brockton claimed world leadership in the production of fine men's shoes.

Three other core areas functioned at the level of state/regional importance during the Late Industrial period. These were Taunton, Attleboro and Plymouth. Taunton, located between the manufacturing giants of Fall River and Brockton, grew slowly but steadily through the period. See Map 16. With railroad lines in five directions, Taunton continued to be the major regional rail center. Much of the city's economic base changed during the period as heavy iron production and shipbuilding peaked and were replaced by textiles and silver (plate and flatware). Like the other southeast Massachusetts cities, Taunton also attracted a sizable immigrant population; Portugese, French Canadian, Anglo-Irish and Polish were all well represented by 1915. A final element in the stability of Taunton's development was the continued influence of governmental agencies, both of Bristol County and the state hospital.

A new regional core emerged during the period as Attleboro expanded around improved railroad connections and thriving industries. While some textile production and finishing remained, the success of jewelry manufacturing fueled a major spurt of growth. Although Attleboro did not achieve either the size or density of Taunton or the other large cities, it grew sufficiently to incorporate as a city by the end of the period (1914).

The final regional core was the oldest one in the study unit. Plymouth, like Taunton, grew at a slower pace than did the other large urban centers in the unit. A measure of the degree to which Plymouth had become isolated from the prosperity of the industrial cities in Bristol County was that rail connections between them were not completed until 1892. See Map 14. Despite this, Plymouth remained the regional distribution center for eastern Plymouth County as well as the county seat. The town also retained a healthy industrial base of its own specializing in cordage and woolens.

Several towns served as strong local cores during the period. As during the Early Industrial period, good railroad connections and at least one strong, specialized industry were the usual combination in these towns. Examples include Easton, still dominated by the Ames Shovel Works, Mansfield with its precision machined goods and chocolate, and North Attleborough with the jewelry industries and improved railroad access.

Once again Middleborough and Bridgewater were exceptions to this pattern. While the Bridgewater Iron Works remained the cornerstone of the town's economy, the presence of state institutions, both the State Poor Farm and the State College, were increasingly important. Middleborough's pivotal location continued to make it one of the region's major railroad junctions. In addition to the direct contributions this made to the town's ecomony, railroad access also kept Middleborough's industrial base more diverse than other towns its size. Bricks, boxes and machinery as well as agricultural goods were the major products.

Despite the urbanization of much of the study unit, two changes of major importance occurred in peripheral areas during the period. One was the introduction of cranberry cultivation into Wareham from Cape Cod in 1878. Since the demise of bog iron during the Federal period, the vast bogs of southern Plymouth County had generally been viewed as waste land. Although harvesting techniques and wide scale marketing were not perfected until the end of the period,

the cranberry industry began to bring some economic viability back to this part of the study unit.

The second major change was the establishment of summer resorts, both along the coast and around several of the interior ponds. See Map 16. These developed primarily as a consequence of railroad expansion and street railway access. Generally these resorts drew clientele from outside the study unit. The Plymouth coastal resorts such as Scituate, Brant Rock and White Horse beaches attracted people from Boston, whereas Buzzards Bay communities like Onset (Wareham) and Marion drew people from New York and Philadelphia. The gathering of socially prominent individuals including Henry James, Charles Dana Gibson and President Grover Cleveland in Marion did much to stimulate public interest in residential summer resorts. As cranberries made bog land profitable again, the resort industry brought economic and well as social life back to communities which had lost much of their traditional economic base.

The interior pond resorts were created by both the railroads and street railway companies which constructed picnic groves in scenic locations. Initially built to attract city dwellers for day trips into the country, many of these picnic groves later evolved into speculative real estate ventures.

The use of these ponds for resort and recreational purposes often conflicted with the growing urban demand for a good water supply. In several instances the result was that a city appropriated one or more of the larger ponds for its own use, as Taunton did Assawompset Pond. Designation of a pond as a city or town water supply effectively closed it to resort development and as a result growth in towns bordering these ponds was severely restricted.

C. Transportation

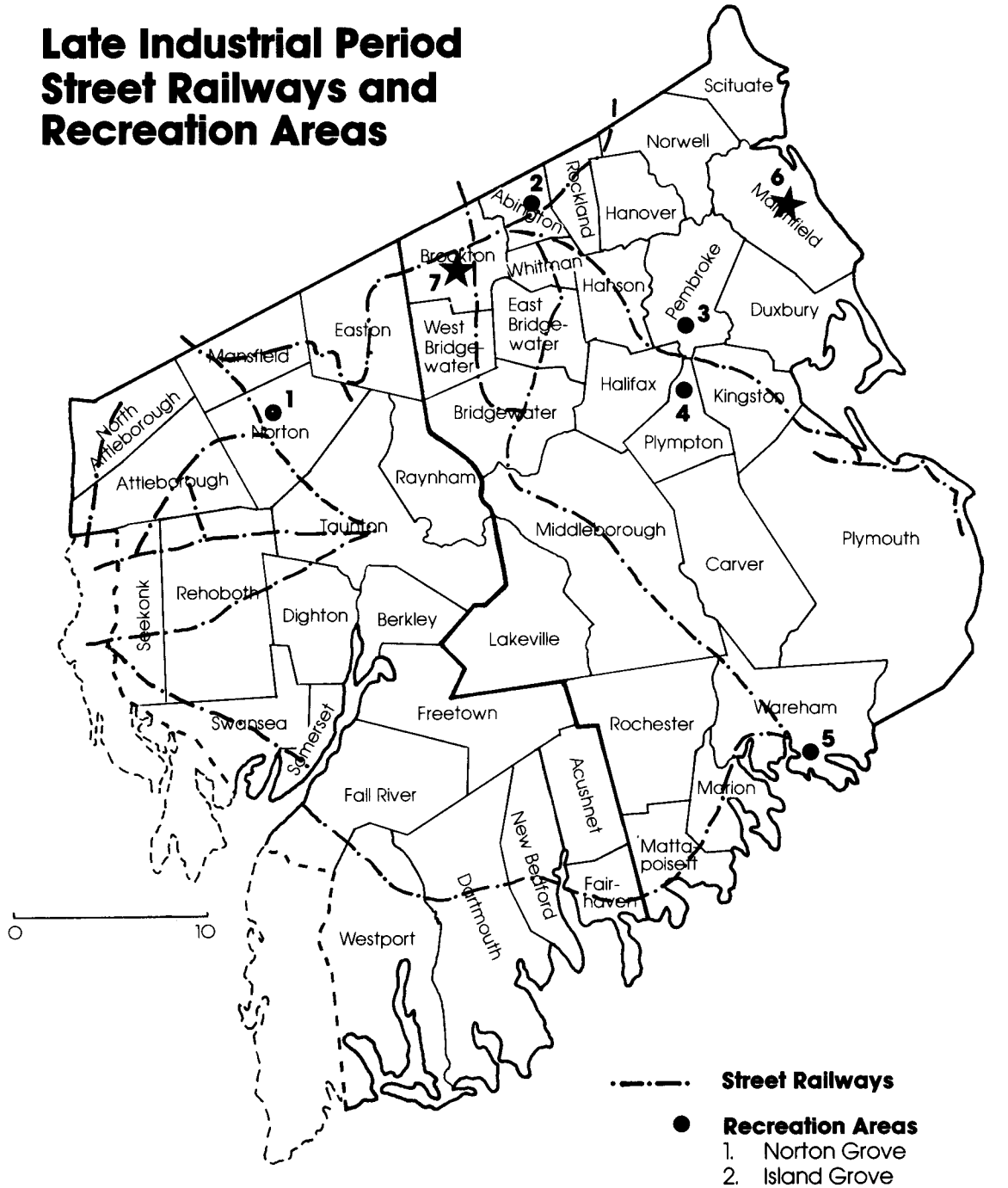
While water transport, especially steam shiplines from Fall River and New Bedford to New York and other ports worldwide, remained a component of the period's transportation, the major innovations continued to take place on land.

The railroads continued to expand throughout the period. Most new construction formed connecting lines between established routes. Two new lines of importance were built in Plymouth County, however. With the opening of the Duxbury and Cohasset (1871) and the Plymouth and Middleborough branch (1892) more of Plymouth County was finally tied into the regional rail network. See Map 14.

While the railroads served as the primary means for inter-regional travel, transportation within the study unit also moved on rails. Street railway systems were built in the large urban centers throughout the late 19th century, providing access to the central city and making suburban expansion feasible. By the 1890s a new innovation, electrification, revolutionized the street railways. Capable of higher speed and therefore greater distance, the street railways evolved from local community systems into a regional transit system. See Map 17. By the end of the period the trolley and inter-urban systems were successfully competing with the railroads for passenger traffic.

With the success of both the railroads and street railways, the road system was relegated to a position of secondary importance. For most of the period roads served primarily as local connectors, assuming greater importance only in those towns without rail connections. Towards the end of the period, however, roads began to re-emerge as innovations were made in the technology of wheeled vehicles. Although the Massachusetts Highway Commission was established in 1893 to oversee construction of a state highway system, little progress was made until the early decades of the 20th century.

Late Industrial Period Street Railways and Recreation Areas



Map 17

D. Settlement

Two major trends characterize the changes in Late Industrial period settlement. One was the continued increase in both density and differentiation within the large industrial cities. Second was the expansion of settlement, often of scaled-down urban forms, into new parts of the study unit.

Several changes took place within the large industrial cities. Central business districts grew in size and complexity. Most were extensively rebuilt during the period with multi-storied brick or stone buildings replacing earlier framed structures. New building forms were added including hotels, theaters and department stores. The result was a downtown area that was not only denser but more mixed; retail, wholesale and commercial functions often occurred in close proximity or next to each other.

While business districts became more dense and diverse, increased differentiation characterized residential districts. Reliable mass transit permitted worker housing to be built at a greater distance from industrial areas. As a result, streetcar suburbs developed along the street railway and trolley lines in New Bedford, Brockton and Fall River. These neighborhoods were frequently linear, extending only a block or two away from the transit line. Housing in these areas was both high density and multi-family. Triple deckers were the most common form, although tenements were also used, especially in Fall River. The Late Industrial period also marked the end of industrial paternalism with completion of the last large scale company housing projects in North Plymouth and New Bedford.

The increased mobility of both blue and white collar workers often resulted in a redefinition of wealthy residential areas. These elite districts still favored hilltop or ridge locations with attractive views. When this was difficult to achieve, as in Brockton, open

space areas, either wide, tree lined boulevards or locations adjacent to parks were sought. In between the linear streetcar suburbs and the elite districts were the middle class neighborhoods. Generally middle class families lived in substantial two-family houses. Single-family houses were less common and usually small, one and a half stories instead of two and a half. There was little suburban expansion beyond city limits. With limited exceptions (South Dartmouth from New Bedford and Somerset from Fall River), few middle-class families in the large urban areas moved outside the city boundaries.

A final set of changes was the evolution of utility and related service systems in several of the cities and larger towns. High density residential needs as well as industrial consumption made water supply a concern early in the period. New Bedford's first water works were constructed in 1869, Fall River's opened in 1872. By the mid-1880s, even local core towns like Middleborough (1885) and Bridgewater (1888) had developed their own water systems. Removal of waste was another pressing problem. By 1874 Fall River had begun construction of a municipal sewer while in 1893 Brockton built an intermittant sewage filtration system which was considered extremely progressive. Brockton also pioneered centralized electrical power generation and began to illuminate its streets at night in 1883. Many of the cities in the study unit also experimented with open space planning during the period especially the development of parks.

The second major trend in settlement was the movement of denser forms to new areas of the study unit. This occurred in three ways. First was the growth of secondary centers around the industrial cities and larger towns. Usually these were small Federal or Early Industrial period villages which, through a combination of industrial expansion and railroad access, grew in size and density during the Late Industrial period. These secondary centers such as Hebronville and Dodgeville in Attleboro and Whittenton and Weir Village in Taunton were usually composed of a large industrial complex with closely spaced worker housing and a selection of institutional and small commercial buildings spread around them.

The second place where settlement became more dense was in the regional and local core town centers. The changes were much like those which occurred in the larger urban centers but scaled down to a smaller level. The construction of brick or stone commercial blocks was a common event in these town centers along with the addition of new, more stylish institutional buildings such as town halls, libraries and schools. With this higher density construction and trolley, if not railroad, lines along the major streets, towns like Attleboro and Middleborough acquired a small scale, urban character by the end of the period.

The final area where new and often dense settlement occurred was in resorts. Both in coastal resorts like North Scituate and Onset, and interior resorts sucn as Mayflower Grove in Pembroke, new settlements of closely spaced cottages sprang up. Usually these were accompanied by meeting halls and other small institutional or commercial buildings.

While new and denser settlement spread throughout southeast Massachusetts in the three ways described above, it is important to note that the basic trend of the period was consolidation. During the Late Industrial period, settlement generally tended to decrease in peripheral areas and gravitate towards either the core areas or major transportation corridors. The small, scattered industrial centers which characterized the Federal and Early Industrial periods were largely gone by the end of the 19th century.

E. Survivals

There are ten categories of Late Industrial period survivals: archaeological, rural/village streetscapes, resort villages, town center streetscapes, industrial villages, suburban residential districts, streetcar residential strip developments, urban streetcar suburbs,

urban streetscapes and industrial institutional fringe landscapes.

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

2. Rural/village streetscapes are period houses and occasional institutional buildings in a low density setting. These often occur as infill along an earlier transportation corridor.

3. Resort villages are medium to high density concentrations of seasonal residences with associated institutional and commercial structures.

4. Town center streetscapes include multi-story commercial blocks as well as smaller commercial buildings interspersed with institutional buildings such as town halls, libraries and schools. These streetscapes are usually one block deep and anchored by a park and/or monument.

5. Industrial villages are large manufacturing or processing facilities with associated worker housing and a few small institutional buildings (school and chapel) surrounding them. Trolley lines and a railroad terminal or depot are frequently present.

6. Suburban residential districts are composed of substantial two-family, or small single-family, houses set out at medium density along a street grid. Often a small park or church is included.

7. Streetcar residential strip development consists of low density, linear housing along a street railway or trolley line. Usually one house deep and composed of cottages or bungalows, this type of development marks the limits of an urban core area.

8. Urban streetcar suburbs consist of two- to three-family, multi-story wood frame houses on individual lots, often with small adjacent commercial buildings. These are urban neighborhoods and occur only within city limits.

9. Urban streetscapes include multi-story steel and masonry commercial buildings, institutional and civic buildings as well as interspersed tenements and other urban scale residential buildings.

10. Industrial/institutional fringe landscapes include railroad yards, waterfront facilities and other similar industrial support facilities as well as period institutions such as hospitals, state schools and correctional facilities.

LATE INDUSTRIAL PERIOD

Period Core Areas (listed by contemporary towns)	Archaeological Remains	Rural and Village	Resort Villages	Town Center Streetscapes	Industrial Villages	Suburban Residential Districts	Streetcar Residential Strip Development	Urban Streetcar Suburbs	Urban Streetscapes	Industrial/ Institutional Fringe Landscapes
New Bedford Core										
New Bedford	X					X		X	X	
Fairhaven				X		X	X	X		
Acushnet				X			X			
Dartmouth		X	X	X		X	X			?
Fall River Core										
Fall River	X					X		X	X	?
Freetown					X		X			
Somerset		?	?	X	X		X			?
Swansea		X	X			X	X			
Taunton Core										
Taunton	X	?		X	X	X		?	?	
Raynham		?			X	?				
Brockton Core										
Brockton				X	?	X		X	?	?
Abington			?	X	X	X	X	?		
Rockland		?		X	?	X	?			
Whitman				X	X	X	X			
E. Bridgewater		?			X	?	X			
W. Bridgewater		X					X			
Plymouth Core										
Plymouth	?		X	X	X	X	X			
Attleboro Core										
Attleboro		?		X	X	X	X	X		

Period Core Areas (listed by contemporary towns)	Archaeological Remains	Rural and Village	Resort Villages	Town Center Streetscapes	Industrial Villages	Suburban Residential Districts	Streetcar Residential Strip Development	Urban Streetcar Suburbs	Urban Streetscapes	Industrial/ Institutional Fringe Landscapes
Local Cores										
Bridgewater				X	X	X	X			X
Middleborough		X		X	?	X	X			
Easton		?		X		X	X			
Mansfield		?		X	X	X	?			
North Attleborough		?			X	X	X			
Peripheral Areas										
Scituate		?	X			X				
Norwell		X								
Hanson					X					
Halifax			X							
Pembroke			X							
Mansfield		X	X							
Duxbury		?	X							
Kingston		X					X			
Carver		X								
Wareham		X	X	?		X	X			
Marion			X				?			
Mattapoisett			X				?			
Rochester										X
Lakeville			?							X
Seekonk							X			
Norton			X		X		X			

F. Research Topics

Considerable research has been done on aspects of the Late Industrial period. There is both extensive documentary and photographic information available. These sources, plus the large range of urban, suburban and rural features which survive, present additional opportunities for research. Among the topics which can be investigated are the following:

1. The relationship between financial prosperity (based on industrial success) and progressive civic/municipal improvements (such as the establishment of water and sewer systems, street lighting as well as other utilities and services) which characterize the cities of the period.

2. What were the dynamics of the settlement and formation of multiple-family housing neighborhoods in urban areas? How was this process related to the availability of mass transit and to the formation of less dense, middle class neighborhoods?

3. Examine the evolution and retention of framed buildings in the Brockton shoe industry. Why was brick not used in factory construction?

4. The growth of small-scale, specialized agricultural production (especially poultry, dairy and berries) as a major component of the economy of peripheral areas within the study unit.

5. Did ethnically distinct building forms, aside from churches, develop within urban core areas? A possible example to be investigated is Quebequois housing forms in New Bedford and Fall River.

6. What were the political and economic considerations which underlay the construction of the state highway system, especially

where roads were to be built or upgraded. What factors prompted the use of innovative materials, such as concrete rather than structural steel for bridges.

7. What was the social, economic and developmental context which produced the miniature houses that appear to characterize, if not define, the rural periphery during the period?

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EARLY MODERN PERIOD (1915-1940)

A. Regional Events

The Early Modern period opened with a burst of prosperity after World War I. Accompanying this boom was a gradual shift in life styles and expectations due partially to the development of modern advertising and relatively low cost personal transportation. The introduction of mass production techniques to the auto industry by Henry Ford created an increasingly mobile society by the mid-twenties. Auto touring, which became a popular form of recreation during the period, produced definite alterations in the landscape of southeast Massachusetts. The most visible manifestation was the improvement and expansion of the road network. Suburbanization was enhanced by this increased mobility as well. Although the prosperity of the twenties appears to have been universal, there was a foreshadowing of the coming depression in southeast Massachusetts as the textile industry began to relocate to the southern states. Within ten years the study unit lost one of its major industries and sources of employment. Fall River, which lost its industrial base and, in 1928, almost all of the central business district to fire, declared bankruptcy after the Crash of '29. The study unit was particularly hard hit by the Great Depression. Federal programs, for example the WPA, attempted to alleviate some of the economic pressures by creating jobs constructing roads and public buildings and creating park lands. The Early Modern period saw the transformation of southeast Massachusetts from an industrial orientation (Brockton was the major exception) to a recreational one as Plymouth County and the Buzzards Bay area adapted to historical and resort oriented tourism.

B. Core-Periphery Relationships

The Early Modern period was characterized by both dramatic change and stagnation. The trends of industrialization and centralization which dominated the study unit throughout the 19th century were radically altered by economic and social factors as well as innovations in transportation.

During the first decade of the period the major industrial cities, New Bedford, Fall River and Brockton, continued to prosper, especially with the increased demands caused by World War I. Some additional suburban expansion resulted. See Map 18. By the mid 1920s, however, several factors had begun to erode the economic base which had boosted these cities into national prominence. Most dramatic was the relocation of many of the region's textile companies to southern states, a result of rising labor costs and troubles as well as tax and market advantages.

Fall River was hardest hit. Just as the city's success had been spectacular in the 19th century, so was its demise during the 1920s. Rapidly dropping prices for cloth forced the industry to streamline and increased the momentum for moving south. By the end of the period, 73 mills had closed in Fall River. In 1928, however, when Fall River's downtown was destroyed by fire, the city had already lost the bulk of its industry. The loss of the mostly uninsured or under-insured downtown, followed so closely by the stock market crash of 1929, plunged the city into bankruptcy. For the remainder of the period Fall River was run by a state board of receivers. The lack of municipal funds was a contributing factor to the deterioration of what remained of the inner city.

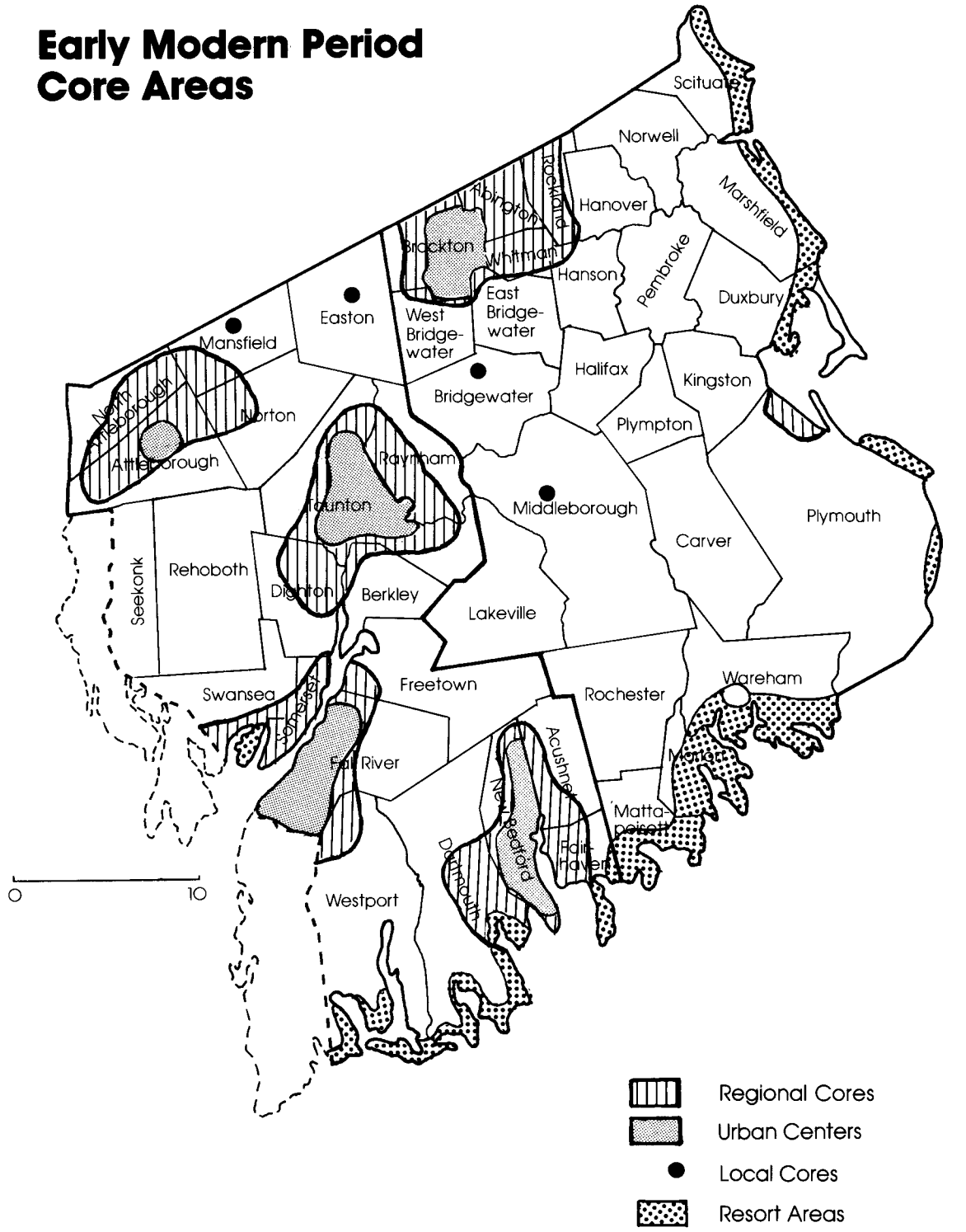
Although New Bedford underwent a similar loss of its cotton industry, the city's more diversified economy, particularly commercial fishing, helped prevent a complete collapse. Brockton too began to suffer from industrial malaise. While the shoe industry declined during the last decades of the period, it did so at a slow enough rate for Brockton to retain its national reputation.

The other three regional cores, Taunton, Attleboro and Plymouth, all fared somewhat better. Taunton's economic base, which had always been more diverse than that of its large single-industry neighbors, was able to recover from the loss of its textile mills. Iron products, particularly stoves and hot air furnaces, continued to be manufactured throughout the period. Two other factors helped to buffer Taunton from the economic doldrums. The presence of both state and county agencies continued to provide both jobs and stability. In addition, Taunton's reputation as a transportation center remained undiminished. Not only was railroad traffic still important but as a new network of state and federal highways were constructed, they too centered on Taunton.

Attleboro, which emerged as a strong local core during the Late Industrial period, grew into a core of regional importance during the early decades of the 20th century. See Map 18. Its prominence rested on the success of the jewelry industry, particularly companies such as L. G. Balfour, one of the largest emblem makers in the country. While the city's growth slowed and began to stagnate during the late 1920s, there was sufficient momentum left to carry it successfully through the Depression.

Like most of the other cities in southeast Massachusetts, Plymouth also lost much of its traditional industrial base (iron products and woolens) during the period. Since Plymouth had not been as heavily industrialized as many other cities, it was not as traumatized by the loss. Moreover, the losses were largely offset by the rise of new businesses. Agricultural production grew substantially during the period, especially poultry and dairy farming as well as cranberry cultivation. The other new business was auto related tourism. The Plymouth tercentenary in 1920 reawakened interest in and awareness of the area's history. One result was the relandscaping of Plymouth's waterfront into a history oriented tourist park. This conscious revival of history, plus the increasing tendency to drive to the beaches in southern Plymouth or Cape Cod, made the town a popular destination for weekend trips and vacations.

Early Modern Period Core Areas



Map 18

The pattern in local core communities was much the same as in the larger towns and cities, prosperity early in the period and stagnation during the Depression.

In contrast to the centralization which characterized the Industrial periods, much of the growth which did occur took place in peripheral areas. The personal freedom and independence provided by affordable automobiles and a system of improved and new highways made southeast Massachusetts accessible in a way it had not been previously. This led to two kinds of development, resort communities and roadside commercial strips. Often these occurred together. The major coastal resort areas both on the Atlantic coast (Scituate, Marshfield, Duxbury and Plymouth) and along Buzzards Bay (Wareham, Marion, Mattapoisett and Fairhaven) were located on the most heavily travelled roads, Route 3 and Route 6. While the resort communities were primarily coastal, commercial strip development occurred throughout southeast Massachusetts. Designed both to provide services (gas stations, restaurants and overnight cabins) as well as for retail sales (farm stands, antique and souvenir shops) roadside commercial strips became major income producers by the end of the period.

C. Transportation

The introduction of the automobile revolutionized land transport during the Early Modern period. In 1915 there were over 112,000 registered motor vehicles in the state and the state highway network first established in the 1890s had already begun to take form. The state highway network evolved from the existing road network. Several followed the Federal turnpikes while others employed Colonial roads. The emergence of low cost individual transportation resulted in serious competition for short haul rail passenger service as well as inter-urban trolleys. Rail lines which did not have sufficient freight traffic to offset the loss of passenger traffic closed by the end of the period. The most noticeable collapse was the Duxbury and Cohasset branch of the New York, New Haven and Hartford railroad which

ceased operation in 1929. Waterborne traffic became virtually all freight oriented during the period with passenger traffic generally restricted to ferries to Nantucket and Martha's Vineyard. Air transport came into its own during the period with small airports in existence at New Bedford, Taunton and Brockton as well as smaller private fields in some of the smaller towns at the end of the period.

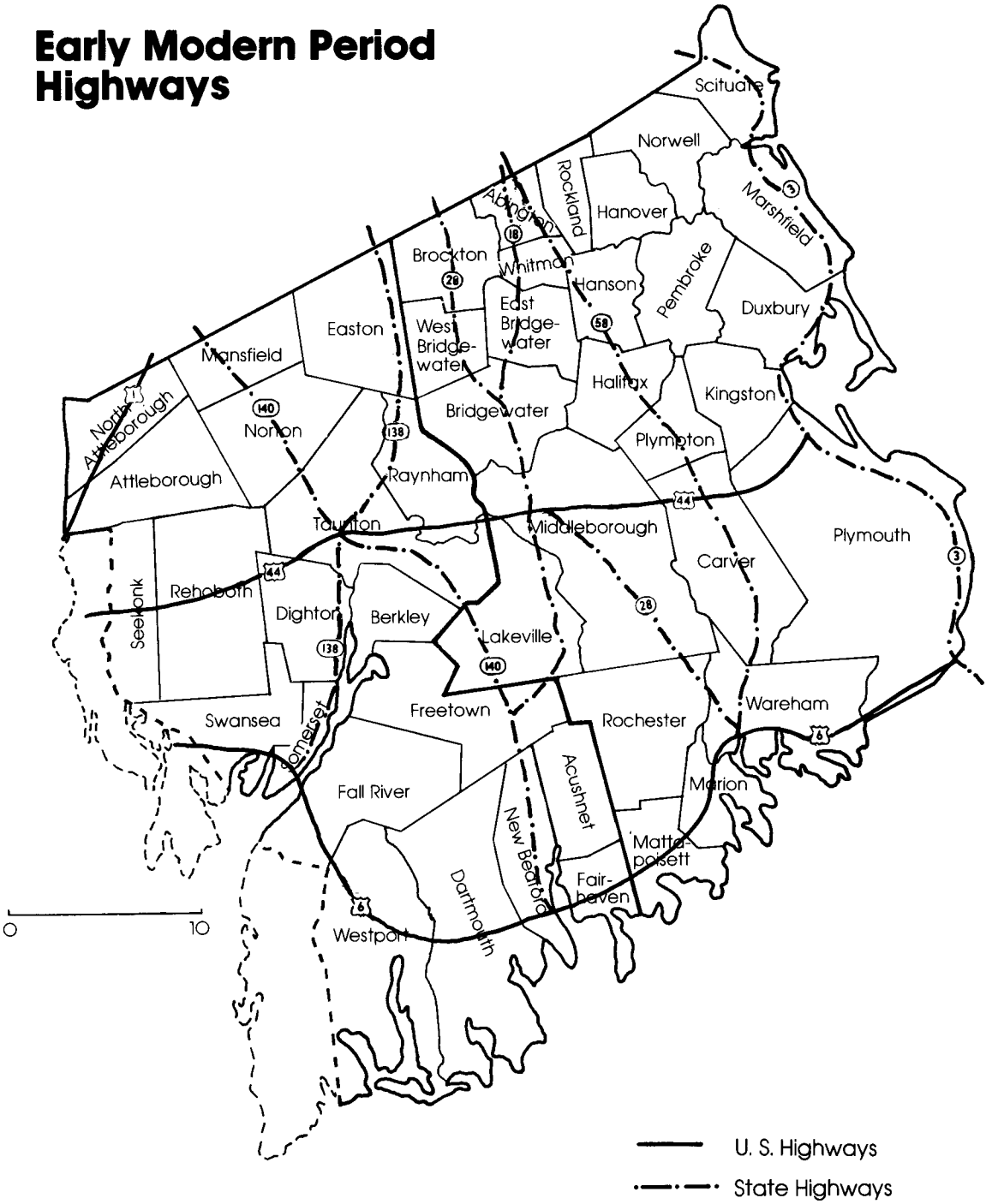
The transformation of inter-regional transport began with the establishment of the state highway network and continued later in the period with the designation of U.S. highways (routes 1, 6 and 44). As can be seen from Map 19, the federal highways were connectors between either major population centers (Route 1 between Boston and Providence), major population centers and secondary cores (Route 44 between Providence, Taunton, Middleborough and Plymouth) or major population centers and coastal resort areas (Route 6 between Providence, Fall River, New Bedford and Cape Cod).

Intra-regional transport shifted from trolleys to either automobiles or buses during the period. Private bus routes began in New Bedford as early as 1918. With the development of the highway system, the once extensive street rail network contracted and reverted to a local means of transport, primarily within urban areas. The development of intra-regional bus lines from the old street rail lines made heavy inroads on railroad passenger traffic in the 1930s, further altering the character of intra-regional transport. While trucking had yet to make the same inroads on railroad freight traffic, short and long haul motor freight became more common during the period.

D. Settlement

Settlement patterns at the level of the regional core underwent little change during the period; although there was an increase in suburbanization, the larger urban areas and towns entered a period of stagnation during the late 1920s and during the 1930s. Loss of tax base resulted in the inability of the larger centers to maintain

Early Modern Period Highways



Map 19

city services. This in turn led to a movement outward on the part of many middle income families and the deterioration of inner city areas, a phenomenon that has become increasingly familiar in the years following World War II. In general, the restructuring of downtown areas which had taken place during the Late Industrial period was dropped in favor of cosmetic alteration of existing structures. The only regional core to differ from this pattern was Plymouth. The tercentenary celebration resulted in the restructuring of the Plymouth waterfront in order to capitalize on the historical significance of the area and its location on one of the major auto routes to Cape Cod. The conversion of the waterfront land from a not very profitable commercial/transport orientation to a potentially highly profitable park and memorial appears not only to have acted as a precursor to today's historic district but to the present adaptation of urban waterfront areas. While other towns also celebrated their tercentenaries during the period, the Plymouth celebration was the most elaborate and had the most profound effect on land use.

In general, local cores were little altered during the Early Modern period, although coastal towns began to adapt to the increased auto traffic. As transportation time between the resort towns and urban areas was reduced there was a movement to adapt summer residences to year round use. This shift began to occur toward the end of the period and was restricted to a few locations especially in Marshfield, Scituate and Dartmouth. This process, whether a retirement decision or retreat from the depression battered cities, was a precursor of the post-World War II exodus from the cities.

E. Survivals

There are six categories of Early Modern period survivals: rural landscapes, roadside commercial strip development, resort communities, commuter suburbs, town center streetscapes and suburban residential districts.

1. Rural landscapes include small scale, low density period houses as well as small farms, especially those oriented towards poultry, dairying or cranberry production.

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

3. Resort communities consist of medium to high density concentrations of small, often seasonal, residences frequently with small commercial enterprises adjacent or interspersed.

4. Commuter suburbs consist of small single-family or two-family houses built at low to medium density and usually located along streetcar lines or secondary roads.

5. Town center streetscapes are pre-existing town centers with significant period infill, usually of large commercial buildings (department or chain stores), municipal and civic buildings or apartment blocks.

6. Suburban residential districts consist of single-family houses set out at medium density along gridded streets. Often a small park or school is included.

EARLY MODERN PERIOD

Period Core Areas (listed by contemporary towns)	Rural Landscapes	Roadside Commercial Strip	Resort Communities	Commuter Suburbs	Town Center Streetscapes	Suburban Residential Districts
New Bedford Core						
New Bedford		X	?	X	X	X
Dartmouth	?	X	?	?		
Acushnet	?	X		X		
Fairhaven		?	X	X		?
Fall River Core						
Fall River	?			X	X	X
Somerset		?		X		
Swansea	?	?	X	X		
Freetown		X	?			
Westport	?	X	X	?		
Brockton Core						
Brockton		X		X	X	X
Abington				?		?
Rockland				?	?	?
Whitman				?		?
E. Bridgewater				X		
W. Bridgewater		?		X		
Attleboro Core						
Attleboro		?		X	X	X
N. Attleborough		X		X	X	X
Norton			X	?		?
Taunton Core						
Taunton		X		X		X
Raynham	X	?				
Dighton	?	X		X		X
Berkley	X					

Period Core Areas (listed by contemporary towns)	Rural Landscapes	Roadside Commercial Strip	Resort Communities	Commuter Suburbs	Town Center Streetscapes	Suburban Residential Districts
Plymouth Core						
Plymouth	X	?	X		?	?
Local Cores						
Middleborough	X	X			X	?
Bridgewater	X	?		X		X
Easton	?			?		X
Mansfield		?			X	X
Peripheral Areas						
Scituate	?	X	X		X	
Marshfield	?	?	X			
Duxbury	?		X			X
Norwell	?	X				X
Hanover	X	?		X		
Hanson	X	X	X	?		
Pembroke	?	?	X			
Halifax	X	?	X			
Plympton	X	?				
Kingston		X		?		?
Carver	X					
Wareham	?	X	X		X	?
Marion		X	X			?
Rochester	X					
Mattapoisett		X	X			
Lakeville	X		?			
Rehoboth	X					
Seekonk	X	X		?		

F. Research Topics

Because the developments of the Early Modern period occurred within the 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. Some of the 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 highway related buildings and structures, especially gas stations/garages, drive-in restaurants and signage.

2. 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?

3. Examine the ways in which ethnic immigrant population groups stabilized and how they emerged as political and economic forces in their communities.

4. What were the differential patterns of recreational land use during the period? What factors influenced the social/economic preferences for particular resort areas? How did these factors influence development on Cape Cod Bay as opposed to Buzzards Bay?

5. How did history and historical structures/sites become incorporated into the region's tourist economy? What role did the Plymouth tercentenary play in this process?

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CHAPTER IV: ARCHITECTURAL DEVELOPMENT

Introduction:

The architectural history of southeast Massachusetts is characterized by slowly evolving and subtle change: vernacular building forms predominate, and fully developed examples of period styles are rare and generally confined to discrete settings. Architectural development in southeast Massachusetts mirrors the overall conservatism of regional growth patterns. Because of this, plan types are far more difficult to classify as innovative, contemporary or traditional (see Glossary for definitions).

In general, contemporary and traditional plans dominated the region from the beginning of settlement and prevailed through the mid 19th century. Innovative plan and building types did not begin to appear until the end of the Federal period in core areas and were not widespread or dispersed before the Late Industrial period. In a stratigraphic model of architecural development for southeast Massachusetts, highstyle architecture would occupy a very thin upper layer for all of the 17th and 18th centuries and would gradually thicken after 1800, widening dramatically after 1870. Underlying this would be a deep band of vernacular architecture extending from the 17th through the mid 20th century. Compositionally, that thick strata of vernacular architecture would be dominated by a single residential form, the cottage.

Methodologically, the section on Architectural Development is organized by period and plan type for single-family residences and by significant building type and function for all other architectural forms (multiple-family residential, institutional, commercial and industrial).

I. RESIDENTIAL

A. Single Family

Plantation Period

The Plantation period architecture of southeast Massachusetts is ill understood and poorly documented: this is especially so for the domestic architecture of the study unit. Romanticized and legendary accounts of Pilgrim settlement extending at least as far back as the early 19th century have tended to obscure an accurate picture of the region's "First Period" architecture. It is precisely because of the earliness of settlement in the region, however, that reliable knowledge about its architecture is needed. Given the early settlement of the Plymouth area and the relative absence of later development, the survival of 17th century houses is comparatively likely and yet little is known.

To date, the most reliable information about Plantation period architecture has come from archaeological excavations and documentary research. Published research exists primarily in the form of a 1969 article written by Richard M. Candee and entitled "A Documentary History of Plymouth Colony Architecture, 1620-1700." The article documents 43 houses dating from 1633 to 1694 for southeast Massachusetts towns. Most were built in the 1660s and 1670s. Based on contemporary descriptions, local histories and the Plymouth Colony Records, Candee elucidates four basic plan types: these are the end chimney, the center chimney, end chimney with lean-to and center chimney with lean-to. These plans were used for both one story (cottage) and two story (house) forms. Of the dwellings documented, only six are extant. The Isaac Fearing House (1665) in Wareham, the Joseph Churchill House (1672-1695) in Plymouth, the John Bradford House (1674) in Kingston, the Waite-Potter House (1677), which once stood in Westport and was moved to Rhode Island ca. 1965, the "Sparrow"-Leach House (1679) in Plymouth and the Samuel Stetson House (1694) in Hanover.

In contrast to the number of 17th century houses indicated in the Candee article, inventory forms of the Massachusetts Historical Commission record some 16 extant period structures. That figure probably represents an exaggeration of the actual number of additional surviving period structures since construction dates have often been based on tradition rather than structural analysis or documentary evidence. Nonetheless, further study could corroborate 17th century construction dates for several of those 16 inventoried houses, among them the John Alden House (dated 1653) in Duxbury, the Keith Parsonage (ca. 1662-64) in West Bridgewater, and the Kingsley House (ca. 1680) in Rehoboth.

Candee's article reveals another significant aspect of southeast Massachusetts architecture in the Plantation period, namely, the presence in the region of an unusual type of construction, vertical plank framing. This method of construction employed closely spaced vertical boards overlying a timber frame. Vertical plank construction was unknown in England and may have been a Netherlandish form of construction acquired by the separatists through contact with Holland (Candee, 1969 #2: 46-7). It has been characterized as the primary building method of the 17th and 18th centuries in Plymouth Colony and northern Rhode Island: of buildings built in the region before 1725 where the construction method is known, over 90% were of vertical plank construction (Candee, 1969 #2: 40).

The other major source of information on the earliest dwellings of the region has been archaeological excavation. Excavations of the Isaac Allerton site in Kingston and the John Alden site in Duxbury revealed the use of the long house form. It is likely that the survival of English regional vernacular house plans, such as the long house, and their use in southeast Massachusetts will be known primarily through archaeological investigation.

Archaeological investigation has also yielded information about another Plantation period building type, the garrison or fortified

house. A number of garrison houses or fortified houses were constructed in southeast Massachusetts in response to the native threat before King Philip's War. Garrisons are cited in North Attleborough (Woodcock Garrison, 1669), Fairhaven (Cooke's Garrison, ca. 1673, cellar hole remaining, Sconticut Neck Road), Middleborough (Palmer House, 1675), Raynham (ca. 1674), Scituate (four garrisons, 1676), Swansea (Bourne House, ca. 1664, fortified 1675; Myles House, ca. 1667, fortified 1675) and Taunton (two garrisons, ca. 1674).

There is no documentation indicating that any of the structures mentioned were constructed as garrisons; rather, all appear to have been fortified dwelling houses, fortified either as designated meeting-places in emergencies or in direct response to the threat of native attack in the early 1670s. There is little description of these fortified houses within secondary sources and thus it is presumed that the majority followed the pattern posited for Eastern Massachusetts, namely that the designated "garrisons" were simply ordinary dwellings surrounded by a palisade. Reference to portholes (gun ports) is made in descriptions of the Williams-Barker Garrison (Scituate). Square plan masonry and timber framed blockhouses with overhanging second stories of the type found on Cape Cod (see Candee, 1969 #3, pp.68-69) and in Eastern Massachusetts (Billerica, 1667; see Pfeiffer, Eastern Massachusetts Study Unit Report Draft) do not seem to have been constructed in Southeast Massachusetts, despite proximity to hostile natives to the west. A particularly unusual structure was the Palmer House garrison (ca. 1675) in Middleborough which is described as having four gable ends and two ridge poles (Weston, History of the Town of Middleborough); such plans were not unknown in the Plantation Period (especially for meetinghouses) but no other garrisons of this type are recorded. The only other fortified structure of the period known was the meetinghouse fort at Plymouth (1622; replaced, 1634/1635), a square plan flat roofed structure with battlements, enclosed within a palisade.

Remains of period garrisons are scant. The Myles Garrison (Swansea) survived until 1909, when it burned; the cellarhole of the

Cooke Garrison (Fairhaven) remains as does a later ell of the Woodcock Garrison (North Attleborough). The Williams-Barker Garrison (with the unsubstantiated and highly unlikely date of 1634) in Scituate is the only possible surviving garrison known.

Colonial Period

Despite the region's early settlement, settlement concentrations, particularly in the interior sections, remained sparse through the Colonial period. Based on the character of settlement, the number of houses built would seem to have been comparatively few. Most of the Colonial period houses were built as farmhouses along outlying roads; exceptions to this were Plymouth, New Bedford/Fairhaven, Taunton, Middleborough and, to a lesser degree, Scituate, Duxbury and Kingston, where concentrations of period structures were located at town centers. Evidence for the later predominance of the cottage form began to be apparent in the Colonial period, but the numerical superiority of one or one-and-a-half story cottages and two or two-and-a-half story houses did not become clear until the end of the period. In general, period structures have tended to survive in relatively small numbers and in isolated contexts.

The extremely small number of documented or surviving Plantation period houses in the study unit prevents a thorough discussion of style and plan type for that period. This is not true for the Colonial period, with its substantially increased data base of surviving houses. From the Colonial period on, single-family residential architecture will be organized by plan type; style will be discussed primarily as it is reflected in changing house plans. Plan types will be identified as innovative (ahead of their time), contemporary (of their time) or traditional (behind their time). In this way distribution patterns and development sequences can be identified within the residential architecture of the study unit.

Georgian architecture came slowly to southeast Massachusetts. The earliest houses with recognizably Georgian details date from the

1740s, some 50 years after the earliest Reaissance-derived "Georgian" houses of Boston. For the most part, the houses of the Colonial period are stylistically modest, with simple detailing; there are very few instances of pretentious or elaborately detailed Georgian construction. Style in general appears to play a less significant role in southeast Massachusetts (and especially in Plymouth County), at least in the Colonial period, than has been the case in other areas of the state. Nonetheless, examples of Georgian architecture are known in the region.

The most fundamental change in house plans for the period was the introduction of the center hall. Characteristically, center hall plan Georgian houses incorporate double interior chimneys; four-room, double pile plans are standard for fully developed examples. Double interior chimney, center hall plan houses are, however very rare in southeast Massachusetts; they occur in approximately 16 percent of the total number of two-story houses inventoried for the period. Double interior chimney cottages are almost unknown for the period. In a number of instances, the double interior chimney configuration resulted from the enlargement during the Colonial period of an earlier end chimney half-house; examples of this occurrence are the Isaac Fearing house (1665) in Wareham and houses in Bridgewater, Kingston, Plymouth, Fairhaven and Swansea. Of surviving houses built as four room, double interior chimney, center hall plan structures, all were built after 1740 and most are located in Colonial period core areas. These include the Oliver House (1769) in Middleborough, the Edward Winslow House (1754) in Plymouth, the McKinstrey House (1759) in Taunton and the Squire Sever House (1760) in Kingston. Of the houses which do not survive, probably the most significant architecturally were the Peter Oliver House (1744) in Middleborough and the Jerathmael Bowers House (1770) in Somerset. The Peter Oliver House, which burned in 1778, was probably the most opulent Georgian house built in southeast Massachusetts; it is described as having been after the style of an English mansion with white plastered (stucco?) walls, suggesting a stylish, formal appearance. The house was set within a landscaped park complete with a summer

house. Portions of the interior detailing were later removed to the Ward House in Lakeville. Most of the study unit's fully developed Georgian houses, both extant and demolished, incorporated details such as quoins, rustication, dormers with pediments, crownmolded window enframements, open or enclosed porticoes with pediments, and richly molded door enframements. Hip and gambrel roofs were generally employed for the most stylish houses, with other simpler structures retaining the standard gable roof form.

The most commonly employed house plan of the Colonial period was the center chimney plan with three major rooms, hall, parlor and kitchen. Introduced in the Plantation period, this plan remained standard for both houses and cottages through the end of the period. Residences with the center chimney plan comprise 83 percent of the total number of cottages inventoried and 69 percent of all houses inventoried for the period. Center chimney houses and cottages survive in good numbers in almost every town in the study unit. To some extent, two-story houses seem to be located at town centers, with cottages in outlying locations, but substantial two-story farmhouses were built in isolated locations whenever economic considerations allowed.

For the early years of the period (1675-1725), center chimney plan houses and cottages of a single room's depth with either added or integral lean-tos were common, but by the 1730s and 1740s, most of the dwellings in the study unit incorporated a double range of rooms under a wide gable roof and lean-tos were employed less frequently. In all of the above-mentioned examples, the symmetrical five-bay wide facade with a center entrance was standard. Somewhat smaller houses and cottages with asymmetrical four-bay wide (three quarter plan) facades and entrances in either of the interior two bays were, however, a common alternative and survive in some numbers. Three quarter plan cottages comprise 9 percent of total inventoried cottages and 11.5 percent of the houses. These seem to be located either in interior areas (Carver, Norton, Plympton, Rockland), where they provided a more modest alternative to the full five bay wide plan, or along the coast (especially New Bedford, Fairhaven and

Plymouth), where they may reflect the higher density of settlement in developing period seaports. Of the towns mentioned, Plymouth retains the largest number of three quarter plan Colonial houses.

The most modest dwellings of the period are end chimney, half plan houses and cottages; these are comparatively rare and comprise, respectively, only 7 percent and a little less than 3 percent of the cottages and houses inventoried. The low percentages for these dwellings probably reflect a poor survival rate: as some of the simplest and, in the case of cottages, smallest house forms in the study unit, half plan structures have commonly been either enlarged or demolished for more substantial dwellings. Only in the case of Plymouth has a sizeable cluster of such houses survived. Colonial period half plan houses and cottages, consisting of one major room with ancillary service rooms in an ell or lean-to to the side or rear, demonstrate the longevity of plan types in the southeast Massachusetts region; dwellings of the one room, end chimney plan were among the first structures constructed in the 1620s and the plan probably remained in use through the mid 18th century.

Frame construction, either of the vertical plank or stud method, was, to all intents, universal in southeast Massachusetts. Masonry construction was very rare, and in almost every instance of masonry construction noted, Colonial period construction dates are open to question. Two brick cottages with interior chimneys are known to exist in Whitman. One is dated ca. 1725 and the other ca. 1740. However, since early brick houses generally incorporated chimneys within the endwalls, the presence of interior chimneys implies a later construction date. Masonry construction was also noted in Rehoboth, where at least one extant house (Kingsley House, ca. 1680) is said to have been constructed originally as a stone endwall chimney structure in the Rhode Island manner. Other masonry structures recorded in Rehoboth are a brick gambrel roof cottage of ca. 1735 on Water Street and a brick endwall half house of ca. 1700 on Hornbine Road. The Water Street cottage is said to incorporate canted corner fireplaces, as far as is known, this is a unique example in Massachusetts of that form.

In general, detailing on houses and cottages of the period is very simple and in many instances consists only of an entrance surround with flat pilasters and a pediment or flat entablature. Enclosed porches with a hip roof are fairly common, especially in interior sections. Dentilated cornices are comparatively rare, plain box cornices predominate. Dormers were in use, even for modest structures such as cottages, as early as the 1730s (Timothy Wood cottage, Halifax, ca. 1735); dormers with pediments are also common. Less well understood is the use of shed dormers. This dormer type, which consists of a single dormer under a shed roof running the width of the facade and usually containing five window openings corresponding to first floor fenestration, appears in many cases to be original to 18th century construction, but the feature has not yet received adequate study. Use of the shed dormer seems to concentrate in Plymouth County.

Federal Period

During the Federal period, the number of towns with nucleated settlements increased substantially. Established core areas like Middleborough, Taunton and Plymouth were joined by newly emergent centers of industrial and maritime activity such as Bridgewater, Fall River and New Bedford. This increased diversity is reflected architecturally in a variety of new plans and in a wider range of house sizes and of quality of construction and details. By the end of the period, the precedence of the cottage as the region's dominant house form was well-established. Period structures have survived well, both within isolated rural and agricultural landscapes and in concentrations at town and village centers.

The major difference, structurally, between Federal and Georgian center hall plan houses is in chimney location, with the double interior chimneys of the Georgian house shifting to the end walls in the Federal house. In a textbook example of the New England Federal house, endwall chimneys, the center hall plan and a shallow hip roof are standard. Examples of such houses are known in southeast

Massachusetts, but, in general, the quintessential end wall chimney, center hall plan Federal house never achieved widespread popularity in the region. Such houses are most common in the northern half of the study unit along the Old Colony line, although other towns often contain one or two examples of this type.

While the end chimney, hip roofed house would generally be considered the innovative house type of the period, in southeast Massachusetts, other distinctive new house types developed in the Federal period. These house types functioned as the most stylish and up-to-date statements in their communities and represented a considerable break from the generally plain houses of the Colonial period, but in many instances, the floor plans employed were the standard plans of the Colonial period: the center chimney, three-room plan, the double interior chimney, four-room plan and the end or center chimney half or three quarter plan.

In southeast Massachusetts, the most stylish houses incorporate a steep hip roof or a pyramidal hip roof. This represents a significant shift from the general taste of the period which dictated that rooflines be low and unobtrusive. In most towns of the study unit, approximately a half dozen houses with steep hip or pyramidal hip roofs were built. This number is substantially increased in the case of Duxbury, where almost every important Federal house at the town center employs the center chimney plan with a steep pyramidal hip roof. Double interior chimney plan houses with hip roofs were also built with some frequency throughout the unit.

Among the most pretentious houses of the Federal period are the Simeon Martin House (1810) in Seekonk, a house in Raynham at Squawbetty, the King Caesar House (1808) at Duxbury and the Bartlett House (1803) in Plymouth. Each of these exhibits a different plan. The Martin House is a double interior chimney plan, hip roof house with a tall, Rhode Island style monitor and Chippendale balustrades; the house at Squawbetty, a brick endwall chimney, hip roofed building, is notable for its outstanding detailing. The King Caesar

House is one of a comparatively rare group of double pile plan, end chimney Federal houses while the Bartlett House is a unique three-story, double pile brick house with an octagonal cupola and semielliptical portico. This diversity would appear to suggest that the more stylish houses of southeast Massachusetts reflect the indivdual owner's tastes rather than any regionally held definition of style.

The other distinctive regional types for the period are the asymmetrical four-bay wide, center chimney plan (three-quarter) house and the three-bay wide, end chimney (half house) plan house. Houses of these types are primarily confined to coastal areas of Bristol County, where they are found in both densely settled areas, such as Fairhaven and New Bedford, and in more open village center settings, as in Head of Westport. In both Fairhaven and New Bedford, raised basements and stoops with a single run of stairs to the entrance are standard and probably reflect the need for protection against seasonal high tides.

The most commonly used two-story house types of the period were, however, the center chimney, three-room plan with gable roof and the double interior chimney, four-room plan with gable roof. Center chimney houses account for some 33 percent of all two-story houses inventoried for the period, while double chimney houses, both end and interior examples, comprise 50 percent of the total houses inventoried. (This figure does not distinguish hip from gable roof houses.)

By far the most common dwelling of the period, however, is the cottage: one or one-and-a-half story cottages were built in substantial numbers in every town of the study unit, both at the town and village centers and along outlying roads. Of the total number of drwellings inventoried for the period, 41 percent are cottages. This figure probably reflects a somewhat lower number than the actual number of cottages either built or surviving. Since cottages are generally perceived as a lesser architectural form, better preserved or more ambitiously detailed cottages have tended to be inventoried to the exclusion of altered or simply detailed examples.

Almost all of the Federal cottages of southeast Massachusetts exhibit the traditional features and form of the Cape Cod cottage: they are center chimney, one-and-a-half story structures with gable roofs and symmetrical five-bay center entrance facades. Many contain end wall fenestration consisting of three or four double hung sash with three small square fixed panes in the peak and at the eaves of the half story attic. Most of these were built as farmhouses along the outlying roads of their communities. Many incorporate shed dormers across the facade and shallow gable endwall overhangs (probably hewn).

By the end of the period, double interior or endwall chimney cottages were being built in some numbers. Double chimney or endwall chimney cottages account for some 33 percent of all cottages inventoried; since such cottages were built in the 1830s and into the 1840s, it is likely that the number of Federal period cottages is actually somewhat smaller.

Given their large numbers and their social significance as the standard house form for a majority of the population in the Federal period, little is known about the development of the cottage. Continuity of form over a long span of time makes dating cottages difficult. In plan, cottages retain the traditional center chimney house plan in a one-story form. Why the twin rearwall chimney plan was not adopted in southeast Massachusetts is not known. In the Boston area, where cottages are rare, the twin rearwall chimney house functioned as the modest house type of the Federal period. By contrast, twin rearwall chimney houses are almost unknown in southeast Massachusetts. The only examples observed are clustered in the Easton/Norton area. The need for further research into the cultural factors affecting the development and prevalence of the cottage in southeast Massachusetts seems clear.

As in the previous periods, frame construction is the rule in the Federal period. Despite brick production in some towns (Taunton, Whitman) during the period, masonry construction, either in part or

in toto, is very rare. Brick cottages of the period are known in Dighton (Delare Cottage), Middleborough and Whitman; brick houses were also built in the period in New Bedford and Taunton. Other uses of brick are limited: houses with exposed brick endwalls are unusual and are generally confined to the northern half of Plymouth county (North River area). Brick endwall houses are known in Norwell, Plympton, Hanover, Halifax, and Pembroke. Brick rearwalls incorporating chimneys are, as stated above, almost unknown.

Detailing of Federal period houses and cottages in general reflected an increasing taste for ornament. More houses incorporated dentilated cornices while cornices of greater delicacy and complexity also became common. Entrance treatments, too, were more decorative. Blind, muntined or leaded semielliptical or semicircular fan lights, plain or elaborated pilasters flanking the door, sidelights with leaded panels or with simple muntined lights, and dentilated triangular pediments were all common Federal decorative elements. Elaborate detailing was not reserved for two-story houses but was often used on cottages as well. A common entrance treatment for more modest cottages was the use of a straight transom of rectangular lights filling the space above the door and extending to the eave. Window treatment remained comparatively simple, except in Bristol County and along Buzzards Bay, where flat, splayed wooden lintels surmounting first and second floor windows were almost ubiquitous for the Federal period.

In many parts of the study unit, clapboards were used only on the facade with shingles used to sheath the remaining walls. This was especially common along the coast, but was also found in interior sections. The most frequently employed roof form was the gable roof, but a few examples of other roof forms, including the most stylish hop roof, mentioned above, were also noted. Among these are the gable on hip form, very rare but observed in Whitman (Benjamin Hobart House) and in Norton (Jonathan Newcomb House).

Early Industrial Period

The Early Industrial period was marked by significant architectural change. The primary shift was from symmetrical plans with center entrances and either double or center chimneys to asymmetrical plans with side halls and side entrances. The traditional five-bay wide facade of the 18th and early 19th centuries yielded to the three-bay wide facade of the mid 19th century. The sidehall plan, which was common to both urban and rural areas, became the standard single-family plan type in the residential neighborhoods of the study unit's industrial and commercial centers. Although a number of new house types were evident in the study unit's cores, cottages remained the basic house type of the unit: they were the most common single family house type in the cores and were nearly ubiquitous in the outlying, rural and interior sections of southeast Massachusetts.

The most significant innovation in single-family houses plans was the adoption of the sidehall configuration: sidehall plan structures account for 57 percent and 68 percent of the Greek Revival style cottages and houses, respectively, inventoried for the study unit, with slighly smaller percentages recorded for the Italianate residences inventoried: Of the Italianate dwellings inventoried, 50 percent of the cottages and 48 percent of the houses employ sidehall plan. The sidehall plan became widespread by the 1840s and remained standard through the end of the period.

Use of the plan entailed reorientation of the structure so that the gable end faced the street; an offset entrance gave access to a side stairhall. Generally, the plan incorporated two interior chimneys located on the wall opposite the entrance. In the Bridgewater section of Plymouth County is a group of sidehall plan cottages and houses with chimneys rising from the peak of the gable just behind the facade. In fact, these nominal sidehall plan structures are end interior chimney structures of the type common in the Federal period, reoriented with the gable end to the street. In other variants of this same strategy, the chimneys rise to one side of the ridge. In almost all instances,

service rooms are incorporated within side or rear ells.

Several other regional variants incorporating the sidehall plan should be noted. Chief among these is the Greek Revival house or cottage with recessed side portico and entrance. Examples of this type prevail in Plymouth County. Most structures of this type feature a single offset portico with one or two columns, although a few dwellings were noted with double recessed porticoes or a single monumental side portico with three or four columns. An outstanding example of the monumental side portico type is the Packard House (ca. 1835) in Brockton.

The temple front is another variant employing the sidehall plan. Temple front Greek Revival houses and cottages are very rare in southeast Massachusetts, with only one example (if any) per town in most instances; most of these incorporate a three-bay facade with a side entrance. The largest concentration of temple front Greek Revival houses is in New Bedford, where a number of ambitiously detailed four square double pile plan granite houses with monumental porticoes (with and without pediments) were constructed in the 1830s, '40s and '50s. Most of these have four or five-bay wide facades. Many were designed by Providence architect Russell Warren and are among the earliest architect designed houses in the study unit. By the 1860s, the sidehall plan was well established and could no longer be considered an innovative form. The plan type which replaced it as the most up-to-date for the period was the asymmetrical, cross-gabled plan introduced in the 1840s and generally employed for houses in the Gothic Revival and Italianate styles.

In general, the crossgabled plans introduced in the mid century retained the standard center hall or sidehall; these standard floorplans were embellished, however, with asymmetrically placed dependencies, such as towers, bays and wings. Rooflines, too, were more complex, with intersecting gables, dormers or towers. Picturesque Gothic

cottages and Italianate villas are rare in southeast Massachusetts and their construction is generally related to the prosperity of one era or to a single local patron, such as a prominent manufacturer or professional. Thus, Carver, otherwise one of the study unit's more modest communities, contains outstanding Gothic Revival and Italianate structures, "Leyden Cottage" (1850) and "The Larches" (c. 1852), built by William Savery and George Bowers.

Other important mid century houses include the Jared Pratt House (1848) at North Middleborough, one of the most sophisticated and academic Italianate villa in the study unit and the three-story Italianate Stevens House (1855) at Swansea. Groups of outstanding Italianate houses were also built in the newly prosperous manufacturing cities of the study unit and survive in North Attleborough, Taunton, Raynham, New Bedford and Fall River. Especially notable is the influence in Taunton of Richard Upjohn, who designed several important institutional buildings and one residential building (Fairbanks House, 1852-3) there in the period.

While towered Italianate villas are known in all of the above-mentioned towns, equally popular were four square plan Italianate houses with low hip roofs surmounted by square belvederes. Such houses are known in some numbers in New Bedford with several examples in Bridgewater, Taunton and Middleborough. Gothic Revival houses are far more rare, especially with original finish surviving. By far the best known of the Gothic Revival houses of the study unit is the William J. Rotch House (A. J. Davis, 1846), in New Bedford. Typical of the early Gothic Revival are the house's massive carved bargeboards and flushboard siding. Other significant Gothic Revival houses are "Queset Lodge" (1853-4, possibly A. J. Downing) in Easton and the Jabez Delano House in Fairhaven.

Although they are idiosyncratic and generally transcend the established regional architectural patterns, polygonal houses primarily

octagons and hexagons must be considered an innovative house form of the period. The octagon was the house form advocated by phrenologist Orson Squire Fowler in his book, A Home for All (1848). Approximately a half dozen are known in southeast Massachusetts. These stand in Abington, Hanover, New Bedford (two examples recorded), Pembroke and Somerset. The structures in Hanover and Pembroke were built as wings to existing houses, while those in the other towns are freestanding. Of these, only the house in Somerset appears to be built in the method recommended by Fowler, gravel wall construction. At present, the Somerset house is finished with stucco; underlying construction is presumed to be of the concrete-like gravel wall type. One round house (1857) is known in Plympton; originally built of fieldstone, it was rebuilt in wood several years later and stands on Mayflower Road.

For more modest sized houses and for cottages, double chimney and end chimney floor plans were used through the 1850s. These functioned as contemporary plans only through the 1840s and must be considered to be traditional by the end of the 1850s. This shift is borne out in the percentages, which reveal that of all Greek Revival houses and cottages inventoried, 25 percent were of double or end chimney plan. This compares to only 13 percent of all Italianate houses and cottages inventoried. These figures suggest that by the end of the period, when the Italianate style predominated, such plans were on the wane. Double and end chimney floor plans appear to concentrate in interior sections, although houses and cottages with these configurations were built in coastal areas as well. Most new construction of the period, however, employed the sidehall plan for cottages and houses alike. This is increasingly the case after 1850, when suburban middle class and working class single-family houses and cottages began to be built in some numbers in the study unit's cores.

In outlying and rural areas, most two and two-and-a-half story houses retain the end or double chimneys, while for cottages the

sidehall plan generally seems to have been adopted. There are exceptions to this, particularly in the interior sections of the study unit. One exception, apparently concentrated in Plymouth County, is the double interior chimney, center entrance Italianate cottage with a single center gable or paired gables on the facade. Such cottages remained relatively common from the late 1850s and through the 1860s in towns like Rochester, the Bridgewaters, Abington, Whitman and Rockland. An expanded version of this type emerged in these same towns in which the typical story-and-a-half volume of the cottage was enlarged through the addition of an extra halfstory attic. This made for a very deep roof which was generally lit with facade dormers for the middle floor. Although functionally a two-story house, such structures retained the appearance of a large cottage. This adherence to the cottage form indicates the dominance of the form in the region. In general, however, the smaller sidehall plan Italianate cottage prevailed.

The most conservative floor plan employed in the period was the center chimney, two-room plan, of which at least a few examples, primarily cottages, were constructed through the 1830s. After 1840, such plans are almost unknown.

As in the previous periods, frame construction was by far the most common method employed in the study unit. During the Early Industrial period, however, locally quarried granite became a more common building material; this is the case in Fall River and New Bedford and to a lesser degree in Taunton. Brick, too, was an increasingly common material as the period went on, but only in the industrial centers of the study unit and then generally only for the most pretentious structures.

Detailing remained simple for cottages and most houses in the study unit. Greek Revival entrance surrounds consisting of full length sidelights and transoms predominated with Italianate bracketted door hoods becoming common by the end of the period. Greek Revival door

surrounds with an elongated Greek key motif are fairly common in the study unit. These appear to derive from Plate 28 "Design for Front Door Case," illustrated in Asher Benjamin's Practical House Carpenter (1830).

Window surrounds with peaked lintels replaced the splayed lintels of the Federal period. Wide cornices with plain friezes were employed through the mid century but were replaced by the end of the period by bracketted Italianate cornices of varying complexity. In New Bedford, square cupolas with canted corners were common in the period; these are similar to those found on period houses on Nantucket and probably reflect cultural connections based on maritime trade. Also common in New Bedford are second story windows set within a Greek key surround and located above the entrance.

The most commonly employed details for ambitious Italianate houses were rusticated facades, quoins, and decorative window caps; a number of New Bedford, Taunton and North Attleborough Italianate houses retain a full complement of these stylish period details. In more modest houses, brackets and roundhead windows were the standard decorative features of the Italianate style.

At least two distinctive usages of the roundhead window were noted. These are located in the Dighton/Berkley area and in the Rochester/ Lakeville area. In Dighton and Berkley, sidehall Italianate houses and cottages often feature two or three roundhead windows in the gable end; unlike most other examples noted in the study unit, where paired roundhead windows in the gable are a comparatively common feature, the Dighton and Berkley examples are not paired. They may indicate the work of a single local carpenter. In the Rochester/Lakeville area, several end interior chimney plan Italianate houses were built whose second story roundhead windows project into the frieze. This is an unusual instance of the frieze being interrupted by a decorative feature.

Late Industrial Period:

In the study unit's manufacturing cores; extensive urban and suburban neighborhoods for a range of classes were constructed in Brockton, Taunton, Fall River and New Bedford. In general, innovative architecture was confined to those areas. Older cores such as Middleborough, Plymouth, and Bridgewater followed this pattern on a much more limited scale. In the outlying, rural and interior sections, however, very little residential construction occurred, and in some towns of the study unit, late 19th century development was virtually nonexistent. Thus, while there was great activity in discrete locations of the study unit during the period, on the whole, there was little residential development in much of southeast Massachusetts after 1870.

The open plan, a reflection of increasing functionalism in residential architecture, was the major architectural innovation of the period. In the open plan, room placement and size were increasingly related to use, and chimney placement, once the major determinant in plan type, became peripheral. Stair placement remained important, however, and often, in the open plan, the stairhall became a focal point in the overall plan. Irregular elevations and complex rooflines were the primary external manifestations of this internal shift. In southeast Massachusetts, the open plan was used only rarely and was most often employed in houses in the Shingle and Queen Anne styles.

Shingle Style houses are comparatively rare in the study unit: although Shingle Style houses were built in residential neighborhoods in the manufacturing cores, they are more typically associated with the coastal resorts which developed along Buzzards and Plymouth Bays in the 1880s and '90s. Notable clusters of Shingle Style summer houses and cottages are located at Swansea, Westport, Dartmouth, Mattapoisett, Marion, Wareham, Plymouth and Duxbury. In general, these are located either on spits of land outlying historic town centers or along the coastline at the edges of existing town centers.

By contrast, most Queen Anne style houses are located in elite districts surrounding town centers in the unit's industrial cities. Neighborhoods of well developed, architect designed Queen Anne houses are known in New Bedford, Fall River, Attleboro and North Attleborough, Taunton and Brockton. Clusters of Queen Anne houses are known in the remaining industrial cities and towns of the study unit, while fully developed Queen Anne houses are generally confined to a single anomalouse example in the smaller towns. Generally, the Queen Anne houses of the study unit appear to rely less heavily on classical, Colonial Revival motifs than was the case in the Boston area. A range of motifs, including Gothic-derived and Eastlake details, seem to have been employed freely in southeast Massachusetts. Among the residential architects working in these styles in southeast Massachusetts were Wesley Lyng Minor and J. Williams Beal (both of Brockton), Nathaniel C. Smith (New Bedford) and Joseph M. Darling and Charles C. Marble (Fall River).

The majority of the single family houses of the Late Industrial period adopted a more conservative T or L-shaped form consisting of a sidehall plan main block embellished with intersecting front or side gabled blocks. Houses of this plan were built from the 1870s through the turns of the century in all of the industrialized cities of the study unit and in most agricultural towns as well.

Often these cottages were the most substantial late 19th century houses built in outlying areas. Sidehall plan cottages also remained common for single-family use in the urban areas of the study unit through the end of the period. As the period went on, however, these were increasingly confined to areas of more modest housing.

Second Empire styles houses generally adopted the embellished plan as well. Second Empire style houses are rare in the study unit and tended to be built only in the core areas. The only cities with notable concentrations of Second Empire houses are Fall River and Brockton, but the other study unit cores all retain a

number of houses with mansard roofs; most of these tend to be conservative structures in the Italianate style which were made more stylish through the use of a mansard roof. Most houses with mansard roofs probably date from the late 1870s and early 1880s, but mansard-roofed houses were undoubtedly being built in the 1860s in most cores.

Stick Style houses are comparatively rare in the study unit. Most of the examples observed were located in elite residential neighborhoods in close proximity to historic town centers; some of the most outstanding stick style houses were noted in the Attleboroughs, Taunton, New Bedford and Fall River. By comparison, Queen Anne style houses with embellished sidehall plans are very common with at least a few examples located in all agricultural towns and a large number of such houses standing in the unit's industrialized cores.

In the mid 1890s, two modest single-family house forms related to streetcar suburban development were generated. These are the bungalow related cottage and the four-square house. Bungalow related cottages, so called because they generally do not exhibit all of the characteristics of the fully developed bungalow, are one or one-and-a-half stories in height with a hip, gambrel or jerkin head roof (often with a single center dormer), raised basement and a front porch incorporated within the overall rectilinear massing of the structure. The four-square house is a two-story house with a square plan and pyramidal hip roof (sometimes with dormers). Both structures generally employ a sidehall plan and exhibit Colonial Revival detailing. In many instances, these can almost be used as an indicator of late 19th century streetcar routes, as they are generally located in a diffused linear fashion along the outlying roads of a community. When these houses are found in clustered locations, they often extend only to a depth of a few blocks behind the streetcar route. Well preserved examples of such streetcar related architecture are located in Somerset, Swansea, West Bridgewater, the Attleboroughs, Hanover and Norwell.

After 1900, more formal and traditional center hall plans made resurgence with the advent of the Colonial and Georgian Revival styles. Colonial Revival houses of some pretension were constructed in numbers in all of the study unit's cores. A similar pattern to that observed for the Queen Anne style was noted for the Colonial Revival: a limited number of Colonial Revival houses were built in secondary centers of the study unit with a much smaller number of Colonial Revival houses built in most other towns, where one or two well developed examples of the style were generally located at the town center.

An exception to this pattern should be noted in cases where turn of the century industrial prosperity created suburban commuter neighborhoods in towns adjoining major industrial centers. The only instances of limited suburban commuter development noted were in Seekonk, which functioned as a suburb of Providence, and in Somerset, which functioned as a suburb of Fall River. In both of these towns, well-developed suburban Colonial Revival houses relatively independent of local development patterns were constructed after the turn of the century. Craftsman and Prairie Style houses, generally very rare in the study unit, were, however, built in some numbers in both Brockton and New Bedford.

Given the overall modest character of late 19th century residential architecture, it is not surprising to note the emergence in the most marginal areas of the study unit of a distinctive miniature house type. Miniature houses are one story tall, two room wide houses generally with a center entrance and center chimney. In addition to their diminutive one-story height, miniature houses are generally scaled down in area as well; frontages of miniature houses appear to range from approximately 15' to 25' in length, probably with a depth of 8' to 10'. They are, therefore, considerably smaller than even the standard cottage dimensions. While it is presumed that miniature houses were constructed for year round habitation, it is possible that they may have functioned as seasonal dwellings for migrant workers. The earliest of these houses probably date from the 1870s or '80s, although construction dates after 1890 are probably

most common. For the most part, miniature houses are located along back roads in marginal areas generally left undeveloped until the end of the Late Industrial period. Examples of such housing are concentrated in interior regions, and especially in Plymouth County, but were encountered throughout the study unit. Towns with a sizeable number of miniature houses are Carver, Rochester, Hanson and Acushnet.

Frame construction is by far the most common method employed in the period. While clapboards are the predominant sheathing material, shingles made a resurgence in the Late Industrial period with the popularity of the Shingle and Colonial Revival styles. Brick and masonry construction is generally confined to the urban cores, primarily Fall River, Taunton, Brockton and, to a lesser degree, New Bedford. There seems to be somewhat more variety in the types of decorative motifs employed in southeast Massachusetts than was evident in the Boston area. While well developed Second Empire, Stick, Shingle, Queen Anne, Colonial Revival and Craftsman houses are unusual in the study unit and are normally found only in core areas, those houses built appear to exhibit a range of motifs somewhat more exuberantly and eclectically applied than was true in Boston. Eastlake and Shavian Queen Anne details in particular are evident in higher proportion than in Boston. This may be due to a freedom from the conscious historicism which marked much of Boston's residential architecture and which tended to formalize Boston's late 19th-century eclectic architecture with a preponderance of classical, Georgian-derived detail.

Early Modern Period:

In general, residential construction in the Early Modern period was limited to infill in the existing suburban neighborhoods of the study unit's cores. Other areas of residential construction were around the inland ponds and along the coastline at Buzzards and Plymouth Bays, as well as along the auto routes which developed during the period. No new house types or floor plans were identified for the period. For the most part, residential construction consisted

of modest sized houses and cottages. Larger houses of greater stylistic pretension are rare, with a limited number of examples known most of these are located in Brockton, New Bedford, Fall River and North Attleborough.

The majority of the houses and cottages built in the Early Modern period were of the type associated with the streetcar suburban development of the early 20th century: either four-square plan, two-story Colonial Revival houses or story-and-a-half bungalow-type cottages with modest Craftsman detailing. Construction of this type occurred from the beginning of the period into the early 1920s. Construction of this type ceased in the 1920s as streetcar service began to contract. Houses and cottages of the streetcar suburban type were common along existing streetcar routes and newly developed autoroutes. Similar construction (almost all of it consisting of one and one-and-a-half story cottages) took place in a number of modest beach and pondside resorts, such as those at Brant Rock and Green Harbor (both Marshfield), Manomet (Plymouth), Pinehurst, Swifts and Parkwood Beaches (Wareham), Harbor Beach (Marion), Sconticut Neck and West Island (Fairhaven), Monponsett Pond (Halifax), Norton Grove (Norton) and Mayflower Grove (Pembroke).

Other types of suburban construction took place in established residential neighborhoods in the study unit's primary and secondary cores. In these neighborhoods, middle class single family house construction occurred through the 1920s and then ceased with the onset of the Great Depression. Substantial and well detailed Colonial Revival, Craftsman and Tudor Revival houses of frame and masonry construction were constructed, generally as infill, in Brockton, Bridgewater, the Attleboroughs, Fall River, New Bedford and Plymouth. Some similarly scaled residential construction continued into the Early Modern period in the study unit's established elite coastal resorts (Scituate, Duxbury, Marion, Mattapoisett, Dartmouth and Westport). Use of the International Style is not known in the study unit.

I. RESIDENTIAL

B. Multiple-Family Housing

Many of the major architectural innovations of the 19th century occurred in multiple-family housing. In the newly industrialized areas of the study unit with their emergent urban populations, the need for high density house types quickly became apparent. In Taunton, Fall River, and New Bedford, new multiple-family house types evolved in the 1840s and '50s.

The patterns which developed in multiple-family housing in the study unit exhibit some notable differences from those observed in the Boston area. Primary among these are the early adoption of two-family houses and of tenements and the development of distinctive regional three-decker building forms. The agrarian character of the areas surrounding southeast Massachusetts' manufacturing cities seems to have affected the nature of urban housing in the densely settled cities of the study unit, Fall River and New Bedford in particular. Quintessential urban house forms, such as the rowhouse, apparently never achieved acceptance in the study unit and detached housing remained the typical multiple-family form. Apartment blocks are also exceedingly rare. In part, these patterns would appear to be the result of rapid urbanization in areas which had no previously existing sense of urbanity: none of the important 19th century manufacturing centers had even approached urban density before the 1820s and their subsequent development represented a marked contrast to the small town or village scale of the Federal period.

Double Houses

The earliest multiple-family house forms to develop in the study unit were double houses and cottages. In the double house, living units were arranged side by side rather than stacked one atop the other as in the two-family house. Double houses and cottages were first built in the Federal period and continued to be constructed

through the end of the Early Industrial period. They are nearly always associated with manufacturing activity and were often constructed by the manufacturing companies to house their workers. Cottages outnumber houses for the Federal period, but surviving early examples of either form are comparatively rare. The earliest groups of double cottages built were constructed in the 1820s. Most of these, such as the cottages at Dodgeville and Hebronville in Attleboro, stood adjacent to the mill itself. Double sidehall plan structures, five bays wide with a double center entrance and end interior chimneys, predominate. In the Early Industrial period, the double form gained wider usage, and both double houses and cottages became more common. Most of the houses were built in the same locations as the first, Federal period, double cottages had been, near mills and factories in the Attleboroughs, North Easton, Wareham, Taunton and Fall River. In general, these are conservatively styled late Federal and Greek Revival structures identical to their earlier counterparts. In Taunton, a few brick double cottages are known. Double houses and cottages are rare outside the major industrial centers but were occasionally built in small industrial villages. One particularly outstanding Greek Revival double house is known at West Wareham, with a smaller cluster of Greek Revival double cottages at Tihonet in Wareham.

After the mid century, double houses began to outnumber cottages and were increasingly common within the urbanizing neighborhoods of Brockton and Fall River. Fall River is notable for a large number of double houses in the Italianate style: most of these are two-and-a-half story structures, six-bays long with double center entrances and two-story polygonal bays. Such houses were probably built from the mid 1850s through the mid 1880s. While generally associated with workers' housing, more pretentious Italianate double houses were occasionally constructed and several examples are known in Bridgewater and in Brockton. By the end of the Early Industrial period, double houses and cottages were more and more rare and were probably defunct by the mid 1880s.

Tenements and Boarding Houses

Tenements and boarding houses were always constructed as workers' housing. The tenement generally consists of a three- to four-story freestanding block with one or more entrances. Internally, living units are typically divided with one unit per floor for each vertical section (CHC 1971:41). Boarding houses may follow the tenement plan or they may be of the rowhouse type, with an extended series of attached (usually sidehall plan) structures, divided with one unit for each vertical section. The tenement form is the most common form in southeast Massachusetts. The earliest tenements in the study unit probably date from the 1850s. Examples are known in New Bedford, Fall River, Brockton and Taunton. Most of these are very utilitarian in appearance. They are generally two-and-a-half or three-stories in height with gable roofs (rather than the perhaps more traditional flat roof) and two entrances, one at each end of a facade ranging from six-to-eight or nine-bays in length. Tenement blocks of this form probably were built through the 1890s, becoming less common after 1900. While tenements generally have not survived well in other areas, they are fairly common in southeast Massachusetts. Since little is known about the internal variations of tenement plans, the tenements of southeast Massachusetts could prove to be an important source for a better understanding of this generally neglected house type.

Two-Family Houses

In the two-family house, living units are arranged one atop the other. Two-family houses seem to have developed at a fairly early date in southeast Massachusetts. The earliest examples are located in New Bedford and appear to have been built in the late 1850s or early 1860s. These are two-and-a-half story, sidehall plan structures with gable roofs and double entrances. Most are conservatively styled late Greek Revival/Italianate buildings located near the center of New Bedford. Double entrances and symmetry of first and second floor fenestration have been taken as an indication of two-family use.

Houses of this type appear to have been built through the 1870s in New Bedford. The two-family house does not seem to have won widespread acceptance before the 1880s in other areas. During the 1880s, however, two-family houses became common in all of the industrial cities of the study unit. Some of the finest two-family houses are located in Brockton: among these are ornately detailed Queen Anne two-family houses with Eastlake trim. Typically, two-family houses in the Brockton area are two-and-a-half story, sidehall plan structures with gable roofs, double doors and a characteristic square bay rising two stories on the facade.

In other areas of the study unit, two-family houses follow a standard pattern, incorporating a two-and-a-half story, sidehall plan and gable roof. The gable roof was typical of early two-family houses in the Stick and Queen Anne styles, but after 1890, a variety of roof forms were used, including the hip and gambrel roof. New roof forms reflect the advent of the Colonial Revival and Shingle Styles in the region. Stick, Queen Anne, Colonial Revival and Shingle Style two-family houses were built in all of the study unit's cores at the end of the 19th century as well as in the smaller industrial cities of northern Bristol and Plymouth Counties. Generally, a handful of two-family houses were built as well along streetcar routes and at the town centers of the small agricultural towns of the study unit. After 1900, however, two-family house construction was increasingly confined to the core areas. From the end of the Late Industrial period until the early 1920s, smaller numbers of two-family houses in the Colonial Revival and Craftsman styles were built in Brockton, Fall River, New Bedford, Taunton, the Attleboroughs and Plymouth. Generally, these are associated with streetcar routes. After 1925, very little construction occurred in the study unit as a whole and two-family houses ceased to be built.

Three-Deckers

In the three-decker, the three-story structure is divided into three living units, divided horizontally by floor. Sizeable concentrations of three-deckers are known only in Brockton, Fall River and New Bedford; other cities in the study unit, including Taunton and the Attleboroughs, never adopted the three-decker form on a widespread basis. None of these cities seems to have functioned as an innovation center for the form, as most three-deckers appear to date from the 1890s through 1920 and exhibit the uniform characteristics of a fully developed form rather than an evolutionary mix of characteristics.

Regional variation is, however, evident within the three cities of concentrated three-decker construction. Brockton, at the extreme northern edge of Plymouth County, contains three-deckers in a mixture of forms, with flat roofed three-deckers of the Dorchester type, hip and gable roofed three deckers of the Roxbury and Worcester types, and decorative shingled banding of the sort typical of Worcester three-deckers. While Brockton's three-deckers exhibit a hybrid form derived from the Boston and Worcester areas, the three-deckers of New Bedford and Fall River are purer in form with a greater consistency of elements. Most of these feature a hip or gable roof with three-story polygonal bays balanced on the facade by a triple tier of covered porches. Detailing for most three-deckers in the study unit is in the Queen Anne, Shingle or Colonial Revival styles popular at the zenith of three-decker construction around the turn of the century.

Three-deckers postdating 1915 are rare and, thus, few Craftsman or late Colonial Revival three-deckers (often identified by the use of the gambrel roof) are known. The most extensive and consistent concentrations of three-deckers in the study unit are in northern New Bedford along lower County and Cove Streets and in the southern half of Fall River along Plymouth Avenue. In other areas of these two cities, as well as in smaller cities of the study unit with a

smaller number of three-deckers, the three-decker generally lines a major thoroughfare (often a streetcar route), while the blocks to the rear normally contain two-family houses. Neighborhoods of consistent high density are, therefore, rare with the exception of the areas named above.

Other Multiple-Family Forms

Rowhouses:

The rowhouse is an urban residential form common at the mid 19th century and consisting of an extended series of attached sidehall plan living units separated by a vertical party wall; generally rowhouses are three or four stories in height. Rowhouses are exceedingly rare in southeast Massachusetts. The only known examples (Taunton, Plymouth) were constructed between 1850 and 1880 and are located at or near the town centers. Generally, these are constructed of brick and exhibit Italianate or Second Empire details.

Apartment Blocks:

The apartment block is a multi-storied structure containing a number of living units per floor. They are freestanding blocks of masonry construction, although other plans, such as the U-shaped complex with a center courtyard, are also known. Unlike most other multiple-family house types, the apartment block has generally functioned as housing for the middle classes. This function is demonstrated in the typical location of the apartment block near the commercial district and often at the edges of an elite residential district of single-family houses. Apartment blocks are very rare in southeast Massachusetts and are generally limited to less than a dozen examples for each of the study units' cores. Most of the examples noted are freestanding, flat roofed, three and four story masonry blocks dating from the early years of the 20th century and featuring Georgian, Adamesque or Colonial Revival details. Of particular interest is the survival in Brockton of two apartment blocks with innovative,

angular plans designed and sited for maximum air circulation. These buildings are the Checkerton and the Chesston (1902, William A. Dykeman); their designs were patented by the architect.

II. A. PUBLIC INSTITUTIONAL

1. Administrative

Public Administrative buildings are town and city halls, courthouses and customs houses.

Town and City Halls

In general, prior to the Federal period, all town governmental activities occurred at the meetinghouse, which functioned as the center of civic as well as ecclesiastical power. There are, however, a few exceptions to this, particularly in southeast Massachusetts where the orthodox Congregational church did not maintain universal control. Thus, town houses (the early term for town halls) were established in Dartmouth in 1739, in Rochester in 1760 and in Acushnet at some point in the 18th century. Specifications are known only for the Dartmouth Town House , which had end chimneys and dimensions of 22' x 36' x 9'. Plymouth, too, had a town house in the Colonial period, although this also functioned as the first Plymouth County Courthouse. Built in 1749, it is the only extant Colonial period town house. It is a two-story, vernacular Georgian building five bays long by three bays wide with end chimneys and articulated gable end pediments, said to have been built to the plans of Judge Peter Oliver.

Most town houses in southeast Massachusetts were established in the Federal period. Among the towns which constructed or established town houses in the period were Attleboro (1828), West Bridgewater (1802; demolished 1823), Dighton (1825), Easton (1816), Fall River (1805 and 1825), Middleborough (1796), Wareham (1828) and Westport (1789). It was a common practice of the period to convert an 18th-century meetinghouse to use as a town house when a new meetinghouse was built. Instances of this practice are known in West Bridgewater (1739 meetinghouse), Dighton (1767 meetinghouse), Easton (1747 meetinghouse), and Rochester (1717 meetinghouse,

demolished 1811 and new town house built). Of the above mentioned examples, only the Dighton Town House is thought to survive. When converted, the 55' x 45' x 24' 1767 meetinghouse was lowered to one story: at present, a one-story, hip roof structure stands at the town house site on Pine Street in Dighton. As most Federal period town houses had hip roofs, it is suspected that the structure may be a surviving town/meetinghouse. The 1828 Wareham meetinghouse was unusual in that it combined town meeting space on the first floor with a meetinghouse on the second.

Towns which did not establish town houses in the Federal period generally did so in the Early Industrial period. Among the towns which established town halls (as they came to be known in the period) were Bridgewater (ca. 1834), Duxbury (ca. 1840), Hanover (ca. 1840), Kingston (1847), Lakeville (1856), New Bedford (1856-57), Plympton (1850), Rehoboth (ca. 1850), Scituate (1850), Somerset (ca. 1850) and Taunton (1848). In general, the town halls in the smaller towns resemble schools of the period: most of the period town halls were one-and-a-half story, gable roof Greek Revival/ Italianate structures with three-bay wide facades with center entrances. Examples of this type are known or thought to survive in Lakeville, Plympton, Rehoboth and Somerset. More substantial and stylish town halls were built in the period as well, including the Kingston Town Hall (1847), a cross gabled Greek Revival structure, the Duxbury Town Hall (ca. 1840), a temple front Greek Revival building, and the Bridgewater Town Hall (1843), a two-story Greek Revival building with pilasters with anthemion capitals; all of these are still standing. Extant but substantially altered are the town halls of Taunton (1848, E. E. Ryder) and New Bedford (1856-57, Solomon K. Eaton). An outstanding town hall which has not survived was the Fall River Town Hall (1845-46); the Fall River Town Hall, one of the more monumental public structures of the period, was a three story granite Greek Revival/Italianate structure. In several towns in the study unit, town halls and high schools were combined in the same structure; usually

this occurred in two-story buildings only with town offices on the first floor and classrooms on the second. Examples of this practice included the Hanover Town Hall (ca. 1840) as well as the Middleborough (1873), Mansfield (1883) and Dighton (1935) town halls, all later structures.

Generally, the most elaborate and monumental town and city halls of the study unit were constructed in the Late Industrial period. As cities incorporated, they often built new and more ambitious municipal structures. The earliest surviving town hall of the period is the Middleborough Town Hall (1873, Solomon K. Eaton). Although it has been resided, the Town Hall, a three-story, late Italianate/early Colonial Revival structure with a hip roof, projecting pedimented three-story porch and tall domed cupola, is notable as the final work of a prominent local architect, Solomon K. Eaton, and as one of the few surviving examples of the monumental domed town hall type once common in eastern Massachusetts. Other surviving town and city halls of the period include the Brockton City Hall (1892, Wesley L. Minor), the Fairhaven Town Hall (1894, Charles Brigham), the Norton Town Hall (1881, C. Hammond, architect), the Rochester Town Hall (1892), and the Swansea Town Hall (1891, G. Merrill Brown). Of these, the Queen Anne style Fairhaven Town Hall, the gift of millionaire Henry H. Rogers, is undoubtedly the finest. More typical are the Rochester and Norton Town Halls, both story-and-a-half hip roof buildings, one of frame construction, the other of brick; smaller town halls of the period generally retained the low, hip roof form introduced in the Federal period. The most unusual town hall of the period is the Lakeville Town Hall (1894), a pyramidal hip roofed brick Queen Anne building originally constructed as a pumping station and converted in the 1950s.

After 1915, the most commonly employed style for town halls was the Colonial Revival. Of the four town halls known for the Early

Modern period (Carver, 1914; Dighton, 1935; Norwell, 1936 and Wareham, 1939), all are either brick or frame Colonial Revival structures, generally with a central domed cupola and pedimented entrance pavilion or gable.

Courthouses and Customshouses

Courthouses were established in Bristol County in Fall River, Taunton and New Bedford, and in Plymouth County in Plymouth and Brockton. The earliest of the courthouses surviving in the study unit is that at Plymouth (1749), mentioned above. (See Town and City Halls.) Although a courthouse was built at Taunton in 1772, the earliest surviving Bristol County Courthouse is the First District Court (also at Taunton), a two-story brick Greek Revival building with a pedimented Ionic portico and octagonal domed cupola built in 1836. Additional courthouses were not constructed until the end of the 19th century when District Courts were established at Fall River and New Bedford. Extant Late Industrial period courthouses include the Plymouth County Courthouse (1891, J. Williams Beal) at Brockton, the Fall River Bristol County Courthouse (1889, Robert H. Black) and Second District Court (1908), the New Bedford Third District Court (1913) and the Bristol County Courthouse at Taunton (1894, Frank Irving Cooper). All of these are monumental masonry structures of either brick or granite in either Romanesque Revival or Neoclassical designs. The present Plymouth County Courthouse was constructed in 1820 and has been remodelled several times since, in 1857, 1881 and 1962. As it stands, the brick two-and-a-half story hip roof structure exhibits Italianate roundhead windows and Colonial Revival entrances and cupola.

The only customs house standing in the study unit is the New Bedford Customs House, built between 1830 and 1836 and designed by Robert Mills. This is a two-story granite Greek Revival building with

a monumental pedimented Tuscan portico. At one time, a second customs house was located at Dighton. In 1834, that customs house was moved to Fall River. Although it no longer stands, the Fall River Customs House (and Post Office) was an impressive granite Victorian Gothic structure built in 1875 to the designs of William A. Potters.

II. A. PUBLIC INSTITUTIONAL

2. Educational

While school masters were appointed and school districts formed in the study unit in the 17th century, no schoolhouses are known to have been constructed in the study unit before the 18th century. Prior to that time, schools were held in the meetinghouse or in private residences with the location circulating through the town in the course of a year. The earliest known instance of a schoolhouse being built is in Plymouth in 1705. Schoolhouses were built in 1710 in Freetown, in 1708 in Carver (Lakenham) and in 1714 in Kingston but the earliest description of an early 18th-century schoolhouse is that of 1727 for two schools in Freetown; one of these was 18' x 14' in dimension while the other was 20' square. The Kingston School of 1714 stood until 1922; period photographs indicate that the school was one story in height with an offset entrance at one end of the front wall. This form was common in the Federal period and thus the photograph may be of a misdated later school. The small, roughly square or square format for schools remained typical through the Colonial period: descriptions of three schools of 1751 at Dighton state that two of the schools were 16' square while the third was 20' square. All of these were one-story structures; it is presumed that most had pyramidal hip roofs of the type common to many small 17th and 18th century public buildings. Other towns which constructed schools in the Colonial period were Brockton (1748), Duxbury (1737), Hanover (1748), Hanson (1754) and Somerset (1735). No schools of the Colonial period are known to survive, but a 1755 school in Abington may still stand, converted to residential use.

During the Federal period, the number of schools built in the study unit increased substantially. In most towns, several schools were constructed with the establishment of the district system. All accounts indicate that these were one-story structures, most of which were, like the Kingston school of 1714, end gabled with three bays across the front, one of them containing an offset entrance. Of

schools of this type, very few are known or thought to survive: examples are posited in Norton (1801) and in Dighton, where a structure with the typical Federal school form was observed on Pleasant Street.

The school house form underwent substantial alteration in the Early Industrial period. The major shift was in the reorientation of the structure from an end gabled position with the ridge parallel to the front to a front gabled position with the ridge perpendicular to the front wall. This shift of course reflected the advent of the Greek Revival style with its emphasis on the "temple front" form. Gable fronts, one-story height and gable roofs remained standard features of school construction into the Late Industrial period. Schools of this type generally incorporated double entrances on the facade, one for boys and one for girls. Stylistically, schools of the Early Industrial period ranged from very simple Greek Revival or transitional Greek Revival/Italianate structures with simple door hoods, peaked lintels and clapboard sheathing to more elaborately detailed structures with flushboard facades with pilasters, pedimented gable ends, parapeted cupolas and bracketted cornices and window hoods. Most towns and cities of the study unit retain one or more Early Industrial period schoolhouses. Among the best preserved are schools in Dighton, Westport, Bridgewater, Plympton, Duxbury and Brockton. One of the more unusual school buildings of the study unit is the Wolf Pit School (1841) on Old County Road in Westport. This is a one-story Greek Revival structure with Doric portico.

Another development in public education in the Early Industrial period was the establishment of high schools in some of the towns in the study unit. The earliest high school known to have been established in the study unit was that of Plymouth, founded in 1826; a girl's high school was started ten years later in 1836. This is the only instance known in the study unit of separate high schools for girls and boys; the two merged in 1850. Those towns known to have established high schools in the period were Abington (1852), the Attleboroughs (both 1867), Easton (1868), Fairhaven (1852), Freetown

(1858), Middleborough (1849), Hanover (1863) and Kingston (1866). In most instances, high schools were housed in town halls, with one floor given over to classrooms; occasionally, as was the case of Fairhaven, a vacant church building was purchased and used as a high school. Only rarely were high school buildings built for the purpose in southeast Massachusetts; the only example known was that of Kingston which, in 1867, erected a very well detailed two-story, hip roof Italianate high school building with a rusticated facade, corner quoins and a projecting gable roofed entrance bay (demolished 1962).

The Kingston high school building foreshadowed the predominant Late Industrial period school type in its projecting gabled entrance bay and hip roof: during the Late Industrial period, the most commonly employed design for both rural and urban schools was a hip roofed block with an intersecting projecting entrance bay with gable roof. These two elements were nearly universal for all schools, masonry and frame, one and two stories, of the 1890s through 1915. Schools of this design in the late Italianate, Shingle, Queen Anne and Colonial Revival styles were constructed in almost every town of the study unit. The primary difference for schools of the period was that one-story, frame construction schools prevailed in outlying, rural locations, while in the urban core areas, two-story schools of brick were more common.

While such schools predominated in the study unit, other types were known. Generally, these variants were localized to a certain area, such as in Taunton where five High Victorian Gothic school buildings by the Boston architectural firm of Hartwell and Swazey were constructed in the 1870s. Other varying school designs related more closely to the designs being built elsewhere in the country. Not surprisingly, most of those more progressively designed schools were located in areas of late 19th century prosperity. The typical progressive school design consisted of a two-and-a-half story hip roof block with cross gabled end pavilions; examples of that H-plan school design are known in Brockton, Abington, Whitman, Taunton, the Attleboroughs, New Bedford, Fall River and Plymouth. All of these

are of masonry construction with a single exception, the Brett School in Brockton, which is of frame construction.

After the turn of the century, another school design became common in rural areas. This was the one-story, hip roofed school with a long, low plan consisting of a series of classrooms arranged longitudinally. Usually such schools are of masonry (brick) construction and Colonial or Georgian Revival design. A number of examples are known, primarily in Bristol County, in Somerset, Rehoboth, Mansfield and Acushnet. Outstanding examples are the Berry School in Mansfield and a school at Pottersville in Somerset.

Other noteworthy school buildings of the period are the B.M.C. Durfee High School (1886, George M. Clough) in Fall River and the Fairhaven High School (1905-06, Charles Brigham), both donated by prominent local philanthropists and executed in elaborate and monumental designs and of the finest materials and workmanship. The Durfee High School is a massive granite Richardsonian Romanesque design complete with a rooftop observatory, while the Fairhaven High School is an ornate and highly wrought Jacobethan design of considerable splendor.

By the Early Modern period, fewer schools were being built in the study unit. Generally, those constructed were located in urban areas, including Fall River, New Bedford, the Attleboroughs and Brockton. Simpler plans prevailed, the most common type being the two-and-a-half story self contained masonry block with a flat roof and raised basement. Most of these schools were utilitarian in character with Jacobethan and Colonial Revival designs predominating. Schools of the 1930s are very rare and only one school of Moderne design is known, the Union Street School in Middleborough.

II. A. PUBLIC INSTITUTIONAL

3. Service

The public service category includes libraries, hospitals, prisons and almshouses, police and fire stations and post offices.

Libraries

Libraries are probably the most numerous public service buildings in the study unit. Although library associations were formed in many towns in the early 19th century, it was not until the late 19th century that library buildings were constructed in any numbers. After a burst of construction lasting from the 1890s though 1915, very few libraries were constructed in the study unit.

The first library known to have been constructed for that purpose is the James Library (1870) in Norwell, a hip roof Italianate block with a central pedimented bay. No other libraries of the 1870s are known. During the 1880s and through the end of the period, a number of libraries were constructed. Many of these, such as the Ames Library (1883, H. H. Richardson) at North Easton and the Millicent Library (1891-93, Charles Brigham) at Fairhaven, were donated by wealthy citizen/philanthropists in the town. Others, such as the Rockland Memorial Library (1902, McLean and Wright) and the Taunton Library (1903, Albert R. Ross), were given by the Carnegie foundation. In almost every instance, however, the library building is one of the finest and most stylish buildings in the town. Most of the libraries were one story hip roof buildings of masonry construction. Beaux Arts and neoclassical designs predominated for turn of the century libraries, but after 1910, Tudor and Colonial Revival libraries, became more common. The most elaborately detailed and stylish libraries tended to be located in industrial core areas. In addition to the Ames and Millicent Libraries mentioned above, other outstanding libraries designed by architects of note include the

Renaissance Revival Fall River Library (1898, Cram, Wentworth and Goodhue), a group of Beaux Arts Classical libraries by the Boston firm of McLean and Wright in Attleboro (1907), Abington (1907), Rockland (1903) and North Attleborough (1894, W. H. McLean), the Richardsonian Romanesque Norton Library (1887, Stephen C. Earle), the Beaux Arts Classical Middleborough Library (1903, F. N. Reed, New York City) and the Romanesque Revival Bridgewater Library (1881, Rotch and Tilden).

Only two libraries are known to have been constructed in the Early Modern period. These are the Dyer Library in Abington, built in 1932 to designs of J. Williams Beal and Son, a firm prominent in the Brockton area, and the Acushnet Library, a Colonial Revival design and an unusual local example of cobblestone construction.

Hospitals, Prisons and Almshouses

Most of the hospitals in the study unit were organized in the Late Industrial period in the unit's core areas: Attleboro, Brockton, Plymouth, Fall River, Taunton and New Bedford. Generally, hospitals have not been recognized either in local histories or in inventories, but at least a few cities of the study unit retain Late Industrial period hospital buildings. The Sturdy Memorial Hospital in Attleboro, for example, is a yellow brick Georgian Revival structure with Mannerist details. Most hospitals in the study unit have experienced considerable later remodelling and construction.

In addition to local hospitals, several state institutions were also constructed in southeast Massachusetts. During the Early Industrial period, areas of southeast Massachusetts began to function as peripheral institutional zones for the Boston area. The primary examples of such "fringe" usage in the study unit are the Taunton State Hospital (1852-3, Elbridge Boyden), established in 1852, and the Bridgewater Workhouse and House of Correction, established in 1853. Architecturally, the Taunton State Hospital, an extensive red

brick complex incorporating Italianate and Classical details, is undoubtedly the finest hospital building in the study unit. The design consists of a series of pedimented three-story pavilions intersecting long ranges of rooms. Tall, domed cupolas surmount the pavilions. Aside from its architectural significance, the hospital is important for its early picturesque landscaped setting, consciously chosen for its salubrious effect on the patients, and for its progressive treatment philosophy characterized by comparative freedom and a humane, caring atmosphere. The early Bridgewater workhouse buildings were, by contrast, utilitarian frame structures of little note architecturally. The original complex was destroyed in a fire at the end of the 19th century.

Prisons are a comparatively unusual building type in the study unit. Very few examples are recorded and the only surviving examples known are the Bristol County House of Correction (1829, 1895) in New Bedford and the Bridgewater House of Correction (1883). Both of these buildings are, in their present configuration, utilitarian brick structures. As a very early surviving prison, the New Bedford prison has considerable historical significance.

Almshouses and poorfarms were established in most towns of the study unit during the Federal period. Most Federal period poorfarms were located in farmhouses either constructed for the purpose or in existing residential structures purchased for use as poorfarms. Externally, these did not differ from the prevailing domestic architecture of the period. In the mid 19th century, larger structures with plans suited to the housing of a number of residents were constructed. Most of these are two-and-a-half stories tall with sidehall plans and transitional Greek Revival/Italianate styling. Poorhouses of this type were probably constructed from the 1850s through the 1880s. Only two examples are known to survive, one in Rockland and one in Raynham.

Police and Fire Stations

In general, police and fire departments did not begin to be institutionalized until the Early Industrial period. Because fires were one of the most serious of municipal disasters, fire departments tended to be established earlier than police departments. The Plymouth fire "department," for example, was established in 1727, well before most communities moved to form fire companies. Until the Early Industrial period, however, fire fighting remained a volunteer activity. By the end of the period, though, fire fighting had been assumed by the municipalities and the first fire stations began to be constructed. The earliest fire station in the study unit is Engine Company #3 in Fall River, a frame Greek Revival structure with one garage bay, built in 1843. Another early fire station is Fire Station #4 in New Bedford, built in 1867. This is a two-story hip roofed brick block with two garage bays and a tall square cupola. Other early fire stations are located in New Bedford, Fall River, Brockton, Taunton and Abington.

The existence of fire stations in these core areas undoubtedly reflects the seriousness of the threat of fire to both life and capital of fire in densely settled and heavily industrialized cities. Taunton retains an Italianate fire station of 1869 (Central Fire Station, A. E. Swasey), while an outstanding group of four fire stations, built in 1873 and designed by the Boston firm of Hartwell and Swazey stands in Fall River. All of these are examples of the High Victorian Gothic style in brick and granite. Other brick Victorian Gothic and Romanesque Revival fire stations of the 1880s are known in Brockton, Taunton and New Bedford. The best preserved of these are New Bedford's fire stations, most of which retain their original wooden garage doors, a very rare surviving feature. Frame late Italianate and Queen Anne fire stations of the 1880s, '90s and turn of the century are known to survive in East Bridgewater, North Attleborough and Kingston. It appears that Kingston retains all of its original late 19th century fire stations. These incorporate a tall,

square hose drying tower, a feature which is common but not universal to fire stations of the study unit.

After the turn of the century, Georgian and Colonial Revival fire station designs became more common. One popular type was two stories tall, of brick, with a gambrel roof, three garage bays and a central Wren-derived cupola. Examples of this type are known in New Bedford, Plymouth, and Brockton. As there was comparatively little suburban residential construction in the study unit during the Early Modern period, few new neighborhood fire stations were necessary and few were built. (In Boston, by comparison, where 1920s suburban development was widespread, many neighborhood fire stations were needed.)

Police stations were built far less often than fire stations. This is because police stations were generally built one to a town and located at the town center rather than in outlying neighborhoods. Little documentary evidence is recorded for police stations in southeast Massachusetts, and few police stations are included in building inventories; therefore, little is known about these structures. The earliest examples are presumed to date from the late 1860s, but the earliest surviving example known is the Brockton Police Station of ca. 1910, a Renaissance Revival structure. The only other police station recorded is the Taunton Police Station (1917, J. E. McLaughlin), a Tudor Revival design in brick. One possible reason for the apparent lack of police stations in the study unit is that police departments may have been housed in town halls for much of the Late Industrial and Early Modern periods.

Post Offices

While post offices were established in most towns of the study unit in the Federal period, until the end of the Early Industrial period, post offices were maintained in private houses (normally, the house of the postmaster). It does not seem likely that post offices

were built for the purpose before the Late Industrial period. Even then, from examples such as the Fall River Customs House and Post Office, it seems probable that post offices, like police stations, may have been housed in buildings constructed for a number of other uses--commercial, governmental, etc. Post offices were, however, built in some of the study unit's cores and in some smaller cities as well. Among these are the Brockton Post Office (1898, J. K. Taylor) and the Richardsonian Romanesque North Easton Post Office (1904, Shepley, Rutan and Coolidge).

Post offices were not built in substantial numbers until the Early Modern period, when federally sponsored construction became more common. Most of the Early Modern post offices in the study unit are either red brick Colonial Revival buildings, such as the Plymouth (1914, Oscar Wenderoth) Post Office or are limestone faced or concrete Neoclassical buildings such as the Fall River Post Office and Customs House (1929). Other post offices of the Early Modern period include the Lakeville Post Office (1933), the Taunton Post Office (1931), the New Bedford Post Office (1915, Oscar Wenderoth) and the Rockland Post Office (1932, J. Williams Beal and Son).

II. B. PRIVATE INSTITUTIONAL

1. Ecclesiastical

The religious climate of southeast Massachusetts was exceptional to that of the eastern Massachusetts area in several ways. First, the region remained comparatively free from the control of the established Congregational orthodoxy. This allowed for a far greater degree of denominational diversity than was encountered in the Boston Area study unit. Among the factors favoring religious diversity were proximity to Rhode Island, with its tradition of religious tolerance, and the sparse population of the region, which created a milieu in which a single charismatic figure could establish a following. Significant religious events which occurred in southeast Massachusetts were the organization of the first Baptist congregation in the state (1663, Swansea), the founding of a number of Quaker meetinghouses in the early 18th century, the establishment of several early Methodist and Episcopal congregations in the 18th century, and the introduction in the early 19th century of two ideologically disparate denominations, the fundamentalist Christian sect along the Bristol County coast and the Swedenborgian Church of the New Jerusalem in northern Plymouth County. The region's history of religious diversity resulted in the existence of a variety of forms in ecclesiastical architecture.

Plantation Period:

The earliest meetinghouse erected in the study unit was the palisaded combination fort and meetinghouse built in 1622 by the settlers at Plymouth. That structure, a square, flat roofed two-story building, differed from later Plantation period meetinghouses, reflecting in its form its defensive role more than its religious and civic one. Other towns with Plantation period meetinghouses were West Bridgewater (1660), Duxbury (1632), Marshfield (1641), Middleborough (1660), Norwell (1642), Rehoboth (1643), Scituate (1636) and Taunton (1638). Little is known about the first generation of meetinghouses,

but it is presumed that they followed the form known elsewhere in Massachusetts of a small, rough finished, hip roof structure.

Some meetinghouses had been replaced by the end of the Plantation period, but most replacement meetinghouses were constructed in the 1680s, just after King Philip's War. For many of the second generation meetinghouses, dimensions and occasional architectural features are documented. By that time, the simple square plan seems to have been dismissed in favor of a larger rectangular plan. Only the Attleboro meetinghouse of 1710 is specified to be a 30' square building. Most other documented meetinghouses indicate dimensions of between 36' and 43' in length and 26' and 38' in width with studs from 14' to 18' in height. The smallest meetinghouse noted for the period before 1725 was the 1699 Rochester meetinghouse (24' x 26' x 10'). Most of these structures apparently had gable roofs, some with square belfries, as indicated in an early drawing of the Plymouth meetinghouse (1683). Many of the second generation meetinghouses incorporated galleries; while the walls might be plastered, in general, the structure was left open to the roof. Double east and west end entrances were common.

A significant variation on the standard gable roof, however, was the use of a cross gabled roof. Documentation suggests that meetinghouses with the cross gabled roof were built in Middleborough (ca. 1700), Plympton (1714) and Rochester (1699). The Middleborough meetinghouse (36' x 30' x 16') had two ridge poles and four gable ends; in 1745, the roof was remodelled to the standard gable form. Both the Rochester and Plympton meetinghouses were described as having gables on all sides. Prominent roof gables were a common feature on more stylish and ambitious buildings of the late 17th century.

Colonial Period:

During the 18th century, the number of meetinghouses continued to grow, as new congregations were formed and old meetinghouses were replaced. Typically, these were of rectangular configuration, increasing in size as the century wore on. Average dimensions were of 50' to 60' in length and 40' to 50' in width; height averaged between 20' and 25'. Most Congregational meetinghouses retained double entrances on the long side. While a projecting west end tower with belfry or steeple was common, many were not added until the end of the period or after, as in the case of West Bridgewater (meetinghouse, 1739; tower, 1764) and Raynham (1773; steeple added, Federal period). Galleries seem to have been nearly universal; often, a second or even a third tier of galleries was added as the size of the congregation grew.

Of the many Congregational meetinghouses constructed in the Period, none survive intact. The 1723 First Parish meetinghouse in East Bridgewater, remodelled in 1794, is probably the most complete 18th century meetinghouse to survive in the study unit. The core of the building, a two-and-a-half story block four bays long by three bays wide, appears to be the original meetinghouse. The 1794 remodelling may have been confined to the addition of a projecting three-bay wide two-story entrance porch with pediment. The building also incorporates a square belfry surmounting the porch; whether the belfry includes portions of an earlier belfry tower is not known. The survival of portions of the 1767 meetinghouse frame is conjectured in Dighton, where the Town House (ca. 1826), which is thought to survive, utilized the old meetinghouse frame. (See Town and City Halls). Also in Dighton is the Second Congregational Church (begun ca. 1770; finished, 1798), a typical two-story, gable roofed 18th century meetinghouse with double entrances on the long side and a projecting west end belfry tower. Unfortunately, the church was heavily restored in 1930.

While Congregational meetinghouses have not survived well, the meetinghouses of other sects have often been preserved because of their associations with that denomination's early history. Surviving 18th century Baptist and Quaker meetinghouses testify to the religious diversity and tolerance which characterized southeast Massachusetts in the Colonial period. Friends' meetinghouses are known in Acushnet (Long Plain, 1735), Pembroke (1706) and Somerset (date unknown; probably third quarter of the 18th century). The Pembroke Friends meetinghouse was built in 1706 in Scituate and later moved to its present site. It is the smallest of the Friends' meetinghouses in the study unit. It is a two story tall, gable roof structure, two bays wide, with a story-and-a-half, gable roof porch with double entrances. The entrance porch differs from other Friends' meetinghouses in the unit in that it is oriented perpendicular to the main gable roof. The remaining Friends' meetinghouses (both in Bristol County) are of two story height and five bays width with a one-story shed or hip roof porch with double entrances, oriented parallel to the gable roof. Although no other period meetinghouses survive, other Friends' Societies founded in the Colonial period in the study unit include Dartmouth (1699), Freetown (1727), Rochester (1702), and Westport (1766).

The only other surviving 18th century ecclesiastical building known in the study unit is the Hornbine Baptist Church (1753) in Rehoboth. It is a small one-story structure with a diminutive projecting hip roof porch with double entrances. Rehoboth is notable also as the site of the first Methodist meetinghouse in the study unit (1743). The original building no longer survives.

Of other denominations, only the Anglican (now Episcopal) church was active in the study unit in the 18th century. Anglican churches, of which none survive, were established at Bridgewater in 1748, in Plymouth in 1755 and in Scituate in 1731.

Federal Period:

In the Federal period, the number of denominations active in the study unit increased substantially. Newly active or newly formed denominations established during the Federal period are the Roman Catholic Church (1827, Taunton), the Christian Church (1795, Acushnet; and six others) and the Church of the New Jerusalem (Swedenborg; 1818, Abington; and three others). In addition to these churches, most Congregational societies built a third generation of meetinghouses during the period. For the first time, individual designers and builders and a few architects can be associated with several of the churches built in the study unit.

In general, Federal period meetinghouses retain the two-story rectangular plan of the Colonial period. The primary differences are in entrance location and in facade treatment. Entrances on the long side were given up in favor of gable end entrances. Shallow, two-story porches, usually with pediments, replaced the projecting end-wall belfry tower; generally, a belfry with spire surmounted the entrance porch. While it is by no means a universal phenomenon, it seems that Baptist churches tended to incorporate double entrances in the porch while Congregational meetinghouses apparently favored a triple entrance porch. The typical Federal belfry consisted of a square base surmounted by an open, octagonal domed cupola. Double or triple-stage belfries with spires were more unusual in the study unit. Meetinghouses of this type were built in almost every town in the study unit between 1800 and 1820. One of the best preserved and most fully developed of these to survive is the First Parish meetinghouse (1808) at Freetown (Assonet). Other towns with well developed Federal meetinghouses are Abington (1819), Dartmouth (1789), North Attleborough (1828), West Bridgewater (1801), Kingston (1829) and Norwell (1830).

While the meetinghouse with shallow entrance porch predominated, by the 1820s, a greater variety of forms began to be adopted, most incorporating elements of the Greek Revival style. One of the finest

of these is the Middleborough First Parish church (1828, Deacon James Sproatt), a two-story Greek Revival building with an Ionic portico with pediment and a two-stage square belfry with spire. Other notable period meetinghouses are the First Parish Church (1826) of Dighton, a one-and-a-half story brick Greek Revival building with a full Doric portico with pediment and Gothic Revival lancet windows, and the First Parish Church (1826, Solomon K. Eaton) of Rochester, an early Gothic Revival building with lancet windows and a two-stage square central tower and corner turrets with pinnacles. Surviving churches of the period include the Smith's Neck (Dartmouth) Friends' meetinghouse (1819) and Mattapoisett Friends' Meetinghouse (1827), Saint Andrew's Episcopal Church (1811) in Hanover, the oldest Episcopal church in the study unit, Methodist churches in Brockton (Pearl Street, 1830), Pembroke (1825, Whittemore Peterson, builder) and Rochester (1830), the unit's earliest surviving Christian church (1821, Mattapoisett) and Baptist churches in North Attleborough (1817) and Hanson (1820).

Early Industrial Period:

The area of greatest activity was in Bristol County and particularly in the Fall River/New Bedford area, where some 33 new congregations of various denominations were established in the period. The most prolific sect in the Bristol County area was the Christian Church, of which 22 new congregations were founded in Bristol County, mostly in the early years of the period. This little-known sect adopted a fundamentalist position, taking the text of the Bible as its only creed. Other areas of active church establishment were in the two other major Early Industrial cores of Taunton and Brockton.

Architecturally, a dichotomy between the churches of the outlying agricultural areas and those in the industrial cores became increasingly marked as the period progressed. In peripheral areas of

the study unit (most of Plymouth County and interior Bristol County), frame structures in the Greek Revival or Italianate style predominated, while in the emerging cores, architectural designed masonry structures in the Gothic Revival and Victorian Gothic styles were common.

In form, rural churches often resembled the schools of the period, with end gable orientation, one-and-a-half story height, gable roofs and double entrances at the front. Some examples incorporated a simple one-stage square belfry surmounting the gable end. Churches of this type were built in the many towns of the study unit from the 1840s through the end of the period. In general, the churches of Plymouth County tend to be earlier and less numerous than those of Bristol County, with a higher proportion of Greek Revival designs. Bristol County has a greater number of churches, with a higher concentration of Italianate buildings of the mid century and later.

These more modest churches were generally constructed by less influential denominations and in more isolated crossroads villages or along outlying roads. Many of the Christian churches in coastal Bristol County, for example, follow this mode.

In the early years of the period, a few more substantial churches were built in Plymouth County, but by the end of the period, comparatively few churches were being built in Plymouth County, with the exception of the industrial core areas along the extreme northern boundary of the county. Most of the churches built were traditional Greek Revival and Italianate or Romanesque Revival designs with comparatively few Gothic Revival churches built. Among the most outstanding churches of the period in Plymouth County are the temple front Greek Revival First Parish church of Duxbury (1840), a Greek Revival church of 1837 designed by Alexander Parris in Pembroke, the transitional Greek/Gothic Revival Union Church (1855) in Carver and the Romanesque Revival Elmwood Church of the New Jerusalem (ca. 1854) in East Bridgewater.

Of the few Congregational churches built in the period in Plymouth County, most retained the traditional Federal meetinghouse plan, updated in the 1850s with Romanesque Revival details. A good example of this type is the First Parish church at Bridgewater (ca. 1855). Probably the most unusual Congregational Church in Plymouth County is the Porter Congregational Church (1850) in Brockton, designed by the Cambridge firm of Melvin and Young. An early example of the use of the Romanesque Revival, the Porter Congregational church incorporates a projecting portico with deeply revealed round arches and heavily scaled Italianate moldings.

In Bristol County, the number and variety of churches built in the Early Industrial period was much greater. This reflects the higher level of activity in the several cores of Bristol County, both along the coast and on the northern border. For the Early Industrial period, most of the important, architect designed churches were located either in New Bedford or Taunton; only one church of note was constructed in Fall River during the period. In the other local and regional cores of the county (the Attleboroughs, Easton), churches of similar calibre were occasionally constructed. The pattern of church construction in the interior was similar to that encountered in Plymouth County: many of the churches constructed were story-and-a-half frame Greek Revival/Italianate structures with double entrances, not unlike schools of the day. Such churches are known in Freetown (Assonet, Mason's Corners and Braley's Four Corner Christian churches, 1832-1843), Rehoboth (United Methodist, 1843) and Dartmouth (Second Christian, 1836).

As in Plymouth County, established churches tended to retain locations at town centers and to construct larger in fully developed period styles. Most of these are Greek Revival or Italianate designs, two or two-and-a-half stories in height, with pedimented entrance porticos and square belfries, generally with steeples. Examples of such churches are known in Fairhaven (Center Congregational, ca. 1841, possibly Solomon K. Eaton) and Westport (Pacific Union Church, 1855).

In the county's cores, substantial, often architect designed churches in brick and granite were constructed from the 1830s through the end of the period. One of the earliest of these is the First Unitarian Church (1836-38, A. J. Davis and Russell Warren) of New Bedford, an imposing granite Gothic Revival structure. Other important churches of the period are the Pilgrim Congregational Church in Taunton (1852, Richard Upjohn), an early Romanesque Revival design, Saint Thomas' Episcopal Church (1857-59, Richard Upjohn) in Taunton, a Gothic Revival church in fieldstone, St. Mary's (1852, Patrick C. Keeley) in Fall River, the earliest surviving Catholic church in the study unit, the Gothic Revival First Congregational Church (1831, architect unknown, possibly Isaiah Rogers), also in Fall River and St. Mary's, Taunton (1868, Patrick C. Keeley), another important early Catholic church. In local and regional core areas, masonry churches were far less common, with only one or two late Victorian Gothic examples noted in North Attleborough, Attleboro and Fairhaven.

Late Industrial Period:

The Churches of the Late Industrial period tended to be of two major denominations, either Catholic or Episcopal. Church founding activity remained focused in core areas, especially in Bristol County, with far fewer churches formed in Plymouth County during the period. Very little church formation occurred in peripheral or rural areas of the study unit during the Late Industrial period. Catholic churches were by far the most numerous of the churches formed, with the bulk of the Catholic churches organized in the period located in the core areas. Episcopal churches are also common although less numerous. These show some orientation to coastal resort areas which developed in the period (Mattapoisett, Wareham, Duxbury, Scituate), but were founded in a number of other cities and towns during the period as well.

Although rare for the period, Jewish congregations were established in Taunton (1913) and Fall River (1883). The Fall River congregation, Adas Israel, retains its original 1889 Victorian Gothic synagogue. A few Sephardic Jews from Newport settled in New Bedford in the mid-18th century, but it was not until 1890 that a congregation (Ahavath Achim) was organized in New Bedford.

Masonry churches remained more common in the core areas (and are virtually unknown elsewhere); one exception to this is in towns like Swansea (Christ Church, 1900, Henry Vaughn), where masonry churches were donated by prominent citizens. However, even in core areas, masonry churches continued to be built primarily by the established and dominant denominations, while less powerful congregations tended to be housed in frame structures. Architect designed churches became far more common in the Late Industrial period. The role of local architects became greater but nationally noted architects and firms received commissions in the study unit as well. Among the most outstanding churches in the study unit are the Romanesque Revival First Congregational Church, Fall River (1911-13, Shepley, Rutan and Coolidge), Victorian Gothic Central Congregational church, Fall River (1875, Hartwell and Swazey), French Gothic Saint Anthony of Padua, New Bedford (1903-10, Joseph Venne, Montreal), the Gothic Revival Memorial Unitarian Church, Fairhaven (1901-04, Charles Brigham), the Eastlake/Gothic Revival Unity Church, Easton (1875, J. Ames Mitchell), Gothic Revival Trinity Church, Bridgewater (1883, Stephen C. Earle) and the Romanesque Revival First Parish Church, Plymouth (1899, Hartwell, Richardson and Driver).

The large number of Catholic churches formed in the period provided an opportunity for some specialization by local architects. One of the most prolific designers of Catholic churches in southeast Massachusetts was Louis G. Destremps of New Bedford. He designed a number of Catholic churches, schools and convents in Fall River, New Bedford and North Attleborough. Most of these are red brick Victorian Gothic or Renaissance Revival structures. Most of the churches incorporate an offset square belfry tower, while the schools

and convents are three or four-storied flat roof blocks. Other prominent designers of Catholic churches in the study unit were Boston architect Charles Greco and the Boston firm of Maginnis and Walsh. While they seem to have been employed primarily in Brockton, at least one Catholic church in New Bedford (St. Joseph's, ca. 1938) would appear to be the work of one of these firms.

For the early years of the period, red brick Victorian Gothic designs were common, primarily for Catholic churches; most of these are nave plan structures with offset spire towers. Fieldstone and granite Gothic Revival designs, often with a nave plan, side aisles and a central square entrance tower, were more common for Protestant churches, particularly after 1900. More modest congregations and churches in outlying areas most often constructed frame churches in Stick Style, Queen Anne or Colonial Revival designs; these generally incorporated a nave plan, with an offset square belfry tower with a hip roof. More modest summer chapels were built in Marshfield, Wareham and Marion, all of which developed substantial resort communities during the period. These are generally story-and-a-half Shingle Style chapels with bellcotes or small cupolas; most appear to date between 1895 and 1905.

Early Modern Period:

By the end of the Late Industrial period, most of the churches still standing in the study unit had been built. Very little construction took place in the Early Modern period, with one major exception: Catholic churches continued to be built in some numbers in the 1920s and through the end of the period. Most of these are located outside the core areas. Almost every town in the study unit has a Catholic church dating from the Early Modern period. Examples are known in Halifax, Plympton, Dighton, Seekonk and Norton. Most of these are one-and-a-half story, gable roof nave plan structures of red brick with modest Colonial Revival or Craftsman detailing. The best of these incorporated standard classical details, such as round arches, lunettes and porticos, with a Mannerist sense of proportion. The Mannerist sense is achieved primarily by the juxtaposition of the

simple, box-like plan with strong, and sometimes overscaled, facade detail. Among the best of the Early Modern Catholic churches are St. Mary's, Norton: Our Lady of the Lake, Halifax: Mount Carmel, Seekonk and Saint Joseph's, North Dighton.

II. B. PRIVATE INSTITUTIONAL

2. Educational

The private educational category consists of academies and colleges.

Academies:

All of the study unit's academies were established in the Federal or Early Industrial periods. The earliest of these, the North Rochester Academy, was founded in 1793, but most academies were founded between 1800 and 1820 or in the 1830s. Of fourteen academies known to have existed in the study unit, six academy buildings are known to survive. These are the Bridgewater Academy (1799; altered, 1868, Solomon K. Eaton), the Attleboro Academy (1842), the East Bridgewater Academy (1818), the Pratt Academy (1808; present building, 1856), Middleborough, the Fairhaven Academy (1798) and the Mattapoisett Academy (1854). Portions of the Dighton Academy (1843) may survive. Of these, the best preserved are the Fairhaven Academy and the Mattapoisett Academy. The Fairhaven Academy is located in a two-story, end chimney domestically scaled Federal style building. The Mattapoisett Academy, a two-story gable roofed building, was built in 1816 as the Third Meetinghouse and was remodelled with Italianate brackets and an octagonal cupola in 1854. The Dighton Academy was also housed in a former meetinghouse structure.

In other areas of the state, the typical academy of the Federal period was a three-story, hip roof structure with end chimneys. In only one instance in southeast Massachusetts (Bridgewater Academy) does that form appear to have been adopted, although later Italianate alterations have obscured the original Federal appearance. The Attleboro Academy is the finest Greek Revival academy building to survive. It is a comparatively rare example of the temple front Greek Revival form with a two-story Doric portico on the facade. The Partridge Academy (1843), Duxbury, was probably the finest

Greek Revival academy in the study unit prior to its destruction by fire in the 20th century. The Pratt Academy (1856) in Middleborough, a well-preserved two-story Greek Revival Italianate structure with a projecting central entrance bay, is one of the last academy buildings built in the study unit. After the mid century, academies began to be superseded by the establishment of public high schools.

Colleges:

There are comparatively few colleges in the study unit. The only colleges dating from the study period are Bridgewater State College (1840), and Wheaton College (1834) in Norton. The earliest surviving structure associated with a college is Mary Lyon Hall (1849) at Wheaton, a well developed early Italianate building, two-and-a-half stories in height with a cross gabled plan. The building is sheathed with flush board siding and embellished with quoins, bracketted window hoods and an octagonal cupola. The first building at Bridgewater State College was built in 1846. This was a two-story brick building, 64' x 32' in dimension. It was added to successively in 1869, 1873, 1881 and 1883. Although altered, portions of that original college building are believed extant. Later in the century, utilitarian brick Romanesque and Renaissance Revival classroom and dormitory buildings, three and four stories in height, were constructed at Bridgewater State. Most of the buildings at Wheaton College date from after the study period. The most notable building predating 1940 at Wheaton College is the Cole Chapel (1917, R. A. Cram), a brick Georgian Revival structure with an Ionic portico with pediment and a Wren-derived spire.

III. COMMERCIAL

A. Office/Mercantile

The Office/Mercantile category includes banks, office blocks, law offices and stores.

Banks:

The earliest banks established in the study unit were organized in the first half of the 19th century. The first bank formed in the study unit apparently was the Taunton Bank, established in 1812. Most other banks were formed in the 1830s, '40s and '50s. Among these were banks in Abington (1850, 1853), Attleboro (1839), Brockton (1851), Duxbury (1833), Fall River (1867), North Attleborough (1850) and Taunton (1832, 1846, 1847). The Cable House in Duxbury (1833), an end chimney Greek Revival house with a center entrance, is the earliest surviving bank building in the study unit. The Attleboro Bank (1839) was also housed in a structure of domestic appearance, in that instance, a temple front Greek Revival house. The practice of housing banks in semi-domestic structures continued in the study unit through the mid century.

In the 1850s, bank buildings began to assume a more formal and commercial appearance, with masonry buildings in academic styles constructed in a few of the study unit's cores. Surviving banks of this type are the Taunton Bank and Machinist's Bank (1855) in Taunton, the Fall River Savings Bank (1867), and the New Bedford Institution for Savings (1853, Russell Warren). All four exhibit Renaissance Revival designs unusual for the region. Of these, the most elaborate is the New Bedford Institution for Savings, a two-story brownstone faced building with elaborate window surrounds with pediments and console brackets. Another well developed Renaissance Revival bank building is the Taunton Bank, a three-story structure with brownstone facing on the facade, ornate window surrounds with alternating triangular and segmental pediments and a mansard roof.

This mansard is one of the earliest dated mansards (1855) known in the study unit. The only other known bank of the period is a well detailed three-story brick Italianate bank building (ca. 1855) in North Attleborough.

Bank buildings of the 1860s, '70s and '80s would appear to be comparatively rare in the study unit, since the next group of bank buildings known dates from the turn of the century. Banks of the Late Industrial period are found only in the core areas of the study unit. Period banks are located in Attleboro, Plymouth, Brockton, Fall River, Taunton and New Bedford. Most of these are masonry buildings with granite or limestone facades in Neoclassical or Renaissance Revival designs. Among the most outstanding examples are the New Bedford Institution for Savings (1894, Chapman and Frazier) in New Bedford, the Peoples Savings Bank (1908) and the Plymouth Home National Bank (1911), both in Brockton and both designed by prominent local architect, J. Williams Beal, and the Taunton Savings Bank (1913, Marcus T. Reynold).

By the Early Modern period, banks were built in the study unit's local cores as well as in the regionally and nationally significant cities of the study unit. These are generally similar in design to the banks of the Late Industrial period, although, in the 1920s, Colonial and Georgian Revival bank buildings in red brick began to outnumber the more formal Neoclassical banks of the earlier period. Period bank buildings are known in Attleboro, Brockton, Fall River, Middleborough, New Bedford, Norwell, Plymouth, Rockland, Taunton and Wareham. These include the Citizens and Union Savings Banks (both 1928) in Fall River, the Merchants National Bank (1916), First National Bank (1929, Hutchins and French) and Safe Deposit Bank (1918, Thomas M. James) and the Wareham Savings Bank (1924) and Wareham National Bank (ca. 1920). Although local architects undoubtedly continued to design bank buildings, the influence of architects specializing in bank design, like Boston architect Thomas M. James, became increasingly evident during the period.

Office Blocks:

Office blocks, like banks, reflect the pattern of urban development in southeast Massachusetts. The earliest commercial blocks appeared in the 1850s in the study unit's established cores (Brockton, Taunton, Middleborough, New Bedford), becoming universal in the higher level cores (New Bedford, Fall River) in the Late Industrial period and spreading to the local cores (Abington, Mansfield, Norton) by the beginning of the Early Modern period. The earliest commercial blocks were three and four-story gable roofed brick buildings built in a series and connected with linked parapet chimney party walls. Although most of these date from the 1850s, they are generally traditional in their detailing and are in many ways similar to Federal rowhouses. Most incorporate simple trabeated entrances, windows with brownstone lintels and very plain corbelled cornices. Examples of this type of commercial structure are known in Taunton, Brockton, Fall River and New Bedford.

Commercial office block construction was not widespread in the study unit until the Late Industrial period. An exception to this is in Brockton, where a central business district of three and four story Panel Brick, Victorian Gothic and Romanesque Revival office buildings was built in the 1860s. Most of these structures incorporated quoins, stilted window hoods, polychromatic masonry and corbelled cornices with parapets. In the 1870s and 1880s, Fall River and New Bedford developed similar central business districts with three and four story masonry office buildings. One of the finest of these is the Academy Building (1876, Hartwell and Swazey), a four-story brick Ruskinian Gothic structure in Fall River.

While fragments of these earlier central business districts survive in all of the study unit's cores, most of the central business districts in the unit did not achieve their present appearance until after the 1890s. From the late 1890s through the end of the Late Industrial period, commercial office structures of a standard, flat roof rectilinear configuration were built in some numbers in the study unit's

larger cities. Most of these incorporate storefronts on the first floor with office space above. Most are of masonry construction; the red brick commonly used before 1895 was replaced by the end of the period by lighter colored stones and terracotta as the primary facing material. Romanesque and Renaissance Revival and neoclassical designs predominate for commercial construction.

After 1900, similar office buildings began to be built in small numbers, generally only one or two examples per town, in the study small cities and larger towns. The best of the office buildings in the study unit's cores exhibit well-handled and higher quality detailing; many of these are architect designed, either by local or Boston firms. By contrast, post 1900 office buildings in outlying cities and towns tend to be more utilitarian in character and to incorporate stock details in simple Georgian, Renaissance or Neoclassical designs. While some may be architect designed, most were probably built by contractors. Most are two stories in height, unlike the three or four stories standard in the core cities. Examples of modest commercial construction are known in Rockland, Mansfield, the Attleboroughs, and in outlying neighborhoods of the higher level cores such as the Acushnet Avenue section of New Bedford, Whittenton and Weir's Village sections of Taunton, and Flint and Globe Villages in Fall River.

After 1920, comparatively few office blocks were constructed, except in the central business districts in Brockton, Plymouth, New Bedford, Fall River and Taunton. These are almost universally utilitarian Georgian and Renaissance Revival masonry structures of three or four stories' height.

Law Offices:

Law offices are an architecturally distinctive and rare form of early commercial building. Only two examples are documented, both in

Middleborough and both dating from the end of the 18th century. These are one or two story structures, two bays wide with a center entrance and gable front orientation. Architecturally, they are distinguished by their very small size, two-bay wide configuration, generally stylish details and substantial construction. One of the Middleborough law offices is of brick (1770) and the other The Eddy Law office, now standing at Storrowton, West Springfield, of frame construction (c. 1790). Less than a half dozen other examples were noted in the study unit, but none of these were documented.

Stores:

One of the longest-lived types of commercial architecture in the study unit is the store. Stores were present in almost every town of the study unit from the late 18th century through the end of the Early Modern period. The earliest stores operated from private dwellings were located in one or two story structures resembling outbuildings. Stores constructed for the purpose do not appear to have been constructed before the Federal period. Of these early Federal period stores, a very few examples are known to survive. Probably the finest of these is the Luther Store (1815) in Swansea, a two-story brick building with an integral lean-to and double entrances, one at each end of the five bay facade. The only other brick store known stands at East Bridgewater (1808). A frame store of the Federal period (1820) stands at Freetown; this is a two-story building similar to the Luther Store in its double entrances at either end of the facade but without the rear lean-to.

The form of these stores had changed by the Early Industrial period. By the mid century, the typical store had been re-oriented to a gable front position; the double entrances were replaced by a single center entrance flanked by two window bays. Also common was a one-story shed roof veranda running the length of the storefront. This form, reflecting the advent of the Greek Revival style, remained almost universal into the 1880s with periodic updates in the

style of the details from the Greek Revival and Italianate to the Stick Style and Queen Anne. While most of the earlier stores are two stories in height, by the 1870s and '80s, three-story height was fairly common. Surviving stores of this type are known in Attleboro (Dodgeville), Bridgewater, East Bridgewater, Berkley (Myricks), Carver, Dighton, Duxbury, Kingston, Middleborough, Norton, Norwell, Rehoboth, Mattapoisett and Somerset. One of the finest stores of the period, the Peter Pierce Store (ca. 1825) in Middleborough, differs from this pattern. The Pierce Store consists of a two-story, temple front Greek Revival main building with a monumental Doric portico flanked by one-and-a-half story wings set perpendicular to the center block.

Three and four-story department stores did not begin to be constructed in the study unit until the Late Industrial period. The earliest department stories were relatively modest stylistically, with brick Victorian before the end of the 19th century. Such stores were confined to the study unit's cores until the 1920s, when regional and national department store chains began to establish stores in the local cores.

After the turn of the century, a new store form developed. This was the small, one-story masonry or frame corner store, which began to be built in the early 20th century as suburbs grew along streetcar lines and major roads. Freestanding corner stores retained the two-bay, center entrance configuration of the earlier 19th century stores while contiguous rows of stores generally adopted a side entrance plan. Such storefront complexes were built in almost every town in the study unit. In the core areas of northern Plymouth and Bristol Counties and in Somerset, Swansea, Fall River, New Bedford, Fairhaven, Wareham, Plymouth and Middleborough, one-story storefronts were built in some numbers from 1900 through the 1920s. These were located both at the town center and in outlying neighborhood centers at crossroads. In the study unit's peripheral agricultural towns, 20th century commercial development tended to be located

along the state highways which developed in the period rather than at the historic town center.

II. COMMERCIAL

B. Transportation/Recreation

The Transportation/Recreation category of commercial architecture includes taverns and hotels, depots, and theatres.

Taverns and Hotels:

The earliest commercial structures in the study unit were taverns. Taverns had been established in a number of towns in the study unit by the 1660s and continued to be an important form of commercial architecture through the end of the Federal period. In most instances, taverns were established in existing residential structures. In plan, taverns do not differ from the prevailing domestic structures of the region and period. While most taverns are two-story houses, a few story-and-a-half cottages are known to have functioned as taverns.

The earliest tavern standing in the study unit is the Jacobs Tavern (ca. 1680) in Seekonk. The tavern was probably of two-story, center chimney configuration as originally built, but subsequent remodelling has substantially altered the structure. The Fearing Tavern in Wareham was established ca. 1750 in a pre-existing ca. 1680 house. The structure, originally an end chimney half house, was enlarged to center chimney status when the tavern was established. Other early taverns are thought to survive in Middleborough and East Bridgewater. Taverns dating from the mid 18th century through the Federal period have survived in greater numbers. Colonial and Federal period taverns are extant in Attleboro (Hatch, Burrow's and Newell Taverns), East Bridgewater (Pratt Tavern),Dighton, Lakeville, Rehoboth (Briggs Tavern), Scituate (Halfway House), Swansea (Short's and Luther's Taverns) and Taunton (Brow's Tavern). Among the best preserved of these are Short's Tavern (ca. 1742), a

three quarter plan structure, and Luther's Tavern (ca. 1812), a center chimney Federal house, in Swansea.

By the beginning of the Early Industrial period, the first hotels in the study unit were being established. One of the earliest of these was the South Shore House hotel of 1830 in Scituate. The earliest hotels in southeast Massachusetts were not focused primarily on resort areas, as they had been in Boston, but were generally located at commercial centers of the study unit. Other early hotels in the study unit were the Parker House (1841) in New Bedford, the Nemasket House (1837) in Middleborough, a hotel at Kingston (1854), the King House (1850) in Abington, and the Glades Hotel (1846) in Scituate. Of these, only the King House, a two-and-a-half Greek Revival/Italianate house with a cross gabled plan and a square lantern, survives. One important development of the Early Industrial period was the establishment of the Island Grove park at Abington (1846). The Island Grove park, established by the Old Colony Railroad, was a summer "resort" with an atmosphere similar to the campmeetings of the late 19th century. Although nothing remains of the complex, the park seems to have set a precedent for railroad or street railway sponsored resorts in southeast Massachusetts, several of which developed around inland ponds later in the 19th century.

Commercial hotels were built in most of the study unit's cores in the Late Industrial period, with surviving examples in Attleboro, Brockton, Fall River, New Bedford and Wareham. The largest collection of commercial hotels is in New Bedford; these include the Bancroft House hotel (1877, Louis P. Rogers), a four-story brick Renaissance Revival structure, and the Hotel Touraine (1912, S. C. Hunt), a three-story Queen Anne frame building with corner turrets and dormers. Other period hotels are the Briggs Hotel (1880) in Attleborough, a four-story frame Queen Anne building and the Tabitha Inn (1904, Charles Brigham) in Fairhaven, a two-and-a-half-story Tudor Revival building in brick.

The most significant collection of resort architecture of the Late Industrial period is at Onset in Wareham. The Onset Bay Grove Association, founded in 1876, is the only known campmeeting site in southeast Massachusetts. There, from the 1870s through the end of the Late Industrial period, small Stick Style and Queen Anne cottages were built in some numbers by campmeeting followers. In addition to these cottages, several large Stick Style and Queen Anne frame hotels, three and four-stories tall, were built along Onset Avenue in Wareham.

Depots:

There are a number of railroad related structures surviving in southeast Massachusetts. These were built as part of the extensive network of rail transportation that developed in the region. They include a range of passenger depots and freight sheds dating from the 1850s through the early 20th century. Among these are stations by nationally noted architects such as H.H. Richardson's Old Colony depot (1884) at North Easton as well as very modest vernacular freight sheds such as the one-and-a-half story Old Colony Freight House at Middleborough. The earliest surviving stations are the Taunton Branch railroad depot (Richard Upjohn 1853) at East Norton and the Fairhaven Branch depot (1854) at Marion. Most other depots date from the late 19th century. Stylistically, they generally adhere to the form employed by Richardson at North Easton; most are one-story masonry buildings in the Richardsonian Romanesque style with hip roofs whose overhanging eaves form a covered waiting area for passengers. Among the surviving depots in the study unit are New York, New Haven and Hartford depots at North Abington (1893, Bradford Lee Gilbert), Bridgewater (1893) and Rockland, Old Colony depots at Kingston (ca. 1890) and Middleborough and the Boston and Providence depot at Attleboro (ca. 1906).

Freight sheds are, by comparison, much more modest structures. Generally, they are of frame construction one-and-a-half or two stories in height. A few exhibit period styles, such as a Greek

Revival freight shed at Bridgewater and a board and batten Gothic Revival shed at East Bridgwater.

Theatres:

Theatres are a very rare building type in southeast Massachusetts. Very few examples are known, all of them located in the study unit's cores. No theatres are known to pre-date the 1890s, although public halls, such as lyceums, were constructed in the mid 19th century (Oxford Lyceum, 1842; Fairhaven Lyceum, 1854; both in Fairhaven). Among the surviving theatres in the study unit are the Bates Opera House (ca. 1890) in Attleboro, the Orpheum Theatre (1910) and Sharpshooters Hall (1892) in New Bedford, and the Colonial Theatre (1898) in Brockton. The most elaborate is the Orpheum Theatre (1910) in New Bedford, a two-story Renaissance Revival building in brick with ornate terracotta facing and details. The remaining structures are more utilitarian Queen Anne or Colonial Revival designs in frame or brick construction.

IV. INDUSTRIAL

A. Manufacturing

Mill, furnace and foundry sites from the 17th and 18th centuries are common in southeast Massachusetts, but surviving structures are very rare. Only a few of the early industrial structures recorded in the study unit appear genuinely to date from the years traditionally ascribed to them. Among these are: the Ebenezer Allen grist mill at Russell's Mills in Dartmouth, a one-story frame structure dated ca. 1710; a one-and-a-half story paint shop in Norton, probably dating from the 18th century; the Joel Hatch Shingle Mill (ca. 1752) in Marshfield; and an 18th century sawmill in Scituate on Lincoln Road. The largest site known in the study unit is the Oliver Nail Works in Middleborough, constructed between ca. 1745 and 1765 and excavated in the early 1960s. Documentary evidence and surviving structures indicate that the majority of the earliest industrial buildings (grist, saw and shingle mills, as well as cotton mills) were modest structures of frame construction, one to two stories in height. Furnaces, of course, were of masonry construction, generally of fieldstone.

In general, the earliest surviving industrial structures recorded in the study unit date from the Federal period. Nonetheless, the number of surviving structures is still small. Among the Federal period structures remaining extant are the B.B. and R. Knight Cotton Mill (1810) at Attleboro, a four story frame structure with a shed roof monitor, the Rodman Candleworks warehouse (ca. 1820) at Fairhaven, a one-story gable roof granite building, the Rodman Candleworks (1810) at New Bedford, a three-story granite structure, a two-story frame woodworking shop with a Federal style hip roof with dentilated cornice at Hanover, and blacksmith's shops at Attleboro (ca. 1820) and Dighton (1800). The finest of these from an architectural viewpoint is the Rodman Candleworks at New Bedford: a three-story building, constructed of rubble with a stucco ashlar facing, it incorporates Federal details such as alternating quoins and rusticated window and door surrounds, and semicircular windows on the third story.

Several other Federal period industrial structures survive in ruinous state, most of them textile mills. Beginning in the Federal period, cotton mills were constructed of brick or stone rather than framed timbers; being of masonry construction, walls have often survived. Portions of the Weldon Mill (1815) in Acushnet, the Orleans Mill (1831) in Rehoboth and the Plymouth Cotton Company mill (1813) in Plymouth are known to survive. The first two are of stone and the third of brick construction. Judging from the stepped roofline of the end walls, the Plymouth mill apparently incorporated a clerestory monitor.

The earliest shoe shops surviving in the study unit probably date from the Federal period. Shops of the traditional "Ten-Footer" configuration (tiny gable roof, one room, one-story shops ten feet long with a side entrance) were probably built in most of the towns in northern Plymouth County where the shoe industry later became paramount, as well as in some towns in northern Bristol County. Surviving examples are unusual, though not rare, and are known in Brockton, Abington, Attleboro and the Bridgewaters.

By the Early Industrial period, industrial activity in the study unit had begun to focus in the study unit's 19th century cores. By the end of the period, some differentiation of architectural form was evident. The two major types of industrial building developed in the Early Industrial period were shoe factories and textile mills. The shoe factories, centered in northern Plymouth County (Brockton, Abington, the Bridgewaters, Raynham), were almost all of frame construction. The shoe factories grew out of the small, individually held shoe shops and even in their initial large scale production phase remained housed in buildings of a semi domestic scale. Most of the known structures were two-and-a-half to three-and-a-half story Greek Revival/Italianate buildings with gable roofs and gable front orientation. Generally, the shoe factories can be distinguished from the prevailing gable front, sidehall plan Greek Revival/Italianate houses of the period by their greater height and by their mode of entrance: the shoe factories generally incorporate center entrances

with a double run of stairs to the door. Surviving mid century shoe factories are known in Abington (King House, ca. 1850), Brockton and Raynham (770 Broadway). Because of their domestic scale and appearance, it is possible that additional factories survive but have been misidentified as domestic structures.

Textile factories, by contrast, were by the mid 19th century universally of masonry construction. Most of the study unit's textile factories were located in Bristol County (Fall River, Attleboro, New Bedford). These are generally four and five stories in height with gable roofs. Most of these date from 1850 through the early 1870s. Stylistic ornament is generally confined to the projecting stair tower, with Italianate, Romanesque Revival and Second Empire details such as round head windows, mansard roofs and heavy corbelled cornices predominating. The mills of New Bedford and Attleboro are of brick while the Fall River mills utilize locally quarried granite. In both Fall River and New Bedford, groups of architect/engineers with specific expertise in mill construction developed in response to the needs of new production technologies. Among the region's prominent mill architects were Lafayette Nichols and Josiah Brown of Fall River and Seth Ingalls, and William Durfee of New Bedford.

Another characteristic industrial form which developed in the Early Industrial period was the shovel shop used by the Ames Company in North Easton. These are long one-and-a-half story, gable roof structures of fieldstone, most of which were built ca. 1853.

Outstanding surviving industrial buildings of the Early Industrial period include the Star Mills (1863) in Middleborough, the Wamsutta Mills (1847, Seth Ingalls) in New Bedford, the Reed and Barton factory and Field Tack Company (1868) in Taunton, the Tremont Nail works (1848) in Wareham, the Carver Cotton Gin company (1842) in Bridgewater and the Low Box factory (1860) in Brockton.

The majority of the study unit's surviving industrial buildings date from the Late Industrial period. The specialization of building

form which first became apparent in the Early Industrial period remained current through the Late Industrial period. The shoe factory form became standardized as a flat or very shallow gable roof, three, four or five-story frame building, generally of considerable length. Most shoe factories incorporated domestic size one-over-one double hung sash. Instead of large window bays, shoe factories employed tightly spaced fenestration with windows set in bands. Shoe factories survive at a rate of three or four examples per town in each of the shoe manufacturing towns (Abington, Whitman and Rockland) and in larger numbers in Brockton, the regional center of shoe production.

During the Late Industrial period, jewelry production became an important industry in northern Bristol County, particularly in Attleboro and North Attleborough. Jewelry factories are very similar in form to shoe factories; most are flat or shallow gable roof structures of some length, with one over one double hung sash set in bands. In contrast to the shoe industry, where frame construction was nearly universal, in the jewelry industry both frame and brick factories were constructed.

Textile mills continued to be primarily of masonry construction, either brick or granite. A second generation of textile mills was constructed at the end of the 19th century, from 1890 through the early 1920s. Most of these mills, in contrast to their earlier counterparts, were utilitarian in appearance with simple rectilinear plans and flat roofs. Stair towers were eliminated. Pier and spandrel construction with large industrial sash filling the spandrels became common in the 1890s and remained so through the 1920s. Most detailing was confined to very modest Romanesque Revival style motifs, such as corbelled cornices and segmental arched windows. In the 1920s, detailing became somewhat more classical in feeling, with trim, such as pilaster capitals and cornices, picked out in light colored concrete. Concentrations of period mills stand in Fall River, New Bedford, Taunton and the Attleboroughs.

Several characteristic architectural forms grew up in response to the development of the cranberry industry in interior Plymouth County after the turn of the century. The most significant of these were clusters of tiny workers' cottages, but industrial structures, such as the screenhouse, were also important. Screenhouses were long, gable roof, frame buildings, generally two to three stories in height, located on the bogs. The most outstanding of these is the Federal Furnace Bog Company screenhouse (1895) in Carver, a dramatic three-and-a-half story building with an unusually broad and lowsloping gable roof to the first floor level.

Other notable Late Industrial period manufacturing structures include the Lowney Chocolate factory (1903) in Mansfield, the Commonwealth Shoe and Leather Company (1879) in Whitman, the Tappan Brothers factory (1906, O. M. Higgins, architect, Aberthaw Construction, builders) in Attleboro, the earliest known use of reinforced concrete construction in the study unit, the H. F. Barrows jewelry company (1906) in North Attleborough and the Plymouth Cordage works in North Plymouth. Industrial and mill architects and builders active in the study unit during the period include C. R. Makepeace in New Bedford, John A. Jackson and the firm of Howard and Austin in Brockton and William T. Henry, Ichabod Burt and William M. Manley in Fall River.

No innovations in forms of industrial architecture took place in the Early Modern period although the use of innovative materials, such as reinforced concrete, became more common. The major industries which continued to build new factories in the 1920s were the textile industries in Fall River and New Bedford, the shoe industries of Brockton/Abington and the jewelry industry in the Attleboroughs. In all of these instances, the standard forms of the early 20th century remained current through the Early Modern period.

IV. INDUSTRIAL

B. Service and Engineering

Very few engineering structures are known to date from either the Colonial or the Federal periods. The earliest surviving piece of engineering known in the study unit are portions of the power canal for the Benjamin Hobart Tack factory (1745) in Whitman. While nothing of this system is known to survive, the earliest waterworks system in the study unit was established in Plymouth in 1796 at Town Brook. Other early engineering structures surviving in the study unit are an octagonal windmill (1786) in Norwell, the Scituate Light (1811) and the Bird Island Light (1819) in Marion. Both lighthouses are of masonry construction.

Although still small, the number of service and engineering structures surviving in the study unit increased during the Early Industrial period. Most of the surviving structures are lighthouses, of which four examples are known: Ned Point Light (1837) in Mattapoisett, Plymouth Light (1843), Palmer's Island Light (1849) in New Bedford and Minot's Ledge Light (1857) in Scituate. Other engineering structures of the period include stone arch bridges in the Bridgewaters, Hanover, Kingston, Mattapoisett and Westport, which may date from either the Federal or the first years of the Early Industrial periods. Windmills were also built in the study unit during the period in Norwell (1854), Dartmouth and Marion.

During the Late Industrial period, the number and type of engineering structures built in the study unit rose dramatically. That increase reflects, first, the rise in technological complexity which characterizes the period in general and, second, the overall prosperity of the core areas at the end of the 19th century. Advancements in public health, transportation and power generation are reflected in the construction of such structures as standpipes, power and pumping stations, bridges and trolley carbarns. Such structures

were built in all of the study unit's cores and in outlying areas as well, as adjunct facilities for the core areas. In some towns, the only masonry (and, occasionally, the most stylish) structures in the town are the pumping stations built by the municipal waterworks of a nearby core.

Most of the pumping stations recorded in the study unit are one or one-and-a-half-story brick buildings with hip roofs, asymmetrical plans and towers. Most were built in the Queen Anne, Renaissance or Romanesque Revival styles. Surviving examples include pumping stations in Attleboro and North Attleborough, Brockton (1893, W. S. Johnson), Fall River (1873-5, H. M. Wilson), Lakeville (1894), Rochester (1899, Rice and Evans), Easton, Fairhaven, Halifax, Kingston, Mansfield, Mattapoisett, Middleborough, and Pembroke. The finest of these are the New Bedford Waterworks at Rochester, a Richardsonian Romanesque granite pumping station set within landscaped grounds, and the Victorian Gothic Fall River Waterworks.

Other service related structures are power stations for railroad, street railway and electrical service power generation. The earliest power station in the unit is the Edison Station (1883) at Brockton, a two-story brick Romanesque Revival building. Other surviving power stations include the Old Colony Railroad power station (1903-6) at Abington, a municipal lighting plant at Mansfield, the Middleborough Gas and Electric Plant, the Union Street Railway Power Station in New Bedford, a gas and electric light plant in North Attleborough, an Old Colony power station in Rockland, the Brayton Point Station of the New England Power Company at Somerset, the Taunton Street Railway Power Station and the New Bedford and Onset Street Railway power station at Wareham. Most of these are early 20th century one and two story brick structures in Romanesque or Renaissance Revival Styles.

Standpipes are very rare in the study unit. All the known examples date from the 20th century, with a single exception: the Fall River Water Tower (1875), an octagonal Victorian Gothic structure

of granite. Standpipes are also known in Mattapoisett, Middleborough (Barden's Hill), Rockland and Scituate. Of the Barden's Hill standpipes, dating 1915 and 1937, the 1915 structure is notable for its use of reinforced concrete. Lawson Tower (1902) in Scituate is undoubtedly the finest 20th-century standpipe in the study unit. It is a Chateauesque design in stone with a cylindrical tower rising to a conical roof enriched with hip roof dormers.

Other service and engineering structures include gas holders, bridges and lighthouses. Gas holders are very rare in the study unit, with only two examples known, both in North Attleborough. Of these, the brick Victorian Gothic gas holder of the North Attleborough Gas Light Company is the finer. Probably the most outstanding bridge of the Late Industrial period is the Dighton-Berkley Bridge (1896), a Warren through truss swing span built by R. F. Hawkins which may be the oldest swing span bridge in the state. Unique engineering structures in the study unit include the RCA Transatlantic Wireless Station at Marion (ca. 1927; with a radio tower and compound of bungalows) and the zeppelin mooring tower on the Charles Green Estate at Westport.

The remaining lighthouses of southeast Massachusetts all date from the Late Industrial period and include Borden Flats (1881, Fall River), Butler Flats (1898, New Bedford) and Clark's Point (1898, New Bedford). Borden Flats is a cast iron caisson, while Butler Flats is of brick construction and Clark's Point is of cement.

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CHAPTER V: ECONOMIC AND INDUSTRIAL DEVELOPMENT

INTRODUCTION

The fourteen short essays which follow are sketches of several of the principal industries in the southeast Massachusetts Study Unit. Although the 17th and 18th centuries are represented, it was during the 19th century that the area developed a diversity and strength in several individual industries which were unequalled in any other period. In the 20th century, as changing freight rates and national markets replaced regional markets, the area lost many of these industries to cities closer to national population centers.

The material presented here is limited by, and based almost exclusively on, the information generated for the town reports of the Reconnaissance Survey. The scope of the project as a whole has not permitted a more general inquiry into the development of specific industries in Massachusetts. For instance, though the Fall River and New Bedford cotton textile industry was fully and richly covered in the Smith and Wolfbein accounts noted below, little time could be spent with the vast literature on the textile industry in Massachusetts and New England generally.

In contrast with the textile industry, virtually no important accounts were identified for other subjects, which according to census statistics were important to the area. Poultry and dairy farming, for instance, were probably part of the general agricultural base since the 17th century. By the late 19th century, a good part of southeast Massachusetts experienced a real boom in agricultural products grown for the adjacent metropolitan markets. In 1895 Dartmouth was the leading agricultural town in the state, according to the reports of the state agricultural census of that year, but statistics to adequately

trace its rise and decline--much less an historical account of its development--are absent. The transition of the lumber industry from shipyard suppliers to box makers for the expanding jewelry, shoe, and cranberry industries is another topic that has received little attention.

Any attempt to choose fourteen 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 (salt making).

b. overriding importance in the development of an individual town (whaling in New Bedford; jewelry in the Attleboro's).

c. hitherto undervalued importance (oil refining; tack manufacturing).

d. importance of the southeast Massachusetts area development in national industry (shipbuilding, whaling, and cotton textiles).

The industries chosen were not all of equal importance. Though some stand out as being important over long spans of time (e. g., shipbuilding), most take their full expression in the mid-to-late 19th century. Only three of the manufacturing industries seem to retain a dominant place in the Early Modern period: cotton textiles in New Bedford and Fall River; shoes in Brockton; and jewelry in the Attleboros. At the same time, the raising of cranberries dominated several of the Plymouth County towns.

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

I. SUBJECT: SHIPBUILDING

A. PRIMARY LOCATIONS:

Scituate, Norwell, Hanover, Pembroke, Marshfield, Duxbury, Mattapoisett, Fairhaven, New Bedford, Westport, Somerset, Swansea, Freetown.

B. HISTORICAL DEVELOPMENT:

The earliest identified shipyards within the study unit were laid out among the North River towns--Scituate, 1645, 1650; Hanover, 1660; Norwell, 1670--largely in response to the growth of a strong fishing industry. By the early 18th century, safe harbors provided by Kingston and Duxbury led to the establishment of shipyards there, as Plymouth's coastal and import/export trade expanded. The introduction of large scale commercial whaling out of Plymouth and adjacent towns in the 1730s and '40s provided another stimulus to shipbuilding centers along the south shore.

Though Taunton River shipbuilding had been initiated as early as 1694 by Clyde-trained Jonathan Bowers at Somerset, it was not until the mid 18th century that the coastal commerce built up by the interior towns of the Taunton River watershed--Middleborough, Taunton, the Bridgewaters--could support a strong shipbuilding industry. By 1800 large quantities of brick, ironware and nails were being shipped down the Taunton River to Newport, Providence, and New York.

Most yards remained relatively small scale until after the Revolution, when the opening up of Far Eastern markets as well as the expansion of trade with Europe and the West Indies sparked a shipbuilding boom that lasted throughout the Federal period, and in some cases into the 1850s. The Federal period also saw the rise of Buzzards Bay yards--primarily in Wareham, Mattapoisett, Fairhaven, New

Bedford and Dartmouth, whose products primarily served the whaling fleet. Many of these yards were started by North River men; the earliest in Mattapoisett was begun by Gideon Barston, ca. 1765 from Hanover.

Of the three shipyard cores, the North River was soonest to die, primarily because of the shallowness of the North River which prohibited construction of the larger class of East Indiamen or clippers. Proximity to Boston encouraged many of these shipwrights to move to the Boston area where they fueled the great clipper ship boom of the late '40s and 1850s. Much of the Buzzards Bay development died along with the whaling business in the 1850s.

Taunton River yards lasted longer, primarily because of the extensive sloop traffic to New York and other coastal points. By the 1890s Taunton was said to be the largest grain distribution port on the New England coast with the exception of Boston and Portland, while Somerset had one of the largest coal trans-shipment points. (It was this important traffic that fueled the various attempts to connect the Taunton and North Rivers via a ship canal.) Taunton shipyards were said to have built not only the largest 2 and 3-masted schooners, but also the first 4-, 5- and 6-masted schooners, as well as the only 7-masted schooner. But differential rail rates killed much of the sloop traffic, and with its cessation went most of the river's yards.

C. SURVIVING RESOURCES:

The early decline of most shipbuilding centers has discouraged the survival of any historic period yards, though some 20th century yards in Somerset, Taunton, and Kingston remain as well as the undisturbed sites of several important North River yards in Hanover and Norwell.

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II. SUBJECT: WHALING

A. PRIMARY LOCATIONS:

Mattapoisett, Fairhaven, New Bedford, Dartmouth, Westport.

B. HISTORICAL DEVELOPMENT:

Within southeast Massachusetts, whaling appears to have been initiated in Plymouth in the 1730s or '40s. By 1774 Plymouth had 75 whalers (of 45-50 tons each), while an undisclosed number operated out of Kingston and Duxbury. Whaling was also undertaken along Buzzards Bay by the mid 18th century (in Dartmouth by the 1750s), though it was not until the 1765 arrival of a Nantucket man, Joseph Rotch, that the capital and expertise for a large scale industry became possible. (In Somerset, it is said that Rotch's first choice would have been that Taunton River town but for the high land values there!) By 1775 New Bedford's whaling fleet numbered 50 vessels, though Dartmouth and probably Fairhaven and Acushnet also harbored whalers.

During the Revolutionary war, whaling came to a complete halt. In Plymouth the business never regained its prominence, though in New Bedford, by 1804 the town had recovered something of its pre-war prosperity -- only to suffer a few years later the effects of the Embargo and the War of 1812. But by the first decade of the 19th century, New Bedford had developed a prosperous merchant class as well as a whaling port which already outranked most other

New England whaling ports. For much of its subsequent history as a whaling port, New Bedford had over three times the number of ships of all other ports combined. As a result, the 19th century development of the industry is largely told in the history of New Bedford.

At the conclusion of the War of 1812 and for the next 40 years, New Bedford whaling advanced "with wonderful success." By 1820 New Bedford had taken the lead in whaling over Nantucket, and by 1832, 129 ships and barks (three times the number 30 years before) were engaged in the business. Yearly, the whalemen continued to bring back ever increasing quantities of whale and sperm oil, both for the nation's growing appetite for illuminating fluid and to satisfy the lubrication needs of an increasing number and variety of machines. By 1859, nearly half of the entire U.S. oil importation came through New Bedford. Whalers expanded their search into new waters throughout the 1830s and '40s. In 1843 the first bowhead whales (source of baleen) were taken in the Northern Pacific. Five years later, the first whale ship passed through the Bering Straits, marking the beginning of Arctic whaling.

Although other towns along Buzzards Bay shared in the whaling prosperity, New Bedford far outranked them. In 1855, New Bedford's closest rival was Fairhaven with only one fifth the number of men employed. But by the mid 1850s, whaling had reached its peak. In 1857, 329 whaling ships listed New Bedford as their home port. The nationwide depression that began that year had a devastating effect on New Bedford merchants. The enormous quantities of whale oil soon overstocked a market much less inclined to buy. Prices fell and disaster struck many firms. Sperm oil, which sold for $1.72 per barrel in 1855, sold for $1.21 in 1858. Of the 68 whalers arriving in New Bedford in 1858, 44 made losing voyages. Any possible recovery of the business was further compromised by the discovery of petroleum in 1859, in the long run virtually eliminating the demand for sperm and whale oil as illuminants. By 1865 an intense depression had set into the whaling business. Large cargoes of oil were stored for the market that never came, and each vessel returning increased

the depression. In addition, the whaling fleet was badly decimated by rebel cruisers during the war. Whaling capital had begun to move to the West Coast, where the Arctic fleet was increasingly based. For while sperm and whale oil had fallen precipitously in the period 1855-1858, whale bone--the Bowhead's baleen--had risen more than 100 percent, reaching a value of 97 cents per pound. By 1891, baleen, a natural plastic with great strength, was valued at $6.50 per pound. The introduction of spring steel in 1905 killed the market for baleen almost overnight. Despite this, whaling ships continued to leave New Bedford until 1925.

C. SURVIVING RESOURCES:

Objects and structures remaining of the industry are primarily those artifacts now conserved in museum collections, though the Early Industrial period commercial area of New Bedford is ample testimony to the prosperity engendered by the whaling industry. Both New Bedford and Fairhaven retain candleworks operated by the Rodman family. The last whale oil refinery in New Bedford appears to be that of William A. Robinson & Co., a stone complex occupied by the firm by 1863.

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III. SUBJECT: SALT

A. PRIMARY LOCATIONS:

Dartmouth, New Bedford, Marion, Duxbury, Fairhaven, Wareham.

B. HISTORICAL DEVELOPMENT:

Salt evaporation from sea water appears to have begun in Barnstable County as a result of British trade restraints prior to 1776. At the peak of its manufacture in the Early Industrial period, it was probably strongest in that county. Nevertheless Plymouth and Bristol counties both reported substantial quantities produced at the same time. During the Revolution, when salt had been in great demand, it was boiled in large kettles set in stone or brick under which a wood fire burned. However, it appears that when salt was once more obtainable from abroad these works were abandoned.

With the trade restrictions imposed by the Embargo, salt making once more became a profitable venture and in 1806 and '07 saltworks were established all along Buzzards Bay as well as in Duxbury and other North Shore points. At this time a new method was introduced using evaporating pans, said to have been first used by John Sears of Dennis 30 years before. [Otis, p.90]

> The water was pumped from the sea by windmills, and carried through pipes (or tunneled logs) to shallow vats twelve or fifteen feet square, from which water was evaporated by sun exposure, being carried from vat to vat at different stages of the process. There was a salt house to receive the completed product, and at night and in rainy weather, great covers (or roofs) moved by heavy "crane beams" were placed over the vats to protect the drying salt. One "crane" of salt-works usually included four of these evaporating vats. [Mattapoisett and Old Rochester p. 299]

By 1823, Abraham Holmes, describing Old Rochester, maintained that more salt was manufactured "in this town" (primarily Marion) than any other town in the Commonwealth. Saltworks were said to be "all over Sippican," and the windmills of these saltworks were a distinctive feature of the village.

Salt making also dominated the economy of Dartmouth in this period. An early pre 1812 pumped storage scheme used four windmills to pump water into a storage tank to operate the grinding wheels of a salt mill when wind power failed. The idea, however, was quickly abandoned when it was found that the water pumped over several days only ran the mill for four hours! Though two works in Dartmouth survived as late as 1900, most salt making operations, primarily serving the local cod and mackerel fishing industry, had ceased by the Civil War.

C. SURVIVING RESOURCES:

There are no known surviving elements of these salt works.

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IV. SUBJECT: PRIMARY IRON MANUFACTURE

A. PRIMARY LOCATIONS:

Carver, Middleborough, Halifax, East Bridgewater, Brockton, Whitman, Bridgewater, Easton, Raynham, Taunton, Norton, Dartmouth, Rochester, Freetown, Mansfield, Kingston.

B. HISTORICAL DEVELOPMENT:

The existence of bog ore in much of the interior of Plymouth and Bristol Counties was responsible for two centuries of iron industry development. The earliest activity was that of Henry and James Leonard from Saugus, who were invited to establish Raynham Forge in 1653, using local bog ore. Thereafter many of the ironworks throughout the study unit were connected with Leonards. One 18th century writer wrote, "Where you can find iron works, there you will find a Leonard." (Forbes p.73) These included the Whittington Iron Works (Taunton, 1670) and Chartley Iron Works (Norton, 1696).

The earliest Plymouth County ironworks was in Pembroke, 1702, though the furnace was abandoned for lack of wood. Iron activities in Easton and the Bridgewaters all commenced in the first decades of the 18th century. The discovery of a rich source of "lake ore" in the lakes of Middleborough and Lakeville was key to the development of iron production in that area, and by the late decades of the century, the lakes were supplying furnaces in Freetown.

Dissatisfaction with the use of bog ore was not in general expressed until the first decades of the 19th century, though the Oliver Furnace at Muttock (Middleborough) is thought to have used 'rock ore' from New Jersey as early as 1756.

By 1798 the two counties of Plymouth and Bristol had in operation fourteen blast and six air furnaces, twenty forges and seven rolling and slitting mills, in addition to a number of trip hammers and a great number of nail and smith shops (Swank, 368). In 1804 there

were ten blast furnaces in Plymouth County alone, all producing castings exclusively. But by 1804 bog ore (about 18% iron) and pond ore (20-30%) had largely given way to ores procured from mines at Egg Harbor, New Jersey, producing from 30-40% of excellent iron. Ore was transported by sloop to Wareham (for Carver and Wareham furnaces) or up the Taunton River and then transported overland by cart. As a result, it quickly became apparent that coastal locations accessible to the New Jersey traffic were preferable. Many Carver men went to Wareham as Bridgewater men went to Taunton and Fall River. By 1830 only three of the furnaces noted in 1804 remained in operation. Virtually all ore by that time was imported from outside the state. The manufacture of iron was increasingly geared toward the secondary products--nails, hardware, machinery castings and the like (described in part V, Secondary Iron Manufacturing).

C. SURVIVING RESOURCES

No known blast furnaces are known to survive intact though in a number of instances surface slag has identified the undisturbed location of several furnaces, including Easton, Bridgewater, East Bridgewater, Middleborough, and Raynham.

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V. SUBJECT: SECONDARY IRON MANUFACTURING

A. PRIMARY LOCATIONS:

Rolling, Slitting, and Nail Mills: Bridgewater, East Bridgewater, Fall River, Freetown, Middleborough, Somerset, Taunton, Wareham, Plymouth.

Shovels: Easton, Middleborough, East Bridgewater, Plympton, Raynham, Taunton, West Bridgewater, Somerset

Holloware and Castings: Easton, Fall River, Mansfield, Middleborough, Taunton, Norton, Somerset, Wareham, West Bridgewater

Textile and Other Machinery: Easton, Fall River, Mansfield, New Bedford, Taunton, East Bridgewater

B. HISTORICAL DEVELOPMENT:

The earliest secondary iron manufacturing was linked to the key 18th century mechanic-entrepreneurs in the iron bearing regions: the Leonards in Easton, Hugh and Robert Orr in East Bridgewater, and Peter Oliver in Middleborough. Key to this early development appears to have been the erection of the first rolling and slitting mill in the region by Oliver about 1751, followed by similar works in East Bridgewater (ca. 1760) and Bridgewater (ca. 1785). Home nail production became an important winter occupation, and these rolling mills kept the farmers supplied. With the invention of nail machines by Perkins (1794 patent), Reed (1807) and others, many of the suppliers of nail and tack plate themselves went into business manufacturing nails. Nathaniel Russell, trained in Middleborough, established an important nail works in Plymouth by 1807; while Murdock from Carver and the Pratts from Middleborough both established nearly simultaneous nail works in Wareham by 1820. At the same date, a coastal location also

appealed to the Bordens in Fall River, where the Fall River Iron Works developed an important trade in nails to New York and the Hudson Valley. Taunton's nail works also sent large quantities down river to New York. These coastal port industries--in Wareham, Fall River, Taunton, and later Somerset--reached their peak in the decades immediately following the Civil War. By 1900, virtually all had disappeared.

The earliest manufacture of shovels is said to have been started by Hugh Orr's son, Robert, in East Bridgewater. Hugh Orr, who is claimed to have built the first triphammer in the region, ca. 1740, became for several years the only edge-tool maker. In the Federal period, shovels were produced in a variety of locations, but by the 1850s, the business was primarily in the hands of the Ames family, for whom subsidiary plants--in Taunton, Somerset, and West Bridgewater--produced shovel plate to be finished in Easton.

The earliest known instance of textile machine manufacture was the important work of Hugh Orr in East Bridgewater, who in the 1780s, installed two Scottish mechanics, Robert and Alexander Barr, at his shop. Exhibited by order of the legislature at Orr's house, the machinery is thought to have influenced the erection of spinning mills at Beverly (1787) and Providence (1788) and was at least "examined" by Moses Brown and Samuel Slater in 1789. Further activity in machine building seems to have been postponed until 1806 and the years immediately following, when cotton mill construction all over the study unit attracted mechanics from a wide area. The earliest was probably Silas Shepard, a pioneer mechanic from the 1797 Wrentham (now Plainville) cotton mill, who settled in Taunton. Pawtucket machine and mill builders settled in Swansea and Fall River; and in Freetown, Samuel Slater, David Wilkinson, and others formed the Providence Iron Foundry in 1818 to produce machine castings for textile machinery.

By the middle of the century, most of the railroad centers had developed important machine building industries. Mansfield attracted mechanics from Foxborough, Easton, Boston, and Providence; Taunton fostered two important locomotive firms as well as textile machine works. Many firms, like the Bridgewater Iron Works, did well on Civil War contracts. By 1875 the Bridgewater Iron Works, with an annual product worth $900,000, was said to be the largest iron concern in New England.

The late 19th century, however, saw increased competition from other areas of the country closer to the source of raw materials. Of the over 1,000 nail machines operated in Weymouth, Taunton, Bridgewater, Wareham, Providence, and Fall River, only two concerns survived the fierce struggle for markets which had long been dominated by eastern nail manufacturers. The two strikes of the New England nailmakers in 1864 and 1865 helped the west to gain control of southern and New York markets. Prior to the Civil War, Wareham's Parker Mills had shipped 20,000 kegs of nails annually to New Orleans, but during the strikes, nails were sent down the Ohio and Mississippi from Pittsburg and Wheeling (Stone, p.272). By the end of the Late Industrial period, most of the large iron firms had closed.

C. SURVIVING RESOURCES:

The earliest examples of secondary iron manufacture with substantial remains date probably from the Federal period: the Washburn (formerly Oliver) nail works site in Middleborough and the Washington/Tremont and Tihonet iron works sites in Wareham. The latter retains its 1820s transportation canal to the 1850s "Tremont Iron Works" (NR), and all three should be considered NR eligible.

The most spectacular of the Early Industrial period iron producers is Easton's Ames Shovel Works (NR), though the Chilson Iron

Foundry in Mansfield is another stone complex worthy of further study. Sites of the East Bridgewater Iron Company and Hugh Orr's 18th century shop a short distance upstream could logically be considered part of a Matfield River iron district in East Bridgewater. Bridgewater itself retains two iron works--the Henry Perkins Foundry and the Bridgewater Iron Works, the latter with national significance.

Late Industrial period foundries exist in Taunton, Middleborough, and Carver, while Mansfield retains the pioneer factory for taps and dies, the S. W. Card Manufacturing Co., as well as its successor, the Bay State Tap and Die Company. The twist drill, invented by Stephen Morse in East Bridgewater, is represented by Late Industrial period factories in New Bedford (Morse Twist Drill) and Taunton (New Process Twist Drill).

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VI. SUBJECT: TACK MANUFACTURE

A. PRIMARY LOCATIONS:

Whitman, Hanover, Norwell, Taunton, Fairhaven, Kingston, Somerset.

B. HISTORICAL DEVELOPMENT:

Tacks had been made in Old Abington since about 1770, but with the invention of a foot-operated tack machine with moveable dies by Ezekiel Reed of Brockton about 1786, the making of tacks became one of Whitman's chief industries. The first tack factory using these machines (patented about 1802) was established during the Embargo by Benjamin Hobart in Whitman about 1807.

With the invention in Hanover by Ezekiel's son Jesse of a tack making machine about 1815, and its improvement by Samuel Rogers (East Bridgewater) and Thomas Blanchard (Millbury) ca. 1817, Benjamin and Elihu Hobart bought up the patent rights and several machines (built in Pembroke) and began to manufacture tacks in quantity. Hobart may also have been responsible for initiating the business in Hanover.

Though many small tack making concerns continued to operate throughout the century in the North River towns--Hanover, Pembroke, Kingston--by the mid 19th century the center of tack making had shifted to Bristol County. Albert Field, a native of Sharon and later an employee of Taunton's Whittenton Nail Mill, had begun making tacks and shoe nails in Taunton in 1827. By the 1870s Field had reputedly the largest tack factory in the country.

In the meantime, Cyrus Hunt, originally an employee of the Weymouth Iron Co. (nails) had arrived in Fairhaven in the 1860s to set up the American Nail Machine Co., organized to build and operate

patented self feeding nail machines. Reorganized as the American Tack Co. in 1867, under Hunt the company expanded to become one of Field's major competitors, buying up several smaller firms. The company achieved a major consolidation of most of the remaining tack concerns in 1891 with the formation of the Atlas Tack Corporation including Field's Taunton works, the Plymouth mills, and the Dunbar, Hobart & Co. works in Whitman. The removal of import duties on German tacks by the new Cleveland administration, however, threw the industry and Atlas Tack into a tailspin. Atlas Tack went into receivership, to be rescued in 1900 by Fairhaven's Henry Huttleston Rogers, who consolidated the company in a new Fairhaven plant, selling off the old Fairhaven, Whitman, Taunton and Plymouth units.

Several small tack concerns in Plymouth County escaped absorption by Atlas Tack, though all but Cobb & Drew in Kingston had closed by the beginning of the Early Modern period.

C. SURVIVING RESOURCES:

The earliest surviving tack factory appears to be Norwell's Salmond Tack Factory (NR), believed to have been constructed in 1834. Three other major tack factories constructed in the Early Industrial period include Fairhaven's American Tack Co. (originally the Rodman Candleworks), Taunton's Albert Field Tack Co. and the Dunbar, Hobart & Whidden plant in Whitman. All three, later absorbed in the Atlas Tack combine, should be studied for NR designation, as should Fairhaven's later 1903 Atlas Tack buildings.

In the North River towns, several small wood-frame tack factories, generally in Late Industrial period buildings, survive in Hanover and Hanson. Kingston retains three tack factory complexes. Cobb & Drew is still active, though it is now principally a manufacturer of rivets and industrial staples.

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VII. SUBJECT: COTTON TEXTILES

A. PRIMARY LOCATIONS:

Fall River, New Bedford, Plymouth, Taunton

B. HISTORICAL DEVELOPMENT:

The earliest identified development of cotton manufacturing within the study unit was in Taunton in 1806. The erection of the Green Mill was a response to Jefferson's Embargo Act, though it was rapidly followed by numerous small spinning mills along marginal water ways throughout the study unit. Bristol County towns were given marked encouragement by the proximity of Rhode Island textile activity and the substantial investments made by Pawtucket mill owners. Though Plymouth County towns also shared in the Federal period enthusiasm for cotton mills, the earliest concentration of textile manufacturing was at Fall River. Where the combination of water power and a coastal location gave the community a marked advantage, particularly after the introduction of the power loom ca. 1817 and the inauguration of the Fall River Iron Works. By the 1830s Fall River mills were already specializing in printcloth, a decision that carried the community comfortably through the Civil War on rising print cloth prices. In the early 1870s, in response to a tremendous rise in the print cloth margin (the difference between the cost of raw material and the finished product), Fall River experienced a dramatic rise in the number of mills in operation, an expansion also visible in Taunton.

In the meantime, New Bedford, whose whaling activities had discouraged investment in land based industries until the 1850s, had begun investment in textile production. Partially on the recommendation of mill engineer David Whitman of Warwick, Rhode Island, the Wamsutta and the mills which later followed it made their reputation on fine goods only. New Bedford's "era of new mills", however,

did not begin until the 1880s. Between 1880 and 1899, 14 new cotton mill complexes were built with a total capitalization of over $6 million. By 1892, New Bedford was third in the number of spindles in operation in the country exceeded only by Fall River and Lowell. Faced with the competition of southern mills, Fall River textile firms began to diversify into fine goods production, following New Bedford's lead. This diversification produced Fall River's last major period of mill construction, 1907-10. Despite this diversification, however, print cloth margins continued to decline. After 1922, the decline it was uninterrupted.

Because of their emphasis on fine goods production, New Bedford mills survived longer. In the period 1914-20, capital invested in the industry doubled, while earnings increased six-fold. This growth continued until 1924. The principal factors in this expansion--high government war orders for cotton goods and a dramatic increase in demand for tire yarn--increasingly exposed New Bedford Mills to competition from the coarser southern goods. For both Fall River and New Bedford, the depression years reduced mill capacity by 65-75%.

C. SURVIVING RESOURCES:

In New Bedford and Fall River there are over sixty cotton mills, the vast majority built in the Late Industrial period, though Fall River has at least six (all but one documented by HABS) from the preceding period. Three of Taunton's four remaining cotton mills were constructed in the last quarter of the century, while the Whittenton Mills complex contains elements from the 1850s. In Attleboro both the Dodgeville and Hebron mills were built probably in the 1850s; the Mechanics Mill and Crown Mfg. Co. mill survive from the 1890s. North Attleborough appears to retain the earliest intact cotton factory, the Falls Cotton Mfg. Co., a stone mill built in 1831.

Important mill ruins exist in Plymouth, Acushnet, Rehoboth, and Westport. Of these, the earliest is the brick mill built in 1813 for the Plymouth Cotton Co., and, according to Bryant Tolles, may be the

earliest textile mill extant in the state. The Weldon and Orleans mills in Acushnet and Rehoboth are both of stone and in undisturbed environments. The 1826 Westport Mfg. Co. mill, also of stone, is located at a busy intersection on the Westport-Dartmouth boundary.

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VII. SUBJECT: STRAW WORKS

A. PRIMARY LOCATIONS:

Mansfield, Middleborough, Lakeville, Swansea, Norton.

B. HISTORICAL DEVELOPMENT:

The historical record is sketchy, but the earliest development of straw braiding as a cottage industry in the study unit appears to have been in Norton about 1802. Its establishment in Mansfield under the care of John Rogers was no doubt due to the influence of the nearby Union Straw Works in Foxborough. Rogers' firm reached its recorded peak in 1865 when over 500 women produced over $175,000 worth of straw braid and hats. In Middleborough Albert Alden, formerly with the Union Straw Works, built up a national reputation for the Bay State Straw Works at the same time, employing 900 women to produce $225,000 worth of merchandise. Other towns, among them Fairhaven, Attleboro, Lakeville and Raynham, also had a small cottage industry in straw manufacture around 1800, but statistics for this work are incomplete. Although Middleborough's straw factory closed with Alden's death in 1898. In Mansfield, manufacture continued until the 1920s.

C. SURVIVING RESOURCES:

There are no known straw factories remaining in southeast Massachusetts.

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IX. SUBJECT: BOOT AND SHOE MANUFACTURING

A. PRIMARY LOCATIONS:

Abington, Brockton, Rockland, Whitman, West Bridgewater, East Bridgewater, Hanover, Hanson, Middleborough, Easton, Raynham, Norwell, Scituate.

B. HISTORICAL DEVELOPMENT:

It seems likely that a localized cottage industry in boots and shoes existed in many towns by the mid 18th century to supply local needs, though East Bridgewater, spurred by the ca. 1700 tannery of Experience Mitchell in Joppa, became an important center of the industry by the end of the Colonial period. Nevertheless, it was from the Norfolk County towns--Randolph, Stoughton, and Weymouth--that most of Plymouth's shoemaking activity appears to have derived. (In 1832, the first year for which figures are available, Randolph alone produced twice the value in boots and shoes of Old Abington, Plymouth's leading shoe town.)

The shoe business in what is now Rockland is thought to have been introduced about 1793 by a Weymouth family; in Brockton, by a Randolph native, Michael Faxon about 1810; and in Abington, from Rockland, in the 1820s. By 1825 Seth Bryant in the Joppa section of East Bridgewater was shipping large quantities of shoes to New York and by 1829 with Charles Mitchell, owner of the Joppa Tannery, had erected what was termed "one of the earliest boot and shoe manufactories".

In Brockton, D. S. Howard is held to have initiated the national fame of Brockton shoes about 1848, shortly after the Randolph and Bridgewater Railroad built its line through town in 1846. His "good, low-priced shoe" was sent in quantity to New York, and for a time he is believed to have produced more shoes than all the other shoe manufacturers in Brockton put together.

The presence of the railroad gave many shoemakers and centralized shops a marked advantage, and in the 1840s and early '50s the business advanced. Thirty-five percent of the towns in the study unit had boot and shoe production figures which peaked in the 1855 census year. Factors influencing the subsequent decline for those towns included the advent of factory production displacing the putting-out-system, the business failure of 1857, and the loss of southern markets during the War. Only the Brockton-Abington group of towns made real advances during this period. This success has generally been attributed to Seth Bryant and the McKay stitching machine. The McKay stitcher was invented by Lyman R. Blake in Whitman in 1857. At the outset of the Civil War, Bryant went to Washington to show Secretary of War Edwin M. Stanton samples of machine sewn shoes. Stanton agreed to award a contract to Bryant if he would guarantee the stitching. Bryant agreed with the result that many Old Abington, Brockton and East Bridgewater firms made their fortunes from Civil War contracts and the McKay sticher. Brockton and Old Abington (primarily Abington and Rockland) have each been credited with shoeing "half the Union Army!"

Brockton's development as a shoe center occurred primarily in the decades following the Civil War. The 1870s saw the inauguration of many of the large shoe companies whose products would become household names for half a century: W. L. Douglas (later Governor), George E. Keith, D. W. Field, and others. Brockton's manufacturers turned increasingly toward quality shoe production and away from the cheap shoes on which the town had initially made its name.

Middleborough, Plymouth, and New Bedford also shared in the prosperity of the shoe industry, though outside of the Abington-Brockton core, only in Middleborough did the industry retain a prominent place through the Early Modern period, and then primarily as a satellite of Brockton.

Brockton's shoe industry continued to expand into the Early Modern period. Although some new construction occurred in the

early '20s, the peak of the shoe industry output occurred about 1920. Various factors contributed to the decline, part of the general movement felt throughout the New England shoe industry. States outside New England offered cheap, unorganized labor, in addition to tax abatements. Other companies increasingly felt the pressure of competition from firms with more modern production techniques.

C. SURVIVING RESOURCES:

Relatively few Early Industrial period shoe factories are thought to survive within the study unit. Of those known, the Lyon shoe factory in Halifax is little more than a residence, while Abington's J. L. Nash Shoe Factory is a house constructed in 1850, made over into a factory fourteen years later. If the building at Auburn Street and Route 18 in Whitman is the M. S. Reed factory, it may be the best example of the shoe factory's formative period in the study unit.

In Brockton, virtually all of the surviving shoe factories were constructed in the Late Industrial period. Important parts of the two largest shoe companies, the W. L. Douglas Shoe Co. in Montello, and the George E. Keith Co. in Campello, should be further studied, as should the Douglas Block, part of the first Douglas factory from which the "3-Dollar Shoe" made its international reputation. Over thirty other shoe or leather related factories also exist.

Both Abington and Whitman contain factories constructed in the 1880s with unusual Queen Anne details; Abington also has the only known brick shoe factory in the region, the 1875 Arnold Shoe Co. Rockland has four major shoe factory complexes. Factories from the same period also exist in Bridgewater, Raynham, and Plympton.

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X. SUBJECT: JEWELRY

A. PRIMARY LOCATIONS:

Attleboro, North Attleborough, Norton, Mansfield

B. HISTORIC DEVELOPMENT:

With a few exceptions, jewelry manufacture in the study unit was confined to Attleboro and North Attleborough.

Traditionally the earliest jewelry manfacture in the Attleboros has been assigned to an unidentified Frenchman, who set up a forge about 1780 at Chestnut and South Washington Streets in North Attleborough and began making brass butts. (Stone reports that his name may have been Le Fornier, later corrupted to "the Foreigner".) At what date he began making jewelry is unclear. In 1795 Nehemiah Dodge began making jewelry in Providence, and the growth of the industry in that city paralleled the development in the Attleboros, with frequent exchanges in expertise.

It is not clear whether North Attleborough can claim a continuous record of jewelry manufacture since the 18th century, as can Providence. Instead, the first substantial industry appears to have been in buttons, led by Edward Price in 1794 from Birmingham at the Falls. In 1804 another Falls resident, George W. Robinson, patented an improvement in coat and waistcoat buttons, and for the next 20 years the button industry in Robinsonville showed the greatest product value of any industry in North Attleborough. Not until the Early Industrial period did the manufacture of jewelry surpass that of buttons. In the 1830s and '40s the number of firms increased rapidly.

The movement of the jewelry business into Attleboro began in the early 1850s as part of a tremendous expansion of the business

that took place in the late 1840s and '50s from North Attleborough. It has not been possible to ascertain the immediate cause of this expansion, but between 1845, when eleven North Attleborough shops employed 102 hands producing $85,000 worth and a decade later when 24 shops in both Attleboros employed 724 hands producing over ten times that amount ($946,200), the business took hold in the Attleboros and nearby towns (Plainville, Norton, Mansfield) with an astonishing rapidity. It appears that at the time this movement began, many of the key developments in the industry had already evolved in North Attleborough. In the 1860s, many firms in both Attleboros received boosts by U.S. Army orders for large quantities of gold, silver, and rolled plate Army badges and other emblems.

In the 1870s and '80s, a large number of firms were begun in Attleboro, while others moved into town from North Attleborough. By 1895 the value of Attleboro goods (probably 75% "metal and metallic goods") was nearly 1½ times that of North Attleborough. By 1875 the jewelry industry in nearby Mansfield also dominated that town's economy.

Attleboro experienced a further expansive period in the first decades of the 20th century, including early reinforced concrete factory construction. By 1920 Attleboro led all other communities in the state, claiming about 61 percent of the state total, North Attleborough claiming another 20 percent. Attleboro also developed an important industry in tool production.

C. SURVIVING RESOURCES:

All but three of the jewelry factories identified by the Reconnaissance Survey were located in North Attleborough and Attleboro. The two towns together contain over thirty jewelry or jewelry related factories. The earliest, however, are in North Attleborough. The only stone factory, of William D. Whiting, may also be the earliest (1847), though both the B. S. Freeman mansard-roofed shops (1865) and the V. H. Blackinton factory (1859?) also date from the Early

Industrial period. Attleboro has the bulk of the Late Industrial and Early Modern jewelry factories including the landmark 1906 Tappan Bros. factory built of reinforced concrete by the pioneer concrete builder, the Aberthaw Construction Co. of Boston. In the same year in North Attleborough, the H. F. Barrows Co. built a two-story brick factory as a memorial to the firm's founder. The landmark factory, which features a corner tower, is located on the reputed site of Le Fornier's 1780 forge.

The adjoining towns of Norton and Mansfield both retain Late Industrial period jewelry factories. In Norton, the Engley, Wetherell & Co. brick factory is built on the site of the 1695 Chartley Forge of Thomas and James Leonard.

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XI. SUBJECT: OIL REFINING

A. PRIMARY LOCATIONS:

Marion, Fairhaven, New Bedford

B. HISTORICAL DEVELOPMENT:

For a brief period in the late 1850s and early 1860s New Bedford and other whaling towns played a transition role in the refinement of petroleum. Because of its whale oil refining capabilities, New Bedford played an early part in the development of kerosene production even before the discovery of petroleum in Pennsylvania in 1859. A year earlier Abraham and Weston Howland became the first refiners in New Bedford to produce kerosene ("coal oil") from English coal. In 1860 Weston Howland placed on the market the first refined burning oil distilled from Pennsylvania oil, using a pioneer refinery on Fish Island. In Fairhaven in the 1860s, one historian wrote, "oil companies sprang up like mushrooms"--with names like the Empire Rock Oil Co., the Fairhaven Rock Oil Co., or the Keystone Oil Works. By 1870 the business had disappeared, removed to more centrally located urban areas.

C. SURVIVING RESOURCES:

The only known refinery extant was the stone building built by a retired whaling captain in Marion about 1860. Capt. Henry Allen's enterprise was short lived, however, and by the 1880s, with modifications by Stanford White, the kerosene factory had become the fashionable retreat of New York editor Richard Gilder.

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XII. SUBJECT: CRANBERRY GROWING

A. PRIMARY LOCATIONS:

Carver, Wareham, Plymouth, Rochester, Hanson, Pembroke.

B. HISTORICAL DEVELOPMENT:

The Early Industrial period marked the beginning of commercial cranberry cultivation in Carver and other Plymouth County towns. At first berries for commercial sale were picked from the numerous natural cranberry meadows that had been used since early settlement. As early as 1816 natural cranberries were being sent to Boston markets. By the middle of the 19th century, Carver men began to transplant the wild plants in an attempt to cultivate the cranberry. By 1865 Carver had 105 acres in cranberry production (the only other town in the county with more than 10 acres was Pembroke with 60.5 acres).

Part of the new popularity of the cranberry stemmed from the increased availability of sugar, and in the Late Industrial period cultivation of the berry blossomed into an enormous industry, replete with characteristic building forms--the "screen house" and "bog camp"--and screening and other processing equipment.

Between 1885 and 1895 cranberry production in selected towns soared. In Carver (which led the state) the value of cranberries harvested amounted to 36% of the Plymouth County crop, followed by Wareham with 22% and Plymouth with 14%. Rochester, Middleborough and Duxbury, together represented another 16 percent. The county had 60% of the state's cranberry crop. Its closest competitor was Barnstable with 30%.

C. SURVIVING RESOURCES:

With the modernization of the cranberry industry and the accompanying centralization of processing, screenhouses are rarely used today other than for equipment storage. In consequence, subject to vandalism and fire, the screenhouse is fast disappearing. Two of the finest examples, however, remain in Carver--the 1895 screenhouse of the Federal Furnace Bog Co. surrounded by a contemporary and largely unaltered bog camp; and the atypical brick screenhouse built by Ellis D. Atwood in 1940.

In Hanson is the former packing plant of the United Cape Cod ("Ocean Spray") Cranberry Co., a complex which includes the original 1912 brick structure thought to be the first cranberry packing plant in the U.S. and the "birthplace of the modern cranberry industry." The company later built another packing plant which survives in East Wareham.

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XIII. SUBJECT: BOXMAKING

A. PRIMARY LOCATIONS:

Marshfield, Pembroke, Hanson, East Bridgewater, Bridgewater, Mattapoisett.

B. HISTORICAL DEVELOPMENT:

Relatively little information has come to light on the development of box making in the study unit. The earliest statistical reference occurs in 1832 when East Bridgewater reported 3 men at work producing $3,500 worth of wooden boxes, probably for packing shoes. In the Early Industrial period many sawmills of northern Plymouth County towns, hitherto suppliers of North River shipyards, began to switch to box making as shipbuilding declined and shoemaking increased. Hanson reported boxboards and shingles in 1837 while Norwell had several early builders of wooden trunks in addition to boxes. In the 1860s and '70s many small sawmills throughout Plymouth County were producing boxboards, and boxes for both the shoe and cranberry industries. By the end of the century, as shoemakers turned to paper boxes, the demand for wooden boxes came increasingly from the cranberry industry. Between 1910 and 1925 the business of making cranberry barrels boomed. At the end of that period a change in marketing introduced quarter-barrel boxes almost "overnight;" by the end of World War II, cellophane cartons replaced wooden boxes almost as quickly.

C. SURVIVING RESOURCES:

The oldest intact box factory is probably that of the Atwood Brothers in Whitman, probably constructed in the 1890s, though North Attleborough's Mason Box Co. followed not long after. In Middleborough, in the Late Industrial period, box factories were numerous; representative are A. T. Savery's boxboard sawmill in Waterville and the brick boiler house ruins of C. N. Atwood's box factory at Rock.

The Gilbert H. West Co. in Pembroke operated one of the largest cranberry box factories in Plymouth County, though the existing building itself was constructed in 1939 after a fire destroyed its predecessor.

XIV. SUBJECT: BRICK AND POTTERY

A. Primary Locations:

Berkley, Somerset, Taunton, Bridgewater, Plymouth, Middleborough.

B. HISTORIC DEVELOPMENT:

But for several isolated potters, like Abington's John Henry Benner (1790s), most 18th century ceramic activity in the study unit was confined to Assonet Neck (Berkley) and to Somerset. In the early 18th century Edward Shove, a Quaker potter from Danvers, settled on Assonet Neck bringing with him from Essex County a pottery tradition which remained in the family--as well as in Osborn and Purinton in-laws into the early 20th century. Clark Purinton settled in the Pottersville section of Somerset by 1753, and Purintons and Chaces were closely connected with the redware--and later stoneware--business in that section.

Taunton was the location of the earliest successful stoneware pottery in Massachusetts by 1772. William Seaver is thought to have chosen the location because of the ease of moving New Jersey or Martha's Vineyard clay by boat up the Taunton River. At Pottersville, the Chace brothers added stoneware to their redware business in the 1840s, incorporating the Somerset Potters' Works, with products sold over much of southeast Massachusetts. A stong coastal trade also developed with New York.

The brick industry in southeast Massachusetts appears to have been primarily a phenomenon of the Taunton River communities. As

early as 1800 coasting vessels were freighting out 3 million bricks annually among other products. Taunton itself produced between 70 and 87% of the brick production of Bristol County between 1845 and 1865. It is probable that this ratio remained true for earlier and later periods. By 1875 seven Taunton yards produced brick valued at $106,000. Its nearest competitor was East Bridgewater with a product valued at $16,000.

Plymouth County's leading brick towns were Plymouth, (42% of the county production in 1865), Middleborough, and Bridgewater, though none appear to have approached the extent of Taunton production.

C. SURVIVING RESOURCES

There are no known surviving pottery establishments in the study unit, though an MHC survey form exists for the Benner pottery site in Abington. Bridgewater and possibly Taunton retain evidence of late 19th and early 20th century brick-making operations.

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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 southeast Massachusetts study unit. Three major processes have been most responsible for the continued evolution of the area's landscape. These are the continued growth of commercial corridors throughout the study unit, suburban expansion and the acceleration of decay and abandonment in some of the older urban core areas, particularly Fall River and Brockton. Five minor factors have also had an impact. These include resort related development, expansion of precision agriculture particularly in relation to cranberry production, sand and gravel quarrying, historical over-restoration and commercialization, and the widespread construction of power lines and telecommunications facilities.

Before making either general or specific preservation recommendations, these processes and their effects need to be reviewed. This not only brings the evolution of the landscape up to the present but also provides a background for understanding those factors which continue to threaten existing historic and archaeological resources in Plymouth and Bristol Counties.

Expansion of Commercial Corridors

A major factor in the ongoing changes within southeast Massachusetts has been the continued growth of commercial corridors. Commercial corridors are zones of development along major highways. Though primarily commercial, this development is often accompanied by residential and light industrial building as well.

The growth of commercial corridors has occurred in two stages. During the 1940s and 1950s expansion took place primarily along major federal and state highways. This was a continuation of the Early Modern period trend which introduced commercial strip development along U.S. Routes 1, 6, and 44, as well as along state Routes 3 and 3A. Post-World War II affluence made automobiles available to a greater proportion of the population and as vehicular travel increased, so did commercial development along the main routes. In general, these commercial corridors were long and narrow. Often extending for miles, they were seldom more than one building deep. As a result, the overall impact of these corridors on a town and its landscape was often minimal, once one got away from the highway. Commercial strip development remains a problem along many state highways in southeast Massachusetts. Examples include Route 3A from Scituate to Plymouth and Route 53 from Norwell to Kingston. In both cases, continued commercial expansion is eroding the historic fabric which remains and is threatening adjacent historic centers such as Hanover Four Corners and Kingston. The landscapes along other state routes, like Route 58 frnm Abington to Wareham and Route 138 from Taunton to Somerset, while developing less rapidly, are also threatened. Most vulnerable are rural landscapes whose open space, low density settings place them among the most fragile and endangered of the study unit's historic resources. Route 105 in Rochester and further north in Middleborough and Halifax is an example.

During the 1960s and 1970s, a new phase of highway construction began as limited access expressways were built across the region. These included federal inter-state highways such as I-95, which paralleled U.S.1 from Boston to Providence, Rhode Island, I-195, which paralleled U.S.6 from Providence along the shore of Buzzards Bay to the Cape, and I-495, the outer beltway for the greater Boston area. In addition to new federal highways, several existing state highways were upgraded to expressways. These included Routes 24 and 25, from Boston south to both Fall River and the Cape, and Route 3 from Boston to the Cape.

Designed to encourage auto travel by making it easier and faster, these new express routes changed the pattern of commercial development. Many of the older commercial strips began to decline as traffic and customers were siphoned off by the faster, limited access roads. At the same time the expressways caused a new kind of growth. Since these routes were accessible only at certain points, commercial development began to cluster in these spots. Instead of the homogeneous, linear commercial strip which had grown up along early highways, development now occurred as a series of clusters strung along the length of the corridor. Designed to provide tourist and/or commuter related services, these clusters focused around major intersections and often radiated out along the intersecting secondary routes. As a result, this development tended to overwhelm, if not replace, the existing landscape and to have a major impact on the communities in which it occurred. Clustered development continues around many of the access points to the region's inter-state highways. Examples include the U.S.6 and Route 25 junction in Wareham, the Route 105 and 25 junction in Middleborough, the Route 3/3A and 27 junction in Kingston, and several points along Route 140 between Taunton and Mansfield. Perhaps the greatest impact will be that of I-495 which is currently being completed between I-95 and Route 24. With the opening of I-495, interior sections of Mansfield, Norton, Taunton, and Raynham will become accessible for development. Careful planning will be necessary in these communities so that efforts to promote new commercial growth and to preserve important historic landscapes will be complementary rather than antagonistic.

Suburban Expansion

Closely related to the growth of commercial corridors is the second factor which has recently altered southeast Massachusetts: widespread suburban expansion. This mushrooming of residential growth has taken place at three levels. The densest growth has been the post-World War II expansion of residential suburbs around the study unit's major cities. The clearest example is the continued

suburban sprawl from East Providence which has re-shaped the landscape in Seekonk and in large parts of Rehobeth and Swansea. In a similar way, this kind of suburban growth also occurred in Dartmouth as New Bedford expanded beyond city boundaries.

A second level of suburban expansion has had a more widespread impact on the study unit. This less dense suburban growth has occurred largely as infill along the commercial corridors leading in and out of the major urban centers. Examples can be seen along Routes 123 and 27 around Brockton and along Route 104 from Bridgewater to Route 24. Perhaps the greatest source of suburban infill has been the massive relocation of Boston's population following the end of World War II. A number of factors contributed to this. 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 mortgages (FHA and VA) which made home purchase possible for 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. While the greates impact of this expansion occurred north and west of Boston, the northern portion of Plymouth County also felt this pressure. Once again, growth has occurred primarily along the major access corridors, most notably Route 3, as well as along secondary corridors such as Routes 53 and 18. This level of suburban development has been largely of small, single family houses which occur both as infill along commercial strips and as tract developments adjacent to the major highways. Within the last ten years, however, construction has also included apartment and condominium complexes. Medium density suburban expansion remains active in southeast Massachusetts, especially in northern Plymouth County. If unplanned, this expansion threatens historic landscapes by drastically altering its traditional scale and density. The problem is most evident at intersections along the secondary corridors where small commuter-related

apartment/condominium complexes and commercial support services (food and drug stores, fast-food restaurants, movie theatres) can be cheaply and profitably built. This combined suburban commercial expansion and its impact on the historic landscape can be seen along Routes 123 and 53 in Norwell and Hanover, Route 53 in Pembroke and Route 58 in Hanson.

The third level of suburban expansion has been a relatively recent phenomenon, one which occurred throughout the 1960s and 1970s, and which still continues across much of the study unit. It is a widespread, low density development characterized by single family houses on large lots. Often it occurs on land of marginal quality, such as pine lands, or around the margins of wetlands. Although this is low density development, it still has a major impact because it fills in the landscape and consumes much of the remaining open space. It is most evident in the interior portions of Duxbury, Plymouth, Marshfield, and Kingston, as well as in Carver and Plympton. It has also occurred to a notable degree in Dighton, Middleborough, and sections of Wareham and Rochester.

Urban Decay

With the continuation of the Early Modern period trends of industrial relocation and economic stagnation, the post-World War II era has been difficult for many of the study unit's cities. Hardest hit have been Fall River, which is still struggling to find an economic base to replace the textile industry, and Brockton, which has suffered from a parallel decline in the shoe industry. In both cities, decay and abandonment have resulted in large scale loss of the historic fabric. Vandalism and arson have been chronic problems, with demolition of large, vacant factory buildings frequently considered the best solution. In Fall River, construction of Route 97 and I-95 resulted in additional demolition, while the completed highways tended to fragment an already divided city.

Both cities have made significant efforts over the last ten years to use their remaining historic buildings as a resource for reinvestment in the community. Augmented by the new tax incentives, this preservation awareness has done much to counter the problems of urban decay.

Many of the other cities within the study unit suffer from similar problems, though none are of the magnitude of those facing Fall River and Brockton. In Attleboro, Taunton, New Bedford, and some of the large towns, like Wareham and Middleborough, threats to historic structures and potential historic districts are primarily those of insensitive change and treatment. Examples include the removal of building features, decapitation of older buildings by removal of upper stories, inappropriate residing and new construciton with little or no concern for compatibility with the existing scale or setting. In some cases, communities have developed active preservation programs to deal with these threats; in other cases, preservation efforts are far less organized.

One additional preservation problem which many of the urban areas in southeast Massachusetts share is a rapidly changing ethnic balance in their populations. New ethnic groups frequently are the ones who live in rundown, historic neighborhoods. As newcomers, they are usually unconcerned about or occasionally even antagonistic towards the community's past and efforts to preserve it. Working with these groups and coming up with preservation plans for the neighborhoods in which they live is one of the major challenges for historic preservation in southeast Massachusetts. While several cities and towns have developed programs to deal with this problem, New Bedford has been particularly successful.

Resort-related Problems

Continuing the Early Modern period trend, recreational use of southeast Massachusetts' coast has been a dominant fact of the region's

economic life. While day trips to the beach remain a component of this recreational use, the tendency over the last two decades has increasingly been towards second homes and year round use after retirement. This trend has helped bring viability back to many coastal communities. While newcomers have been able to buy and often restore old houses, helping to stabilize the community's historic character, their presence has also fueled new commercial development, especially along the secondary highways. Careful planning is needed in towns like Scituate, Marshfield, Wareham, and Mattapoisett in order to balance protection of the historic landscape with the need to service a growing population. In Dartmouth and Westport, the development tends towards stylish second homes. The impact on the rural character of these towns and the unwitting destruction of archaeological sites are primary concerns here.

Agriculture

Agriculture has been both a means for preserving historic landscapes in southeast Massachusetts and a threat to archaeological resources. As a preservation mechanism, continued agricultural use of the land perpetuates an important pattern of historic land use and provides a proper scale and setting for many of the remaining buildings and structures. This continuity can be seen in northern Middleborough and adjacent Halifax, Rochester, and Mattapoisett, as well as in Berkley and Dighton.

Cranberry cultivation has also become an inadvertent preservation mechanism for a particular kind of historic setting. The need to control the flow and level of water in the bogs has often led to stabilization of existing historic dams and water systems from early 19th century industrial complexes. In a few cases, nearly complete industrial complexes, including housing, have been preserved and reused. An excellent example is the Tihonnet iron works in Wareham. Efforts should be made to encourage greater awareness of the historic importance of these surviving complexes both in the towns where they are located and among their corporate owners.

Despite this preservation aspect, cranberry cultivation has become a major threat to inland archaeological sites in southeast Massachusetts. The rapid growth of the cranberry industry since the end of World War II has brought about a high demand for bog land. This in turn has led to extensive reforming of wetland areas to create new bogs. The cutting, filling, precision levelling and drastic reshaping of adjacent dry land required to create bogs are serious threats to archaeological sites. This problem is most acute in Carver, Plympton and sections of Plymouth, Wareham, Middleborough, Halifax, Hanson, Pembroke, and Kingston.

Sand and Gravel Removal

With its extensive glacial outwash features, southeast Massachusetts has many commercially attractive deposits of sand and gravel. Extensive quarrying of these deposits for both industrial and construction purposes has taken place over the last forty years. Unfortunately, archaeological sites are often located on sand or gravel ridges, especially in the kind of boggy country which characterizes much of interior Plymouth County. At present sand and gravel removal is uncontrolled and unregulated. While this problem is most severe in Plymouth County, it occurs in northern Bristol County as well.

Over Restoration and Commercialization of Historic Sites

Fortunately, over restoration and commercialization are not yet serious problems in southeast Massachusetts. With increasing affluence and interest in historic properties, however, the tendency to over restore buildings is likely to grow, especially in wealthier communities like Duxbury and Marion. Restraint is also needed in cities and towns like New Bedford and Plymouth, where historical awareness has become a major component of the community's identity.

Power Lines and Telecommunication Facilities

The construction of high tension electrical transmissions since the 1950s has introduced a new element into the landscapes of southeast Massachusetts. In cutting swathes across the region, power lines not only threaten archaeological sites, but drastically alter the scale and setting of the existing landscape. While protective regulations provide for some control within power line right of ways, the overall visual effect on historic settings has been more difficult to control. Within the last two decades, telecommunication relay towers have added to the problem. While affecting smaller areas from an archaeological point of view, they have the same overpowering impact on the landscape as power lines do.

Summary

Major changes have occurred in southeast Massachusetts since 1940. Plymouth County has re-emerged as one of the more rapidly growing parts of the state, its economy bolstered by tourism, coastal recreation, and greater Boston's continued expansion. On the other hand, many of the urban areas of Bristol County continue to suffer from the economic stagnation which began early in the century. Despite this, a certain measure of prosperity has continued and many of the towns have maintained a steady and stable pattern of growth. Revitalization of some urban centers and new accessibility as the interstate highway system is completed may portend a new surge of growth and development for the county.

Though the effects of these processes are diverse and differ within urban, suburban and rural settings, the net result has tended to be the same: what generally have survived are individual buildings, structures, sites and fragments of landscape: what generally has been lost is historical context--the sense of scale and setting which is 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.

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 arcaeological sites). Protecting historical resources on this level should be an MHC priority.

As noted above, historical context is the combination of scale, proportion and spatial arrangment that reflects and is 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 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.

While the historical traditions which characterize a city or town may be deeply ingrained, 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) level as well as the specific (individual building or site) level.

It is important at this point to state clearly that these recommendations are not anti-development. On the contrary, the historic landscape is a composite of all those developmental phases which have occurred in the past. The point is that the historic landscape is both fragile and irreplaceable. Once the historic character is lost, whether through new construction, demolition, relandscaping, whatever, it is extremely difficult, if not impossible, to replace. Communities, may of course, choose to dramatically alter themselves and often for sound reasons. Our purpose is to urge caution in doing so and to advise communities not to be hasty in disregarding what may be one of their best resources--their own past.

RECOMMENDATION 2

Since the patterns of survival for historical resources differ between core and peripheral areas, different standards of evaluation are needed for each. The MHC should examine this issue and define these standards, particularly for what constitute integrity and significance.

Just as cities and towns vary, so does the historical context which characterizes them. What survives in a suburban community is likely to be different from what survives in either a rural 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 outbuildings, as well as fields 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, in peripheral areas, and along corridors.

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 than resources 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.

In addition to core and peripheral areas, corridors also have characteristic patterns of historic survivals. A corridor is regionally important transportation route which has been used over several time periods. It is usually characterized by a band of narrow, though often intense, development along the transportation routes. The survivals along a corridor may share the characteristics of either core or peripheral survivals. The major factor appears to be the degree to which that particular corridor has remained active. If the corridor is still actively used, then its survivals will be very similar to those in core areas: often threatened, frequently altered or fragmented, the best, oldest, etc. most likely to survive, a dynamic composite of several time periods. On the other hand, if a corridor has ceased to be active, its survivals will tend to have the characteristics of a peripheral setting: relatively low threat, often intact examples though they may be of only limited significance; a static streetscape or landscape frozen in time from its last period of activity.

To reiterate, historic resources survive very differently in core areas and in peripheral areas. As a result, different standards of evaluation are needed for each, particularly in terms of what constitutes 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 for the lower Taunton River (Fall River and Freetown), the upper Ten Mile River (Attleboro), and along the I-495 corridor in northern Bristol County (Mansfield, Norton, Taunton, Raynham). For the I-495 corridor, information includes paleo-ecological as well as archaeological data. Some information is available for the North River-Pembroke Ponds area, the Assawompsett Ponds complex, and along the upper portions of the Taunton River. Survey data are generally poor for the remaining interior sections of the study unit and along both the Buzzards Bay and Plymouth to Scituate coast.

Only one prehistoric site from southeast Massachusetts is currently listed on the National Register, the Wapanucket site in Middleborough. Several of the sites examined for the I-495 project have been determined eligible for the National Register, as have other sites located during compliance-related surveys. None of these have been formally nominated.

Threats: The primary threat to prehistoric sites in southeast Massachusetts is the rapid pace of development, whether public or private, commercial, residential, or industrial. This is compounded by the lack of survey data in many of the most sensitive areas. As a result, it is difficult to monitor what is happening; frequently sites are not reported until they are threatened or have been partially destroyed. This has been especially the case with privately funded projects.

The removal of sand and gravel for commercial purposes is a particularly difficult problem, since it is largely unregulated and is focused on areas of high archaeological potential. Better control has been maintained over publicly funded projects because of the survey and mitigation provisions in state and federal protective regulations. An additional threat to prehistoric sites in southeast Massachusetts is erosion, both in coastal areas and along the major rivers.

Survey Priorities: Much of southeast Massachusetts needs to be archaeologically surveyed, especially the highly sensitive coastal areas which are undergoing rapid development. Among those towns where surveys are most urgently needed are Marshfield, Duxbury, Pembroke, Plymouth, Wareham, Marion, Mattapoisett, Middleborough, Dartmouth, and Westport. Virtually every other town in the study unit also requires additional survey work. This includes the recording and analyzing of collections, careful searching of the documentary record and well planned field testing.

A specific survey program should also be designed for state-controlled park and forest lands. Survey of these state-owned lands would not only provide information for these poorly documented areas, but would also permit archaeological considerations to be integrated with overall park planning. Many topical surveys still remain to be done in southeast Massachusetts. For example, a survey of wetland border areas would provide a better understanding of the changes and consistencies in the use of these diverse resource areas over time.

Registration Priorities: The information requirements for listing an archaeological site on the National Register are formidable and include field examinations fo establish and define site boundaries. Since this level of information is seldom available, listing sites is difficult. A possible solution is to list archaeological districts in those areas where sites are known to have clustered and where Massachusetts Archaeological Society activity has been high. The feasibility of establishing archaeological districts should be examined for areas such as the

Taunton estuary (Berkely, Freetown, Dighton), and along the upper Taunton (Middleborough, Bridgewater).

Other Recommendations: The Depatment of Environmental Management should be encouraged to conduct archaeological surveys within the park and forest land they control and to include archaeological considerations in their overall planning.

A cooperative program should be established with the Rhode Island Historic Preservation Commission so that the arbitrary Massachusetts/Rhode Island border will not obscure patterns of prehistoric behavior. Such a program would include provisions for recording site and collection data in compatible ways and for a mutual exchange of information.

Several important private archaeological collections exist in southeast Massachusetts. The MHC should work with the MAS to ensure that these collections will be depostied in a secure and responsible curatorial facility. The MHC and MAS should continue their efforts to raise public awareness of and interest in the region's archaeological resources.

Archaeological planning needs to be integrated with local planning efforts. Getting information on sites and areas of sensitivity to local planning boards is of primary importance. Where communities have planned programs for expansion, an additional option is to work directly with the developer. In either case, archaeological preservation planning must be grounded in good survey information and a willingness to accomodate to development schedules. A public sector priority is the establishment of a program to ensure that the required archaeological assessments are carried out for gravel operations. The Massachusetts Department of Public Works in particular should develop procedures to require environmental compliance for gravel removal for highway purposes. Similarly, the existing regulatory status of gravelling operations should be examined to determine whether the provisions of the MEPA be applied to identify and protect archaeological sites.

CONTACT PERIOD:

State of Knowledge: The Contact period is poorly understood. There are no recorded period settlement sites. Settlement data is restricted to references made in primary documents and secondary sources. County and local histories state that native settlement was concentrated along the unit's coast and major river estuaries, particularly between Scituate and Plymouth, and along Buzzards Bay. Interior settlement appeared to occur primarily around the larger interior pond complexes and the Taunton River. The only known period archaeological sites are scattered burials situated in Plymouth and along Buzzards Bay, at the mouth of the Taunton River and in the interior at Titicut (Bridgewater/Middleborough) and Assawompset Pond (Middleborough).

Threats: Two basic factors threaten the survival of Contact period sites. The first is development. Since initial English settlement a large proportion of period sites have been destroyed by the expansion of non-native settlement primarily because these communities were often located on native Contact period sites. This problem has become particularly acute in the twentieth century with rapidly accelerating residential, commercial and industrial development. The second factor is erosion. Water erosion has been responsible for the destruction of a large number of native sites situated on the study unit's exposed coastline and river banks. In some areas more than 200' of shoreline has been eroded since the first English settlement.

Survey Priorities: Reliable survey information is badly needed for many areas within the study unit. The survey should examine the pertinent documentary and archaeological sources and should the focus on identification and recording of Contact period sites. Particular emphasis should be placed on surveying the archaeologically

sensitive North River, Plymouth and Buzzards Bays, the lower Taunton River and the Assawompset and Pembroke Pond complexes.

Registration Priorities: Currently, there are no recorded native period sites that are eligible for National Register nomination. The several known Contact period burial complexes that may have qualified for inclusion on the National Register at the time of their discovery (1940s and 1950s) have since then been substantially altered or destroyed.

Other Recommendations: Concerted efforts should be made to increase the archaeological awareness of individual towns and cities. Efforts should be directed towards important local agencies such as historical societies, historical commissions and planning agencies, alerting them of the potential for period sites and the importance of protecting them. Contingency plans should be made for the investigation of these areas prior to development. In the case of natural destruction of period sites (i.e., erosion), stabilization or salvage programs should be established.•

PLANTATION PERIOD:

State of Knowledge: There is considerable variation in the extent of knowledge of southeast Massachusetts Plantation period resources. Archaeological resources have been sporadically recorded and examined. None of the study unit towns and cities have established comprehensive inventories of potential or known Plantation period sites. The most outstanding recorded period sites are situated in Pembroke, Duxbury, Kingston, Plymouth, Rehoboth and Swansea. Somewhat more attention has been devoted to the unit's surviving period landscapes. The greatest emphasis has been placed on locating early meetinghouse sites, burial grounds and overland routes. Examples include Cole's Hill, Plymouth (the town's first burial site), the site of Scituate's first meetinghouse (Meetinghouse Lane) and retracing of portions of the Bay Path. Standing structures are the most extensively recorded period resource. A good regional perspective of the unit's Plantation period architecture is provided in Richard Candee's summary article Documentary History of Plymouth Colony Architecture, 1620-1700, in Old-Time New England.

Threats: The same factors that threaten southeast Massachusetts Contact period sites threaten Plantation period sites as well. Increasing development continues to encroach on both sites and, to a lesser degree, structures. The majority of the study unit's Plantation period settlement (coast between Scituate and Plymouth) falls within an area that is undergoing considerable residential and commercial development. This problem is compounded by the low level of public awareness for potential period archaeological sites. Consequently, privately funded development projects rarely provide contingency plans for protection or, if necessary, salvage.

Survey Priorities: The primary need is for a systematic and thorough archaeological survey program in those areas with a high potential for period archaeological resources. Such a program should produce an inventory of surviving Plantation period sites. Initial survey efforts should focus on the period regional cores of North

River and Plymouth Bay and the local cores situated in Norton, Taunton, Middleborough, Dartmouth, Swansea and Rehoboth. In turn, a similar survey of surviving Plantation period structures is necessary. Such an undertaking would include a documentary, archaeological and architectural examination of the structures and their settings. This survey would provide a broader picture of the structure's developmental history in addition to verifying reputed construction dates and locating period buildings integrated into later structures. Finally, a comprehensive survey of existing landscape resources should be initiated. The continued presence of large areas of minimally developed land in the study unit, especially in Dartmouth, Westport, Swansea, Rehoboth, Pembroke, Duxbury and Norwell, suggests high potential for surviving period landscape features.

Registration Priorities: Greater emphasis should be placed on examination of period archaeological sites. Until recently, it was highly unusual for archaeological sites to receive serious consideration for nomination to the National Register. Several sites which should be closely examined for Register eligibility include the Myle's and Cooke's garrison house sites in Swansea and Fairhaven, respectively; the Leonard forge site (ca. 1656), Raynham; and the native stockade site at Fort hill, Middleborough.

Other Recommendations: Southeast Massachusetts' importance as the site of much of Massachusetts' earliest surviving settlement locations necessitates increased involvement of local and regional institutions in recording and protecting these resources. Plimoth Plantation which currently serves as a center for interpreting 17th century life, should be encouraged to renew its commitment to the archaeological resources of the period. Local colleges such as Bridgewater State and Southeastern Massachusetts University should be encouraged to play a greater role in examining the region's period history through documentary research and responsible archaeological investigation. Community historical societies, historical commissions and planning

boards should be encouraged to improve their knowledge of local Plantation period resources and to serve as advocates in protecting them. These groups in turn can help to increase local awareness of the town's historical development.

COLONIAL PERIOD:

State of Knowledge: As a whole, the Colonial period is reasonably well understood. The vast majority of local and regional histories dealing with pre-1775 historical development of southeast Massachusetts focus on the period between King Philip's War and the American Revolution. An extensive inventory of Colonial period standing structures has been compiled in the last ten to fifteen years. Almost all study unit towns have at least a handful of inventoried structures, particularly residential structures. A small but growing inventory of Colonial period archaeological sites exists.

This situation is not true for the study unit's post-war native population. Although the natives of southeast Massachusetts were decimated by King Philip's War, several small native groups, such as the Mattakeesets of the Pembroke ponds, did remain in this region. Current research provides sparse and incomplete references to post-war native communities. Research has focused primarily on the lives of individual natives or native families rather than complete communities or regions.

Threats: Three factors threaten Colonial period resources. The first threat, again, is development. As with the previous two periods, increasing development jeopardizes the survival of all extant period resources such as standing buildings, archaeological sites, cemeteries and roads. Development pressures are particularly acute in the communities of Scituate, Marshfield, Plymouth, New Bedford, Fall River, Seekonk and Attleboro.

The second threat is the inaccurate restoration/renovation of standing structures. Increasing construction costs and a growing interest in historical preservation have resulted in increased reuse of period structures. Unfortunately, many restoration plans are based on limited knowledge of the structure's original makeup. As a result, the finished product frequently incorporates inaccurate or inappropriate materials.

The third threat is vandalism and arson. Although neither of has become widespread within the study unit, both have become large scale problems in nearby regions such as the Greater Boston area. Of these two, vandalism poses the greatest threat to period resources, particularly burial grounds. Burial grounds are vulnerable because of their locations (both in congested and in remote areas) as well as the limited or non-existent funding allotted for their maintenance and protection.

Survey Priorities: As in the Plantation period, there is a need for systematic survey of Colonial period archaeological resources within southeast Massachusetts towns. Although archaeological inventories exist for a number of these towns, none of the inventories are close to being complete. Frequently, identification of known sites is minimal. A major step towards updating existing archaeological inventories would be improved communication between the state agencies such as the Massachusetts Historical Commission and local historical societies and commissions. These local agencies should be encouraged to report known period sites to the MHC and if possible establish their own local inventory of Colonial period archaeological sites. Particular emphasis should be placed on the rapidly developing eastern shore (between Scituate and Plymouth), Brockton, Middleborough, Wareham, Acushnet, Fairhaven, New Bedford, Fall River, Seekonk, Taunton and Attleboro. In addition, efforts should be made to locate and assess the archaeological integrity of the major Colonial period native settlement sites in Pembroke, Middleborough, Lakeville and Freetown. Archaeological data extracted from these sites would be a valuable aid in reconstructing the poorly documented post-war native community of southeast Massachusetts.

Existing inventories of period burial grounds need to be updated. While current inventories contain most if not all of each town's major Colonial period cemeteries, this situation is not true for the smaller family or rural burial grounds. Frequently, these are situated in obscure locations. Local historical societies perform this task because of their familiarity with the local surroundings.

Registration Priorities: National Register consideration should focus on Colonial period landscapes and archaeological sites, for example Eliphalet Leonard's 1771 large complex in Norton Easton. To date, the vast majority of period resources considered for Register nomination have been standing structures. Special emphasis should be placed on considering the poorly documented industrial and native sites for nomination.

Other Recommendation: The Bronson Museum in Attleboro and the New Bedford Whaling Museum should be encouraged to play larger roles as regional educational research facilities. The former museum should continue to document the region's historic native population. The Whaling Museum, with its extensive collections of eighteenth and nineteenth century whaling paraphernalia, could expand its research focus to include other marine related industries throughout southeast Massachusetts. These two museums along with Plimoth Plantation, local historical societies and local historic commissions are crucial in increasing the public's awareness of local and regional historic resources; then could also function as an important channels between individual communities and the Massachusetts Historical Commission.

FEDERAL PERIOD:

State of Knowledge: In general, Federal period structures are well inventoried. For many towns, the bulk of the existing inventories concentrate on pre 1830 structures; thus, Federal period properties are well represented. Single family houses are the most numerous category of structures inventoried. For the Federal period, the modest sized cottages which predominate in the region are generally as well represented in local inventories as larger and more fully developed examples of post Colonial and Federal architecture. It should be noted, however, that in many instances, better preserved and maintained structures have tended to receive greater attention in local inventories. The next most numerous category of buildings inventoried are institutional structures, namely schools and churches. Churches outnumber schools, however, it seems likely that in some towns, schoolhouses altered to residential use survive unrecognized. Commercial and industrial buildings are far less numerous in local inventories.

Local histories generally cite important residential buildings (in most cases, the homes of prominent citizens) as well as churches, schools, taverns and mills operating in the period, giving dates of construction and operation although not always architectural description. Late 19th century photographs of then surviving period structures are, however, incorporated in the town histories. Regional architectural historical sources for southeast Massachusetts are, as far as is known, nonexistent.

Threats: The most widespread threat to Federal period structures in southeast Massachusetts is inappropriate modernization. The most significant problems are alterations of sash and fenestration and residing with artificial and inappropriate materials. The rural nature and marginal economic base of much of the study unit have encouraged the preservation of period structures but have discouraged their maintenance. Abandonment is also a significant threat to period structures as many interior and outlying regions have undergone depopulation since 1900. One aspect of abandonment may involve

probate settlement with distant heirs. The abandonment problem seems most acute for Federal period structures, as at least four abandoned Federal houses of considerable pretension were observed in the study unit, in Pembroke, Middleborough and Berkeley.

Survey Priorities: Some 16 towns in southeast Massachusetts have little or no survey; those towns with no survey and significant Federal period resources include Berkley, Bridgewater, Kingston, Raynham, Somerset and Westport.

Registration Priorities: Existing National Register properties consist primarily of individually listed structures or village center districts. The concentrations of settlement which are generally considered for National Register districting are not common in southeast Massachusetts. Far more prevelant is a dispersed, linear pattern of settlement with farmsteads located along roads in a relatively narrow band. A few existing districts (Bay Road, Easton and Norton) recognize this pattern of development but other equally good linear districts especially along Route 105, Rochester and Long Plain Road, Acushnet, should be considered.

EARLY INDUSTRIAL PERIOD:

State of Knowledge: Increasingly, beginning with the Early Industrial period, existing inventories focus on the most elaborate and fully developed examples of a period style, especially in residential architecture. This is particularly evident in core areas and reflects the higher percentage of surviving structures, from vernacular to architect designed examples. In peripheral areas, local inventories continue to record a greater number of simple period structures. In general, inventories concentrate on single family housing, institutional (schools and churches) and commercial (stores) buildings. Multiple family housing, early examples of which were observed in New Bedford and Fall River, tends to receive less attention, as does industrial construction; industrial buildings are more likely to be overlooked in smalller cities and peripheral areas than in the cores.

In general, town histories document period structures less fully after the Federal period: although mentioned, such buildings as schools and churches are less often described in detail. As for the earlier periods, architectural historical sources for the area are generally unavailable. For specialty topics such as industrial history, some research has occurred (see Lintner, "Mill Architecture in Fall River, 1865-1880"). In addition to some specific research, preparation of National Register district and multiple resource nominations in Fall River and New Bedford has begun to broaden the base of architectural historical
knowledge in the study unit.

Threats: Threats to Early Industrial period structures differ from rural to urban settings. In the urban cores, where large districts of period buildings (primarily single and multiple family residential) survive, the major threats are those which affect urban areas in general: urban renewal, transportation projects, development pressure, arson and vandalism. In southeast Massachusetts, Fall

River and New Bedford contain the most significant concentrations of period structures. Of particular importance to the architectural history of the two cores is the development of multiple family housing. Since two-family houses, double houses and tenement blocks are normally simple vernacular structures and are often located in marginal neighborhoods which have undergone (and continue to undergo) traumatic change, these buildings are more exposed to threatening conditions than single family houses. In rural areas, period structures are most often threatened by inappropriate modernization or abandonment. Increasingly, suburban development is also taking a toll of rural Early Industrial buildings. Among the buildings most affected are agricultural outbuildings. In Plymouth County, attached outbuildings are a common feature of the region's rural architecture. Frequently arranged in a U-shaped configuration with house and barn and linked by sheds, outbuildings have often been well maintained. On the other hand, outbuildings in Bristol County, are more often freestanding structures and consequently have been subject to considerable decay as the agricultural base of the area has declined.

Survey Priorities: Most existing survey work covers the early years of the period (pre 1850) well. After the mid-century, however, the greater volume of structures constructed and surviving has tended to encourage a refocusing of survey efforts up the architectural scale. Beginning with the third quarter of the 19th century structures, inventory work has tended to include more fully developed or elaborate examples of period styles. This is especially true in core areas, but is also evident in smaller cities. In cities and towns with "completed" or existing inventory, survey priorities include documentation of innovative building types, especially of multiple-family housing. Towns and cities in the study unit with significant unrecorded collections of period buildings include Attleboro, Bridgewater, Hanson, Kingston, Mansfield and North Attleborough. In the

cases of Bridgewater, Hanson and North Attleborough, no inventory forms have been completed.

Registration Priorities: Registration for the Early Industrial period has concentrated on individual institutional and industrial structures, on districts of institutional and commercial buildings (such as central business districts) and on single family residential districts. Individually listed single family houses are less common for the Early Industrial period than they are for the Colonial and Federal periods. Not well represented at present are rural and village center residential and institutional districts recognizing intact period landscapes. Examples of period landscapes are fairly common in southeast Massachusetts: potential districts might include Padanaram (Dartmouth), Head of Westport and Westpoint Point (Westport), Titicut (North Middleborough), Assonet (Freetown), West Wareham, Marion Center and Mattapoisett Center. Town centers with district potential include Bridgewater center and North Attleborough center. Architecturally significant, potentially eligible individual residences were observed in Bridgewater, North Attleborough and Attleboro.

LATE INDUSTRIAL PERIOD:

State of Knowledge: The state of knowledge for the Late Industrial period is comparatively advanced for some areas and almost nonexistent for others. In the core areas (Brockton, Plymouth, Fall River, New Bedford), extensive late 19th century town histories and thorough modern surveys have provided a broad base of information on period economic and architectural development. For the more numerous small cities and towns of the study unit, however, secondary sources for the Late Industrial period are rare and are often commemorative or anecdotal in nature. Local inventories exhibit a similar bias with a preponderance of information and research for the large urban areas and far less documentation for small cities and towns. While anomalous high style buildings (generally institutional structures) in small towns are often identified by architect (usually a Boston practitioner), the practice of local builders is seldom identified. Study of the area by architectural historians has been confined to the local works of established firms and practitioners located outside the study unit.

Threats: A wide range of problems confront the southeast Massachusetts study unit. In Fall River, New Bedford and Brockton, "urban" threats of development pressure, urban renewal, transportation projects, decay, abandonment, vandalism and arson are evident. In the study unit's smaller cities (the Attleboros, Taunton, Middleborough, Plymouth) a declining or instable economic base and competition from suburban mall development has put pressure on center city businesses. Attempts to keep abreast of mall-type retailing threaten historic storefronts and commercial buildings with insensitive modernization programs. Another pressing problem for small city business districts is abandonment. Both abandonment and on going suburban development are also threats in rural areas. Abandonment and decay are problems in the most isolated areas of the study unit while transportation projects and suburban development pressures

threaten the historic fabric and landscapes in much of northern Plymouth County and southeast Bristol County. The most widespread threat to period residential structures is insensitive renovation; particularly destructive is the use of artificial and inappropriate siding materials, such as vinyl and aluminum.

Survey Priorities: Existing inventory in the core areas adequately documents period resources, however, a number of the towns in the study unit with signifcant Late Industrial resources have no inventory whatever for the period. Among the cities and towns which most urgently require survey work are Bridgewater and North Attleborough, both of which contain notable collections of period buildings of all types. Inventory is also recommended in Acushnet, Kingston, Mansfield, Marion, Raynham, Scituate, Somerset, Wareham, West Bridgewater and Whitman. Any further survey efforts in Fall River and New Bedford might include completion of area forms for neighborhoods of multiple-family housing.

Registration Priorities: Institutional and industrial (engineering and manufacturing) buildings and central business and institutional districts as well as elite urban residential districts are fairly well represented for the period in southeast Massachusetts. Registration, especially district listing, is, however, generally confined to core areas of the study unit (Fall River, New Bedford, Brockton, Taunton). A few smaller towns (Easton, Norton, Duxbury) have been the focus of National Register activity but many towns in the study unit have no National Register properties whatever.

District potential in rural areas of the study unit is believed to be low for the Late Industrial period as the focus of development for much of the region occurred in the Federal and Early Industrial periods, however, a few significant exceptions should be noted. These exceptions are first, coastal resort districts of summer cottages

and houses and second, town center districts for manufacturing towns in interior locations. Potential resort districts include sections of Marion, Mattapoisett, Westport, Dartmouth, Wareham, Plymouth, Marshfield and Scituate. Industrial town centers with district potential include the Attleboros, Bridgewater, Mansfield, Whitman and Rockland. While districts are more common in core areas, a few of the study unit's cores have business and residential district potential which has not been recognized through listing. Cities with few or no National Register districts include Middleborough, Brockton and Taunton.

In rural sections of the study unit, National Register activity would be most likely to focus on a few, individual properties rather than on districts. While exceptional examples of period styles are comparatively rare in the study unit, survival of period agricultural complexes with well preserved context are somewhat more common. Although easily overlooked, Late Industrial period agrarian landscapes are a significant resource of the study unit and merit National Register recognition. Examples of period agricultural complexes survive in Seekonk, Berkley, Raynham, West Bridgewater, Marion, Kingston and Hanson.

EARLY MODERN PERIOD:

State of Knowledge: Very little information exists for the period either in secondary sources or in Massachusetts Historical Commission files. In part this reflects the period's temporal closeness to the present; resources of the period have not generally been regarded as historic. Another factor influencing the lack of historical data is the relatively uneventful pattern of development for the period. Most of the information about the period is from town histories of the post-World War II period. This information generally consists of photographs and dates of construction for major institutional buildings (especially schools and churches) and industrial complexes. Residential and commercial construction is rarely documented.

Existing survey and registration for the period is also scant. Residential construction, when included in local surveys, is normally represented by the most elaborate and fully developed examples of period styles or types. Wider patterns of residential development are generally not recorded. Other building types, such as churches, schools, and stores, are also seldom inventoried although factories of the Early Modern period are generally included in the more thorough townwide surveys. The development of automobile related commercial strips in the Early Modern period is one of the most significant aspects of the period's history but is poorly documented in existing inventories.

Registration for the period follows a similar pattern, with residential buildings included in districts primarily as infill structures. Commercial buildings are generally included in town center districts as most commercial areas contain a high percentage of period structures; institutional and industrial buildings are less well represented. With the exception of certain aspects of commercial architecture, primarily automobile and entertainment related (gas stations, tourist cabins, movie theatres) and some work on bungalows and mail-order

houses, there has been little architectural historical scholarship on the period and certainly none on the region in particular.

Threats: The most significant Early Modern period resources are those linked to autoroute development: commercial strips, coastal resorts and commuter suburbs. These resources are primarily affected by changes in transportation networks. Street widening, highway projects, road rerouting and the modernization of period commercial buildings to meet contemporary retailing practices are all processes affecting period resources. Decay and abandonment are also serious problems for Early Modern commercial structures.

Survey and Registration Priorities: The need for survey of Early Modern period resources in southeast Massachusetts is tempered by the area's modest development for the period. Thus, it is possible to identify by topic specific areas for future survey activity. These are primarily related to transportation developments of the period and would include survey of resort areas and early autoroutes and related commercial structures (tourist cabins, gas stations, diners and idio-syncratic structures such as milk can dairy bars). Registration priorities for the period are not yet known. Given the period's general lack of activity, few clearly defined areas with individual or district potential were identified. Until a broader base of knowledge and information is developed, decisions on National Register potential are not possible.

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 continue to 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) Encourage archaeological surveys to be done in the rapidly developing, archaeologically sensitive areas along the Atlantic coast (Scituate to Plymouth) and Buzzards Bay.
2) 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).
3) Encourage local historical commissions to view completion of their inventory as the beginning 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.
4) Continue to work with the cities and larger towns to find new ways to reuse existing historic buildings, especially obsolete industrial and civic structures.

5) Continue to integrate archaeological and historic preservation concerns into local as well as regional planning efforts.

6) Encourage the adoption of a state wide open space plan that would coordinate agricultural as well as public and private conservation policies with the protection of rural and low density historic landscapes.

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