

HISTORIC & ARCHAEOLOGICAL RESOURCES OF THE CONNECTICUT RIVER VALLEY

A Framework for
Preservation Decisions



MASSACHUSETTS
HISTORICAL COMMISSION

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Secretary of the Commonwealth
Chair, Massachusetts Historical Commission

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A Framework for Preservation Decisions

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**Foreword to the 2007 PDF Reprint Edition of
*Historic and Archaeological Resources of the Connecticut River Valley:
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.

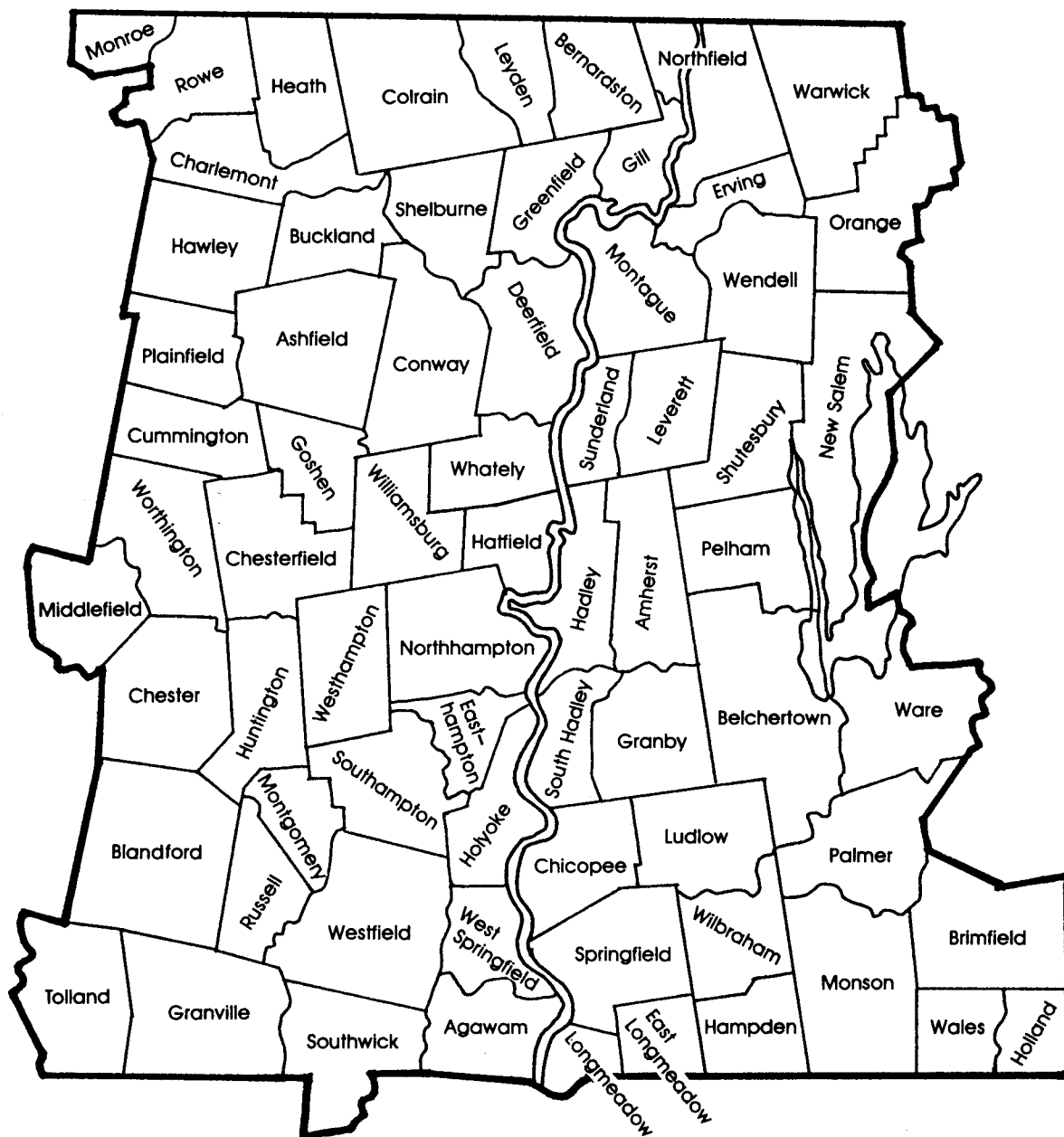
Three primary products resulted from the statewide reconnaissance survey: 1) individual reports on each surveyed city and town; 2) an accompanying set of thematic maps for each town, produced on transparent polyester sheets overlaid on a USGS topographic mosaic base map; and 3) a summary regional report 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 regions⁷ are now available in electronic format.⁸ 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
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⁷ 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.

⁸ Electronic text was not available for digital capture, and as a result all reports have been scanned as pdf files. While all have been processed with optical character recognition, there will inevitably be some character recognition errors.



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Connecticut Valley Study Unit

Cities and Towns

TABLE OF CONTENTS

	<u>Page</u>
LIST OF MAPS	iii
INTRODUCTION	1
GLOSSARY	8
CHAPTER I TOPOGRAPHIC OVERVIEW Eric Johnson and Arthur J. Krim	12
CHAPTER II PREHISTORIC OVERVIEW Eric Johnosn	19
CHAPTER III PATTERNS OF SETTLEMENT AND LAND USE	
Contact Period (1500-1620) Neill DePaoli	46
Plantation Period (1620-1675) Neill DePaoli	61
Colonial Period (1675-1775) Neill DePaoli	77
Federal Period (1775-1830) Arthur J. Krim	91
Early Industrial Period (1830-1870) Arthur J. Krim	105
Late Industrial Period (1870-1915) Arthur J. Krim	119
Early Modern Period (1915-1940) Arthur J. Krim	135
CHAPTER IV ARCHITECTURAL DEVELOPMENT	148
Residential Architecture	149
Institutional Architecture	181
Commercial Architecture	215
Industrial Architecture Sarah Zimmerman	228
CHAPTER V ECONOMIC AND INDUSTRIAL DEVELOPMENT	236
Fur Trade	238

TABLE OF CONTENTS (continued)

	<u>Page</u>
Agriculture (1620-1776) Neill DePaoli	241
Agriculture (1776-1900)	244
Building Stone	248
Tanning	250
Textiles	252
Buttons	258
Wood Working	260
Whips	263
Straw Goods	265
Cutlery and Edge Tools	267
Paper	270
Tobacco	274
Brooms	276
Machinery and Machine Tools	277
Hydro-Electric Power	279
Bicycles and Automobiles Peter Stott	282
CHAPTER VI MANAGEMENT RECOMMENDATIONS	
Changes in the Landscape (1940-1980)	286
General Recommendations	294
Specific Recommendations	299
Conclusions	316
GENERAL BIBLIOGRAPHY	318
SELECTED MAPS AND ATLASES	320

LIST OF MAPS

	<u>Map Title</u>	<u>Following Page</u>
Frontispiece	Cities and Towns	
Map 1	Drainage	12
Map 2	Topographic Character	14
Map 3	Contact Period Core Areas	47
Map 4	Contact Period Native Trail Network	50
Map 5	Plantation Period Core Areas	62
Map 6	Plantation Period Road Network	66
Map 7	Plantation Period Political Boundaries	68
Map 8	Colonial Period Core Areas, ca. 1740	78
Map 9	Colonial Period Core Areas, 1775	79
Map 10	Colonial Period Political Boundaries, ca. 1740	80
Map 11	Colonial Period Political Boundaries, 1775	81
Map 12	Colonial Period Road Network	83
Map 13	Federal Period Core Areas	91
Map 14	Federal Period Political Boundaries	93
Map 15	Federal Period Turnpikes, Canals and Toll Bridges	95
Map 16	Early Industrial Period Core Areas	106
Map 17	Industrial Period Political Boundaries	107
Map 18	Early Industrial Period Railroads	110
Map 19	Late Industrial Period Core Areas	119
Map 20	Late Industrial Period Railroads	124
Map 21	Late Industrial Period Street Railways and Recreation Areas	125
Map 22	Early Modern Period Core Areas	136
Map 23	Early Modern Period Highways, Airports, and Recreation Areas	139

INTRODUCTION

The purpose of this introductory section is two-fold: to explain why this report was written 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 written, 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 Sections 26-27C. This legislation recognized that state government had a responsibility for the preservation of historic and archaeological resources within the Commonwealth. With the passage of the National Historic Preservation Act in 1966, the Federal government took a similar position toward 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.

The MHC has developed a number of preservation programs and 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 interstate highway? Faced with the need to answer these kinds of questions on a daily basis, it soon became apparent that the MHC required a better base of information from

which consistent and informed decisions could be made. For, 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 toward 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 the 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 interdisciplinary 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 periods), 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 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 proven an efficient and effective means for providing the information which the MHC requires. During the past four years, survey work has been completed for over two hundred towns and cities in the eastern and central parts of Massachusetts. This report, which summarizes the development of the sixty-nine towns and cities in Hampden, Hampshire and Franklin counties (the Connecticut River Valley study unit) is the third 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. This means the work is done on a team rather than on an individual basis. The team which did the survey of the Connecticut River Valley study unit was composed of four people, each of whom brought a particular skill and knowledge to the project. Neill DePaoli 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. Arthur J. Krim, the team's geographer, was responsible for topography as well as transportation and settlement processes for the Federal through Early Modern periods. He 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. 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 Connecticut River Valley study unit. It has been, 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 subdivided into seven periods), information on Transportation, Population, Settlement, Economic Base and Architecture are summarized. These town reports are based on documentary research (both primary and secondary) and reconnaissance level survey of the town. See MHC's 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 have taken 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 Arthur J. Krim and Eric Johnson, a member of the prehistoric survey team. The second chapter reviews the study unit's prehistory. Written by Eric Johnson, this chapter is drawn in part on the work done by the prehistoric team of the state survey project. This includes both the present team, Eric Johnson

and Thomas Mahlstedt, as well as the original prehistoric survey team, David Anthony, Frederick Carty and Linda A. Towle.

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. Most of these topics are self-explanatory, yet a few require some introduction. The Core-Periphery sections describe the functional relationships of the period (how things worked and were interrelated) and 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 subsection 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" indicates that survivals of importance are known or that there is a high potential for significant but presently unrecognized survivals.
2. A "?" indicates 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 indicates 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 concerns 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. Those 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 David J. Brady

for their work in drafting the maps and designing the graphics for the report; Jackie Aniello, JoAnn Dick and Andre Suarez for their dedication and effort in preparing and reproducing the report; and Margaret Donovan as well as other members of the MHC staff for their editorial suggestions and help in proofreading. Finally, this writer would like to thank John L. Brooke, History Department, Tufts University, and the members of the Massachusetts Historical Commission subcommittee whose comments and criticisms helped to shape this report. The subcommittee members include: Dena F. Dincauze, Louis Tucker and John Worrell.

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 interregional 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 are 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, they 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 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 transportation 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 builders' 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 of their construction.
Traditional	Buildings based on long-standing plans and construction techniques, designed primarily to accommodate

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.

CHAPTER I

TOPOGRAPHIC OVERVIEW

Drainage and Topography

The Connecticut River Valley study unit is located in central Massachusetts, encompassing Hampden, Hampshire and Franklin counties. It is an area of topographic extremes with mountain peaks reaching over two thousand feet and meandering rivers only fifty feet above sea level.

The region consists of a broad central valley flanked by the Worcester Highlands to the east and the Berkshire Hills to the west. The Connecticut River flows through the study unit from north to south, bisecting the central lowlands.

The Connecticut River is New England's longest river and its principal drainage. Originating in the Connecticut Lakes, a short distance north of the Canadian border, the river flows south, marking the entire length of the Vermont/New Hampshire boundary. It then runs through central Massachusetts and Connecticut, emptying into Long Island Sound at Old Saybrook, Connecticut: a total distance of 280 miles. The Connecticut River and its tributaries drain nearly the entire study unit except on the southeastern perimeter. In the eastern uplands the major tributaries are (south to north) the Chicopee with its tributaries the Quaboag, Ware and Swift rivers, the Fort River, Sawmill River and Millers River. In the western uplands the major tributary streams are (south to north) the Farmington River, which flows south into Connecticut, the Westfield River with its East, Middle and West branches, the Manhan River, the Mill River, the Deerfield with its tributaries the North, South and Green rivers, and the Falls River. See Map 1.

From the earliest times, these rivers served as transportation corridors: the Connecticut as a north/south route and the Chicopee,

Millers, Deerfield and Westfield as the principal east/west routes. Along these rivers and their valleys, people and goods have moved for millennia. The many rapids, narrows and in particular, the falls of these rivers, where they cut down to bedrock, have also been important to the region's human population. For thousands of years they were places where anadromous fish were taken in great numbers, first by Native Americans, then by early European settlers. Later, these same waterfalls served as power sources for early industry. Examples of such sites occur at Holyoke and Turners Falls with tributary examples at Chicopee Falls, Millers Falls and at Shelburne Falls on the Deerfield River.

Interest in the geology of the Connecticut Valley extends back to the early 19th century and the pioneering work by Edward Hitchcock of Amherst College who completed the first state geological survey of Massachusetts in 1833. Hitchcock divided the region into two basic provinces, the "primary mountains" and the "valley of the Connecticut," which he suspected "did once form a lake in its present valley." Subsequent work by B. K. Emerson on the geology of Old Hampshire County in 1898 and research by modern geologists on the tectonics of the Appalachian Mountains have confirmed Hitchcock's initial conclusions about the formation of the Connecticut Valley.

The topographic character of the Connecticut River Valley study unit is now understood in light of global plate tectonics. The distinctive north-south trend of the region's topography reflects the fracturing and collision of the North American and African crustal plates during the Ordovician and Devonian periods beginning 350 million years ago. It was at this time that the basic division of the Connecticut Valley was formed with secondary north-south faults along the Swift River Valley of the Quabbin Reservoir forming deep longitudinal basins with sharply defined mountain fronts. Of these basins, the Connecticut Valley is by far the largest and most significant.

North of Massachusetts, the Connecticut River flows through a narrow constricted valley; but over the next hundred miles in

Massachusetts and Connecticut this valley broadens considerably, eventually attaining a width of 20 miles in Connecticut. This broad lowland, defined by a downfaulted block of Triassic sedimentary rocks, contains several important topographic features--basalt ridges, floodplains, and lake and shore deposits of glacial Lake Hitchcock.






Several mountain ranges rise abruptly from the floor of the Connecticut River Valley, subdividing the main valley into four smaller basins at Springfield, Northampton, Deerfield and Northfield. Particularly prominent within the study unit are the Mt. Tom and Pocumtuck ranges running north to south, and the Holyoke Range, running east to west. See Map 2. These steep, often asymmetrical hills are the remnants of intrusive sheets of lava. The hardened lava of these hills, also known as basalt or "traprock", served as an important raw material for prehistoric tools. Historically, these ridges have served as important recreation areas. In some places these features obstruct the flow of rivers. The Connecticut, Deerfield and Westfield rivers have cut narrow gaps in the basalt ridges. In each case the effect of the narrows has been to slow the rate of flow upstream, causing increased alluvial deposition and creating the extensive floodplains of Hadley, Deerfield and Westfield.

The Connecticut River, and to a lesser extent its tributaries, are bordered by low, flat terraces of flood-deposited sediments. These alluvial bottomlands provide some of the finest agricultural land in New England, and have proven attractive for agricultural settlement since prehistoric times. The most extensive floodplains in the study unit are located in Agawam, West Springfield, Northampton, Hadley, Deerfield and Northfield. Smaller floodplains are found in Palmer, Charlemont and Easthampton.

The size and contour of the floodplains are the most dynamic of any land form in the Valley. The Connecticut River continually erodes old floodplains and deposits new alluvial sediments, gradually altering the broad, looping meanders that characterize its course through the study unit. Numerous ancient channels, sometimes at

Topographic Character



-  Primary change in elevation
-  Secondary change in elevation
-  Traprock ridges
-  Sand plain
-  Geological fault trends

great distance from the river's present course, attest to the cumulative effects of the gradual erosion/deposition process over thousands of years. Many of the wetland areas that border the river are remnants of earlier channels. In many places, the river's downcutting to new base elevations has stranded earlier floodplains in the form of alluvial terraces. Changes in the river's course can be dramatic; in 1830 the Connecticut River cut a new channel through a neck of land in Hadley, shortening its course by three miles and leaving the prominent Oxbow Lake in Northampton and Easthampton. Other significant changes have occurred at the delta of the Westfield River in Agawam, the Northfield meadows and the Manhan River delta at Easthampton, with local meanders in the valleys of the Deerfield, Westfield and Chicopee rivers. Relict features such as oxbows and islands have been attractive locations for prehistoric settlements and early colonial plantations.

Sudden course alteration appears to be related to periodic flood conditions. Severe floods have suddenly washed out large areas, often exposing prehistoric sites in the process. Alternately, floods have deposited thick layers of sediment, burying, preserving and stratifying ancient ground surfaces. Because of the periodic inundation of the alluvial bottomlands, the major urban centers of the Valley have been situated on the elevated terraces above the floodplain at Springfield, Northampton and Greenfield.

Surrounding the floodplain of the Connecticut River are extensive areas of low gentle terrain. These areas are remnants of the bottom of Lake Hitchcock, a large glacial lake that filled the Valley approximately 13,000 years ago. Lake Hitchcock, named in honor of the man who first proposed its existence, was a product of the ice sheet that formerly covered New England. As the ice sheet advanced, it scoured the land surface. Areas of soft rock, such as the Connecticut Valley, were eroded to great depths, while harder bedrock was scoured less severely. As the glacier retreated, it released enormous quantities of sediments and meltwater. In the Connecticut

Valley, meltwater drainage was blocked by a deposit of glacial sediment at Rocky Hill, Connecticut. A large lake began to form, bounded to the south by the Rocky Hill dam and to the north by the glacier's southern periphery. The lake ultimately extended approximately 160 miles, from Rocky Hill north to Lyme, New Hampshire and attained a maximum width of twelve miles. Into this body of water poured streams swollen with meltwater and carrying glacial sediments. Massive deltas were built where streams encountered the lake's shore. Today these deltas are level, sandy plains overlooking the Valley; their extreme dryness makes them ill-suited for agricultural use. Examples of ancient deltas are Montague Plain, Long Plain in Sunderland, and the present site of the Westover Air Force Base in Chicopee. Elsewhere, the former margins of Lake Hitchcock are marked by relict beaches and wave-cut cliffs. Today, these features rise in elevation from south to north owing to upwarping of the land after glacial melting.

The bottom of glacial Lake Hitchcock is characterized by varve clays, sediments consisting of alternating coarse and fine layers of clay and silt. The fine clay was deposited during winter months when water was calm and the lake surface and most meltwater streams were frozen. In the spring, streams brought in coarser material and water turbidity increased, allowing only this coarser material to settle. The result was a rhythmically laminated deposit which underlies the valley lowlands beneath and outside the floodplain. Soils derived from the varve clays, because of their high clay content, retain water extremely well and are thus excellent for agriculture.

Some time between 13,000 and 11,000 years ago the dam at Rocky Hill was breached and Lake Hitchcock drained suddenly. The Connecticut River began cutting into the lake bed and creating floodplains. On the windswept surface of the dry lake bed and deltas, sand dunes up to 55 feet high developed. These normally rapidly shifting land forms were stabilized once vegetation took hold. The elevated, well drained stabilized dunes were utilized as habitation sites by the Valley's prehistoric inhabitants.

To the east and west of the Connecticut Valley lowlands are extensive uplands. The transition between these uplands and the lowlands is abrupt. See Map 2. The edges of the uplands are marked by a series of mountain peaks including Mount Tekoa in Montgomery, Pomeroy Mountain in Southampton, Arthur's Seat in Deerfield, and Wildcat Mountain in Leyden in the west, Wilbraham Mountain, Minechoag Mountain in Ludlow, Butler Hill in Belchertown, Dry Hill in Montague and Beers Mountain in Northfield in the east. This sharp mountain front is cut by deep gorges of the Westfield, Deerfield, Chicopee and Millers rivers. Elsewhere, these steep slopes have proven difficult barriers for east-west travel.

The present eastern and western uplands were created by intense thermal activity which pushed domes of molten granite upwards to form the Worcester Highlands and the Berkshire Hills. These uplands today still retain a crested character with broad level plateaus through Monson, Pelham and Wendell in the east, and through Blandford, Worthington, Hawley and Heath in the west. These latter areas have been ideal for dairy farming.

Drainage from the uplands to the Connecticut River basin generally follows the north-south geologic grain across the plateau as do the upper Westfield branches, the Swift River (Quabbin Reservoir) and the upper Deerfield River from the Green Mountains to the Hoosac Range. However, at fracture joints in the regional fault system the rivers have cut deep gorges through the mountain fronts into the lowland valley. Examples of these gorges occur on the Chicopee River in North Wilbraham, the Millers River in Erving and Montague, the Westfield River in Chester and Russell and the Deerfield River in Shelburne and Conway.

Rivers such as the Deerfield and Westfield have been the principal corridors into and through the Berkshire Hills. Although they cut deeply into the upland, nowhere do they break through. Thus, the Berkshire Hills have formed an effective barrier between the Connecticut Valley and the Housatonic and Hudson valleys to the

west, impeding east-west movement, trade and communication from prehistoric times to the present century.

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CHAPTER II PREHISTORIC OVERVIEW

Past Research

During the past 100 years, the Connecticut River Valley of Massachusetts has witnessed many different types of archaeological activity. In addition to widespread artifact collecting, many site surveys, excavations and problem-oriented investigations have been undertaken and summaries of research have been published. However, the number of controlled excavations for which information has been published is small, and the few reports from the Valley in no way approach the large body of published data from eastern Massachusetts. At present, the MHC's prehistoric archaeological inventory lists 472 sites in the study area; however, little or no further information is recorded for most of them.

Interest in Connecticut River Valley prehistory was first stimulated by historians during the latter half of the 19th century. Although the focus was primarily on the history of the region's European settlers, references to Native inhabitants were included in such works as Josiah Gilbert Holland's 1855 History of Western Massachusetts, George Sheldon's 1895 History of Deerfield, Sheldon and Temple's 1875 History of the Town of Northfield and History of Brookfield, and Sylvester Judd's 1863 History of Hadley. These works utilized an essentially descriptive and narrative approach, and did not seriously attempt to explain Native American society or inquire into their prehistoric origins, for the antiquity of man in the New World was not yet realized. They did, however, contain descriptions and locations of historic Native sites and descriptions of Native lifeways; Judd's work included estimates of Native population and a narrative of the Contact period.

The late 19th century also witnessed a surge in antiquarian activity in the Valley, resulting in the assembling of large private collections of prehistoric artifacts. Collecting activity at this time

was apparently concentrated in the Springfield, Holyoke and Northampton areas, and was aided by massive industrial and transportation developments, expansion of farming, and periodic floods, all of which exposed numerous sites (Dincauze 1975).

The final years of the 19th century also saw the beginning of professional excavations and problem-oriented research in the Valley. In 1895 Harry Andrew Wright excavated at the Long Hill site, a Contact period Native village located in Springfield. Wright's goals were limited: to confirm the location of the village and determine its plan. Unfortunately, much of the data has been lost, although some notes and artifacts are presently curated at the Springfield Museum (Dincauze 1975; Young 1969).

Wright was influenced by several leading archaeologists of his day, including C. C. Willoughby, Frank Cushing of the Smithsonian Institution, and Frederick Ward Putnam of the Peabody Academy of Science and Harvard University. Putnam himself was an occasional visitor to the Valley; he collected artifacts at Longmeadow as early as 1883 and returned to collect and excavate into the early years of the 20th century. Putnam published nothing on his work in the Connecticut River Valley, although he excavated numerous burials in the area (Dincauze 1975).

These professional archaeologists continued their Connecticut Valley research into the 20th century. In addition to Wright and Putnam, Harris H. Wilder, a professor of Zoology at Smith College, was involved in local archaeology between 1904 and 1924, excavating mostly in Hadley and Greenfield. Wilder was interested in several subjects including Native horticultural technology (Young 1969), burial posture, craniometry and reconstruction of facial features from skeletal material. He focused his efforts on burials, using field methods that were crude even for his day. Although he did publish extensively, and his data are often minutely-detailed, little insight into prehistoric lifeways is given and there is little value for current research (Dincauze 1975).

Amateur collectors also continued to be active during the early 20th century. Several floods, causing massive erosion, and the introduction of new agricultural practices involving deeper plowing, exposed additional prehistoric material. In 1928 a cache of 300-400 large bifaces was unearthed in Hadley, and sold to Rudolf Haffenreffer of Rhode Island. This publicized transaction sparked a "treasure hunt" in Hadley (Dincauze 1975).

During the 1930s and 1940s there began an increase in the quantity and quality of archaeological research in Massachusetts. Perhaps the most significant development at this time was the founding of the Massachusetts Archaeological Society (MAS) in 1930, which provided both amateur and professional archaeologists with a repository for their artifacts, a central file for recording site locations and information, and a bulletin in which site reports and the results of all facets of archaeological inquiry could be presented and disseminated.

Throughout the 1940s and 1950s numerous articles on Connecticut River Valley prehistory appeared in the Bulletin of the Massachusetts Archaeological Society, and dozens of site locations were recorded in the Society's files. The great majority of these articles and records were the work of two individuals: William S. Fowler of Holyoke and William J. Howes.

William Fowler was a leading member of the MAS. Active in the Society from its inception, he served for many years as editor of the Bulletin and as curator of the Bronson Museum. Fowler collected information on sites in the Valley from the 1930s to the 1970s, and his notes form the basis of the MAS and MHC site files for the region. An exquisite draftsman and a prolific writer, he published over 25 articles on the Connecticut River Valley alone.

Most of Fowler's research was problem-oriented. His research strategies tended to focus on artifacts, illustrating them and trying to determine their ages and functions. Among the many topics he investigated were prehistoric quarrying and manufacturing technology

(particularly of steatite and stone bowls), raw material trade and trade routes, tool functions, artifact typologies and chronologies, and the delineation of artifact assemblages (Dincauze 1975).

William J. Howes was a contemporary of Fowler and a charter member and officer of the MAS. He also mapped and recorded sites in the Valley, and published several articles in the Bulletin. Howes' research was artifact-oriented; he was mainly interested in ceramic technology and design and his published articles contain excellent illustrations and descriptions of Connecticut River Valley pottery.

In the 1960s New England archaeology was changed by the introduction of radiocarbon dating techniques. Chronologies began to be established, largely based on Ritchie's work on Martha's Vineyard and in New York state and the publication of radiocarbon dates from Wapanucket, Bull Brook and other Northeastern sites.

The first attempt at a synthesis of Connecticut River Valley archaeology was a collection of articles published in 1969 titled An Introduction to the Archaeology and History of the Connecticut Valley Indian, edited by William R. Young. This volume included both problem-oriented articles and surveys of existing knowledge concerning specific topics. Multidisciplinary in scope, it incorporated geological, archaeological and linguistic information; it also included information on radiocarbon dates that demonstrated both the promise and the problems of this important research tool.

The 1960s also saw the beginnings of cultural resource management studies in New England and in the Connecticut River Valley. Bert Salwen's 1969 survey of Connecticut River Valley sites for the National Park Service was the first such study in New England. This study did not attempt to address archaeological questions, nor did it involve field testing (Dincauze 1975). Rather, Salwen reviewed the existing site inventory by tributary drainage for the entire Connecticut River drainage system, noting areas with known or expected archaeological sensitivity.

The Connecticut River Valley study unit was the site of the first contract salvage archaeology undertaken in Massachusetts. In 1970, William Fitzhugh surveyed and excavated sites in Rowe and Florida on Fife Brook, a tributary of the Deerfield River. These sites were scheduled for destruction as a result of hydroelectric development plans of the New England Power Company (Fitzhugh 1972:21,22).

Since the Fife Brook survey, over 80 archaeological survey and mitigation reports have been prepared for projects within the study unit. These are the products of studies conducted in compliance with Federal and State laws and regulations to identify and protect archaeological properties. Although the quality of this work has been uneven, as has been the case in other areas, it has contributed greatly to our knowledge of the region's prehistory.

Contract archaeology has provided new site-specific and site distribution information. In addition, a number of explicitly problem-oriented studies have been carried out in this context. For example, cultural resource management studies in the Turners Falls Riverside area included innovative research in soils chemistry and employed resource utilization models derived from ecological principles. One result of the research was the 1975 acceptance to the National Register of the Riverside Archaeological District in Gill and Greenfield. A major environmental impact study conducted by Peter Thomas in the 1970s on Montague Plain, in addition to discovering and reporting on several sites, addressed problems of ecological adaptation and settlement pattern definition (Dincauze 1975). In the same decade, the DEDIC site, a Paleoindian site in Deerfield, was discovered during a cultural resource management survey and successfully protected from further disturbance. The DEDIC site was accepted to the National Register in 1980.

A collection of articles dealing with prehistoric and historic research in the Connecticut River Valley was published in 1979

(Paynter, ed. 1979). This volume, titled Ecological Anthropology of the Middle Connecticut River Valley, contained several articles with applications to or using data from cultural resource management studies (cf. Ulrich 1979; Moore and Root 1979; Mulholland 1979), as well as theoretical contributions. These reports and articles are important steps toward integrating state-of-the-art archaeological theory and method into the context of cultural resource management toward the solution of archaeological questions and the preservation of archaeological resources.

This century of archaeological research has resulted in the recording of hundreds of prehistoric site locations. The density of known sites within the Connecticut River Valley is strongly correlated with certain land forms and soil types. Reconnaissance survey in Hadley (Dincauze 1979) showed that sites were densest on the alluvial terraces of the Connecticut River Valley and its tributary rivers and brooks, and on the bluffs overlooking these terraces. On the very lowest terraces, which are the most recently deposited, sites were fewer in number and more recent in age. Apart from the bluffs and tributary streams, the old lake bed sediments apparently were not densely inhabited. However, the old lake shores, consisting of sandy terraces bordering the uplands, exhibited a somewhat higher site density. Upland areas contained very few archaeological sites; however, some upland sites may represent specialized activities such as quarrying. Sites were present only on well-drained soils, although soils that are presently poorly drained may have been drier at an earlier time.

These observations regarding site distribution are made in the virtual absence of chronological data for most site locations. The following sections summarize site distributions in the study unit and culture history for each of the generally recognized prehistoric cultural periods.

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

Paleoindian artifacts are reported from several find spots and sites within the study unit. Single fluted points are reported from locations in Montague, Hampden (Jordan 1969:13), Gill (Dincauze, et al. 1976:61), Agawam, Greenfield (Curran and Dincauze 1977:334, fig. 1) and New Salem. At least two fluted points have been found in the Westover Field area of Chicopee (Young 1969:38) and two fluted points, including a quartz specimen, are reported from the Deerfield Meadows (Fowler 1954:5). A reputed Paleoindian site is located near Mount Toby in Sunderland, and clearly identifiable Paleoindian sites are known from Hadley and Deerfield.

The Hadley site is located on a low rise in the broad alluvial plain of the Connecticut River. Although it was never subjected to controlled testing, a wide variety of Paleoindian artifacts, typologically similar to artifacts from the Bull Brook and Debert sites, and all manufactured on Hudson Valley chert, were collected prior to the site's destruction (Curran and Dincauze 1977:334,335; Dincauze 1982: personal communication).

The DEDIC site, located in Deerfield, is the only Paleoindian site in the study unit that has undergone controlled subsurface testing. The site was discovered and limited excavations conducted in 1978, during archaeological testing in compliance with Section 106 of the National Historic Preservation Act of 1966. The DEDIC site is situated on the former bottom of glacial Lake Hitchcock, overlooking the low alluvial floodplain of the Connecticut River (Ulrich 1978).

Reconstructing Paleoindian site distributions is complicated by a number of factors. Sites with undiagnostic materials may be unrecognizable as Paleoindian; other sites may lie deeply buried in alluvium, or may have been destroyed during the more than 9,000 years of river erosion and slope wash. Also, site locations were chosen with respect to environmental variables that may not be visible today.

The late glacial and early Holocene habitat of the Connecticut River Valley was extremely dynamic, and very different from that of today. Changes in climate, drainage, topography, soils and biotic communities were more rapid and extreme, and compared with later times, conditions were probably more unstable and unpredictable during the first few millennia following glacial meltback. Adaptation to such a habitat probably involved a generalist subsistence strategy, avoiding extreme dependence on any one food species. Population density was probably low relative to later periods; groups were likely to have been small and mobile, and to have utilized large territories over the course of a year. Because of New England's strongly seasonal climate, with extreme fluctuations in availability of most wild foods, subsistence strategies were probably also seasonal, a pattern which appears to have persisted through prehistory.

Recent palynological studies (cf. Davis 1958; 1969, cited in Curran and Dincauze 1977) suggest that the study unit, when newly exposed by melting ice, was characterized by a biotically impoverished tundra (Wright 1971, cited in Curran and Dincauze 1977:339). During the time Lake Hitchcock existed, this was replaced by a spruce park-land-spruce woodland community, which dominated the region between 13,000 and 10,000 B.P.; it was rapidly succeeded by a pine-oak forest (Curran and Dincauze 1977:339). These ancient plant and animal communities would have been very different from their modern analogs. They were temporary associations of different species, each spreading northward and eastward at its own rate. Their compositions cannot be compared closely with any known today (Dincauze and Mulholland 1977:447).

The spruce woodland environment of the early postglacial Connecticut River Valley would have been richer than today's spruce woodlands of the sub-arctic. However, during the time that Lake Hitchcock filled the Valley, only the least productive areas would have been available for human use (Curran and Dincauze 1977:334). The lake itself would have provided few resources, as no evidence of any fish population has been recovered from lake bottom sediments to

date (Hartshorn 1969:19). After Lake Hitchcock drained, the river valley would have provided a more sheltered environment containing more productive areas and a much greater diversity of exploitable habitats which would have presumably made it much more attractive to the inhabitants of an unpredictable environment. The argument that the Lake Hitchcock habitat was unattractive to Paleoindian settlement is supported by the fact that all of the sites and most of the find spots from this period are located within the margins of the lake; in fact, the Hadley site is located on a terrace cut into the lake bottom sediments. The sites must therefore postdate the lake's drainage (Curran and Dincauze 1977:335-344).

A widely accepted date for the Lake Hitchcock drainage is between 10,710-10,650 B.P., based on radiocarbon dating of wood fragments in the drainage channel (Curran and Dincauze 1977:333). Such a date would place the drainage event some time during the late Paleoindian period; however, Curran and Dincauze (1977:347) argue that the Lake Hitchcock drainage should pre-date the earliest Paleoindian artifacts within its boundaries, and therefore propose an earlier drainage date, closer to 13,000 B.P. This study is an excellent illustration of the problems of radiocarbon dating, the use of archaeological data to date geological events, and of the value of paleoenvironmental studies to the archaeologist.

Archaic (ca. 9,000-3,000 B.P.)

The existing inventory of Early Archaic sites in the Connecticut River Valley study unit provides only an extremely fragmentary and biased record of Early Archaic settlement patterns and site distributions. Single bifurcate base projectile points, one reported from Canada Hill in the Riverside Archaeological District, and another from an unspecified site in Deerfield, inventoried at Harvard University's Peabody Museum, are the only recorded remains of occupation during this time.

Despite the scarcity of Early Archaic materials, Dincauze and Mulholland (1977:450) have argued that, for the valley lowlands at least, there would have been no severe resource restrictions that would have made the area uninhabitable, although the study unit may have approached the northern limit of habitable areas for southern-type adaptations during this time.

Some of the reasons for the low visibility of the Early Archaic are the same as those for the similar scarcity of Paleoindian remains. Landscape changes causing site destruction or burial under alluvium, and the location of sites with regard to now vanished environmental variables, may contribute to our inability to locate Early Archaic sites. In addition, Early Archaic tools other than projectile points are poorly known. The diagnostic points of the Early Archaic--bifurcate base, Kirk and Dalton--have been described and dated (largely from sites outside of New England) relatively recently. They would not have been recognized by early collectors and, with the exception of bifurcates, are recognized with difficulty even today. These problems with recognition undoubtedly contribute to the low visibility of the Early Archaic.

Sites of the Middle Archaic period are somewhat more numerous than those of the Early Archaic. Middle Archaic components, identified on the basis of Neville, Neville-variant and Stark projectile points are reported from the Riverside Archaeological District and the nearby WMECO site (Curran and Thomas 1979), from sites in Northfield, Deerfield, Hadley and Montgomery, and from the towns of Springfield and West Springfield. Middle Archaic sites are found in a variety of settings, at the edges of large rivers and small streams and in both lowland and upland areas. Although most of these occurrences are poorly documented, the variety of locations is in agreement with Dincauze and Mulholland's (1977) observation of functional differentiation among Middle Archaic sites in southern New England. Dincauze and Mulholland also suggest that during the Middle Archaic, seasonal scheduling of subsistence activities became established and territoriality intensified. However, much information relevant to

supporting this contention, such as data on site size, function and seasonality, is scarce in the Connecticut River Valley study unit.

That anadromous fish (especially salmon and shad) were already part of the subsistence of Middle and possible Early Archaic populations in the Connecticut Valley is supported by the location of Early and Middle Archaic sites in the Riverside District, a well-documented anadromous fishing area. Analysis of growth rings on fish vertebrae from the WMECO site indicates that fish were taken in the spring during the spawning runs of shad and salmon (Thomas 1980:85). Abundant fish remains with similar seasonal characteristics associated with Middle Archaic and later components at Riverside and WMECO confirm the importance of this resource. Whatever the date of its inception, the taking of anadromous fish, which represented a predictable, preservable, high volume, clustered, low "cost" (in terms of labor expended per calorie obtained) spring harvest, was unquestionably a crucial element of the yearly subsistence cycle throughout later prehistory.

Supplies of anadromous fish would have been most predictable in the larger rivers, particularly the Connecticut, where the effects of fluctuations in microhabitats that can dramatically affect small tributaries are literally diluted (Moore and Root 1979). In the largest streams, salmon and shad could be taken with least effort at falls, rapids, and narrows, or at confluences of narrower tributaries. Thus, concentrations of prehistoric sites near these areas, such as at South Hadley Falls and Riverside (Turners Falls) would be expected.

Despite changes in the course of the river, locations of falls and rapids would have remained little changed through time, as they are usually associated with bedrock sills which, once exposed, are eroded very slowly. Narrows or confluences formed in alluvial deposits, however, should be more ephemeral, since river channels are much more unstable flowing through alluvium than flowing over bedrock. In addition, because salmon and shad are unable to surmount falls exceeding a certain height, the upstream limit of their migration

would be expected to change as barriers were eroded down or new channels were cut.

Late Archaic period artifacts and sites are somewhat better reported in the literature than those of the Middle Archaic. The three major Late Archaic traditions of southern New England--Laurentian, Small Stemmed and Susquehanna--are all represented to some degree within the study unit. Of the three, the Small Stemmed Tradition appears to be the most frequently reported, but the total sample is far too small to support any conclusions. Excavations at the WMECO and Walnut Street sites, within the Riverside Archaeological District, revealed a stratigraphic sequence in which Brewerton side-notched projectile points (Laurentian) are succeeded by Susquehanna Tradition points of Atlantic, Susquehanna Broad and finally Orient Fishtail types (Curran and Thomas 1979), a sequence that is widely accepted for southern New England in general.

Late Archaic components occur in a variety of locations in the study unit, including near falls, on the banks of large and small streams, on floodplain terraces, on the lake bottom soils of the valley and in upland locations. Despite a scarcity of good information on site sizes, features and site functions, Late Archaic sites appear to exhibit a variety of sizes and to represent a number of different activities. There is evidence for fishing and fish processing in the form of quantities of fish bone fragments at the Walnut Street and WMECO sites (Curran and Thomas 1979). In addition, caching and quarrying activities are associated with the Late Archaic in the study unit. A large cache of bifacial blades from Hadley may be associated with the Susquehanna Tradition (Dincauze 1975). Although extensive mortuary complexes appear elsewhere in southern New England during the Late Archaic, no unambiguous examples of such have yet been reported from the middle Connecticut River Valley.

Two important lithic materials--diabase or "traprock" and steatite or "soapstone"--are known to have been quarried from sources within the study unit, probably during the Late Archaic and possibly

at other times as well. Traprock is a major component of the Holyoke and Mount Tom ranges; additional outcrops are scattered up and down the valley. Although ill-suited for chipping, the tough, fine grained diabase was ideal for use in ground stone tools. These were good for heavy work such as pounding, chopping and grinding and were thus useful for woodworking, quarrying, cultivation and processing nuts and other plant foods (Dincauze 1979:37). Furthermore, the natural fracture properties of diabase cause it to fragment into numerous elongated pointed prisms. The steep talus slopes of the Holyoke and Mount Tom ranges provided thousands of such pieces, from which almost ready-made tools could be selected with minimal effort. Large workshop areas containing hundreds of such fragments have been reported from sites on the Manhan River near the west slope of Mount Tom (Otis 1947) and on the opposite side of the Connecticut River near the western end of Mount Holyoke (Howes 1942). Besides being useful as tools, traprock implements served as trade items which could be exchanged for exotic goods. Artifacts reputedly made of Connecticut Valley traprock have been found as far away as the Hudson and Mohawk River valleys (Otis 1947:2).

Steatite or soapstone quarries are known from the Swift River Drainage, Wilbraham and Westfield. The latter have received close attention and were carefully excavated by the Connecticut Valley Chapter of the Massachusetts Archaeological Society under the direction of William S. Fowler during the 1940s. Subsequently, both Fowler and William J. Howes published site reports (Fowler 1943; Howes 1944; Fowler 1968, 1969).

The Wilbraham quarry is located in the Connecticut Valley lowlands. It is a boulder quarry, where at least nine large glacial erratics of steatite were worked. All but part of one of the boulders were completely quarried, leaving large depressions surrounded by steatite debitage, broken steatite implements in various stages of manufacture and numerous quarry tools (Fowler 1969). The outcrop from which these boulders originated has not yet been identified, but probably lies in the hills to the north, perhaps within the study unit.

Such an outcrop would have a high potential for yielding further information regarding steatite technology.

The Westfield steatite quarry is located in the uplands of the Westfield drainage at a place where steatite veins of varying quality outcrop. Excavations revealed many partially completed vessels, some scant evidence of pipe manufacture, and numerous quarry tools. In addition, three caches of quarry tools containing over 90 specimens, and a boulder quarry and workshop where quartz quarry tools were produced, were excavated. Subsequent typological and experimental studies clarified the functions of several of the quarry tools (Fowler 1968).

At both sites, quarry tools were similar, ranging from heavy picks, some made of Connecticut Valley traprock, to steatite polishing implements, indicating that at least some containers were completely finished at the quarries. Similar quarry tools are known from other New England steatite quarries. Both sites appear to have produced a similar range of containers; particularly common were small, long-handled cups, resembling ladles (Fowler 1969). Containers and fragments of steatite similar to material from both the Wilbraham and Westfield quarries have been recognized at sites from Westfield to Sunderland (Howes 1944). Whether items from these quarries were traded more extensively remains uncertain.

These steatite quarries were probably in use during the Late and Terminal Archaic, the generally accepted date for the extensive stone bowl industry in New England. With the adoption of ceramic technology, initiating the Woodland period, stone bowl making appears to have been terminated. Stone pipemaking, however, continued into the Woodland; thus, these quarries may have remained in use, to some extent, after the decline of the stone bowl industry.

Woodland (ca. 3,000-500 B.P.)

Sites in the Connecticut River Valley study unit containing Woodland components are better documented than are sites from any earlier

period. This is in marked contrast to some other parts of the state, where Late Archaic components dominate the archaeological record. One explanation for this is the criteria by which Woodland components have been identified. Sites with pottery have been generally designated "Woodland," while sites with nondescript lithic components have been generally designated "unknown." Another explanation is that Woodland settlement may have focused on the arable lake bottom and alluvial soils of the Connecticut Valley lowlands and are thus more likely to be exposed by the plow or by floods. Whatever the reasons, most of the sites in the study unit for which temporal components have been identified contain Woodland components.

Excavated Woodland period sites in the study unit exhibit a wide range of sizes, bear evidence of diverse activities, and occupy a variety of habitats. Large fishing station middens were excavated in the Riverside District and at the WMECO site, in both cases overlying Archaic components representing similar activities (Curran and Thomas 1979). A fishweir with a possible Woodland association is reported from Palmer on the Ware River. Small hunting-gathering camps are reported from upland locations in Montague and in Belchertown, and a number of sites with evidence of ceramic manufacturing are reported from the study unit. Mortuary activity is evidenced at a large number of sites, including an Early Woodland cemetery containing at least 20 individuals found near the Holyoke Depot in 1868.

The Holyoke Depot cemetery contained individuals ranging from children to adults, who were buried with grave goods. Among the artifacts recovered from the cemetery are beads of shell and native copper, and blocked-end tubes, suggestive of contact with the Adena complex of the Midwest (Young 1969). Additional examples of blocked-end tubes have been reported from sites in Holyoke, South Hadley Falls, Turners Falls, Wendell Depot (Jordan 1959), and the Riverside District. Another Adena-connected cemetery is reported from Quaboag Pond in Brookfield, immediately east of the study area (Keith 1965).

These manifestations of an eastern Adena connection are not confined to the Connecticut River Valley. During this time a widespread exchange network apparently existed, involving raw materials and finished products. Specific mortuary practices were also widely distributed. Similar mortuary sites have been reported in many parts of the Northeast from New Brunswick (Turnbull 1976) to Chesapeake Bay (Ford 1976). The nature of the relationships between Adena and Eastern groups are poorly understood at present. Additional Adena related components surviving in the Connecticut Valley study unit may contribute to our own understanding of these relationships.

Ceramics, traditionally the "marker" of Woodland occupation, appear much more frequently at sites in the Connecticut River Valley study unit than in parts of eastern Massachusetts. Several factors may contribute to this high visibility of ceramics. First, a much higher proportion of Ceramic Woodland period sites have been excavated and reported from the Valley than from some parts of eastern Massachusetts. Second, the varve clays deposited at the bottom of Lake Hitchcock and exposed by downcutting streams provided numerous sources of excellent clay. Sites that apparently contain ceramic workshops are reported from south Springfield, South Hadley Falls, Northampton Meadows, Turners Falls and Westfield (Howes 1956). The Guida Farm site in Westfield, a large site of the Middle-Late Woodland, may have also been a ceramic production center (Byers and Rouse 1960). A site in Greenfield with access to clay exposures may have been a Middle Woodland ceramic workshop (Dincauze 1982: personal communication).

Small upland sites of the Woodland period are rarely reported in Massachusetts; however, two examples have been reported from the Connecticut River Valley study unit: an Early Woodland occupation in Belchertown (Mulholland and Ham 1980) and a Middle Woodland site on Wills Hill in Montague (Thomas 1979b). The Wills Hill site was occupied by a small group for a short period of time, probably during the summer (Thomas 1979b). Analysis of a nearby mudstone/argillite outcrop suggests that this, or an outcrop of similar material, may

have been the source for most of the lithics recovered at Wills Hill (Strauss 1976). Excavation and analysis of such small sites can be valuable in developing a complete picture of the seasonal subsistence and settlement patterns of the Woodland period.

Woodland subsistence and settlement patterns were affected to some degree by the introduction of farming. By about 1,000 B.P., horticulture was being integrated into the economy of prehistoric New England; corn, beans and squash were the major crops. Although the Middle Connecticut Valley is located close to the northern limit of successful Native corn horticulture for central New England, historical records indicate that the Valley Indians grew an abundance of corn with occasional surpluses (Dincauze 1979:39).

The degree to which pre-contact Native populations became dependent upon horticulture and the implications of this development in New England in general and the Connecticut Valley in particular remains uncertain. Certainly hunting, fishing and the gathering of wild plant foods remained critical. Horticulture can provide an important supplement to these wild foods, particularly during times of scarcity. The middle Connecticut Valley, with its excellent farmland and lack of coastal resources that were so important elsewhere in New England, would seem to be an ideal location for the adoption of horticulture. However, the practice demands changes in a society's division of labor, and the seasonal subsistence and settlement pattern. Increased reliance on corn can also result in nutritional deficiencies.

The development of horticulture has been suggested as a cause of population growth, inferred from increasing artifact frequencies and site sizes in southern New England after 1,000 B.P. In other parts of the Northeast, the introduction of horticulture is seen as an important impetus to the development of a nucleated village settlement pattern (Noble 1975). Neither dependence on horticulture, population growth, nor the development of nucleated settlement can be conclusively demonstrated for the Connecticut River Valley study unit prior to the Contact period. Large storage pits or "granaries,"

indicating the production of large quantities of grain, have been reported from Northfield (Thomas 1979a) and Deerfield (Mulholland, et al. 1982); however, whether these features predate European contact is uncertain. Possible examples of Late Woodland villages may be represented at the large Guida Farm site, or at several large sites with Woodland components located throughout the Valley. However, conclusive evidence in the form of house floors and other features in a definite prehistoric context is not yet available.

Settlement patterns in the Connecticut River Valley during the Woodland and throughout much of prehistory were adapted to seasonal peaks in the abundance of specific resources associated with particular land forms or habitats. Populations would have aggregated seasonally in the lowlands of the Connecticut River and its tributaries, near falls where anadromous fish could be taken in the spring. The lowlands also offered opportunities for exploiting seasonal bird and waterfowl migrations, for which the Connecticut River with its many bordering wetlands was an important flyway. These seasonal resource peaks were probably established by 8,000 years ago, at which time the river had exposed the bedrock falls at Montague and Holyoke (Dincauze 1979). After the introduction of horticulture the lowlands held the further attraction of possessing fine farming soils. Hunting of mammals, non-migratory birds and gathering of plant resources were, in general, more dispersed activities, and may have involved smaller, short-term occupations in both uplands and lowlands.

This seasonal adaptation to an essentially riverine, interior habitat contrasts with the Woodland pattern of subsistence and settlement in coastal areas such as southeastern Massachusetts. There, seasonal availability of coastal and estuarine resources including shellfish, pelagic fish and marine mammals resulted in a focus on coastal settlements.

Within the Connecticut River Valley, settlement cores throughout much of prehistory would have been situated in the lowlands, particularly near falls and rapids, and for the Late Woodland, near intervals, extensive areas of alluvium which provided fine farming soils. Peripheral areas would have been less heavily occupied, although they would have been important hunting grounds and may have provided special resources (e.g., lithics) not available in the lowlands.

Survivals

Archaeological sites are extremely fragile; an unknown number of sites in the Connecticut River Valley have already been destroyed or severely disturbed, and many sites are threatened with destruction in the near future. Prehistoric sites in the study unit are endangered by a combination of natural erosive agents and human land use activities. Primary among natural threats is river action, especially since prehistoric sites are densest in river valleys.

Archaeological resources are threatened by activities that involve massive earth-moving, such as industrial, commercial and residential construction, road construction and modification, and pipe-laying. Industrial development and urban sprawl have already destroyed numerous sites in the Springfield/Holyoke area, particularly those sites associated with waterfalls, at which early industrial developments were often situated (e.g., Holyoke Depot Cemetery).

In areas outside the cities, suburban development is a major threat to archaeological resources. Generally, such development has been most rapid around existing urban areas and along transportation corridors. Further site destruction in non-urban areas often occurs in sand and gravel quarrying. Because suburban construction and quarrying rarely involve public funds, opportunities for mitigating impacts to archaeological sites are few.

Agriculture continues to be an important form of land use in the Connecticut River Valley study unit, and poses certain threats to

archaeological resources, particularly since both archaeological sites and active farmlands are concentrated in the Valley lowlands. Plowing can be destructive to fragile artifacts; however, sites that have already been plowed for over a century, as is often the case in the Valley, will rarely be further damaged by continued plowing unless the plow goes deeper than it has previously. Topsoil removal for sale has already destroyed many sites, including most of the Guida Farm site (Byers and Rouse 1960). The effects of chemical fertilizers and insecticides on preservation, particularly of organic materials, are poorly understood at present. In recent years, as patterns of land use have changed, much agricultural land has been divided, sold for development, and destroyed, along with many archaeological sites.

Prehistoric sites are also endangered by artifact collecting. Site attrition occurs when collections are poorly provenienced or subsequently dispersed (Dincauze 1979). This process selectively removes certain preferred artifact types, generally projectile points and large or finely made objects, leaving a distorted sample in the ground.

Given these varied threats, certain broad patterns of site survival can be expected. In the Valley lowlands where site density is highest, river erosion, urban and suburban construction, agriculture and collecting have been most intense. Prehistoric sites in these areas can be expected to survive in the absence of urban development and where suburban construction, topsoil removal and collecting have been minimal. The deep alluvial soils of much of the lowlands may contain cultural deposits at great depths. Artifact collecting, agricultural disturbances and some forms of construction may primarily affect deposits near the ground surface and thus leave deeply buried components intact.

The uplands of the study unit are generally poorly known archaeologically. However, areas along the major upland waterways such as the Westfield, Deerfield, Chicopee and Millers rivers and their tributaries must be considered archaeologically sensitive,

especially given the importance of such watercourses as transportation corridors. The many river and stream valleys, small floodplains and occasional ponds of the Berkshire Hills and Worcester Highlands may retain significant archaeological resources. Because industrial and residential development has generally been less extensive in the uplands than in the Valley, sites in the uplands may have had better chances of survival. Upland areas far from waterways may contain special activity sites such as quarries and rockshelters. Although these sites are undoubtedly of low density, and may be subject to erosional damage, in rugged terrain with thin soil cover they are least likely to have been destroyed by construction, agriculture or collecting.

Research Topics

Research topics mentioned throughout this chapter are summarized in the following list. Some of these topics are broadly applicable to southern New England or the Northeast in general, but could be addressed by site survey, site examination and collections research in the Connecticut River Valley study unit in particular. The list is not intended to be an exhaustive catalogue of potential research topics.

1. Research into adaptations to a riverine environment. The Connecticut River Valley is the best known archaeologically of the three non-coastal study units in the state (Berkshire, Connecticut River Valley, Central Massachusetts); it is also the closest approximation of a "model" temperate forest riverine environment, lacking the extensive coastal and lake resources of the eastern parts of the state. Thus, the Connecticut Valley offers an opportunity to study adaptations to an environment that is unique within Massachusetts.

2. Research into tool assemblages and chronologies. The Connecticut River Valley has the best potential of any area in the state for containing deeply stratified alluvial sites. Such sites

can yield information on cultural sequences and can reveal associations among different tool types, especially non-projectile point types (cf. Dincauze 1976). A related topic that can be addressed by study of sites on alluvial terraces is the use of archaeological data to date geological features and events, such as the draining of Lake Hitchcock and the cutting of river terraces. Conversely, geological information can be useful for clarifying archaeological dates and sequences.

3. Analysis of ceramic technology and style. The total ceramic sample from the study unit is very large, although much of it is poorly documented. Of additional interest is the evidence at several sites of ceramic production workshops. Data from the Connecticut River Valley can shed light on the manufacture, use and discard of ceramics. In addition, ceramics in the study unit exhibit a variety of stylistic attributes, the nature and sequence of which remain potential topics for analysis. Ceramic styles can also be useful in addressing questions concerning social organization.

4. Research into Early Woodland Adena contacts in the Northeast. Thus far, Adena artifacts are only recognized in mortuary contexts in the study unit. It is uncertain whether these Adena-like cemeteries represent movement of populations, of mortuary practices, or of trade goods only. The possibility of trade leads to the question of what these Adena goods were exchanged for. The reasons for and effects of Adena contact and the influx of exotic goods during the Early Woodland are related research questions.

5. Analysis of prehistoric exchange. The Connecticut River Valley study unit was probably an important north-south corridor prehistorically. In addition, the Westfield, Deerfield, Chicopee, and Millers rivers probably served as east-west corridors through which people and goods moved. Evidence of prehistoric exchange is found from Paleoindian through Late Woodland periods in the form of exotic lithics, generally Hudson Valley

cherts. The study unit is deficient in high quality flakeable stone; local lithics consist mainly of quartz, quartzite and mudstone for chipped stone tools. Diabase and steatite quarried within the study unit were apparently utilized in exchange. Further research in identifying these materials outside the study unit and identifying additional sources within the region can add to our understanding of prehistoric exchange. Analysis of trends in the relative importance of exotic lithics and locally derived stone may be an important tool in analysing fluctuations in territoriality and social boundaries.

6. Research into the development of horticulture and its consequences. With extensive arable land, and a lack of coastal resources, the Connecticut River Valley study unit would seem to have been ideal for the development of horticulture. The actual degree of reliance on horticulture attained during prehistoric times is still open to question. Also open to further research are questions concerning the effects of horticulture on subsistence and settlement patterns, social organization, exchange of goods and information, demography and warfare.

7. Analysis of mortuary behavior. A large number of mortuary sites are already known from the study unit. Unfortunately, many are poorly described or are of uncertain date. Carefully excavated burials, and additional data from already excavated burials derived from collections research, can yield information on demography, tool assemblages, social organization and mortuary practice.

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CHAPTER III

PATTERNS OF SETTLEMENT AND LAND USE

Contact Period (1500-1630)

A. Regional Events

The Contact period was marked by European contact, indirect and direct, with the native population. Indirect contact, the predominant form of interaction during this period, resulted in native exposure to both European materials and diseases. The date when this first occurred is not known. The earliest direct contact likely took place on the lower reaches of the Connecticut River Valley during the early 17th century. Current evidence suggests that both direct and indirect European-native contact were sporadic and had limited impact on the region's indigenous population during this period. Only a small number of European items appear to have been incorporated into traditional native material culture, and study unit natives seem to have escaped the worst of the devastating epidemics that swept through much of New England during the second decade of the 17th century.

B. Core-Periphery Relationships

During the Contact period, native core areas appear to have been focused along a single major waterway (the Connecticut River) and its tributaries. These riverine core areas were the center of a native settlement and subsistence system which connected sites in the Valley with secondary, seasonally occupied sites in the adjacent uplands.

Movement between the Connecticut River Valley and the interior probably followed a pattern similar to that suggested by Peter Thomas (1979:96-120). Occupation of the riverine villages was heaviest

during the winter months, when occupants subsisted on food reserves accumulated during the spring and fall consisting of wild game, fish, crops and nuts. This diet was probably supplemented with game and fish caught in interior woodlands and ponds by males of the village during the winter. March signalled movement to major and secondary falls in time for the spawning runs of anadromous fish such as alewives, and later, shad and salmon. The later spring months were spent preparing and planting horticultural plots. During the summer, native settlement focused in the vicinity of these planting fields. During the late summer women gathered various plants and herbs. Fall subsistence activities involved harvesting, drying and storing horticultural products as well as extensive hunting. The only year-round occupants of the village sites during this period were probably the aged and children. With the onset of winter began a new subsistence/settlement cycle.

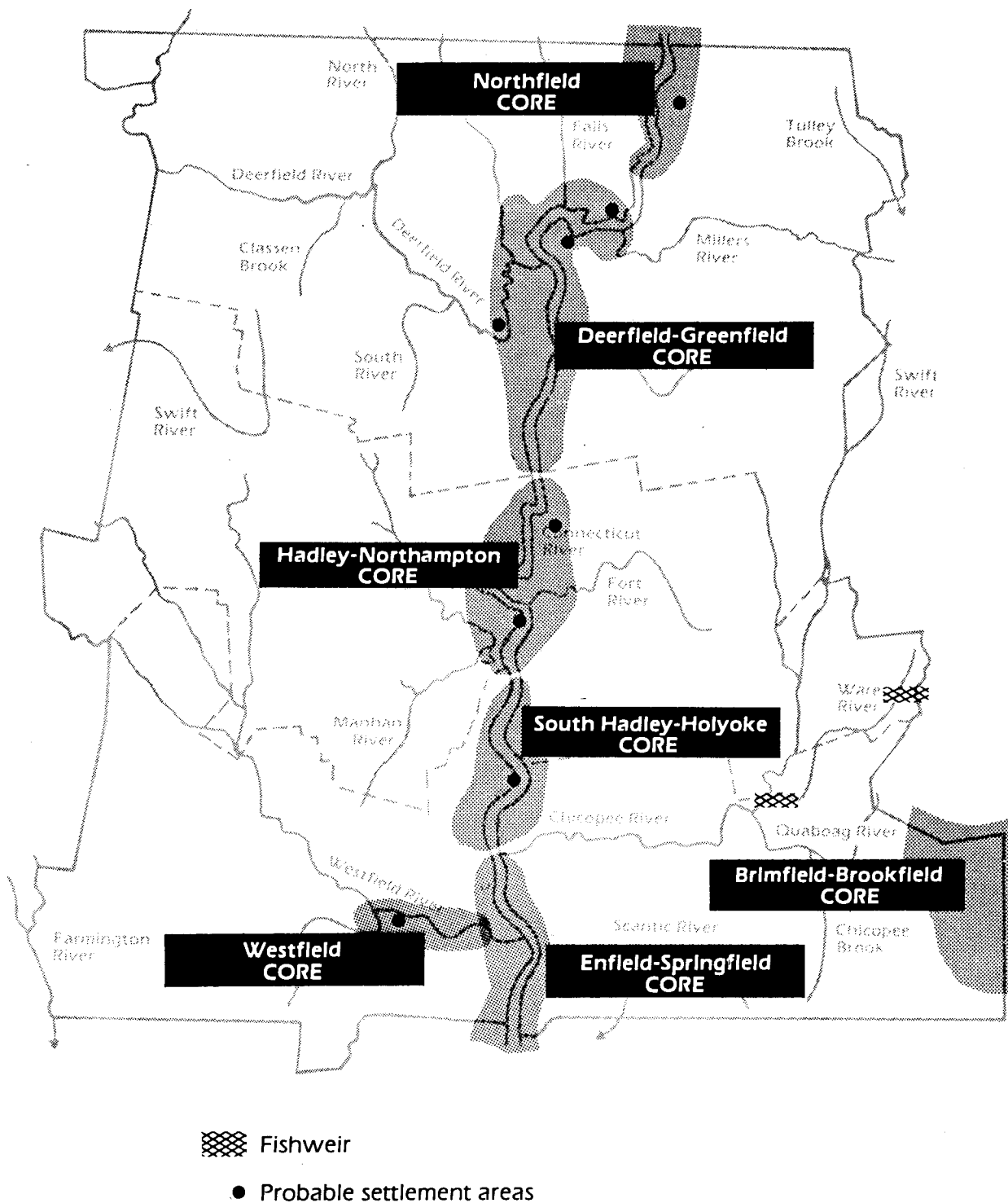
The available evidence suggests that there were seven primary regional cores in the study unit, five of which were situated in the Connecticut River Valley. See Map 3.

The first regional core extended north from Enfield Falls, Connecticut and encompassed portions of Longmeadow, Agawam, Springfield, West Springfield and the southern portion of Chicopee. The focus of this core was probably at Enfield Falls. Additional population centers may have existed on the Connecticut River floodplains in Agawam and West Springfield.

A second major core was located south of the Holyoke Range and included northern Chicopee, Holyoke and South Hadley. Settlement was likely centered in the vicinity of South Hadley Falls, on both sides of the river. Surrounded by fertile agricultural land, South Hadley Falls has had a long history as a regionally important fishing site (Eastman 1912:127).

The study unit's third regional core extended north from the Holyoke Range to Mount Toby and Sugarloaf Mountain and included

Contact Period Core Areas



the towns of Hadley, Northampton and Hatfield. The extensive and fertile floodplains along the river made this one of the most important and heavily populated regional cores in the study unit. This appears to have been the core area for the native group known as the Norwottucks during the early 17th century.

The fourth regional core extended along both the Connecticut and lower Deerfield rivers and included sections of Whately, Sunderland, Deerfield, Montague, Greenfield and Gill. This large core area also contained extensive tracts of riverine bottomland, especially in Deerfield and Sunderland. These were probably primary settlement areas for the native group known as Pocumtucks. A second important feature of this regional core was the presence of two major falls, Turners Falls and Millers Falls (Montague). Turners Falls in particular was noted for large native fishing encampments during spawning runs (Holland 1855:364-365).

The last regional core on the Connecticut River was located at the northern edge of the study unit in the town of Northfield. This core area extended further north on both sides of the river with focal points in South Vernon, Vermont and Hinsdale, New Hampshire. The native group centered here were called Squakheags.

The two remaining regional cores were located in the southern part of the study unit on either side of the main valley. One was centered around Westfield and extended along the Westfield River through parts of Agawam and West Springfield. Two probable period sites, Guida Farm and Palmer, are known from this core area, which was the home of the Woronocos. Archaeological evidence suggests that the people of this core area had trade or other connections not only with the lower Connecticut River Valley, but west toward the Hudson River Valley as well. The final regional core was situated in the southeastern corner of the study unit and in adjacent Worcester County. This included sections of Brimfield and Wales as well as the Worcester County towns of East Brookfield, North Brookfield, West Brookfield, Brookfield, Warren and Sturbridge. Settlement most

likely congregated in the vicinity of the Quaboag Ponds complex (Brookfield, East Brookfield), Wekaboag Pond (West Brookfield) and Sherman Pond (Brimfield). These locations are traditionally reputed to be the sites of the primary settlements of the Quabaugs in the 17th century.

In addition to these seven primary regional cores, there were four secondary core areas. These long, linear cores followed major tributary valleys back from the Connecticut River Valley and were focused around both fall lines and tillable intervals. To a considerable degree these also functioned as corridors between the main river valley and more interior areas. Of the four, two appear to have been especially important. The Chicopee/Quaboag/Ware river system connected the Brookfield core with the Connecticut River Valley and, with several major falls, was known for its fishing locations. The second core ran along the upper Deerfield River and provided a major corridor between the upper Connecticut River Valley and the Housatonic River Valley to the west. Shelburne Falls and the intervals in Charlemont were focal points in this core. The other two core areas, the Swift River Valley and the Millers River Valley, though less well known, appear to have been oriented toward pond complexes in Orange, New Salem and adjacent Athol.

A number of smaller, lightly populated local cores were probably situated outside of the more extensive regional and secondary cores. Probable locations include the Congamond Ponds complex in Southwick, the Manhan River (Easthampton, Southampton), the northern portion of the Mill River (Northampton), the eastern portion of the Fort River (Amherst, Belchertown), and the upper reaches of the Green River (Leyden). The remaining western and eastern uplands were likely utilized as peripheral areas by study unit natives for hunting, fishing and gathering.

C. Transportation

The primary mode of native transport during the Contact period was a system of overland trails which connected the important core

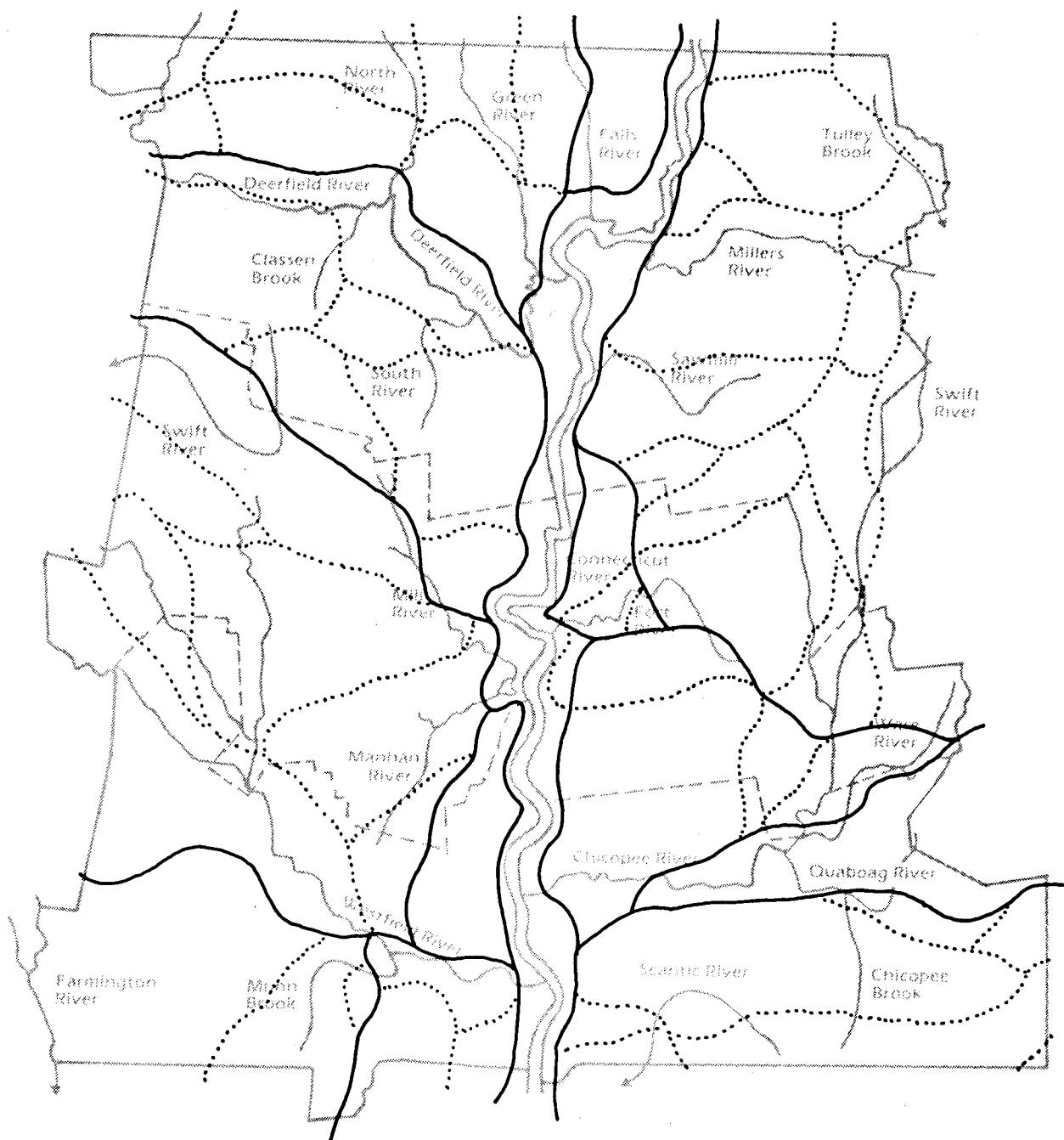
areas in the Connecticut River Valley with each other and to core areas elsewhere in Massachusetts and in adjacent states. In general, trails followed the local topographic logic, maintaining an even grade on dry ground whenever possible and avoiding wetlands, deep gorges and rough terrain. In addition, the trail network had a braided character; it branched around obstacles and offered a variety of alternative routes across the landscape. Within the Connecticut River Valley, trails tended to follow the river terraces and were usually discernable. In the uplands, trails are more difficult to trace. In general, they appear to have paralleled major river valleys if the terrain was not too rugged--for example, along the Quaboag and Chicopee rivers. In rougher country like the upper Deerfield drainage, the trails tended to skirt the river gorges, keeping to the adjacent high ground and descending into the deep valleys at major fall lines, fords or intervalles.

The major trails in the study unit ran through five primary corridors. Two of these were oriented north-south, roughly paralleling the Connecticut River on either side; the other three ran east-west. See Map 4.

1. The primary north-south trail on the east side of the Valley ran from Windsor Locks, Connecticut along the river terrace in Longmeadow and Springfield to the ford near Chicopee Falls. It continued north toward Holyoke Falls, then over the Holyoke Range to the Fort River fordway in Hadley and along the terrace into Sunderland. Cutting across the Pine Plains in Montague, the trail forded the Millers River at Mineral Hill and continued through Northfield into Hinsdale, New Hampshire.

2. The primary north-south trail on the west side of the Valley ran from Suffield, Connecticut along the floodplain in Agawam, fording the Westfield River at Mitteneague Falls. It continued north to Holyoke Falls and Northampton, skirting Mount Tom and the Oxbow meander. A major branch trail extending north from the Congamond Ponds in Southwick through Westfield joined the main trail in Easthampton. Running along the floodplain through

Contact Period Native Trail Network



- Primary trails
- Secondary trails

Hatfield and Whately, the trail crossed the Deerfield River at Pine Island and continued into Greenfield. Near Poets Seat, the trail again split, one branch following the Falls River through Bernardston, the other going to Turners Falls, then on through Northfield to Vernon, Vermont.

3. The most southerly of the major east-west trails connected the Brookfield core area with the Connecticut River Valley at Springfield. Its route ran from Farm Pond and Steerage Rock in Brimfield along the Quaboag and Chicopee rivers and across the Pine Plains to the Mill River ford. West of the Connecticut River, the trail followed the north bank of the Westfield River to the Woronoco ford in Westfield, then along Munn Brook to the Berkshire front. From here the trail climbed over Westfield Mountain to Russell Pond, looped across the Blandford highlands to Big Pond in Otis and continued west to the Housatonic Valley.

4. The second major east-west trail connected the Brookfield core with the middle Connecticut River Valley. The main trail ran from the Ware River ford in Ware Center over the highlands and across the Swift River to Cold Spring in Belchertown. From this point it followed along Jabish Brook to Metacomet Lake and west along the base of the Holyoke Range to the Fort River ford in Hadley. On the west side of the Connecticut River, a series of trails connected the Connecticut River Valley with the Housatonic. The primary path appears to have followed the Mill River from Northampton through Williamsburg and up into the Goshen uplands. It continued west, paralleling the Swift River gorge through Cummington toward Plainfield Pond and eventually Pittsfield.

5. The third east-west route connected the upper Connecticut River Valley with the Hoosic River Valley to the west. From Deerfield, the trail climbed over Arthur's Seat across the uplands to Shelburne Falls. It continued along the north bank of the Deerfield from the North River ford in Colrain through Charlemont and over the Hoosac Range.

In addition to these major trails, two important connectors deserve mention. One ran along the Ware and Chicopee rivers connecting the Ware River ford in Ware Center with the major ford on the Chicopee River in Ludlow/Indian Orchard (Springfield). The second trail went through Amherst and Long Plain in Leverett connecting the major north-south trail near Mount Toby with the east-west trail at Lake Metacomet.

D. Settlement

As is the case throughout the rest of Massachusetts, there is a paucity of information on Contact period sites in the Connecticut River Valley. The evidence is limited to three known and two probable sites. The known sites include two villages--Bark Wigwams (19-HS-113) in Northampton and the Hadley "Fort" (19-HS-123) in Hadley--and a burial area, the Palmer site (19-HD-97), in Westfield. The two probable sites are located in North Hadley (19-HS-6) and Westfield (Guida Farm, 19-HD-III).

While there are no firsthand descriptions of native settlement in the study unit, a generalized reconstruction of the most common types is possible. The largest native settlements most likely were established on the alluvial floodplains of the major rivers and probably consisted of a complex of individual habitations with adjoining planting fields. Huts, though varied in size and shape, were generally rectangular or circular in form and could house either one or several families. All of these house forms appear to have followed a basic structural plan. The framework consisted of a series of wooden poles driven into the ground and lashed together. These poles and a number of smaller horizontal cross members were covered with bark sheets or woven mats. One or more firepits, depending on the number of occupants, were located inside the structure. The hut's simple design facilitated their rapid dismantlement, an important feature among groups who migrated seasonally. Some of the settlement centers may have been surrounded by wooden palisades. The Dutch observer, Johen deLaet, referred to "a village resembling a fort" on the lower Connecticut River Valley in 1633. It is generally

believed that this arrangement was introduced late in the Contact period or early Plantation period in response to warfare among native groups and increasing native sedentism (Thomas 1979:115-117; Salwen 1978: 164-166).

Smaller settlement complexes were probably situated on the tributaries of major river drainages or smaller lakes and ponds. The sites likely were composed of a few structures similar in design to those described above and probably functioned as subsidiaries of the larger population centers.

The smallest native habitation sites were probably those established by single families or small special activity bands during the summer or winter months. These sites appear to have ranged from open air camps to single family huts located in fringe areas.

E. Survivals

Contact period survivals consist of two general categories: archaeological sites and landscape features. The first encompasses a variety of site types, including large settlement complexes, rock-shelters, burials and tool preparation areas. These are crucial in the reconstruction of native period settlement and subsistence patterns. Although development has destroyed a large number of native archaeological sites in the mid and upper portions of the Connecticut River Valley, towns such as Hadley, Hatfield, Sunderland, Montague, Deerfield, Greenfield and Northfield continue to have excellent archaeological potential. Even the more heavily developed cities and towns of the lower Valley such as Westfield, Agawam, West Springfield, Holyoke, Chicopee and Northampton may contain Contact period sites.

The second category, landscape features, includes a variety of physical and toponomic manifestations of the region's native occupants. These include native trails and fords, fish weirs, quarries and place names. Trails and fords are the most prevalent, for they were often

incorporated into the later overland transportation network. Generally, primary trails survive as highways such as Route 2 (Mohawk Trail), Route 20 and Route 9. Other trails frequently remain as secondary roads or as jeep and hiking paths. Major native fords often were reused as primary bridge sites; examples include the Robinson Bridge (Chicopee River, Chicopee) and the Route 5/10 Bridge (Deerfield River, Deerfield). In contrast, fish weirs and quarries survive primarily in peripheral areas.

Native place names are also among the most prolific surviving features of the native landscape. These survive either through continued usage or historical documentation. Those place names that survive were first recorded by colonial observers in the course of contact with the region's native population. The resulting transliterations and later adaptations often vary considerably from the original labels largely because of the non-native users' lack of familiarity with the native language. In some cases, the place names were even applied to locations different from that intended in their original form. Despite these alterations, the surviving examples, when utilized carefully, can provide the researcher with a valuable aid for reconstructing native cultural boundaries, language and occupation areas.

The following list is a sample of those native place names that have been recorded in colonial documents of the 17th and 18th centuries or still remain in common use.

Chicuppe	Area bordering the southern edge of the Chicopee River near its confluence with the Connecticut River, Chicopee (Wright 1911:1).
Masacksik	Longmeadow (Wright 1911:1).
Nallahamcomgon	Bennett's Meadow, Northfield (Temple and Sheldon 1875:27).
Nashawannuck	Area bounded on the south by the Manhan River and west by Sawmill Brook, Eastampton (Lyman 1866:42).

Nenameseck	Ware River (Sylvester 1879:1,360).
Paucatuck	Area on the north side of the Westfield River near the river's junction with Paucatuck Brook, West Springfield (Swift 1969:262).
Pascommuck	Area bounded on the north by the Manhan River and west by Broad Brook, Easthampton (Lyman 1866:42).
Peskeomskut	Turners Falls, Montague (Pressey: 1910:198).
Peqoig	Millers River (Pressey 1910:50).
Pocommegon	Green River (Sheldon 1972:24).
Quinnehtukut	Territory bordering the Connecticut River (Temple and Sheldon 1875:3).
Shaomet	Warwick (Nason 1874:523).
Tattom Squassok	Swampy area south and east of the Paucatuck cemetery, West Springfield (Swift 1969:252-253).
Wasapskotuck	Prospect Hill, Westfield (<u>Times and Newsletter</u> 1892:n.p.).
Wequamps	Sugarloaf Mountain, Deerfield (Sylvester 1879:11, 592).

The table that follows provides a general assessment of period features surviving in the primary and secondary regional native cores situated in the Connecticut River Valley study unit.

<u>Period Core Areas (listed by current towns)</u>	<u>Archaeological Sites</u>	<u>Landscape Features</u>	<u>Native Place Names</u>
A. Regional Cores			
1. <u>Enfield/Springfield Core</u>			
Longmeadow	?	?	
Agawam	?	?	
Springfield	?	?	
West Springfield	?	?	X
Chicopee (southern)	?	X	

Period Core Areas (listed by current towns)	Archaeological Sites	Landscape Features	Native Place Names
2. <u>South Hadley/Holyoke Core</u>			
Chicopee (northern)	?	?	?
Holyoke		?	
South Hadley	?	?	
3. <u>Hadley/Northampton Core</u>			
Hadley	X	X	?
Northampton	X	X	X
Hatfield	X	?	
4. <u>Deerfield/Greenfield Core</u>			
Sunderland	X	?	
Whately	?	?	
Deerfield	X	X	X
Montague	X	?	
Greenfield	?	?	
Gill	X	?	?
5. <u>Northfield Core</u>			
Northfield	X	X	X
6. <u>Westfield Core</u>	X	X	?
7. <u>Brimfield/Brookfield Core</u>			
Brimfield	X	X	?
Holland	?	?	
B. Secondary Regional Cores			
1. <u>Chicopee/Quaboag/Ware Rivers</u>			
Chicopee		?	
Ludlow	?	?	?
Wilbraham	?	X	
Palmer	?	X	?
Belchertown	?	?	?
Ware	?	?	?
2. <u>Deerfield River</u>			
Shelburne	X	?	
Conway	?	?	
Buckland	X	?	
Charlemont	X	X	

<u>Period Core Areas (listed by current towns)</u>	<u>Archaeological Sites</u>	<u>Landscape Features</u>	<u>Native Place Names</u>
3. <u>Millers River</u>			
Montague	?		
Erving	X		
Wendell		X	
Orange	X		
4. <u>Swift River Valley</u>			
Ware	?	?	
New Salem	X	?	

F. Research Topics

The Contact period is poorly understood; as a result, there are many topics available for research. Those that follow are some of the more important areas of concern.

1. Clarification of aboriginal trade networks. Particular emphasis should be placed on the origins and importance of the region's socio-economic ties with the Hudson River, Housatonic River and lower Connecticut River Valley natives. What sites within the study unit were the focal points in the exchange system?

2. What impact did the 1616-1619 epidemics that decimated the New England coastal natives have on the study unit's aboriginal population?

3. Examination of the aboriginal settlement/subsistence patterns. To what degree were the interior uplands part of this system? Is the present absence of upland period sites more a reflection of collector bias than the role the areas played in native settlement/subsistence rounds?

4. How extensive was horticultural development during the Contact period? What impact did it have on the local environment? Is there evidence of site abandonment because of depletion of natural resources (i.e., soil exhaustion, clearing of woodlands)?
5. Determine the extent of settlement nucleation. Is there evidence of nucleated horticultural "villages"?
6. Delineation of the cultural/political boundaries present in the study region. Were they essentially the same as those existing in the early to mid 17th century? Were they as closely tied to river drainage systems as has traditionally been thought? How much a part did other natural features such as mountain ranges play in defining these boundaries?
7. Formulate a chronology for Contact period sites. Currently, there is not an established system that would permit an early 16th century site to be distinguished from one of the late 16th or early 17th centuries.
8. Generally, it is suspected that the region's native population underwent considerable growth during the Woodland period. Assuming this pattern continued in the Contact period, what effect did this population increase have on the existing social and political structure?

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Plantation Period (1630-1675)

A. Regional Events

The most important event which occurred during the Plantation period was the establishment of permanent European settlement, initially at Springfield in 1636 and then slowly spreading north through the middle portion of the Connecticut River Valley. By the end of the period, a series of lightly to moderately populated towns were scattered as far north as present Northfield and west to present Westfield. The mid 17th century also marked the end of Connecticut's political control over the lower study unit towns. The region's native population underwent considerable change during this period. Epidemics, especially during the early 1630s, resulted in the depopulation and abandonment of large areas. This, in turn, had considerable impact on the existing social and political structure. Entrance of the English into the middle Connecticut River Valley also marked the beginning of native involvement in the Anglo-Indian fur trade in the late 1630s. Despite these and other changes, the natives of the middle Connecticut River Valley maintained a semi-autonomous existence from the region's colonial population.

B. Core-Periphery Relationships

As in the Contact period, the floodplains of the Connecticut River Valley and its major tributaries remained the focal point for native settlement. A set of native core areas similar to those of the earlier period continued to operate during the Plantation period, although depopulation and pressure from the emerging colonial settlements caused them to shrink. An additional factor was increased native involvement in the fur trade, which resulted in the modification of traditional subsistence patterns as well as a growing dependence on European material goods.

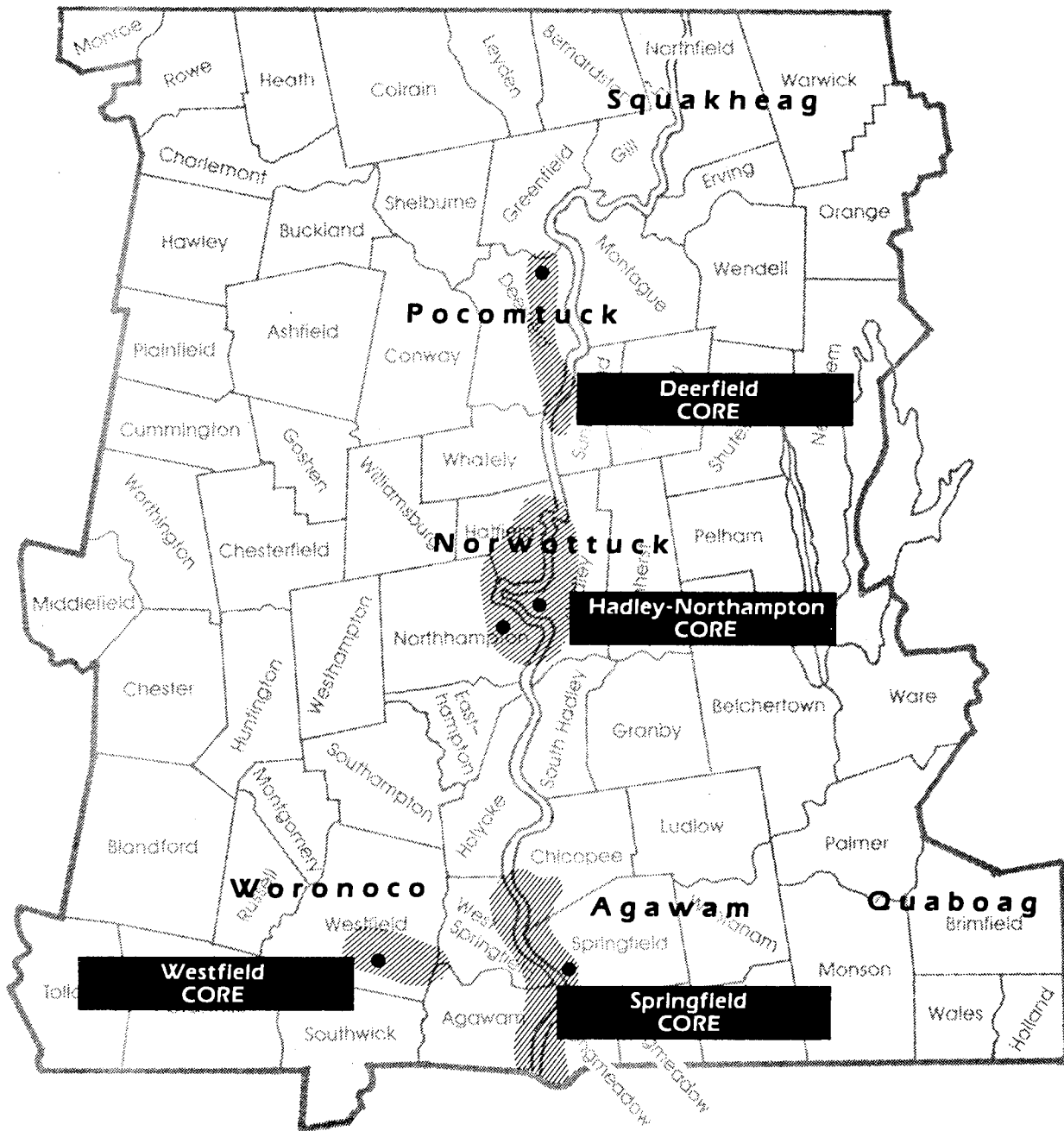
The southernmost of the six native regional cores was that of the Agawams. This encompassed the Connecticut River floodplains between Enfield Falls, Connecticut on the south and South Hadley on the north. See Map 5. At the time of initial colonial settlement the Agawam core was occupied by a large native population, particularly on the West Springfield and Agawam floodplains. A palisaded village was situated on the eastern side of the Connecticut River in Springfield.

The second native regional core dominated the mid portion of the Valley from South Hadley Falls to Sugarloaf Mountain and was the primary location of the Norwottucks (Temple and Sheldon 1875:25). Norwottuck territory is claimed to have extended nine miles east and west of the Connecticut River into the uplands of Hampshire County (Sylvester 1879:I, 173). The Norwottuck core along with that of the Agawams was probably the most heavily populated in the study unit; native settlement appears to have congregated in two villages, one on the Hadley peninsula and the other in Northampton. Other palisaded "forts" may have existed in North Hadley and either in Northampton or Easthampton.

The third native core, which extended from Sugarloaf Mountain in southern Deerfield to the confluence of the Connecticut and Millers rivers, was the homeland of the Pocumtucks. The dominant native group in the study unit during this period, the Pocumtucks played an important role in native inter-regional politics, joining a Mohawk-Narragansett alliance opposing the Mahicans and a later alliance of Abenaki, Mahican and Wappingers allied against the Mohawks. Pocumtuck political power was shattered late in the period by the Mohawks. The primary Pocumtuck settlement was situated in the Deerfield Valley in Deerfield. Reference is also made to a reputed fortified complex located on Deerfield's eastern bluffs (Sylvester 1879:II, 595).

The fourth, and northernmost, native core was that of the Squakheags. This core encompassed Northfield and the town's

Plantation Period Core Areas



● Settlement location

northern neighbors of Vernon, Vermont and Hinsdale, New Hampshire. Squakheag territory is claimed to have extended nine miles west of the Connecticut River, east to the head of the Millers River and north to the northern line of Vernon, Vermont (Temple and Sheldon 1875:29). The Squakheags, in contrast to the other native groups in the study unit, were more closely tied to the northern interior tribes and the French in Canada than to the coast. Squakheag settlement concentrated in two villages in Northfield--Vernon, New Hampshire and Hinsdale. The latter town was the site of a palisaded village apparently established ca. 1663 for protection from Mohawk forces.

The fifth native regional core was that of the Woronocos located west of the Agawam core on the Westfield River floodplain. Only one possible village site has been reported: a palisaded settlement located within the present boundaries of the city of Westfield (Byers and Rouse 1960:5). The Woronocos, as well as other native groups in the western part of the study unit, are known to have traded and hunted as far west as the Housatonic and Hudson river valleys (Thomas 1979:49).

The final native regional core was located in the southeastern corner of the study unit and in adjacent Worcester County. This was the home of the Quabaugs, a sub-group of the Nipmucs of central Massachusetts. Quabaug territory appeared to be roughly defined by the Chicopee River to the north and the Monson/Hampden line to the west. Their southern and eastern limits are unclear, but appear to have extended into northern Connecticut and the eastern borders of North and East Brookfield and Sturbridge. The sole major settlement complex in the study unit was "Ashquoach," a fortified village located north of Sherman Pond in Brimfield.

The other tributaries of the Connecticut River and upland portions of the study unit appear to have served as either secondary cores or as resource areas. By the end of the period, however, this core-periphery pattern had changed markedly. The regional cores

had contracted to only a fraction of their earlier size as a result of expanding colonial settlement, extensive population losses and native warfare. In the southern portion of the study unit, small residual regional cores survived in Springfield, Westfield, Brimfield and Northampton/Hadley. Conflict with the Mohawks during the 1660s had left the northern villages of Pocumtuck and Squakheag almost abandoned. While a handful of survivors remained, most relocated in the southern villages, New Hampshire and Canada.

During the Plantation period, two primary and two secondary regional cores were established by European colonists from both Massachusetts and Connecticut. See Map 5. Until the 1650s, colonial settlement in the study unit was confined to its southern portion, specifically between the confluence of the Connecticut and Chicopee rivers and the southern border of Longmeadow. Within this area the first colonial regional core developed out of the Springfield settlement of 1636. By mid-century, settlement had expanded from this focal point into the prime agricultural lands in what is now Longmeadow, Chicopee, West Springfield and Agawam.

In this period, Springfield established itself as the commercial, political and social hub of the study unit. As early as the late 1630s, agricultural produce, meat products and furs from Springfield were being shipped out from William Pynchon's Windsor, Connecticut warehouse to Boston (Thomas 1979:132). By the mid-17th century, Springfield had its own active trade contacts with Hartford and Boston. In addition, Springfield functioned as the primary distribution point for goods moving into or out of the mid and upper portions of the Connecticut River Valley and it quickly became the center of fur trade activities in the Valley. Secondary settlements in Longmeadow, Agawam, Chicopee and West Springfield also played crucial roles in the development of the Springfield core. These areas, particularly Agawam and West Springfield, rapidly established themselves as the breadbasket of the core, producing large quantities of grain and livestock, items eagerly sought by the settlements of eastern Massachusetts.

Beginning in the late 1650s or early 1660s, a small number of families from Dorchester, Massachusetts and Windsor, Connecticut settled along the fertile Westfield River floodplain. This resulted in the establishment of Westfield (1669), which served as a secondary regional core related to, but independent from, Springfield. As a secondary fur trading and agricultural center, its produce and furs were sent east to Springfield for transshipment.

By the late 1650s, colonial settlement had spread north from the Springfield core into the mid-section of the study unit. This resulted in the formation of the Northampton/Hadley regional core and the towns of Northampton (1656), Hadley (1661) and Hatfield (1670). Aside from the Springfield regional core, this area was the study unit's most important economic and political center. The extensive agricultural land of the mid-Valley quickly allowed this area to become a major agricultural producer in Massachusetts. Locally produced grain, flour, malt and pork were sent by cart and/or boat to Springfield, Hartford and Boston in exchange for goods or payment of taxes and debts. The importance of Northampton was underscored by its designation as a joint shire town along with Springfield after 1661.

Colonial occupation in the northern portion of the middle Connecticut River Valley did not begin until the early 1670s. Even then, it was sparse despite the agricultural potential of the Connecticut and Deerfield valleys and the absence of a substantial native population. Settlement was centered in the Deerfield area, the other secondary regional core, and the least developed of those in the study unit. Economic development was restricted to agricultural production, most of which occurred in the Deerfield Valley, and trade with the area's native population.

One additional settlement on the study unit's northern periphery was established near the end of the period: Northfield, a small agriculturally-based community. Although established in 1672, it did not become a stable permanent settlement until after 1714.

There appears to have been little or no use of the upland portion of the study unit by colonial settlers during the period.

C. Transportation

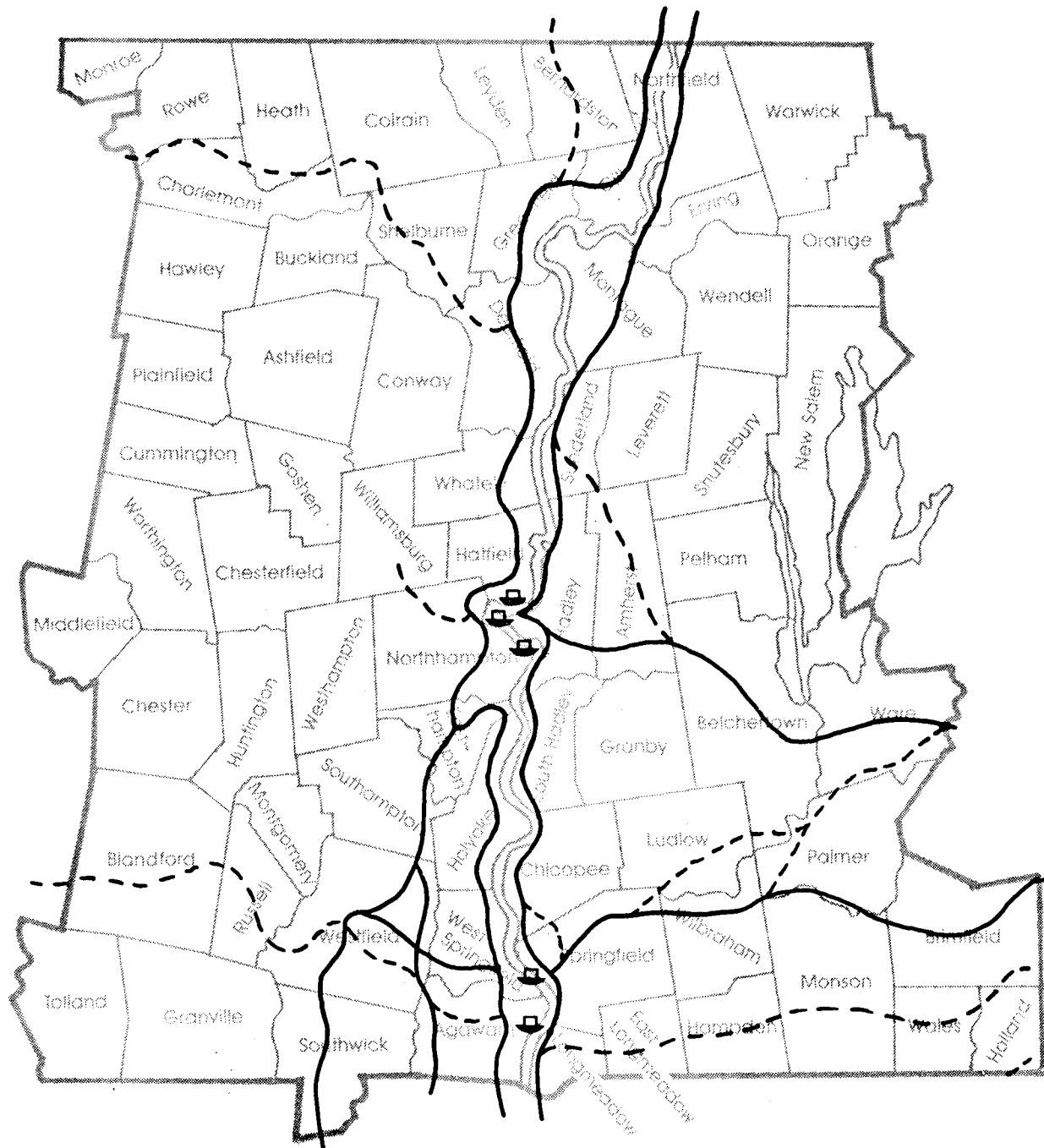
A combination of land and water routes was used for trade and travel during the Plantation period. The primary water route was the Connecticut River itself, which served as the major north-south corridor, especially for transporting materials. Portages by-passed the large falls in South Hadley and Greenfield. Springfield served as the primary distribution point for this upper portion of the river. Some secondary rivers, such as the Westfield, were also used for transportation. Most, however, had a limited use due to extensive falls and rapids.


Although the Connecticut River served as a main north-south route, it was an obstacle to east-west travel. As a result, ferries were established at an early date at two key crossing points: Hadley-Northampton (1658 and 1661) and Springfield (1662).

Land transportation routes developed in a variable manner during the period. In the riverine lowlands, especially in the south-east portion of the study unit, these routes became fairly well defined. In contrast, there was little or no penetration of upland areas, particularly on the west side of the river. In general, the road network was a practical adaptation of the pre-existing native trail system. Use of native routes as the template for colonial roads saved the settlers the substantial expenditure of time and resources which new construction would require. Improvement usually included the widening of trails for use as cart paths and the improvement of fords. With only one exception in Northampton (Manhan River, 1673) bridges remained too expensive for communities to build.

Land routes operated at three levels: as inter-regional connectors, as intra-regional connectors, and as local roads. Four major inter-regional routes connected the study unit with other parts of Massachusetts as well as areas up and down river. See Map 7. In general, these main routes were the same as those used during the Contact period.

Plantation Period Road Network



- Primary road
- - - Secondary road
-  Ferry

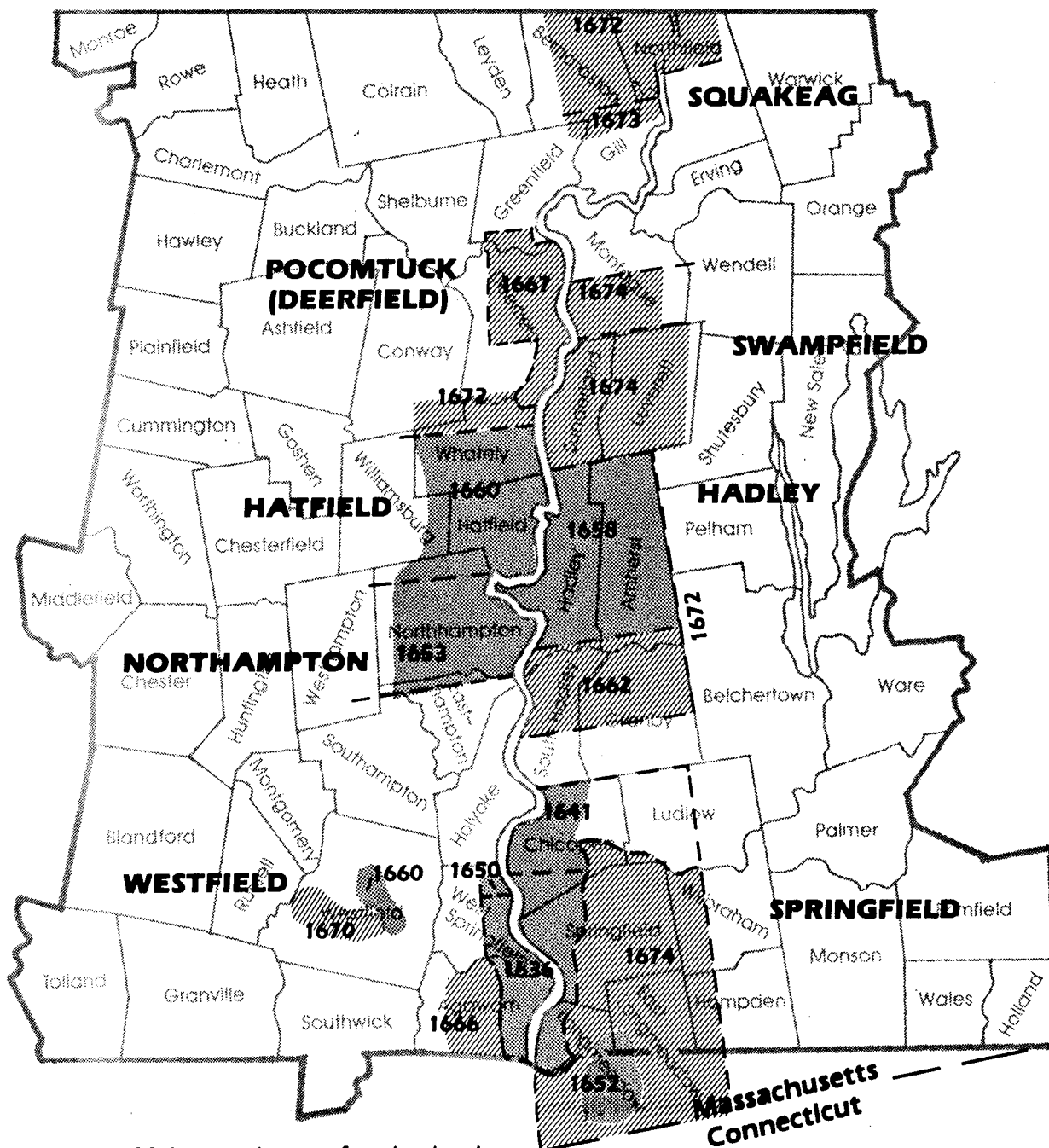
1. The first east-west route, known as the Bay Path, connected Boston and eastern Massachusetts with the southern portion of the study unit. From Brookfield it ran west through Brimfield, along the Chicopee River, and across the Springfield pine plains (Bay Street) to the river. On the west side of the river, the trail continued along the north bank of the Westfield River. West of Westfield, the route, though not clear, apparently continued as a trail across the Berkshire Highlands to the Housatonic and Hudson valleys.

2. The second east-west route, the Bay Road, linked the eastern portion of Massachusetts with Hadley and Northampton. This route followed the native trail west from Brookfield, fording the Ware and Swift rivers and crossing the highlands in Belchertown. It continued north around the Holyoke Range to the Hadley-Northampton and Hadley-Hatfield ferries. West of the Connecticut River, the trail apparently was used only as a local route along the Mill River.

3. The primary north-south route on the east side of the Connecticut River followed the native trail from Windsor Locks, Connecticut to Hinsdale, New Hampshire.

4. The primary north-south route on the west side of the Connecticut River linked Hartford, Connecticut with the plantation at Deerfield. The main route followed the native path from Agawam over the Westfield River and along the base of Mount Tom to the cartbridge across the Manhan River. From this point, the highway followed the river terrace to Northampton and Hatfield then continued north to Deerfield and Squakheag (Northfield), fording the Deerfield River at Cheapside. An alternate route followed from Suffield, Connecticut to Westfield and north to Northampton. A third alternate route ran along the river terrace in Agawam and West Springfield to the Holyoke falls and north around Mount Tom to the Manhan River.

Plantation Period Political Boundaries



(after Thomas 1979, Figure 9)

In addition to these primary routes, a series of secondary roads served as intra-regional connectors. These included alternates to the main routes, such as the Longmeadow Path, and connectors which cross-linked the major trails. Examples of the latter include the paths along the Ware and Chicopee rivers linking the Bay Path and Bay Road, and the branch of the Bay Road northwest to Swampfield (Sunderland).

Construction of local routes during the period was limited to planned streets within settlements and rangeways which ran along field division lines.

D. Settlement

Native settlement in the Plantation period appears to have followed patterns that began during the Contact period. The semi-permanent horticultural villages remained central to the native settlement system. These sites were situated near large tracts of agricultural land and often were surrounded by a wooden palisade or "fort", which is believed to have been a response to increased inter-native warfare. In the mid and upper portions of the Valley, the evidence indeed suggests that palisaded native villages were erected as a result of warfare with the Mohawks.

As during the Contact period, large seasonal camps were established each spring at major falls, such as at South Hadley and Turners Falls. As colonial settlement expanded, these seasonal fishing sites were used by both native and colonial fishermen. During the late fall and winter, some of the natives apparently moved from the large villages in the valley to smaller, seasonally occupied camps in the uplands.

The initial forms of colonial settlement in the study unit were individual homesteads and trading stations. Both pre-dated permanent settlement and were ephemeral in nature. Examples include the 1635 habitation in Agawam and the ca. 1640 trading station established in Westfield by the Connecticut colony.

The basic unit of permanent colonial settlement was the town plantation. Typically, these towns were a combination of the planned settlement and organic village. Although none of the period settlements exhibited the regular street grid and formal market of the planned town, most evidenced some planned development. Most common was a linear settlement pattern in which a series of adjoining house lots, generally five to ten acres in size, were situated on both sides of a central street. Examples of this street village plan include Springfield, Longmeadow and Hadley. In some cases topographic constraints altered this pattern. For example, in Westfield and Northampton, the combination of river confluences and trail junctions resulted in a more organic settlement pattern.

Both of these settlement forms were generally centered around a meetinghouse. The meetinghouse functioned as the focus of local religious, civic and social activities. The town center was also likely to contain additional town and special use facilities such as an animal pound (Springfield), schoolhouse (Hadley), jail (Springfield), tavern (Westfield) and milling complexes (Northampton, Springfield). As Anglo-Indian tensions increased during the period, several communities established defensive structures such as a system of garrison houses or a palisade for family and/or community protection.

Surrounding these settlements were scattered farms and large tracts of common land owned by the town. The latter were gradually distributed to individual resident families for use as planting grounds, grazing and timber land and settlement. These lots were generally dispersed throughout the town, reflecting a continuation of the three-field holding system which had been used in England since the Middle Ages.

E. Survivals

Plantation period survivals consist of three basic types: archaeological resources, landscape features and standing structures.

1. Archaeological resources include both native and colonial sites. The latter, which include domestic, commercial, industrial and military sites, are probably the most prevalent of period survivors. Although frequently inconspicuous, archaeological sites are particularly important in the Connecticut River Valley study unit because of the virtual absence of period standing structures. These sites can not only provide valuable data concerning architectural details of long demolished structures, but also illuminate a variety of other aspects of the region's settlements, such as socio-economic distinctions, foodways and trade networks. Despite a substantial amount of development in the middle Connecticut Valley in the last ten to fifteen years, the region still has considerable archaeological potential.

Sites are especially likely to have survived in less intensively developed communities such as Hadley, Hatfield, Deerfield and Westfield. Even in more densely settled areas such as Northampton and Springfield, sites may remain. As a result, archaeological considerations should always be addressed when major subsurface work is done in the vicinity of a known Plantation period center.

2. Landscape features include not only features associated with native occupation, but also those of the colonial population. Among these are: period roads, field division lines or ditches, burial grounds, boundary markers and place names. These features combined with contemporary documents, archaeological sites and structures can serve as valuable resources for reconstruction of the community's original settlement focus and land use patterns.

Surviving period roads indicate slightly different features in core areas than in the periphery. In the former, extant roads frequently reflect the original town plan. In the periphery, these roads survive as remnants of field division lines or of overland routes extending from the settlement core to smaller hamlets or scattered farmsteads. Particularly prominent examples

remain in Springfield, Westfield, Northampton and Deerfield. Field division lines survive as part of the road system and also as stone walls or other boundary markers. Along with the meetinghouse, the burial ground was usually the first communal facility established in colonial settlements. All but one of the original period burial grounds survive (Springfield's was destroyed in the 19th century by railroad construction). None of the six sites, however, contain recognizable pre-1676 markers, probably a consequence of using wooden grave markers. Extant period place names indicate a variety of features, including settlement areas such as Springfield and Northampton, agricultural lands such as North and South Meadows (Deerfield) and Great Meadow (Northfield), transportation routes like Bay and Aqua Vitae Roads (Hadley) and natural features such as Sugarloaf Mountain (Deerfield) and Entry Dingle Brook (Springfield).

3. Standing structures are least likely to survive from the Plantation period. At present, there are no known extant period structures. Their total absence from the study unit is largely due to the extensive destruction colonial settlements suffered during the Indian Wars of the late 17th and early 18th centuries. Additional numbers were lost through natural attrition and the extensive commercial and industrial development of the 19th and the early 20th centuries. Careful research and examination, however, may result in the discovery of isolated vestiges of period structures incorporated into later buildings.

The following list provides a basic review of period survivals within the Connecticut River Valley study unit.

<u>Period Core Areas (listed by current towns)</u>	<u>Archaeological Sites</u>	<u>Landscape Features</u>
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A. Native Regional Core Areas

1. Agawam

Longmeadow	X	?
Agawam	X	?
Springfield	X	?
West Springfield	?	
Chicopee	?	?

2. Woronoco

Westfield	X	?
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3. Quabaug

Brimfield	X	?
Holland	?	

4. Norwottuck

South Hadley	?	?
Hadley	X	X
Northampton	X	X
Sunderland (South)	X	?
Hatfield	X	?
Whately	?	

5. Pocumtuck

Deerfield	X	?
Sunderland (North)	?	
Montague	?	
Greenfield	?	
Gill	X	?

6. Squakheag

Northfield	X	X
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B. Secondary Native Core Areas

1. Chicopee/Quabaug/Ware

Chicopee	?	?
Ludlow	?	?
Palmer	X	X
Ware	X	?

<u>Period Core Areas (listed by current towns)</u>	<u>Archaeological Sites</u>	<u>Landscape Features</u>
2. <u>Deerfield River</u>		
Shelburne	X	X
Buckland	X	
Charlemont	X	X
3. <u>Millers River</u>		
Montague	?	X
Orange	?	?
4. <u>Swift River Valley</u>		
Ware	?	
New Salem	X	X
C. Colonial Regional Core Areas		
1. <u>Springfield</u>		
Longmeadow	X	?
Agawam	?	X
Springfield	?	X
West Springfield	?	?
Chicopee	?	
2. <u>Westfield</u>		
Westfield	X	X
3. <u>Northampton/Hadley</u>		
Northampton	?	X
Hadley	X	X
Hatfield	X	X
4. <u>Deerfield</u>		
Deerfield	X	X
Sunderland	?	X

F. Research Topics

Several aspects of the study unit's development remain to be studied. Among them are:

1. Clarify the impact of early 1630s epidemics on the region's native population. Were there others that followed? Were population losses uniform among unit native groups or did some emerge more intact than others? What effect did the losses have on intra-regional and inter-regional political relationships?
2. Examine the Pocumtucks' political relationship with the other middle Connecticut River Valley natives. Was this a true, formalized tributary relationship or was it informal?
3. Determine the cultural origins of the study unit natives. Had they been long-term occupants of this region or recently displaced refugees from eastern New York and northern New England, as implied by some sources?
4. Define the physical and functional manifestations of the native "palisaded" village present during this period. Were these palisades placed around village sites in a fashion similar to those noted in 16th and 17th century Iroquois villages or were they palisaded "forts" built near the settlement and only used as a temporary refuge?
5. Detail the economic and social/political connections the northern and western colonial settlements (e.g., Deerfield, Northfield, Westfield) had with the study unit centers of Springfield and Northampton/Hadley. Existing secondary sources provide only limited insight into these ties.
6. Undertake a detailed examination of the region's colonial settlements' trade ties with eastern Massachusetts, particularly Boston, and the lower Connecticut River settlements of Windsor, Hartford and New Haven.

7. Examine the fur trading post established by Connecticut in Westfield in the early 1640s. How extensive was the operation? Was trade confined primarily to the Woronocos or were the post's connections more far reaching?

8. Initiate a survey to document known and suspected native and colonial archaeological sites of the period. The project should include a listing of pertinent private collections. Establishment of such an inventory is important in light of the attrition of archaeological sites through both natural forces and new development.

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Colonial Period (1675-1775)

A. Regional Events

The Colonial period was characterized by widespread Anglo-Indian warfare and colonial settlement of the interior uplands. The period commenced with the outbreak of King Philip's War (1675-1676). Although brief, this conflict had a devastating impact on both the native and colonial populations. During the fighting, several colonial settlements were abandoned and destroyed. Post-war recovery was hindered both by substantial property losses and war debts incurred. For the native population, King Philip's War marked the end of village-size settlement within the study unit. Most of the survivors left the Connecticut River Valley for either Canada or western Massachusetts. Termination of King Philip's War brought only a brief respite in Anglo-Indian warfare. Fresh outbreaks of fighting occurred in the late 1680s and continued intermittently until the early 1760s. These later Indian wars were a major factor in discouraging colonial settlement in the more exposed northern portion of the study unit until the second half of the 18th century.

During the first half of the 18th century, Massachusetts resolved boundary disputes with both Connecticut (1713) and New Hampshire (1740), resulting in the establishment of the southern and northern study unit borders. Numerous land grants, both public and private, spurred interest in upland settlement during the 1730s and resulted in the formation of many new towns after mid-century. Coinciding with this was a religious and social phenomenon known as the "Great Awakening" which had a considerable impact within the study unit. Growing irritation with what was considered Crown interference in local affairs escalated to open defiance of royal statutes toward the end of the period and helped lead toward revolution.

B. Core-Periphery Relationships

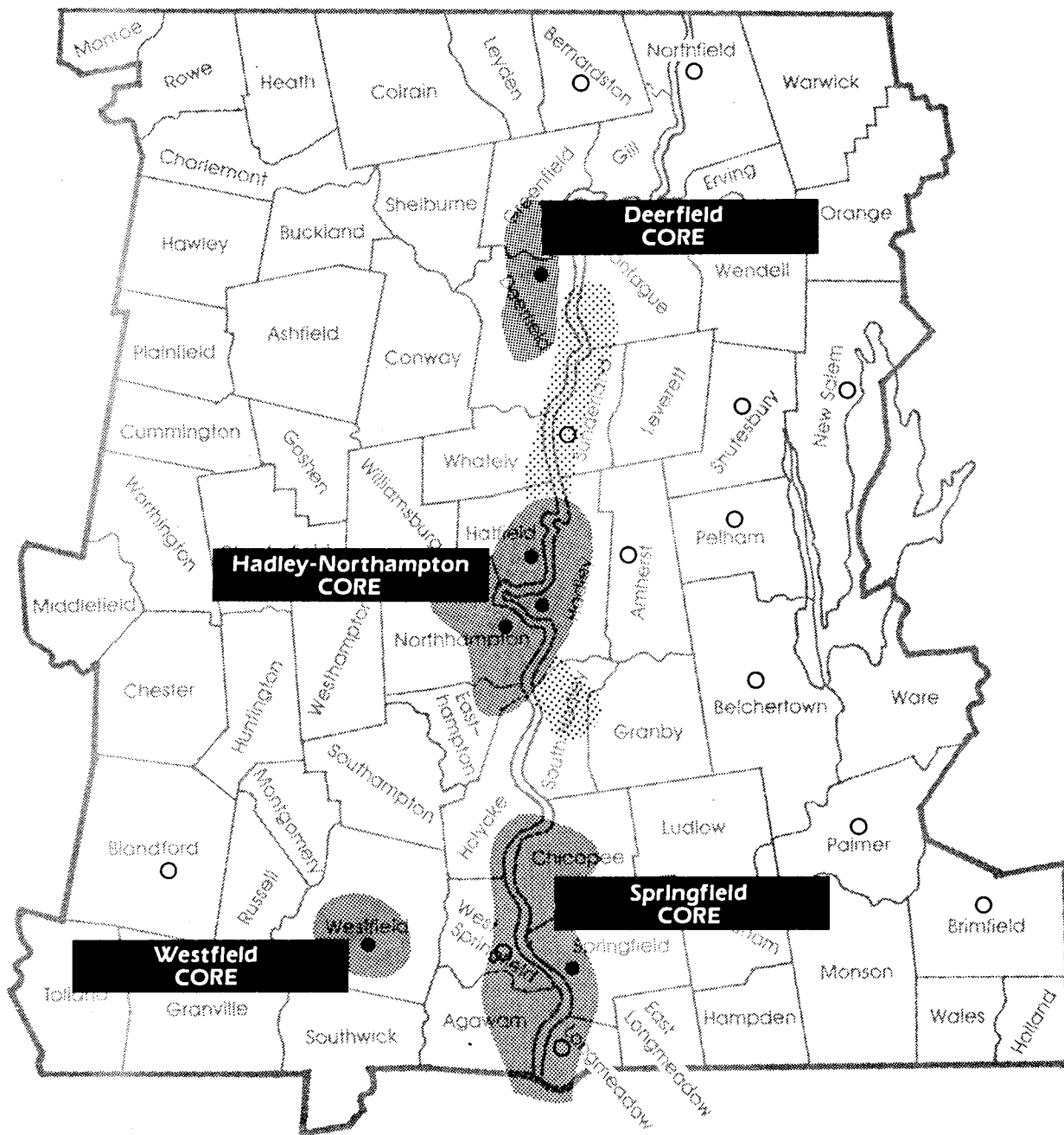
Native settlement underwent drastic changes during the Colonial period. All of the region's major native villages were abandoned at the outset of King Philip's War, and for a brief period during the conflict, two native regional cores were established by hostile native forces in the northern portion of the Connecticut River Valley. The first was a large encampment, apparently consisting primarily of Pocumtucks and Squakheags, in Northfield. The second core was located further south and encompassed several large camps in Greenfield, Deerfield, and Montague. One secondary source estimated that these two cores and a third in Athol were occupied by as many as 2,500 natives (Temple and Sheldon 1875:94). These settlement complexes were abandoned and destroyed in 1676.

The settlement that followed was even more limited and transitory. A small, probably seasonal, camp was maintained by displaced Squakheags on the Connecticut River lowlands in Whately in the late 17th and early 18th centuries. A second camp consisting of a Quabaug fishing camp was situated at Ware River Falls (Ware) into the 18th century. Small bands, single families and individuals located scattered encampments in more secluded sites in Agawam, Springfield, Palmer, South Hadley, Worthington and Montague. In general, this remnant native population survived through fishing, hunting, sale of native products and employment as laborers. The most indigent natives resorted to begging in colonial settlements.

Colonial settlement during the period was marked by expansion of the four Plantation period regional cores and the gradual emergence of many new local cores, especially in previously unsettled upland portions of the study unit.

The southern portion of the Valley continued to be dominated by the Springfield regional core. Initially, growth was slowed by the extensive losses suffered during King Philip's War; however, by the early 18th century, settlement had begun to expand beyond the Connecticut River floodplain into western Agawam, West Springfield, and

Colonial Period Core Areas (ca. 1740)



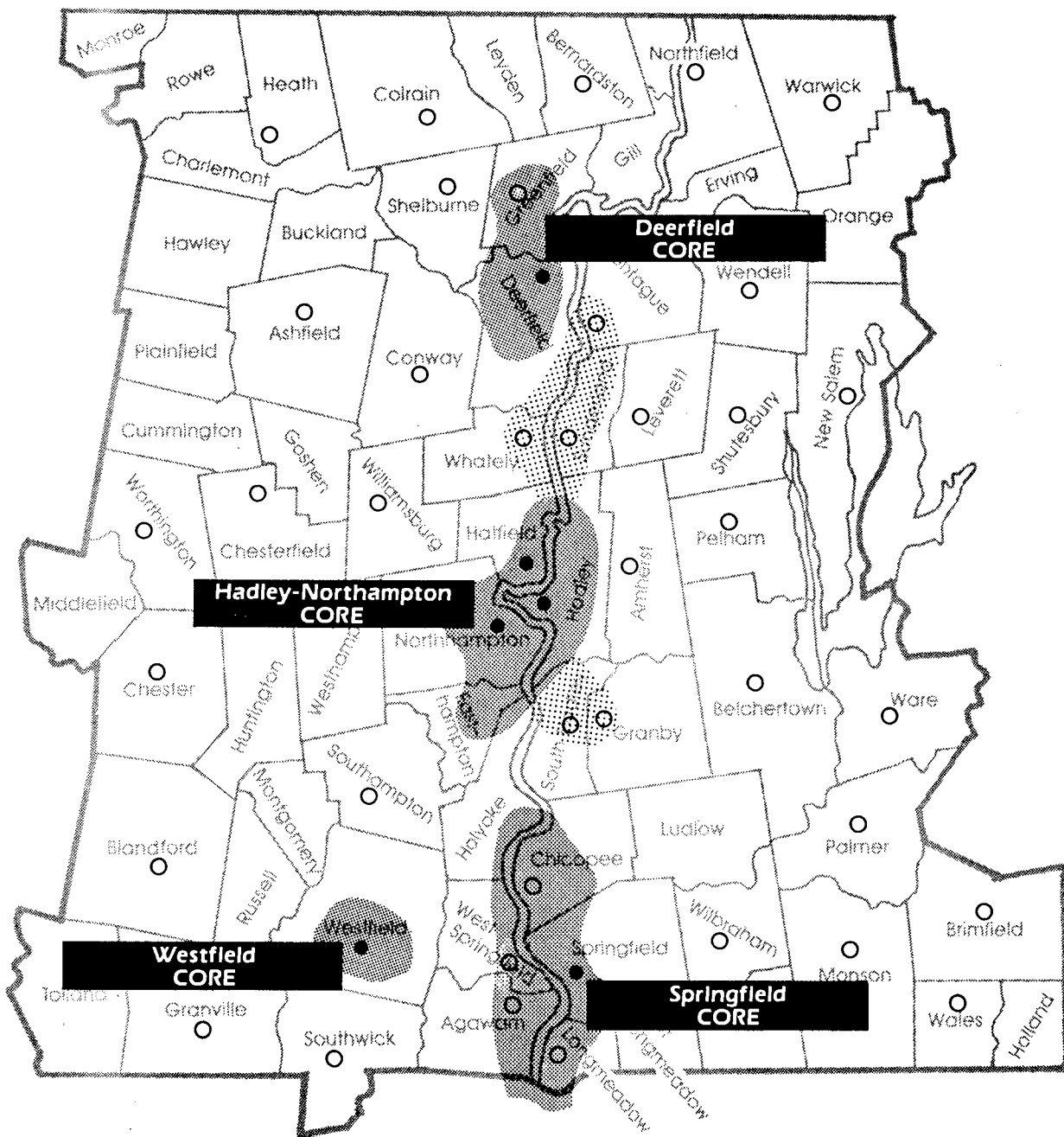
Holyoke as well as northern and eastern Chicopee. See Maps 8 and 9. As in the Plantation period, Springfield remained the study unit's leading commercial center. Livestock, meat and other agricultural products from both local farms and those of many upper Valley settlements were funneled through Springfield before moving on to the communities of eastern Massachusetts or other markets. In 1723, old Hampshire County's first formal courthouse was erected in Springfield, reflecting the town's political importance.





Industrial development in the Springfield core remained modest through the period and was focused primarily on milling for local consumption. By the end of the period, a few specialty operations had begun, including a paper mill (ca. 1775) in Springfield, a brickyard (ca. 1760) in Longmeadow, and a combined pottery manufactory and rum distillery (ca. 1775) in West Springfield.

To the west of Springfield the smaller Westfield regional core underwent considerable growth during the period. In contrast to Springfield, this area suffered only moderate damage during King Philip's War. By the early 18th century, settlement had extended into northwestern and southwestern Westfield and Southwick. By 1765, Westfield's population (including Southwick) consisted of 1,323 residents, the second largest total in the study unit. With the collapse of the fur trade after King Philip's War, economic development shifted to agricultural production and light industry. Agricultural produce and livestock were transported to commercial centers such as Springfield and Hartford in return for manufactured and processed goods. Industrial growth during the period consisted of the establishment of a number of light industrial operations. Most impressive was a complex of powder mills (as many as five operating simultaneously) established in Southwick prior to 1775 and a related powder keg production facility constructed in Westfield about 1764.

By the end of the 17th century, increased demand for land and fairly stable frontier conditions resulted in the establishment of settlements in the uplands on either side of the Connecticut River

Colonial Period Core Areas (ca. 1775)

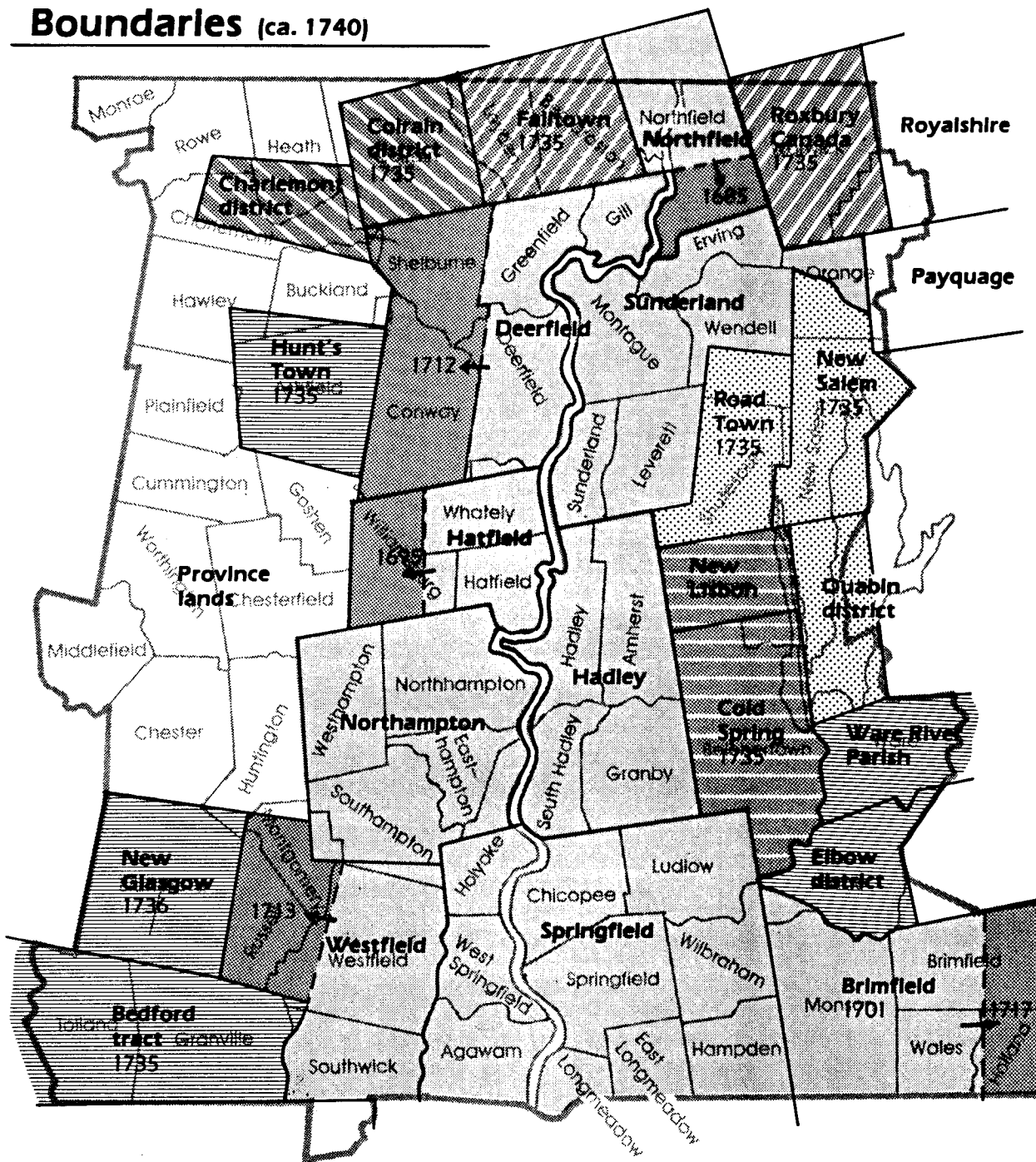






-  Regional core
-  Emerging core area
-  Major town center
-  Local core




Valley. See Map 10. The first such town, Brimfield (1701), was located on the main road between Springfield and Boston. Development on the western side of the Valley was slower and occurred primarily through private land grants. In some cases, permanent settlement was built by a specific ethnic group such as the Scots-Irish, who established New Glasgow (now Blandford) in 1736. Final resolution of Indian hostilities in 1763 resulted in rapid growth throughout the southern portion of the study unit and the incorporation of several new towns. See Map 11.

The most extensive development during the Colonial period took place across the middle of the study unit and focused on the Northampton/Hadley regional core. All three towns (Northampton, Hadley and Hatfield) suffered serious damage during King Philip's War and spent most of their efforts prior to 1700 rebuilding and refortifying. During the early decades of the 18th century, new settlement expanded north and south along both sides of the river. While most of this new settlement was agricultural, secondary milling centers developed in North Hadley and along the Manhan River (now Easthampton). See Map 8. Northampton remained the dominant town in the mid-Valley. Like Springfield, it was located at the junction of several major transportation routes, and as new towns were established further north and west, Northampton's importance as a distribution center grew. In addition, Northampton and its smaller neighbors Hadley and Hatfield controlled some of the best agricultural land in the colony and were major exporters of livestock, salted beef and other agricultural products to Boston and many other markets. Most of the resulting wealth accumulated in a small number of families like those of John Stoddard and Israel Williams, and under these "River Gods," Northampton rivaled Springfield as the center of wealth and power in the Valley. The attempt to establish a "Queen's College" in the Hatfield/Northampton area indicates the level of social aspiration operating within this core area by the mid-18th century. By the end of the period, settlement from the Northampton/Hadley core had spread along the river north into Deerfield and Sunderland and south to new local cores near the falls in South Hadley and in Granby.

Colonial Period Political Boundaries (ca. 1740)



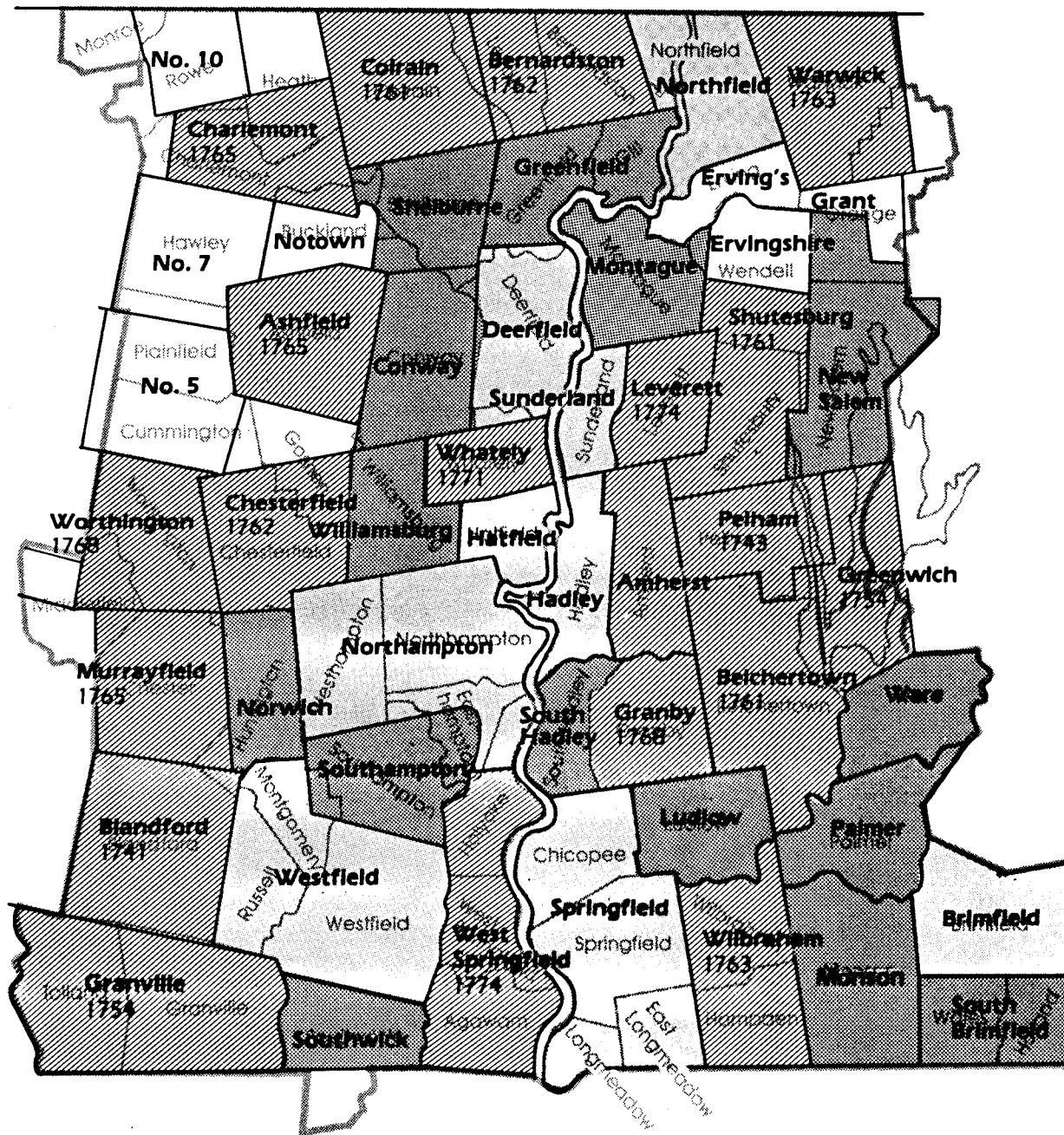
 Towns established prior to 1710
 New grants to existing towns
 Private grant towns
 Boston grant towns


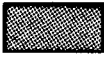

 Equivalent grant towns
 Veteran grant towns
 Other

While the Northampton/Hadley core itself grew rapidly during the Colonial period, it was also the staging area for much new settlement in the adjacent uplands. As in the lower Valley, unstable frontier conditions had impeded the establishment of new communities throughout the early decades of the 18th century. However, during the 1730s large tracts were granted both to private developers and provincially sponsored groups to encourage settlement there. See Map 10. Frequently, the core group in these new frontier communities was composed either of Scots-Irish immigrants or religious dissenters such as Baptists, Quakers or disaffected New Lights. On the more secure eastern side of the Valley, town formation proceeded quickly, with districts and towns established on a fairly regular basis from 1730 to the end of the period. On the western side of the Valley, few towns were started until the threat of frontier warfare diminished in 1763. See Maps 10 and 11. Economically, these new towns were based primarily on agriculture and grazing, plus lumbering and the collection of turpentine and other naval stores.

The northern portion of the study unit, which was most exposed to French and Indian raiders from Canada, remained in a state of flux throughout the last quarter of the 17th century and well into the 18th. King Philip's War left both Deerfield and the smaller settlement at Squakheag (Northfield) devastated and abandoned. The subsequent reoccupation of these towns was short-lived since both were attacked and severely damaged a second time, Northfield in 1690 and Deerfield in 1704. Not until the Treaty of Utrecht (1713) were conditions stable enough for settlement to expand. Deerfield remained the most important town in the upper part of the Valley; like Northampton, its growth was based both on agriculture and commerce. The town's location allowed it to control the flow of lumber and farm products from the frontier towns north and west as well as to be the regional distribution center for manufactured and luxury goods. During the 1740s, Deerfield also served as the primary supply depot for the region's military forts. By mid-century, the Deerfield core encompassed most of the lower Deerfield River Valley and extended north into what is now Greenfield. See Map 8. This steady expansion continued until the end of the period.

Colonial Period Political Boundaries (ca. 1775)



-  Towns incorporated between 1740 and 1774
-  Towns created by General Act in 1775
-  Unincorporated district

Outside of Deerfield, conditions remained too volatile for permanent settlement until the early 18th century. Once again, land grants were used to encourage the establishment of new communities. In 1744 a series of fortifications was begun along the newly established northern border in an attempt to insure protection. By the mid-18th century, the northwest part of the study unit was the focus for new settlement, and by the end of the period over a dozen new towns were established. See Maps 10 and 11.

C. Transportation

During the Colonial period, the overland transportation system expanded dramatically. This was particularly evident in the northern and western parts of the study unit as new settlement spread throughout the highlands after 1730.

Five primary corridors functioned as inter-regional connectors linking the towns in the Valley to Boston, Hartford and other centers outside of the study unit. In general, these primary routes were expanded versions of the earlier Plantation period roads. Typical 18th century improvements included widening to accommodate wagon and coach traffic and the construction of bridges at most major fords. Two of these corridors ran north-south, the other three east-west. See Map 12.

1. The first corridor was the traditional north-south route along the east side of the Connecticut River from Windsor Locks, Connecticut through Springfield, Hadley, Sunderland and Northfield.

2. The second corridor was the equivalent north-south route on the west side of the river. Branches ran from Simsbury and Suffield, Connecticut through Westfield, Northampton, Deerfield and on toward Brattleboro, Vermont.

3. Third was the most southern of the east-west routes. Traditionally known as the Bay Path, this route was improved considerably during the early 18th century. After 1720 it was also called the Boston Post Road. Coming from southern Worcester County, it ran through Brimfield to Springfield. On the west side of the river, it continued as the Old Post Road (1735) west to the Housatonic Valley.

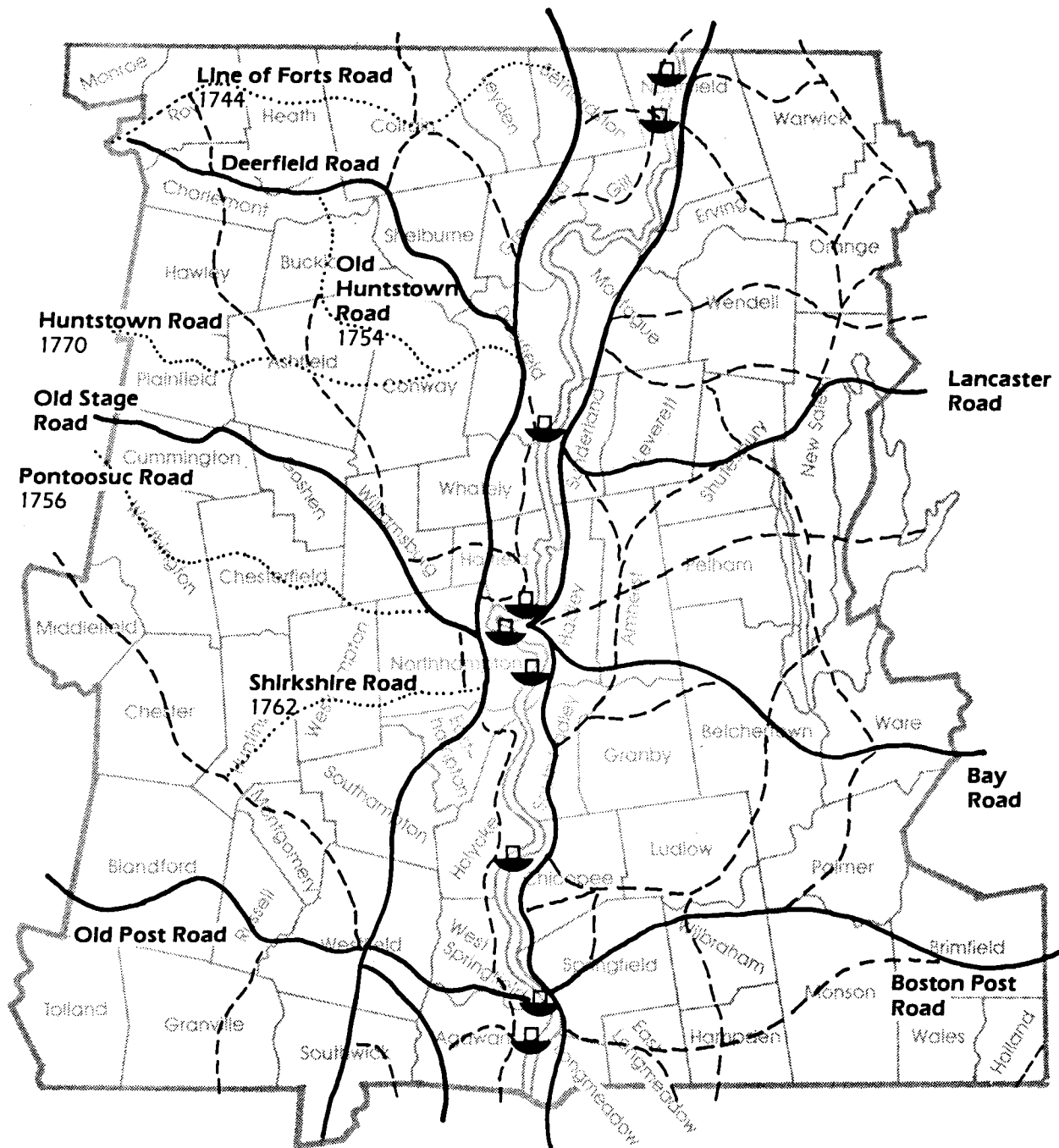
4. Fourth was the east-west corridor through the central portion of the Valley. Known as the Bay Road, it ran from Worcester and Brookfield through Ware and Belchertown to Hadley. From Northampton the main road west, after 1758, was the Old Stage Road which traveled up over the Berkshire highlands toward Pittsfield.

5. The final east-west corridor crossed the northern part of the Valley. The eastern section, called the Lancaster Road (1735), west through Shutesbury and Leverett to the ferry crossing in Sunderland. On the west side of the river, the Deerfield Road (1754) ran along the Deerfield River and west to Fort Massachusetts (now North Adams).

In addition to these inter-regional corridors, many other roads built during the period served as intra-regional connectors. In general, these cartways connected new communities with the established regional core areas. One particular group of these roads deserves special mention. These were military-related roads built primarily in the northwestern portion of the study unit between 1740 and 1770. See Map 12.

Finally, there was considerable road building on the local level during the Colonial period. Roads were predominately of two sorts. First were radial roads designed to tie outlying areas with the meetinghouse and town center. The second category were lot division roads which ran along property boundaries, often forming a grid pattern. Most of these roads date between 1730 and 1750. Good examples survive in Amherst, Chester, Granby and Tolland.

Colonial Period Road Network



- Primary road
- - - Secondary road
- Military-related road
- 🚢 Ferry

D. Settlement

The study unit's communities exhibited several settlement forms during the Colonial period. The most highly developed form occurred in Springfield. Although Springfield could not be classified as an urban community, it did develop specialized districts. These included a small civic district consisting of a meetinghouse, county courthouse and jail, all centrally located on Main Street, the town's primary thoroughfare. This district, with the rest of the town's central core, was enclosed within a palisade erected in the late 1670s for protection against further native attack. Springfield also had a small waterfront shipping district located west of the Main Street which underwent considerable expansion during the Colonial period. Both Northampton and Westfield also began to increase in diversity and density, but not to the same extent as Springfield.

Outside of the large towns, settlement generally took one of two forms. First was the linear street village, in which the community was spread out along one major thoroughfare or Main Street. Usually the meetinghouse was centrally located on the street with residences, a tavern and a few retail or commercial buildings strung out on either side. Often a palisade or a system of garrison houses was built to provide protection. Deerfield, Hadley and Longmeadow typified this form of settlement (see Fairbank and Trent 1982, 1:30 for other examples). As these towns grew during the mid 18th century, new streets were often laid out parallel to the Main Street and cross streets were established to connect them.

The second form of settlement which occurred, particularly in rural upland areas, was characterized by a dispersed town center. In this case, only the meetinghouse and perhaps a few houses were set in the town's geographical center. The rest of the occupants were dispersed throughout the town. Once again, a series of garrison houses or forts were usually established to provide a refuge in case of attack. To some degree the pattern of land division which characterized many of the upland towns appears to have encouraged

dispersed settlement. Towns with this type of settlement pattern include Pelham, Chester, Worthington and Ashfield.

One unusual variation in settlement pattern occurred in Ware. This differed from the others not in form, but in the landholding policy of its proprietor, John Read. Until his death in 1749, the community was run along the lines of an "English manor." Property was leased rather than sold to individual settlers, and the lease was retained as long as the settler met the stipulations of the contract.

E. Survivals

Colonial period survivals fall into four general categories. These are: archaeological remains, landscape features, town streetscapes and rural landscapes.

1. Significant archaeological remains are likely to survive in many parts of the study unit, ranging from period core areas like Springfield and Northampton to thinly settled upland areas such as Blandford, Ware and Leyden. Potential is particularly high in Hadley, Hatfield, Deerfield and Northfield, where later development has been less intensive.

2. Landscape features include period roads, burial grounds, training fields, commons, fortifications and meetinghouse sites.

3. 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.

4. 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 setting.

Period Core Areas (listed by contemporary towns)	Archaeological Sites	Landscape Features	Town Streetscapes	Rural Landscapes
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Springfield Regional Core

Springfield	?	?		
Chicopee		?		?
West Springfield	?	?		
Agawam		?	?	
Longmeadow	X	X	?	

Northampton/Hadley Regional Core

Northampton	X	?	?	
Hatfield	X	X	X	?
Hadley	X	X	X	X
South Hadley	?	X		?
Granby		?		?
Sunderland	?	X		
Whately		X		?
Montague		?		X

Westfield Regional Core

Westfield	X	X	?	?
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Deerfield Regional Core

Deerfield	X	X	X	X
Greenfield	?	?		X

Rural Periphery (east)

Brimfield	X	X		?
Monson	?	?		?
Wilbraham		X	?	?
Ludlow	?	X		X
Palmer	X	X		?
Ware	?	?		
Belchertown	?	X		X
New Salem	?	X		

Period Core Areas (listed by contemporary towns)	Archaeological Sites	Landscape Features	Town Streetscapes	Rural Landscapes
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Amherst	?	X	?	X
Pelham	?	X		X
Leverett	?	?		
Shutesbury	?	?		
Warwick	?	?		
Northfield	X	X	?	?

Rural Periphery (west)

Southwick	?			
Granville	?	X	?	
Blandford	X	X		
Southampton	?	X	?	X
Chester	?	X		
Worthington	?	X		?
Chesterfield	?	X	?	?
Huntington	?	?		
Williamsburg	?	X		?
Conway	?	X		?
Ashfield	?	X		?
Shelburne	X	X		X
Rowe	?	?		
Heath	?			?
Charlemont	?	X		?
Colrain	?	?		?
Leyden	?	X		?
Bernardston	X	X	?	X
Gill	?	?		?
Buckland	?	X		?

F. Research Topics

In spite of an extensive literature on the Colonial period in the Connecticut River Valley, numerous topics remain to be researched. Among these are:

1. What were the economic ties between the regional core areas and major centers outside the study unit such as Boston, Newport or Hartford? To what extent do these economic ties reflect social connections?
2. To what extent did groups migrating into the study unit from eastern Massachusetts, Connecticut or Rhode Island bring discernable architectural, technological or other material traits with them?
3. What role did upland communities play in the economy of the larger Valley towns like Northampton and Deerfield? Were upland resources such as timber, turpentine, pine tar and potash collected primarily for sale in the regional and international markets or for local consumption?
4. Why did a dispersed pattern of settlement persist in many upland communities when this form of settlement was especially vulnerable to native attack?
5. How much control did Boston exert (politically, socially, and economically) over the subdivision of Commonwealth land and the process of town formation?
6. Investigate the archaeological potential of the house sites of the "River Gods" (for example, Colonel Israel Williams in Deerfield). How did high status and social power translate into material terms?

7. Conduct a survey of abandoned town centers from the period and establish priorities for archaeological potential and preservation.
8. Clarify native settlement and subsistence patterns. To what extent were traditional patterns retained, particularly after the disruption of King Philip's War and the extensive colonial settlement of the 18th century?

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Federal Period (1775-1830)

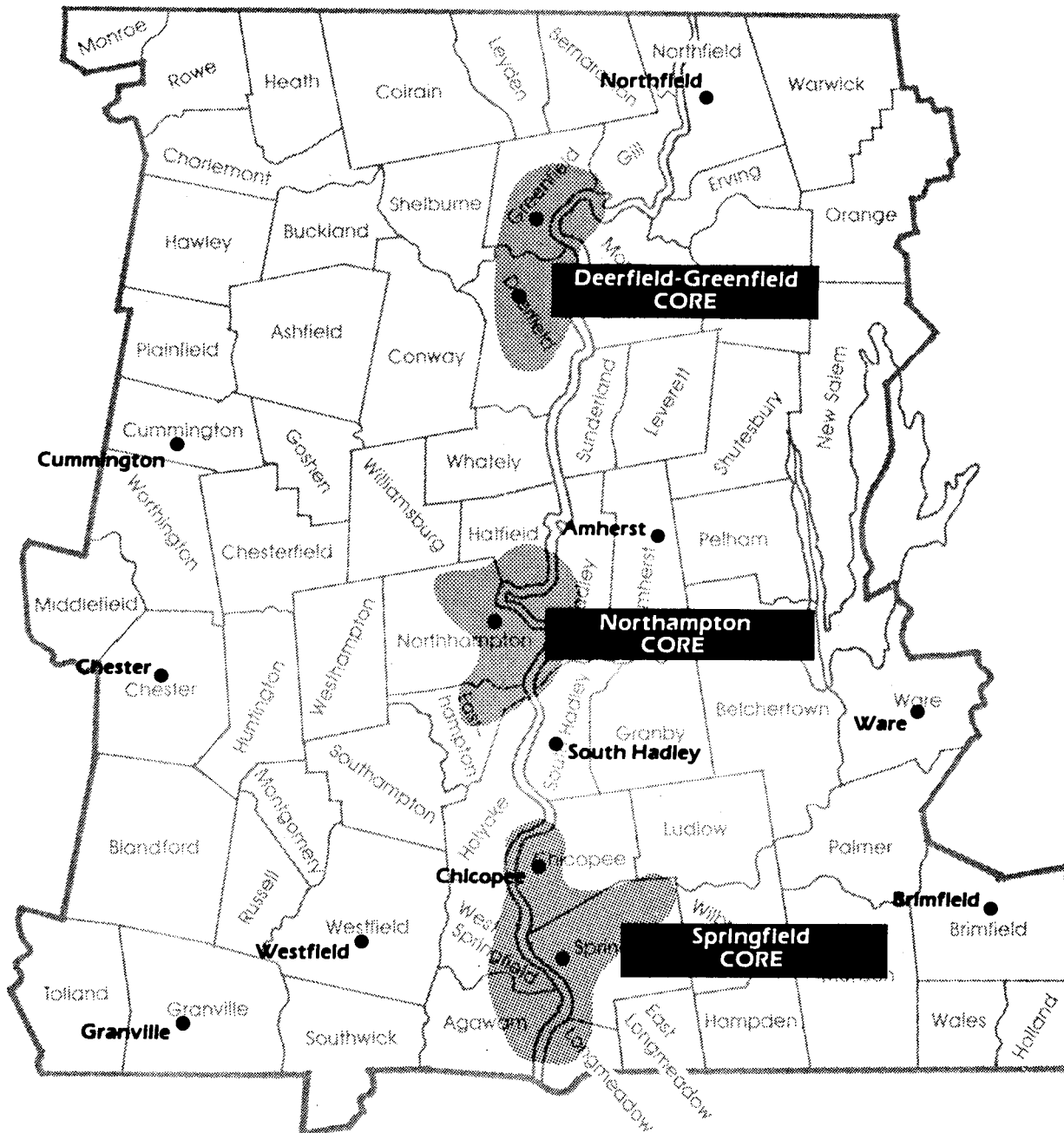
A. Regional Events

The American Revolution created a climate of political and economic instability, yet there was little military activity in the Connecticut River Valley study unit. Post-war inflation, however, created severe discontent, especially in many of the new upland towns, and led to the outbreak of Shays' Rebellion in Springfield (1786). The post-Revolution period was also marked by a gradual return to prosperity and a shift in economic activities. These included changes in agriculture, such as an emphasis on butter, cheese and other specialty products, the introduction of new crops, like broom corn, and the beginning of industrial development. Transportation innovations included the construction of canals around falls in South Hadley and Montague (1795) as well as the building of several new turnpikes beginning in 1799. Other important events were the establishment of the Federal Arsenal in Springfield (1794) and the formation of Hampden and Franklin counties in 1812. The Jefferson Embargo (1807) and War of 1812 spurred industrial development, particularly in textiles. By the end of the period, mills were operating in several towns and one planned industrial community, Cabotville (1824), had been built.

B. Core-Periphery Relationships

During the Federal period, the Connecticut River Valley was the fastest growing region in the state. Between 1775 and 1830, population in the three counties increased at a rate of more than 150 percent. The river towns remained the dominant regional cores, their growth augmented by increased commercial and industrial development. See Map 13. By the end of the period a few towns, particularly Springfield, began to take on urban characteristics. Continued expansion and consolidation of settlement in upland areas also characterized the period. By 1830, however, many of the hill towns had developed secondary centers on tributary rivers or streams which could be utilized for milling.

Federal Period Core Areas



● Local core

■ Regional core

The Springfield regional core continued to dominate the lower portion of the Valley (Hampden County after 1812). While the most rapid growth in population early in the period had occurred in hill towns such as Chester, Blandford and Granville, after 1790 Springfield took the lead. Much of Springfield's growth was generated by the establishment of the U. S. Arsenal in 1794. The Arsenal acted as a magnet and drew considerable mechanical and inventive talent to the Springfield area. By the early 19th century, secondary manufacturing complexes were established within the Springfield regional core. Among these were Chicopee Falls and Cabotville and, by the end of the period, Jencksville (Ludlow). These milling centers produced textiles as well as machinery and other iron products. The manufacturing potential of the Chicopee River was a major factor in reorienting the Springfield core away from agriculture and toward industrial development. Within Springfield itself, there was considerable growth and the gradual emergence of defined districts. These included a district civic and commercial center focused around the Hampden County Court House and new meetinghouse (1819), adjacent but separate residential areas, and industrial complexes such as the Watershops.

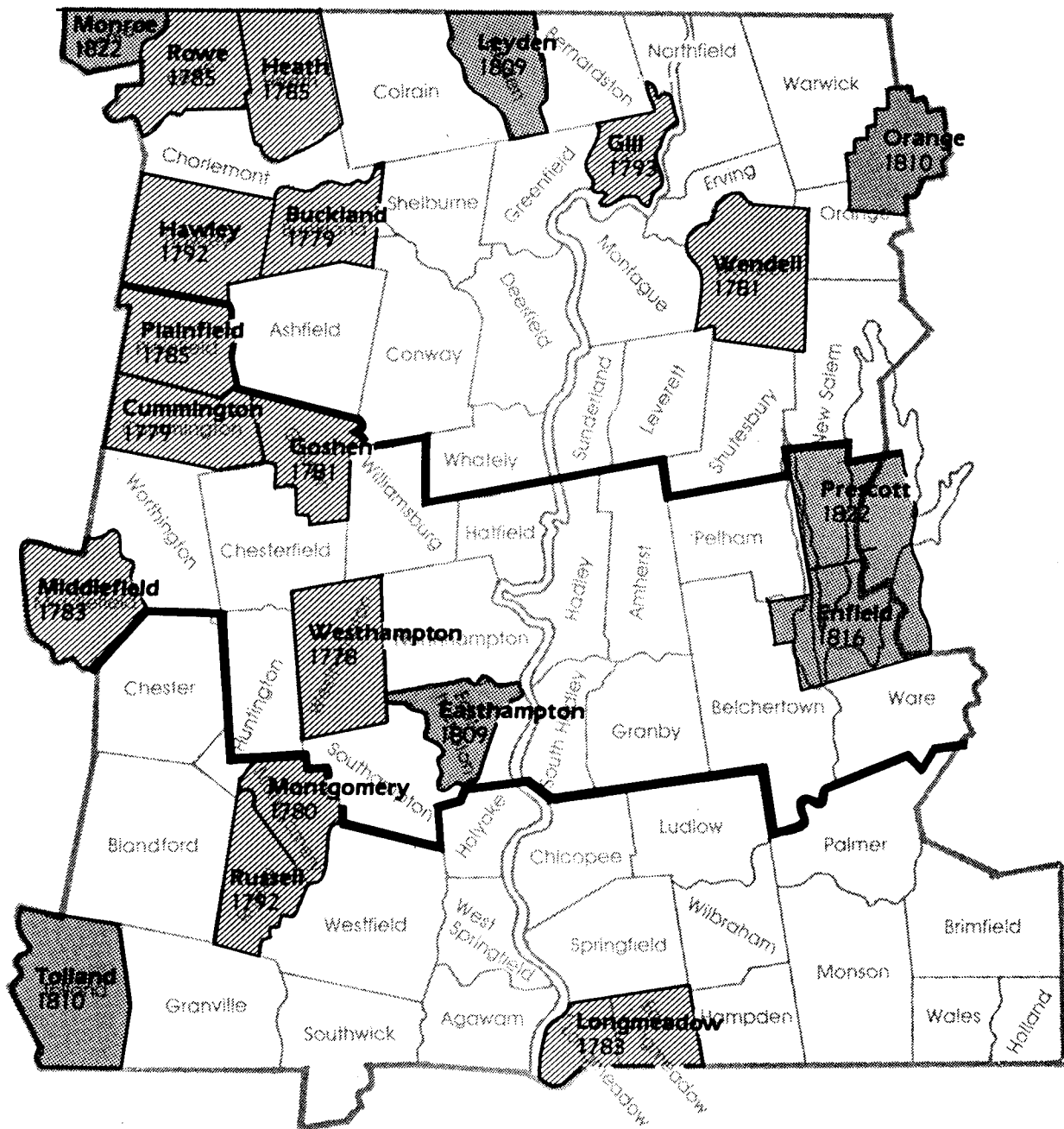
Outside of the Springfield core, several important local cores developed throughout Hampden County. These communities were usually based on a particular agricultural, industrial or transportation-related activity. Brimfield, for example, was primarily a transportation village. While agriculture and some textile manufacture also occurred, the hotels and taverns serving the Post Road gave the town focus and prosperity. Chester and Granville typified local cores with an agricultural base. In each case, however, a specialty product such as tanned hides (Chester) or butter and cheese (Granville) tended to dominate. In a few instances, small-scale manufacturing was a major component in the local economic base. Monson (textiles) and Westfield (whips) are examples. Westfield was perhaps the largest and most complex of these local cores. In addition to manufacturing, it remained an agricultural center as well as a focal point for transportation. Completion of the lower section of the Hampshire

and Hampden Canal (ca. 1825) caused a surge of growth late in the period.

The Northampton core remained the center of activity in the middle portion of the Valley (Hampshire County after 1812). There was considerable upheaval in this section during the last quarter of the 18th century; the demise of the "River Gods," the post-Revolution depression and Shays' Rebellion all were factors in reshaping both the social and economic base of this core area. A revival of agricultural prosperity by the late 1790s and the beginning of successful manufacturing after 1800 provided a basis for renewed growth. Northampton itself grew rapidly during the rest of the period, at twice the rate of the county as a whole. The town retained both its traditional role as county seat after redefinition of Hampshire County (1812) and as the center of the county's thriving economy. Like Springfield, Northampton began to take on a more urban character with defined civic, commercial and residential areas. The town also gained a reputation as a center for architectural innovation, especially after construction of the fourth meetinghouse in 1810 (Asher Benjamin/Isaac Damon). The changes in the shape of the core area (see Map 13) reflect the increased importance of manufacturing. Milling was focused in two areas: along the Mill River (especially at Leeds), and along the Manhan River (the new town of Easthampton after 1810).

The economic prosperity of the early 19th century was reflected in the emergence of several strong local cores outside of Northampton. Like the local cores in Hampden County, these towns were usually based on one particular activity. South Hadley, like Brimfield, was transportation oriented, although its taverns and shops were focused toward canal rather than road traffic. Cummington and Belchertown were based both on agriculture, especially raising cattle and sheep, and the processing of hides and wool. Ware exemplified a kind of change which occurred in many upland towns by the end of the period. While the original, dispersed town center was retained, a new center was built around the textile mills on the Ware River. Amherst, like Westfield, had a different and somewhat more complex

Federal Period Political Boundaries



base than the other local cores. Located at a natural convergence point in the road network, the town had a diversified economic base which included both agriculture and manufacturing (wood products, paper and carriages). The establishment of Amherst College (1821) was also a key factor in the creation of an identity separate from Northampton.

During the Federal period, the upper portion of the study unit (Franklin County after 1812) was the fastest growing region, not only in the Connecticut River Valley, but in the entire state. Much of this growth, however, turned out to be ephemeral, especially in the hill towns. The primary regional core contained both Deerfield and Greenfield but its center, originally in Deerfield, shifted to Greenfield after 1790. Completion of the South Hadley Canal in 1795 opened the upper portion of the Connecticut River to navigation and boosted Greenfield's role as the commercial center for the upper Valley. Designation as county seat in 1812 further enhanced Greenfield's development.

With its strong and prosperous agricultural base, Deerfield still remained an important component of the regional core. The establishment of Deerfield Academy (1797) was a reflection of the town's affluence and self-awareness. Additional economic components of the Deerfield-Greenfield core included the Cheapside district in Deerfield, the canal around Turners Falls and the related village at Montague City (1802).

Outside of Deerfield and Greenfield, there was only one other durable local core. Northfield, like Deerfield, was a prosperous agricultural town and close enough to the river to be an active commercial center. Beyond the Valley, and particularly on the western side, several of the hill towns underwent a mayfly-like burst of development. It was towns like Colrain, Heath and Conway that gave Franklin County the fastest growth rate in the state. The increase, however, was transitory, and by the end of the period

many of these same towns were in decline. The reason why was well summarized by a mid 19th century writer; these towns

" . . . [have] been a great tavern house, where fathers and sons have rested a few years on their way from the 'lower towns' to the West; and, if the whole household did not go on, the sons were sure to proceed, except the youngest, perhaps, who remained to inherit a worn-out farm, and the worn-out parents." (Holland 1855:45).

C. Transportation

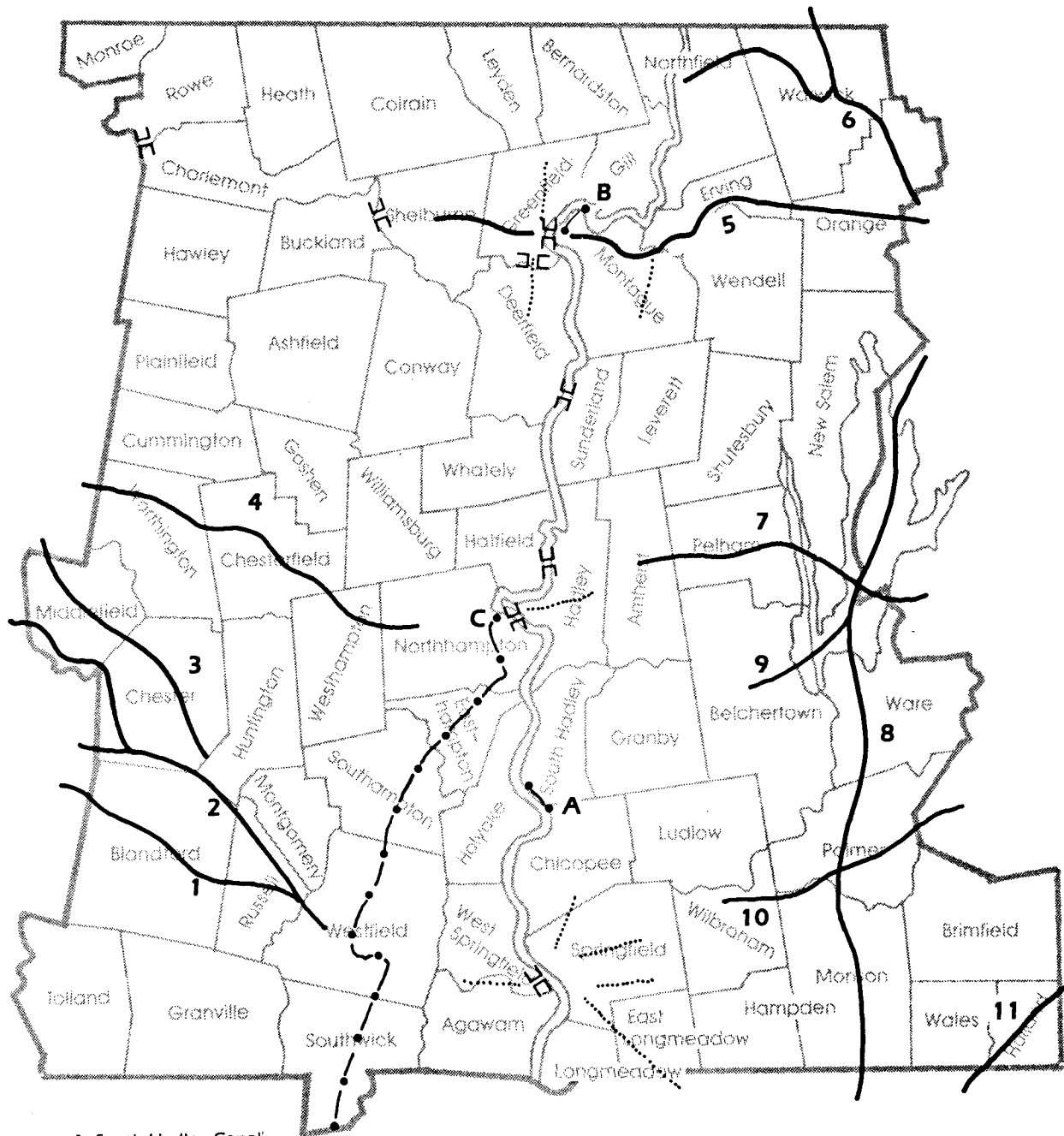
After the American Revolution, considerable effort was made to improve the basic transportation systems in the Connecticut River Valley. While the Colonial period road network continued to be used, three new techniques--canals, toll bridges, and turnpikes--were employed to upgrade and redefine the existing corridors. See Map 15.

Canals were used to bypass the major falls on the Connecticut River at South Hadley (built 1795, improved 1805) and Turners Falls (1792-1798). This extended the range of navigation and enhanced the river's function as the primary north-south conveyor of freight and raw materials. A secondary canal corridor was also begun during the period. Extending from Farmington, Connecticut through Westfield to Northampton, this canal was not financially successful.

Just as canals enhanced north-south transportation on the Connecticut River, the construction of toll bridges dramatically improved the east-west corridors across the river. Between 1790 and 1805 a series of new bridges were built to replace the earlier ferries between Springfield and West Springfield, Northampton and Hadley, and Greenfield and Montague City. Several important bridges were also constructed across the Deerfield River.

Turnpikes were the major transportation innovation of the Federal period. Modelled after English precedents and earlier American

Federal Period Turnpikes, Canals and Toll Bridges



A. South Hadley Canal
B. Montague Canal
C. Hampshire & Hampden Canal

..... Access road —•— Canal
—— Turnpike ⊞ Toll Bridge

1. Hampden & Berkshire Turnpike (1826)
2. 8th Massachusetts Turnpike (1800)
3. Chester Turnpike (1803)
4. 3rd Massachusetts Turnpike (1800)
5. 14th Massachusetts Turnpike (1802)
6. 5th Massachusetts Turnpike (1799)

7. 6th Massachusetts Turnpike (1799)
8. Petersham & Monson Turnpike (1804)
9. Belchertown & Greenwich Turnpike (1803)
10. 1st Massachusetts Turnpike (1799)
11. Worcester & Stafford Turnpike (1806)

examples such as the Lancaster Pike (1792), turnpikes were constructed in Massachusetts at the end of the 18th century. Between 1799 and 1830, at least eleven turnpikes were built in the study unit under the auspices of private companies chartered by the state. See Map 15. Unlike the earlier Colonial roads which tended to follow the topographic grain, turnpikes usually cut directly across the landscape, often producing precipitous grade in rugged upland areas. Engineering problems of this sort as well as the general overproliferation of turnpikes caused several of the companies to fail before the end of the period.

D. Settlement

The renewed economic prosperity of the Federal period caused both accelerated growth and change in the structure of settlements within the study unit. In general, the tendency was for settlement to be increasingly well defined and centralized.

By the end of the period, two communities--Springfield and Northampton--began to take on urban characteristics. In Springfield, the establishment of the United States Arsenal and the aggregation of related industries resulted in a period of rapid growth. Outside of the Arsenal itself, however, there appears to have been little planned development. The primary massing of county and town institutions as well as taverns and commercial buildings occurred around Court Square. On either side, residential neighborhoods developed, but apparently in an organic rather than planned manner. While much happened in Springfield during this period, the details of the town's physical evolution are poorly understood.

In Northampton, a similar pattern occurred. County and town institutional buildings were clustered around a Court Square which anchored one end of the commercial Main Street. During the period, the scale and density of commercial architecture increased with three-story granite structures built by 1826. As in Springfield, residential development was organic, not planned, and fringe districts of shops,

wharves and warehouses began to develop along the waterfront.

While both Springfield and Northampton began to reach an urban scale of diversity and density by the end of the Federal period, at least two other towns were moving in the same direction. Although neither Greenfield nor Westfield grew as quickly or to the same size as the two semi-urban cores, both had major spurts of growth. By the end of the period, these towns had an established business district, a complex of prominent local and/or county institutional buildings and residential neighborhoods.

Within local cores, settlement tended to take three forms. The first was nucleated, a somewhat more centralized version of the Colonial period dispersed town center. Towns that developed in this manner were usually focused around a green or training field. Residential and commercial buildings surrounded this open space, as did the meetinghouse, school and other institutional buildings. In more prosperous communities this often included an academy as well. Among the older towns which evolved in this form were Longmeadow, Belchertown, Granby and Blandford. A few of the new towns established during the period, such as Wendell and Tolland, also followed this pattern.

The second form was linear. As in the linear towns of the Colonial period, settlement occurred on a single main thoroughfare. Several of the older towns, like Deerfield and Northfield, remained linear in form during the Federal period, although the density of buildings increased. Other newer towns, like Monson and Heath, were also developed in a linear form.

The third form was dispersed settlement, in towns in which no real center emerged. This occurred most often in upland rural areas; Montgomery, Hawley and Monroe are examples.

In addition to the three settlement forms, two processes of adjustment caused major changes in Federal period local cores. One

of these was the distribution of population. In many of the late Colonial period towns, the meetinghouse was arbitrarily set at the geographic center of the town. Often this proved an impractical location and, during the Federal period, several towns such as Shelburne and Charlemont moved their meetinghouses to the population center. Thus, the civic center and commercial center of the town remained one and the same. A different process took place in other towns; when new milling or manufacturing facilities created population centers away from the traditional center, the meetinghouse was not always moved to the new location. In communities like Ware and Ludlow, the civic center remained separate from the new commercial center.

The final form of settlement which was typical of the Federal period was the small village. Villages usually grew up around industrial or transportation centers. The first were mill villages--a collection of worker houses and supporting commercial and/or institutional buildings set around a mill. Examples include Bondsville (Palmer) and Leeds (Northampton). Villages also grew up around a turnpike (or other major road), especially at junctions or natural resting places. Generally, these latter villages were focused around a tavern or hotel and other transit-related services. Worthington Corners and North Orange are examples.

E. Survivals

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

1. Important archaeological remains include obsolete town centers, industrial/milling complexes, and locations with high site potential due either to period importance 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 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.

Period Core Areas (listed by towns)	Archaeological Sites	Rural Landscape	Turnpike or Industrial Village	Town Streetscape	Urban Streetscape
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Springfield Regional Core

Springfield	X		?		?
Chicopee	X		X	?	
Longmeadow				X	
West Springfield				?	
Agawam		X		X	

Northampton Regional Core

Northampton	?	?		?	
Hadley	?	X	X	X	
Hatfield	?				
Easthampton		X			

Deerfield-Greenfield Regional Core

Deerfield	?	X	X	X	
Greenfield	?	X	X	?	
Montague	?		X	X	

Local Core Areas

Westfield	?	X	X	?	
Granville	?	?	X	X	
Chester	?	?	?	X	
Cummington	?	?		X	
Northfield	?	X	X	?	
Amherst		X	X		
South Hadley	?	?		?	
Belchertown		X		?	
Ware	?	?		?	
Brimfield	?	?		?	
Monson		X			

Period Core Areas (listed by towns)	Archaeological Sites	Rural Landscape	Turnpike or Industrial Village	Town Streetscape	Urban Streetscape
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Rural Periphery (east)

Wales				X	
Palmer	?		?		
Hampden		X		X	
Wilbraham		?		?	
Ludlow	?	?		?	
Granby		X		X	
Shutesbury		X		X	
New Salem			X	?	
Sunderland			X	?	
Wendell		?		?	
Orange	?	?		X	
Warwick		X		X	

Rural Periphery (west)

Southwick		X		?	
Tolland		?		X	
Blandford		?		X	
Goshen		?		?	
Montgomery		?		X	
Southampton		X		X	
Westhampton		X		X	
Huntington			?	?	
Middlefield		X		X	
Chesterfield		?		?	
Williamsburg		?		?	
Whately		?		X	
Conway		X		?	
Ashfield		?	X	?	
Plainfield	?	?		X	
Hawley		X			
Buckland		X		X	
Shelburne	?	X			
Rowe		X		?	
Heath		?		?	
Colrain		?	X	?	
Leyden		X			
Bernardston		?	?		
Gill		?		?	

F. Research Questions

1. What role did religious sects, especially Quakers and Baptists, play in the diffusion and dissemination of innovative industrial technology?
2. What were the influences on the Connecticut River Valley of the Lowell model for industrialization as opposed to the Rhode Island model in the Federal period?
3. What were the social, cultural and economic factors that encouraged the construction of academies in Federal period towns?
4. Compare and contrast Asher Benjamin's and Isaac Damon's roles as architectural innovators. Was Damon the "core" architect and Benjamin the architect for the "periphery?"
5. What was the role of small craft industries, such as broom making, in the post-Revolutionary economy of the region?
6. Clarify Springfield's development during the Federal period, especially the impact of the Arsenal on the physical evolution of the town.
7. To what extent was the use of brick as a building material an indicator of status during the period? An indicator of industrialization?
8. How was the social and cultural fabric of the mid-Valley re-structured after the American Revolution, especially as a result of the collapse of the "River Gods"?

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Early Industrial Period (1830-1870)

A. Regional Events

The fundamental dynamic of the Early Industrial period was the rapid acceleration of industrial development. This process was moderated by periodic economic fluctuations (the Panics of 1837, 1848 and 1857) and greatly stimulated by the American Civil War (1861-1865). Major factors in promoting industrial development included the introduction of railroads and the creation of a viable inter-regional rail network; the beginning of large-scale immigration, particularly from Ireland, French Canada and Germany; and the advent of large, planned industrial communities, such as Holyoke (1850) and Turners Falls (1868), capitalized by investors from Boston, New York and other sources outside of the study unit. Important agricultural changes included the diffusion of tobacco cultivation throughout the Connecticut River Valley and the emergence of specialized dairy farming in upland areas. Industrialization also fostered cultural innovations, notably the appearance of trained architects such as William Pratt in Northampton (1835) and H. H. Richardson in Springfield (1866), and the establishment of regionally important educational institutions including Mount Holyoke Female Seminary in South Hadley (1837) and the Clarke School for the Deaf in Northampton (1865).

B. Core-Periphery Relationships

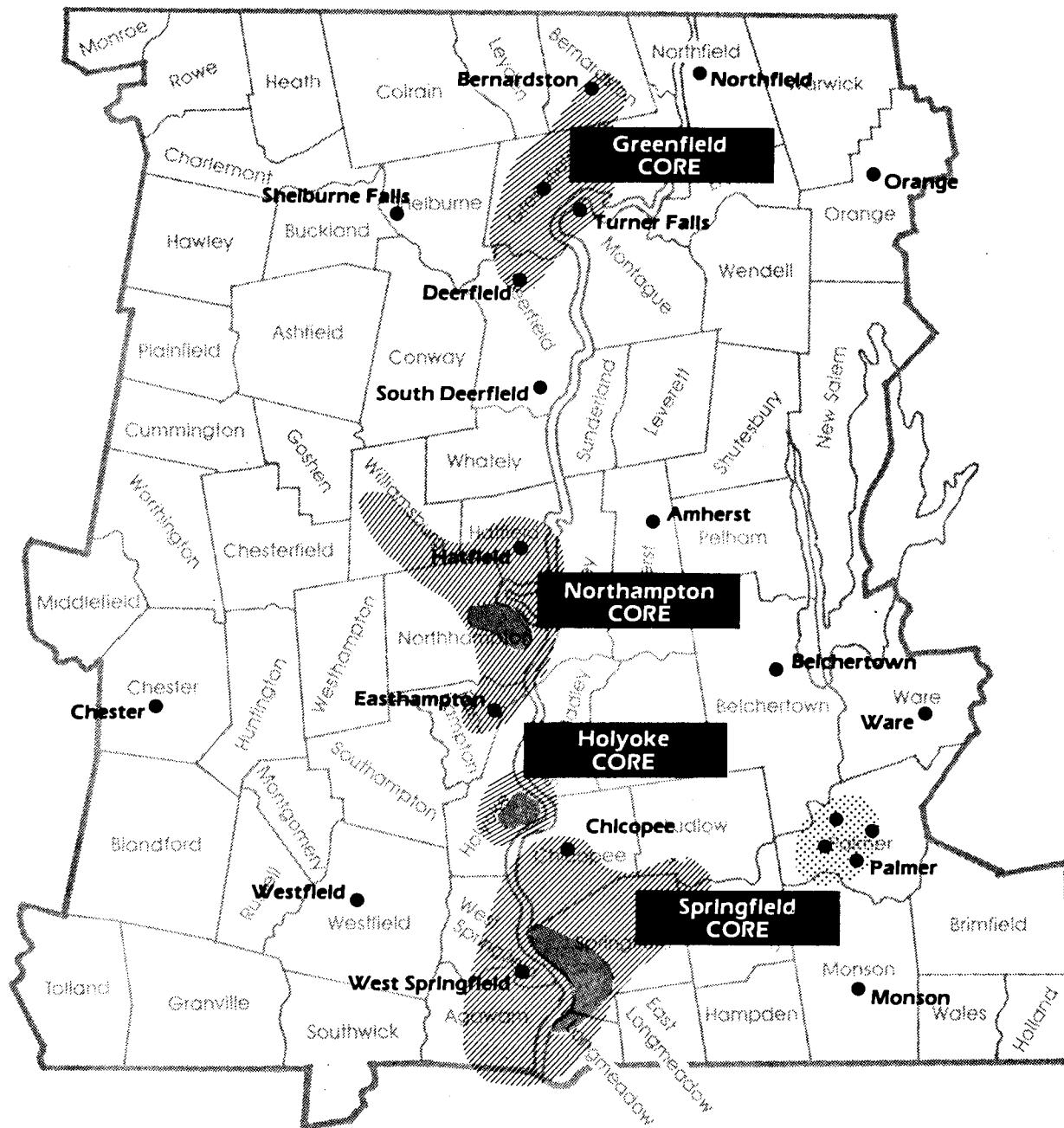
During the Early Industrial period, population in the Connecticut River Valley study unit continued to grow, but at a slower rate than during the Federal period. More dramatic was the shift in population. The sharp loss of population which had begun in the hill towns of Hampshire and Franklin counties late in the Federal period became epidemic between 1830 and 1870. Hampshire County's overall growth rate fell from a Federal period rate of 149% to 47%, while Franklin County's plummeted from 188% to 10%, the lowest rate of growth in the state. Only Hampden County with its solid industrial base in Springfield, Chicopee and Holyoke increased its rate of growth.

The industrialization of many of the river towns not only drew people out of the uplands, but also attracted sizeable immigrant populations, especially Irish and French Canadians. The first wave of Irish immigrants came in 1839 with the construction of the Western Railroad. French Canadians came primarily during the last decade of the period, drawn by jobs in the large textile mills. With the increase in population and a booming economic base, the large river towns rapidly grew in size, density and complexity. See Map 16. By the end of the period, several of these towns were approaching or had achieved an urban scale.

The Springfield regional core continued to dominate the lower portion of the Valley and to be the largest and most populous core in the study unit. Springfield itself incorporated as a city in 1852, and quickly grew to be a city of national rank and reputation. There were two factors in Springfield's rapid development. One was the railroad. Located at the intersection of the region's primary east-west and north-south lines, Springfield soon emerged as the region's most important rail junction. See Map 17. This advantageous location not only attracted new industry but enhanced Springfield's reputation as the regional center for commerce and distribution of merchandise as well. The second factor in Springfield's growth was the United States Armory. Although the Armory had been a key component of the city's economic base since its establishment in 1794, the loss of Harper's Ferry to Confederate forces in 1861 made Springfield the primary supplier of arms for the Union Army. With its diverse and booming industrial base, Springfield offered numerous opportunities for both employment and new business enterprises. As a result, the city had one of the fastest growing and most ethnically diverse populations in the Valley.

Springfield's influence extended well beyond the city limits during the period. See Map 16. Within this regional core were the tobacco lands and market gardens of West Springfield and Agawam (established 1855), secondary manufacturing centers such as Indian Orchard and Mittineague, and an affluent suburban neighborhood in

Early Industrial Period Core Areas



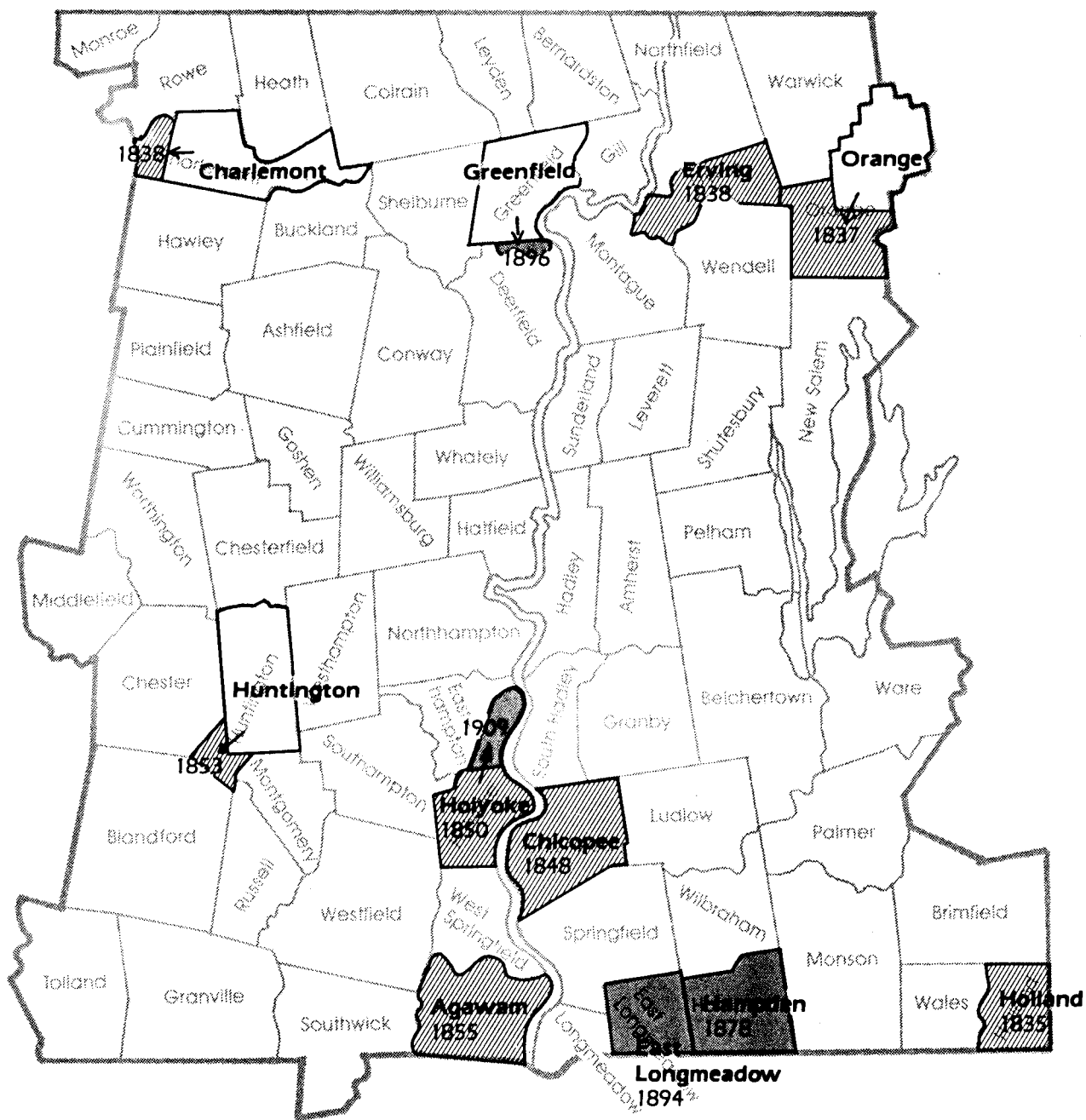
- Local core
- Urban core
- ▨ Regional core
- ▤ Emerging core area

Longmeadow. Diverse as these areas were, they all were linked economically, if not politically and culturally, to Springfield. In spite of this, distinct local cores did develop within the Springfield regional core. Most notable was Chicopee (established 1848) which had its own strong economy based on cotton milling and the production of military weapons and accoutrements.

Outside of Springfield, several communities functioned as local cores. Of these, two were of particular note. Westfield continued to serve as the secondary regional center west of the Connecticut River. Although the New Haven Canal failed in 1845, the railroads kept Westfield a primary focal point in regional transportation. See Map 17. Railroad access helped keep Westfield's economy varied and productive. Manufactured goods included furnaces, paper and whips. Agricultural products, especially tobacco and cigars, became increasingly important during the period. Holyoke, the second core area of regional importance outside of Springfield, had an entirely different character. Established as a town in 1850, Holyoke was a planned industrial community. Designed at an urban scale, its street grid was oriented along the power canals which ran the mills. In spite of a shaky start, Holyoke grew spectacularly and attracted a large percentage of foreign-born laborers. By 1870, with at least seven paper mills in operation, Holyoke had become the study unit's second largest urban center.

Three other towns in the lower portion of the Valley (Hampden County) served as prominent local cores. All had good railroad connections and a strong industrial base. In Monson, for example, straw hat production and granite quarrying supplemented textile manufacture. The establishment of a State Poor Farm in 1852 also added to the town's growth. Palmer, with its three separate mill villages (Thorndike, Bondsville and Three Rivers), was an emerging core area based primarily on the manufacture of cotton textiles. Palmer Center served as the primary railroad depot east of Springfield. While Chester retained a strong upland agricultural base, its

Industrial Period Political Boundaries



Towns incorporated

before 1830

Towns incorporated &
Major boundary changes

between 1830 and 1870

between 1870 and 1915

town center shifted to the railroad corridor and milling sites along the Westfield River. Paints and abrasives were its primary industrial products.

The Northampton core remained the focus of development in the mid portion of the study unit (Hampshire County). The industrialization which had begun along the Mill River during the Federal period accelerated dramatically, expanding the boundaries of Northampton's influence. By the end of the period, a series of industrial villages extended from Northampton into Williamsburg, producing silks, woolens and cotton as well as machinery and cutlery. Good railroad connections spurred this industrial growth and enhanced Northampton's traditional role as the distribution center for the mid Valley. Despite its industrial development, Northampton also retained a reputation as the Valley's center for social awareness and culture. There was strong interest in reform movements such as temperance, public education and especially the abolition of slavery. The establishment of institutions, like the Clarke School for the Deaf (1865), helped reinforce this progressive image. The affluence of Northampton during this period was reflected by the volume of new building construction. Much of this new building stock was architect-designed (primarily by William Pratt) and served to continue the tradition that Northampton was a focus for inventive, if not innovative, architecture.

Outside Northampton, but within its regional core area, were two local cores. Easthampton, on the Manhan River, industrialized at nearly the same rate as Northampton. Primary products were buttons and elastic webbing for suspenders. Hatfield, one of the original core communities, regained a measure of its former prosperity as new crops were introduced, especially broom corn and tobacco.

The mid Valley had three other prominent local cores outside of Northampton. Amherst remained the most diverse and complex. In addition to agriculture, the town had a varied industrial base of small shops and mills which produced palm-leaf hats, paper and a wide

range of wooden wares. The establishment of the Massachusetts Agricultural College (1867), now the University of Massachusetts at Amherst, as well as the continued growth of Amherst College, made the town an emerging cultural center in its own right. The other two towns followed the pattern of the local cores in the lower Valley--good railroad connections and a particular industrial base. In Belchertown the industry was carriage-making; in Ware, textile manufacture.

After the initial surge of growth early in the 19th century, the upper portion of the study unit (Franklin County) developed at a much slower rate. Greenfield, the county seat, continued to be the focus of the primary regional core. Since the early 19th century, Greenfield had competed with the Cheapside district of Deerfield for control of the lucrative river trade. By 1846, however, direct rail connections with Northampton gave Greenfield the advantage, one which grew as the railroads increasingly dominated both freight and passenger transport. Good railroad access also helped to boost Greenfield's own industries. By the end of the period, the town was known for wood products, textiles and especially for tools and cutlery.

Within the Greenfield regional core were three local cores. Deerfield, the original core community, continued to function as a prosperous agricultural town. Bypassed by the railroad (possibly by the town's own choice), Deerfield Center did not grow dramatically or industrialize. Instead, new development occurred in existing commercial centers (Cheapside) or in new ones (South Deerfield). Bernardston, located on the railroad corridor north of Greenfield, was an agricultural community (wool and hops) with a specialty industry (scythe blades). The third local core was Turners Falls, a planned industrial community begun in 1867 by Colonel John Crocker of Fitchburg. A speculative venture during the Early Industrial period, the town became a major papermaking center later in the 19th century.

Beyond Greenfield's regional core, three towns functioned as local cores. Once again, a combination of rail access and some specialized

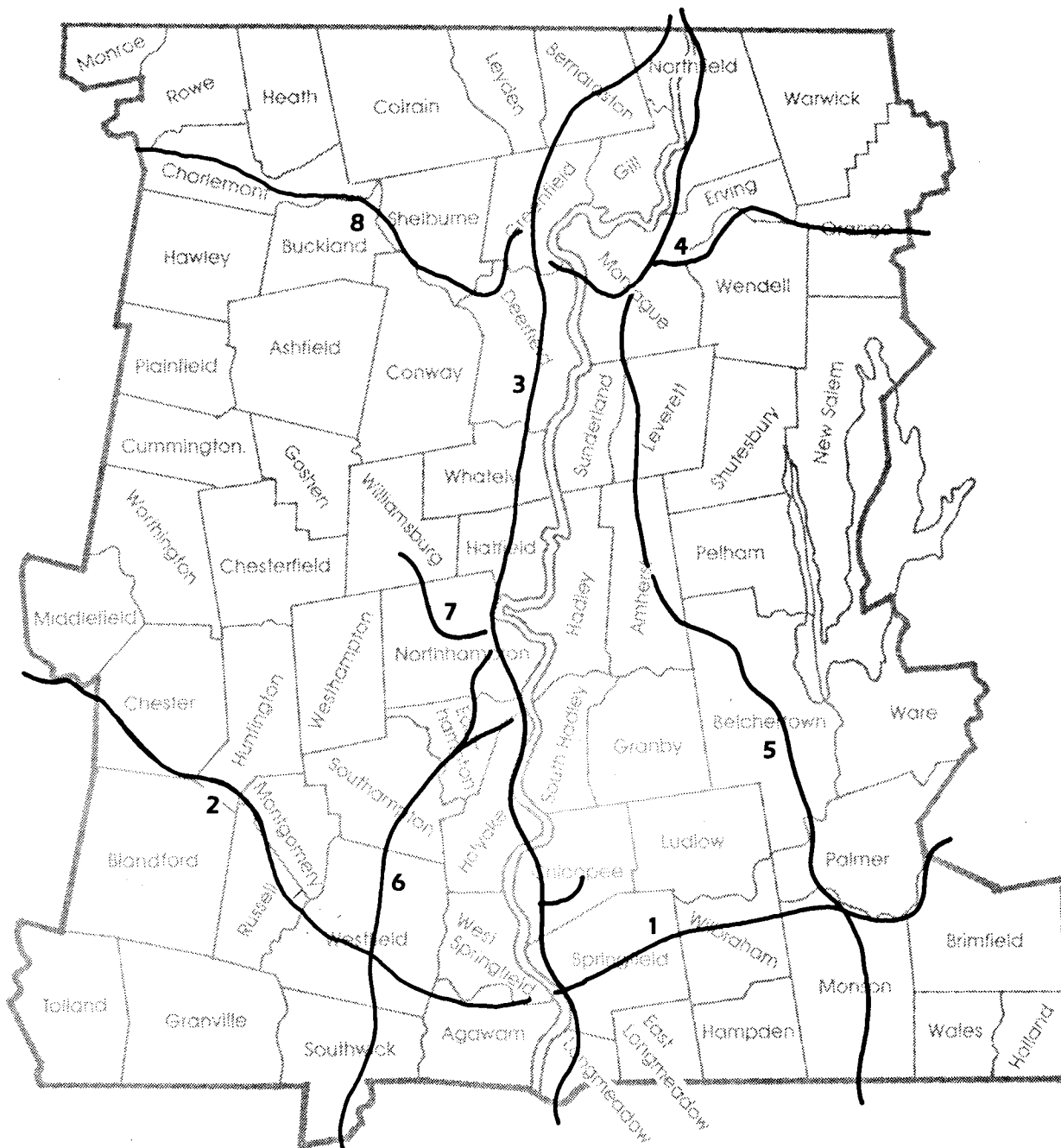
form of production characterized these local core communities. Northfield remained a prosperous agricultural community (tobacco, hops and charcoal) as well as a distribution center for towns east of the Connecticut River. Orange, like Chester, shifted its town center to a more advantageous location nearer to the mills and railroad. The town's economy was based on wooden products, especially chairs, and its nationally known sewing machines. Shelburne also shifted its town center to the Deerfield River Valley. While agricultural products such as butter and cheese remained important, the town was best known for cutlery and tools.

The upland areas in both sides of the Valley functioned primarily as a rural periphery during the period. In many of the upland towns, population dropped as people left to take jobs in the mill towns and migrated further west. For those who stayed, agriculture remained the primary activity, but with an emphasis on livestock and dairy products which could be more easily transported to urban markets. The textile industry in the Valley also created a thriving demand for wool. As a result, in several towns the overgrazing of sheep only accelerated the depletion of the landscape. Small-scale industry also took place in many of the upland towns. Early in the period, textiles or leather were likely to be the products; by the end of the period, this had shifted to paper or other wood products. Finally, a new form of economic activity began to occur in some of the rural towns, one which would have a major impact during the later periods. By 1850, and especially after the Civil War, towns like Ashfield and Cummington became popular summering locations for wealthy families from Boston and other large cities.

C. Transportation

The introduction of steam railroad technology revolutionized transportation in the Connecticut River Valley and, as a result, both canals and turnpikes rapidly became outmoded. While the traditional transportation corridors remained in place, the railroad routes provided redefinition in two ways: first by emphasizing river valleys as

Early Industrial Period Railroads



1. Western Railroad (1839)
2. Western Railroad extension (1842)
3. Connecticut River Railroad (1844-47)
4. Vermont & Massachusetts Railroad (1849)

5. New London & Northern Railroad
Monson to Amherst (1855)
Amherst to Montague (1866)
6. Hampshire & Hampden Railroad (1855)
7. Mill River branch (1868)
8. Troy & Greenfield Railroad (1868)

the preferred routes through rugged upland areas, and second by focusing attention on the emerging urban cores, notably Springfield, Holyoke, Northampton and Greenfield.

The development of the railroad system in Massachusetts spread from the first Boston lines in the 1830s to regional corridors through the Connecticut River Valley in the 1840s, especially the primary east-west route to Albany through Springfield and the north-south line along the river from Connecticut to Vermont. See Map 18. Secondary corridors were developed through the central highlands with important regional junctions at Palmer and Westfield. By the Civil War, the railroad network had expanded, giving the Connecticut River Valley important national connections, especially to New York City and the Midwest. The mountain barrier of the Berkshire highlands, however, thwarted direct east-west links except along the Westfield corridor. Attempts to extend rail routes west from Greenfield and Northampton were unsuccessful during the period.

The new technologies of steam power and rails were also applied to other modes of transportation. Steam power was successfully adapted for boat use, primarily on the Connecticut River. River boats were popular, but they could not compete with the railroads. Within the emerging urban cores, omnibus, or hourly stage, service was established during the period. By 1870, however, these lines had been converted to street railways in Springfield, Northampton and Holyoke. These horse-drawn street railways served as the major internal transit systems in urban areas.

D. Settlement

Early Industrial 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. Even in the smaller local cores, these processes were evident.

Three major changes took place in the study unit's cities. 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 largest and most elaborate central business district emerged in Springfield. Similar, though smaller, business districts also developed in Northampton, Holyoke, Greenfield, Amherst and Westfield. Even in several of the local cores like Ware, Shelburne Falls and Chicopee, business blocks of substantial style were built.

The second change was differentiation, especially in 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 tenements in the case of Holyoke and possibly Springfield and Chicopee. Single-family houses were increasingly 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. Frequently these neighborhoods were established as part of speculative real estate ventures and were laid out along street grids paralleling omnibus or street railway lines. Examples occur in Springfield along Maple Avenue and in Northampton along Pomeroy Terrace.

The third change was the growth of industrial and transportation related fringe areas. This included mills, shops, and other similar manufacturing facilities, the railroad complexes which serviced them, and new institutions such as jails and hospitals. Although the emergence of fringe belts was most evident in the larger, more urban centers, they also developed in smaller communities, especially those like Palmer, which had extensive railroad facilities.

In addition to these changes in settlement, one particular settlement form, the planned industrial community, has come to characterize the period. These communities were usually established with capital

from Boston or another source outside the study unit. Built after the prototypes of Lowell and Lawrence, they included factories, power canals and worker housing set out in a predetermined order. Small factory villages of this type were created in Thorndike (Palmer), Easthampton, Russell and Florence (Northampton). The most ambitious projects were Holyoke (1850) and Turners Falls (1868), both at major water power sites on the Connecticut River. These communities were designed on an urban scale with multiple-story tenement blocks and factories aligned along a canal system. In general, there was little suburban residential development around these planned towns. A less constricted pattern was evident in the older industrial centers like Chicopee and Ware which expanded in an organic fashion from their planned factory centers.

E. Survivals

There are eight 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 with 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 streetscapes consist of high density residential and commercial buildings, often set out in street grids.
8. Industrial/institutional fringe landscapes are in 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.

Period Core Areas (listed by contemporary towns)	Archaeological Sites	Rural Landscapes	Village Streetscapes	Town Center Streetscapes	Suburban Residential Districts	Industrial Complexes	Urban Streetscapes	Institutional Fringe Landscapes
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Springfield Regional Core

Springfield	?				?	X	X	X
Chicopee	X		?	?	?	X		
Longmeadow				?	X			
West Springfield					X	X		
Agawam		?	?					

Northampton Regional Core

Northampton	X		X	X	X	X		X
Hadley		?	X	?				
Hatfield		X	X	?				
Williamsburg	?		X	X		X		
Easthampton				X	X	X		

Greenfield Regional Core

Greenfield	?				X	X		?
Deerfield	?	?	?		?			X
Montague		X	X	X		?	?	X
Bernardston		?		X	?			X

Local Core Areas

Westfield	?	X	X	?	X	X		
Monson				X	?			X
Palmer	?		X		?	X		
Holyoke	?				?	X	X	
Belchertown		X		X				
Ware	?				?	X		
Chester		X			?			
Orange			X		X	X		

Period Core Areas (listed by contemporary towns)	Archaeological Sites	Rural Landscapes	Village Streetscapes	Town Center Streetscapes	Suburban Residential Districts	Industrial Complexes	Urban Streetscapes	Industrial/ Institutional Fringe Landscapes
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Northfield		X	X					
Shelburne				X	X			
Amherst			X	?	X			X

Rural Periphery (east)

Brimfield	X	X						
East Longmeadow	X	X		?				
Wilbraham	?			X				
Granby			X					
Pelham			X					
Leverett	?		X					
Sunderland	?			X				

Rural Periphery (west)

Granville	?	X				?		
Russell				?		X		
Southampton	X			?				
Worthington	X		X					
Cummington			X	?				
Chesterfield			X	?				
Hawley	X		X					
Ashfield	X			X				
Conway	X			X				
Whately	?		X					
Charlemont	?			X	?			
Rowe	?		X					
Heath	X		X					
Colrain	X		X					
Leyden	?		X					
Gill	X		X					
Buckland	X		X		?			

F. Research Topics

Although considerable research has been conducted on aspects of the Early Industrial period, numerous topics still present opportunities for further study. These include:

1. The introduction and diffusion of tobacco cultivation. Who were the innovators? What was the relationship between tobacco and the railroads? How did it change agricultural practices in the Valley?
2. What made Northampton a focus for social activism during the 1840s and 1850s? Was the concern for issues such as abolition, education and Utopianism a reflection of Jonathan Edwards' legacy or was it related to other factors such as increasing ties with New York City or the proximity of Amherst College?
3. To what extent was industrial and transportation-related development in the Valley based on New York money and ideas rather than those from Boston?
4. What were the dynamics of Irish as opposed to French Canadian immigration? To what extent were immigrants solicited as a means of bringing in cheap labor? To what extent was immigration fortuitous and unplanned?
5. What were the effects of the Civil War on the study unit, both in terms of economic stimulus and as a catalyst in the redistribution of population?

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Late Industrial Period (1870-1915)

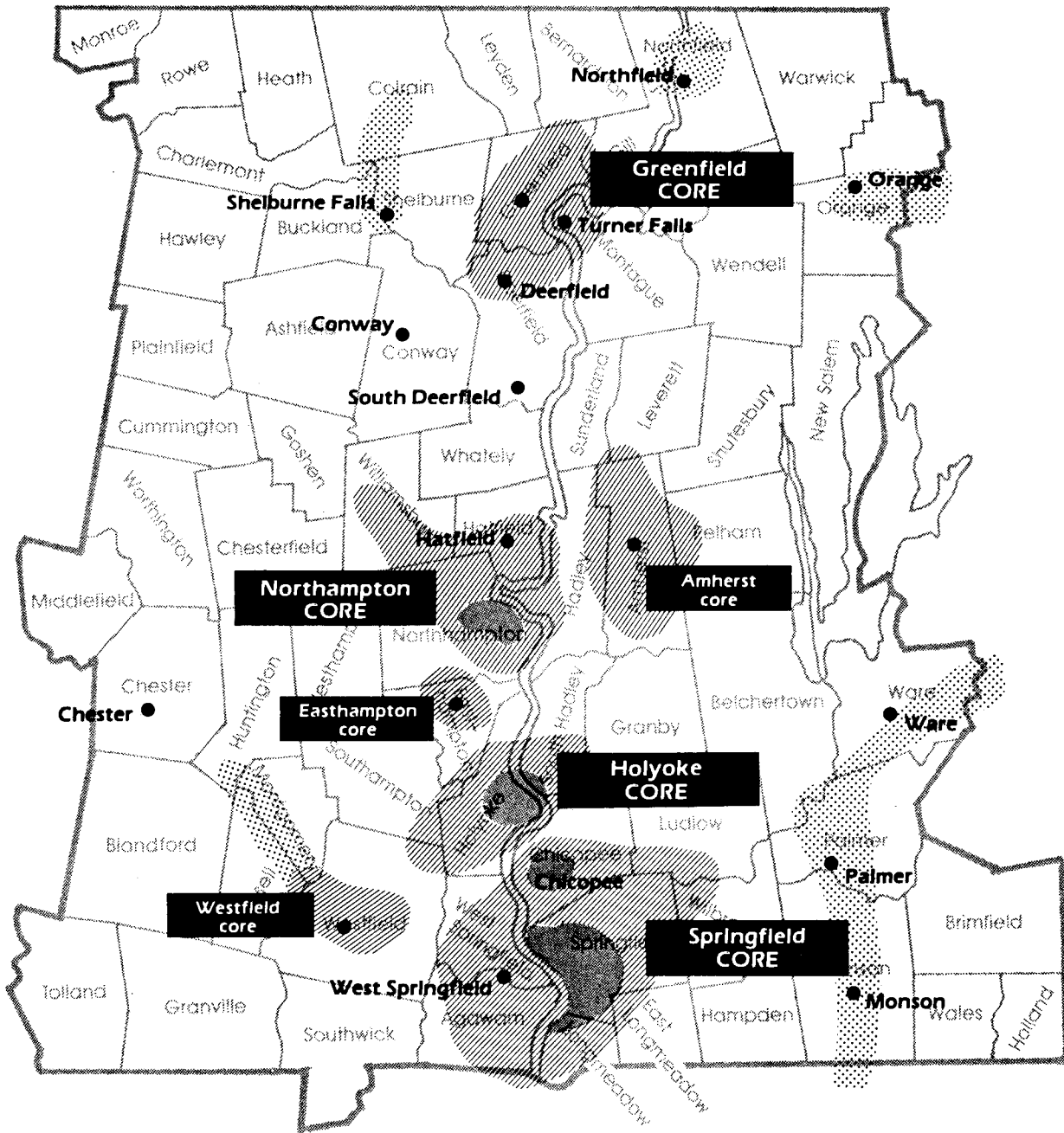
A. Regional Events

The Late Industrial period was characterized by social/economic upheavals and technological change. The post-Civil War prosperity ended abruptly with the Panic of 1873 and resulting economic stagnation. Depressions also followed panics in 1892 and 1907, bringing periodic instability, and often reorganization, to the region's industries. Reform movements were evident both in terms of labor union organizing in the industrial centers and the spread of the Grange in rural areas. The demand for cheap labor continued to stimulate large-scale immigration, especially from French Canada early in the period, with a shift to Poland and other Eastern European countries toward the end of the century. By the end of the period, the ethnic composition of the study unit, especially in the cities, had changed dramatically. Technological innovations included the beginnings of centralized electrical power generation, the development of a regional electrified street railway system and the first manufacture of gasoline-powered automobiles and motorcycles in the United States. Among important cultural events was the establishment of several schools and colleges throughout the study unit, notably Smith College (1875) and the Northfield School (1879), and the revival of interest in the Valley's colonial history, based largely in Deerfield.

B. Core-Periphery Relationships

The Late Industrial period was characterized by continued, and in several instances accelerated, growth, especially in the major urban core areas. See Map 19. The percentage of population increase was dramatically higher than that of the preceding Early Industrial period. This was largely a reflection of Hampden County's explosive development. Led by Holyoke, Ludlow, Springfield and Chicopee, Hampden County had the highest growth rate in the state (235%). Hampshire and Franklin counties followed with more modest rates of growth, 56% and 47% respectively.

Late Industrial Period Core Areas



- Local core
- Urban core
- ▨ Regional core
- ▤ Emerging core area

The Springfield regional core not only dominated the lower Valley, but had also become a core area of national rank. Springfield itself remained the largest and most economically diverse city in the study unit. Its continued success and prosperity were based on several factors. Springfield continued to be the region's primary railroad junction. The opening of two new rail lines strengthened its role both in transportation and as the regional distribution center. See Map 20. During the Late Industrial period, Springfield also became nationally known as a center for small-scale, high quality manufacturing. The diversity of products for which the city was known ranged from rifles to railroad cars to educational games. During the last decade of the 19th century, this tradition of mechanical and industrial innovation found a new form of expression--the design and production of gasoline-powered vehicles, first in automobiles and later motorcycles. Springfield retained national leadership in this field until the end of the period.

The results of this economic prosperity changed Springfield in two important ways. The availability of jobs continued to attract immigrants, especially French Canadians, Italians and Hungarians. Increasingly, this made Springfield a city of ethnic neighborhoods. At the same time, the wealth and social aspiration of the period remade the city. Most of the downtown was rebuilt at greater scale and density and many of the new commercial and institutional buildings were architect-designed, often by prestigious Boston or New York firms.

As the city of Springfield grew, so did its surrounding regional core area. Trolley lines were expanded during the period, and after electrification in 1891, inter-urban service allowed people to live out as far as Wilbraham or Agawam and still work in Springfield. See Map 21. While the communities around Springfield retained their own identities, several were also active participants in the region's economic boom. Chicopee, for example, remained a major manufacturing center in its own right. Producing textiles and bicycles, it incorporated as the study unit's fourth city in 1890.

Nearly contiguous with the northern edge of the Springfield regional core was the other large urban core in the lower Valley. For much of the period, Holyoke grew at a phenomenal rate, often in excess of 400%. Nearly half of this booming population was foreign-born, the majority French Canadian, drawn by jobs in the city's paper and woolen mills. As in Springfield, the affluence from these industries literally rebuilt the city. Incorporated in 1873, Holyoke quickly achieved an urban scale and density, both downtown and in the extensive districts of multi-story brick tenements which housed the mill workers. By the end of the period, Holyoke's regional core extended well beyond the Connecticut River into South Hadley and Willimansett.

Westfield remained an important secondary core area. With an economy based on agriculture, especially market gardening, as well as manufacturing (ships, cigars and bicycles), the town continued to grow in a stable manner throughout the period. An extension of this core also developed along the Westfield River, focused around the railroad corridor to Chester and the paper mills in Russell and Huntington.

On the eastern side of the Valley, another larger but also vaguely defined core area stretched from Ware in Hampshire County to Palmer and Monson, then on toward Stafford Springs, Connecticut. See Map 19. The common thread of textile production tied these towns together, as did the railroad and streetcar lines which connected them. In spite of this, each town had its own individual character. Ware, for example, was also an important producer of eggs, cheese and agricultural goods. Palmer remained a major railroad junction and manufacturer of carpets and wire. Monson was characterized by its granite quarries and state hospital. As a result of these differences, and the distances between towns, no urban center evolved out of this nascent core.

The Northampton core remained the primary focus of activity in the mid portion of the Valley. Incorporating as a city in 1883,

Northampton grew steadily throughout the period. Once again, a diversified economic base was key to the city's success. Additional railroad connections, plus inter-urban lines, reinforced Northampton's position as the economic center of the mid Valley. Industrial development continued in the numerous industrial villages along the Mill River, each with its own specialty. Among these were Bay State (cutlery), Leeds (silk) and Florence (hard rubber). In addition to its industrial base, Northampton was also one of the county's leading agricultural producers. Finally, the establishment and rapid growth of Smith College (1875) and the continued expansion of the State Hospital strengthened Northampton's reputation as the cultural, as well as economic, center of Hampshire County.

Northampton's regional core continued to extend up the Mill River into Williamsburg. Despite the disastrous flood of 1874, industrial activity remained strong throughout the period. Hatfield also remained a strong local core. With a large immigrant population, especially from Austria and Poland, agricultural production, particularly of market crops such as onions, expanded. The major change in the Northampton regional core was the splitting off of Easthampton as a separate core area. Based on the continued growth of the elastic industry, Easthampton was the fastest growing town in Hampshire County during the period.

Across the Connecticut River, Amherst also functioned as a secondary regional core, related to Northampton but separate from it. Improved railroad connections as well as major expansions of both Amherst College and the State Agricultural College contributed to the town's independent identity. While small-scale manufacturing, particularly of palm-leaf and straw hats, remained important, much of the town's economy was based on agriculture.

In general, the uplands were static during the period, with two exceptions. With the establishment of cooperative creameries in towns like Cummington, dairy farming remained profitable. There was also a gradual expansion in summer resort facilities in towns like

Worthington and Goshen. These were largely oriented toward people from Boston who sought relief from the summer heat by relocating near the ponds, reservoirs and scenic vistas of the hill towns.

Franklin County's growth during the Late Industrial period was largely a reflection of Greenfield's continued expansion. Not only did population increase, the town physically grew, annexing the long-contested Cheapside district from Deerfield in 1896. A major factor in Greenfield's vitality was improvement of the east-west railroad corridor after the opening of the Hoosac Tunnel in 1875. With direct access to Albany and points further west, Greenfield became the major railroad center for the northern half of the Valley. This was not only beneficial for Greenfield's industries which were nationally known for machine tools and cutlery, but for the region's agricultural production as well. During the period, Greenfield and Shelburne became the state's leading producers of beef. Meat, milk and other products were sent via rail from Greenfield to markets further east.

A related factor in the growth of the Greenfield regional core was the rapid expansion of Turners Falls. Established in 1867 as a planned industrial community, Turners Falls grew dramatically between 1870 and 1890. A large portion of the burgeoning population were immigrants, primarily Polish and French Canadian. Cutlery, paper, and by the end of the period, hydro-electrical power were the town's principal products.

The other local core within the Greenfield area was Old Deerfield Center. This northern portion of the town remained predominantly agricultural producing beef, tobacco and onions. Toward the end of the period, a revival of interest in the town's colonial past as well as expansion of Deerfield Academy brought new life to the community. The town, however, still remained divided between Old Deerfield, the traditional center, and South Deerfield, the commercial and economic center.

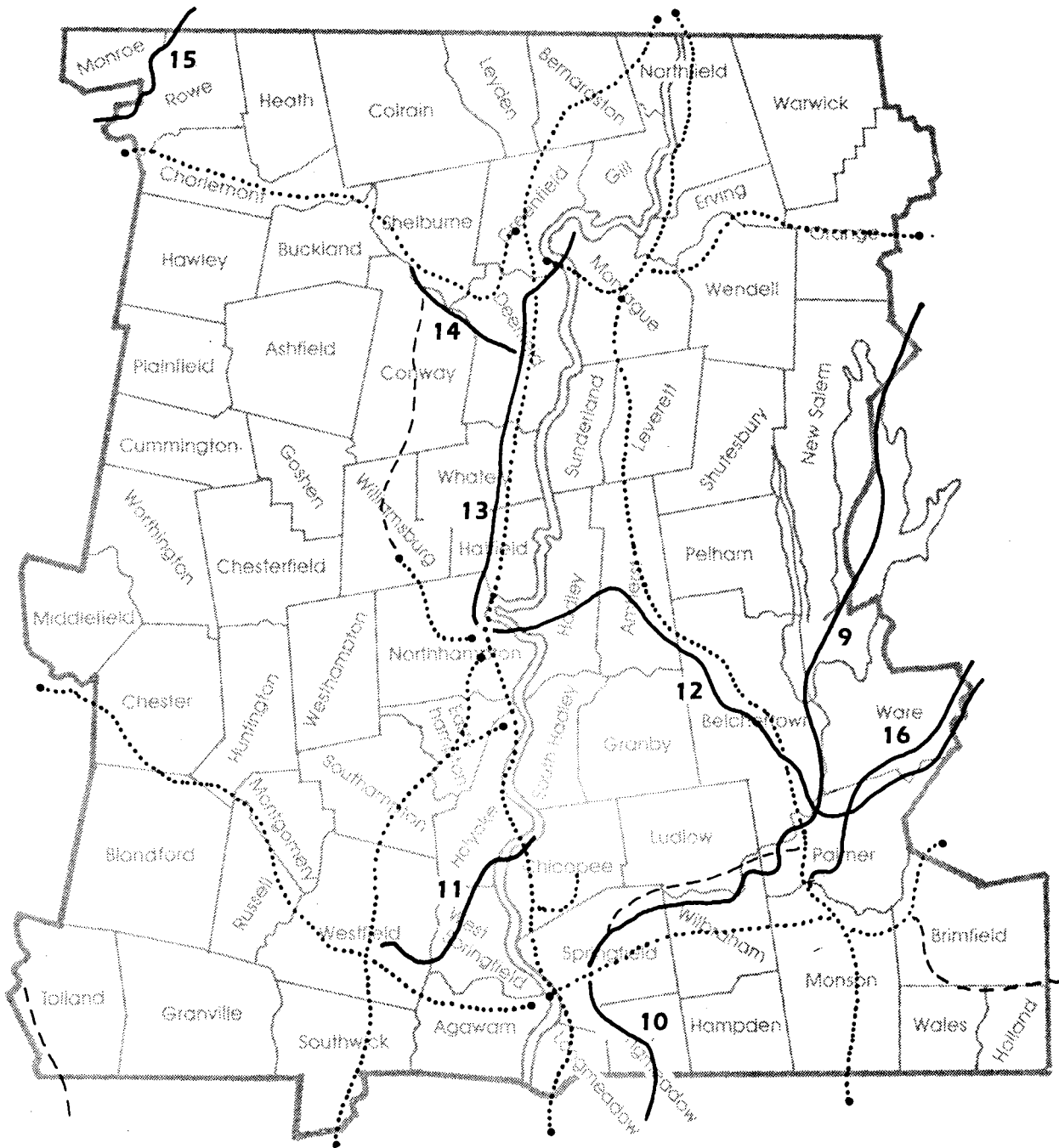
Four other communities functioned as local cores in Franklin County. In each case, the town had a particular industrial or institutional base. Northfield, for example, was primarily an agricultural town. The establishment of the Northfield School (1879) and Mt. Hermon Academy (1881) by Dwight Moody, however, brought both a new sense of identity as well as affluence to the town. Shelburne, like Greenfield, profited from improved railroad connections. Milk and cutlery, as well as hydro-electric power after 1910, were the town's principal products. During the period, an arm of Shelburne's prosperity extended along the North River to Colrain's textile mills. This emergent core did not materialize further. On the east side of the Valley, the town of Orange formed one pole of an emerging core area with Athol. Sewing machines and other machine products were the town's primary products. Conway, the final local core, supported a mixed economy of textile production and agriculture. The town's lack of railroad access, however, was a serious constraint to growth.

The uplands of both sides of the Valley continued to serve as rural peripheral zones. As in the Hampshire County hill towns, agriculture, especially meat production and dairying, remained the primary activity. Cooperative creameries, like the one in Ashfield, were an important factor in keeping farming profitable. The other economic activity, one which increased in importance during the period, was providing services to summer residents. While the natural beauty of towns like Plainfield remained the major draw, there was also growing interest in historical sites.

C. Transportation

The railroads continued to be the primary means of transportation during the Late Industrial period. Expansion of the rail network occurred in two ways. First was the construction of new lines. Some of these, like the Athol and Springfield (1873), were actually new routes; however, often these new lines paralleled existing rail lines, as in the case of the New York, New Haven and Hartford (1884). The second group of new railroads were primarily connectors or branch lines which filled out the existing rail network. Examples

Late Industrial Period Railroads



- 9. Athol & Springfield Railroad (1873)
- 10. Longmeadow Railroad (1873)
- 11. Westfield & Holyoke Railroad (1873)
- 12. Massachusetts Central Railroad (1889)
- 13. New York, New Haven & Hartford Railroad (1884)

- 14. Shelburne Falls branch (1884)
- 15. Hoosic Tunnel and Wilmington Railroad (1885)
- 16. Swift River Railroad (1873)

--- Projected or partially completed railroads

include the Westfield and Holyoke (1871-1873) and the Shelburne branch (1884). In addition to the railroads which were built, several new lines were proposed around the turn of the century. Economic uncertainties and the lack of sufficient demand, however, left these projects either proposed or partially completed. See Map 20.

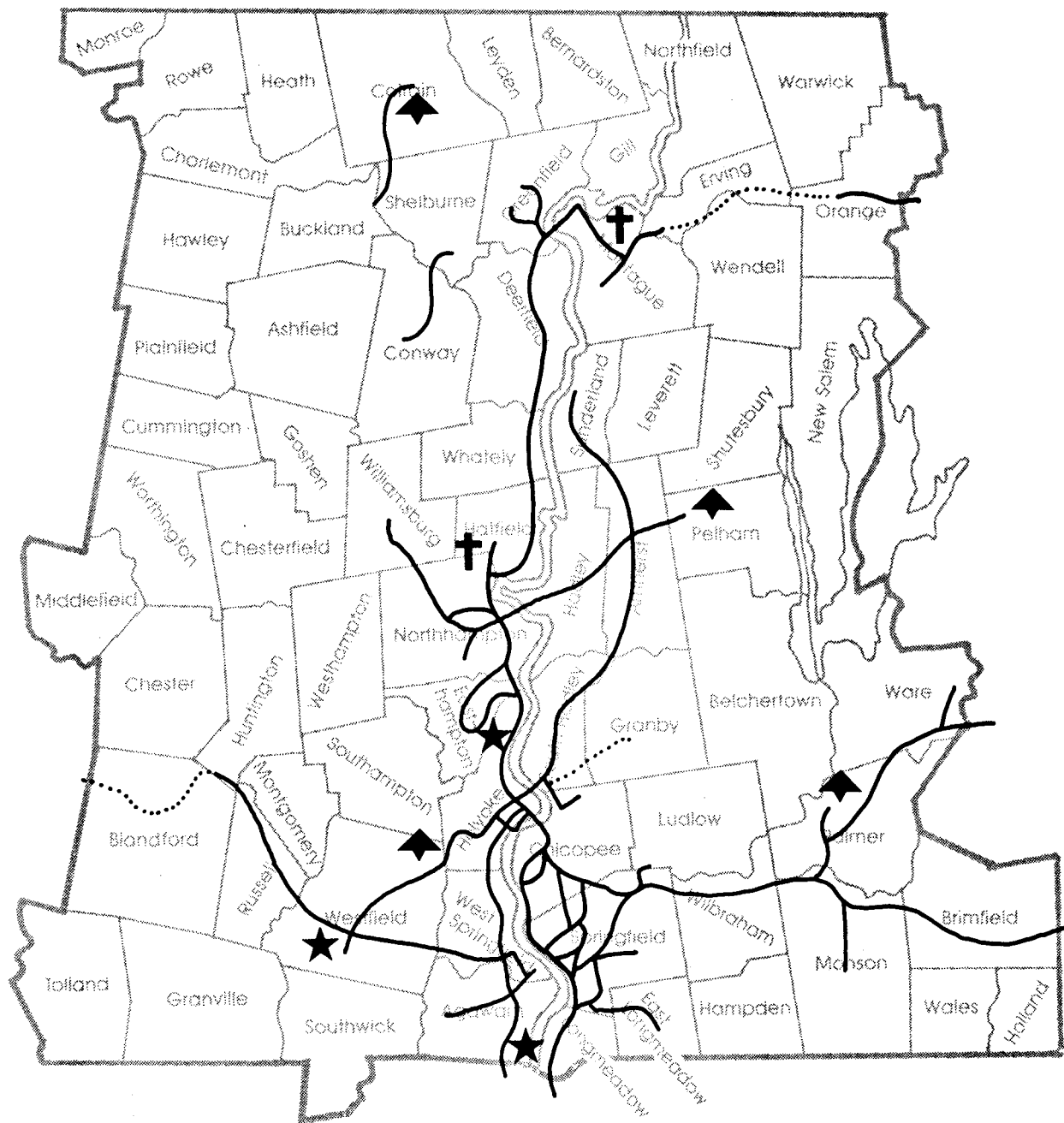
Although the railroads served as the primary means for inter-regional travel, transportation within the study unit also moved on rails. Street railway systems were built in the large urban centers throughout the late 19th century, providing access to the central city and making suburban expansion feasible. 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 21.

With the success of both the railroads and the 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 in those towns without rail connections. Toward 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. The opening of the Mohawk Trail (1914) in Shelburne and Charlemont provided a prototype for the scenic auto route and heralded a new era of road and highway construction.

D. Settlement

Two major trends characterized 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.

Late Industrial Period Street Railroads and Recreation Areas



— Street railway

..... Projected or partially
completed line

★ Amusement park

◆ Picnic grove

† Camp meeting ground

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 Springfield, Chicopee and Northampton as well as around Holyoke. These residential neighborhoods often extended from the central business district to the outer edge of the city's development, forming a gradient of density and building type. Closer to the urban center, neighborhoods were composed of multi-story tenements or apartment blocks set in close proximity to one another. Examples include Hollywood in Springfield and the Oakdale and Elmwood sections of Holyoke.

Further out the trolley line, two- and three-family houses predominated with secondary commercial centers around major intersections. Frequently, middle-class neighborhoods of more substantial single- and two-family houses developed along street grids which paralleled the trolley lines. Even further out the trolley line, neighborhoods became more linear, extending only a block or two away from the transit line. Here the houses were usually small single-family structures, often of cottage or bungalow form. In addition to this residential gradient, increasingly affluence and social mobility resulted in the creation of more extensive elite districts. These wealthy residential areas usually favored hilltop or ridge locations with attractive views.

Little suburban expansion occurred beyond city limits. With a few exceptions, such as Longmeadow and parts of Wilbraham from Springfield, and South Hadley and Willimansett (Chicopee) from Holyoke, middle- and upper-income families tended to remain within the city's boundaries.

Another set of changes was the evolution of utility and related service systems in several of the cities and larger towns. While high density residential needs as well as industrial consumption made water supply a concern, the evolution of municipal water systems in the Valley's cities and towns remains obscure. The need, however, must have been acute. By 1910, Springfield had purchased watershed rights as far west as Blandford, a precursor of the Cobble Mountain Reservoir (1920-1930). With the widespread use of indoor toilets during the last decades of the 19th century, sewerage removal became another pressing urban concern. Here again, however, the evolution of waste removal systems in Springfield or Holyoke has not been well documented. Other municipal services included fire protection and central power generation. Most large communities established their own fire departments during the period. While there may also have been experimentation with municipal power generation during the 1880s and 1890s, electricity was more easily purchased after 1900 from one of the large commercial producers such as the Holyoke Water Power Company or New England Power Company. Finally, 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 Indian Orchard in Springfield and Florence in Northampton 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 denser 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 towns 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 Westfield, Amherst and Shelburne Falls acquired a small-scale, urban character by the end of the period.

The final area where new and occasionally dense settlement occurred was in seasonal resorts. During the 1870s and 1880s, these were primarily camp meeting grounds where families congregated for either religious or secular (Chautauqua) instruction. Examples include Laurel Park (Northampton) and Lake Pleasant (Montague). By the turn of the century, these were supplanted by trolley parks or picnic groves, places where one could go on a day trip from Springfield, Holyoke or other urban centers. Examples include Lake Forest (Palmer) and Orient Springs (Pelham). See Map 21. One additional form of resort development also occurred late in the period. This was the building of summer cottages around lakes and ponds. Unlike the summering homes and hotels of the upland towns which catered to Boston or New York families, these cottages were largely summer homes for Valley residents, middle-class and professional families from Springfield, Northampton or other nearby towns. Examples are found around the Congamond Ponds (Southwick), Lake Wyola (Leverett) and Crooked Pond (Plainfield).

While new and denser settlement spread throughout the Connecticut River Valley 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 toward 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 in the Connecticut River Valley study unit:

1. Archaeological remains of importance include industrial complexes (many of which only survive archaeologically), transportation, power generating or other innovative service facilities and areas of high density settlement, especially immigrant neighborhoods.
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, camp meeting grounds and amusement parks.
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 single-family houses set out at medium density, often along a street grid with a small park or church.

7. Streetcar residential development consists of medium 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 or brick houses on individual lots, or small apartment buildings, 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, coal storage bins and other similar industrial support facilities, as well as period institutions such as hospitals, state schools and correctional facilities.

Period Core Areas (listed by contemporary towns)	Archaeo- logical Remains	Rural and Village	Resort Villages	Town Center Street- scapes	Indus- trial Villages	Suburban Residen- tial Districts	Streetcar Residen- tial Devel- opment	Urban Residen- tial Districts	Urban Street- scapes	Indus- trial/ Insti- tutional Fringe Land- scapes
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Springfield Core

Springfield	?			X		X	X	X	X	X
Chicopee		?		X		?	X	X		?
West Springfield						X	?			X
Agawam		?			?		?			
Longmeadow						X				
East Longmeadow		?		?						
Ludlow		?		X		X	?			X

Holyoke Core

Holyoke	X		X			X		X	X	X
South Hadley					X	?	X			X

Northampton Core

Northampton	X	X	X	X	X	X	?		X	?
Williamsburg	X	?			?					
Hatfield		X				?	?			
Hadley		?					?			X

Greenfield Core

Greenfield	?	?		X	?	X	?			X
Montague	X	?	X	X		X	?	?		X
Deerfield		?		X		?	?			X
Gill		?				?				X

Local Cores

Ware				X		?	X			X
Palmer		?	?	X	X	?	X			X
Monson		?		X		?				X
Westfield		?	?	X		X	?			X
Chester				?						?

Period Core Areas (listed by contemporary towns)	Archaeo- logical Remains	Rural and Village	Resort Villages	Town Center Street- scapes	Indus- trial Villages	Suburban Residen- tial Districts	Streetcar Residen- tial Devel- opment	Urban Residen- tial Districts	Urban Street- scapes	Indus- trial/ Insti- tutional Fringe Land- scapes
Easthampton		?		?		?	X	?		X
Amherst		?		X		X	?			X
Conway		?		?			?			
Orange				X		?	X			X
Northfield		?				?				X
Shelburne		?		X		?				
<u>Rural Periphery (east)</u>										
Brimfield		?		?						
Wilbraham						?	X			?
Belchertown		X	?	?		?				
Granby							?			
Leverett		?								
Sunderland		?								
Erving					?					?
<u>Rural Periphery (west)</u>										
Southwick		?	?							
Blandford										?
Southampton		?				X				
Worthington		?								
Cummington					?					
Goshen			X							
Plainfield		?								
Ashfield		?	?							
Whately		X			?		?			
Monroe				?	X					
Heath		?								
Colrain				?						?
Buckland		?				?				X
Bernardston		?		?						?

F. Research Topics

Among the numerous topics which remain to be examined are the following:

1. What was the impact of Eastern European immigrants, especially the Polish, on agricultural practices in the Valley? What role did they play in the development of specialized market crops such as onions and asparagus?
2. Examine the changes in dairy farming which occurred during the period (the shift from small independent family operations to a more centralized industrial basis). What roles did the railroad, urban markets, and cooperative facilities such as creameries play?
3. Study the evolution of the Grange, both as a social and political force in upland rural towns.
4. To what extent did the brick building tradition (as opposed to wood frame construction) reflect planned industrial development? What were the origins of this tradition?
5. What factors made the Springfield/Chicopee area the center of innovation for automotive vehicles (bicycles, automobiles and motorcycles)?
6. Trace the evolution of municipal services (water, waste removal and power generation) in the large urban centers. To what extent were municipal efforts tied to corporate efforts to solve the same problems?
7. What factors and individuals were involved in the planning and development of the Mohawk Trail as a scenic auto route? What relationship did this project have to the emerging state highway system?

8. What factors brought about the revival of interest in the Valley's colonial past? Who were the people responsible?

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Early Modern Period (1915-1940)

A. Regional Events

The Early Modern period opened with a burst of prosperity which continued both during and after World War I. Accompanying this boom was a gradual shift in lifestyles and expectations, due in part to the development of modern advertising and relatively low cost personal transportation. Evidence of this change included the construction of a regional highway system and a dramatic increase in auto touring as a popular form of recreation. Interest in historic preservation was marked by the formation of Storowton (1928) at the Eastern States Exposition (West Springfield) and the restoration of Deerfield Main Street. Despite post-war prosperity, the beginnings of industrial relocation to the south plus new restrictions on immigration signalled an end to the study unit's industrial growth. Although some cities such as Holyoke were hard hit by the Great Depression, others with a more diversified economy, like Springfield, survived fairly well. Major changes in the upland portions of the study unit included the dramatic increase in state-owned forest and park lands and the creation of several large reservoirs to meet the ever growing urban needs. Among these were the Cobble Mountain Reservoir (1930) for Springfield and the Quabbin Reservoir (1939) for Boston. Increasing federal governmental presence in the Valley was evidenced by New Deal work programs (especially the WPA and CCC) and the opening of Westover Air Base in Chicopee (1940).

B. Core-Periphery Relationships

The Early Modern period was characterized initially by prosperity and continued expansion; by 1930, however, growth had leveled off sharply as parts of the study unit slipped into stagnation and decline. The percentage of population growth for the three counties indicates how dramatic the change was. Compared with an exuberant growth rate of 235% for the Late Industrial period, Hampden County increased at a rate of only 26% during the Early Modern period. The change was even more dramatic in Hampshire

and Franklin counties, 4% and 2.4% respectively. The distribution of population within the study unit also began to change in significant ways.

The most notable change in the lower Valley was the continued expansion of the Springfield/Chicopee and Holyoke regional cores. As the suburban residential portions of these contiguous cities grew, the boundaries between them became increasingly blurred. By the mid 1920s, this overlapping had created a continuous zone of urban scale development from Springfield to Holyoke. See Map 22. Despite this co-mingling, each of the three urban areas maintained its own character and economic base. Springfield remained the largest and most diverse city in the study unit. Between 1915 and 1920, the city experienced its greatest rate of population increase. During the succeeding decade, however, growth slackened to negligible proportions and by the 1930s, the city actually began to lose residents. Nonetheless, Springfield's 1940 population was more than twice what it had been in 1900 with 25% foreign-born, primarily Italians and Russians.






Despite the relocation of several large firms outside its central business district, Springfield remained viable throughout the Depression years. Major reasons for this were the diversity of the city's industrial and commercial base, its continued role as a transportation center as roads began to compete efficiently with the railroads, and the presence of governmental institutions. More important than the growth of Springfield's urban center was the expansion of the city's regional core. Fed by both the decentralization of industry and an increasingly mobile public, many of the towns around Springfield experienced rapid growth as suburban residential communities. In fact, the three towns with the highest rates of population increase during the period were Longmeadow, East Longmeadow, and Agawam--all part of the Springfield regional core.

The patterns in Chicopee were similar to those in Springfield, although on a smaller scale. While Chicopee felt the pinch of

This map of Massachusetts illustrates the spatial distribution of major urban centers and their surrounding metropolitan areas. The state is divided into counties, and major cities are marked with black dots. Several metropolitan areas are highlighted with shaded regions and labeled as 'CORE' areas:

- Northampton CORE:** Located in the western part of the state, centered around Northampton.
- Springfield-Holyoke CORE:** Located in the southwestern part of the state, centered around Springfield and Holyoke.
- Westfield CORE:** Located in the southwestern part of the state, centered around Westfield.
- Amherst core:** Located in the central part of the state, centered around Amherst.
- Greenfield CORE:** Located in the northern part of the state, centered around Greenfield.

Other major cities and towns shown on the map include Boston, Worcester, Springfield, Holyoke, Northampton, Westfield, Amherst, Greenfield, and many others. The map also shows the locations of several major highways, including I-90, I-495, I-91, and I-89.

-  Local core  Regional core
 Urban core  Emerging core area
 Central core

southern competition and industrial reorganization more keenly than Springfield, its most important firm, U. S. Rubber, did survive the 1930s under new management. Holyoke, with more specialized paper and textile industries, was hit even harder by new competition in the 1920s. By 1927, several of the major mills were in receivership or reorganization. As a result, Holyoke steadily lost population during the period while adjacent towns such as South Hadley and Granby grew.

The other regional core in the lower Valley was Westfield, which incorporated as a city in 1920. With its diversified industry and agriculture, Westfield grew steadily during the 1920s and remained strong enough to weather the 1930s. Two local cores, Chester and Palmer, also survived as a result of specialized industries (granite-cutting and abrasives in Chester, wire and brushes in Palmer) and their location on a new federal highway (Route 20).

The Northampton core, primary center of activity in the mid portion of the Valley, followed a pattern similar to that in the other industrialized centers: growth during and after World War I, progressive slowing down during the 1920s, stagnation and reorganization during the 1930s. Once again, however, a diverse economic base as well as the presence of Smith College and other institutions helped moderate the effects of industrial decline. While the boundaries of Northampton's regional core did not expand significantly during the period, there was considerable infilling, especially along the new major highways like U. S. Route 5. Northampton's population also continued to change. By 1940 the majority of farms were owned by Polish families who were the largest immigrant group in the city.

The two strong local cores of the mid Valley, Easthampton and Amherst, continued to grow despite the economic fluctuations of the period. In Easthampton, the merger of several companies into the United Elastic Corporation provided a strong enough base to carry the town through the Depression. In Amherst, the expansion of both Amherst College and the University of Massachusetts continued to

bring economic stability to the town's predominantly agricultural economy. There was also considerable development out of Amherst along Route 109 toward Belchertown and Route 116 north into Sunderland and south toward South Hadley. See Map 22.

Outside of these core areas, three factors exerted a considerable influence. One was the continued construction of reservoirs, primarily as components of urban water systems. These ranged from White Reservoir (1912-15) in Southampton to Quabbin (1927-39), which obliterated the towns of Enfield, Prescott, Greenwich and Dana. Similar reservoirs in the lower Valley included Hamilton (ca. 1920) in Holland and Cobble Mountain (1928-30) in Russell, Granville and Blandford. See Map 23. The second factor was the dramatic expansion of the state forest and park system. Examples include DAR State Forest in Goshen (1929), Mt. Tom Park in Holyoke, as well as several others. See Map 23. The third factor which influenced peripheral towns was auto related tourism and camping. These new forests, parks and reservoirs drew people from urban areas throughout the period. Providing services to those visitors became an important economic activity in several of the upland towns.

What little growth there was in Franklin County took place either in Greenfield or along the Route 2 corridor. Unlike most of the other communities in the study unit, Greenfield's post-World War I prosperity continued throughout the period. This growth was largely a reflection of the town's strong machine tool industry, led by the Greenfield Tap and Die Company. A second factor in Greenfield's prosperity, its proximity to Route 2, is discussed below.

In contrast, Turners Falls followed the more widespread pattern of decline as competition stiffened and demand for products decreased during the 1920s and 1930s. The changes in Old Deerfield, the third center within the Greenfield regional core, were subtly dramatic. While population actually decreased, the expansion of Deerfield Academy and the "colonialization" of Old Deerfield Street gave the community a pleasant and bucolic image which drew tourists and visitors. The division between Old Deerfield and South Deerfield persisted,

and even increased as South Deerfield began to expand along Route 116 toward Sunderland.

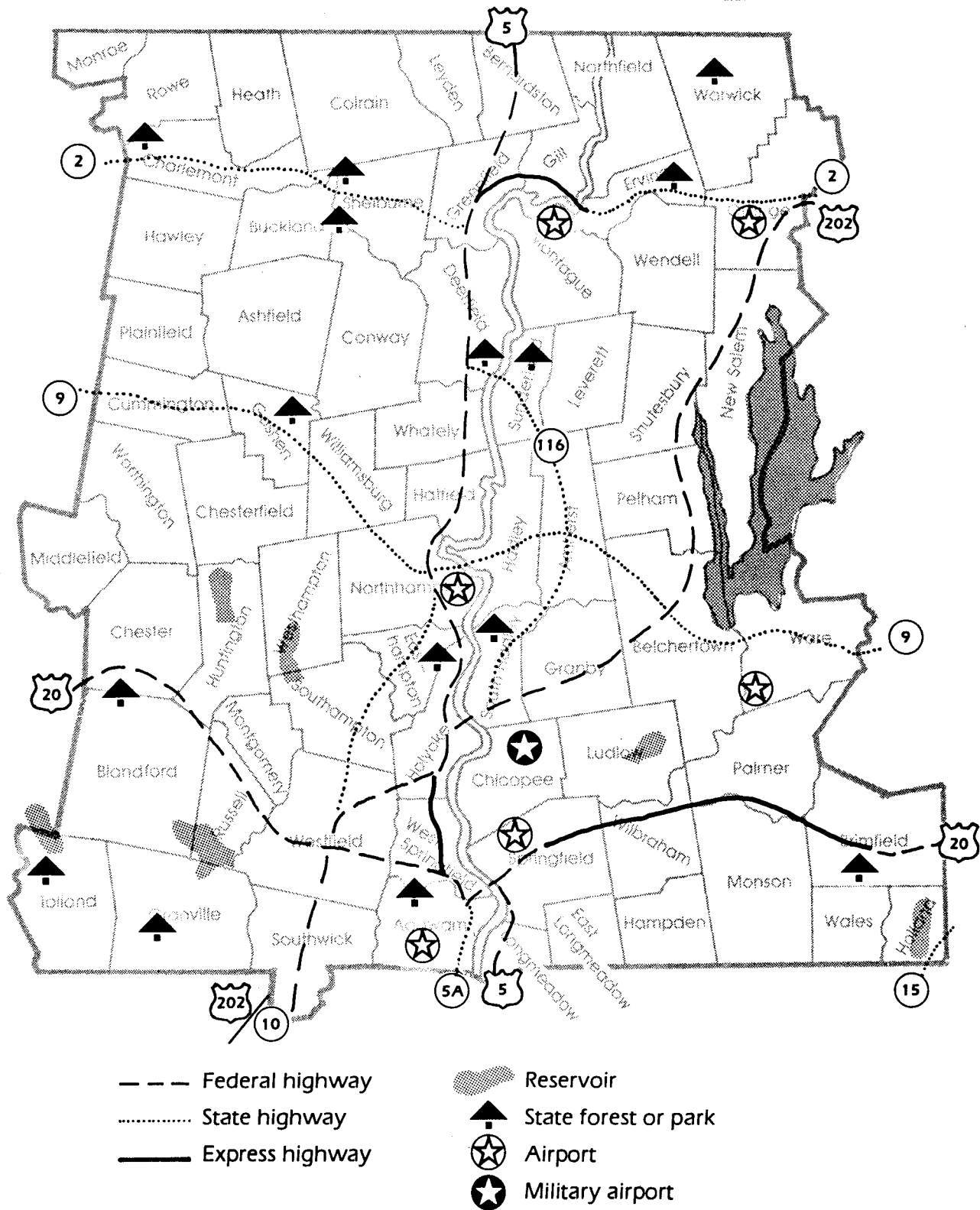
With the exception of Northfield, the other local cores in the upper Valley were located along the Route 2 corridor. While some industrial property lingered in Orange and Shelburne Falls, it was largely the auto-related tourism which kept these towns active. Especially popular was the Mohawk Trail, Route 2 from Greenfield west across the Berkshires. Initially it was the spectacular natural scenery and fall colors which drew people from Boston, Hartford and New York. Increasingly, however, the historic character of the upper Valley also served to draw tourists. Not only Deerfield benefited from this; many of the hill towns on either side of the Valley survived the period by providing services to visitors looking for antiques and picturesque New England villages.

As in the mid and lower Connecticut River Valley, the hill towns of Franklin County also found a new source of revenue in serving the campers and hikers who used the growing number of state forests. In addition, the increased interest in winter recreation and the construction of ski facilities in Warwick (Mt. Grace) and Charlemont began to make the tourist industry a year-round activity.

C. Transportation

While the railroads remained the primary means of land transportation, the increasing use and popularity of automobiles radically changed transportation patterns. In 1915, as the state highway system was beginning to take form, there were approximately 112,000 motor vehicles registered in Massachusetts. By 1940 a well developed network of state and federal inter-state highways had been constructed to handle the nearly one million registered vehicles in the state. The primary corridors in this highway system were U. S. routes 20, 5 and 202 and state routes 2 (the Mohawk Trail), 9 (the Berkshire Trail) and 10. See Map 23. These routes served both as inter-regional connectors, linking the Valley's cities and towns with

Early Modern Period Highways, Airports and Recreation Areas



Boston, Hartford and Albany, and as intra-regional connectors, the major population centers together. Accompanying this upgrading of the highways was the gradual replacement of major bridges, especially after the destructive hurricane and floods of the 1930s.

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, often along 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.

The other new mode of transportation which developed during the period was the airplane. By the end of the period, small airfields had been constructed in smaller towns like Brimfield and Orange as well as in Northampton and Springfield. See Map 23. Particularly important was the construction of the Bowles Airport in Agawam (1930). With its modern terminal facilities and scheduled flights to New York and Boston, Bowles Airport marked the beginning of regular commercial air service in the Valley.

D. Settlement

The primary change in settlement pattern was a slowing of the centripetal forces which had consolidated settlement over the previous century, and a gradual shift toward decentralization. This change was most evident in the larger urban areas which began to stagnate in the late 1920s. As economic conditions worsened during the 1930s, the loss of tax revenues resulted in a lessening of municipal services. This in turn led to an increased movement of middle- and upper-income families out of the cities and the consequent deterioration of many city neighborhoods, a phenomenon which would become more common after World War II.

These decentralizing forces had several effects on urban core areas. The large-scale rebuilding which had characterized the Late Industrial period ceased in favor of cosmetic alterations to existing structures. The new development which did take place tended to be either auto related commercial expansion from the central business district, like the Apremont Triangle in Springfield, or secondary retail centers located in closer proximity to the burgeoning suburban neighborhoods. The only other growth in urban core areas was in fringe areas. In addition to the traditional railyards, coal bins and other storage facilities, the construction of new highways and institutional complexes, especially hospitals, cut into what had previously been residential areas.

The strongest decentralizing factor of the period was the shifting of residential populations away from the urban centers and often beyond municipal boundaries. The prosperity of the early 1920s resulted in the construction of extensive new tract neighborhoods. These consisted of small single-family or two-family houses in a medium to high density setting. Usually adjacent to a major highway or parkway, these houses were built for automobile-oriented living. As more families moved out into these new neighborhoods, retail and commercial services followed. This resulted in both strip development along the major highways and the formation of secondary business/commercial centers at major intersections.

While these changes were most evident in the larger cities, for example in Springfield as development moved east onto the pine plains, the same dynamics operated in most of the other cities and large towns. Even in the smaller local cores like Palmer, Orange and South Deerfield, the expansion of "suburban" neighborhoods and commercial strip development took place.

In peripheral areas little change occurred, with the exception of tourist related development. This included hotels, cabins and restaurants in resort locations as well as strip development (gas stations, shops, diners and other service facilities) along the major

highways and some secondary roads. Some widely scattered residential infill also occurred in many of the towns, a portent of how far the decentralization process would go.

E. Survivals

There are seven categories of Early Modern period survivals: rural landscapes, highway related strip development, town commercial centers, residential suburbs, urban residential areas, institutional complexes, and industrial/transport related fringe areas.

1. Rural landscapes include small-scale, low density period houses, clusters of resort cottages and small farms, especially those oriented toward market gardening, tobacco or dairying.
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. Commercial centers are streetscapes with significant period infill including large commercial buildings (department stores and chain stores) as well as municipal and civic buildings.
4. Residential suburbs consist of small single-family or two-family houses usually built at medium density and often in close proximity to parkways and highways.
5. Urban residential areas are multi-story brick, masonry or steel framed apartment blocks usually set along major public transit routes. These include both fashionable apartment buildings and period public housing.
6. Institutional complexes are large, self contained, multi-unit complexes usually set on their own landscaped grounds. These include hospitals or correctional facilities as well as educational or corporate institutions.

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

Period Core Areas (listed by contemporary towns)	Rural Landscapes	Roadside Commercial Strip	Commercial Centers	Residential Suburbs	Urban Residential Districts	Institutional Complexes	Industrial/ Transport Fringe
<u>Springfield-Holyoke Core</u>							
Springfield		?	X	X	X	X	X
Chicopee			?	X			X
Holyoke	?	?	X	X	X	X	
South Hadley	?			X		X	
Granby	?	?					
Ludlow	?	?	?	X			
Wilbraham	?	X		X			
East Longmeadow	?			?			
Longmeadow			X	X			
Agawam	X			?			X
West Springfield		?	?	X		X	?
<u>Northampton Core</u>							
Northampton	?	X	X	X	?	X	X
Hatfield	X			?			
Williamsburg	?	?					
Hadley	X	X		?			
<u>Greenfield-Deerfield Core</u>							
Greenfield	?	X	X	X		?	?
Deerfield	X	X		X		X	
Montague	X			?			X
Gill	?					X	
<u>Amherst Core</u>							
Amherst	?	?	?	?		X	
Belchertown	?	?				X	
Sunderland	?						
<u>Westfield Core</u>							
Westfield	X	?	X	X		X	
Southwick	X	X	?				

Period Core Areas (listed by contemporary towns)	Rural Landscapes	Roadside Commercial Strip	Commercial Centers	Residential Suburbs	Urban Residential Districts	Institutional Complexes	Industrial/ Transport Fringe
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Local Cores

Easthampton			?	X		?	?
Chester		X					?
Palmer	?	?	X	X			X
Ware	?	?		?			X
Shelburne		X					?
Charlemont		X					
Orange		X		?			X
Northfield	X			?		X	?

Rural Periphery (east)

Brimfield	?	?					
Holland	X						
Monson	?			?		X	
Hampden	X						
New Salem	X						
Shutesbury	?						
Leverett	X						
Erving							X
Warwick	?					X	

Rural Periphery (west)

Granville	X						
Tolland	X						
Blandford	X						
Southampton	X	?	?				
Huntington		?	X				?
Worthington	X						
Russell		?		?			
Cummington		?					
Goshen	X	?					
Plainfield	X						
Ashfield	X		?	?			
Whately	X	?					
Conway	X		?	?			
Buckland	?			X			
Rowe	X						

F. Research Topics

Because the developments of the Early Modern period occurred within the range of memory of people still living, there is an immense amount of information available. On the other hand, the recent past is often the most difficult upon which to have perspective. Many 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 Early Modern fringe areas including military complexes, coal and oil storage areas, bridges and power plants. What impact did these facilities have on the neighboring communities?
2. A survey of highway related buildings and structures, especially gas stations/garages, drive-in restaurants and signage.
3. A study of the emergence of ethnic neighborhoods. How is this process reflected by the institutions (especially synagogues and churches), commercial structures and housing built or modified in the neighborhood?
4. What were the factors which popularized and promoted the bungalow style of house construction?
5. What factors made the Colonial Revival movement so strong in Deerfield as opposed to Hadley, Hatfield or other comparable towns? To what extent was this related to other restoration projects such as Storrowton?
6. What were the social and economic impacts of the expansion in the state forest system on adjacent communities?

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CHAPTER IV

ARCHITECTURAL DEVELOPMENT

Introduction

The basic dynamics of Connecticut River Valley architecture over time have been shaped primarily by topography. The Connecticut River itself has been the traditional focus of architectural innovation, serving as a conduit for diffusion of new forms and ideas. The Valley's architecture is characterized as well by a sense of discrete, isolated development. Its early colonial history was one of frontier settlement, a pattern which was repeated in the Valley's upland areas when they were settled in the late Colonial and Federal periods. Interestingly, many of these "hill towns" retain their outpost isolation even today. Topographic isolation seems to have encouraged the use of familiar vernacular architectural forms by immigrants who came from other parts of the state, often southeastern Massachusetts or Worcester County.

The underlying patterns of architectural development in the Connecticut River Valley also reflect the interaction of strong core-periphery dynamics. Initially, in the 17th century, the core-peripheral relationship existed between Massachusetts Bay Colony and the frontier towns of the Valley. Later, when that relationship shifted, it could be characterized by the dynamic between the towns along the Connecticut River and the hill towns. Throughout its history, the Valley's cores and periphery have also reflected an upper and lower valley (north/south) tension.

The economic development of the Valley reflects similar strong distinctions between upland and lowland communities. With the emergence in the 19th century of the southern half of the Valley as its major industrial core, the disparity between the valley towns and the hill towns became dramatic. Architecturally, this resulted in strong regional differences in building form and activity. Consequently, it is seldom possible to discuss the architectural development

of the Connecticut River Valley as a whole. One always returns to comparisons: between the rural towns and the industrial cities, the highlands and the river towns, and the northern versus the southern half of the Valley.

I. Residential Architecture

Plantation Period

Some half dozen towns in the Connecticut River Valley were settled prior to 1675. All were located directly along the river, with the exception of Westfield. Settlement did not expand beyond Springfield until the 1650s and 1660s, when areas as far north as Deerfield received their first permanent English residents. The key settlements of the period were Springfield and Westfield to the south and Hadley, Hatfield and Northampton to the north.

Only two houses dated to the Plantation period are known to survive in the study unit. Those structures are the Frary House (ca. 1669) in Deerfield and the Joseph Parsons House (ca. 1658) in Northampton. Both have undergone considerable change since their construction, including enlargement and 20th-century restoration. Probably the earliest house for which photographic documentation exists was the Margaret Bliss House of ca. 1645 which survived in Springfield until 1891. Photographs indicate that the Bliss House, despite its frontier location, was a substantial and stylish house with many typical 17th-century features, and of an appearance not unlike Boston's Paul Revere House. The center chimney structure featured a jettied second story with pendants and an end gable overhang. Much more pretentious was the John Pynchon House of ca. 1660, built for the son of Springfield's founder. Constructed of brick produced in Northampton, the Pynchon House had a 42-foot long facade and stood 22 feet high with a depth of 21 feet. Chimneys with three flues rose on the end walls while a two-story entrance porch dominated the five-bay-wide facade. Although hardly typical of 17th-century architecture in the Valley, the Pynchon House (demolished 1831)

demonstrated the sophistication which could be achieved despite the uncertain conditions of the frontier. The Bliss and Pynchon houses also illustrate that the range of architectural expression, at least in relatively well-established Springfield, paralleled that found in coastal New England.

The poor survival rate for Plantation period houses in the Valley is notable. A number of forces acted to deplete the pre-1675 building stock: the most obvious are intensive later development of the earliest core areas, the relatively small number of houses actually constructed in the period, and destruction by native attack in the 17th and 18th centuries.

Colonial Period

For the period 1675-1700, a similarly small number of houses remain extant. Standing structures dated to the late 17th century include four houses in Northampton, a house in Westfield, and, as an example of the construction known in the period, the 1929 reproduction of the Sheldon House (1698; demolished 1848) in Deerfield. The Northampton houses are the ell of the Wright House (ca. 1684), portions of the Stoddard House ("The Manse," ca. 1684 and 1750), the Griffin House (ca. 1700) and the Hunt House (ca. 1700). At present, none of these exhibit a period appearance. The ca. 1680 Westfield house and the Sheldon House reproduction, both center chimney plan structures with three facade bays, are examples of a type which seems to have been common in the region before 1725.

Three facade bays, rather than the customary five bays, were noted in a number of center chimney plan houses in the region. Examples include houses in Chicopee, Easthampton, Tolland and Wales, a ca. 1720 house at the "Bars" in Deerfield, the Jonathan Smead House (1739) in Greenfield, the Miller House (ca. 1749; demolished) in Holyoke, the 1754 brick Day House in West Springfield and the Ingersoll House (1698; demolished) in Westfield.

As settlement strengthened and advanced through the study unit in the Colonial period, the number of houses constructed, and correspondingly, the number of houses surviving, increased. Several broad patterns in residential construction should be noted. The first regards the periods of greatest construction activity. Extrapolating from the known construction dates of extant structures, periods of activity would seem to have occurred from 1700-1720, in the 1730s and after 1750, with the greatest number of surviving structures dating from the 1760s and early 1770s. Periods of relative inactivity were the decades of 1720-1730 and 1740-1750; in part, this pattern reflects rebuilding after Queen Anne's War (1703-1713) and the hiatus of the French and Indian wars in the 1740s and 1750s.

The second pattern regards settlement. For much of the period, settlement was confined to the southern and south-central sections of the Connecticut River Valley. Not until the 1760s and 1770s did settlement expand to the northwestern area of the study unit. Thus, the pattern of architectural development in the Valley was closely tied to location, with a range of representative Colonial architecture present in the core areas. Upland peripheral areas possessed only a few examples of Colonial period architecture.

A third pattern reflects density of housing. In addition to population data, figures listed in the 1765 Census include the number of houses per town. Of the 30 towns listed, only one, Springfield (which then included Agawam, West Springfield, Holyoke, Chicopee, Ludlow, Longmeadow and East Longmeadow), had over 200 houses standing within its boundaries. Covering by far the largest area, Springfield also included the greatest number of houses, 404.

Six towns (Westfield, Northampton, Hatfield, South Hadley, Brimfield and Granville) possessed between 100 and 200 houses, while exactly half of the listed towns had between 50 and 100 houses. The remaining six towns, all located on the northern and western peripheries, contained less than 50 houses. (The census does not include figures for Huntstown [Ashfield] or Sunderland.) Without calculating

for area, the actual relative densities of the houses per town cannot be determined; however, some developmental patterns are suggested by the 1765 figures.

Springfield remained the region's primary settlement. Other areas of importance focused at Brimfield, Westfield, and in the central Valley, where a combined total of 532 houses standing in the five key towns of Northampton, Hatfield, Hadley, Amherst and South Hadley suggest the emergence of that core area. Peripheral towns were very sparsely settled.

Plan and House Types:

The dominant house type of the Colonial period was the center chimney, two-room-wide house with five symmetrically disposed facade bays, a center entrance, two-story height and a gable roof. From 1675 through the end of the period, the center chimney house served as the standard residential form. In the well-established central and southern sections of the study unit, the center chimney house was succeeded by the 1750s by center hall plan structures, but in upland and northern areas the center chimney plan predominated through 1775.

In general, between a half dozen and a dozen center chimney plan Colonial period houses have survived in many of the southern and central towns. That number is considerably reduced in urban areas. In the peripheral areas of the study unit and especially in those towns settled after 1760, only one or two houses of the period, if any, remain extant. Towns which retain significant numbers of Colonial period houses include Amherst, Conway, Deerfield, Granville, Hadley, Longmeadow, Northfield, Northampton, South Hadley, Southampton and Westfield.

While two-story houses have tended to survive well in most towns, cottages appear to have been preserved in numbers significantly below the number actually constructed in the Colonial period.

The one-and-a-half story cottage was probably far more common in the period than the surviving examples might suggest. Extant Colonial period cottages tend to be located in rural sections of the peripheral towns of the study unit. This might suggest that cottages were a common house type on 18th century farmsteads, although they were probably a significant small house type in the built-up towns as well. For cottages, as well as for houses of the Colonial period, the center chimney plan was standard.

The other major plan type of the period was the center hall plan. Center hall plans were used with relative infrequency in the Colonial period. The exception is in the core areas of the southern and central Valley where the center hall plan was employed frequently for town houses and substantial farmhouses. The earliest extant houses incorporating center hall plans date from the 1750s and include examples in Amherst, Belchertown, Deerfield, Easthampton and Hadley. Most of the center hall plan houses in the Connecticut River Valley contain double interior chimneys, but interior end wall chimneys were also used.

Far less common than either the center chimney or center hall plans was the twin rearwall chimney plan. Nevertheless, a few houses with double interior chimneys rising along the rear wall, rather than through the peak of the gable, were built in the study unit. For the Colonial period, use of twin rearwall chimneys appears to have centered in the Deerfield area, where several pre-1750 houses using the plan were observed.

Materials and Detailing:

Timber framing was nearly universal for house construction in the Valley during the Colonial period. A notable exception to this is thought to have occurred in western Franklin County, where a tradition of log and/or plank framing has been suggested by 19th century historians. Josiah Holland (History of Western Massachusetts, 1855) stated that the first settler of Rowe, the Reverend Cornelius

Jones, built a small house of split planks there ca. 1760 (Holland 1855:419) and later, that the residents of Shelburne voted in 1771 to repair the log meetinghouse (Holland 1855:424).

Both vertical plank and squared log construction were known in Massachusetts Bay, Plymouth Colony and in New Hampshire in the 17th century. Squared log construction was used in the Connecticut River Valley as early as 1677 at Springfield (Cummings 1979:93), but Holland's references to the Franklin County structures indicate that such framing practices remained current for nearly a century longer. Even as late as 1801, reference was made to the building of "a log house in the wilderness" (Holland 1855, II:362) by Colonel Asaph White, the first settler of Erving. Other references to the first "framed" house in town seem to imply that framed houses were built only after settlement was fairly well established and that initially some other form of construction was employed. (See Lee Deane 1967 regarding the Joel Baker House, 1766, in Conway.)

Factors influencing the use of vertical plank and squared log techniques in the 18th century in the Connecticut River Valley may correspond to those posited for late 17th-century Massachusetts Bay: (1) wood was abundant, (2) sawmills to work the wood had been established, (3) construction was simpler, hence quicker and cheaper, than mortise-and-tenon framing (at least for plank construction) and (4) in the case of squared log construction, the structure was highly defensible (Cummings 1979:89-93). There were sawmills and abundant timber in western Franklin County; manpower and money were scarcer. In the 1760s, the Franklin County uplands stood as an isolated frontier; where expeditious solutions to the problems of providing shelter were necessary and native attack still threatened, plank or log construction would have been a practical option.

Culturally, the use of plank and squared log construction has often been linked to Scots-Irish groups present in New Hampshire from the late 17th century on. It is intriguing, then, to note that in the 1750s and 1760s several groups of Scots-Irish, emigrants from

Londonderry, New Hampshire, lived in the western Franklin County towns of Colrain and Shelburne. Other Scots-Irish groups settled in Palmer, Blandford, Ware, and Chester. Although it was not noted in local histories, plank and/or squared log construction could have existed in those communities as well.

The only other construction method known for the period was brick masonry. Employed at least as early as ca. 1660, when John Pynchon's brick mansion at Springfield was constructed, brick masonry was used, albeit sparingly, through the 18th century. Colonial period brick construction was noted in Agawam, Longmeadow, Springfield, West Springfield and Westfield. However, the only extant 18th-century brick structure known in the study unit is the Day House (1754) in West Springfield, which exhibits a center chimney plan with three facade bays and incorporates such typical 18th-century masonry details as string courses and gauged brick jackarches over the windows.

Another major architectural distinction of Colonial period houses regards roof form. There was relatively little variety in roof forms in the Connecticut River Valley, for the gable roof was nearly universal; however, several other roof types should be noted. In nearly all instances, variants from the gable form were confined to the core areas of the central Valley. Most common were the gambrel and hip roof forms. Gambrel roofed houses were observed in Amherst, Deerfield, Granville, Hadley, Northampton, South Hadley and Westfield. Among the earliest houses exhibiting gambrel roofs are the Parson Ashley House (ca. 1733) in Deerfield and the Strong House (1748) in Amherst; however, most gambrel roofed houses probably date from the 1750s and 1760s.

Hip roofs appear to have been used less commonly than gambrels, but they follow the same locational patterns. Both decked hip and pyramidal hip roof forms were employed. Almost unknown was the use of the double hip roof form: the most notable example is the Old Manse (1768) in Deerfield. The Manse, an elaborate example of

Connecticut River Valley Georgian architecture with corner quoins, segmental arched dormers and crownmolded lintels, was enlarged in 1768 by Jonas Locke, who added the double hip roof. Locke had emigrated from northern Middlesex County (Woburn) where double hip roofs commonly identified high status housing, in particular, parsonages, like the manse.

Undoubtedly, the most familiar feature of Connecticut River Valley architecture is the overscaled entrance with deep scrolled pediment and double doors, examples of which are found throughout the central Valley. The earliest of these are thought to date from the 1750s, and remained in use up to the Revolution. Few original doorways survive. In the early 20th century, many were acquired by museums and reproduction doorways substituted. Identification of original doorways has been further obscured by the addition in this century of Connecticut Valley doorways to Colonial period houses which never had them (as in the Root Tavern, 1739, in Montague). Communities with houses retaining original period Connecticut River Valley entrances are Deerfield, Hadley, Hatfield and, in Berkshire County, Stockbridge (Miller 1982:63).

The use of red sandstone for foundations and the use of hewn end gable and second story overhangs were other distinctive features of Connecticut River Valley architecture in the Colonial period. Houses with red sandstone foundations prevail in the southern half of the Valley. Use of shallow end gable and/or second story overhangs appears to have centered in the southwestern corner of the study unit and may correspond to the use of that feature in Connecticut, where it was also common. The most notable concentration of houses with overhangs is in Southampton, where at least four examples are known.

Federal Period

In the Federal period, settlement in the Connecticut River Valley as a whole achieved its greatest expansion. The towns now comprising

Franklin, Hampshire and Hampden counties had largely achieved their present configurations by 1780, after a period of rapid town formation in the 1760s and 1770s. From the 1780s until the 1820s, when the expanding western frontier began to siphon settlers away from New England, the Connecticut River Valley towns grew, many of them to their zenith. Architecturally, the activity of the period is reflected in the study unit's many Federal houses and cottages. These dominate the rural upland landscape and form a significant component of many of the lowland towns as well. Stylistically, the Federal architecture of the Valley is marked by maturity of expression in peripheral areas as well as within the cores. For the first time, too, the imprint of local architects, the most notable of whom were Asher Benjamin and Isaac Damon, became evident.

Settlement Diversity and the Upland Towns:

One of the most significant aspects of the Valley's Federal settlement was its diversity. Historically, the towns settled in the 17th century expanded during the Colonial period to spawn "daughter" towns in the surrounding areas. Towns which formed one or more daughter towns in the Colonial period included Springfield, Westfield, Hadley, Hatfield, Northampton and Deerfield. At the very end of the Colonial period, the peripheral western and northern sections of the study unit began to be settled by discrete groups of settlers from a variety of locations within Massachusetts, as well as from Connecticut and New Hampshire. While the Valley and southeastern sections tended to reflect the spread of influence from one of the core "mother" towns, often western and northern sections of the study unit contained pockets of influences from a number of geographically disparate sources.

The situation in the highland areas of the study unit in the 1760s and 1770s was not unrelated in many ways to the differentiated process of settlement around Massachusetts Bay that had occurred more than 100 years previously, in which settlers from East Anglia found themselves in close geographical contact with people from the

West of England. Thus, at the end of the 18th century, the primarily Abington/Bridgewater-derived settlers of Cummington and Plainfield, for instance, found themselves cheek by jowl with Ashfield and Goshen settlers whose origins linked them back to Deerfield.

This point has relevance because it was during the Federal period that the upland towns formed in the development pattern of disparate, distinct influences matured. It is intriguing to speculate about the degree to which the towns retained discrete identities or were tempered by shared forces of economic and topographic "margin-ality" into a similar "upland" mentality. Vernacular architecture may be one of the most tangible products of that process.

An examination of cottage types in this period offers some indication of regional variety, since the cottage was the predominant house form of the upland regions. For example, the five-bay-wide center chimney or center hall plan cottage was standard; yet there were some important differences in orientation, fenestration and detailing. In western Franklin and Hampshire counties for instance, many towns included settlers from southeastern Massachusetts; often cottages in that area incorporated Cape Cod features, such as an end gable window pattern which incorporated small square fixed light windows at the eaves and in the peak. The gable front orientation of other cottages (where the five-bay, center entrance facade is contained beneath a front-facing broad gable), which was a feature common in Worcester County, was also common in the hill towns of Franklin County.

Plan and House Types:

Diffusion of plan types for the Federal period closely reflects core-peripheral patterns: the more progressive center hall plan was employed most extensively in the river towns, while in rural peripheral areas, more traditional center chimney plans predominated. After 1820, however, the center hall plan became nearly universal for all two-story houses, regardless of location. Double interior chimney

and endwall chimney configurations of the standard center hall plan were used interchangeably and with similar frequency. The most stylishly detailed houses, however, tended to incorporate endwall chimneys. For cottages, the center chimney plan was by far the predominant plan type employed. For both houses and cottages, the standard house form incorporated a five-bay front with a center entrance and two symmetrically disposed rooms beneath a gable roof. The twin rearwall chimney plan, a common form in eastern Massachusetts, was used with some frequency in the Connecticut River Valley with examples noted in western Franklin County, Hatfield and Northampton.

By the 1820s, the first sidehall plan houses in the study unit were being constructed. In most instances, use of the sidehall plan coincided with the appearance of the earliest Greek Revival houses in the unit. Early Greek Revival houses with sidehall plans included the 1827 Bowers House in Northampton, designed by Ithiell Town, and the Joel Hayden House (1828) in Williamsburg.

Springfield, the only city of urban density in the study unit, probably contained some sidehall plan rowhouse blocks, but none of these have survived. Fragments of other urban house types, notably twin rearwall chimney houses where the rear wall forms the party wall between two half houses, were observed in Springfield. In the remainder of the study unit, there was little differentiation between town and rural architecture.

House height indicates another aspect of town/country uniformity. Significantly, no houses of greater than two and a half stories were noted. In contrast to coastal urban regions, where high-status houses of the Federal period typically incorporated three stories, even the most stylish houses known in the Valley utilized only two and a half stories. Only one three-story house ("Red Castle", 1814, Northampton; demolished ca. 1940) was encountered in field research. In the Connecticut Valley in the Federal period, two-room-deep double pile plans (rather than an additional story)

seem to have been adopted whenever larger house size was desired.

In terms of preservation, at least one Federal period center hall house of exceptional to outstanding quality has survived in most of the towns of the Connecticut River Valley. Lesser quality houses have been preserved in good numbers (generally around two dozen) in most towns of the study unit as well. This is particularly true for the upland and rural communities. In urban areas, often no more than a half dozen period houses remain extant. In most cases, these tend to be the exceptional high-status, often architect-designed, structures rather than the simpler houses which would have formed the bulk of a town's architecture.

Smaller houses and cottages of the Federal period appear to have survived in quantities more closely proportional to their probable original numbers than was true for the Colonial period. Certainly this is so in upland areas of the study unit, where small houses and cottages undoubtedly formed a significant component of the agrarian Federal landscape. In rural towns, often two dozen or so Federal cottages remain extant. Again, that number is considerably reduced in urban areas.

Worker Housing:

In the 1820s, the earliest forms of housing built expressly for factory workers began to appear in the Valley. The earliest known company-built housing (no longer extant) was constructed in Chicopee in the late 1820s for the Boston and Springfield Manufacturing Company. Brick construction was typical in Chicopee, but most early worker housing was probably of frame construction. Rowhouse tenements and duplex cottages were the two most common forms for Federal period worker housing.

Materials and Detailing:

While frame construction remained nearly universal during the

Federal period, brick construction became far more common than it had been. Probably the most innovative and widespread use of brick in the period was in Chicopee where, after 1824, brick rowhouses, tenements and mill buildings began to be built by the Dwight Manufacturing Company. The uniform quality of Chicopee's brick buildings and their dense setting prefigured the masonry character of later industrial cities of the Valley, notably Holyoke and Springfield.

In most cases in the Federal period, however, the use of brick defined high-status housing. Towns which retain one or more brick Federal houses include Agawam, Amherst, Buckland, Colrain, Deerfield, Easthampton, Granby, Greenfield, Longmeadow, Northampton and Shelburne. Among the most outstanding of these are the Joseph Griswold House (1818) in Buckland, the Ely House (1785) in Longmeadow and two unnamed houses in Colrain (MHC 110) and Shelburne (Bardwell's Ferry Road). Of these, the Ely House is undoubtedly the grandest, with two and a half stories contained beneath a huge gambrel roof with pedimented dormers. The Bardwell's Ferry Road house in Shelburne is of special note for its plan, which incorporates two one-story wings flanking a two-story, five-bay-wide central block. The plan probably derives from Asher Benjamin's similar design for the Leavitt-Hovey House (1797) in Greenfield; no other examples of extended plans, such as those for the Leavitt-Hovey and Shelburne houses, are known for the Federal period. Only one house of stone construction survives from the period, the Jonathan Dwight House (or Stone House, MHC 102) in Belchertown, built in 1827.

No innovative or variant roof forms of the Federal period were noted in the Valley; the standard gable and hip roof forms prevailed throughout the study unit. Shallow end gable hewn overhangs were a decorative feature which continued to be employed occasionally throughout the period. Observed examples were located primarily in western Hampshire and Hampden counties. Another feature which seems to have been used with some frequency in the same area were facade pilasters; facade pilasters, on pedestal bases and generally incorporating simple capitals, were observed on houses in Agawam,

Granville, Chesterfield and Worthington, as well as on houses in the core areas of Northampton, Springfield and Greenfield. The hallmark feature of the Federal period, the Palladian window, was widely employed throughout the study unit.

Architects and Builders:

One of the most significant factors affecting the Federal architecture of the Connecticut River Valley was the rise of a group of important local builders and at least two practitioners with sufficient training to be termed "architects," Asher Benjamin and Isaac Damon. Damon's impact on Valley architecture was both direct and long-lived, since he practiced in the region from the time of his arrival in Northampton (ca. 1812) until his death (date unknown). On the other hand, Benjamin, who was active in the Massachusetts portion of the Connecticut River Valley for only a few years between ca. 1796 and 1798, indirectly influenced vernacular building for nearly fifty years through the publication of his seven pattern books (1797-1843). Also of note was builder/architect Thomas Pratt, who arrived in Northampton in 1812 (probably to work on the Fourth Congregational Church then being constructed) and whose son, William Fenno Pratt, was one of the Valley's pre-eminent mid 19th-century architects.

The works of Benjamin and Pratt were confined to the core area of the Valley itself, while the meetinghouses for which Damon became noted were to be found scattered through upland and lowland towns across the entire southern half of the study unit. By the turn of the 19th century, the impetus for architectural expression had emerged in the hill towns and the hand of skilled local builder/architects could be identified.

Colonel John Ames (1767-1813) of Buckland was probably one of the more influential local builder/architects. Born in Marlborough, Massachusetts, he later settled in Buckland where he trained a number of builders in the region, among them Colonel David Snow of Heath (builder of the Town Hall, 1835), Colonel Howland of Conway and

Joseph Griswold of Buckland. In addition to designing several well-detailed houses (see Ozro Field House, Buckland: MHC 15) and the Ashfield Town Hall (1813), Ames was responsible for the addition of steeples of considerable elegance and the building of churches in his native Worcester County (Marlborough, Northborough, Shrewsbury).

Other builders active in the period were Winthrop Clapp (Deerfield; an apprentice of Isaac Damon), Elijah Hayden (Greenfield), Calvin Torrey and William Baldwin (Southampton), Major Caleb Loud (Westhampton), Timothy Billings (West Springfield), Captain Jonathan Warner (Williamsburg) and Captain Samuel Langley (Warwick). The Woodbridge family of South Hadley and Southampton should also be noted since they commissioned the construction in those towns of two ambitious and similarly detailed gambrel roofed late Georgian houses, the Colonel Ruggles Woodbridge (1788, South Hadley) and Doctor Sylvester Woodbridge (1793, Southampton) houses.

In other towns, individual builders were not identified, but the quality of certain residential architecture clearly points to the existence of local talent. The presence of houses of outstanding quality also serves to indicate a town's relative importance in the period and may reflect its operation as a local core area. Towns which retain one or more outstanding houses of the Federal period are Granville, Worthington, Colrain, Shelburne, New Salem and Brimfield. Of these, the finest collection of houses stands at Granville, and perhaps the most distinguished individual example is the Jonathan Woodbridge House (1806) at Worthington.

Early Industrial Period

In the Early Industrial period, regional architectural patterns became increasingly differentiated. Topographic, functional and socio-economic differences were well defined by 1870. In the Connecticut River Valley, building forms of two broad types, one industrial and the other agricultural, dominated regional architecture. In addition to generating forms of housing designed especially for

workers, industrialization in the Valley brought suburban development to the study unit's larger cities. By contrast, in the upland areas, very little expansion occurred. There, traditional plan types became entrenched as settlement consolidated. House size diminished as well in highland areas so that, by the end of the period, the cottage was clearly the dominant house form. The role of professional architects and master builders skilled in design widened in the period and a number of notable practitioners emerged. Among the Valley's more prominent designers were architects Henry Sykes of Springfield and William Pratt of Northampton, and builders such as the Stearns family of Northfield.

Major Building Forms:

The major innovations in residential building forms took place in the area of worker housing. Most of the industrial cities of the study unit developed in the southern part of the Valley: it is there that the majority of the worker housing is located--in Chicopee, Holyoke and Springfield and in the outlying cities of Ware, Palmer and Westfield. In addition to multi-family worker housing of several types, the core cities also contained a wider range of house sizes, types and styles: suburban villas, modest one-and-a-half and two-story housing for the middle class, and small cottages. A range from asymmetrical and sidehall plans, to the traditional symmetrical centrally entered plans, were represented.

In the prosperous agricultural river towns of the Connecticut River Valley, substantial and well detailed houses were built in some numbers. Although up-to-date stylistically, many nevertheless retained traditional center hall plans. In comparison to the upland agricultural communities, the number of large houses in the lowland agricultural towns is greater. Even small houses and cottages in the lowland agricultural towns more often incorporated innovative plans and a higher level of detailing than those of the upland communities.

In contrast to both the core areas and the lowland farming towns, the highland areas of the study unit exhibit a marked diminution in the range of building sizes and architectural styles present. Overall, few houses were larger than one and a half stories in height, and the Greek Revival style, with Italianate modifications later in period, remained nearly universal. Nevertheless, variations in plan, orientation and entrance placement indicate that distinctive subregional patterns continued to operate.

Major Plan Types:

The predominantly rural character of the Connecticut River Valley before 1850 exerted a conservative influence on the spread of innovative plan types. Except in the Valley's style centers, the sidehall plan, the period's major new plan type, was little used. Before 1850, center entrance plans with four- or five-bay-wide facades were the norm for houses and cottages in town as well as in the agricultural hinterlands. Regardless of geographic location, most of the two-story houses built in the period display double interior or end chimney placement and symmetrically disposed facade bays flanking a center entrance. The use of five facade bays, typical through the mid century, had, however, yielded by the end of the period to a three-bay arrangement.

Cottages presented a much wider variety of forms than two-story houses. Five- or four-bay facade cottages with center entrances and double interior or endwall chimneys and end gable orientation were most common. In fact, the center entrance "Cape" form dominated vernacular architecture well into the 1850s in the Valley. However, other center entrance cottage forms also developed in the 1830s and 1840s. The major change in cottage architecture of those years was the reorientation of the gable from an end position to a front-facing position, a shift which reflected the Greek Revival style and its reliance on the pedimented temple front form. As a general rule of vernacular Greek Revival architecture, gable front orientation was used in conjunction with sidehall entered plans of three bays' width.

In the Connecticut River Valley, however, this was not always the case. There, distinct center entrance cottage types, both with four or five facade bays and gable front orientation, were noted for the period.

The first type retained the two-room-wide, center entrance, five-bay facade configuration of the traditional Cape-type cottage, but differed from the traditional form in that it presented a broad gable front. In the broad gable form, the roof ridge ran perpendicular to, rather than parallel to, the front wall. Often the roofs of such cottages were of great depth and contained a half story plus an attic. Broad gable cottages with one and a half stories plus an attic concentrate in Franklin County. The broad gable form was also popular in Worcester County as well and may reflect the similar economic and social conditions of the two counties.

The other major cottage variant was observed in western Hampshire County. There, cottages were built with the standard Cape form of four or five bays' width by two bays in depth, but these were entered, not on the long side, but in the center of the gable end. Cottages of this form were noted in Worthington, Chesterfield and Huntington, among other towns. Both cottage forms generally display double interior chimneys and simple Greek Revival detailing.

The sidehall plan came into general use in the Connecticut River Valley only after 1850. Introduced in the river towns in the 1820s, it was used before 1850 primarily for high-style houses and as the basic module of the multiple-family worker housing forms which began to be built in the 1820s and 1830s, the double house and the tenement. Sidehall plan Greek Revival houses of note were built in the major style centers of Springfield, Northampton and Amherst and in secondary style centers as well, including Greenfield, Northfield and Westfield. In most other instances, sidehall plan Greek Revival houses dating before 1850 were confined to one or two examples per town, such as in Granville, Williamsburg and Brimfield.

After 1850, use of the sidehall plan became more generalized in the Valley. In addition to continuing as the basic unit for worker housing of both single- and multiple-family types, the sidehall plan came into widespread use for modest single-family houses in the study unit's emerging industrial cities. With the overall economic decline of the agricultural hinterland after 1850, residential construction in those areas decreased markedly. Thus, the impact of the sidehall plan on rural vernacular architecture after 1850 was negligible.

The sidehall plan also served as the basic component for high-style architecture of the mid 19th century; such Romantic architectural forms as the Tuscan villa and other elaborate Italianate houses often revolved around a central core consisting of a sidehall plan unit. It is to be noted, however, that the asymmetrical configurations of high-style mid-19th century architecture never achieved widespread acceptance in the Connecticut River Valley.

In the Valley's style centers of Springfield, Northampton, and Amherst, a simple, more formal and academic version of the Italianate prevailed. In Northampton and Amherst, the large body of work by William Pratt, who favored a three-bay-wide, square plan with center entrance and low hip roof with belvedere, seems to have had a great deal of influence on the adoption of similar hip roofed square plans for the majority of the region's larger Italianate houses. In Springfield, the short career of Henry Sykes, whose work was more worldly and eclectic than Pratt's, may have contributed to the appearance there of somewhat less restrained and more varied forms of mid-19th century residential architecture.

Whatever the influence of the two architects on the architecture of the Valley, the prevalence of center entrance plans and the relative rarity of asymmetrical plans, either of the towered Italianate villa variety or of the irregular Gothic Revival type, is a distinctive regional characteristic. In the suburban neighborhoods of Amherst and Northampton, the three-bay square, center entrance plan Italianate house epitomizes mid-19th century stylishness. Similar

houses are to be found in important agricultural towns such as Hatfield and Deerfield as well as in the smaller suburban neighborhoods of the emerging industrial cities of Chicopee, Holyoke and Easthampton.

Worker Housing:

With widespread industrialization in the Early Industrial period, large areas of the industrial cities and towns of the Valley were developed with worker housing. Introduced at the end of the Federal period, worker housing did not become widespread until the 1830s and 1840s. In the Connecticut River Valley, two major house types predominated: the rowhouse and the duplex cottage.

Rowhousing, consisting of a series of connected dwelling units with vertical party walls, was the most typical form of worker housing in Chicopee, Holyoke, Palmer, Ware and Turners Falls (Montague). In Chicopee and Holyoke, most rowhouses were of brick, two and a half stories in height, with gable roofs. The Chicopee rowhouses feature raking eaves ornamented with a jagged course of dogtoothed brick, apparently a favored detail of their designer, Charles McClallan. McClallan was responsible for the construction of numerous mills and mill housing in the Connecticut River Valley, and worked at Chicopee, Indian Orchard (Springfield), Holyoke and South Hadley Falls. The other major form of worker housing, the duplex cottage, generally stood one and a half stories and incorporated side-by-side sidehall plan units. Well-preserved examples of Greek Revival workers' duplexes stand at South Hadley Falls, Cheapside (Greenfield), Ware and Palmer.

Materials and Detailing:

Frame construction with clapboard siding remained the norm for the Early Industrial period. Although timber framing probably continued to be employed in rural areas in the early years of the period, in the towns and universally by the end of the period, balloon framing had replaced heavy timber construction.

Brick remained an important alternative building material in many areas of the study unit and became synonymous with industrial architecture and development in several cities. The use of brick for company-built worker housing was standard in Chicopee, Holyoke and Montague (Turners Falls). Other lesser concentrations of brick worker housing were noted in South Hadley Falls, Ware, Palmer, Greenfield and Orange, with additional examples observed in Chester, Russell and Easthampton. In Springfield, brick was widely used for worker and middle-class housing alike, especially after 1860. Although stone was never widely used for residential architecture, foundations, sills and other decorative elements of locally quarried brownstone were often incorporated in the Valley's masonry buildings of the period.

An unusual practice noted in western Franklin County was the use of brick for enlarging cottages: in Charlemont and Rowe several houses combining frame second stories with brick first floors were noted. These appear to have been constructed originally as one-story frame cottages and subsequently raised to two-story height through the addition of one-story brick "basements."

In most of the study unit, Greek Revival styling prevailed for much of the period. Typical Greek Revival features included panelled cornerboards, gable end pediments with flushboarding and six over six sash. For entrance surrounds, the transom was often excluded, but sidelights were nearly universal. One notable feature of entrances in the central Valley area is their width: many houses feature a very wide entablature surmounting a door with flanking sidelights and a double set of pilasters. Wide entrances, which were noted as well for Federal period structures, may reflect the tenacity of taste for the very wide entrances which were popular in the Connecticut River Valley in the 18th century.

The Italianate houses located in the area along the river tend to exhibit several distinctive decorative features. In addition to the shallow hip roof with belvedere (which is often the most prominent

element of the Valley's Italianate houses), another salient feature is a projecting one-story central entry porch. Often, the flat roofs of the porches are carried on corner piers or turned columns with an entablature cut with round arches.

The Gothic Revival style was only rarely used in the Connecticut River Valley. The existence of even a single Gothic Revival cottage is unusual for most towns in the Valley, yet examples were noted in Chicopee, Granville, Belchertown, Worthington and Bernardston, among other towns. The Hall-Tosi House (1846, Calvin Stearns, builder) in Northfield, probably the best known example of the Gothic Revival style in the Connecticut River Valley, is quite exceptional in its extensive use of lancet arches.

Architects and Builders:

Although a number of buildings by notable architects, both local and from Boston and New York, were constructed in the Valley during the period, most of that work was of an institutional or commercial nature, and comparatively few architects have been linked to the residential architecture of the Valley. Certainly the most prominent of these was William Fenno Pratt of Northampton. Pratt, the son of Northampton builder/architect Thomas Pratt, designed numerous residences in Northampton and Amherst, as well as in other Valley towns, in the 1850s, 1860s and 1870s.

By the 1860s, Pratt had been joined by other designers, most of them from the Springfield area. These included Chauncy Shepherd, B. Hammett Seabury and Eugene Gardner, the latter two of whom were to become two of Springfield's most prolific architects. Important builders of the period were Robert Cutler of Amherst, Elijah Hayden of Greenfield and the Stearns family of Northfield.

Late Industrial Period

In the Connecticut River Valley during the Late Industrial period, the cultural and economic dichotomy between upland and lowland widened: the industrial cities of the Valley prospered while the agrarian uplands declined to their nadir. With the exception of a few towns which attracted summer resort activity, architectural expression for residential buildings in the upland towns was confined to modest vernacular forms. Architectural innovation occurred almost solely in the industrialized cities and towns of the central Valley; those areas presented a full range of residential architecture with urban and suburban forms existing in a variety of sizes and styles. As the upland agrarian economy faded, then, late 19th century residential architectural development in the Valley came more and more to be represented by what occurred in the core areas.

Three basic types of housing related to the industrial economy of the regional core areas can be identified. These are middle- and upper-class suburban housing, middle- to lower-class single- and multiple-family housing, and worker housing. Extensive areas of all three types are present only in Springfield, the region's major urban core, but in varying proportions all three types are to be found in the remaining core areas as well. Outside of the regional cores, new housing was constructed in three settings: in the prosperous agricultural towns of the central Valley, in the town centers of the local cores and in towns which developed summer colonies and resorts.

Middle- and Upper-Class Suburban Housing:

It is in the suburban sections of the regional cores that the finest examples of late 19th century residential architecture in the study unit are to be found. Extensive suburban districts developed only in the central Valley, with examples in Springfield, Longmeadow, Northampton, Holyoke, and Greenfield, and to a lesser degree in Westfield and Amherst. Other areas containing minor concentrations of suburban housing are Easthampton, Chicopee, Ware, Palmer, Monson

and Montague. The region's pre-eminent 19th century suburb is the Forest Park section of Springfield.

The earliest residential suburbs began to appear in the 1850s and 1860s in Springfield, Amherst, and Northampton. At that time, substantial Italianate and Greek Revival houses, some of them architect-designed, were constructed in areas immediately adjacent to the commercial districts. By the 1870s, development had spread to more distant neighborhoods, at least in Springfield and Northampton. The first large-scale speculative real estate developments, of which the McKnight section of Springfield is the prime example, began at that time.

The McKnight district, an area comprising some 500 houses, was developed after 1870 by John D. and William McKnight. The majority of the houses were built in the Stick Style and Queen Anne style and many were designed by such prominent Springfield architects as F. S. Newman, Guy Kirkham, B. H. Seabury and F. R. Richmond. Most of the houses incorporate sidehall plans, hip roofs and offset gabled bays on the facade. Many were constructed of brick.

While the McKnight district is exceptional in size, its architectural content is typical of late 19th century suburban development in the Valley. In terms of house size and architectural design, suburban houses of the Connecticut River Valley tend to be more modest and conservative than similar housing in suburban Boston, for example. In general, the traditional sidehall plan predominated and very large, architect-designed houses incorporating up-to-date plans were relatively rare. Only in Springfield and Northampton did districts of stylish houses of innovative architectural design develop. Elsewhere, houses of exceptional design appeared in small numbers or as isolated examples within larger districts of comfortable, late 19th century houses. Stylistically, Stick Style and Queen Anne designs formed the bulk of the suburban houses constructed between 1880-1900.

After 1900, suburban residential development continued to be focused on the core communities of Northampton and Springfield. However, although Northampton remained an important area for suburban construction, it was Springfield which witnessed the most expansive and dramatic growth in suburban housing. The Forest Park section of Springfield took shape around the turn of the century as large tracts of Queen Anne, Colonial Revival and Craftsman style houses were built. Similar construction spilled over into Longmeadow, which became an elite suburb for Springfield professionals. Springfield was the only city in the Connecticut River Valley to spawn such an extra-municipal suburb; in all other cores in the Valley, suburban development was contained within municipal boundaries.

Middle- and Lower-Class Suburban Housing:

Industrial prosperity and population growth were two factors which stimulated construction of large areas of modest housing for the middle and lower classes. Construction of single- and multiple-family housing took place on a large scale in the industrialized cities of Springfield Holyoke, Chicopee and West Springfield and on a much smaller scale in the smaller industrial towns of Easthampton, Ware, Palmer, Monson, Orange and Montague. Facilitated by a widespread network of streetcar lines, areas of modest housing were built up in remote sections and suburbs of simple Queen Anne and Colonial Revival housing developed.

The majority of such housing was built between 1890 and 1915 and consists of simple frame sidehall plan structures with gable roofs. Single- and two-family houses were built in approximately equal numbers in all the densely-settled major industrial cores, while single-family houses appear to outnumber multiple-family houses in the smaller industrial towns. Except in Springfield, there are no large concentrations of three-deckers.

Worker Housing:

Four basic types of worker housing prevailed in the Late Industrial period: duplexes, rowhouses, tenements and cottages. Each is relatively distinct geographically. In many of the instances noted below, worker housing was company-built. The dominant types of worker housing in the Connecticut River Valley were duplexes and rowhousing. Rowhousing could consist either of four units, in what was essentially a double duplex unit, or of an extended series of units; it was usually defined by a vertical party wall. Duplexes and rowhousing were the most common form of worker housing in Easthampton, Ware, Palmer, Russell and Turners Falls (Montague). Frame construction was generally employed for duplexes and rowhouses, most of which exhibit simple Queen Anne or Craftsman styling. Gable roofs were generally used, although some gambrel roofed rowhousing was noted. Dormers and entries marked by small porches or door hoods are other common features of rowhousing in the Valley. Particularly noteworthy are collections of rowhousing in Russell (built by the Strathmore Paper Company) and Ware.

Tenements were constructed less frequently in the Late Industrial period than they had been in the Early Industrial period. The only area to retain use of the tenement form of worker housing was Holyoke, where a fair number of utilitarian three- or four-story flat roofed brick blocks were built into the 1880s. Wooden tenements never appear to have been common.

Frame cottages, generally one and a half stories with sidehall plans and gable roofs, were the standard worker housing form in the following cities and towns: Northampton (Florence), Greenfield, Ludlow, Westfield, Orange and Shelburne. Most of these feature simple Queen Anne styling, including one-story verandas with turned woodwork, dormers, and occasionally, patterned shingles as a secondary siding form. Probably the most extensive and best-preserved grouping of company-built worker cottages stands in Ludlow, where the Ludlow Manufacturing Company built approximately 400 such cottages before 1914.

Non-Urban Construction:

Outside the major urban cores, new construction in the Late Industrial period occurred in three areas: in prosperous agricultural towns of the north central Valley, in the town centers of the minor regional commercial centers, and in areas which developed summer colonies or resorts.

The Farm Towns:

The rich farmlands along the Connecticut River floodplain provided a stable economic base for that area through the end of the Late Industrial period. As a result, construction of farmhouses in that area continued unabated. Substantial Second Empire, Stick Style, Queen Anne and Colonial Revival houses were built in Hadley, Hatfield, Sunderland, Whately, Deerfield and Northfield. What is probably the finest group of these stands at Hatfield, where several mansard roofed Second Empire and Stick Style houses of the 1870s and 1880s were built along Elm Street at the town center. In general, new construction in the period occurred as infill at existing town centers, rather than in areas of new settlement.

Minor Commercial Centers:

A modest amount of infill construction occurred in the outlying commercial centers of the study unit as well. Most of this took place between 1880 and 1905 and consisted of simple one and a half and two-story frame houses with sidehall plans and Stick Style or Queen Anne detailing. Examples of such construction were noted in Charlemont, Shelburne, Belchertown, Chester and Monson. Of these towns, Shelburne contains the best preserved and most noteworthy collection of late 19th century houses, including well detailed Italianate, Second Empire, Stick Style and Queen Anne houses and cottages.

Summer Colonies:

The period's only major new form of residential construction consisted of resort cottages. Two types of resorts developed in the study unit at the end of the 19th century. One was the summer colony, which grew up in the picturesque highland agricultural towns like Ashfield, Conway, Worthington and Middlefield. In those towns, which had reached their zenith in the Federal period, impressive collections of surviving Federal architecture attracted a following among well-to-do Bostonians and New Yorkers seeking country retreats for the summer. The influx of newcomers affected local architecture in two ways. First, existing houses, generally the finest ones, were remodelled in the prevailing Colonial Revival style. Second, new Colonial Revival cottages, some of considerable distinction, were constructed.

The second type was the summer resort, generally located around a pond or lake. The lakeside resorts consisted of a number of very small, one-story, frame summer cottages, set in close proximity to one another. Most have little pretention to architectural expression but many incorporate aspects of Colonial Revival or Craftsman design, such as cobblestone foundations and chimneys, gambrel roofs or porches with flared posts in the bungalow manner. These resorts flourished from the early 20th century through the 1950s, but many are currently in bad repair. Summer resorts exist in Holland, Goshen, Ashfield, Southwick, Warwick, Rowe and Plainfield. Only one non-secular summer colony is known to exist in the Valley; that is the Laurel Park Methodist campground in Northampton. Laurel Park, founded in 1875, consists of several dozen Stick Style, Victorian Gothic and Queen Anne cottages arranged in a circular pattern around a central meeting area. Campmeetings were an annual summer event.

Early Modern Period

By 1920, the vast majority of the study unit's economic and human resources were concentrated in the south central portion of

the Valley. As a consequence, the architectural history of the Early Modern period focuses on developments in the core industrial cities and on the impact of the cores on the outlying periphery.

In residential architecture, suburbanization remained the most powerful operating force. Automobile transportation created suburban neighborhoods in towns surrounding the core cities, while in the cities themselves, urban transportation systems facilitated the infill and expansion of early 20th century residential areas. In inner urban areas, apartment blocks were constructed in response to increasing density.

Transportation networks and the automobile also supported the growth of summer resorts of cottages around ponds and lakes in nearby towns. In the secondary industrial towns of the study unit (almost all located in the uplands of the Valley), only limited residential construction occurred.

Middle- and Upper-Class Suburban Housing:

Middle- and upper-class suburbs consolidated in Springfield, Holyoke, Northampton and Greenfield and expanded into outlying areas, including Westfield, West Springfield, Longmeadow, South Hadley, Amherst and Deerfield. In most cases, the houses built were substantial and conservative. Two-story houses with symmetrical five-bay-wide, center entrance plans were most common. Revival styles predominated and dictated such design components as roof type and materials. By far the most prevalent style employed in the Valley was the Colonial Revival, followed by the Tudor Revival style.

The Colonial Revival style included several stylistic subsets, including Georgian, Federal and Dutch Colonial designs. The distinctive stylistic language of 18th century Connecticut River Valley architecture exerted a powerful influence on 20th century Colonial Revival buildings in the Valley. Thus, numerous houses of the 1920s incorporated entrance surrounds with reproduction scroll pediments. For

Colonial Revival houses, gable roofs and frame construction were the rule, while Georgian and Federal Revival houses often exhibited gambrel or hip roof forms and brick construction. Gambrel roofs with long shed dormers were the hallmark of Dutch Colonial houses.

For Tudor Revival houses, brick and stucco finishes, often used in combination with half-timbering, were most common. Tudor Revival houses also displayed a variety of roof forms with subsidiary gables and dormers. Innovative designs, including the International Style and the Moderne, were virtually nonexistent; less than a half dozen houses exhibiting contemporary designs were observed in the study unit. (These are located in Wilbraham, Ludlow, Amherst and Greenfield.)

The largest concentrations of substantial 1920s housing are located in Springfield, Longmeadow and Northampton. Many of these houses were architect-designed, for the architectural profession broadened in the period. Among the study unit's prominent practitioners were Karl S. Putnam, Malcolm B. Harding and E. C. and G. C. Gardner.

Middle- and Lower-Class Suburban Housing:

Suburban neighborhoods of middle- and lower-class housing also expanded in the core cities through the 1920s. These areas were concentrated in Springfield, Holyoke and Chicopee, with minor concentrations of such housing located in West Springfield, Agawam and Westfield. In general, middle- and lower-class housing consisted of simple one-story frame cottages or bungalows or frame two and a half story two-family houses. Brick and masonry construction was unusual for such housing. Concrete block construction was widely employed, but generally confined to less than a half dozen examples in the areas in which it appeared. Exceptional houses of concrete block construction were noted in Palmer and Erving.

Plans in general were conservative with side-entered examples being most common. With the exception of bungalows (the largest concentration of which is located in Springfield), most period houses display modest Colonial Revival or Craftsman styling. Hip and gable roofs, dormers, banded windows, wide shingled siding and simple projecting or recessed entry porches are common features of the 1920s housing in the Valley.

High-Density Urban Housing:

The only major new form of urban housing in the 1920s was the three- or four-story masonry apartment block. The apartment block offered the solution to middle-class housing in areas of high population density. Only two cities in the study unit achieved sufficient density to necessitate the construction of large numbers of apartment blocks. These were Springfield and Holyoke. In other cities and towns in the study unit, a small number of apartment blocks (usually less than a half dozen examples per community) were constructed in the 1920s. In Northampton, West Springfield, Chicopee and Greenfield, for example, apartment blocks functioned as an extension of the commercial district and were generally located in transition areas between business and residential sections.

In both Springfield and Holyoke, districts of apartment blocks were constructed in the 1920s. Most of these are of brick construction and rise to a height of three or four stories. Almost all exhibit multi-bayed, rectilinear plans and are terminated with flat roofs. U-shaped "garden court" plan apartment blocks are less common. In style, Georgian Revival, neoclassical and functional "Tapestry Brick" designs predominate. Most apartment blocks make use of cast concrete or cast stone trim.

Summer Resorts:

Existing summer resorts of the early 20th century in Holland, Goshen, Southwick, Warwick, Rowe and Plainfield continued to expand

through the 1920s. Automobile use strengthened access to such areas from the study unit's cores. As they functioned as summer resorts for residents of the industrial cities in the Valley, the summer colonies were an extension of, and were dependent upon, the core areas. As was true in the Late Industrial period, summer resort architecture consisted of very modest one-story frame cottages with the simplest of Colonial Revival or Craftsman details.

II. Institutional Architecture

A. Private Institutional

1. Ecclesiastical Buildings

Plantation Period

Meetinghouses were generally the first public buildings erected in newly established Massachusetts settlements. Dates of construction and dimensions of the earliest meetinghouses are known from public records. In the Connecticut River Valley, seven meetinghouses were built in the Plantation period between 1645 and 1672: in Springfield in 1645, in Northampton in 1655, in Hadley in 1665, in Westfield in 1668 and in Hatfield in 1670.

An indication of the temporary nature of the first meetinghouses can be gained from the fact that by the end of the 17th century, nearly all of them had been replaced. In Northampton and Westfield, the first meetinghouse was replaced almost immediately: Northampton's second meetinghouse was built in 1661 and Westfield's in 1672. In other towns, the second meetinghouse was constructed up to a generation later (Springfield, 1676; Hatfield, 1699). Only Hadley retained its first meetinghouse into the 18th century.

Plantation period meetinghouses were generally small structures, none greater than 45 feet in length. Several of the 17th century meetinghouses were square in plan, among these Hatfield (1670, 30 x 30 feet), Northampton (1661, 40 x 40 feet) and Westfield (1672, 36 x 36 feet). As far as records indicate, all were of frame construction. Height, where stated, varied from nine feet (Northampton, 1655) to eighteen feet (Springfield, 1645). For the taller structures, interior galleries can be presumed. Hip roofs were constructed on at least two meetinghouses, Hatfield (1670) and Northampton (1661).

Colonial Period

The Colonial period witnessed great expansion in the Connecticut River Valley study unit, especially after 1800. Only two meetinghouses (Springfield, 1676; Hatfield, 1699) were built between 1675 and 1700; however, the increasing numbers of meetinghouses built in the three 25-year spans between 1700 and 1775 reflect great expansion. In all, six meetinghouses were built between 1700 and 1725, sixteen between 1725 and 1750 and 24 between 1750 and 1775. During that period, settlements grew beyond the confines of the river valley until, by 1775, even remote highland areas contained modest communities. Records indicate that meetinghouses varied widely in size and architectural quality, from Northampton's huge 46 x 70 foot third meetinghouse (1735) to the 1769 Shelburne meetinghouse, constructed of round logs.

In general, the small number of meetinghouses built between 1700 and 1725 were located in the early settlements along the Connecticut River, in West Springfield (1702), Hadley (1713), Sunderland (1716), Northfield (1718), Westfield (1721), and Brimfield (1721). Of these, none were greater than 50 feet in length. All were rectangular in plan, except for West Springfield's; a 42 x 42 foot meetinghouse built by John Allys of Hatfield in 1702, it retained the old-fashioned square meetinghouse plan. In form, however, it was probably the most unusual meetinghouse built in the Valley in the Colonial period. It rose in a series of three hip roofed cupolas, each of successively smaller size, to an overall height of 92 feet.

From the pattern of construction dates of meetinghouses built between 1725 and 1750, one may speculate on the impact of regional events. Two of the most important events of that 25-year span were the Great Awakening, which spread through the region after 1734, and the native uprisings of the 1740s. Of the sixteen meetinghouses built in the period, eight were constructed between 1735 and 1739. These were located in Amherst, Northampton, Palmer, Southampton, Belchertown, New Salem, South Hadley, and Bernardston. Whether

this concentration of meetinghouse construction in the late 1730s reflects the impact of Jonathan Edwards and the Great Awakening remains to be proven.

Other meetinghouses of the period 1725-1750 were built in Deerfield (1729), Shutesbury (1740), Blandford (1740), Colrain (1742-1769), Pelham (1743), Granville (1747), Wilbraham (1748) and Springfield (1749-1752).

In plan, the 1725-1750 meetinghouses for which dimensions were recorded were all rectangular. These varied in size from the smallest, the 18 x 23 x 7 foot 1738 South Hadley meetinghouse to Northampton's 46 x 70 foot meetinghouse of 1735. The majority of second-quarter 18th century meetinghouses, however, averaged dimensions of 30 to 35 feet in width and 40 to 45 feet in length. Only one of the sixteen Pelham meetinghouses built in the period remains extant: the Pelham meetinghouse of 1743. A simple, gabled, rectilinear two-story building, this meetinghouse features a projecting two-story porch on the four-bay-wide facade and small 12/12 windows.

Architecturally, the pre-1750 meetinghouses were generally simple structures. The only ones known to have been embellished with steeples were those in Hadley (1713; steeple added 1753), Northampton (1735) and Springfield. Since none of the meetinghouses records discuss any other building material, all are presumed to have been of standard timber frame construction. Also, since the 1702 West Springfield meetinghouse was the last for which the sources mention hip roofs, it is presumed that most 1700-1750 meetinghouses featured gable roofs.

The greatest proportion (24) of meetinghouses built in the Colonial period were constructed between 1750 and 1775, with the majority of these (thirteen) built in the 1760s. Not surprisingly, that coincides with the most active episode of town settlement in the Colonial period, which was repeated in the 1760s as proprietorships were granted in the northern highland areas.

In a few towns, such as Hatfield, which in 1750 built its third-generation meetinghouse, and South Hadley (1762), the 1750-1775 meetinghouses were second-generation structures within established communities. But, for the majority of the study unit's communities, meetinghouse construction between 1750 and 1775 represented either the establishment of an entirely new settlement or the achievement of autonomy from the parent town (and, de facto, the elevation of a parish to town status).

As had been the case in the Plantation period, a few of the "frontier" communities of the Colonial period erected "temporary" meetinghouses which were soon replaced by more permanent structures. For example, the first Charlemont meetinghouse, a 30 x 35 x 18 foot structure begun in 1752 and never fully finished, was replaced in 1767 by a somewhat larger, 35 x 45 x 20 foot meetinghouse. The original log-construction Shelburne meetinghouse (1769), another example, was quickly replaced in 1773.

An indication of the challenges of life in the 18th century Massachusetts hinterland can be gleaned from the fact that the second 1767 Charlemont meetinghouse, like its 1752 predecessor, took several years to complete, and was not finished until 1772. Meetinghouses which took several years to complete were not uncommon in the study unit throughout the entire period, particularly in upland areas: the Chester meetinghouse (40 x 45 x 20 feet) was ten years in the building (1763-1773). Other communities which began meetinghouses but did not finish them immediately included Southampton (1737-1752), South Hadley (1738-1747), Blandford (1740-1807; a unique case reflecting an acrimonious Congregational-Presbyterian debate), Colrain (1742-1769) and Springfield (1749-1752).

In size, meetinghouses of the period 1750-1775 varied widely, as they had in previous years. Quality of construction and architectural detailing also covered a range of examples. The average meetinghouse dimensions continued to be about 30 to 40 feet in width and 40 to 50 feet in length, and rectangular plans were nearly universal.

The 1769 Conway meetinghouse was the only example for which a square plan (30 x 30 x 10 feet) was recorded for the period 1750-1775.

The 1750-1775 meetinghouses tended to be simple, although it is unlikely that many were as primitive as Shelburne's 1769 meetinghouse of round log construction. Meetinghouses of the quality of Longmeadow's house of 1766 were, on the other hand, exceptional. One of the largest recorded for the period, Longmeadow's meetinghouse had dimensions of 42 x 56 x 20 feet and incorporated a 14 x 14 x 54 foot steeple tower. Although remodelled several times and moved, the Longmeadow meetinghouse is the only third-quarter 18th century meetinghouse to survive in the study unit (portions of the 1762 South Hadley meetinghouse frame are believed extant).

Aside from the established Congregational Church, the only other denominations active in the Connecticut River Valley in the Colonial period were the Baptists and the Presbyterians. Baptist societies were present in Agawam (1720), Wales (1736), Westfield (1753), Granville (ca. 1760), Ashfield (1760), Leverett/Montague (1767), Monson/Wilbraham (1768), New Salem (1772) and West Springfield (1772). No meetinghouses affiliated with Baptist societies are known to survive from this period. Presbyterians, reflecting an important Scots-Irish component of the population, were active in Palmer (1730), Blandford (1740), Colrain (1740) and Pelham (1743).

Federal Period

The Federal period was one of great proliferation in the study unit, both intra- and inter-denominationally and also in terms of church construction. In addition to the established Congregational Church, within which the Trinitarian/Unitarian schism occurred, Baptists, Methodists, Episcopalians, Shakers and Quakers were active in the Connecticut River Valley. This activity reflects the overall economic and population growth of the study unit in the period. Another manifestation of Federal period growth was the emergence of

an identifiable group of builder/architects who worked in the region; often, their largest commissions were for churches.

An indication of the prolific activity of the period is seen in that approximately 141 churches of various denominations were either built or established in the study unit by 1830. At least 30 of the study unit's Federal period churches have survived.

In general, expansion within both the Congregational and Baptist denominations appears to have taken place at a fairly steady rate throughout the period. Growth in Methodism, however, occurred primarily after 1800, with only five of the twenty recorded Methodist societies founded before that date. A similar pattern can be noted for Unitarian, Universalist and Episcopalian societies in the study unit, nearly all of which were established after 1800.

The practice of noting meetinghouse dimensions in town records appears to have died out after 1800; however, where dimensions are recorded, a slight overall increase in the size of meetinghouses can be noted. Building dimensions of approximately 40 x 50 feet became common. Extant Federal meetinghouses support this observation, for two-story height and five-bay by five-bay configuration are standard for the period. Frame construction was nearly universal; yet, at least one brick meetinghouse was constructed, at Deerfield (1824).

Of special note for the period are those meetinghouses which can be identified as the work of a particular builder. The largest group of these are six meetinghouses attributed to Isaac Damon. A Weymouth, Massachusetts native, Damon resided in Northampton from 1811 until his death. Among his extant meetinghouses are the First Church, Blandford (1823), First Church, Springfield (1819), First Church, Southwick (1824), Second Church, North Hadley (1834) and Johnson Chapel (1826-1827) at Amherst College. An 1816 Damon church in Westhampton burned in 1829. In addition, Damon's apprentices built the Unitarian Church, Deerfield (1824) and the First Church, Chicopee (1825). Thus, Damon's influence was widely felt in the southern and central sections of the Connecticut River Valley.

Characteristic of Damon's churches are tripartite steeple towers which contain two concentric octagonal stages surmounting a square base with recessed blind arches. Also, his churches often include projecting two-story porches with pediments, pilasters and round-arched entrance surrounds.

Another Connecticut River Valley builder/architect of note was Colonel John Ames of Buckland. Born in Marlborough, Massachusetts in 1767, Ames resided from ca. 1790 until his death in 1813 in Buckland. He built the first Church, Buckland (1793) and First Church, Ashfield (1813). In addition, he is credited with the design, in Worcester County, of the First Church, Marlborough (1805) and Unitarian Church, Northborough (1808) as well as steeples for churches at Townsend (1804) and Shrewsbury (1807). An accomplished designer, Ames trained many western Franklin County builders.

Other extant Connecticut River Valley Federal meetinghouses for which the builder/architects are known include: the First Church, Granby (1821) by noted Worcester County builders Luther and Elias Carter; First Church, Southampton (1788, Calvin Torrey and William Baldwin); First Church, West Springfield (1800, Timothy Billings); First Church, Williamsburg (1778, Jonathan Warner); and First Church, Warwick (1786, Samuel Langley).

One of the most important church designs of the period was Asher Benjamin's design for the First Parish Church (1810-1812) in Northampton. Unfortunately destroyed by fire in 1878, the First Parish was one of the Valley's most elegant examples of Federal architecture. The construction project also drew to Northampton several talented builders who remained in the city and later became important regional designers in their own right. Among these were Isaac Damon and Thomas Pratt; Pratt's son, William Fenno Pratt, later became Northampton's foremost native architect.

Very few structures of denominations other than Congregational have survived. An 1822 Baptist meetinghouse, originally built in

Southwick, was moved to Storowton in West Springfield where it was altered to represent a town hall. In Ashfield stands the earliest surviving Episcopal church in the study unit (1829). Nothing survives from the limited presence in the study unit of either the Shakers (Shelburne, 1782) or the Quakers (Pelham, 1808).

Early Industrial Period

The first twenty years of the Early Industrial period witnessed the continuation of the relatively steady economic and population growth patterns of the Federal period. After 1850, however, the study unit overall experienced the beginnings of a period of decline which lasted into the 20th century. This general pattern is borne out in figures available for the number of churches either established or built in the period. For example, of some 65 Congregational churches established or built in the period, 52 pre-date 1850, and only thirteen date from the period 1850-1875.

Although the early years of the period saw continued growth, the Early Industrial period was a time of diversification within existing communities rather than one of expansion or new settlement. In terms of the religious organizations of the day, this can be noted in the founding of second and third societies of the original Congregational societies, in the growth of Unitarian and Universalist societies, and in the proliferation of Methodist and Baptist societies. Increasing urban diversity is evidenced in the establishment in the period of the first Roman Catholic missions and parishes. In all, 24 second or third Congregational societies, seventeen Unitarian or Universalist societies, 29 Baptist societies, 23 Methodist societies and ten Catholic parishes were founded in the study unit during the period. For those denominations, a pattern similar to that noted for the Congregational churches can be discerned; that is, nearly all of them were established prior to 1850.

There was comparatively little diversity of architectural form in churches of the period. With increasing denominational variety and

the disestablishment of the Congregational Church (1833), smaller groups of people were called upon to support the churches of their choice from their individual resources. This is a factor which might suggest a reason for an overall diminution in size of Early Industrial period churches. The fact that the majority of the study unit's churches of the period were founded before 1850, in the heyday of the Greek Revival style, also suggests a conditioning factor (along with a pervasive regional conservatism) for the prevalence of Greek Revival churches in the study unit. In any case, a clearly dominant Greek Revival church form had emerged by the 1850s. With the subsequent decline of the region, these churches have tended to survive well and form a large percentage of the extant churches in the study unit as a whole.

A typical example of the Greek Revival form is the 1839 Congregational Church in Pelham, which consists of a gable roofed, three-bay wide by three-bay long rectangular block of one-story height and frame construction. Long triple-hung 20/20 sash light the church, and entrance is gained through a center door. Embellishment consists of panelled facade pilasters supporting a Tuscan entablature that circles the entire structure. The gable end is treated as a pediment and a square belfry with spire surmounts the gable.

In several towns, 18th century meetinghouses underwent remodelling during the Early Industrial period. Some extant examples of this practice include meetinghouses in Gill (1796; remodelled 1848), Granville (1781; remodelled ca. 1840), Goshen (1782; remodelled 1834, 1858), and Middlefield (1783; remodelled 1847).

After 1850, church building occurred primarily in the urban cores of the Connecticut River Valley. In marked contrast to the small vernacular Greek Revival frame churches of the rural areas, urban churches tended to be large structures of masonry construction and often were architect designed. Most extant masonry urban

churches date from the 1860s. Many of these were constructed for the Catholic parishes which began to be established in the industrial communities as the population of Irish workers grew.

Among the earliest surviving Catholic churches in the study unit are Saint Jerome's, Holyoke (organized 1856; church, 1860, P. C. Keeley), Saint Michael's, Springfield (1860-1861, P. C. Keeley), and Saint Mary's, Williamsburg (1868, O'Keefe and Hogan, Springfield). Other important churches of the period include Memorial Church, Springfield (extant; 1866, Richard and R. M. Upjohn), and the Church of the Unity, Springfield (1866, H. H. Richardson; demolished).

Late Industrial Period

By the Late Industrial period, almost all of the church buildings being constructed in the study unit were in the industrial cores. After 1850, rural areas of the study unit entered a period of decline and stagnation, one effect of which was the virtual cessation of private initiatives such as church founding or building. Not surprisingly, most of the churches founded in the period served the emergent working class populations of Irish and French Canadian Catholics: of some 50 Catholic parishes known in the study unit, 30 were formed in the Late Industrial period. Other less active religious groups in the Connecticut River Valley cores in the period were Methodists, Baptists and Episcopalians: each of these groups formed approximately a half dozen congregations in the period, most before 1900. More prolific than any other non-Catholic group of the period, however, were Congregationalists; that traditionally dominant group maintained much of its strength throughout the period with some 23 churches known to have been organized or constructed between 1875 and 1915.

The churches of the Late Industrial period form the largest single group of the study unit's surviving church structures. Of some 72 churches known to have been built in the period, 50 are still

standing. Communities with outstanding collections of late 19th century churches include Holyoke, Springfield, Northampton and Greenfield--all core cities. Other communities with important late 19th century churches are Amherst, Montague (Turners Falls) and Ware. In most industrial communities, approximately a half dozen churches of various denominations were constructed in the period, while in rural towns as little as one or two examples of late 19th century church construction may be found. In rural towns, too, existing churches were often remodelled or altered to update an outmoded appearance or to spare the expense of new construction. Communities with remodelled churches include Belchertown (1789; remodelled 1872), Heath (1833; remodelled 1875), Middlefield (1835 and 1847; remodelled and joined, 1902) and Longmeadow (1766; remodelled 1874).

In contrast to the Early Industrial period, which was characterized by relative homogeneity in church architecture, the Late Industrial period was one of stylistic eclecticism for churches in the Connecticut River Valley. This, of course, reflects the general eclecticism of the period, but diversity of architectural styles for churches also expresses the theological and ethnic diversity of the congregations. In very general categories, Roman Catholic churches tended to be either Gothic Revival in style or, after 1900, Tuscan or Romanesque Revival; twin-towered Gothic Revival churches were a hallmark of French-Canadian parishes. Episcopalians also favored the Gothic Revival, in a less formal English Country Gothic variant, while Protestant congregations often chose more "residential" styles, such as the Queen Anne and Shingle Styles for their churches. The only Christian Science church known in the Connecticut River Valley (1908, Northampton) is represented by a very unusual neo-classical design by Chicago architect Solon S. Beman.

Church commissions in the Valley drew architects from a wide area; in addition to local practitioners, architects from New York, Boston and other cities were frequently employed. Among the architects designing churches in the study unit were J. Williams Beal (All Soul's Unitarian, 1894, Greenfield), Peabody and Stearns (First

Congregational, 1876, Northampton), Patrick Ford (Saint Mary of the Assumption, 1881; Church of the Annunciation, 1879-1880, both Northampton), Maginnis, Walsh and Sullivan (Blessed Sacrament, 1900, Northampton) and William A. Potter (Stearns Church, 1870-1873, Amherst; South Congregational, 1872-1875, Springfield). One of the more active local architects was John W. Donahue, a Springfield designer of Catholic churches who worked in the early 20th century. At least three of Northampton's Catholic churches are his work: Saint Michael's, 1909; Saint John Cantius, 1912; and Sacred Heart, 1916.

Early Modern Period

After 1915, there was very little activity in the establishment and the construction of religious structures. The only exceptions to this trend were for such ethnic religious groups as Jews and Greek Orthodox and for Catholic parishes, which continued to be formed in the Valley into the 1920s. In addition to parishes formed in industrial cities such as Northampton (1916, 1932) and Chicopee (1922), smaller missions and parishes were established in a few outlying towns, including Russell (1926) and Worthington (1932). On a smaller scale was the establishment of Jewish congregations in several core cities of the study unit. Among these were Springfield, Westfield, Holyoke and Northampton. In addition, at least one Greek Orthodox church was established, in Holyoke in 1916.

2. Private Educational Buildings

Colonial Period

The only private educational institutions known to have existed in the Connecticut River Valley in the Colonial period were day schools run by the town minister. Often the minister, as one of the few citizens in the town with an advanced education, would take in students for instruction in subjects not generally taught in the other

town schools. While a few of these existed for some years, most of these schools ran only intermittently, according to the abilities, needs or desires of the minister. None are known to have been established on a permanent basis.

The only other attempt at providing for private education came in Hatfield in 1762. There was at that time sentiment in the town (undoubtedly generated by the region's most prominent family, the Williamses) to petition the legislature to charter a college (called Queens College) in Hatfield. Although the petition was unsuccessful, it nevertheless demonstrates a rather remarkable sense of regional identity when one considers that the proposed college was intended to rival Yale and Harvard and that the Connecticut River Valley in 1762 had only recently been a dangerous frontier.

Federal Period

It was not until the Federal period that private educational institutions of a permanent nature began to be established in the Connecticut River Valley. Approximately a dozen private educational academies were founded in the period, most providing an advanced education for college preparation. One of these, Amherst Academy (1814), became in 1821 the study unit's first college, Amherst College. The Federal period generally was a time of great institutional expansion and in this the Connecticut River Valley was no exception. By contrast, however, the absence in the study unit of any institutions of higher learning prior to the 1821 establishment of Amherst College reflects the relatively late development of the region.

Regionally, the presence of Federal period academies has been used in the core-periphery model to define core areas of relative importance. Known Federal period academies existed in the core communities of Amherst (1814, Amherst; 1826, Mount Pleasant), Deerfield (1797) and Northampton (1821, Law School; 1824, Round Hill). Academies also existed in local core and other rural areas including Ashfield (1817, Sanderson), Hadley (1816, Hopkins), Monson (1804),

Wilbraham (1824) and Westfield (1800). Academies were also present in Buckland (1826, Female Seminary), New Salem (1795) and Northfield (1829) among other communities.

Of the roughly one dozen academies in the Federal period Connecticut River Valley, only three academy buildings are known to survive. These are the 1797 Deerfield Academy, 1804 Monson Academy and 1824 Wilbraham Academy. All three buildings are of brick construction. Of these, the Deerfield Academy, said to be a design of Asher Benjamin, has been altered to the greatest extent: at the end of the 19th century, it was remodelled. Nonetheless, all three buildings retain typical characteristics of Federal period institutional architecture: rectangular plan, three-story height and fore-shortened third floor windows.

Although neither is extant, both the Mount Pleasant (Amherst) and Round Hill (Northampton) academies should be noted, the first for its exceptionally sophisticated building, a domed Greek Revival temple flanked by arcades and end pavilions, and the second as the brainchild of George Bancroft, eminent 19th century historian.

The most important complex of private educational buildings of the period is the original Amherst College campus of 1821-1827, consisting of Johnson Chapel and North and South Halls. Said to be the design of Isaac Damon, the complex was called by architectural historian Talbot Hamlin "the most striking and original creation" of Connecticut Valley Greek Revival architecture. Notable for its linear plan and dramatic hilltop siting, the group contains two four-story brick dormitory buildings flanking the Doric temple front chapel.

Early Industrial Period

Private academies continued to be founded in relatively substantial numbers well into the Early Industrial period; between 1830 and 1850, some sixteen academies were known to have been established in the study unit, with an additional seven academies founded between

1850 and 1870. While locational focus shifted in the period from the lowland core areas to more isolated rural locations, the establishment of a private academy nevertheless reflected the importance of a community in its regional context. As the upland settlements flanking the river matured, the need for nearby better quality educational institutions surfaced and small rural academies were founded. Likewise, academies also appeared in emergent industrial cores.

Prior to 1850, private academies had been established in the following towns: Belchertown (1836; Classical School), Bernardston (1833; Goodale Academy), Charlemont (1839; Grove School), Cummington (1833), Easthampton (1841), Granville (ca. 1839), Greenfield (1832; 1843), Hampden (ca. 1840), New Salem (1837), Northampton (1835; 1849), Shelburne (1833; Franklin Academy), South Hadley (1837; Mount Holyoke Seminary), Springfield (1832) and Worthington (1837; Mountain Academy). From these sixteen academies, only three extant structures are known. These are the 1837 New Salem Academy, a two-story Greek Revival building with a square belfry, the ca. 1839 Granville Academy and the ca. 1840 Hampden Academy. Both the Granville and Hampden academy buildings are simple one-story frame Greek Revival buildings with double entries and square belfries.

After 1850, an additional seven academies had been founded, in Ashfield (1853; Sanderson Academy), Bernardston (1856, Powers Institute), Brimfield (1855; Hitchcock Academy), Conway (1853), Easthampton (Williston Academy; 1857, 1863) and Greenfield (1868). In addition, the previously existing Wilbraham Academy expanded with the construction of three new buildings in 1851, 1854 and 1860. Among these structures, a total of five are known extant (Powers, Hitchcock, Williston, and two at Wilbraham).

All of these are substantial buildings, but the most imposing mid-century academy buildings are the two at Wilbraham Academy. These are Fisk Hall of 1851 by Gridley J. F. Bryant (one of two known works of his in the study unit) and Rich Hall of 1860 by a

Boston architect named Twombly (otherwise unknown). Fisk Hall is a relatively simple brick Italianate building, but Rich Hall displays abundant Italianate detailing with all the windows of the four-story brick building featuring round arched heads with brownstone surrounds. More rural in character are the frame Italianate Hitchcock Academy, distinguished by a second story loggia, and the Greek Revival Powers Institute.

The other major educational buildings of the period were those built for Amherst College and for the other two colleges established in the period, the Westfield Normal School (1844) and the Massachusetts Agricultural College (1863; now University of Massachusetts). Of these, only the Amherst buildings have survived. These are especially noteworthy since they include specialized buildings, such as the Octagon, an 1844 astronomical observatory, as well as important works by Henry A. Sykes, a Springfield architect whose work, it is felt, would have had a major regional impact were it not for his early death. Morgan Hall (1852), a Tuscan Italianate structure of gneiss, is one of his grandest works. Other period buildings at Amherst are Williston Hall (1857-1858) and Barrett Hall (1859-1860), both by Charles E. Parker, Boston architect and designer of Easthampton and Chicopee city halls.

Late Industrial Period

Several major shifts occurred in private educational institutions in the Late Industrial period. First, many of those academies founded in the Early Industrial period ceased functioning. Those that continued to operate often took on the function of the local high school; this was true in Deerfield and in Ashfield and seems to have been most common in rural areas which could not support two separate secondary schools.

Secondly, the new private schools founded in the period tended to be boarding schools (rather than primarily day schools as the academies had been) and attracted an extra-regional student body,

whereas the older academies had almost always served their own small region. The third major event in private education was the establishment of two important women's colleges, Smith in Northampton in 1875 and Mount Holyoke in South Hadley in 1881. Amherst College and the University of Massachusetts also expanded dramatically in the period.

In rural areas, the private academies continued to serve an important educational role. New academies were founded in the period in Conway (1873; Hill View), Hatfield (1872; Smith Academy), Shelburne (1879; Arms Academy) and Worthington (1894; Conwell). In addition, both Wilbraham Academy and New Salem Academy expanded with new buildings (1896; 1908) in the period. Of these buildings, the Shelburne, Wilbraham and New Salem buildings are all extant, and all are notable architecturally. Smith Hall at Wilbraham Academy is a towered brick Richardsonian Romanesque building, the Arms Academy building, by Springfield architect E. C. Gardner, is in the Victorian Gothic Style, and the New Salem Academy is notable as an early and rare example of concrete block construction.

The other important development of the period was the establishment in Gill of Mount Hermon School for Boys (1881) and in Northfield of Northfield Seminary (1879). Both were founded through the influence of evangelist Dwight L. Moody. Both developed rapidly and by the end of the period boasted comfortable campuses with Queen Anne, Beaux Arts and Colonial and Renaissance Revival buildings of some pretension. Notable buildings at Northfield include Russell Sage Chapel (1909), Home Science Hall (1907) and Marquand Hall (1884).

The most outstanding collection of academic buildings, however, are those built for the Valley's colleges. While Amherst, the University of Massachusetts and Mount Holyoke all contain important groups of late 19th and early 20th century classroom and dormitory buildings by prominent New York and Boston architects, probably the finest overall group of period buildings are those at Smith College. Outstanding individual buildings include three Peabody and Stearns

buildings (Pierce, 1882; Hubbard, 1879; Washburn, 1878), a building by York and Sawyer of New York (Seelye Hall, 1898) and buildings by Richardson and Driver (Talbot, 1909; Gill, 1918).

Important individual buildings at Amherst and the University of Massachusetts include Fayerweather Lab (Amherst College, 1892-1894; McKim, Mead and White), Old Chapel (UMass; Stephen Earle) and Wilder Hall (UMass; 1905). Among Mount Holyoke College's notable buildings are designs by local architects such as William C. Brocklesby of Hartford and Gardner, Pyne and Gardner of Springfield. The work of Boston architect George F. Newton is also represented.

Early Modern Period

There was very little activity in the area of academic architecture outside of the established institutions in the Valley: Amherst, Smith and Mount Holyoke colleges, the University of Massachusetts and the larger private schools, Mount Hermon, Northfield, Deerfield and Wilbraham. There were no additional private educational institutions founded; rather, existing institutions were expanded.

B. Public Institutional Buildings

1. Educational: Primary Schools

Plantation and Contact Periods

The first schoolhouses in the Connecticut River Valley were built at the end of the 17th century, some fifty years after the initial English settlement of the area. Two of the earliest schoolhouses described in the sources were in Springfield (1679) and Deerfield (1698), and only the dimensions of these two are known. Small and not quite square, the schools had dimensions of 22 x 17 feet (Springfield) and 21 x 18 x 7 feet (Deerfield). Schools of one-story height and rectangular configuration remained more or less standard through the end of the 18th century.

From 1700-1750, the number of schoolhouses constructed in the Valley remained small with less than a dozen examples noted in local histories. The great majority of these were located in the earliest settled towns along the Connecticut River and dated from the late 1730s and 1740s. Although one square schoolhouse was described (Westfield, 1700, 18 x 18 feet), records indicate that the rectangular shape prevailed. Size of schoolhouses showed little change from the previous century: South Hadley's 1738 schoolhouse with dimensions of 23 x 18 x 7 feet was nearly identical in size to Deerfield's 1698 first schoolhouse. All schools noted were one-story in height.

In general, before 1750, schoolhouses were built only in the established river towns and then usually at a rate of only one per town. In the newer towns, public education was provided by a schoolmaster, paid by the town, who travelled about teaching in private residences. Schoolhouse construction did not become widespread in the Connecticut River Valley until after 1750. At the same time, the building of several schools in various locations around towns also became common. Dimensions of approximately 18 x 22 feet prevailed as did one-story height.

Among the mid 18th century schools of the Valley, two schoolhouses should be noted. These were a 1761 schoolhouse in Colrain built of round logs and a 1753 Westfield schoolhouse of brick construction. Other schoolhouses noted for the period presumably were of timber frame construction.

Only one schoolhouse of the Colonial period is believed extant. That is a 1766 school in Montague, which is thought to survive as a barn.

Federal Period

During the Federal period the role of town government in the provision of public education was defined and district school systems were established. The practice of hiring a schoolmaster to teach in

"moving" schools diminished and construction of "permanent" schools increased. (Since schools of the period were often unheated and without foundations, their permanence was only relative.)

In configuration, size and construction, schools of the Federal period do not appear to have changed significantly from those of the Colonial period. Pictorial records indicate that most schools of the period were gable-roofed one-room structures with entrances set off-center on one of the long walls parallel to the ridge. Most of the schools noted in local histories were built before 1800, with another cluster of schools constructed after 1815. Of these, schools in Buckland (1829), East Charlemont (1828), Granby (1822) and Monroe (1824) are believed to be extant.

One pattern noted for the Federal period was an increase in the use of brick. Brick schoolhouses were recorded in Ashfield (1800), Hatfield (1783), Whately (1810), Brimfield (1824), Buckland (1820), East Charlemont (1828) and West Springfield (1818). The East Charlemont and Whately examples are extant, the latter moved to Storowton, West Springfield. The West Springfield schoolhouse (1818) was one of the earliest two-story schools in the study unit.

Early Industrial Period

In the Early Industrial period, schoolhouse plans shifted from side entrance to gable front entrance. That change, which reflects the advent of the Greek Revival style, created a standard type which was to remain in force in rural areas through the end of the 19th century. Gable front schools of one-story height and frame construction incorporated either a single center entrance or two entrances, one for boys and one for girls. With minor modifications of stylistic detail, that form was standard from the mid 1840s through 1900 and sometimes later.

Until its abolition in the 1860s, the district school system encouraged a proliferation of small, one-room schools in rural areas.

While the majority of these have not survived, a large number of schools dating from the 1840s through 1860s are extant, often now in residential use. Other surviving schools of note include the Grape Street School, Chicopee (1861) and the Haydenville School, Williamsburg (1859, William F. Pratt).

By the 1860s, the first multi-story, graded schools were being built in the Connecticut River Valley's urban areas. Among the earliest and most substantial schoolhouses were several in Springfield. The Hooker (1865), Worthington Street (1869), Elm Street (1867) and Oak Street (1868) schools were all three and a half story, brick Romanesque Revival buildings of some pretension. Only the Oak Street School is believed to be extant. In other urban areas of the study unit, pre-1870 schools are believed to be equally rare.

Late Industrial Period

With developments in educational theory at the end of the 19th century, graded schools became standard in the Late Industrial period. In urban and suburban areas, graded schools were introduced generally in the 1870s, but in rural areas graded schools constructed for that purpose were not typical before 1910. By far the majority of the study unit's extant pre-1940 schools date from the Late Industrial period.

The largest collections of late 19th and early 20th century schools stand in Springfield and Northampton. Most of these, like other schools of the period across the state, are two and a half stories in height, of brick construction, with raised basements and hip roofs. Renaissance and Romanesque Revival designs predominate. Such schools were also constructed in suburban neighborhoods of the study unit's cores and in the industrial villages of outlying towns.

For the first time, professional architects were employed to design schools; among those prominent in such work in the Connecticut River Valley were Charles E. Park (Amherst), F. R.

Richmond, B. Hammett Seabury, Kirkham and Parlette, and Gardner, Pyne and Gardner (Chicopee, Springfield, Holyoke, Northampton, Greenfield).

In the study unit's rural areas, one-room schools of the type common since the 1840s continued to be built through 1900. One-story, gable front schools were updated with simple Queen Anne details, but the size and plan of the schools, small rectilinear buildings with a single center entrance or double entrances, remained the same. Not until the early 20th century were changes in school design evident. At that time, small, generally one-story, multi-room graded schools began to be built in rural towns. Two- to five-room plans appear to have been employed and the use of banded windows was a common decorative feature.

In location, post-1900 schools differ as well from the earlier district schools. While district schools tended to be sited at the geographical center of the district they served (often an otherwise uninhabited, isolated site), later schools were most often located in the population center of a town or village.

Architecturally noteworthy schools of the period include the School Street School, Chicopee (1876-1877, J. Foster Ober), the Cole (1906) and Primary (1901) schools in Ludlow, the D. A. Sullivan School (1894-1896, Gardner, Pyne and Gardner) in Northampton, two schools in Whately, the Center School (1910) and West Whately School (ca. 1915), and the Normal School Training School (1892) in Westfield.

Early Modern Period

Comparatively few schools of the Early Modern period were observed outside the urban areas of the Connecticut River Valley. This scarcity reflects the overall decline of the study unit in the 1920s, a pattern which was most evident in the rural and upland towns.

The only major architectural change to occur in school design in the period was the elimination of the deep hip roofs which had been standard on schools of the 1870s through 1915. By the 1920s, most school buildings being constructed consisted of a simple rectilinear block with a raised basement, two-story main body and flat roof. Such schools were built in the study unit's core cities (Springfield, Chicopee, Holyoke, Northampton and Greenfield) and in the local cores as well (Westfield, Palmer, Amherst, Orange). Of architectural note for the period are schools in Granville (ca. 1925) and a Moderne school in Southwick (Consolidated School, 1928).

2. Educational: High Schools

Early Industrial Period

The earliest high schools in the Connecticut River Valley were established in the Early Industrial period. The only exception to this pattern is Springfield, which had established one as early as 1827. Most of the high schools formed in the mid 19th century were located in the industrial cities of the unit, including Chicopee (1842), Easthampton (1865), Greenfield (1853), Holyoke (1852), Montague (1871), Northampton (1835, Boys; 1836, Girls; 1853, United) and Palmer (1855). Some communities, such as Northampton and Amherst (which established a public high school in 1861), had private secondary schools of some repute as well. In other communities, such as Deerfield (1859), an established academy (Deerfield Academy, 1797) became the public high school.

While Granby is reputed to retain its original 1841 high school building, no other such building built in the period is known to survive. In most instances, specific buildings for high schools were not constructed until the end of the 19th century. Prior to that, most high schools simply consisted of several classrooms set aside for high school use in an existing public building, such as another school or the town hall. Springfield was again exceptional in that its 1848 high school was originally constructed for that use.

Late Industrial Period

By the end of the Late Industrial period, of course, many more communities in the study unit had established high schools and had constructed impressive masonry structures for high school use. High schools were still concentrated in areas of industrial activity, including Chicopee (1890), Ludlow (1910) and Orange (1878). Most core cities (Springfield, Greenfield, Holyoke) replaced existing high school buildings with new structures around the turn of the century. Among the extant high schools of the period are Greenfield (1895, enlarged 1903), Ludlow (1910) and West Springfield (1915). By the turn of the century, some smaller communities, such as Charlemont (1899) and Huntington (1888), had also established high schools.

Early Modern Period

Few high schools were built in the Early Modern period; however, by the late 1930s, some older high schools were being replaced. Among the most outstanding of the Early Modern high schools is the Northampton High School (1939), an unusual Art Deco design by architect J. Williams Beal. Also of note is the Ashfield High School (1939), an example of the regional "consolidated" high school.

3. Other Public Institutional Buildings

Colonial Period

Very few public buildings, aside from meetinghouses, were constructed in the study unit in the Colonial period. The meetinghouse, which functioned as the center of civic and religious life in colonial towns, was often the only public building in the community. Schoolhouses, when they existed, were often constructed, not by the town for common usage, but by the residents within a particular school district.

Other types of public buildings were also unusual: for example, in contrast to more populous areas of colonial Massachusetts, such as Suffolk and Middlesex counties, very few Connecticut River Valley towns built or purchased poor farms. Jails, too, appear to have been exceedingly rare, with Springfield (the county seat) having the only jail known for the Colonial period (1677). As the seat of Hampshire County, Springfield was also the only town in the study unit with a courthouse (1723).

Animal pounds were generally the only structures, other than meetinghouses and, occasionally, schools, constructed at the expense of the entire community. The ruins of many of these stone structures can still be discerned in a number of Connecticut River Valley towns.

Federal Period

Beginning in the Federal period, the number and diversity of public buildings constructed in the study unit increased markedly. With the establishment of Hampden (1812) and Franklin (1811) counties, courthouses were built in Northampton and Greenfield. The Greenfield courthouse resembled contemporary commercial structures in that it featured large first-story windows and a center entrance. The two-story brick building, built by Elijah Hayden and Thomas Pratt, no longer stands. A jail, too, (now demolished) was built at Greenfield in 1816.

Public buildings, such as those necessary for county government, were, of course, found only in the core towns of the Connecticut River Valley. However, one building type which appeared in towns across the study unit in the period was the town hall. In many communities, meetinghouses continued to serve their civic function (and in fact, some old 18th-century meetinghouses were reused as town halls in the 19th century). But after 1800, the construction of new buildings specifically for town halls became increasingly common. Both Springfield and Northampton built town halls in the 1820s (1828; 1823), neither of which survives. Northampton's first town hall is

credited to be the design of noted Connecticut River Valley architect Isaac Damon. But other smaller towns also built town halls in the period, among them West Springfield (1820), Granby (1822) and Wales (1802). The Granby and Wales structures still stand, although the Wales Town Hall is now abandoned. Granby's first town hall was a very simple, one-story frame building not unlike a schoolhouse in design; it was remodelled with Italianate details in 1857. The Wales Union Meetinghouse, a two-story Federal style structure with padded Greek Revival portico, is notable for the fact that the town hall occupied its first floor. Meetinghouses which combined commercial uses on the first floor with religious uses on the second were rare but not unknown in Federal period New England. The Wales example illustrates an exceptional instance of the two traditional meetinghouse uses (religious and civic) coexisting in one building, yet separated in plan: separate but equal.

Early Industrial Period

The process of proliferation and diversification of public buildings first seen in the Federal period expanded greatly in the Early Industrial period. Many of the towns in the study unit built town halls in the period, while in core areas a multiplicity of municipal services developed to support industry and a growing urban population. Public and private groups contributed to the establishment of libraries in many towns. The state role, too, expanded with the establishment of facilities to house and care for the poor and the mentally ill (Monson, 1850; Northampton, 1856).

The most common type of public building constructed in the period was the town hall: at least 26 towns in the study unit built town halls between 1830 and 1870. Of these buildings, a very large percentage (77%, or 20 of those 26 buildings) still stand. Typically, most are simple frame Greek Revival structures one story tall with gable front orientation. In form, they closely resemble the simple rural churches of the period and, in some instances (Chesterfield, Ludlow, Pelham), meetinghouses (either outmoded 18th century

meetinghouses or the churches of short-lived congregations) were obtained by the town to be used for town halls. Good examples of the simple rural type of town hall stand in Chesterfield (1845), Gill (1868), Heath (1835), Leverett (1845), Montgomery (ca. 1850), New Salem (1839), Plainfield (1847), Whately (1844) and Worthington (1855).

Not surprisingly, in core areas more substantial town halls, architectural statements of the community's prestige, were constructed. Probably the finest extant period town halls are those at Northampton (1849) and Easthampton (1868). The Northampton example, designed by William Pratt, features Gothic Revival details such as corner turrets and crenellations. Easthampton's town hall is a similarly sophisticated High Victorian Gothic design by Boston architect Charles E. Parker.

In industrial communities, two new public building types, fire houses and police stations, appeared in response to increasing urbanization. In most cities of the study unit prior to 1900, police stations were housed within the town hall. Fire houses, however, were constructed as separate buildings in the Early Industrial period. Among the communities which established fire houses in the period were Chicopee (1848; 1855), Shelburne (1869), Holyoke (1850), Northampton (1854), Orange (1864), Ware (1845) and Westfield (1869). In all of the known examples for the period, fire houses occupied simple barn-like structures primarily intended for stabling horses and storing equipment. The only known extant period fire house stands at Buckland (1869) in the Shelburne Falls village.

The other major public building type of the period was the poor farm. Poor farms, either constructed or purchased by the town, existed in both industrial and rural areas alike, serving different segments of the poor. Among the communities known to have supported poor farms were Chicopee (1849), Brimfield (1837), Hadley (1867), Holyoke (1850), Springfield (1865), Wendell (1842) and Westfield (1841). None of the buildings associated with these poor farms are known to have survived.

One of the important social developments of the period was the growth of library associations and public libraries. Private library associations had existed in Massachusetts since the 18th century and in the study unit since the Federal period; however, it was not until the mid 19th century that the concept of public libraries became current. Springfield established the study unit's earliest public library in 1855, with a library building designed by New York architect George Hathorne constructed in 1864. Other core communities also established public libraries in the period, among them Ashfield (1866), Bernardston (1862), Shelburne (1859) and Sunderland (1869). Of these, the only extant structure (Cushman Library, 1862) stands in Bernardston.

The two major public institutional facilities of the period, Monson and Northampton State Hospitals, have survived to the present day. The first buildings at Monson State Hospital, begun as a poor farm and hospital in 1850, were constructed in 1853. While all have seen late alteration, elements of the facility remain. Monson featured a "campus" of several multi-story brick buildings in an isolated setting. The Northampton facility, established in 1856 with the earliest buildings completed by 1858, was located near the center of one of the study unit's core towns and consisted initially of a single monumental building with wings and pavilions. Architecturally, the brick Italianate Northampton facility, designed by Jonathan Preston, is the more outstanding of the two state-built institutions. The only other public buildings of note constructed in the period were two masonry courthouses built in Greenfield in 1831 and 1856, and the Hampshire County House of Correction (1851) by noted Boston architect and recognized authority on prison architecture, Gridley J. F. Bryant.

Late Industrial Period

In the Late Industrial period there continued considerable activity in the construction of public buildings. Most numerous of the types of buildings constructed were town halls and libraries. A wide range of examples of both types were constructed in towns and cities across the study unit. While some locational differences can be noted, there

is sometimes little correlation between the size of the community or its economic status and the quality of the late 19th century public buildings present there. This is particularly true for libraries, which were frequently donated to the town through the generosity of private benefactors.

There was no marked increase in the diversity of the types of buildings constructed, but a few new types of structures, such as police stations and armories, can be added to the list. Not surprisingly, the survival rate for other types, such as fire stations, demonstrates an increase over the previous period.

Most of the town halls built in the study unit in the Late Industrial period were constructed before 1900. Of some 24 town halls known to have been built, only four were constructed after 1900. Of those 24 town halls at least 17, or 70%, remain extant, many still in their original use.

In contrast to the Early Industrial period, when the great majority of town halls were of frame construction, a much larger percentage of the Late Industrial period town halls were of masonry construction, particularly those located in industrial centers. Even in rural areas, though, town halls were often of masonry construction, generally brick. In part, no doubt, a response to the threat of fire, the decision to build a brick town hall also focused the town's image. In some rural communities, the only late 19th-century masonry buildings in town are the town hall and the library. Rural communities with extant brick town halls include Charlemont (1892), Southampton (1904, Crabtree and Cadman) and Shelburne (1897). Other rural communities with noteworthy town halls include Brimfield, which retains an 1879 Stick Style building, and Warwick, whose town hall is an 1894 Queen Anne building.

In core areas, city and town halls were characterized by stylish, often monumental designs produced by prominent architects. Masonry construction was standard. Among the notable examples of town and

city halls in the study unit are the Richardsonian Romanesque Amherst Town Hall (1889, H. S. McKay), Victorian Gothic Chicopee City Hall (1871) by Boston architect Charles E. Parker (designer also of Easthampton's Town Hall) and Holyoke's High Victorian Gothic City Hall (1876), designed by C. B. Atwood and H. F. Kilburn. Of strikingly different character is the city hall complex of 1913 in Springfield. A formal neoclassical design by Peel and Corbett, the City Hall complex consists of two temple form buildings (the City Hall and a Municipal Auditorium) set in a terraced plaza. A 300-foot tall campanile completes the ensemble, which is the only such grandly-scaled exponent of the early 20th-century City Beautiful movement in the Valley and one of the finest expressions of that movement in Massachusetts.

Other communities which retain their Late Industrial period city or town halls include Granby (1890), East Longmeadow (1882), Middlefield (1901), Orange (1910), Shelburne (1897), Wilbraham (ca. 1880), and Westfield (1895). In addition, a few communities built Civil War memorial halls, some of which contained town offices. Examples include Orange (1892) and Palmer (1890). Of other municipal structures, fire houses were the most numerous type constructed in the period. As core cities grew, fire houses were built to service the expanding neighborhoods and industrial districts. Among the communities with extant period fire houses are Holyoke (1874; 1887), South Hadley (1888) and Springfield (1886; 1894; 1910). Standard fire house designs included a tall, square tower for drying hoses, second story residential space for firemen and first floor wagon storage and stable space.

Although no police stations built specifically for that purpose are known to have been constructed in the period, it is assumed that, after 1900, police stations separate from city or town halls began to be built, at least in core areas. Only one community (Chicopee, 1877) is recorded as having constructed a poor farm or almshouse in the period; it is assumed that the state, by the end of the 19th century,

had accepted a much wider role in assisting the poor, replacing the individual community's responsibilities in this area.

As always, the study unit's county seats were the focus of construction for county, as well as municipal, buildings. County courthouses were constructed in Springfield (1871) and Northampton (1884-1886) in the period, as were county jails in Greenfield (1885) and Springfield (1885) and armories in Northampton (1900) and Springfield (1895). All of these buildings remain extant. The finest are the Hampden County Courthouse (Gambrill and Richardson) and the Hampshire County Courthouse (Henry F. Kilburn), both monumental masonry Richardsonian Romanesque structures. The armories exhibit a similar monumentality, executed instead in fortress-like stylistic terms. The State Armory at Springfield, by Wait and Cutting, architects of several armories statewide, is in the Romanesque Revival style. The Northampton example, by Springfield architects Gardner, Pyne and Gardner, is more subdued and features battered brick walls, semicircular bays and crenellations. Less grand are the Greenfield and Springfield jails, both of which are of brick and are located in peripheral sections of the community.

Both existing state institutions at Monson and Northampton were expanded through substantial new construction in the period. In each instance, the basic concept of the original plan was retained: at Monson, additional buildings were constructed amidst the earlier freestanding buildings, while at Northampton, the hospital was enlarged through construction ca. 1870 of a second very large Gothic Revival extension. In 1880, the State Hospital at Belchertown was established. There, the campus-like plan of a cluster of buildings was adopted.

The most important single group of buildings built in the period, from a purely architectural viewpoint, were the public libraries. As a group, there is no other type of public building as well represented by noteworthy architectural design as the study unit's libraries. In core cities as well as rural upland towns, some 33 public libraries

were constructed in the period, of which 27 survive. Of these, many were architect designed, some by noted architects from Boston and New York. Since libraries were normally fairly substantial architecturally, in the small towns, where the library was sometimes the donation of a successful native son, it was generally the grandest piece of architecture in town. In some cases, the library may have been the only building in the community designed by a professional architect.

Except in the core cities, the study unit's public libraries were almost always small one- or one and a half story structures. While frame construction was probably most common, masonry buildings were also quite well represented. For frame buildings, Queen Anne or Colonial Revival designs were typical, while for masonry structures, Renaissance and Georgian Revival and neo-classical designs predominated.

Among the outstanding examples of library architecture in the study unit are the Queen Anne style Clapp Library (1883, Henry Kilburn, New York) in Belchertown, the Romanesque Revival Field Library (1900, Shepley, Rutan and Coolidge) in Conway, the Easthampton Library (1881, Peabody and Stearns), the Goodwin Library (1902, Guy Kirkham) in Hadley, the Queen Anne style Hubbard Library (1889, William Ralph Emerson) in Ludlow, the Renaissance Revival Gaylord Library (1904, Allen and Cox) in South Hadley and the Williamsburg Library (1897, Putnam and Bayley).

Other towns with libraries worthy of note are Ashfield (Belding Library, 1913; S. M. Green), Cummington (Bryant Library, 1872), Montague (1903), Northfield (Field Library, 1898; Henry Marshall), Shelburne (Pratt Library, 1914), Southampton (Edwards Library, 1903) and Worthington (Huntington Library, 1915). In addition, other period libraries are retained in South Ashfield (1904), Blandford (1892), Buckland (1889), Colrain (ca. 1910), Granville (ca. 1910), Orange (1911), Shelburne (1898), Sunderland (1908) and, in Williamsburg, at Haydenville (1900).

In addition to these libraries built primarily in rural locations, larger and grander ones were being constructed in the core areas as well. Springfield stands out as the first city in the study unit to institute a branch system. In 1909, the present Central Library, a Renaissance Revival design by Edward L. Tilton, was constructed. Tilton also designed that city's Memorial Square branch library (1914) and the West Springfield Library (1915). Other branch libraries were built in Springfield at Forest Park (1908) and Indian Orchard (1908).

The earliest extant public library in a core city is the 1878 Greenfield Library, a small High Victorian Gothic structure designed by J. R. Richards. Also built in the period were the Richardsonian Romanesque Forbes Library (1894, William C. Brocklesby, Hartford) in Northampton and the Beaux Arts Classical Public Library (1902) in Holyoke.

Early Modern Period

The Early Modern period was one of consolidation and decline in the Connecticut River Valley. As a consequence, there was very little institutional construction after 1915. What little construction occurred took place primarily in the core areas. Most construction was accomplished in the 1920s, with very few buildings dating from the Depression-era 1930s. Town halls were the most numerous category of public buildings constructed, followed by libraries. Even so, the actual number of buildings of both types known to have been built is less than a half dozen in each instance. That figure represents a dramatic drop from the activity of the previous period.

In all cases, the town halls built in the period were constructed as replacements to existing buildings. In Cummington (1922), Blandford (ca. 1935) and New Salem (1937), simple frame buildings of one story were built to house the town hall. Only in Belchertown (1923, M. B. Harding) and Longmeadow (1930, M. Mallory) were more imposing town halls constructed. In Longmeadow, which experienced great expansion through the 1920s as Springfield's premier suburb,

a Community House (1924) also was constructed. Both buildings are of brick, Georgian Revival in style and occupy prominent sites on the Town Green.

A half dozen libraries are known to have been built in the Early Modern period. These include two branch libraries in Springfield and libraries in Amherst (Jones Library, 1926; Allen Cox of Putnam and Cox), Chesterfield (Dunham Library, 1921), Longmeadow (Storrs Library, 1923; Smith and Bessette, Hartford) and Plainfield (Hallock Library, 1925). Of these, the finest, architecturally, is the Jones Library in Amherst, an impressive fieldstone Colonial Revival style building with an elaborate Connecticut Valley style entry. The Storrs Library, like Longmeadow's other period institutional buildings, is a brick Colonial Revival design located on the Green.

Other public institutional buildings constructed in the period were county courthouses in Springfield (1930) and Greenfield (1931) and the Veteran's Administration Hospital (1924) in Northampton.

III. Commercial Architecture

Colonial Period

The only commercial structures existing in significant numbers in the Colonial period were taverns. At least 40 taverns are known to have operated in the study unit in the period. That figure, however, reflects only those in operation for five or more years; the actual number of period taverns was probably much higher, since many operated for less than five years. Of these 40 taverns, very few have survived, seven buildings in all. These include examples in Hadley, Longmeadow, Northfield and Westfield. Only in core areas are there any taverns recorded for the period before 1725. Among the earliest taverns known were the Goodman Tavern (1667) in Hadley and Ely's Tavern (1675), Springfield. Only eight of the total were established between 1725 and 1750. These stood in Belchertown (Bascom, 1733), Easthampton (Bartlett, 1727), Hadley (White Horse, 1747), Southamptton (name unknown, ca. 1745), Sunderland (Simon Cooley, 1732), Wales (Moulton, 1740) and Wilbraham (Brewer, 1741). Notably, all of these towns are located in the central or southern Valley. The remaining 32 recorded taverns were all established between 1750 and 1775.

Architecturally, most taverns of the Colonial period were indistinguishable from residential structures. More often than not, taverns operated from existing residences rather than from structures built expressly as taverns. Therefore, most taverns in the Valley (and especially the earlier examples) displayed the standard features of vernacular residential architecture: timber frame construction, central chimney plan, two-story height, gable roof.

Of the seven known surviving taverns, three deserve notice. The earliest of these (1747) is the White Horse Tavern in Hadley, which consists of a two-story Federal period main block with the 1747 central chimney gambrel roofed ell to the rear. The largest and most elaborate extant tavern in the study unit is the Landlord Fowler

Tavern in Westfield. Built in 1755 and remodelled ca. 1915 and 1981, the Fowler Tavern is a three and a half story gambrel roofed structure with Georgian details, including roof dormers and a denticulated cornice. The very fine scrolled pediment Connecticut Valley doorway which once embellished the house was purchased in 1916 by the Metropolitan Museum of Art; the present doorway is a reproduction. The Alexander Tavern (ca. 1774) in Northfield is notable in that it is an early example of the use of the ell plan, a plan type which seems to be associated particularly with taverns. The ell plan incorporates two gable roofed components of similar length joined at right angles to one another beneath a half hip roof. Ell plan taverns became common in the early Federal period.

Federal Period

While taverns remained the most numerous form of commercial building in the Federal period, the addition of several new forms of commercial building reflects the increased economic and cultural diversity of the period. In addition to taverns, the first retail stores, hotels and banks in the study unit were established in the Federal period.

Of the 42 taverns recorded for the period, approximately one-quarter have survived. As was true for the Colonial period, taverns were housed in residential structures. All of the extant taverns known are now in residential use. (In addition to these known examples, there are undoubtedly many other standing period residential structures which may once have functioned as taverns but which were not recorded in local histories or inventories.) Extant taverns are known in Amherst (Bridgeman, 1822), Bernardston (Connable, 1798), Buckland (Graham, 1797), Charlemont (1800), Chesterfield (Damon, 1797), Middlefield (Blossom, 1780; Blush, 1815; Mack, 1781), Warwick (1828) and Williamsburg (Williams, 1812; Hampshire House, ca. 1830).

Although residential in form and plan, Federal period taverns occasionally were distinguished from residential buildings (predominately of frame construction) in that a number were constructed of

brick. Brick taverns have survived in Amherst and Williamsburg. The Bridgeman Tavern, a hip roofed structure, incorporates twin rear wall chimneys while the Hampshire House has the end chimneys more typical of masonry construction in the Valley.

Transportation routes were the major factor determining the location of taverns. Most were located along turnpikes or transportation corridors. Subsequent development of these corridors in the core areas has often brought about the loss of early taverns with the result that many of the unit's surviving taverns are located in peripheral areas. An example of this is Middlefield, which retains all three of its Federal period taverns. The Blossom Tavern (ca. 1780), with double five-bay facades and a half hip roof, is the largest of these and exhibits the ell plan typical of Federal taverns. Both the Mack (1781) and Blush (1783) taverns have standard residential center chimney plans with five-bay facades and gable roofs. In general, all of the extant Federal taverns are simply detailed. It is possible that more elaborate and stylish taverns were found in the core areas and have not survived.

The first retail stores in the study unit were also established in the period as town centers grew and diversified. These were of two broad types, one rural and the other "urban." The rural stores were generally of frame construction, two stories tall and located at the town center. Typically, stores featured gable front orientation and long, rectangular plans with two-bay-wide facades and center entrances. Stores of this type are known to survive in Middlefield (Mack Store, 1804; 1830), Charlemont (Wells Store, ca. 1820) and Longmeadow (1805).

The other type, found in core towns, was more often larger, more stylish and of more substantial construction than its country counterpart. By the Federal period, all of the study unit's cores had developed "urban" commercial centers. Springfield, Westfield, Greenfield, Chicopee and Northampton began to develop commercial streets characterized by two- and three-story frame, brick and, occasionally,

stone commercial blocks. Generally, these featured end gable orientation and rectangular plans with multiple bays. Surviving examples stand in Greenfield (Allen Block, 1827) and Northampton (Granite Stores, 1826, Isaac Damon, architect). Both have had their rooflines altered.

Other types of commercial building which began to appear in the Federal period cores were hotels and banks. The first hotels in the Valley were built in the 1820s. These included the American House (Amherst, 1821), the Ware Hotel (Ware, 1825), the Mansion House (Greenfield, 1828) and the Hampden Coffee House (Springfield, 1821). None of these survive today. In general, early hotels followed the same three-story, end gable rectangular plan as commercial blocks, but many hotels came to be distinguished by the presence of long, two-story verandas running the length of the facade. Brick masonry construction was typical.

Banks were established in the study unit as early as 1803 (Northampton Bank), but did not become common until the 1820s. Banks are known to have existed in Belchertown (Hampden National, 1825), Greenfield (Franklin Bank, 1822), Northampton (Northampton Bank, 1803; Hampshire Bank, 1813) and Ware (National Bank, 1825). Only one extant Federal bank building is known, the Hampden Bank (1825 and 1839) at Belchertown, a two-story brick building of residential design.

Early Industrial Period

Two notable shifts of the Early Industrial period were the sharp decline in the number of taverns established in the study unit and the increased diversity of commercial structures in core cities. With the development of rail networks, the Federal turnpike system was eclipsed and with that, the need for taverns diminished. Some taverns in operation from the Federal period, of course, remained operational into the Early Industrial period; however, very few taverns (less than a dozen recorded examples) were established after 1830.

In the core areas, the number and diversity of commercial structures increased. In addition to stores, hotels and banks, the first commercial "office" blocks began to appear in the Valley's core areas. Business districts of substantial three- and four-story brick buildings developed in Springfield, Holyoke, Chicopee, Northampton, Westfield and Greenfield as well as in some smaller towns such as Amherst, Easthampton, Shelburne, Orange, Ware and Palmer. Particularly well preserved are the business districts (all post-1850) in Northampton, Holyoke, Shelburne and Easthampton.

In rural areas, the most common form of commercial building was the retail store. Stores were built in the smaller town centers throughout the Early Industrial period, but they have not survived well. Generally, each town had one or two examples. Architecturally, these retained the form first noted in the Federal period: gable front orientation, two-story height, frame construction and rectangular plan with center entrance on the front gable. Facades normally contained two or three bays. By the end of the period, first floor storefronts with display windows were common. Towns which retain period stores include Ashfield (Crafts, 1835; Bronson, 1858), Belchertown (Hopkins, ca. 1850; Bridgeman, 1845), Charlemont (ca. 1840; Avery's, 1846), and Westhampton (Judd, 1839). Probably the finest of these is an intact Greek Revival store (ca. 1840) in Charlemont; two stories tall with a two-bay-wide center entrance facade, it retains its original Greek Revival storefront containing what are probably the earliest original display windows in the study unit.

One particularly fine commercial building which has not survived was the Colonnade Block of 1842 in Greenfield. A two-story, temple front Greek Revival building of brick, the Colonnade Block featured a six-bay-wide facade containing two stores and ornamented with a full Doric portico. Architectural expressions of such stylishness were exceedingly rare in the Connecticut River Valley, and the Colonnade Block was an exceptional building for its type.

Retail stores in the urban centers differed from rural examples in that they increasingly included office uses on the upper stories. In contrast, too, to rural stores, they were more often of masonry construction and larger, standing three to five stories tall. Those that have survived tend to be from after 1850 and to be Italianate in style, while the surviving rural examples are somewhat earlier and generally Greek Revival in style.

Period commercial buildings combining retail and office uses survive well in Holyoke, Northampton, Easthampton and Shelburne. These consist primarily of buildings in the Italianate style, with some Greek Revival style buildings as well. Among the finest of these are the Bank-Hillier Block (1858) in Shelburne Falls, a three-story Italianate building faced with marble, the brick Thayer Block (1837), also in Shelburne Falls, the Lambie (1866), Lyman (1859) and Preston (1849) blocks in Easthampton and two 1867 brick commercial blocks in Northampton, the Rust and Pierce buildings, both designed by William Pratt.

The number of hotels constructed in core communities increased in the period as passenger rail service in the Valley improved. Among the communities where period hotels operated were Amherst, Chicopee, Easthampton, Northampton, Holyoke and Springfield. In addition to these, "resort" hotels began to be established in some of the Valley's picturesque rural towns, including Cummington and Goshen.

Among the earliest hotels of the period were the Massasoit House (1839) and American House (1845) in Springfield and the Chicopee House (1842) in Chicopee. Of the study unit's period hotels, portions of three, all in Springfield, are known to survive. These are the 1862 Union House (altered 1897), the shell of the 1857 Massasoit House (interior remodelled, 1929), and the Haynes Hotel (1864). Typically, hotels of the period featured brick construction, ranged from two to four stories in height and incorporated verandas running the length of the facade. Of the rural hotels recorded, only the

Union House (1846) in Cummington remains extant. It is a simple frame two and a half story Greek Revival structure.

A number of banks were founded in the Valley in the period, almost all in communities with significant industrial development. Most were established after 1850. Among the communities possessing one or more banks during the period were Easthampton, Greenfield, Holyoke, Northampton, Palmer, Shelburne, Springfield, Ware, Williamsburg and Westfield. Of these, only one bank building remains extant, the 1866 Northampton National Bank, a Victorian Italianate design by William Pratt.

Late Industrial Period

The majority of the study unit's pre-1940 commercial blocks date from the Late Industrial period. These include not only buildings in urban cores but also buildings in rural areas. In the urban cores, some increased diversity can be noted in the number of types of commercial buildings present; specifically, theatres were first built in the study unit during the Late Industrial period. The other major commercial building types for the period were stores, office blocks, hotels and banks.

For the most part, stores were the standard rural commercial building type. Nearly every rural community in the study unit retains one or two commercial stores of the Late Industrial period at its town center. Typically, these are one-, two- or three-story gable roofed frame buildings with rectangular plans and gable front orientation. One very common feature of period stores is the three-bay facade with center entrance; the entrance is usually flanked by a pair of plate glass storefront display windows. Also common is a one- or two-story veranda across the facade, shading the front of the store. Communities retaining well preserved period stores include Ashfield, Belchertown, Buckland, Blandford, Chester, Colrain, South Deerfield, Huntington, Monson, Montague, Shelburne and Worthington.

In the urban, industrialized cores, business districts developed with office blocks rather than individual stores. Stores were also constructed; however, most commercial districts were typified by two- to four-story office blocks containing first floor retail uses. For urban areas, continuous or closely set rows of flat-roofed masonry commercial blocks were standard. Multi-story buildings of steel frame construction did not appear until the 20th century in the study unit and, even then, were confined to Springfield.

Typically, the study unit's period office blocks featured Victorian Italianate, Victorian Gothic and Panel Brick styling during the 1870s, 1880s and 1890s, yielding by 1900 to simple Renaissance Revival and neo-classical styles. Noteworthy collections of period office blocks survive in Greenfield, Holyoke, Turners Falls (Montague), Northampton and Springfield. Both Turners Falls and Northampton are exceptional in the degree to which streetscapes of period commercial buildings there remain intact.

The number of period hotels extant in the study unit is greatest for the Late Industrial period. Generally, these are all located in the core areas of Springfield, Northampton and Greenfield. Both Springfield and Northampton retain several period hotels which, as a rule, were constructed of brick. Those in Northampton tend to be earlier, exemplifying hotel design of the late 19th century. The recorded examples are all either three or four stories in height with utilitarian late 19th-century details such as corbelled cornices, mansard roofs and round head windows. Usually, each of the study unit's local cores had at least one hotel of the Northampton type.

The Springfield hotels are late (post-1890) and reflect 20th century concepts of hotel design, including grand scale and elaborate detail. Three examples of this are the Hotel Kimball (1910; Albert W. Cook), the Hotel Charles (1890; 1928) and the Worthy Hotel (1895, 1905; Gardner, Pyne and Gardner). All are multi-story buildings with stylish details, the Worthy being the most elaborate.

In addition to commercial hotels, a few resort hotels were also built in the study unit in the Late Industrial period. These were located in the picturesque rural towns, especially those in the western uplands of the Valley. These differed architecturally from both of the previous types in that they were of frame construction with semi-residential appearance and styling. Among the towns which possessed resort hotels were Ashfield, Bernardston, Worthington, Chesterfield and Charlemont. The Ashfield House (1889) and Bernardston Inn (1904) are the only two such hotels known extant.

There are relatively few extant bank buildings of the Late Industrial period in the Connecticut River Valley. Most of the standing bank buildings in the study unit were constructed after 1915. There are, however, a few bank buildings of the period known in the core cities of Springfield and Greenfield and also in Conway. These are the Chicopee Bank (1888) in Springfield, a four-story brick Richardsonian Romanesque building designed by local architect F. S. Newman, the Franklin Savings Institute (1911) in Greenfield, a two-story Beaux Arts Classical building, and the Conway Bank (1878), a two-story brick Italianate structure.

Although it has been demolished, the 1870 Franklin County National Bank in Greenfield should also be noted. Designed by George W. Hathorne, a New York architect whose work appeared frequently in the Connecticut River Valley, the bank was one of the Valley's finest examples of the High Victorian style with lancet windows, polychrome masonry and elaborate detailing. Surviving examples of the High Victorian Gothic style are quite rare in the study unit.

The newest building type of the period was the theatre. The first theatres built for the purpose in the study unit appear to have been introduced in the 1890s. After 1900 of course, with the growth of the motion picture industry, theatres appeared in some of the unit's smaller towns, but initially, theatres were built in the core

cities only. Holyoke had a Victorian Gothic Opera House, for example, as early as 1879. Architecturally, the most outstanding period theatre in the study unit is the extant Academy of Music in Northampton. Built in 1891 to the designs of Hartford architect William C. Brocklesby, the Academy is a yellow brick building with ornate Renaissance Revival details. There are other later theatres in Ware and in Monson. Of these, the Casino Theatre (ca. 1907) is the better preserved, with many of its Spanish Colonial details intact.

Early Modern Period

In addition to the five major commercial building types (stores, office blocks, hotels, banks, theatres) identified in the Late Industrial period, there appeared in the Early Modern period the first automobile-related commercial buildings in the study unit. These included garages and service stations as well as automobile sales showrooms. In general, extensive new construction occurred in only a few communities in the study unit, either in the urban cores or along major transportation routes (Routes 2 and 20 in particular). In upland rural areas, few, if any, new commercial buildings were constructed in the period.

Despite an overall lack of activity in commercial construction, certain definitive changes occurred in commercial building as a whole in the period, and these should be noted. The first change was a decrease in height: instead of two-story height, which had been common for commercial buildings, an increasing number of early 20th century buildings stood only one story in height.

The other major change was in building materials. While brick and frame buildings continued to be built throughout the period, the use of materials such as concrete blocks and cast stone became more widespread. This shift to an easily manipulated, plastic material also encouraged the use of more elaborate cast decorative detailing and of stock and/or "mail order" building parts.

Stores were an important commercial building type in the developing suburban neighborhoods of the urban core areas. Low, one-story masonry and frame commercial blocks, often containing several retail storefronts, were built along major streetcar routes and at crossroad intersections in Springfield's neighborhoods and in some of the communities in the Springfield vicinity, including West Springfield, Holyoke, Chicopee, Ludlow and Wilbraham. Similar stores or blocks of stores were constructed in Northampton and Greenfield. In other smaller communities, such development occurred primarily as infill in existing commercial districts at town or village centers.

Construction of multi-story office blocks was more unusual. Many of the industrialized communities of the study unit retain at least one small, two- or three-story office block of the period at the town center, but only in Springfield did major new office block construction occur. There, numerous two- to six-story masonry commercial buildings were built through the 1920s. The majority of these are functional buildings with simple, standardized plans and styling. In general, the more stylish designs were reserved for specialized building types, such as banks or theatres.

After a burst of activity in the early 20th century, only one major hotel was constructed in Springfield in the period: the Stonehaven of 1929, a six-story residential hotel organized around a central courtyard. Other major commercial hotels were built in Northampton and Amherst. These were the five-story brick Colonial Revival Hotel Northampton (1927, H. L. Stevens Co., New York) and the brick and frame Colonial Revival Lord Jeffrey Inn (1926, Putnam and Cox) in Amherst.

In addition to these large, centrally located hotels, small clusters of tourist cabins also began to be built along the study unit's scenic highways and major transportation routes. The most outstanding collections of these are located along Route 2 in western Franklin County, but other examples were noted on Route 20 in Brimfield and Wilbraham.

Architecturally, the most outstanding group of commercial buildings of the period are the study unit's banks. Springfield contains the greatest number of period banks, but Northampton and Greenfield both also have notable banks for the period. Springfield's banks include the Chapin Bank (1917, Mowbray and Uffinger), a neo-classical design with overscaled Doric details, the Classical Revival Hampden Savings Bank (1918, Max Westhoff) and the very fine and architecturally rare Moderne Springfield Safe Deposit and Trust Company bank of 1933 by the Thomas M. James Company of Boston.

Among Northampton's eminent period bank buildings are the neo-classical Northampton Institute for Savings (1916, Thomas M. James) and the Moderne First National Bank of 1928 (J. Williams Beal and Sons), notable for its fine bas-relief details. The only other outstanding Moderne bank building in the study unit is the First National Bank in Greenfield, a two-story granite building with neo-classical overtones, built in 1929 to designs of the New York firm of Dennison and Hiron.

In addition to banks, a handful of theatres were built in the study unit as well. Two of the finest of these are the Paramount Theatre (1929, Arland Johnson) in Springfield and the Garden Theatre (1928, Mowell and Rand). The Garden Theatre is notable for its elaborate illuminated marquee and "atmospheric" interior, which features murals of a New England village and a ceiling with clouds and stars.

The only other major commercial buildings of the period were those constructed in response to the development of the automobile. These include garages, service stations and automobile sales showrooms. Most numerous are service stations. Typical of the period were service stations with roofed-over drive-through areas for gasoline pumping. Extant stations of that design are now relatively rare. In rural areas, service stations tended to be of frame construction, while brick or concrete block service stations were more typical of urban areas. Small, square one-story structures were the rule, either with

gabled or hipped roofs. Period service stations have survived in Orange, Southwick, Belchertown, Westfield, Shelburne and Conway, among other towns.

Garages, generally one-story masonry or concrete block structures for the storage or service of automobiles, were also built in some numbers in the period. Because their simple plans are easily adaptable to other similar uses, they have tended to survive in greater numbers than the more specialized service stations; examples are to be found in many communities of the study unit.

Automobile sales showrooms, generally one-story masonry structures with large storefront windows, were constructed only in the core areas of the study unit. Generally, these were located along major transportation corridors, away from the city centers. Period auto sales showrooms survive in Springfield, Holyoke, Northampton and Greenfield. Of particular note is the 1918 Belchertown Motor Sales building, a stucco building with Mission Revival detailing which is one of the earliest automobile sales buildings known in the study unit.

IV. Industrial Architecture

Federal Period

Very few industrial buildings of the Federal period have survived in the Connecticut River Valley. This is not to say that industrial buildings were not constructed in some numbers during the period, simply that they have not survived well, for several reasons. First, where successful manufacturing ventures were established in the period, subsequent development on an increasingly larger scale has obliterated the earliest structures. Second, the industrial buildings of the period in the study unit generally were of frame construction and have fallen victim over time to demolition, decay and fire. This is particularly true for such period "industrial" buildings as individual shops and saw and grist mills which, when constructed, were small, impermanent structures.

Despite this, industrial buildings of the period are known to survive in approximately a half dozen towns. Among these are Buckland, Montague, South Hadley, Westhampton and Wilbraham. Most of the extant buildings are the small shops of the period, such as the one-story blacksmith shop of ca. 1780 in Wilbraham, a cooper's shop of ca. 1820, shoemaker's ten-footer, and the Hubbard and Hitchcock clock shop (ca. 1830) in Buckland, the Dike Mill (ca. 1815) in Montague, and two sawmills (ca. 1800; 1816) in Westhampton. All of these are very simple frame buildings of one or two stories' height, with gable roofs.

One of the most significant engineering works of the period was the construction of the South Hadley Canal in 1792-1800. Of this structure, the only extant related building is the Locktender's House of 1819 at South Hadley Falls. No Federal period resources (other than archaeological) are known to survive which relate to the subsequent development of the Valley's major industries: textile, paper and machinery manufacture.

Early Industrial Period

Beginning with the Early Industrial period, there is a full range of extant industrial buildings in the Connecticut River Valley. All of the Valley's major industrial cities retain significant collections of period industrial buildings, while most smaller industrial communities and some rural towns usually have one or more lesser manufacturing structures. Only the smallest and most remote agricultural hill towns lack industrial buildings of some type for either the Early or the Late Industrial period.

The major distinction in period industrial buildings was between masonry and frame construction. Generally, the largest buildings, textile or other mills, were of brick or, occasionally, stone while the small, specialized manufacturing shops were of frame construction. The reasons for this distinction are obvious and need little explanation: the mills required the protection of fireproof construction and the stability and open floor plans of masonry and heavy timber-framed "mill" construction. Smaller manufacturing concerns had less need of those features and more often followed a system of ad hoc construction. For large and small industrial buildings alike, however, structures built for one purpose were often converted to alternate uses.

The majority of the extant period industrial buildings were constructed after 1850. Nonetheless, approximately a dozen pre-1850 manufacturing buildings, some of them major structures, have survived. The most important of these are probably the Thorndike Mills (#1, 1837; #2, 1845) in Palmer, the Otis Mill (#1, 1845) in Ware and the Counting House (1838) and Mill #1 (1847) of the Chicopee Manufacturing Company in Chicopee. All three buildings were textile mills affiliated with the regional development of that industry by the Boston Associates. The Ware and Palmer mills are both exceptional in that they are of granite construction. The Palmer mills each stand five stories in height and feature an unusual roof form for the period, a very shallow gambrel. The Ware mill is only four stories in height with the standard gable roof form.

The Counting House and Mill #1 of the Chicopee Manufacturing Company are significant as the earliest extant components of the company, which was also responsible for the construction of a major industrial complex in that city after 1824. Both the mill and counting house are of brick construction and were designed by Charles McClallan, one of the most prolific designers of industrial and engineering structures in the Valley.

Other extant pre-1850 industrial buildings include the Williston and Knight (1847) and Nashawannuck (1848) button factories in Easthampton, both brick three-story buildings, and a small number of small frame manufacturing shops, among them the Griswold Sash and Blind Factory (1836) in Buckland, the Willicut Turning Mill (ca. 1845) in Plainfield, the Williamsburg Blacksmith Shop (ca. 1840), Aldrich Mills (ca. 1840) in Granby, the Alvan Stone Grist Mill (1834) in Montague and the Heath Road gristmill (ca. 1845) in Colrain.

Post-1850 industrial buildings are far more common in the study unit and include several notably well preserved manufacturing complexes. Among these are structures related to most of the Valley's major industries. Some of the most important of these are the Turners Falls Cotton Mills (1868?), Montague; the Dwight Manufacturing Company mills (1868-69), Chicopee; Lamson and Goodnow Manufacturing (1851; 1862), Buckland; Williston Mills (1859), Easthampton, and numerous textile and/or paper mills at Holyoke and Northampton.

All of the above-mentioned factories were constructed of brick; most incorporate minimal Greek Revival or Italianate detailing, such as end gable pediments, round-arched windows, or corbelled cornices.

Of special note are those industrial complexes which retain affiliated company-built worker housing. These examples include the Dwight Manufacturing Company in Chicopee, with numerous extant brick double houses and rowhouses, the Crescent Falls Paper Mills (1858; 1870) in Russell, with several brick tenement houses, the Bay

State Hardware Manufacturing Company (ca. 1850) at Florence (Northampton), with boarding houses and worker cottages and Turners Falls Cotton Company in Montague, with rowhousing, duplexes and tenements.

Also of note for the period are those industrial buildings for which the architects are known. The largest collection of architect-designed factories is in Northampton, where Springfield architect E. C. Gardner worked extensively. Works identified as Gardner's in Northampton include the Florence Manufacturing Company (1866), a utilitarian four-story brick building, the Northampton Paper Company (International Screw Nail; 1866), an outstanding Italianate structure with concave mansard roof, quoins and an intact hip roofed stair tower, and possibly the Florence Sewing Machine Company (1860), a simple three-story brick structure. Charles McClallan continued to be active in industrial design in Chicopee and Holyoke.

Despite the impact of rail transportation on industrial development in the region, only two railroad-related structures are known to survive in the study unit. These are the Amherst and Belchertown depot (1853) in Amherst and the Amherst and Belchertown Railroad freight house (ca. 1853) in Three Rivers, Palmer. Both are one-story brick Italianate structures with overhanging gable roofs.

Late Industrial Period

By far the majority of the study unit's pre-1940 industrial resources date from the Late Industrial period. Extant resources include a range of industrial and engineering structures including large and small factories, power generating stations and related structures, street railway buildings, depots and freight houses, gas and waterworks and bridges. While factories tend to be located within core areas, other industrial resources are found in a variety of settings across the study unit.

The single largest group of extant industrial structures are the mill and factory buildings of the core areas. Important structures of this type are located in all of the study unit's industrial communities, while core areas (Springfield, Holyoke, Northampton, Greenfield) contain numerous examples of period factory buildings. Nearly all of the study unit's mills and factories are of brick construction; no stone industrial buildings are known for the period, and reinforced concrete saw only limited use prior to 1915. Most of the period mills and factories are multi-story structures, between three and six stories in height. Period industrial buildings follow the norm for industrial construction with multi-bayed facades articulated with stair towers and piers and containing extensive glazing to light the work area within. Roof forms vary, with gable and mansard roofs being most common; after 1900, sawtooth and other forms of monitor roofs came into wider use.

Among the most outstanding mill and factory buildings, architecturally, are the New Home Sewing Machine buildings (1885) in Orange, Ludlow Manufacturing Company buildings (1901-13) Ludlow, the Cushman Woolen Mills (1886) Monson, the Mittineague Manufacturing Company (1880-1915) West Springfield, and the Haydenville Brass Works (1875) Williamsburg. Other notable buildings are the Nonotuck Silk Mills (1880, E. C. Gardner) at Leeds in Northampton, the Dwight and Chicopee Manufacturing Companies in Chicopee, and numerous complexes in Holyoke. Of special note is the Greenfield Tap and Die Company, a one-story building on Riddell Street, built by Frank O. Wells in 1903 of reinforced concrete and metal frame construction. It is one of the earliest known examples of that form of construction in the study unit.

In general, there was a decline in the number of small industries in the period as the focus of manufacturing activity shifted to the urban cores. Thus, the number of small factories built in the peripheral areas was much smaller for the Late Industrial period than it had been for earlier periods. Of the few such factories known, the following should be noted: the C. S. Barber Grist and Saw Mills,

Bernardston, Conant and Donelson Company (1913) Conway, Leverett Center Box Shop, Ramage Paper Company (1887) Monroe, Onion Storehouse (ca. 1910) Hadley, and the Montague City Rod Company (1889) Montague.

Of crucial importance to the Valley's industrial success were its railroad networks. There are a fair number of railroad related structures surviving in the study unit. These include railroad depots, freight sheds and warehouses. Extensive railroad complexes stand in South Deerfield and Charlemont, but generally, the study unit's rail related resources consist of individual structures in discrete locations.

Included among the railroad buildings are two H. H. Richardson stations, in Holyoke (1883) and Palmer (1881). Both stations were built for the Boston and Albany Railroad and display characteristic Romanesque Revival styling. Other surviving depots include the New Haven and Northampton station (ca. 1885) in Easthampton, Fitchburg Railroad depot in Erving, the Massachusetts Central depot in Amherst, and Boston and Albany depot, Chester. Also standing are freight sheds or warehouses in Orange, Palmer, Westfield and Holyoke.

The late 19th-century bridges of the Connecticut River Valley are an important component of the study unit's industrial resources. At least a dozen major spans remain extant along with numerous other smaller bridges of note. Most of the major bridges of the study unit are of the metal truss type and display a range of designs. Among the most noteworthy of these are the Connecticut River bridge, Turners Falls (1881, double-intersection Pratt), Northampton Bridge (1887, R. F. Hawkins Iron Works, double-intersection Warren), Mills River Bridge, Erving (1889, Phoenix Iron Company), Bardwell's Ferry Bridge, Shelburne (Berlin Iron Bridge Company, lenticular truss), and the Schell Memorial Bridge, Northfield (1903). Other extant metal-truss bridges are known in Charlemont (1886), Colrain (1887), Cummington, Montague, Chester, Granville (1883), Hadley (1900) and Westfield.

Also of note in the study unit are several early reinforced concrete bridges. Architecturally the most outstanding of these is the Bridge of Flowers (1908), between Buckland and Shelburne Falls. The bridge, 398 feet long with five parabolic-arched spans, is one of the earliest reinforced concrete bridges in the state. It was constructed by the Ley Construction Company of Springfield. Several other reinforced concrete railroad bridges built by the Boston and Albany Railroad stand in Middlefield.

Early Modern Period

Relatively few industrial structures were built in the Connecticut River Valley after 1915. In contrast to the Late Industrial period, when manufacturing buildings dominated industrial construction, the majority of the Early Modern period's industrial buildings relate to the development or expansion of service support systems, especially for automobile transportation, and power generation and water supply for municipal use in the cores. Also in contrast to the previous period, Early Modern industrial resources often are scattered throughout the region's periphery rather than concentrated at the commercial and transportation cores, as Late Industrial manufacturing complexes had (of necessity) been.

In some instances in the manufacturing cores, however, existing industrial complexes were expanded in the period. This was true in Greenfield, Northampton and Springfield; Nonotuck Silk Company in Northampton, for example, added a new building to its complex in 1919. That structure was typical of post-World War I industrial construction in that it featured a reinforced concrete frame with glazed infill.

One area which witnessed expansion in the period was in the provision of municipal services to the cores, particularly water supply. While most of the study unit's reservoir systems were established in the Late Industrial period, some of these were enlarged in the 1920s. The most important construction took place at Cobble

Mountain Reservoir, the water supply for the city of Springfield. Among the structures built at Cobble Mountain were an intake bypass gatehouse (1930) in Blandford and a surge tank (1930), hydropower plant (1929-30) and spillway bridge (1931) in Granville. These structures generally employed reinforced concrete construction, the gatehouse being a particularly good example of neo-classical architecture. A major component of the study unit's period industrial structures is, of course, the Quabbin Reservoir Dam (1940) in Ware.

Other important developments occurred in bridge construction, particularly for automobile use. Probably the finest auto bridges of the period are the French King Bridge (1932) in Gill, the Calvin Coolidge Bridge (1939, Desmond and Lord with Maurice Reidy) in Northampton and the Hampden County Memorial Bridge (1919-22) in Springfield. Both of the former two structures feature Art Deco piers and detailing while the latter is an elegant Beaux Arts Classical design. Other bridges of the period include the North River Bridge (1937) Colrain, the Westfield River Bridge (1938, G. H. Delano and George Harkness) Huntington, and the Great River Bridge (1938-39), Westfield.

Another significant example of transportation-related construction of the period was the building in Agawam of the Bowles Airport (1929). The airport featured hangars and an administration building with Art Deco styling. The hangars were demolished in 1983.

CHAPTER V

ECONOMIC AND INDUSTRIAL DEVELOPMENT

Introduction

The seventeen short essays which follow are sketches of several of the principal industries in the Connecticut River Valley study unit. Although the 17th and 18th centuries are represented by studies of agriculture and the fur trade, it was during the 19th century that the area developed a diversity and strength in several individual industries, unequalled in any other period. Like the rest of Massachusetts and New England, the area lost many of these industries during the 20th century 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 within the study unit. For instance, the sketch of the paper industry of necessity relies heavily on Constance Green's excellent 1939 history of Holyoke.

In several industries, which according to census statistics were important to the area, virtually no regional accounts were identified, and it has been necessary to piece together a picture of these from other fragmentary sources. The manufacture of buttons and palm-leaf hats, for instance, both passed through "cottage," "central-shop," and "factory" stages of manufacture in a manner similar to the boot and shoe industry in the eastern part of the state, yet little work seems to have been done to examine this development in the Valley. Likewise, the early development of automobiles, a favorite topic among historians of the industry in general, has received little attention from a regional perspective. These omissions suggest a real need for, and value in, further research into these and other Valley industries.

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

- a. frequency of encounter (e.g., wood working, palm-leaf hats);
- b. overriding importance in the development of an individual town (whips in Westfield; building stone in East Longmeadow);
- c. hitherto undervalued importance (buttons, brooms); and
- d. importance of the Connecticut River Valley development in the national industry (machinery and machine tools, paper, cutlery).

The industries chosen were not of equal importance. Though some stand out as being important over long spans of time (e.g., tobacco), most take their full expression in the mid-to-late 19th century. Only four of the industries seem to retain a dominant place in the Early Modern period: agriculture in general, tobacco in particular, machine tools, and cotton textiles.

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

I. Fur Trade

A. Primary Locations: Springfield, Westfield, Northampton, Hadley, Deerfield.

B. Historical Development

The earliest fur trade operation in the Connecticut River Valley study unit was established in 1636 in Springfield by William Pynchon, one of the founders of that city. Pynchon had been a prominent eastern Massachusetts figure who had held a number of positions in Massachusetts Bay government. In the 1630s he was one of the Bay's leading merchants whose commercial activities included fur trade in Massachusetts Bay and Maine (Thomas 1979:128-129; Smith 1961:14). Utilizing his extensive business and political connections to his advantage, William Pynchon rapidly cornered the Connecticut River Valley fur trade market.

The location of Springfield assured its rapid growth as a fur trade center. The adjacent Connecticut River and nearby Westfield River provided access to natives of the middle Connecticut River and Hudson River valleys, and the Bay Path assured contact with the colonial settlements of eastern Massachusetts, particularly Boston (Thomas 1979:130). Thus, by the mid 17th century, William Pynchon and his son John had established and maintained regular trade contacts with Agawam, Norwottuck and Pocumtuck hunters/trappers and middlemen. These natives acquired furs and pelts either by hunting or trapping in the uplands, in the study unit and to the north of it. Pynchon also established trade contacts with Mohawk and Mahican hunters/trappers and middlemen, much to the dismay of the Dutch fur traders of New York (Thomas 1979:178-179). From Springfield the native furs and pelts were transported to Boston by boat (after a cart trip around Enfield Falls) on the Connecticut River and along the southern New England coast. These goods were then shipped on to England and Europe where they were prepared for sale in the

European, English, and colonial markets. The native participants, in turn, received a variety of European trade goods, most often wampum and cloth.

The Pynchon Springfield operation rapidly outdistanced other competing posts established by the colony of Connecticut in Windsor, Wethersfield, and New Haven in the 1630s and in nearby Westfield in ca.1640. Between 1636 and the mid 17th century, William and John Pynchon saw Springfield develop into the leading fur trade center in the Connecticut Valley.

Expansion of the fur trade in the middle Connecticut Valley followed John Pynchon's assumption of his father's position in 1652. Under his direction, a number of colonial sub-traders, most living in Northampton, were licensed to handle a portion of the traffic in native furs. By the late 1660s, five Northampton residents had been licensed, and eight additional traders operated in Springfield, Westfield, Hadley, Deerfield, and "Quabaug" (presumably Brookfield) in the 1660s and early 1670s. However, only two of those licensed by Pynchon were financially successful. These sub-traders acquired furs from natives primarily from the villages of Norwottuck, Pocumtuck and Squakheag. Smaller quantities of furs were obtained from Westfield River, lower Connecticut River, and Hudson River valley natives (Thomas 1979:288).

John Pynchon's fur trade enterprise experienced its greatest success between 1652 and 1657. During this period, his returns and those of his sub-traders averaged 2,229 pounds of animal pelts and furs, with a high of 3,723 pounds recorded in 1654 and a low of 1,475 pounds the following year. After the late 1650s, however, Pynchon's operation underwent a relatively steady decline despite several intermittent rallies. Between 1658 and 1670, the combined returns never exceeded 1,357 pounds per year, with a low of 251 pounds occurring in 1665. Particularly damaging to the fur trade was the abandonment and destruction of the primary Squakheag and Pocumtuck villages between 1663 and 1665 (Thomas 1979:295). The

region's fur traders thus lost two of their three most important sources of furs. This loss, combined with the declining beaver population and decreased market value for beaver pelts, signalled the demise of the fur trade in the middle Connecticut Valley by the early 1670s.

C. Surviving Resources

There are no known extant structures associated with the region's fur trade. However, considerable quantities of trade items, some of which were probably obtained from John Pynchon or his sub-traders, have been recovered from the Squakheag and Agawam palisaded villages situated in Hinsdale, New Hampshire and Springfield. Additional collections of these items exist in the Deerfield Museum and in private collections. All of William and John Pynchon's surviving fur trade records are located in the Forbes Library in Northampton.

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II. Agriculture, 1620-1776

A. Historical Development

Colonial agricultural activity in the study unit was confined almost exclusively to lands adjacent to the Connecticut River, much of which had already been cleared by natives for agricultural use. The pioneers of the late 1630s and those who followed took advantage of the large tracts of fertile lowlands and began cultivation of Indian corn and such Old World staples as wheat, barley, and rye. The first livestock herds were established from cattle and hogs driven by the first settlers of Old Springfield, former Roxbury residents (Russell 1976:54). The cattle grazed on the extensive lush meadows and adjacent hills, while swine were allowed to forage in local woodlands. By the 1640s, Valley agricultural production was successful enough that William Pynchon of Springfield sent local grain, livestock, and meat products to Boston and the West Indies. Agricultural production increased as colonial settlement took hold in the Connecticut Valley and spread north of the Springfield node. The region's reputation as a major grain and cattle producer in Massachusetts was enhanced with the establishment of productive crop and grazing fields in the more northern settlements of Northampton, Hadley, Hatfield, Deerfield, and Northfield in the mid and late 17th century.

Farming in the Connecticut River Valley study unit was generally for subsistence during the 17th century and well into the 18th, geared to the needs of individual families whose holdings and returns were usually extremely modest. Most families owned a four- to five-acre houselot which, in addition to serving as the site of their dwelling, was also the location of a small garden, orchard, pasture, and livestock shelter. In the "kitchen garden," a variety of vegetables were grown including cabbage, turnips, carrots, parsnips, onions, and herbs (McManis 1975:93). Grains were usually grown on the town's common lands, where each family was provided with a small lot.

Livestock holdings usually consisted of a horse or ox, one or more hogs, a similar number of cattle, and in some cases several sheep. What exports there were from the study unit consisted of produce and livestock gathered by entrepreneurs such as William and John Pyncheon from the small number of large-scale farms.

Farmers of the study unit suffered severe losses during King Philip's War, when several Valley settlements were completely abandoned and destroyed. Large quantities of crops were also destroyed, and livestock were driven off or killed by native attackers. Attempts to harvest those crops that survived were often hampered by colonial fears of additional attacks; consequently, substantial amounts of unharvested crops were left to rot.

Post-war recovery was slow, particularly for the farmers in such northern settlements as Deerfield and Northfield because of their continued exposure to native attack. However, there were signs of agricultural growth once again by the turn of the 17th century which accelerated in the 18th century. Cattle raising continued to be an important part of agriculture in the study unit. Emphasis was placed on sheep production, with Northampton, Hadley, and Hatfield emerging as major producers at the end of the 17th century. Further gains in cattle and sheep raising occurred in the early-mid 18th century as colonial settlement spread into the eastern and western uplands of the study unit which, because of their rugged and rocky terrain, were more suited for grazing than for crops.

Agricultural diversity occurred in the Valley during this period. Wheat remained a major crop, but following decreasing yields brought on by soil depletion and wheat blast it was gradually surpassed in the late 17th and early 18th centuries by corn and rye (McManis 1975:92). Apple and cider production, once restricted to valley settlements, spread to the newly established hill towns. By the 1760s, Granby, Amherst, Pelham, and Colrain were the leading cider producers in the study unit. During the 18th century, the Connecticut Valley also emerged as one of the leading flax producing areas in the colonies

(Taylor 1967:5). Flax fiber was woven into a coarse cloth and exported to Newport, Rhode Island (Ibid.:6).

Three new crops were introduced between the last decade of the 17th century and the mid 18th century. Although none of them could be considered staples during this period, they did achieve later prominence as major cash crops in the Connecticut Valley and in northern New England. The earliest was tobacco, which was first cultivated in the Valley about 1694 in Deerfield, and grown in Whately in the 18th century. The mid 18th century witnessed the appearance of the potato and maple sugar. The former's introduction has been attributed to the Scots-Irish who brought it with them from Ireland (Russell 1976: 138), and initial cultivation began in Northfield in ca.1754 (Temple and Sheldon 1875:288). Bernardston is generally recognized as the site of the first colonial maple sugar production in Massachusetts, about 1765. Shortly after, it was refined in Plainfield and Whately. Maple sugaring was successful enough to gain a place in the commercial market.

By the outbreak of the Revolution, the diversity and production returns of Connecticut Valley agriculture had increased noticeably; greater quantities of livestock and produce were shipped to market. Nonetheless, most farming in the study unit was non-commercial and would remain so until the 19th century. For many settlers, it was a seasonal undertaking; the winter months saw farmers turn to lumbering and related activities. In the mid 18th century, some found freight hauling around South Hadley Falls profitable enough that they opted for that pursuit.

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III. Agriculture, 1776-1900

A. Historical Development

Although New England agriculture in the Federal period remained largely at a subsistence level, after the Revolution increasing quantities of surplus farm products were sold in the larger markets of Springfield, Northampton, Hartford, and other river towns for export to Europe and to the West Indies. The period 1793-1807 was one of unprecedented agricultural prosperity. With England and France at war, West Indian trade boomed. In addition, poor European harvests increased the West Indian dependence on New England products. In this period, agricultural products were transported out of the Valley in larger amounts than ever before. These exports included potash and pearlash for Europe, lumber, beef, pork, barley, hops, butter, cheese, and beeswax. Grain could also (and more cheaply) be exported from the Valley in liquid form, and river towns with large grain crops like Hatfield, Agawam, and Northfield all had early distilleries.

The season for crop growing is short in mountainous areas, and although agriculture had been the principal occupation of the inhabitants, the soil was better adapted to grazing than to tillage. For many years the grazing of sheep, and then cattle, became important industries. Brighton, outside Boston, had become a major cattle

center in the years immediately following the Revolution, and beginning in those years, farmers and drovers began driving cattle from various areas of New England and New York to the Brighton market. After 1800, the hill town farmers would drive the cattle to the river towns, where they would be fed and fattened during the winter months and then sent on to Brighton in the spring.

The Federal period also witnessed an important change in both the market and in the type of agricultural products produced. This change was effected as much by political events as by climatic and topographic factors. Prices of farm produce fell dramatically with the introduction of Jefferson's trade embargo in 1807. Throughout the Embargo and the War of 1812, farmers struggled to find new markets. At the conclusion of the war, the hurricane of 1815 and the cold winter of 1816, followed by the financial panic of 1818-1819, added to the farmers' laments.

Generally, those who stayed in the hill towns were those who recognized that soil crops were ill-suited to the rough terrain and altered the nature of their produce accordingly, evident in the first years of the 19th century. Cheese had already been introduced in Connecticut, and it arrived in the Berkshires in 1801. A Connecticut man, Amos Collins, is credited with convincing local farmers in Blandford that they should likewise switch from the cultivation of grain and wool to the production of butter and cheese.

Cheese and butter production was only the first evidence of the switch to market products. In the 1820s and 1830s, Hadley and other lowland towns along the river turned increasingly to more perishable crops, while the hill towns turned to products that could be easily transported to the growing industrial towns of Westfield, Ware, Northampton, Springfield, and Greenfield.

In the fertile bottomlands of the Valley, market gardens were established in the 1830s and 1840s. One of the earliest in the Springfield area was that of Richard Bagg in West Springfield; beginning

in the 1830s he built some of the earliest greenhouses and hothouses for commercial growing. Dairy and vegetable produce were carted to the larger towns on a daily basis from the adjacent towns. The railroad accelerated this change to commercial agriculture, extending each town's supply routes. This was another blow to the hill towns, which could never approach the yields of the more fertile lowlands. Subsistence agriculture was now outmoded, as it became cheaper to buy grain in Westfield than to raise it in Tolland. More and more grain began to be shipped in from western states as well. Even the lowland towns relied less on their own products, and increasing amounts of acreage were taken up for animal fodder or the new high-profit crops, broom corn and tobacco.

After the Civil War, the shipments from New York and the Plains States cut increasingly into a wide range of traditional Connecticut Valley crops. Grain mills were established along the railroad to grind and bag western grain and, as in Wilbraham, they were a prime factor in the decreasing size of the cereal crops.

About 1870, a new process of separating cream was invented called the Cooley Creamer, and in the 1880s many of the hill towns established cooperative creameries. Cream was stored in farms in the iced Cooley Creamers, collected, and then made into butter at the creamery. The demand for cream, however, eliminated the cheese industry, although the number of dairy cows greatly increased by the end of the century. Farmers who engaged in the production of cream in the winter months also found cows convenient means of disposing of surplus hay and grain. The invention of a centrifugal cream separator in 1895 further divorced the butter-making process from the hill towns. Butter could now be produced just as readily in more central locations, and with the opening of milk stations like that at Shelburne Falls, milk could be shipped directly to Boston or to the principal cities of the Valley. As a result, many of the rural creameries closed.

Some new crops found favor in a national market. For example, New England's second-most important export vegetable was the onion. Beginning in the 1880s, increasing acreage was devoted to onion raising, especially in Sunderland, Whately, Deerfield, Hadley, and Hatfield. By 1905, Hatfield reported 54% of Hampshire County's production and was the leading onion town in the state. In 1909 a local grower constructed what was reputedly the first storehouse in New England designed specifically for this vegetable. Like tobacco growing, onion raising was labor intensive, and its development at this time has been at least partially credited to the influx of Central European immigrants, particularly Poles, in the late 1880s and after. Another important vegetable was the cucumber; many of the cucumbers grown in the Deerfield area were sent to pickle factories in South Deerfield.

In Franklin County, the opening of the Hoosac Tunnel in 1876 made the Fitchburg Railroad a through route of major importance. Greenfield/Deerfield junction became a rail hub for the upper Connecticut Valley. In 1885 these towns along with two other Franklin County towns, Conway, and Shelburne, led the state's beef production; Northfield, Colrain, and Leyden were not far behind. In the same way, the new Boston & Albany yards in West Springfield were important for the shipment of agricultural products in the southern end of the Valley.

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IV. Building Stone

A. Primary Locations: Monson, East Longmeadow, West Springfield, Westfield.

B. Historical Development

The principal building stones available in the Connecticut Valley were granite and the Triassic-period red sandstone, called "brown-stone." In the East Longmeadow area, the red sandstone was said to have been worked as early as the first settlement of the town in the 1740s, although this probably amounted to the use of surface boulders and other easily obtainable stone for local purposes.

The first commercial quarrying probably did not occur until the first decades of the 19th century, when new quarrying techniques became available. The construction of the Springfield Armory was responsible for the first granite quarry in Monson, opened in 1809 by Armory agents who quarried foundation stone. Because of inadequate transportation, however, Monson granite was not quarried on a regular basis until the 1840s.

The earliest brownstone quarries in East Longmeadow were opened about 1824, and the development of the village of East Longmeadow in the years immediately following was in large part a result of the quarrying activities. North Main Street in East Longmeadow (White Street in Springfield) ran directly to the Armory's Upper Watershops, facilities which in their early years used grindstones of Longmeadow sandstone. Inadequate technology hampered the development of the sandstone quarries as well; several suffered from the rapid accumulation of water and were unusable until the availability of steam pumps in the 1860s.

In the meantime, another deposit of red sandstone was opened in West Springfield. In the 1840s, the Bosworth Quarry employed 40 men. The value of the stone removed in 1845 represented almost 80% of all the building stone reported quarried in the Valley that year.

With the introduction of rail transportation, quarries in both East Longmeadow and Monson dramatically expanded their operations. In Monson, particularly after the opening of the New London, Willimantic, and Palmer Railroad in 1850, business boomed. By 1865 the Monson granite quarry was the single largest producing quarry in the Valley, and its total production was second only to the combined sandstone quarries of East Longmeadow.

In East Longmeadow the industry's expansion was in large part due to the new popularity of polychromed architecture, particularly the Romanesque style popularized by H. H. Richardson and his master builders, the Norcross Brothers, a Worcester-based construction firm. Their long association with Richardson assured a place for Longmeadow stone in many of the architect's most important buildings. The arrival of the Norcross Brothers in East Longmeadow in 1873-1874 appears to have coincided with Richardson's stone needs for Trinity Church in Boston (O'Gorman:111). They probably also played a role in bringing the Springfield and New London Railroad through town in 1875. Quarrying probably reached its peak in the last decade of the 19th century. In 1890, the product of the East Longmeadow quarries, valued at \$563,179, represented 86% of the entire state's production of sandstone. Of the twelve working quarries, seven were operated by the Norcross Brothers, and three by a Springfield firm, James & Marra. Both firms employed about 200-300 men at their peak.

Although little information is available, the decline in the brownstone business appears to have been fairly sudden. A protracted strike of local stonecutters is blamed for bringing into prominence the easier-to-work Indiana limestone and Ohio greystone (Goodlatte: 152). In addition, proponents of the new Classical Revival architecture favored the lighter stones over the Victorian brownstone. Norcross closed its East Longmeadow operation in 1915.

C. Surviving Resources

Although no known buildings survive from historic period quarrying operations, many of the actual quarries remain. In view of the importance of the red sandstone deposits to the development of East Longmeadow, some attention should be given to identifying the various quarries, owners, operators, and the types of stone obtained from each.

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V. Tanning

A. Primary Locations: Northampton, Chester, Cummington, Tolland, Blandford, Montague, Conway, Holyoke, West Springfield.

B. Historical Development

By the late 18th century, small tanneries had been established throughout the towns of the Connecticut Valley, wherever there were stands of hemlock and running water. The first improvements in the tanning process over the traditional small vats appear to have been

introduced by William Edwards, who returned to Northampton from New Jersey in the 1790s and for a short time made that town the center of the industry. In 1794, Edwards had been the first to ship Hampshire County leather to Boston and with others, established auxiliary tanneries in Chester and Cummington. In 1809, all three were incorporated as the Hampshire Leather Manufactory, with Boston merchants as the chief shareholders.

Edwards left for New York State in 1817, and tanning was discontinued in Northampton. However, the western tier of towns between Tolland and Hawley remained an important tanning region well into the Late Industrial period. In 1832, the leading towns in the Valley were Cummington, Blandford and Chester. By the 1860s, although this area retained a strong place, some towns closer to industrial centers developed the industry, particularly Conway, Holyoke and West Springfield. At least one company, the Shaw tannery in Cummington, exported its expertise; Shaw's sons went on to establish tanneries in Maine and Canada.

C. Surviving Resources

There are no known tanneries in existence today in the study unit.

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VI. Textiles

A. Primary Locations: Chicopee, Palmer, Ware, Monson, Greenfield, Williamsburg, Northampton.

B. Historical Development

In the Federal period the introduction, first of the water-driven spinning frame and then of the power loom, brought factory methods to an industry which hitherto had been limited to home production. As in the more eastern parts of the state, some small cotton spinning mills were established as a result of the Embargo and the War of 1812, particularly in the eastern parts of Hampden and Hampshire counties. In the 1820s, the role of Boston investors became important in most successful mills. In the adjacent towns of Ludlow and Chicopee two separate "Waltham" and "Rhode Island" type mills were established by leading representatives of the two systems. In addition to their flagship mills in Chicopee, the Boston Associates financed mills in Palmer, Ware, and in 1832 the Greenfield Manufacturing Company Woolen Mill. Many of the small eastern mills of Springfield, Monson, and Palmer became training grounds for men who later worked in the large Chicopee River mills. However, the period as a whole was not a success for cotton manufacturers. Joseph Lyman's description of the Amherst Cotton Factory Company seems typical. The company was

subject to losses and misfortunes, having never made a dividend until within the past year [1831] . . . its only good fruits have been in rearing and sustaining an intelligent and moral population of sixty-six souls, who will not suffer by comparison with any village where the pursuits are similar. (Documents:298)

In contrast with the cotton textile industry, the woolen industry, with its native raw material, was distinctly one of local investment with generally smaller operations. It took its beginnings from the small clothiers' mills, which by the 1790s were located along many

streams throughout the Valley. Williamsburg became a center for clothiers who were attracted there from nearby towns at least as early as 1793. In 1803 the first carding machine in the Valley was established in Williamsburg, only a short time after its first appearance in the Berkshires.

The Embargo encouraged the importation of the Merino breed of sheep in large numbers from Spain, and many farmers began the culture of the fine wool in place of the coarse wool furnished by native stock. The War of 1812 itself established a military market for clothing and blankets, and numerous mills were established in this period.

The most important Federal period woolen mill was the Shepherd factory in Leeds, begun in 1809. Incorporated as the Northampton Cotton & Woolen Company, the mill was founded by three sons and a nephew of Levi Shepherd with the merchant capital amassed by the patriarch. Shepherd's factory, the first fully developed factory on the Mill River, was from the start one of the largest and most important woolen mills in New England, responsible for numerous technical improvements. Shepherd patented a power loom in 1816 and was reputedly the first to produce broadcloth by power loom in the United States. The company made numerous experiments in the quality of local wool, and from 1818 onward, Shepherd wool won many premiums. About 1822, Shepherd was the first to import Saxony sheep into the U. S.

The most important single factor, however, in the subsequent growth of woolen manufacturing in the Valley was the Tariff of 1828, whose passage was sought initially by the Massachusetts woolen manufacturers seeking protection from foreign goods. All over the Valley, woolen mills were erected or revitalized as a result of the passage of this legislation.

Equally important was the effect which this had on wool growers themselves. The tariff had brought about a tremendous demand for

fine wool, only a third of which could be supplied by existing flocks in the state. A craze developed for raising Saxony sheep, particularly in the western highlands of Hampshire County. In Middlefield, there were more sheep raised than in any other town in the state except Hinsdale and Lanesborough.

The woolen and wool growing industry continued to prosper until 1846. The tariff of that year reduced the duty on imported woolens, and the new fancy worsteds introduced from England began to displace broadcloth in popularity. This affected the fine wool culture immediately, and the Saxony breed quickly lost favor.

Most woolen mills produced satinet, a cotton-wool fabric made popular by the change in style of man's clothing from knee breeches to long trousers. After the tariff of 1846, cheaper fabrics like satinet were left to the smaller, out-of-the-way mill towns to produce; thus, Monson's proportion of the county satinet production grew from 51% in 1845 to 75% at the close of the Civil War. The only mills producing fine quality broadcloth were those in Middlefield.

The Civil War, by cutting off the cotton supply, provided a tremendous stimulus to New England woolen production, and several companies which could take advantage of government war contracts expanded in this period. But by the 1870s, with the reopening of American markets to European goods, broadcloths were supplanted by worsteds in the popular taste, and only those factories which could reinvest in the switch to worsteds--mostly in the eastern part of the state--survived for any length of time. The reinvestment in two sets of mills in Monson contrasts markedly with the pattern of woolen mill abandonment in the adjoining town of Hampden. In the 20th century, these made successful transitions to new fabrics--especially automobile, billiard, and casket cloth.

The only cotton mills to survive the financial panics of the Early Industrial period and the Civil War were those which were buttressed by substantial outside investment--chiefly from Boston.

The Chicopee Mills were followed in eastern Hampden and Hampshire counties by mills in Palmer, Ware, Holyoke, and Springfield. With a sure source of capital for reinvestment (and which cushioned the companies in hard times), the large cotton mills of the Valley were not affected in the same way that the smaller woolen mills were, and in general they survived comfortably into the 20th century.

In stark contrast to other valley mills were those of the West Boylston Manufacturing Company, which moved into the old Williston Mills in Easthampton in 1900. The Worcester County manufacturer introduced new investment, new technologies and a physical plant more usually associated with the great brick mills of New Bedford.

The third textile material to be developed in the 19th century was silk. Silk production in the Valley was limited by the availability of raw silk until the introduction of a new strain of mulberry tree, the Morus multicaulus, in 1826. In Northampton its principal promoter was Samuel Whitmarsh. In 1836, with backers from Middletown, Connecticut (the chief location of Connecticut's silk industry) and twenty-two New York investors, Whitmarsh organized the Northampton Silk Company, which within a year was producing silk valued at nearly three quarters of the entire state production. Prompted by the success of Whitmarsh and others, thousands throughout New England rushed into the business of growing the multicaulus. Small plants were sold for fabulous prices, and the trees became worth much more than the silk. Greenfield, Cummington and other towns all had extensive groves of the trees. But when the hard winter of 1839-1840, which killed many of the trees, was followed by a blight in 1840, the mania evaporated quickly.

In Northampton, the business was kept alive by the Fourierist community in Florence, whose backers appear to have selected Florence because of the availability of the defunct silk industry. Although the community lasted less than a decade, it provided a

gestation period for the future Nonotuck Silk Mills, whose silk thread by 1855 was already Northampton's leading product. It retained this lead well into the 20th century.

C. Surviving Resources

In the following list, "NR" designates those structures already listed in the National Register of Historic Places. Asterisks mark those structures for which survey forms have been filed with MHC.

Hampden County

Agawam

- Agawam Woolen Mill

Chicopee

- *Chicopee Mfg. Co.
- *Dwight Mfg. Co.

Holyoke

- *Hampden Mills
- *Lyman Mills
- *Farr Alpaca Co.
- Livingston Worsted Mills Co.
- *Goetz Silk Co.
- *Hadley Company Thread Mill
- *Merrick Thread Mills

Ludlow

- *Ludlow Mfg. Co.

Monson

- D. W. Ellis & Sons Woolen Mills
- *S. F. Cushman & Sons Woolen Mill
- A. D. Ellis & Sons Woolen Mill

Palmer

- *Thorndike Co. upper and lower mills
- Boston Duck Co. (ruins and warehouse)
- Otis Co.: Palmer Mill

Springfield

- Indian Orchard Co.
- William Carter Co. Knitting Mill

West Springfield

- Agawam Canal Co. Cotton Mill

Hampshire County

Easthampton

- *Williston Mills
- West Boylston Mfg. Co.
- King Silk Mills/National Felt Co.

Northampton

- *Nonotuck Silk Co. New Mill (Leeds)
- *Nonotuck Silk Co. (Florence)

South Hadley

- Glasgow Co. (gingham mills storehouse)

Ware

- *Otis Co. (NR)
- C. A. Stevens and Co. Woolen Mill
- G. H. Gilbert Mfg. Co. Woolen Mill

Franklin County

Colrain

- *Griswoldville Mfg. Co., Willis Place Mill
- Griswoldville Mfg. Co., Griswoldville Mill

Montague

- *Turners Falls Cotton Mills (NR)

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VII. Buttons

A. Primary Locations: Williamsburg, Northampton, Easthampton, Granby.

B. Historical Development

Mrs. Elnathan Graves of Williamsburg is generally credited for initiating the cottage industry in cloth buttons. The early buttons were made of wooden "button moulds" (eventually turned out by small woodworking shops all over western Hampshire County) covered with cloth; Mrs. Graves is said to have copied the pattern from the coat of a visiting Englishman. About 1826, Levi Hitchcock of Searsville invented a round chisel or die to cut the cloth for her, reducing waste and greatly speeding production. Mrs. Graves' son-in-law was Samuel Williston of Easthampton, who through the 1820s watched the cottage industry of his wife and mother-in-law expand dramatically. Williston himself passed through many Hampshire County towns distributing wooden button moulds with cut circles of black cloth for the coverings along with skeins of black linen thread for sewing on the covers.

For a brief period there appears to have been a "central shop" stage akin to that in the shoe industry, in which button shops, like Root's in Middlefield, "put out" prunella cloth and button moulds to farmers' wives, who finished the buttons and took their pay in goods from the store. But much more quickly than in the shoe industry, the button industry was overtaken by factory production. With

Williston's backing, the Haydens in Williamsburg successfully introduced the first button-making machinery in 1834. Fourteen years later, Williston bought out the Hayden interests and moved the business to Easthampton, where it became the first element of a growing Williston industrial empire in that town.

The establishment of factory production in Easthampton, in a new brick factory erected for the purpose, effectively ended the cottage industry in the Valley, although several smaller factories operated in Northampton for much of the century.

Another variety of button was made from shells. Benjamin Franklin Smith of South Hadley is said to have invented machinery and tools for making such "pearl buttons," as they were called in the market. Smith erected a factory for their production in 1832, although he seems to have been preceded by another Smith, Eldad, who by 1830 had a "factory" in Granby. Eldad made cloth-covered tin and wooden buttons, as well as cut pearl buttons. B. F. Smith's factory in South Hadley, which operated through the 1840s, gave the name "Pearl City" to its neighborhood in the town.

C. Surviving Resources

Williston, Knight & Company Button Factory, Easthampton
E. N. Foote Button Shop, Northampton (NR)

D. Bibliography

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VIII. Woodworking Industries

A. Historical Development

In the 19th century, the hardwood forests of the hill towns promoted a strong woodworking industry. Particularly after the invention of new lathes and other woodworking machines, native ash, beech, and other woods were actively sought after. Mechanics were attracted to the area from all over New England; the forerunner of these was probably Thomas Blanchard, whose lathe for turning irregular forms was installed by the inventor himself at the Springfield Armory by 1820.

Turning shops and the beginning of the joiners tool industry appeared first about 1827 in South Amherst. One of the earliest shops was probably that of Eli Dickinson, who was producing wooden faucets. One of the earliest uses for the new lathes was to serve the huge broom industry of the central lowland towns. Patents on lathes were granted to men from Hadley (1824), Shutesbury (1826), Leverett (1827 and 1828) and Plainfield (1832), although in the patent lists only the Plainfield patent has been specifically linked to the turning of broom handles. A sawmill in Goshen in 1828 is said to have been the first to turn broom handles by water-powered machinery.

Like Thomas Blanchard, Silas Lamson was from Worcester County. Lamson had invented the crooked scythe snathe about 1800, and in 1834 he moved to Shelburne Falls in search of ash timber for snathe production. Ash was also the preferred wood for baskets and carriage wheels. Basketmaking, while it seems to have appeared earliest in Huntington, appeared in Worthington and Chesterfield by 1855, and in Northampton it was a major industry by that date. Both Chesterfield and Worthington shared the manufacture of sieve rims and banjo hoops. Bedsteads were made in Blandford, Chester, Huntington, Worthington and other towns, while the Rings in Ringville (Worthington) and Knightville (Huntington) made an active

industry out of the manufacture of children's sleds. Shaving boxes were made in Colrain, Buckland, and Shelburne. "Factory supplies" (picker sticks, hat racks, spools and bobbins) were made in the 1870s in Chesterfield and Worthington.

A major innovator was Joseph Griswold of Ashfield, who at age 20 made a trip to Detroit. So impressed by the woodworking machinery in use there that on his return in the 1820s he established mills for producing sash, doors, and blinds by machinery first in Ashfield and later in Buckland and Colrain.

Other wooden products were more restricted geographically. Powder kegs produced in Westfield since the 18th century probably spurred the production of toy drums in Granville to the west. Belchertown in the years immediately preceding the Civil War became the "Detroit of the carriage industry" with an international reputation. Likewise, although the cabinetware and furniture industry was predominantly a Worcester County phenomenon, the industry did spill over into the eastern towns of the Valley, especially Wendell, Erving, Orange, and Shutesbury. Native woods like birch and maple were a prime attraction for cabinetmakers in the 1830s. By mid century, most of the Valley industry was concentrated in the Millers River towns of Erving and Orange.

Wooden tool and brush handles were a special product of many western Hampshire and Franklin county towns. The Greenfield Tool Company consumed 120,000 feet of beech timber in 1855 to make wooden handles, and the industry is still carried on in several of the hill towns. H. H Frary of Charlemont is said to have been the inventor of the first successful automatic wood-turning machine about 1890, and the establishment of several shops for wooden implements both in Charlemont and Ashfield may be related to this invention. S. A. Healy's Sons in Chesterfield in 1912 was said to be the only firm in existence at that time "doing an extensive business" in saw and plane handles.

The arrival of the railroad, although it initially brought a new market for Belchertown's carriages, Knightville sleds, and other products, by the 1870s had reduced much of the industry to products which were used in other Valley products (e.g., wooden handles in Valley-produced hardware, or factory supplies for the textile mills), or which other areas could not readily produce (e.g., baby carriage wheels of local ash wood).

B. Surviving Resources

Asterisks mark those structures for which survey forms have been filed with MHC.

Granville

Noble and Cooley Co.

Chesterfield

S. A. Healy's Sons

Plainfield

Willicut Turning Mill

South Hadley

Gaylord & Co. Sash and Blind Factory

Westhampton

*Parson's Sawmill

Bernardston

C. S. Barber Sawmill

Buckland

*Griswold Sash and Blind Factory

*Trowbridge Cooper's Shop

Leverett

Sawmill River Lumber Co. Sawmill

Moore's Corner Sawmill

Leverett Box Shop

Bucket Shop

Montague

Toby Mountain Shingle Co. Sawmill

*Dike Mill

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1874 Secular History of the Town of Worthington, from its First Settlement to 1874. n.p., Springfield.

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IX. Whips

A. Primary Location: Westfield.

B. Historical Development

The introduction of the whip business into Westfield is credited to Titus Pease and Thomas Rose, who began production in 1801. At that time, whips were made of white oak and were twisted stock whips, with sheepskin lashes covered with the same material. At first, whips braided at home by women were sold or traded to farmers who attached them to whipstocks. But about 1820 plaited stocks were introduced. Hiram Hull's invention, about 1822, of the "barrel"

plaiting machine mechanized a tedious hand process and made it practical to introduce factory conditions to the industry. By 1832 Hull was the largest whip master in town, employing 26 men to make 50,000 whips annually, about half the number then made in Westfield.

With continual technical advances, the industry expanded rapidly. By 1837, 410 women and 154 men were employed, although statistics suggest that much of the labor was still performed by women at home. Not until 1865 did men outnumber women among whipmakers. By that time, the town's two oldest and largest firms had merged to become the American Whip Company, employing half of all the whipmakers in Westfield in 1855, the year of its organization.

In 1892, the United States Whip Company was formed out of the merger of fourteen companies, becoming the largest whip manufacturer in the world. By 1902, there were some 33 firms in Westfield making whips valued at \$2 million--about half of which was attributed to U.S. Whip.

Whip production in Westfield reach its peak probably about 1915. After that, although whips continued to be produced for special purposes, the industry lost its major market after the introduction of the horseless carriage. Only those firms which diversified into related industries survived.

Although no town developed as a competitor to Westfield in the industry, shops in neighboring towns, including Russell, Montgomery, and Southampton, made whip lashes, butts, or whips for sale to Westfield factories. Russellville in Southampton had three small whip shops in 1875, and although it represented only a very small fraction of Westfield's production, it was Southampton's largest industry that year.

C. Surviving Resources

Only in Westfield are there any surviving factories of the whip industry. Chief of these is the three-story brick factory of the American Whip Company; two adjoining buildings on Elm Street (Nos. 330 and 360) also housed whip manufacturers.

D. Bibliography

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X. Straw Goods

A. Primary Locations: Amherst, Monson, Orange, New Salem, Shutesbury, Leverett.

B. Historical Development

The making of palm-leaf hats and straw bonnets was an industry imported independently from two separate directions. The earliest home production of hats moved into the eastern towns of the study unit from Worcester County in the first years of the 19th century. The earliest example noted was in Orange, where Abner and Jacob Whitney began making palm-leaf hats in 1805; a shop in North Dana seems to have encouraged the rapid growth of the industry in New Salem. Shops in Enfield and Ware in the late 1820s and 1830s also encouraged the craft in the towns of eastern Hampshire County. The year 1845 saw the widest distribution of the industry throughout the Valley; virtually every town in Hampshire and Franklin counties reported some activity. A decade later, factory production had cut sharply into what had been up until then a home industry, concentrating the business in a small number of important centers.

In the towns in which the industry would later become a factory industry, Amherst and Monson, it was begun, not by Worcester County entrepreneurs, but by Connecticut men. Leonard M. Hills came to Amherst from Ellington, Connecticut in 1829 to make palm-leaf hats. By 1855 the business in Amherst accounted for over half the industry's product in the county. Based on a map of production figures, the Amherst industry appears to have had the widest effect on the industry in other towns. Not only was the production of palm-leaf goods taken up by towns immediately to the north, Shutesbury and Leverett, but it also appeared in towns connected to Amherst by what is now Route 9, from Belchertown to Plainfield.

The palm-leaf hat industry in Monson appears to have had a similar effect on the surrounding towns. Charles Merrick, a weaving superintendent in a Rockville, Connecticut mill, thrown out of work in the Depression year of 1838, determined to attempt the manufacture of palm-leaf hoods--the secret of whose manufacture in Rockville was carefully guarded. Observing the braid looms in operation in Somers, Connecticut, Merrick introduced the business into Monson in the summer of 1838, becoming the first to produce palm-leaf hoods in Massachusetts.

By the Late Industrial period, the industry had been consolidated into large factories in Monson and Amherst, employing 600-800 men and women in each town. Factories in both towns were expanded or rebuilt about 1912. In Monson the straw works closed in 1927 after the death of one of its principals; in Amherst the two factories survived another decade, closing within a year of each other in 1935-1936.

C. Surviving Resources

There are no known surviving factories, although the brick boilerhouse from the Burnett & Sons straw hat factory still stands in Amherst.

D. Bibliography

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Historical Society, Amherst.

XI. Cutlery and Edge Tools

- A. Primary Locations: Chicopee, Northampton, Buckland, Greenfield, Montague, Williamsburg, Huntington.
- B. Historical Development

Although the Connecticut Valley never had the iron ore deposits of either southeast Massachusetts or the Berkshires, its earliest iron manufacturing activities showed the strong influence of Bristol County ironmasters, several of whom moved to Hampden County in the Federal period. Among them were two successive Armory superintendents, David Ames (From Easton) and Robert Orr (from Bridgewater). In Bridgewater, Orr had devised the method of triphammer forging for scythes, shovels and other agricultural tools. Benjamin Belcher, an ironmaster from Easton, moved to Chicopee Falls in 1801, taking over an ironworks which would eventually become a successful manufactory of agricultural implements.

The production of axes appears to have been a more localized phenomenon, originating in the Williamsburg shop of Rufus Hyde, a blacksmith from Norwich, Connecticut. Hyde established a triphammer shop in the Searsville district of Williamsburg in 1795, and with his son Stephen established a regional reputation for quality blades.

Sharing in the Williamsburg reputation after about 1811 were Joseph Hannum (William Hannum was making axes in Huntington about this time), Levi Hitchcock, and Benjamin Baker.

In the mid 1820s appeared one of those revolutionary inventions which, like the sudden introduction of a protective tariff, stimulated the establishment of a large number of small shops over a wide region. This was the first widespread use of a triphammer in making agricultural implements, probably initiated in 1824. In that year, John Blanchard established a large scytheworks in Palmer, William Riddle in Charlemont began making iron ploughs, and John Morse in Shelburne began making scythes and axes. In the next few years, triphammer shops were erected throughout the Valley. In the 1830s and 1840s, numerous shops turned out scythes, axes, hoes, ploughs, and other agricultural implements.

The earliest cutlery established in the Valley was that of Nathan Ames at Chicopee in 1829. Ames had been induced by textile mill promoter Edmund Dwight to relocate from Chelmsford to Chicopee to set up a shop to serve the new textile mills. But Ames quickly developed a substantial trade in everything from chisels, axes, and butcher knives to paper mill knives and swords. For the Ames Manufacturing Company, however, cutlery was never a dominant product. It remained to Franklin County firms to develop a reputation for cutlery for the Valley.

The earliest products of John Russell's Green River Works in Greenfield were not cutlery at all, but edge tools. The cast-steel socket chisels the factory produced were probably not unlike the chisels which Levi Hitchcock in Williamsburg had invented and manufactured for Mrs. Graves' button business (see Section VII). Only after the success of this venture did Russell add butcher and carving knives, importing cutlery makers from Sheffield and eventually, Solingen in Germany. In the face of Sheffield's attempt to stifle this new competition, Russell introduced the triphammer--hitherto limited to edge tools--to cutlery manufacture. By 1844 he had produced a

knife in which the blade, tang, and bolster were forged from one piece of steel.

By the 1830s, Shelburne Falls had become the leading town in the Connecticut Valley for scythes behind John Blanchard's production in Palmer. Although Silas Lamson's move to the upper Connecticut Valley (settling first in Cummington and Montague) was dictated by his need of ash timber, the John Morse scythe shop at the Falls must have proved a strong inducement for him to relocate. Lamson's product was the scythe snathe, the crooked wooden handles attached to other men's scythes. An early addition to the plant also included a shop to make the iron fasteners attaching the snathe to the scythe, and in connection with this forge work, Lamson began the manufacture of cutlery about 1842. Local expertise quickly gave the firm an advantage over the Russell Cutlery. About 1851 the company introduced the use of heavy dies to cut out blades, and when the dies were introduced at Greenfield in 1855, the Russell Company purchased Lamson & Goodnow presses.

Lamson was followed to Shelburne Falls by one of the leading axe makers of the Valley, Josiah Pratt. Pratt had made the first cast-steel axes in a blacksmith shop in Buckland Center; by 1832 he was in East Charlemont, where he received a patent on a machine for making axes. In search of increased power, he moved in 1843 to the Falls where metal-working shops in the area were developing a notable expertise in small tool manufacturing. The double-cut bit was invented and patented by C. C. Tolman of Shelburne and first manufactured in the United States by Sargent & Foster in 1855 at Shelburne Falls. Ransom Cook of Shelburne patented an auger in the 1850s. In 1851, Linus Yale is said to have produced Yale locks at Shelburne Falls as well. By 1860, Franklin County, represented principally by the Lamson & Goodnow and Russell companies, was turning out 49% of the nation's cutlery output.

The last cutlery center to be established in the Valley was in Northampton, where a former hemp factory attracted a group of

Waterbury, Connecticut men as a suitable site for an edge tool and agricultural implement shop. By 1855, the Bay State Tool Company employed 150 men. The Civil War made substantial inroads into the industry: both the tool company and other large makers of agricultural implements (including Marcus Beebe's plough shop in Hampden) lost large southern contracts permanently during the 1860s. By the end of the war, the business in edge tools and other agricultural tools had moved west, closer to the sources of raw materials and markets. Nevertheless, into the early 20th century the cutlery industry remained in the major centers--Shelburne Falls, Northampton, and Turners Falls.

C. Surviving Resources

The major landmark of the cutlery industry is Lamson & Goodnow's brick manufacturing complex on the Buckland side of Shelburne Falls. Other factories include those of the Bay State Tool Company in Northampton and the Ames Manufacturing Company in Chicopee.

D. Bibliography

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XII. Paper

A. Primary Locations: Springfield, Chicopee, West Springfield, Holyoke, South Hadley, Russell, Amherst, Northampton.

B. Historical Development

The earliest paper mills in the study unit were built in the 1790s in Amherst and Northampton, the latter by the Hartford merchant

William Butler, who had moved to Northampton a few years before to found the Hampshire Gazette.

The major innovation of this industry was an offshoot of the Springfield Armory-inspired technology. David Ames, Armory Superintendent from 1794 to 1802, and Thomas Blanchard, inventor of the Armory's gunstock lathes, established a paper mill in Springfield in 1802. (A small mill at this location had apparently produced paper prior to the Revolution.) By 1832 Ames's mill was reputedly the largest in the state. He invented a cylinder paper machine (continuous process) in 1822 which preceded the Fourdrinier and produced a product reputedly superior to the latter.

The first important center of the industry was in Mittineague on the Westfield River in West Springfield, where in 1839 the Southworth Manufacturing Company built one of the largest paper mills in the county. A second mill was constructed in 1859, and by 1865 Mittineague had 38% of the county's production. Unlike the late 19th century center at Turners Falls, Mittineague always maintained its independence from Holyoke; the Strathmore Paper Company of that place and Woronoco, became in the 20th century one of the state's major paper companies. Other Westfield River paper mills operated in Cummington, Huntington, Russell, and Westfield throughout the 19th century.

By far the most important center of the paper industry was Holyoke. The ample power and water supply of the Connecticut River at this point had first been utilized by mills on the South Hadley side of the river as early as 1824, when the Springfield merchants Howard and Lathrop built a paper mill at the falls. In 1831, David Ames built a second mill at the falls, which until 1837 was said to be the largest paper mill in New England (Green:14). With Ames's Springfield mill, it was said to produce two-thirds of all the fine writing paper manufactured in the United States. In 1853 a papermaker originally with the Ames mill, Joseph Clark Parsons, built the first paper mill in Holyoke.

By 1865, the success of the Parsons Paper Company, the ample power for running the heavy Fourdriniers, and chemically pure wash water provided incentives for the establishment of new mills in Holyoke. In the period 1865-1866, seven paper mills were built. In the following quarter century, as new chemical processes and new administrative controls altered the economics of paper manufacturing, Holyoke reached its manufacturing peak. Also, for the first time, mills were built along the Deerfield and Millers rivers in Franklin County--Monroe, Cummington, Shelburne, Montague, and Erving, many with ties to Holyoke concerns.

However, the mills in Holyoke, and most others, lacked the ability to actively reinvest in new equipment; competition from other Valley mills, as well as from newer mills in other areas, eventually lost Holyoke much of its trade. This was signaled in part by the formation in 1899 of the American Writing Paper Company, described by historian Green as "the classic example of the unsuccessful trust." Initiated from outside the industry, by men who had no firm grasp of the business, the American Writing Paper Company brought to an end the period of vital growth among Holyoke paper mills. Although it was designed to eliminate the inefficiencies of sixteen separate mills, management never accomplished the pruning and rationalization this required. Buoyed briefly by the wartime profits of World War I, the company succumbed to its own weight in the postwar depression of 1921.

C. Surviving Resources

"NR" designates those structures already listed in the National Register of Historic Places. Asterisks mark those for which survey forms have been filed with MHC.

Hampden County

Holyoke

*Whiting Paper Co. Mill No. 1

*Valley Paper Co.

Union Paper Co.
Franklin Paper Co.
*Crocker Mfg. Co.
*Beebe & Holbrook Paper Co.
*Wauregan Paper Co.
*Albion Paper Co.
*Nonotuck Paper/Mt. Tom Paper Mill
*Syms & Dudley Paper Co./Nonotuck Paper Co.
*Winona Paper Co.
*Hampden Glazed Paper & Card Co.
Chemical Paper Co.
George R. Dickinson Paper Mill
*Norman Paper Co.
*Parsons Paper Co. Mill No. 2
*Riverside Paper Co.
B. F. Perkins & Son Japanese Tissue Mills
*Japanese Tissue Co.

Russell

*Crescent Falls Mills
*Strathmore Paper Co.: Woronoco Mill No. 1
*Strathmore Paper Co.: Woronoco Mill No. 2
Russell Falls Paper Co.

Springfield

Holyoke Card & Paper Co.
New England Card & Paper Co.
Powers Paper Co.

West Springfield

*Southworth Mfg. Co.
*Mittineague Paper Co.

Wilbraham

Collins Mfg. Co.

Hampshire County

Northampton

*Northampton Paper Co.
Mt. Tom Sulphite Paper Co.

South Hadley

*Carew Mfg. Co.
Stony Brook Paper Co.

Franklin County

Erving

Miller's Falls Paper Co.
Erving Paper Co. Stoneville Mill
Erving Paper Co. Erving Mill

Monroe
Ramage Paper Co.

Montague
*Keith Paper Mills (NR)
*Esleeck Paper Mills (NR)
*Montague Paper Co. (NR)

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XIII. Tobacco

A. Historical Development

Perhaps the most well known crop of the Connecticut Valley in Massachusetts, as in Connecticut, is tobacco. Throughout the 18th century, tobacco was probably grown in many of the lowland towns in the central part of the Valley, using in trade that part which was not consumed at home. As early as 1694, tobacco for home use was being grown in Deerfield.

About 1800, several large growers in Whately began sending out tobacco peddlars to the hill towns. However, the introduction of plug, or pressed, tobacco from Virginia put an end to tobacco growing in Whately until 1843, when it became for a time the leading tobacco town in the study unit. Steven Belden, a broom grower and manufacturer, introduced into Whately a broadleaf strain of tobacco which had come to Connecticut from Maryland in 1833. Belden first shipped it successfully with his corn brooms in barrels to New York. By 1865, however, Whately had lost its preeminence in tobacco raising to Hatfield and Hadley, a distinction these towns retained well into the 20th century.

In the late 1860s, the depreciation of paper money caused the price of tobacco to rise to the astronomical height of 30-35¢ per pound. "The world seemed to go wild over our profits," a Whately historian wrote in 1899, "and every effort was used to increase the acreage." The Panic of 1873, which brought this hysteria to a sudden halt, was successful in ruining most of the local tobacco growers in Whately and in the rest of the Valley. In the late 1870s and 1880s, production again dropped sharply. The introduction of the Sumatra leaf in 1881 was a further blow, cutting into wrapper sales of broad-leaf and Havanna.

Although the McKinley Tariff of 1890 slowed importation, the major source of 20th-century prosperity was in the development of shade tobacco. Experiments at the Connecticut Experiment Station at Windsor Locks in 1899 showed that the Sumatra plant could be successfully grown under shade, and in 1901 and 1902, several prominent growers in Agawam, Whately and probably other towns began to experiment growing Cuban and Sumatran tobacco under a cloth tent.

With the success of shade-grown tobacco in the 20th century, the business came gradually into large tobacco concerns which could afford the substantial investment needed.

B. Bibliography

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N. A.

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XIV. Brooms

A. Primary Locations: Hadley, Whately, Amherst, Hatfield, Sunderland.

B. Historical Development

Levi Dickinson is generally credited with the plan of raising broom corn to produce household brooms and brushes. He established his business in Hadley about 1797, and by 1805 he was peddling his brooms in Boston and Albany. The business was also begun about that time in Whately by the Belden brothers and in other towns throughout the central lowlands of the Valley.

The period 1820-1830 was one of marked improvements in what hitherto had been an entirely craft process. About 1825 turning lathes were invented especially to turn broom handles, and fine steel wire replaced twine. North Hadley, which remained the center of the broom-tool industry for a century and a half, saw a succession of Worcester County wire makers operate a small wire works to serve the broom makers, beginning in 1834. These, in turn, were responsible for initiating the major wire companies in Holyoke and Northampton. Broom-making machinery was devised by the Whately manufacturer Francis Belden in 1827.

Between 1825 and 1860, the cultivation of broom corn in the meadowland dominated all other crops. By the late 1850s, however, the competition of Midwestern brooms and the increased profitability of tobacco reduced broom-corn acreage drastically. In Hadley, Whately, and other localities, a small industry was retained, in some cases into the 20th century.

C. Surviving Resources: None known.

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XV. Machinery and Machine Tools

A. Primary Locations: Springfield, Chicopee, West Springfield, Westfield, Holyoke, Greenfield, Montague, Erving, Orange, Northampton, Shelburne.

B. Historical Development

The location of the National Armory in Springfield was by far the most important factor in the development of the machine tool industry in the Connecticut Valley. As Armory production geared up during the War of 1812, hundreds of skilled workers were attracted from all over the state. Among them was the inventor Thomas Blanchard, whose lathe for turning irregular forms became an integral part of Armory production. Many Armory mechanics also went on to establish other important Valley industries of their own.

The Armory encouraged the establishment of subsidiary suppliers--gun barrels were brought from Ludlow, powder from Westfield and Southwick, and swords and other armaments from Chicopee. Products of the Ames Manufacturing Company in Chicopee included the Boyden turbine, lathes, planing machines, and gunstock machinery. In fact, Ames became one of the first firms in the United

States to manufacture and market a standard line of machine tools to the general public. In addition to both national armories, many buyers of its products were pioneers in the American machine tool industry (Smith:288).

Another source of the developing machine industry by the mid 19th century was to be found in the large textile mills, most of which established machine shops to build and repair their own equipment. The Holyoke Machine Company, originating in the Hadley Falls Company's machine shop, became one of the nation's leading builders of paper mill machinery and water turbines. Similarly, the Hayden Brothers' brassworks in Williamsburg grew out of a machine shop established in the 1820s to make power looms for weaving woolen broadcloth.

In the last part of the 19th century, the Russell Cutlery in Greenfield produced much the same effect in the northern Connecticut Valley that the National Armory had in the south. Although the company was induced to move to Turners Falls in 1869, the firm had established the conditions for the rise of the machine tool and tap-and-die industries, which dominated Greenfield in the 20th century.

Of the major centers of the machine industry, only Orange can trace its industry origins to influences outside the Valley. There the two largest machine shops were begun by men whose careers were begun in the Worcester County chair industry.

C. Surviving Resources

Important machine shops survive in all of the industrial communities in the Valley. Some of the more noteworthy examples include those of the Ames Manufacturing Company (Chicopee), the Holyoke Machine Company, Hayden Gere and Company (Williamsburg), and the Chase Turbine Manufacturing Company (Orange).

D. Bibliography

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XVI. Hydro-Electric Power

A. Primary Locations: Holyoke, Montague, Springfield, Conway, Colrain, Buckland.

B. Historical Development

The earliest electric power stations in the Valley, built in the 1880s, were coal-fired steam plants which generally remained more typical of local generating facilities than those powered by water. In Hampshire and Hampden counties, many of the choice water-power sites had already been utilized for industrial development, while those under-utilized locations further out on the Westfield or Chicopee rivers were too far from their markets for consideration.

The earliest hydro-electric developments were undertaken by two companies which had been selling water power to mills along their canals since the 1860s: the Holyoke Water Power Company and the Turners Falls Company. The Holyoke Water Power Company had been conducting hydraulic experiments to improve the power output of the canals since the 1870s. The first hydroelectric power was reputedly generated in 1885, although the company probably did not begin to produce power for widespread distribution until about 1903.

In 1892, the Turners Falls Company extended its power canal to a new station immediately south of Turners Falls. The company rapidly became the leading hydro-electric producer in the Valley, and with the construction in 1907 of an eighteen-mile transmission line between Amherst and Turners Falls, the company entered a regional market for power generation. In 1914 the company consolidated with the major distributor of its power, the Amherst Power Company, becoming the Turners Falls Power & Electric Company. Completion of the Cabot Station in 1918 at Montague City gave the company the largest hydro-electric capacity in the Valley, a role it still maintains.

In the meantime, other facilities were established along the Deerfield River. The two freight-carrying street railways in Conway and Colrain each built small hydro-electric stations in 1896 and 1897.

The years 1900-1915 were the region's major period of hydro-electric development. In 1901 the Chicopee River was first utilized by the Ludlow Manufacturing Associates' Red Bridge Station, followed three years later by Springfield's United Electric Light Company plant at Indian Orchard. Greenfield Electric Light built a new plant on the Deerfield River south of Shelburne Falls that year, and the Holyoke Water Power Company built a new plant between the first and second level canals.

The major event of the period, however, was the coming of the New England Power Company, which in 1910-1911 constructed four hydro-electric plants along the Deerfield River: two in Buckland, and one each in Conway and Florida. Shelburne Falls, the "great hydro-electric power center," became the "bright spot" of Franklin County, stimulating considerable industrial activity in the village.

Completion of the Cabot Station at Turners Falls in 1918 marked the last major hydro-electric development in the study unit. After World War I, the economics associated with coal-fired plants and the growing use of long-distance transmission lines reduced the impetus

to construct new hydro facilities. In the construction of the Springfield Water Works at Cobble Mountain in 1930, a hydro-electric station was included to make use of the sharp drop between the reservoir in Blandford and the filtration plant in Westfield.

C. Surviving Resources

Granville

Springfield Water Works: Little River Supply Hydro-Power Plant

Holyoke

Holyoke Water Power Co.: 1st Level Power Plant

Holyoke Water Power Co.: 3rd Level Power Plant

Springfield

United Electric Light Co.: Indian Orchard Station

Wilbraham

Ludlow Associates: Red Bridge Generating Station

Buckland

New England Power Co. Hydro Station No. 3

New England Power Co. Hydro Station No. 4

Greenfield Electric Light & Power Co.: Gardners Falls Hydro plant

Montague

Turners Falls Co. Hydro Station

Turners Falls Power & Light Co.: Cabot Station

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N. A.

1913 Power Development on the Deerfield River. Engineering Record 67(1 February 1913): 116-118; 153-157; 181-184.

XVII. Bicycles and Automobiles

A. Primary Locations: Springfield, Chicopee, Westfield, Holyoke, Orange.

B. Historical Development

Two major developments were responsible for the rise of the bicycle industry in America in the late 1880s and 1890s: the pneumatic tire, invented by John Boyd Dunlop in Belfast in 1888; and the stable "safety bicycle" of 1885.

The bicycle industry was already an important industry in Hartford by the time it was introduced into Chicopee in the 1890s. Albert Overman, a Hartford bicycle maker, initially subcontracted with the Ames Manufacturing Company to produce the "Victor" wheel. With the continued success of his bicycle, Overman moved to Chicopee, erecting a plant in 1890 in which every part of the bicycle was constructed--from the saddle cut from hides to the tires produced from raw rubber. In 1894, near the height of the bicycle craze, the firm employed 1,200 men. In the meantime, another Chicopee machine works, the Lamb Knitting Machine Company, had begun producing a lower-priced bicycle, initially for Overman, and in 1893 for Overman's competitor (and one-time western sales agent), A. G. Spalding, who bought control of the Chicopee firm.

In the mid 1890s, the bicycle industry experienced a tremendous expansion. Overman, one of the first makers to engage in extensive advertising, financed racing teams and brass bands for important races. Westfield makers entered the bicycle industry in 1897 when the Lozier Manufacturing Company began manufacturing the "Westfield" and "Cleveland" bicycles. In 1899, both Spalding and Lozier (though not Overman) were incorporated into the giant American Bicycle Company, a trust controlling 65% of the U. S. bicycle market.

After the sudden burst of the bicycle "bubble" in the first years of the 20th century, only the Westfield business survived, taken over as one of several branch factories by the leading Hartford maker, the Pope Manufacturing Company. Colonel Albert Pope, its principal, was a man closely linked with the origins of the industry in the United States. At the Centennial Exposition in 1876, Pope had exhibited an English "Ordinary" bicycle, which he imported for sale for two years. In 1878, he had built and introduced to the public the first U. S.-made bicycle, the "Columbia." The Pope Manufacturing Company was formed in Hartford in 1890, evolving out of the old Weed Sewing Machine Company, which had first been contracted to produce the bicycle.

In 1915 the company was reorganized again, concentrating all of Pope's manufacturing activities in Westfield. Transformed as the Westfield Manufacturing Company, it became the nation's leading bicycle manufacturer.

The automobile industry evolved directly out of the experience of bicycle makers, and Springfield became its center. The industry is generally credited to have been introduced into the United States when two bicycle builders, Charles and Frank Duryea, built the first American gasoline-powered automobile in 1893. Two years later, Springfield's prestige grew when Frank Duryea won America's first motor race in Chicago. The following year, thirteen vehicles rolled off the Duryea assembly line at the Chicopee plant of the Stevens Arms and Tool Company. By 1900, Atlas, Bailey, and Knox cars were also being made in Springfield. Until Henry Ford began his mass-scale operations in Detroit a decade later, Springfield was the national leader in automobile manufacture and design. Its reputation for car manufacture, in fact, persisted into the 1920s, when Rolls Royce located its only American plant there.

Motorcycles followed automobiles. International bicycle champion George Hendee built the first gasoline-powered motorcycle in 1902, laying the foundation for the famed Indian Motorcycle Company.

To a lesser extent, other cities with active machinery industries also featured in the automobile industry. One of the most prominent was in Orange, where the Grout Brothers had begun making steam carriages in 1898. About 1899 the Grout Brothers Automobile Company built what was reputed to be "the first structure erected in the United States for the exclusive production of automobiles" (Stone:476). By the time they closed their factory, about 1912, they had switched to gasoline engines.

By 1905, Holyoke and Westfield had also joined the group of automobile-producing cities in the Valley. About 1900 the Standard Machine Company under Edward McHugh changed its name to the Holyoke Motor Works and began making gasoline motors and automobiles. In Westfield, the Loomis Autocar Company operated for a few years in the century's first decade.

Except in Springfield, automobile production disappeared in the Valley after about 1912.

C. Surviving Resources

Chicopee

Stevens-Duryea Co.

Holyoke

Holyoke Motor Foundry Co.

Springfield

*Knox Automobile Co. (NR)

Rolls Royce Co.

Warwick Cycle Co.

*Indian Motorcycle Co. (NR)

Stevens-Duryea Co., East Springfield Plant

Westfield

Pope Manufacturing Co.

Orange

Grout Brothers Auto Co.

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CHAPTER VI

MANAGEMENT RECOMMENDATIONS

Changes in the Landscape, 1940-1980

In the four decades which have followed the end of the Early Modern period, widespread changes have continued to alter and reshape the cities and towns within the Connecticut River Valley study unit. Four major processes have been most responsible for the ongoing evolution of the area's landscape. These are: the continued growth of commercial corridors throughout the study unit, suburban expansion, the acceleration of decay and abandonment in some of the older urban core areas, particularly Springfield and Holyoke, and the decline of agriculture. In addition to these major factors, three minor factors have also had an impact. These are: the unregulated removal of sand, gravel and loam, over-restoration and commercialization of historic sites, and the widespread construction of telecommunication as well as power generation and transmission facilities.

Before either general or specific preservation recommendations are made, these processes and their effects must 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 Hampden, Hampshire and Franklin counties.

Expansion of Commercial Corridors

A major factor in the ongoing changes within the Connecticut River Valley has been the continued growth of commercial corridors, which are zones of development along major highways. Although 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 5, 20, and 202, as well as along state routes such as 2, 9 and 116. 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 the Connecticut River Valley. Examples include Route 9 in Hadley and Route 116 from South Deerfield through Sunderland. In both continued commercial expansion is eroding the cases, continued commercial expansion is eroding the historic fabric which remains and is threatening the adjacent historic centers. Similar though less pressing threats can be seen along Route 20 (Brimfield and Russell), Route 9 (Goshen) and Route 2 (Charlemont). Most vulnerable are rural landscapes whose open space and low density settings place them among the most fragile and endangered of the study unit's historic resources. Route 47 in Hadley, Route 10 in Southwick and Westfield and Route 116 in Conway are examples.

With the opening of the Massachusetts Turnpike in 1956, a new phase of highway construction began as limited access expressways were built across the region. With the Massachusetts Turnpike, the most important of these was I-91, the Federal interstate highway which paralleled Route 5 through the Valley. These major new highways have also been integrated through the construction of local connectors such as Routes 291 and 391. In addition to these new expressways, some of the existing state and Federal highways were also upgraded to limited access status. These include sections of: Route 2 between Orange and Greenfield, Route 57 in Agawam and Route 116 in Amherst.

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. Closely related to this commercial expansion was the emergence of new industrial parks and terminal facilities, a result of business decentralization and movement out of urban areas. As a result, this development has tended to overwhelm, if not replace, the existing landscape and to have a major impact on the communities in which it occurred.

Examples of this type of clustered development include the junctions of interstate highways: the Massachusetts Turnpike and I-91 in West Springfield, I-91 and Route 9 in Northampton, I-91 and Route 2 in Greenfield and the Mass Pike and Routes 10 and 202 in Westfield. Clustered development has also occurred at the intersections of major state highways such as Routes 9 and 116 in Hadley-Amherst and Routes 5 and 57 in Agawam.

Suburban Expansion

Closely related to the growth of commercial corridors is the second factor which has continued to alter cities and towns in the Connecticut River Valley study unit--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 best examples are Springfield and Holyoke, which have expanded beyond

their own boundaries and into adjacent towns. Among those most seriously affected are Wilbraham, Agawam, West Springfield, Chicopee and South Hadley.

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 Route 33 in Chicopee, Route 20 in West Springfield and Westfield, and Route 202 in South Hadley and Granby. Perhaps the greatest source of this suburban infill was the relocation of much of the study unit's urban 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 the 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 agricultural land.

Suburban growth has occurred along the secondary corridors as well as the primary ones, and often at some distance from the large urban centers. Examples can be found along Route 116 in Sunderland, Route 20 in Palmer and Route 9 in Amherst and Belchertown. 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 the Connecticut River Valley, especially in Hampshire 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, is particularly evident in the Amherst area, especially along Routes 9 and 116.

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. This low density expansion has occurred on two levels. The first is where middle and working class families have purchased lots and built houses. This type of suburban infill is ubiquitous and continues to occur in most of the towns within the study unit. The second level of this low density suburbanization is related to the gentrification of the rural landscape. With the renewed interest in rural living, many upper middle class and professional families have moved into the hill towns on both sides of the Valley, frequently purchasing farmsteads or other historic buildings. Extensive rebuilding or the construction of new structures often accompany renovations, resulting in subtle, but frequently significant, changes in the historic landscape. Towns where this rural revival is evident include Pelham, Granby, Hampden and Southampton. The effects of this movement are also visible in many of the more remote towns such as Granville, Cummington and Leyden.

Urban Decay

With the continuation of the Early Modern period trends of population 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 Holyoke, which is still struggling to find a more balanced economic base to replace the textile and paper industry, and Springfield, which has lost much of its traditionally diverse 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 Springfield, construction of I-91 resulted in additional demolition, as well as separation of the city from its river frontage. 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, although none are of the magnitude of those facing Holyoke and Springfield. In Northampton, Westfield and Chicopee, and in some of the large towns like Greenfield, Orange, Easthampton and Ware, 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 construction 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 the Connecticut River Valley share is a rapidly changing ethnic balance in their populations. New ethnic groups frequently are the ones who live in run-down, historic neighborhoods. As newcomers, they are usually unconcerned about or occasionally even antagonistic toward 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 the Connecticut River Valley.

The Decline of Agriculture and Rural Abandonment

Agriculture has traditionally been an important economic activity within the study unit, both in upland in lowland areas. While occasionally destructive to archaeological sites, continued agricultural use of the land has generally functioned as a preservation mechanism, perpetuating the pattern of historic land use and providing an appropriate scale and setting for many of the remaining buildings and structures. This continuity can be seen in many of the study unit's towns.

Since 1940, however, agricultural production in the study unit has decreased dramatically, especially in Valley lowlands. Both market crops and tobacco have been affected. The causes of this decline are complex and include changing markets, sharply increasing costs and the emergence of agribusiness. The result is that large areas of land which have traditionally been open have become available for residential and commercial development. Towns in which the future use of agricultural land is an issue include: Agawam, Southwick, Westfield, Northampton, Amherst, Hadley, Sunderland, Whately and Deerfield.

The pattern in upland towns where dairying predominates over cash crop production is slightly different. While the problems which have affected lowland agriculture have also had an influence on upland farming, the results have not been as drastic. In part, this is because developmental pressures have been much weaker. Prosperous farms continue to characterize many of the hill towns. This continuation of successful farming, plus the gradual influx of new families as a result of the rural revival, have been important factors in preserving the historic character in towns like Brimfield, Belcherstown, Warwick, Bernardston, Conway and Worthington. Despite the stability of several of the hill towns, others continue to show the effects of agricultural decline. In portions of Blandford, Buckland, Wendell and Orange, it is abandonment rather than insensitive development which threatens the surviving historic structures.

Sand and Gravel Removal

Many towns in the Connecticut River Valley have commercially attractive deposits of sand and gravel. Considerable quarrying of these deposits, primarily for construction purposes, has taken place over the last forty years. Unfortunately, archaeological sites are often located on sand or gravel ridges and are destroyed by excavation. At present, the removal of sand and gravel, as well as loam, is regulated only at the town level. Archaeological impacts are rarely considered.

Over-restoration and Commercialization of Historic Sites

Fortunately, over-restoration and commercialization are not yet serious problems in the Connecticut River Valley. With increasing affluence and interest in historic properties, however, the tendency to over-restore buildings is likely to grow, especially in wealthier communities.

Power Lines, Telecommunication and Power Generation Facilities

The construction of high-tension electrical transmissions since the 1950s has introduced a new element into the landscapes of the Connecticut River Valley. In cutting swathes across the region, power lines not only threaten archaeological sites, but also drastically alter the scale and setting of the existing landscape. While protective regulations provide for some control within power line rights of way, the overall visual effect on historic settings has been more difficult to control. Within the last two decades, gas pipe lines and telecommunication relay towers have added to the problem by having the same overpowering impact on the landscape as power lines do.

Summary

Major changes have occurred in the three counties of the Connecticut River Valley since 1940. Hampden County has undergone

another surge of growth. This is most evident in the suburban expansion around the large urban cores. With its diverse economic base and central location on major transportation routes, Hampden County continues to be one of the more rapidly growing parts of the state. Hampshire County also has developed dramatically, especially around Amherst. Equally significant, though less visible, has been the revival of many of the rural hill towns as population has shifted away from the large urban centers. Of the three counties, Franklin County has grown at the slowest rate. One result of this has been the survival of much more of its historic landscape. Preservation planning is needed, however, since there is development pressure primarily around Greenfield and in those towns adjacent to Amherst and Northampton.

Although 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 toward the preservation and protection of historical context on the general as well as the specific level. This means an emphasis on landscapes and streetscapes (clusters of related buildings, structures, landscape features, and archaeological sites). Protecting historical resources on this level should be an MHC priority.

As noted above, historical context is the combination of scale, proportion and spatial arrangement 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, or other activity, it is extremely difficult, if not impossible, to replace.

Communities may, of course, choose to alter themselves dramatically 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 constitutes 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. On the one hand, this is because a different mix of buildings, structures and landscape features exists in each area; on the other, 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 street-scapes 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 a 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. are 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 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 Connecticut River floodplain and lake bottom areas, particularly in the towns of Hadley, South Hadley, Easthampton and Northfield. Over 74 prehistoric sites are recorded in the MHC site files for the town of Hadley. Information for Hadley also includes some paleo-environmental reconstructions. Relatively large numbers of sites have also been recorded for the floodplains of the Deerfield and Westfield rivers. Despite the large number of recorded sites in these areas, site specific information beyond location is generally lacking. Information derived from excavation is best for the Riverside District in Gill and Greenfield and for a few additional sites scattered throughout the Valley. Survey data is generally poor or nonexistent for the Berkshire and Worcester uplands.

Among prehistoric sites in the study unit, only the DEDIC site and the Riverside District are presently listed in the National Register of Historic Places. Several other sites located in the course of compliance surveys have been determined eligible for listing, but have not been formally nominated.

Threats: The principal threat to prehistoric archaeological resources in the Connecticut River Valley study unit is private development, particularly in areas where the quality of survey data is poor. Projected population growth in the Connecticut River Valley is

moderate to high for almost all of the towns from Amherst to Northampton south, and in the towns east of the valley along Route 9 through Palmer and Ware. As the population grows, so does the pace of development, both in terms of new residential construction and commercial support services. When public funds are involved, there is a mechanism for reviewing the impact a project will have on any archaeological sites which are present. Where only private funds are used, there is seldom a means for knowing, much less protecting, important sites which may be present. As a result, privately funded development is the greatest threat to archaeological resources in the Valley.

Aggravating this problem is the decline of agriculture in many parts of the Valley lowlands. Archaeological sites frequently are located in agricultural areas (in part because they have survived better there). Much of the land that has gone out of agriculture is prime land for residential and/or commercial development. As a result, not only open space is lost when agricultural lands are developed, but archaeological sites are destroyed as well. This problem is most evident in the Amherst-Hadley-Sunderland area, but exists throughout the Valley lowlands.

Other threats to archaeological sites include: the commercial removal of sand, gravel and loam which frequently removes the archaeological sites as well, river erosion, especially along the Connecticut and its major tributaries, and the destruction of sites by the irresponsible digging for artifacts.

Survey Priorities: Areas in particular need of archaeological survey include those for which the quality of survey data is poorest and which are expected to undergo rapid development. Among those towns in which surveys are most urgently needed are Southwick, Agawam, Longmeadow, Springfield, West Springfield, Chicopee, Northampton, Hatfield, Whately, Amherst, Sunderland, Montague, Greenfield, Gill, Erving, Northfield, Ludlow, Belchertown, Palmer, Ware and Brimfield. Virtually every other town in the study unit

also requires additional survey work, even towns like Hadley, Deerfield and Westfield, where numerous prehistoric sites have already been recorded. Additional survey work should include analysis of existing artifact collections, documentary research and carefully planned, limited field testing.

Areas under public ownership or management, including state parks and forests, town parks, and areas owned by quasi-public entities such as utility companies, are a high priority for survey. Reliable survey information provides a basis for incorporating archaeological concerns and site protection into broader scale land management plans. Survey projects of this type have been initiated by the Department of Environmental Management and the Metropolitan District Commission and should be continued. Private conservation groups such as the Massachusetts Audubon Society should be encouraged to sponsor archaeological surveys on their properties in order to manage better the archaeological resources under their ownership.

Registration Priorities: A considerable amount of information is required to nominate archaeological properties successfully to the National Register of Historic Places. Justification of site boundaries, which often must be obtained through field testing, is required. At the present time this level of information is available for very few sites. Many of the sites for which some detailed information is available have either lost their integrity or been destroyed (for example, the Westfield and Wilbraham steatite quarries and the Guida Farm site). A possible solution to this problem is to nominate archaeological districts in areas where site density is known to be high, and where at least some information is already available. The floodplains and adjoining terraces of the Deerfield and Westfield, the Connecticut and Fort river areas of Hadley, the Manhan River valley and lower northwest slope of Mount Tom in Easthampton, parts of South Hadley, and the Connecticut River floodplain and adjoining terraces in Northfield all exhibit clusters of known sites. However, in each case, additional information must be gathered prior to nomination.

Another avenue for registration of archaeological sites is to include them, when possible, within large districts of historic properties or multiple resource nominations. While the same requirements for site boundaries must be met, this approach places prehistoric site protection within a community-based preservation effort. An informed and concerned community is the most reliable means of protecting sites.

Other Recommendations: Analysis of existing collections of prehistoric artifacts is needed in the Connecticut River Valley study unit. The MHC should initiate collections research at the Springfield Museum and should also actively seek out large, well provenienced private collections for additional research. Amateur societies, particularly the Massachusetts Archaeological Society, can contribute to this effort by encouraging responsible curation of existing collections in order that the valuable information they contain is not lost forever. Local historical commissions can also contribute by increasing public awareness of the informational value of properly curated artifact collections and of the importance and vulnerability of archaeological resources.

A considerable amount of information regarding prehistoric sites in the study unit is recorded at the Department of Anthropology of the University of Massachusetts in Amherst. However, much of this information remains to be completely integrated into the files of the MHC. This situation should be rectified through an updating of MHC files incorporating the new data. The University of Massachusetts Anthropology Department also maintains information on artifact collections that can be valuable for planning collections research.

With the increasing development of former agricultural lands, efforts are currently underway to preserve this valuable land in the Connecticut River Valley. Integration of archaeological preservation concerns with agricultural preservation interests to develop comprehensive land use planning policies should be encouraged. One specific way of doing this is to develop a program of preservation easements for the protection of archaeological sites. Such a program

should be closely integrated with other open space and land use planning programs in both the public and private sectors.

CONTACT PERIOD

State of Knowledge: Little is known about the Contact period. Virtually all of the existing data is confined to the Valley itself. Current research suggests native settlement concentrated on the environmentally diverse Connecticut, Deerfield, and Westfield river floodplains with the heaviest settlement probably occurring in Agawam/West Springfield, Westfield, Northampton/Hadley, Deerfield/Greenfield and Northfield. Large seasonal encampments likely were established on the region's major tributaries. Little is known about native utilization of the interior uplands.

Threats: As with prehistoric resources, the greatest threat to Contact period sites is development. This is especially the case since developmental pressures are strong in several of the areas where Contact period sites are likely to have survived. This situation is most severe in Agawam, Westfield, Chicopee, Wilbraham, Ludlow, Northampton, Hadley and Amherst. Other threats include erosion, especially along the Connecticut River and its major tributaries, and gravelling. Within the last two decades, at least one important Contact period site (in Hatfield) appears to have been destroyed by gravelling operations. The destruction of sites by looters or other unauthorized diggers is also a potential threat.

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 focus on identifying and recording Contact period sites. Particular emphasis should be placed on surveying the archaeologically sensitive river terraces and bluffs along the Connecticut River and its major tributaries. Special priority should be given to rapidly developing towns such as Agawam, Westfield, Chicopee, Hadley, Sunderland and Deerfield. Surveys also need to be conducted in upland areas, especially

in towns like Brimfield and New Salem, so that a more balanced assessment of Contact period resources can be made. All surveys should follow standard criteria for site description and artifact identification so that inter-site comparisons can be made.

Registration Priorities: Currently, there are no recorded Contact period sites that are eligible for National Register nomination. Several areas, however, have a high potential for eligible sites. These are located in the towns of Westfield, Northampton and Hadley. The sites in these areas should be tested to determine the integrity of what survives as well as site boundaries, then nominated to the National Register. This should be a priority since Contact period resources are among the most poorly documented and, at the same time, the most vulnerable of the study unit's historical assets.

Other Recommendations: Concerted efforts should be made to increase archaeological awareness in individual towns and cities. Efforts should be directed toward land owners (both public and private) as well as local agencies, including historical societies, historical commissions and planning agencies, alerting them to the potential for period sites and the importance of protecting them. Institutions such as the Springfield Museum of Science and the University of Massachusetts, Amherst, which have ongoing research interests in the Valley, should be encouraged to take an active role in protection efforts. 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. Finally, the Massachusetts Historical Commission should continue to work with the state preservation agencies in Connecticut, New Hampshire and Vermont to develop a region-wide research design and data base for the entire Connecticut River drainage.

PLANTATION PERIOD

State of Knowledge: Extensive documentary research has been done on the region's early settlement, primarily the first generation towns of Springfield, Hadley and Northampton. The region's secondary settlements such as Longmeadow, Agawam, West Springfield and Chicopee have received scant attention in local and regional histories. The recording of archaeological sites and landscape features from the period has been spotty. At present, none of the study unit towns have established inventories of extant colonial archaeological sites and landscape features. There are no known surviving period structures.

Data on the region's native population is confined primarily to the Connecticut and Westfield river valleys. Most of the information is recorded in local histories (particularly those for Springfield, Hadley, Deerfield and Northfield), regional histories such as Nathaniel Sylvester's History of the Connecticut Valley and scholarly studies like Peter Thomas' work on the 17th century Anglo-Indian fur trade. The only documented native site from the period, a palisaded village in Springfield, is listed on the National Register. There is, however, good potential for the survival of other native villages in: Brimfield (Ashquoach), Westfield (Woronoco), Northampton/Easthampton and Hadley (Norottuck), Gill and Deerfield (Pocumtuck) and Northfield (Squakheag).

Threats: The same factors that threaten prehistoric and Contact period sites in the Connecticut Valley threaten Plantation period sites as well. The majority of the study unit's Plantation period settlement falls within areas that are 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. The identification and protection of archaeological sites is of particular importance since no period structures are known to survive. Initial survey efforts should focus on towns like Hadley, Hatfield, Longmeadow, Westfield and Deerfield where significant site concentrations may be present. Survey work should also be done in Springfield and Northampton where, despite past development, important sites may have survived. An additional survey priority is the documentation of period native settlements; the most likely candidates are listed above under State of Knowledge. Finally, communities should be encouraged to include all existing landscape features in their inventories.

Registration Priorities: Greater emphasis should be placed on nominating archaeological sites to the National Register. This is particularly important in the Connecticut River Valley, since the majority of potential nominees for this period will be archaeological sites.

An effort should also be made to include period sites and landscape features as components in National Register districts. Specific registration priorities will become clearer as more survey is completed in the core area towns.

Other Recommendations: The Connecticut Valley's importance as one of Massachusetts' earliest settlement areas necessitates increased involvement of local and regional institutions in recording and protecting these resources. Once again, local museums and educational institutions should be encouraged to continue examination of the region's history, both through documentary research and responsible archaeological investigation. Whenever possible, these efforts should be coordinated with local historical commissions and societies. Such cooperative efforts would help local groups become more knowledgeable about Plantation period resources and, therefore, better advocates for protecting them.

COLONIAL PERIOD

State of Knowledge: A considerable amount of information is available on the Colonial period. Research has focused primarily on the older settlements in the Connecticut River Valley, especially Springfield and Northampton. Far less research has been done on the study unit's upland communities. The quality and completeness of inventory information varies considerably. While Colonial buildings are usually included in town building inventories, many towns which have important period structures have yet to complete their building surveys. Burial grounds and other landscape features have been less systematically recorded. Archaeological sites have been reported infrequently. Few, if any, towns have established inventories for archaeological sites.

Only limited research has been devoted to examining the region's native population. Although King Philip's War and subsequent Anglo-Indian fighting led to the permanent abandonment of every major native village in the study unit, remnants of these groups continued to occupy sites scattered throughout the unit well into the 18th century. Published sources made only occasional and brief references to these native encampments. There has been no serious attempt to locate or record native archaeological sites of the period.

Threats: Three factors threaten Colonial period resources. The first threat, again, is development. As with the previous periods, increasing development jeopardizes the survival of all extant period resources, either by destroying them or by radically altering the historic period scale and density which give them context and meaning. Development pressures are particularly acute in the communities of Agawam, Westfield, Hadley, Amherst, Southampton, Sunderland, Whately and Deerfield.

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. This is especially a problem for burial grounds. Burial grounds are vulnerable because of their locations (both in urban and in remote rural areas) and because of the limited or nonexistent funding allotted for their maintenance and protection.

Survey Priorities: As with Plantation period resources, there is a need for systematic survey of Colonial period archaeological resources within the Connecticut River Valley study unit. Although archaeological inventories exist for a few towns, none of the inventories are close to being complete. Frequently, identification of known sites is minimal. Local historical commissions should be encouraged to record archaeological sites and, if possible, establish their own local inventory of Colonial period archaeological sites.

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, the smaller family or rural burial grounds are not included. Frequently, these are situated in obscure locations. In addition, a detailed inventory should be completed for each period burial ground, one which lists and describes each stone. This kind of inventory serves both as the basis for any restoration work which may be required and as documentation against vandalism and theft.

Several communities with important Colonial period buildings and landscapes have yet to complete surveys. Priority communities include: Agawam, Deerfield, Hadley, Hatfield, Sunderland and Southampton.

Registration Priorities: National Register consideration should focus on Colonial period landscapes which include both buildings and archaeological sites. To date, the vast majority of period resources considered for National Register nomination have been individual standing structures.

FEDERAL PERIOD

State of Knowledge: In general, where inventories exist, 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. The exceptions are in Franklin County and several of the hill towns in Hampshire and Hampden counties. Single-family houses are the most numerous category of structures inventoried. The next most numerous 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, often incorporated in the town histories.

Threats: The most widespread threat to Federal period structures in the Connecticut River Valley is deterioration and demolition. The rural nature of much of the study unit has encouraged the preservation of period structures, but has discouraged their maintenance. As a result, abandonment is a significant threat to period structures in some of the more remote upland areas.

The second major threat and the most widespread is inappropriate modernization. The most significant problems are alterations of sash and fenestration and residing with artificial and inappropriate materials. This problem is most apparent in the urban communities of the central valley.

Survey Priorities: At present, 38 towns in the Connecticut River Valley have little or no survey. Towns with incomplete surveys and significant Federal period resources include: Ashfield, Brimfield, Conway, Deerfield, Hadley, Orange, Sunderland, Whately and Worthington.

Registration Priorities: Existing National Register properties consist primarily of individually listed structures or village center districts. Numerous towns have potentially eligible districts, including: Agawam, Bernardston, Conway, Cummington, Deerfield, Granville, Hatfield, Middlefield, Montague, Orange, Palmer, Wales, Whately, and Worthington. Towns with individual residential properties that are potentially eligible include: Belchertown, Bernardston, Buckland, Colrain, Granby, Shelburne, Southampton and Warwick.

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. 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 buildings (stores). Multiple-family housing tends to receive less attention, as does industrial construction; industrial buildings are more likely to be overlooked in smaller cities and peripheral areas than in the core areas.

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. Architectural historical sources for the area are generally unavailable for the period.

Threats: Threats to Early Industrial period structures differ in rural and urban settings. In the urban cores, where districts of period buildings (primarily single-family residences) survive, the major threats are those which affect urban areas in general: urban renewal, transportation projects, development pressure, arson and vandalism. Individual buildings are most threatened by inappropriate rehabilitation--for example, residing with aluminum or vinyl. In rural areas, period structures are most often threatened by inappropriate modernization or abandonment. In areas surrounding the cores, suburban development is also taking its toll of period buildings, especially agricultural buildings, as well as surviving agricultural landscapes. Towns with important period landscapes which are threatened include: Agawam, Amherst, Belchertown, Deerfield, Hadley, Hatfield, Montague, Southwick, Sunderland and Whately.

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 in core areas has tended to encourage a refocusing of survey efforts up the architectural scale. Beginning with structures from the third quarter of the 19th century, inventory work has tended to include more fully developed or elaborate examples of period styles. Towns and cities in the study unit with significant unrecorded collections of period buildings include: Ashfield, Brimfield, Conway, Deerfield, Easthampton, Hatfield, Orange, Southampton, Whately and Worthington.

Registration Priorities: Registration for the Early Industrial period has concentrated 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 presenting intact period landscapes. Examples of period landscapes are fairly common in the Connecticut River Valley. Potential districts might include: Amherst, Ashfield, Bernardston, Chester, Chesterfield, Conway, Colrain, Cummington, Easthampton, Granville, Hampden, Hatfield, Hawley, Leverett, Monson, Montague, Palmer, Sunderland, Warwick, Westfield, Whately and Worthington.

Architecturally significant, potentially eligible individual residences were observed in Bernardston, Chesterfield, Colrain, Deerfield, Granby, Hatfield, Monson, Shelburne, Wales, Warwick and Wilbraham.

Other Recommendations: Efforts to preserve rural landscapes from the period need to be coordinated with other open space and land use planning efforts.

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. Professional survey work has been completed in most of the major core areas, including Springfield, Chicopee, Holyoke, Westfield, Northampton and Greenfield. Extensive town histories for many of these communities also help to provide a broad base of information on period economic and architectural development. For many of the smaller 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, when they exist for the period, often exhibit a similar bias. While anomalous high style buildings (generally institutional structures) in small towns may be identified by architect, the more general work 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 from outside the study unit.

Threats: A wide range of problems confront Late Industrial period resources in the Connecticut River Valley. In Springfield and Holyoke, the primary threats are continued urban decay (abandonment, vandalism and arson) and insensitive development. In the study unit's smaller cities and large towns (Chicopee, Westfield, Holyoke and Greenfield) competition from suburban mall development has put pressure on center city businesses. Attempts to keep abreast of mall-type retailing threatens historic storefronts and commercial buildings with insensitive modernization programs. Abandonment and decay are the major problems facing rural areas, while suburban development pressures and occasionally highway projects threaten the historic fabric and landscapes in parts of Hampden and Hampshire counties. Once again, agricultural buildings are particularly vulnerable. The most widespread threat to period residential structures is insensitive renovation; particularly destructive is the use of inappropriate siding materials, such as vinyl and aluminum.

Survey Priorities: Existing inventory is adequate only in Springfield, Chicopee, Northampton and Greenfield; a number of the smaller towns in the study unit with significant Late Industrial resources have little or no inventory for the period. Among the towns which require survey work are: Deerfield, Easthampton, Monson, Montague and Orange. Completion or further documentation of existing inventories is recommended in Amherst, Holyoke and Westfield.

Registration Priorities: Central business and institutional districts as well as elite urban residential National Register districts are generally confined only to the major core areas of the study unit (Northampton and Springfield). A few smaller towns (Montague, Ware) have recent National Register activity, but many towns in the study unit have few or no National Register properties. Given the general lack of registration activity for the period, district potential in both urban and rural areas of the study unit is high. Since agriculture (tobacco cultivation) continued to play a major role in the economic development of some rural towns in this period, potential agricultural districts exist in Hadley, Hatfield, Sunderland, Southwick and Westfield.

Period industrial districts of note are present in Chicopee, Holyoke, Northampton, Greenfield, Palmer and Westfield. Other communities with potential Late Industrial period districts are: Amherst, Gill, Greenfield, Holyoke, Northampton, Northfield and Westfield.

EARLY MODERN PERIOD

State of Knowledge: Little information exists for the Early Modern period resources, 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. Except in the primary cores, there was very little general development. Furthermore, 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, 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 the Connecticut River Valley is tempered by the area's modest development for the period. Thus, it is possible to identify specific areas by topic for future survey activity. These are primarily related to transportation development of the period and would include survey of resort areas and early autoroutes and related commercial structures (tourist cabins, gas stations, diners and idiosyncratic structures such as milk can dairy bars). Registration priorities for the period are not yet known. Given the general lack of activity in the period, few clearly defined areas with individual or district potential have been 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 street-scapes. 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 in the Connecticut River Valley as well as around major tributaries such as the Westfield, Chicopee and Deerfield rivers.
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 their 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 to protect important sites, structures and landscapes.

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 statewide 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.
7. Continue to work with the Department of Environmental Management, the Metropolitan District Commission and other public agencies to incorporate historic preservation priorities into all planning for state parks, forests and watershed management areas.
8. Encourage the Franklin County Department of Planning to hire a Preservation Planner.

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